2024 Building Code COMPENDIUM

VOLUME 2

50 Fifty years of Ontario's Building Code

Ontario

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Volume 2

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COMMENCEMENT

Supplementary Standards SA-1, SB-1 to SB-13 and SC-1 come into force on the 1st day of January 2025.

See "Code Amendment History" page in the Preface of Volume 1 for information concerning amendments to Supplementary Standards issued through Minister's Rulings.

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Volume 2

MMAH Supplementary Standard SA-1

Objectives and Functional Statements Attributed to the Acceptable Solutions

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SA-1 comes into force on the 1st day of January 2025.

Contents

SA-1 Objectives and Functional Statements Attributed to the Acceptable Solutions

1. Scope

This standard specifies, for the purposes of Article 1.2.1.1. of Division A of the Building Code, the objectives and functional statements that have been attributed to acceptable solutions provided in Division B of the Building Code.

2. Objectives and Functional Statements

The objectives listed in this standard are those set out in Part 2 of Division A of the Building Code.

The functional statements listed in this standard are set out in Part 3 of Division A of the Building Code.

3. Attribution to Acceptable Solutions

For the purposes of compliance with the Building Code, as required in Sentence 1.2.1.1.(2) of Division A of the Building Code, the objectives and functional statements attributed to the acceptable solutions in Division B shall be the objectives and functional statements listed in Tables 2 to 12.

Table 2
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2 of Division B

Acceptable Solutions	Objectives and Functional Statements
2.2.1.2.	Prohibition of Occupancy Combinations
(1)	[F02-OS1.2]
(2)	[F02-OS1.2]
2.2.1.4.	Separation of Occupancies
(1)	[F03-OS1.2]
(3)	[F03-OS1.2]
2.2.1.5.	Fire Separations and Closures
(1)	[F03-OS1.2]
2.2.1.7.	Firewalls
(1)	[F03-OS1.2] [F12-OS1.5]
(2)	[F03-OS1.2] [F12-OS1.5]
2.1.1.8.	Fire Blocks
(1)	[F03-OS1.2]
(2)	[F03-OS1.2]
(3)	[F03-OS1.2]
(4)	[F03-OS1.2]
2.1.1.9.	Additional Fire Separations
(1)	[F03-OS1.2]
(3)	(a) [F02-OS1.2]
	(b) [F02, F03-OS1.2]
(4)	[F02, F03-OS1.2]
(5)	[F02, F03-OS1.2]
2.2.1.10.	Determination of Fire-Resistance Ratings
(1)	[F03-OS1.2]
	[F04-OS1.3]
(2)	[F03-OS1.2]
	[F04-OS1.3]
2.2.1.12.	Flame-Spread Rating
(1)	[F02, F03-OS1.2]
(3)	[F02, F03-OS1.2]
2.2.1.13.	Foamed Plastics
(1)	[F01-OS1.1] [F02-OS1.2]
2.2.1.14.	Fabrics and Films
(1)	[F02-OS1.2]
2.2.1.15.	Electrical Wiring and Equipment
(2)	[F01-OS1.1] [F81-OS1.4]
2.2.1.17.	Occupant Load
(1)	[F10-OS1.5]
2.2.3.1.	Determination of Requirement for a Fire Alarm System
(1)	[F11-OS1.5] [F13-OS1.2, OS1.5]
2.2.3.2.	Types of Fire Alarm Systems
(1)	[F11-OS1.5]
2.2.3.3.	Design of Fire Alarm Systems
(1)	(a) [F03-OS1.2]
	(b) [F11-OS1.2]
2.2.3.4.	Fire Alarm Signals
(1)	(b), (c) [F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
2.2.3.5.	Silencing of Alarm Signals
(1)	[F11-OS1.5] [F34, F81-OS1.5]
2.2.3.6.	Electrical Supervision
(1)	[F82-OS1.2, OS1.5]
2.2.3.7.	Fire Detectors
(1)	(a) [F11-OS1.5]
	(b) [F11-OS1.5]
(2)	[F02-OS1.2] [F11-OS1.5]
2.2.4.1.	Fire Department Access to Buildings
(1)	[F12-OS1.2, OS1.5]
(2)	[F12-OS1.2, OS1.5]
2.2.4.2.	Automatic Sprinkler Systems
(3)	[F11-OS1.5] [F12-OS1.2, OS1.5]
2.2.4.3.	Portable Fire Extinguishers
(1)	[F02, F12, F81-OS1.2]
2.2.5.1.	Minimum Lighting Requirements
(1)	[F30-OS3.1] [F10-OS3.7]
	[F10-OS1.5]
(2)	[F30-OS3.1] [F10-OS3.7]
	[F10-OS1.5]
(3)	[F30-OS3.1] [F10-OS3.7]
	[F10-OS1.5]
2.2.6.2.	Egress Doorways
(1)	[F10-OS1.5]
(2)	[F10-OS1.5]
(3)	[F10-OS1.5]
2.2.6.3.	Travel Distance
(1)	[F10-OS1.5]
2.2.6.5.	Access to Exits
(1)	[F30-OS3.1] [F10-OS3.7]
	[F10-OS1.5]
(2)	[F43-OS3.7]
2.2.6.6.	Door Swing
(1)	[F10-OS3.7]
	[F10-OS1.5]
(2)	[F10-OS3.7]
2.2.6.7.	Doors and Door Hardware
(1)	(a), (b), (c) [F10, F12-OS3.7]
	(d) [F30-OS3.1]
(2)	(a) [F03-OS1.2]
	(b) [F44-OS3.4]
2.2.6.8.	Ramps and Stairways
(1)	(a) [F30-OS3.1]
(2)	[F30-OS3.1]
2.2.6.9.	Floor Openings
(1)	[F20-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F30-OS3.1]
2.2.6.10.	Guards
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
2.2.6.12.	Transparent Doors and Panels
(1)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
2.2.7.3.	Minimum Number of Exits
(1)	[F10, F12-OS3.7]
	[F10, F12-OS1.5]
2.2.7.4.	Distance Between Exits
(1)	[F10-OS1.5]
2.2.7.5.	Location of Exits
(1)	[F10-OS3.7]
	[F10-OS1.5]
2.2.7.6.	Width and Height of Exits
(1)	[F10-OS3.7]
(3)	[F10-OS1.5]
	[F10, F30-OS3.7]
2.2.7.7.	Direction of Exit Door Swing
(1)	[F10-OS1.5]
	[F10-OS3.7]
2.2.7.8.	Exit Door Hardware
(1)	[F10-OS1.5]
	[F10-OS3.7]
2.2.7.9.	Exit Stairs and Fire Escapes
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F10-OS1.5]
	[F10-OS3.7]
(5)	[F10, F12-OS1.5]
	[F30-OS3.1] [F10, F12-OS3.7]
2.2.8.1.	General
(1)	[F01, F02, F03-OS1.1, OS1.2]
	[F43-OS3.4]
(2)	[F43-OS1.1]
	[F43-OS3.4]
2.2.8.2.	Exhaust Ventilation and Explosion Venting
(1)	[F01-OS1.1]
2.2.8.3.	Below-Floor Storage Areas for Liquid Manure
(2)	[F01-OS1.1]
(3)	(a) [F11-OS1.1, OS1.4]
	(b), (c) [F11-OS1.1, OS1.4]
	(d) [F01, F02-OS1.1]
	(e) [F01, F02-OS1.4]
(4)	[F12-OS1.1] [F01, F02-OS1.2]
(5)	[F03-OS1.2]
2.2.8.5.	Liquid Manure Storage Tanks and Piping Systems
(3)	[F30,F34-OS3.1]
(4)	[F34-OS3.4]
(5)	[F34, F43-OS3.4]
(6)	[F34, F43-OS3.4]

Acceptable Solutions	Objectives and Functional Statements
2.2.8.6.	Gas Traps or Valves
(1)	[F01-OS1.1]
	[F43-OS3.4]
(2)	[F01-OS1.1]
	[F43-OS3.4]
2.2.8.8.	Pesticide Storage Areas
(2)	(a) [F01-OS1.1]
	(a) [F43-OS3.4]
	(b),(c) [F34-OS3.4]
(3)	[F43, F44-OS3.4]
(4)	[F01, F02, F03-OS1.2]
	[F43, F44, F46-OS3.4]
2.3.2.2.	Poultry Manure
(1)	[F20-OS2.1]
(2)	[F20-OS2.1]
2.3.2.3.	Stored Products
(1)	[F20-OS2.1]
2.3.2.4.	Farm Machinery and Vehicles
(1)	[F20-OS2.1]
(3)	[F20-OS2.1] [F20-OS2.4]
2.3.2.5.	Liquid Manure Storage Tanks
(0.1)	[F43-OS3.4]
(1)	[F20-OS2.1] [F20-OS2.4]
(2)	[F20-OS2.1]
(3)	[F20-OS2.1]
(4)	[F20-OS2.1]
(5)	[F43-OS3.4]
	[F80-OS2.3]
(6)	[F43-OS3.4]
(7)	[F20-OS2.2, OS2.3]
	[F20-OP2.2, OP2.3, OP2.4]
(8)	[F20-OS2.2, OS2.3]
	[F20-OP2.2, OP2.3, OP2.4]
2.3.3.1.	Unobstructed Slippery Roofs
(1)	[F20-OS2.1]
2.3.3.2.	Roof Areas of Greenhouses
(1)	[F20-OS2.1]
2.4.2.2.	Greenhouses
(1)	[F44, F50-OS3.4]
2.4.2.3.	Controlled-Atmosphere Storage Areas
(3)	[F50-OS3.4]
(4)	[F50-OS3.4]
2.4.2.4.	Silos and Grain Storage Bins
(1)	[F01-OS1.1]
	[F50-OS3.4]
(2)	[F02, F44-OS1.2]
(3)	[F01-OS1.1]
	[F50-OS3.4]
2.4.2.5.	Below-Floor Storage of Liquid Manure
(1)	(a) [F01-OS1.1]
	(b) [F40-OS3.4]

Acceptable Solutions	Objectives and Functional Statements
	(c) [F01-OS1.1]
	(c) [F40-OS3.4]

Table 3
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 3 of Division B

Acceptable Solutions	Objectives and Functional Statements
3.1.1.5.	Radon
(1)	[F40, F50-OH1.1]
3.1.1.6.	Building in Flood Plains
(1)	(a) [F20-OP2.1]
	(a) [F20-OS2.1, OS2.3]
	(a) [F61-OH1.3]
	(b) [F10, F12-OS3.1] [F10, F30-OS3.7]
3.1.3.1.	Separation of Major Occupancies
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OS1.2]
(3)	[F02, F03, F06-OS1.2] [F10, F05-OS1.5]
	[F02, F03, F06-OP1.2]
3.1.3.2.	Prohibition of Occupancy Combinations
(1)	[F02, F03-OS1.2] [F10-OS1.5]
(2)	[F02, F03-OS1.2] [F10-OS1.5]
(3)	[F41-OH2.1]
(5)	[F02, F03-OS1.2] [F10-OS1.5]
3.1.4.2.	Protection of Foamed Plastics
(1)	[F01-OP1.1] [F02-OP1.2]
	[F01-OS1.1] [F02-OS1.2]
(1.1)	[F01-OP1.1] [F02-OP1.2]
	[F01-OS1.1] [F02-OS1.2]
(2)	[F01-OP1.1] [F02-OP1.2]
	[F01-OS1.1] [F02-OS1.2]
3.1.4.3.	Wires and Cables
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.1.4.5.	Fire-Retardant Treated Wood
(1)	[F02-OP1.2]
	[F02-OS1.2]
3.1.4.8.	Exterior Cladding
(1)	[F02, F03-OP3.1]
(2)	[F02, F03-OP3.1]
3.1.5.1.	Noncombustible Materials
(1)	[F02-OP1.2]
	[F02-OS1.2]
3.1.5.5.	Combustible Cladding for Exterior Walls
(2)	[F02, F03-OP3.1]

Acceptable Solutions	Objectives and Functional Statements
3.1.5.21.	Wires and Cables
(2)	[F02-OP1.2]
	[F02-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.1.5.23.	Wires in Computer Room Floors
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
3.1.6.2.	Materials Permitted
(1)	[F02-OS1.2]
	[F02-OP1.2]
3.1.6.3.	Structural Mass Timber Elements
(2)	[F04-OS1.3]
	[F04-OP1.3]
(3)	[F02-OS1.2]
	[F02-OP1.2]
3.1.6.4.	Encapsulation of Mass Timber Elements
(1)	[F02-OS1.2]
	[F02-OP1.2]
(2)	[F02-OS1.2]
	[F02-OP1.2]
3.1.6.5.	Determination of Encapsulation Ratings
(1)	[F02-OS1.2]
	[F04-OS1.3]
	[F02-OP1.2]
	[F02-OP1.3]
3.1.6.9.	Exterior Cladding
(1)	[F02-OS1.2]
	[F02-OP1.2]
(5)	[F02, F03-OP3.1]
(7)	[F03-OS1.2]
	[F03-OP1.2]
3.1.6.17.	Penetration by Outlet Boxes
(3)	[F03-OS1.2]
	[F03-OP1.2]
3.1.7.1.	Determination of Ratings
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
3.1.7.5.	Rating of Supporting Construction
(1)	[F04-OP1.3]
	[F04-OS1.3]
(3)	[F04-OP1.3]
	[F04-OS1.3]
3.1.8.1.	General Requirements
(1)	(a) [F03-OP1.2]
	(a) [F03-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F03-OP1.2] Applies to the requirement that openings in *fire separations* be protected with *closures*, shafts or other means.
	[F03-OS1.2] Applies to the requirement that openings in *fire separations* be protected with *closures*, shafts or other means.
3.1.8.2.	Combustible Construction Support
(1)	[F04-OP1.2]
	[F04-OS1.2]
3.1.8.3.	Continuity of Fire Separations
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.4.	Determination of Ratings
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.5.	Installation of Closures
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F81-OP1.2]
	[F81-OS1.2]
(6)	[F03-OP1.2]
	[F03-OS1.2]
(7)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.6.	Maximum Openings
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.7.	Location of Fire Dampers and Smoke Dampers
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.10.	Installation of Fire Dampers
(1)	[F04-OP1.2]
	[F04-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F04-OP1.2]
	[F04-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F82-OH1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for ... the resetting of the release device."
	[F82-OP1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper..."
	[F82-OS1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper..."
3.1.8.11.	Installation of Smoke Dampers
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F82-OH1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for ... the resetting of the release device."
	[F82-OP1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper..."
	[F82-OS1.2] Applies to portion of code text "A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper..."
3.1.8.12.	Twenty-Minute Closures
(3)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.13.	Self-Closing Devices
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.14.	Hold-Open Devices
(1)	[F03-OS1.2]
	[F03-OP1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F03-OP1.2]
	[F03-OS1.2]
3.1.8.15.	Door Latches
(1)	[F03-OP1.2]
	[F03-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
3.1.8.16.	Wired Glass and Glass Block
(3)	[F04-OP1.2] Applies to portion of Code text: "Glass blocks permitted by Sentence (1) shall be ... reinforced with steel reinforcement in each horizontal joint."
	[F04-OS1.2] Applies to portion of Code text: "Glass blocks permitted by Sentence (1) shall be ... reinforced with steel reinforcement in each horizontal joint."
3.1.8.17.	Temperature Rise Limit for Doors
(1)	[F03-OP1.2]
	[F03, F31-OS1.2] [F05-OS1.5]
3.1.8.18.	Area Limits for Wired Glass and Glass Block
(1)	[F31-OS1.2] [F05-OS1.5]
	[F30-OS3.1]
(2)	[F31-OS1.2] [F05-OS1.5]
3.1.8.20.	Sprinkler Protected Glazed Wall Assembly
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(2)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(3)	[F03, F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
3.1.9.1.	Fire Stop
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(2)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(6)	[F03-OP1.2]
	[F03-OS1.2]
(7)	[F03-OP1.2]
	[F03-OS1.2]
3.1.9.3.	Penetration by Outlet Boxes
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
3.1.9.4.	Combustible Piping Penetrations
(3)	[F03-OS1.2] [F02, F04-OS1.3]
	[F03-OP1.2] [F02, F04-OP1.3]
(7)	[F03-OS1.2] [F02-OS1.3] [F04-OS1.3]
	[F03-OP1.2] [F02-OP1.3] [F04-OP1.3]
3.1.9.5.	Openings Through a Membrane Ceiling
(1)	[F04-OP1.3]
	[F04-OS1.3]
(2)	[F04-OP1.3]
	[F04-OS1.3]
3.1.10.1.	Prevention of Firewall Collapse
(1)	[F04-OP1.2]
	[F04-OP3.1]
	[F04-OS1.2]
(2)	[F03, F04-OP1.2]
	[F03, F04-OP3.1]
	[F03, F04-OS1.2]
(4)	[F04-OP1.2]
	[F04-OP3.1]
	[F04-OS1.2]
3.1.10.2.	Rating of Firewalls
(1)	[F03-OP1.2] Applies to portion of Code text: "A *firewall* which separates a *building* or *buildings* with *floor areas* containing a Group E or a Group F, Division 1 or 2 *major occupancy* shall be constructed as a *fire separation* of *noncombustible construction* having a *fire-resistance rating* not less than 4 h ..."
	[F03-OP3.1] Applies to portion of Code text: "A *firewall* which separates a *building or buildings* with *floor areas* containing a Group E or a Group F, Division 1 or 2 *major occupancy* shall be constructed as a *fire separation* of *noncombustible construction having* a *fire-resistance rating* not less than 4 h ..."
	[F03-OS1.2] Applies to portion of Code text: "A *firewall* which separates a *building* or *buildings* with *floor areas* containing a Group E or a Group F, Division 1 or 2 *major occupancy* shall be constructed as a *fire separation* of *noncombustible construction* having a *fire-resistance rating* not less than 4 h ..."
(2)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
(3)	[F80, F04-OP1.2]
	[F80, F04-OP1.3]
	[F80, F04-OS1.2]
(4)	[F80, F04-OP1.2]
	[F80, F04-OP3.1]
	[F80, F04-OS1.2]
3.1.10.3.	Continuity of Firewalls
(1)	[F03-OP1.2] Applies to portion of Code text: "A *firewall* shall extend from the ground continuously through, or adjacent to, all *storeys* of a *building* or *buildings* so separated ..."
	[F03-OP3.1] Applies to portion of Code text: "A *firewall* shall extend from the ground continuously through, or adjacent to, all *storeys* of a *building* or *buildings* so separated ..."
	[F03-OS1.2] Applies to portion of Code text: "A *firewall* shall extend from the ground continuously through, or adjacent to, all *storeys* of a *building* or *buildings* so separated ..."
3.1.10.4.	Parapets
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
3.1.10.5.	Maximum Openings
	[F03-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F03-OP3.1]
	[F03-OS1.2]
3.1.10.7.	Combustible Projections
(1)	[F03-OP1.2] Applies to portion of Code text: "*Combustible material* shall not extend across the end of a *firewall*..."
	[F03-OP3.1] Applies to portion of Code text: "*Combustible material* shall not extend across the end of a *firewall*..."
	[F03-OS1.2] Applies to portion of Code text: "*Combustible material* shall not extend across the end of a *firewall*..."
(2)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
3.1.11.1.	Separation of Concealed Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.1.11.2.	Fire Blocks in Wall Assemblies
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.1.11.3.	Fire Blocks between Nailing and Supporting Elements
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
3.1.11.4.	Fire Blocks Between Vertical and Horizontal Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.1.11.5.	Fire Blocks of Horizontal Concealed Spaces
(1)	[F03, F04-OP1.2]
	[F03, F04-OS1.2]
(2)	[F03, F04-OP1.2]
	[F03, F04-OS1.2]
(3)	[F03, F04-OP1.2]
	[F03, F04-OS1.2]
(4)	[F02, F03-OS1.2]
	[F04-OS1.3]
	[F02, F03-OP1.2]
	[F04-OP1.3]
3.1.11.6.	Fire Blocks of Crawl Spaces
(1)	[F03, F04-OP1.2]
	[F03, F04–OS1.2]
3.1.11.7.	Fire Block Materials
(1)	[F04-OP1.2]
	[F04-OS1.2]
(6)	[F04-OP1.2]
	[F04-OS1.2]
(7)	[F03-OP1.2]
	[F03-OS1.2]
3.1.12.1.	Determination of Ratings
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
3.1.13.2.	Flame-Spread Rating
(1)	[F02-OP1.2]
	[F02-OS1.2]
3.1.13.5.	Skylights
(1)	[F02-OS1.5]
3.1.13.6.	Corridors
(1)	[F02-OS1.2, OS1.5]
	[F02-OP1.2]
(5)	[F02-OS1.2, OS1.5]
	[F02-OP1.2]
(6)	[F02-OS1.2]
	[F02-OP1.2]
3.1.13.7.	High Buildings
(1)	[F02-OP1.2]
	[F02-OS1.2]
(5)	[F02-OP1.2]
	[F02-OS1.2]
3.1.13.9.	Underground Walkways
(1)	[F02-OP3.1]
	[F02-OS1.2]
3.1.13.10.	Exterior Exit Passageway
(1)	[F02-OS1.5]
3.1.13.11.	Elevator Cars
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
3.1.14.1.	Fire-Retardant Treated Wood Roof Systems
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.3]
	[F02-OS1.2, OS1.3]
3.1.14.2.	Metal Roof Deck Assemblies
(1)	[F02-OP1.2]
	[F02-OS1.2]
3.1.15.1.	Roof Covering Classification
(1)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2]
3.1.15.2.	Roof Coverings
(1)	[F02-OP1.2]
	[F02-OP3.1]

Acceptable Solutions	Objectives and Functional Statements
	[F02-OS1.2]
(3)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2]
(4)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2]
3.1.16.1.	Fabric Awnings, Canopies and Marquees
(1)	[F02-OP1.2]
	[F02-OS1.2, OS1.5]
3.1.17.1.	Occupant Load Determination
(1)	[F10-OS3.7]
	[F72-OH2.1] [F71-OH2.3]
(2)	[F10-OS3.7]
	[F72-OH2.1] [F71-OH2.3]
(4)	[F10-OS3.7]
	[F72-OH2.1] [F71-OH2.3]
3.1.17.2.	Public Pools
(1)	[F10-OS3.7]
	[F72-OH2.1] [F71-OH2.3]
(2)	[F10-OS3.7]
	[F72-OH2.1] [F71-OH2.3]
3.1.18.1.	Drainage
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OS2.3]
3.1.19.1.	Clearance to Buildings
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F32-OS3.3]
(2)	[F01-OP1.1]
	[F01-OS1.1]
	[F32-OS3.3]
(3)	[F01-OP1.1]
	[F01-OS1.1]
	[F32-OS3.3]
3.1.20.1.	Glass
(1)	[F30-OS2.3, OS3.1]
3.2.1.2.	Storage Garage Considered as a Separate Building
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
3.2.1.4.	Floor Assembly over Basement
(1)	[F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(2)	[F04-OP1.2, OP1.3]
	[F04-OS1.2, OS1.3]
3.2.1.5.	Fire Containment in Basements
(1)	[F02-OP1.2, OP1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F02-OS1.2, OS1.3]
3.2.2.2.	Special and Unusual Structures
(1)	[F02, F03, F04-OP1.2, OP1.3]
	[F02, F03, F04-OS1.2, OS1.3]
3.2.2.6.	Multiple Major Occupancies
(1)	[F02, F03, F04-OP1.2, OP1.3]
	[F02, F03, F04-OS1.2, OS1.3]
3.2.2.10.	Streets
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.2.2.15.	Storeys Below Ground
(2)	(a) [F02, F04-OP1.2, OP1.3]
	(a) [F02, F04-OS1.2, OS1.3]
	(b), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (c) [F03, F04-OS1.2] [F04-OS1.3]
3.2.2.20.	Group A, Division 1, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *non-combustible construction,*" [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *non-combustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.21.	Group A, Division 1, One Storey, Limited Area, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout," (a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) floor assemblies shall be *fire separations,* (i) with a *fire-resistance rating* not less than 45 min," and to Clause (b).
	[F02-OS1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) floor assemblies shall be *fire separations*, (i) with a *fire-resistance rating* not less than 45 min," and to Clause (b).

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3.2.2.22.	Group A, Division 1, One Storey, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout," (a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	(a) (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a) (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.23.	Group A, Division 2, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.24.	Group A, Division 2, up to 6 Storeys, Any Area, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered*, throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.25.	Group A, Division 2, up to 2 Storeys
(2)	[F04-OP1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min," and to Clause (d).
	[F04-OS1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min," and to Clause (d).
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.26.	Group A, Division 2, up to 2 Storeys, Increased Area, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.27.	Group A, Division 2, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) the *building* is *sprinklered* throughout,"
3.2.2.28.	Group A, Division 2, One Storey
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.2.2.29.	Group A, Division 3, Any Height, Any Area
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (e) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (e) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
(3)	[F02-OP1.2] [F04-OP1.3]
	[F02-OS1.2] [F04-OS1.3]
3.2.2.30.	Group A, Division 3, up to 2 Storeys
(2)	[F02-OP1.2] Applies to portion of Code text: "Except as permitted by Clauses (c) and (d), the *building* referred to in Sentence (1) shall be of *noncombustible construction,"* [F04-OP1.3] Applies to portion of Code text: "(c) roof assemblies shall (i) have a *fire-resistance rating* not less than 45 min," and to Clause (d).
	[F02-OS1.2] Applies to portion of Code text: "Except as permitted by Clauses (c) and (d), the *building* referred to in Sentence (1) shall be of *noncombustible construction,"*

Acceptable Solutions	Objectives and Functional Statements
	[F04-OS1.3] Applies to portion of Code text: "(c) roof assemblies shall (i) have a *fire-resistance rating* not less than 45 min," and to Clause (d).
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04–OP1.3]
	(b) [F04-OS1.3]
(3)	[F02-OP1.2] [F04-OP1.3]
	[F02-OS1.2] [F04–OS1.3]
3.2.2.31.	Group A, Division 3, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)...the *building* shall be *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ...the *building* shall be *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "Except as permitted by Clause (c) ... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "Except as permitted by Clause (c) ... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.32.	Group A, Division 3, One Storey, Increased Area
(2)	[F04-OP1.3] Applies to portion of Code text: "(b) roof assemblies shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min," and to Clause (c).
	[F04-OS1.3] Applies to portion of Code text: "(b) roof assemblies shall have, if of *combustible construction,* a *fire- resistance rating* not less than 45 min," and to Clause (c).
	(a), (c) [F04-OP1.3]
	(a), (c) [F04-OS1.3]
(3)	[F02-OP1.2] [F04-OP1.3]
	[F02-OS1.2] [F04-OS1.3]
3.2.2.33.	Group A, Division 3, One Storey, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ...the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ...the *building* is *sprinklered* throughout,"
3.2.2.35.	Group A, Division 4
(1)	[F02-OP1.2] Applies to portion of Code text: "a *building* classified as Group A, Division 4 shall be of *noncombustible construction*."
	[F02-OS1.2] Applies to portion of Code text: "a *building* classified as Group A, Division 4 shall be of *noncombustible construction*."
(4)	[F02, F04-OP1.2, OP1.3]
	[F02, F04-OS1.2, OS1.3]

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3.2.2.36.	Group B, Division 1, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.37.	Group B, Division 1, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.38.	Group B, Division 2, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building referred* to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building referred* to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.39.	Group B, Division 2, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"

Acceptable Solutions	Objectives and Functional Statements
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.40.	Group B, Division 2, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.41.	Group B, Division 2, One Storey, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
3.2.2.42.	Group B, Division 3, Any Height, Any Area, Sprinklered
(2)	[F02-OS1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OP1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.43.	Group B, Division 3, up to 3 Storeys (Noncombustible), Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	[F02-OS1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OP1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]

Acceptable Solutions	Objectives and Functional Statements
3.2.2.44.	Group B, Division 3, up to 3 Storeys, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
3.2.2.45.	Group B, Division 3, up to 2 Storeys, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
3.2.2.46.	Group B, Division 3, up to One Storey, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
3.2.2.47.	Group C, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "...the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OS1.2, OP1.3] Applies to portion of Code text: "...the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(c), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
3.2.2.48.	Group C, up to 12 Storeys, Sprinklered, Encapsulated Mass Timber Construction
(2)	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
3.2.2.49.	Group C, up to 6 Storeys, Sprinklered, Noncombustible Construction
(1)	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "...the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OS1.2, OP1.3] Applies to portion of Code text: "...the *building* shall be *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"

Acceptable Solutions	Objectives and Functional Statements
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b), (c) [F04-OP1.3]
	(b,) (c) [F04-OS1.3]
3.2.2.50.	Group C, up to 4 Storeys, Noncombustible Construction
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	(b), (d) [F04-OP1.3]
	(b), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
3.2.2.51.	Group C, up to 6 Storeys, Sprinklered, Combustible Construction
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ...the *building* shall be *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ...the *building* shall be *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with *a fire-resistance rating* not less than 1 h," and to Clause (e).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (e).
	(b), (d), (e) [F04-OS1.3]
	(b), (d), (e) [F04-OP1.3]
	(c) [F04-OS1.3] Applies to portion of Code text: "... the roof assembly shall be constructed of *noncombustible construction* or *fire-retardant-treated wood* conforming to Article 3.1.4.5.,"
	(c) [F04-OP1.3] Applies to portion of Code text: "... the roof assembly shall be constructed *of noncombustible construction* or *fire-retardant-treated wood* conforming to Article 3.1.4.5.,"
3.2.2.52.	Group C, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"

Acceptable Solutions	Objectives and Functional Statements
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with *a fire-resistance rating* not less than 1 h," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.53.	Group C, up to 3 Storeys, Increased Area
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be fire *separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	(b), (d) [F04-OP1.3]
	(b), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
3.2.2.54.	Group C, up to 3 Storeys
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.55.	Group C, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F03-OS1.2] [F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be fire separations with a fire-resistance rating not less than 45 min," and to Clause (c).
	[F03-OP1.2] [F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) … floor assemblies shall be fire separations with a fire-resistance rating not less than 45 min," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04–OS1.3]
3.2.2.55A.	Group C, Retirement Home, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"

Acceptable Solutions	Objectives and Functional Statements
	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* shall be *sprinklered*,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* shall be *sprinklered* throughout,"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(b)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 2 h," and to Clause (d).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(b) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 2 h," and to Clause (d).
	(c), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
3.2.2.55B.	Group C, Retirement Home, up to 4 Storeys, Sprinklered, Increased Area
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building is sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 2 h," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 2 h," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.55C.	Group C, Retirement Home, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building is sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.55D.	Group C, Retirement Home, up to 3 Storeys, Sprinklered, Noncombustible Construction
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building is sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.55E.	Group C, Retirement Home, up to 3 Storeys, Sprinklered, Combustible Construction
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building is sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) is permitted... or *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) is permitted… or *noncombustible construction,*"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.56.	Group D, Any Height, Any Area, Sprinklered
(2)	[F02-OS1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OP1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(c), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
3.2.2.57.	Group D, up to 12 Storeys, Sprinklered, Encapsulated Mass Timber Construction

Acceptable Solutions	Objectives and Functional Statements
(2)	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
3.2.2.58.	Group D, up to 6 Storeys
(2)	[F02-OP1.2] Applies to portion of Code text: "The *building referred* to in Sentence (1) shall be of *noncombustible construction,*" [F04-OP1.3] Applies to portion of Code text: "(c) roof assemblies shall have a *fire-resistance rating* not less than 1 h," and to Clause (d).
	[F02-OS1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) shall be of *noncombustible construction,*" [F04-OS1.3] Applies to portion of Code text: "(c) roof assemblies shall have a *fire-resistance rating* not less than 1 h," and to Clause (d).
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.59.	Group D, up to 6 Storeys, Sprinklered, Noncombustible Construction
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ...the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.60.	Group D, up to 6 Storeys, Sprinklered,
(1)	(a) [F02, F04-OS1.2, OS1.3]
	(a) [F02, F04-OP1.2, OP1.3]
(2)	(a), (e) [F03-OS1.2] [F04-OS1.3, OS1.2]
	(a), (e) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d), (e) [F04-OS1.3]
	(b), (d), (e) [F04-OP1.3]
	(c) [F04-OS1.3] Applies to portion of Code text: "... the roof assembly shall be constructed of *noncombustible construction* or *fire-retardant-treated wood* conforming to Article 3.1.4.5.,"
	(c) [F04-OP1.3] Applies to portion of Code text: ".... the roof assembly shall be constructed of *noncombustible construction* or *fire-retardant-treated wood* conforming to Article 3.1.4.5.,"

Acceptable Solutions	Objectives and Functional Statements
3.2.2.61.	Group D, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)...the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)...the *building* is *sprinklered* throughout,"
(2)	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.62.	Group D, up to 3 Storeys
(2)	[F04-OP1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction,* a *fire- resistance rating* not less than 45 min," and to Clause (d).
	[F04-OS1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction*, a *fire- resistance rating* not less than 45 min," and to Clause (d).
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.63.	Group D, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)...the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)...the *building* is *sprinklered* throughout,"
(2)	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.64.	Group D, up to 2 Storeys
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
3.2.2.65.	Group D, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ...the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ...the *building* is *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
3.2.2.66.	Group E, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "... the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.67.	Group E, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
(2)	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.68.	Group E, up to 3 Storeys
(2)	(a), (e) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (e) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d) [F04-OS1.3]
	(b), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
3.2.2.69.	Group E, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
(2)	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
3.2.2.70.	Group E, up to 2 Storeys
(2)	[F03, F04-OS1.2] [F04-OS1.3]
	(a), (b) [F03, F04-OP1.2] [F04-OP1.3]
3.2.2.71.	Group E, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"

Acceptable Solutions	Objectives and Functional Statements
(2)	[F03, F04-OS1.2] [F04-OS1.3]
	(a), (b) [F03, F04-OP1.2] [F04-OP1.3]
3.2.2.72.	Group F, Division 1, up to 4 Storeys, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(c), (d) [F04-OS1.3]
3.2.2.73.	Group F, Division 1, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F03, F04-OP1.2] [F04-OP1.3]
	[F02-OS1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F03, F04-OS1.2] [F04-OS1.3]
3.2.2.74.	Group F, Division 1, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
(2)	[F03-OP1.2] Applies to portion of Code text: "(a) [noncombustible] floor assemblies shall be *fire separations,*" [F04-OP1.2, OP1.3]
	[F03-OS1.2] Applies to portion of Code text: "(a) [noncombustible] floor assemblies shall be *fire separations,*" [F04-OS1.2, OS1.3]
3.2.2.76.	Group F, Division 2, Any Height, Any Area, Sprinklered
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* shall be *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* shall be *sprinklered* throughout,"

Acceptable Solutions	Objectives and Functional Statements
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.77.	Group F, Division 2, up to 4 Storeys, Increased Area, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	[F02-OS1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	[F02-OP1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
3.2.2.78.	Group F, Division 2, up to 3 Storeys
(2)	(a), (e) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (e) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d) [F04-OS1.3]
	(b), (d) [F04-OP1.3]
	[F04-OS1.3] Applies to portion of Code text: "… (c) roof assemblies shall have, if of *combustible construction*, a *fire-resistance rating* not less than 45 min," and to Clause (d).
	[F04-OP1.3] Applies to portion of Code text: "… (c) roof assemblies shall have, if of *combustible construction*, a *fire-resistance rating* not less than 45 min," and to Clause (d).
3.2.2.79.	Group F, Division 2, up to 4 Storeys, Sprinklered
(1)	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* is sprinklered throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* is *sprinklered* throughout,"
(2)	(a), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (c) [F04-OS1.3]
	(b), (c) [F04-OP1.3]
3.2.2.80.	Group F, Division 2, up to 2 Storeys
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
3.2.2.81.	Group F, Division 2, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible floor* assemblies be *fire separations*.
3.2.2.82.	Group F, Division 3, Any Height, Any Area, Sprinklered
(2)	[F02-OS1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of noncombustible construction,"
	[F02-OP1.2] Applies to portion of Code text: "… the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(a) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "… the *building* shall be *sprinklered* throughout,"
	(b), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(c), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
3.2.2.83.	Group F, Division 3, up to 6 Storeys
(2)	[F02-OP1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	(a), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(a), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d) [F04-OS1.3]
	(b), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
3.2.2.84.	Group F, Division 3, up to 6 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be *of noncombustible construction*,"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04–OP1.3]
	(b) [F04-OS1.3]

Acceptable Solutions	Objectives and Functional Statements
3.2.2.85.	Group F, Division 3, up to 4 Storeys
(2)	[F04-OP1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction, a fire-resistance rating* not less than 45 min," and to Clause (d).
	[F04-OS1.3] Applies to portion of Code text: "(c) roof assemblies shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min," and to Clause (d).
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.86.	Group F, Division 3, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a) the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) the *building* is *sprinklered* throughout,"
(2)	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.87.	Group F, Division 3, up to 2 Storeys
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
3.2.2.88.	Group F, Division 3, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a)... the *building* is *sprinklered* throughout,"
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations*.
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
3.2.2.89.	Group F, Division 3, One Storey
(1)	[F02-OP1.2] Applies to portion of Code text: "A *building* classified as Group F, Division 3 is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination,"
	[F02-OS1.2] Applies to portion of Code text: "A *building* classified as Group F, Division 3 is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination,"
3.2.2.90.	Group F, Division 3, One Storey, Sprinklered
(1)	[F02-OP1.2] Applies to portion of Code text: "A *building* classified as Group F, Division 3 is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ... the *building* is *sprinklered* throughout,"
	[F02-OS1.2] Applies to portion of Code text: "A *building classified* as Group F, Division 3 is permitted to be of *heavy timber construction* or *noncombustible construction* used singly or in combination," [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "(a) ... the *building* is *sprinklered* throughout,"
3.2.2.91.	Group F, Division 3, One Storey, Any Area, Low Fire Load Occupancy
(2)	[F02-OP1.2]
	[F02-OS1.2]
3.2.2.92.	Group F, Division 3, Storage Garages up to 22 m High
(1)	[F02-OP1.2] Applies to portion of Code text: "A *building* used as a *storage garage* with all *storeys* constructed as *open-air storeys* and having on other *occupancy* above it is permitted to have its floor, wall, ceiling and roof assemblies constructed without a *fire-resistance rating* provided it is a) of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "A *building* used as a *storage garage* with all *storeys* constructed as *open-air storeys* and having on other *occupancy* above it is permitted to have its floor, wall, ceiling and roof assemblies constructed without a *fire-resistance rating* provided it is a) of *noncombustible construction*,"
3.2.3.1.	Limiting Distance and Area of Unprotected Openings
(1)	[F03-OP3.1]
(5)	[F03-OP3.1]
(6)	[F03-OP3.1]
(8)	[F03-OP3.1]
(9)	[F03-OP3.1]
(10)	[F03-OP3.1]
3.2.3.5.	Wall with Limiting Distance Less Than 1.2 m
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
3.2.3.6.	Combustible Projections
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
(3)	[F03-OP3.1]
(5)	[F03-OP3.1]
3.2.3.7.	Construction of Exposing Building Face
(1)	[F02, F03-OP3.1]
(2)	[F02, F03-OP3.1]
(3)	[F02, F03-OP3.1]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F02, F03-OP3.1]
3.2.3.8.	Protection of Exterior Building Face
(1)	[F02, F03-OP3.1]
3.2.3.9.	Protection of Structural Members
(1)	[F04-OP1.3]
	[F04-OS1.3]
3.2.3.10.	Unlimited Unprotected Openings
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
3.2.3.11.	Low Fire Load, One Storey Building
(1)	(a) [F04-OP3.1]
	(b) [F03-OP3.1]
3.2.3.12.	Area Increase for Unprotected Openings
(1)	[F03-OP3.1]
3.2.3.13.	Protection of Exit Facilities
(4)	[F06-OP1.2]
	[F05, F06-OS1.2]
3.2.3.14.	Wall Exposed to Another Wall
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]
3.2.3.15.	Wall Exposed to Adjoining Roof
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.2.3.16.	Protection of Soffits
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F02-OP1.2]
	[F02-OS1.2]
3.2.3.17.	Canopy Protection for Vertically Separated Openings
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.2.3.18.	Covered Vehicular Passageway
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
3.2.3.19.	Walkway between Buildings
(1)	[F03-OP3.1]
(2)	[F02-OP3.1]
(3)	[F02-OP3.1]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F02, F12-OP3.1]
3.2.3.20.	Underground Walkway
(1)	[F01, F02-OP3.1]
(2)	[F03-OP3.1]
(3)	[F02-OP3.1] Applies to portion of Code text: "An underground walkway shall be of *noncombustible construction*..."
	[F80-OP2.3] Applies to portion of Code text: "An underground walkway shall be ... suitable for an underground location."
(4)	(a) [F06-OS1.2] [F05-OS1.5]
	(b) [F12-OS1.2] [F10-OS1.5]
3.2.4.1.	Determination of Requirement for a Fire Alarm System
(1)	[F11-OS1.5] [F13-OS1.5, OS1.2]
	[F13-OP1.2]
(4)	[F11-OS1.5]
3.2.4.2.	Continuity of Fire Alarm System
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
(4)	[F03-OS1.2] [F10-OS1.5]
(5)	[F11, F13-OS1.2]
(6)	[F11-OS1.5]
3.2.4.3.	Types of Fire Alarm Systems
(1)	(a) [F11-OS1.5]
	(b) [F11-OS1.4] [F13-OS1.5]
	(c), (d), (e) [F11-OS1.5]
3.2.4.4.	Description of Fire Alarm Systems
(1)	[F11-OS1.5]
(2)	(a), (d) [F11-OS1.4] [F13-OS1.5]
	(b), (c) [F11-OS1.5]
(3)	[F13-OS1.5]
(4)	[F13-OS1.5]
3.2.4.5.	Installation and Verification of Fire Alarm Systems
(1)	[F12, F13, F81-OS1.2] [F11, F12, F13, F81-OS1.5]
	[F11, F12-OS3.7] Applies to voice communication systems.
(2)	[F82-OS1.5]
3.2.4.6.	Silencing of Alarm Signals
(1)	[F11-OS1.5]
(2)	[F34, F81-OS1.5]
3.2.4.7.	Signals to Fire Department
(1)	[F13-OP1.2]
	[F13-OS1.2, OS1.5]
(2)	[F13-OP1.2]
	[F13-OS1.2, OS1.5]
(3)	[F13-OP1.2]
	[F13-OS1.2, OS1.5]
(4)	[F13, F81-OP1.2]
	[F13, F81-OS1.2, OS1.5]

Acceptable Solutions	Objectives and Functional Statements
(5)	[F13-OP1.2]
	[F13-OS1.2, OS1.5]
(6)	[F13-OP1.2]
	[F13-OS1.2]
3.2.4.8.	Annunciator and Zone Indication
(1)	[F12-OS1.2, OS1.5]
(2)	[F12-OS1.2, OS1.5]
(4)	[F12-OS1.2, OS1.5]
(7)	[F12-OS1.2, OS1.5]
(8)	[F12-OS1.2, OS1.5]
(9)	[F12-OS1.2, OS1.5]
3.2.4.9.	Electrical Supervision
(1)	[F82-OS1.2, OS1.5]
(2)	F82-OS1.2]
	F82-OP1.2]
(3)	(a), (d), (e), (f), (g) [F82-OP1.2]
	(a), (d), (e), (f), (g) [F82-OS1.2]
	(b), (c) [F82-OS1.5]
(4)	[F81, F82-OP1.2]
	[F81, F82-OS1.2]
(5)	(a), (b) [F81, F82-OP1.2]
	(a), (b) [F81, F82-OS1.2]
	(c) [F81, F82 - OS1.5]
(6)	[F82-OP1.2]
	[F82-OS1.2]
3.2.4.10.	Fire Detectors
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F02-OS1.2] [F11-OS1.5]
(4)	[F11-OS1.5]
3.2.4.11.	Smoke and Heat Detectors
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F12-OS1.5]
(4)	[F10-OS1.5]
(5)	[F11-OS1.5]
(7)	[F11-OS1.4, OS1.5]
3.2.4.12.	Prevention of Smoke Circulation
(1)	[F03-OS1.2]
3.2.4.13.	Vacuum Cleaning System Shutdown
(1)	[F03-OS1.2]
3.2.4.14.	Elevator Emergency Return
(1)	[F10-OS1.5]
(2)	[F11-OS1.5]
(3)	[F02-OS1.2]
3.2.4.15.	System Monitoring
(1)	[F12-OS1.2] [F11, F12-OS1.5]
	[F12-OP1.2]
(2)	[F13-OS1.2] [F11, F13-OS1.5]
	[F13-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
3.2.4.16.	Manual Stations
(1)	[F11-OS1.5]
(2)	[F02, F12-OS1.2] [F10, F12-OS1.5]
(3)	[F02, F12-OS1.2] [F10, F12-OS1.5]
(4)	[F11-OS1.5]
(5)	[F11-OS1.5]
(6)	[F11-OS1.5]
(7)	[F81-OS1.2] [F11, F81-OS1.5]
(8)	[F11-OS1.5]
3.2.4.17.	Alert and Alarm Signals
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
3.2.4.18.	Audibility of Alarm Systems
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
(4)	[F33-OS3.5]
(5)	[F11-OS1.5]
(6)	[F11-OS1.5]
(7)	[F11-OS1.5]
(8)	[F11, F81-OS1.5]
(9)	[F11, F81-OS1.5]
(10)	[F11, F81-OS1.5]
(11)	[F11-OS1.5]
(13)	[F11-OS1.5]
3.2.4.19.	Visible Signals
(1)	[F11-OS1.5]
(3)	[F11-OS1.5]
3.2.4.20.	Smoke Alarms
(2)	[F81, F11-OS1.5]
(3)	[F11-OS1.5]
(4)	[F11-OS1.5]
(6)	[F11-OS1.5]
(9)	[F11, F81-OS1.5]
(10)	[F11, F81-OS1.5]
(12)	[F11-OS1.5]
(13)	[F81, F11-OS1.5]
(14)	[F11, F81-OS1.5]
(16)	[F11-OS1.5]
(17)	[F74-OA2], [F11-OS1.5]
(19)	[F74-OA2], [F11-OS1.5]
(20)	[F11, F81-OS1.5]
3.2.4.21.	Residential Fire Warning Systems
(1)	[F81, F11-OS1.5]
3.2.4.22.	Two-Way Voice Communication Systems
(1)	[F11, F12-OS3.7]
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
(4)	F11-OS1.5] [F13-OS1.4, OS1.5]
(5)	[F11-OS1.5]
(6)	[F12-OS3.7]
(7)	[F11-OS1.5]

Acceptable Solutions	Objectives and Functional Statements
3.2.4.23.	One-Way Voice Communication Systems
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F11-OS1.5]
3.2.5.1.	Access to Above Grade Storeys
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.2.5.2.	Access to Basements
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.2.5.3.	Roof Access
(1)	[F12-OP1.2]
	[F12-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
	[F05, F06, F10, F12-OS3.7]
3.2.5.4.	Access Routes
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.2.5.5.	Location of Access Routes
(1)	[F12-OP1.2]
	[F06-OS1.1] [F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2]
(4)	[F12-OP1.2]
	[F12-OS1.2]
3.2.5.6.	Access Route Design
(1)	[F12-OP1.2]
	[F12-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
3.2.5.7.	Water Supply
(1)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2]
(2)	[F02, F12-OP1.2]
	[F02-OP3.1]
	[F02, F12-OS1.2]
3.2.5.8.	Standpipe System
(1)	[F02-OS1.2]
	[F02-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
3.2.5.9.	Standpipe System Design
(1)	[F02-OS1.2]
	[F02-OP1.2]
(2)	[F02-OS1.2]
	[F02-OP1.2]
(4)	[F02-OS1.2]
	[F02-OP1.2]
(5)	[F02-OS1.2]
	[F02-OP1.2]
3.2.5.10.	Hose Connection
(1)	[F03-OS1.2] [F05, F06-OS1.5,OS1.2]
	[F03, F06-OP1.2]
(2)	[F12-OS1.2]
	[F12-OP1.2]
(3)	[F02-OS1.2]
	[F02-OP1.2]
3.2.5.11.	Hose Station
(1)	[F02-OS1.2]
	[F02-OP1.2]
(2)	[F02-OS1.2]
	[F02-OP1.2]
(3)	[F02, F12-OS1.2]
	[F02, F12-OP1.2]
(4)	[F03-OS1.2]
	[F03-OP1.2]
(5)	[F10-OS1.5]
(6)	[F02-OS1.2]
	[F02-OP1.2]
(7)	[F01-OS1.1]
3.2.5.12.	Automatic Sprinkler Systems
(1)	[F02, F81, F82-OP1.2]
	[F02, F81, F82-OS1.2]
(2)	[F02, F81, F82-OP1.2]
	[F02, F81, F82-OS1.2]
(3)	[F02, F81, F82-OP1.2]
	[F02, F81, F82-OS1.2]
(4)	[F02-OP1.2]
	[F02-OS1.2]
(5)	[F81-OP1.2]
	[F81-OS1.2]
(6)	[F02-OP1.2]
	[F02-OS1.2]
(7)	[F02, F81, F82-OP1.2]
	[F02, F81, F82-OS1.2]
(8)	[F81-OS3.3, OS3.6]
(10)	[F02, F04 – OP1.2, OP1.3]
	[F02, F04 – OS1.2, OS1.3]
3.2.5.13.	Combustible Sprinkler Piping
(2)	[F02, F81-OP1.2]
	[F02, F81-OS1.2]
(3)	[F06-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F06-OS1.2]
(4)	[F06-OP1.2]
	[F06-OS1.2]
3.2.5.14.	Sprinklered Service Space
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OS1.2] [F11, F12-OS1.5]
	[F12-OP1.2]
3.2.5.15.	Fire Department Connections
(1)	[F12-OP1.2]
	[F12-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
3.2.5.16.	Portable Fire Extinguishers
(1)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
3.2.5.17.	Protection from Freezing
(1)	[F81-OP1.2]
	[F81-OS1.2]
3.2.5.18.	Fire Pumps
(1)	[F02, F81-OP1.2]
	[F02, F81-OS1.2]
3.2.6.2.	Limits to Smoke Movement
(1)	[F02-OP1.2]
	[F02-OS1.2, OS1.5]
(2)	[F06-OP1.2]
	[F06-OS1.2] [F05, F06-OS1.5]
(3)	[F06-OP1.2]
	[F06-OS1.2] [F05, F06-OS1.5]
(4)	[F03, F12-OP1.2]
	[F03 F12-OS1.2, OS1.5]
(5)	[F03-OP1.2]
	[F03-OS1.2, OS1.5]
(6)	[F03, F12-OP1.2]
	[F03, F12-OS1.2, OS1.5]
(7)	[F02-OP1.2]
	[F02-OS1.2, OS1.5]
3.2.6.3.	Connected Buildings
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2, OS1.5]
3.2.6.4.	Emergency Operation of Elevators
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F12-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F12-OS1.2, OS1.5]
(4)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(5)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(6)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(7)	[F11-OS1.5]
3.2.6.5.	Elevator for Use by Firefighters
(1)	[F12, F06-OP1.2]
	[F12, F06-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(4)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(5)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(6)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
3.2.6.6.	Venting to Aid Firefighting
(1)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(2)	[F30-OS3.1]
(3)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(4)	[F03-OS1.2] [F12-OS1.2, OS1.5]
3.2.6.7.	Central Alarm and Control Facility
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5] [F11-OS1.5]
3.2.6.8.	Voice Communication System
(1)	[F12, F11-OS3.7]
3.2.6.9.	Testing
(1)	[F82-OP1.2]
	[F82-OS1.2, OS1.5]
3.2.7.1.	Minimum Lighting Requirements
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1]
(5)	[F74-OA2]
(6)	[F74-OA2]
(7)	[F10-OS3.7]
	[F74-OA2]
	[F30-OS3.1]
(9)	[F30-OS3.1] [F10-OS3.7]
(10)	[F30-OS3.1] [F10-OS3.7]
(11)	[F30-OS3.1] [F10-OS3.7]
	[F40-OH2.4]

Acceptable Solutions	Objectives and Functional Statements
(12)	[F30-OS3.1] [F10-OS3.7]
	[F40-OH2.4]
3.2.7.2.	Recessed Lighting Fixtures
(1)	[F01-OP1.1, OP1.2]
	[F01-OS1.1, OS1.2]
3.2.7.3.	Emergency Lighting
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
3.2.7.4.	Emergency Power for Lighting
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30, F81-OS3.1] [F10, F81-OS3.7]
3.2.7.5.	Emergency Power Supply Installation
(1)	[F02, F03, F06, F10, F11, F12, F81-OS1.2, OS1.5]
	[F02, F06, F30, F81-OS3.1] [F10, F11, F12, F81-OS3.7]
	[F02, F03, F06, F81-OP1.2]
(2)	[F12-OS1.5]
3.2.7.6.	Emergency Power for Hospitals
(1)	[F02, F03, F06, F10, F11, F12, F81-OS1.2, OS1.5]
	[F02, F06, F30, F81-OS3.1] [F10, F11, F12, F81-OS3.7]
	[F02, F03, F06, F81-OP1.2]
3.2.7.7.	Fuel Supply Shut-off Valves and Exhaust Pipes
(1)	[F12-OH5] Applies to the requirement for a suitably identified shut-off valve outside the *building*
	[F12-OP1.2] Applies to the requirement for a suitably identified shut-off valve outside the building
	[F12-OS1.1, OS1.2] Applies to the requirement for a suitably identified shut-off valve outside the *building* [F12-OS1.2, OS1.5] Applies to the requirement for a suitably identified separate shut-off valve.
	[F81-OS3.1, OS3.7] Applies to the requirement for a suitably identified separate shut-off valve.
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.2.7.8.	Emergency Power for Fire Alarm Systems
(1)	[F13-OS1.2] [F11, F13-OS1.5]
	[F13-OP1.2] Applies to the requirement for fire alarm systems, including those with a voice communication system, to be provided with an emergency power supply.
(2)	[F13-OS1.2] [F11, F13-OS1.5]
	[F13-OP1.2]
(3)	[F13-OS1.2] [F11, F13-OS1.5]
	[F13-OP1.2]
(4)	[F13-OS1.2] [F11, F13-OS1.5]
	[F13-OP1.2]
3.2.7.9.	Emergency Power for Building Services
(1)	[F02, F03, F12-OP1.2]
	[F02, F03, F12-OS1.2, OS1.5]
	(a) [F36-OS3.6] [F10, F12-OS3.7]
	(b) [F02-OP3.1]
(2)	[F12-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F12-OS1.2, OS1.5]
	[F36-OS3.6] [F12-OS3.7]
3.2.7.10.	Protection of Electrical Conductors
(2)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(3)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(4)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(6)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(8)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(10)	[F06-OS1.4]
	[F06-OP1.2]
	[F10-OS3.7]
3.2.8.1.	Application
(1)	[F03, F06-OP1.2]
	[F03, F06-OS1.2] [F05-OS1.5]
3.2.8.2.	Exceptions to Special Protection
(3)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
3.2.8.3.	Sprinklers
(1)	[F02-OS1.2]
	[F02-OP1.2]
(2)	[F02-OS1.2] [F11-OS1.5] [F13-OS1.5, OS1.2]
	[F02, F13-OP1.2]
3.2.8.4.	Vestibules
(1)	[F02-OS1.2] [F11-OS1.5] [F13-OS1.5, OS1.2]
	[F02, F13-OP1.2]
3.2.8.5.	Protected Floor Space
(1)	[F05-OS1.2] [F06-OS1.5]
3.2.8.6.	Draft Stops
(1)	[F02-OS1.2] [F11-OS1.5] [F13-OS1.5, OS1.2]
	[F02, F13-OP1.2]
3.2.8.7.	Mechanical Exhaust System
(1)	[F03-OS1.5, OS1.2]
	[F03-OP1.2]
(2)	[F03-OS1.5, OS1.2]
	[F03-OP1.2]
3.2.8.8.	Combustible Content Limits
(1)	[F02-OS1.2]
	[F02-OP1.2]
3.2.9.1.	Testing
(1)	[F02, F81, F82-OS1.2, OS1.5]
	[F02, F81, F82-OP1.2]
3.3.1.1.	Separation of Suites
(1)	[F03-OP1.2]
	[F03-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.3.1.2.	Hazardous Substances, Equipment and Processes
(1)	[F01, F02, F03-OP1.1, OP1.2]
	[F01, F02, F03-OS1.1, OS1.2]
	[F43-OS3.4]
(3)	[F05-OS1.5]
	[F43-OS3.7]
3.3.1.3.	Means of Egress
(3)	[F10-OS3.7]
(4)	[F05, F06, F10, F12-OS3.7]
(5)	[F10, F12-OS3.7]
(6)	[F05, F06, F10, F12-OS3.7]
(7)	[F05, F06, F10, F12-OS3.7]
(8)	[F05-OS1.5]
(9)	[F05, F06, F10, F12-OS3.7]
3.3.1.4.	Public Corridor Separations
(1)	[F06-OS1.2] [F03, F05, F06-OS1.5]
	[F03, F06-OP1.2]
(2)	[F06-OS1.2] [F03, F05, F06-OS1.5]
	[F03, F06-OP1.2]
(3)	[F06-OS1.2] [F03, F05, F06-OS1.5]
	[F03, F06-OP1.2]
(4)	(a), (b) [F06, F12-OS1.2] [F03, F05, F06, F10, F12-OS1.5]
	(a), (b) [F03, F06, F12-OP1.2]
	(c) [F03, F06-OS1.2] [F03, F05, F06-OS1.5]
	(c) [F03, F06-OP1.2]
3.3.1.5.	Egress Doorways
(1)	[F10, F05-OS1.5]
(2)	[F10, F05-OS1.5]
(3)	[F10-OS3.7]
3.3.1.6.	Travel Distance
(1)	[F10, F05-OS1.5]
3.3.1.7.	Protection on Floor Areas with a Barrier-Free Path of Travel
(1)	[F10-OS3.7]
	(a) [F06-OS1.5]
(1.1)	[F05, F10-OS1.5]
(1.2)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F03-OS1.2] [F06-OS1.5]
(4)	(a), (b) [F10, F73-OS1.5]
	(c), (d) [F10-OS1.5]
3.3.1.8.	Headroom and Protruding Objects
(2)	[F30, F73-OS3.1]
3.3.1.9.	Corridors
(1)	[F10, F12-OS3.7]
(2)	[F10, F12-OS3.7]
(3)	[F10, F12-OS3.7]
(4)	(a) [F10, F12-OS3.7]
	(b) [F06-OS1.2] [F05, F06-OS1.5]

Acceptable Solutions	Objectives and Functional Statements
(6)	[F10-OS3.7]
(7)	[F10-OS3.7]
(8)	[F10-OS1.5]
(9)	[F10-OS1.5]
	[F10-OS3.7]
(10)	[F10-OS1.5]
	[F10-OS3.7]
(11)	[F10-OS1.5]
	[F10-OS3.7]
(12)	[F10-OS3.7]
3.3.1.11.	Door Swing
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
3.3.1.12.	Sliding Doors
(1)	(b) [F10-OS3.7]
3.3.1.13.	Doors and Door Hardware
(1)	(a), (b) [F10, F12-OS3.7]
	(c) [F30-OS3.1] [F10-OS3.7]
	(d) [F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10-OS3.7]
	[F73-OA1]
(8)	[F12-OS3.7]
(9)	[F12-OS3.7]
(10)	[F12-OS3.7]
3.3.1.16.	Tapered Treads in a Curved Flight
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
3.3.1.17.	Capacity of Access to Exits
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
(6)	[F10-OS3.7]
3.3.1.18.	Guards
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(2.1)	[F30-OS3.1]
(3)	[F30-OS3.1]
(4)	[F30-OS3.1]
3.3.1.19.	Tactile Walking Surface Indicators
(1)	[F30-OS3.1]
3.3.1.20.	Transparent Doors and Panels
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F20-OS3.1]
(4)	[F30-OS3.1] [F10-OS3.7]
(6)	[F30-OS3.1] [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
(8)	[F30-OS3.1]
3.3.1.21.	Exhaust Ventilation and Explosion Venting
(1)	[F01-OS1.1]
(2)	[F02-OP1.2]
	[F02-OS1.2]
(3)	[F02-OP1.3] Applies to the requirement for explosion-relief devices and vents.
	[F02-OS1.3] Applies to the requirement for explosion-relief devices and vents.
3.3.1.22.	Janitors' Rooms
(1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.3.1.23.	Common Laundry Rooms
(1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
3.3.1.24.	Obstructions
(1)	[F10-OS3.7]
3.3.1.25.	Signs in Service Spaces
(1)	[F10-OS3.7]
3.3.1.26.	Welding and Cutting
(1)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
3.3.2.2.	Fire Separations
(1)	[F03-OS1.2]
(3)	[F03-OS1.2] Applies where space under tiers of seats is *sprinklered.*
	[F03-OS1.2] Applies where space under tiers of seats is not *sprinklered.*
(4)	[F03-OS1.2]
	[F03-OP1.2]
(5)	[F03-OS1.2]
	[F03-OP1.2]
(7)	[F03-OS1.2]
	[F03-OP1.2]
(8)	[F03-OS1.2]
(9)	[F03-OS1.2]
	[F03-OP1.2]
3.3.2.4.	Fixed Seats
(1)	[F30-OS3.1] [F10-OS3.7]
(3)	[F10-OS3.7]
3.3.2.4.	Aisles
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10-OS3.7]
(7)	[F10-OS3.7]
(8)	[F10-OS3.7]
(9)	[F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
(10)	[F10-OS3.7]
(11)	[F10-OS3.7]
(12)	[F10-OS3.7]
(13)	[F03-OS1.2]
	[F10-OS3.7]
(14)	[F03-OS1.2]
	[F10-OS3.7]
(15)	[F10-OS3.7]
(16)	[F10-OS3.7]
(17)	[F10-OS3.7]
(18)	[F30-OS3.1] [F10-OS3.7]
(19)	[F30-OS3.1] [F10-OS3.7]
(20)	[F30-OS3.1] [F10-OS3.7]
(21)	[F30-OS3.1] [F10-OS3.7]
(22)	[F30-OS3.1] [F10-OS3.7]
(23)	[F30-OS3.1] [F10-OS3.7]
(24)	[F30-OS3.1] [F10-OS3.7]
(25)	[F30-OS3.1] [F10-OS3.7]
(26)	[F30-OS3.1] [F10-OS3.7]
3.3.2.6.	Corridors
(1)	[F06-OS1.2] [F03, F05, F06-OS1.5]
	[F03, F06-OP1.2]
(3)	[F06-OS1.2] [F03, F05, F06-OS1.5]
	[F03, F06-OP1.2]
(4)	[F10-OS3.7]
3.3.2.7.	Doors
(1)	[F10-OS3.7]
3.3.2.8.	Fixed Bench-Type Seats without Arms
(1)	[F10-OS3.7]
	[F10-OS3.7]
3.3.2.10.	Handrails in Aisles with Steps
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
3.3.2.11.	Outdoor Places of Assembly
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(5)	[F10-OS3.7]
3.3.2.12.	Bleachers
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1]
3.3.2.13.	Libraries
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
3.3.2.14.	Stages for Theatrical Performances
(1)	[F02-OP1.2]
	[F02-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F02, F06-OS1.2] [F06-OS1.5]
	[F02, F06-OP1.2]
(6)	[F03-OP1.2]
	[F03-OS1.2, OS1.5]
3.3.2.15.	Risers for Stairs
(1)	[F30-OS3.1]
3.3.2.16.	Storage Rooms
(1)	[F12-OP1.2]
	[F12-OS1.2]
3.3.2.17.	Safety Glazing
(1)	[F20, F30-OS3.1]
(2)	[F20, F30-OS3.1]
3.3.3.2.	Fire Separations
(1)	[F03-OS1.2]
	[F44-OS3.4]
(2)	[F03-OS1.2]
	[F03-OP1.2]
(3)	[F03-OS1.5]
	[F03-OP1.2]
3.3.3.3.	Corridors
(1)	[F10-OS3.7]
(2)	[F10, F12-OS3.7]
(3)	[F10-OS1.5]
	[F10, F12-OS3.7]
(4)	(a) [F10-OS3.7]
	(b) [F10, F12-OS3.7]
3.3.3.4.	Doorway Width
(1)	[F10, F12-OS3.7]
3.3.3.5.	Hospitals and Long-Term Care Homes
(2)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
(4)	[F03, F06-OP1.2]
	[F05, F06-OS1.2] [F06-OS1.5]
(7)	[F10-OS1.5]
(8)	[F10-OS1.5]
(9)	[F03, F05-OS1.2] [F06-OS1.5]
(12)	[F03, F05-OS1.2] [F06-OS1.5]
3.3.3.6.	Protection for Special Care and Treatment Facilities
(1)	[F03-OS1.2]
3.3.3.7.	Contained Use Areas
(2)	[F03, F06-OS1.2] [F06-OS1.5]
	[F03, F06-OP1.2]
(3)	[F02, F06-OS1.2] [F06-OS1.5]
	[F02, F06-OP1.2]
(4)	[F02, F06-OS1.2] [F06-OS1.5]
	[F02, F06-OP1.2]
(5)	[F10-OS3.7]
3.3.3.8.	Handrails
(1)	[F30-OS3.1]
	[F73-OA1]
3.3.4.2.	Fire Separations
(1)	[F03, F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
(4)	[F44-OS1.1] [F02, F03-OS1.2]
	(a), (b) [F02, F03-OP1.2]
(5)	[F01-OS1.1] [F03-OS1.2]
	[F44-OS3.4]
	(a) [F03-OP1.2]
3.3.4.3.	Storage Rooms
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F12-OP1.2]
	[F12-OS1.2]
3.3.4.4.	Egress from Dwelling Units
(2)	[F05, F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F05-OS1.2, OS1.5]
(5)	[F05, F10-OS3.7]
(6)	[F05, F10-OS3.7]
(7)	[F05-OS1.2]
	[F10-OS3.7]
(8)	[F05, F10-OS3.7]
3.3.4.5.	Automatic Locking Prohibition
(1)	[F10-OS3.7]
3.3.4.8.	Window Protection
(1)	[F30-OS3.1]
3.3.4.9.	Stud Wall Reinforcement
(1)	[F74-OA2]
3.3.4.10.	Resistance to Forced Entry
(1)	[F4.1-OS3.1]
3.3.4.11.	Retirement Homes
(2)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
(4)	[F03, F06-OP1.2]
	[F05, F06-OS1.2] [F06-OS1.5]
(6)	[F05-OS1.2] [F06-OS1.5]
(7)	[F10-OS1.5]
(8)	[F10-OS1.5]
(9)	[F03-OS1.2]
	[F03-OP1.2]
(10)	[F10-OS3.7]
(11)	[F10, F12-OS3.7]
(12)	[F11, F12-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
3.3.5.2.	Fire Extinguishing Systems
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.3.5.3.	Basements
(1)	[F12-OP1.2]
	[F01-OS1.1] [F12-OS1.2, OS1.5]
(2)	[F06-OS1.2] [F05, F06-OS1.5,] Applies to the separation of *exits* from the remainder of the *building.* [F06-OS1.2, OS1.5] Applies to the separation of entrances to *basements* and to rooms containing *building* services from the remainder of the *building.*
	[F06-OP1.2] Applies to the separation of *exits* from the remainder of the *building.* [F06-OP1.2] Applies to the separation of entrances from the remainder of the *building.*
(3)	[F44-OS1.1]
3.3.5.4.	Repair and Storage Garages
(2)	[F30-OS3.1] [F10, F12-OS3.7]
(5)	[F30-OS3.1]
(6)	[F30-OS3.1]
(8)	[F02-OP1.2]
	[F02-OS1.2]
3.3.5.5.	Repair Garage Separation
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.3.5.6.	Storage Garage Separation
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.3.5.7.	Vestibules
(4)	[F44-OS1.1]
	[F44-OS3.4]
3.3.5.11.	Toe-Boards Required
(1)	[F30-OS3.1]
3.3.6.2.	Storage of Dangerous Goods
(1)	[F03-OS1.2]
	[F03-OP1.2]
(2)	[F03-OS1.2]
	[F03-OP1.2]
(3)	[F01, F02, F03, F81-OS1.1, OS1.2]
	[F01, F02, F03, F81-OP1.1, OP1.2]
3.3.6.3.	Indoor Storage of Compressed Gases
(1)	(a) [F03-OS1.2] [F44-OS1.1]
	(a) [F03-OP1.2]
	(a) [F44-OS1.2, OS1.5, OS1.1] Applies to gas-tight fire separations.
	(b) [F12-OS1.2] [F01-OS1.1] [F02-OS1.3]
	(b) [F02-OP1.3]
	(c) [F12-OS1.1]
	(e) [F02-OS1.1]
	(e) [F02-OP1.1]
	(f) (g) [F01-OS1.1]
	(f) (g) [F01-OP1.1]
(2)	[F44-OS1.1]
(3)	(a) [F03-OS1.2] [F44-OS1.1]
	(a) [F03-OP1.2]
	(a) [F44- OS1.2, OS1.5, OS1.1] Applies to gas-tight fire separations.
	(b) [F12-OS1.2] [F02-OS1.3]
	(b) [F02-OP1.3]
(4)	[F44-OS1.1]
	[F44-OP1.1]
	[F50-OH1.1]
(5)	[F44, F01-OS1.1]
	[F44, F01-OP1.1]
3.3.6.4.	Storage and Dispensing Rooms for Flammable Liquids and Combustible Liquids
(1)	[F03-OS1.2]
	[F03-OP1.2]
(2)	[F02-OS1.3]
	[F02-OP1.3]
(4)	[F02-OS1.3]
	[F02-OP1.3]
(6)	[F10-OS1.5]
(7)	[F05, F10-OS1.5]
(8)	[F10-OS1.5]
3.3.6.5.	Tire Storage
(1)	[F03-OS1.2]
	[F03-OP1.2]
3.3.6.6.	Ammonium Nitrate Storage
(1)	(a) [F01-OS1.1] [F02, F12-OS1.2]
	(a) [F01-OP1.1] [F02, F12-OP1.2]
	(b) (c) [F03-OS1.2] [F01-OS1.1]
	(b) (c) [F03-OP1.2] [F01-OP1.1]
	(c) [F44-OH5]
	(d) [F01-OS1.1] [F02-OS1.2]
	(d) [F43-OS3.4]
	(e) [F01, F81-OS1.1]
	(f) [F12, F02-OS1.1]
	(f) [F12, F02-OP1.2]
3.3.6.7.	Flooring Material
(1)	[F43-OS3.4]
	[F44-OH5]
	[F01-OS1.1]
3.3.6.8.	Fire Separations in Process Plants
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.3.6.9.	Basements and Pits
(1)	[F01-OS1.1]
	[F01-OP1.1]
3.4.1.2.	Separation of Exits
(1)	[F05, F06, F10, F12-OS3.7]
	[F06, F12-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F06, F12-OS1.2, OS1.5]
(2)	[F10-OS3.7]
3.4.1.5.	Exterior Exit Passageways
(1)	[F10-OS3.7]
3.4.1.6.	Restricted Use of Horizontal Exits
(1)	[F10-OS3.7]
(2)	[F05, F10-OS3.7]
3.4.1.7.	Slide Escapes
(1)	[F10-OS3.7]
3.4.1.9.	Mirrors near Exits
(1)	[F30-OS3.1] [F10-OS3.7]
3.4.1.10.	Combustible Glazing in Exits
(1)	[F03, F06-OP1.2]
	[F05, F06-OS1.2] [F06-OS1.5]
3.4.1.11.	Exterior Stairway for Nursing Home
(1)	[F10-OS3.1, OS3.7]
3.4.2.1.	Minimum Number of Exits
(1)	[F05, F06, F10, F12-OS3.7]
	[F06, F12-OP1.2]
	[F06, F12-OS1.2]
(3)	[F10-OS3.7]
3.4.2.2.	Means of Egress from Exiting
(1)	[F05-OS1.5]
3.4.2.3.	Distance Between Exits
(1)	[F05, F10-OS1.5]
(4)	[F10-OS3.7]
3.4.2.4.	Travel Distance
(3)	[F10-OS3.7]
3.4.2.5.	Location of Exits
(1)	[F10-OS3.7]
(3)	[F10-OS3.7]
3.4.2.6.	Principal Entrance
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
3.4.3.1.	Exit Width Based on Occupant Load
(2)	[F10-OS3.7]
3.4.3.2.	Exit Width
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(6)	[F10-OS3.7]
(7)	[F10-OS3.7]
(8)	[F12-OP1.2]
	[F12-OS1.2]
	[F30-OS3.1] [F10, F12-OS3.7]
3.4.3.3.	Exit Width Reduction
(1)	[F12-OS1.2]
	[F30-OS3.1] [F10, F12-OS3.7]
	[F12-OP1.2]
(2)	[F12-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F10, F12-OS3.7]
	[F12-OP1.2]
(3)	[F12-OS1.2]
	[F10, F12-OS3.7]
	[F12-OP1.2]
(4)	[F12-OS1.2]
	[F10, F12-OS3.7]
	[F12-OP1.2]
(5)	[F12-OS1.2]
	[F10, F12-OS3.7]
	[F12-OP1.2]
3.4.3.4.	Headroom Clearance
(1)	[F12-OP1.2]
	[F12-OS1.2]
	[F30-OS3.1] [F10, F12-OS3.7]
(4)	[F12-OP1.2]
	[F12-OS1.2]
	[F30-OS3.1] [F10, F12-OS3.7]
(5)	[F12-OP1.2]
	[F12-OS1.2]
	[F30-OS3.1] [F10, F12-OS3.7]
3.4.4.1.	Fire-Resistance Rating of Exit Separations
(1)	[F03, F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
3.4.4.2.	Exits Through Lobbies
(1)	[F05, F06-OS1.5]
(2)	[F05, F06, F10, F12-OS1.5]
3.4.4.3.	Exterior Passageway Exceptions
(1)	[F05, F06, F10-OS1.5]
3.4.4.4.	Integrity of Exits
(1)	[F03, F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
(2)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
(3)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
(4)	[F06-OS1.2] [F05, F06-OS1.5]
	[F43-OS3.7]
	[F06-OP1.2]
(5)	[F03, F06-OP1.2]
	[F03, F06-OS1.2] [F05, F06-OS1.5]
(6)	[F12-OS1.2] [F05, F10, F12-OS1.5]
	[F30-OS3.1] [F31-OS3.2] [F32-OS3.3] [F43-OS3.4] [F10, F12-OS3.7]
	[F12-OP1.2]
(7)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
	[F43-OS3.7]
(8)	[F06-OS1.2] [F05, F06-OS1.5]
	[F06-OP1.2]
(9)	[F06-OS1.2] [F05, F06-OS1.5]

Acceptable Solutions	Objectives and Functional Statements
	[F06-OP1.2]
(10)	[F81-OS1.5]
	[F81-OS3.7]
	[F81-OP1.2]
3.4.5.1.	Exit Signage
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10, F81-OS3.7]
(4)	[F10, F81-OS3.7]
(4.1)	[F10-OS3.7]
(5)	[F10-OS3.7]
(6)	[F10-OS3.7]
(7)	[F10-OS3.7]
(8)	[F10-OS3.7]
3.4.5.2.	Exit Signs with Tactile Information
(1)	[F10-OS3.7]
3.4.5.3.	Signs for Stairs and Ramps at Exit Level
(1)	[F10-OS3.7]
3.4.6.1.	Surface Finish of Ramps and Stairs
(1)	(a), (b) [F30-OS3.1] [F10-OS3.7]
(1.1)	[F73-OA1]
(2)	[F12-OS1.2, OS1.5]
	[F30-OS3.1] [F10, F12-OS3.7]
	[F12-OP1.2]
3.4.6.2.	Minimum Number of Risers
(1)	[F30-OS3.1]
3.4.6.3.	Maximum Vertical Rise of Stair Flights and Required Landings
(1)	[F10-OS3.7]
(2)	[F10-OS3.7] [F30-OS3.1]
(3)	[F10, F12-OS3.7] [F30-OS3.1]
3.4.6.4.	Dimensions of Landings
(1)	[F30-OS3.1] [F10, F12-OS3.7]
	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F30-OS3.1] [F10, F12-OS3.7]
	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(4)	[F30-OS3.1] [F10, F12-OS3.7]
(5)	[F30-OS3.1] [F10, F12-OS3.7]
3.4.6.5.	Handrails
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
(9)	[F30-OS3.1] [F10-OS3.7]
(10)	[F30-OS3.1] [F10-OS3.7]
	[F73-OA1]
(11)	[F30-OS3.1] [F10-OS3.7]
(12)	[F30-OS3.1] [F10-OS3.7]
	[F73-OA1]
(13)	[F30-OS3.1] [F10-OS3.7]
(15)	[F30-OS3.1] [F10-OS3.7]
(16)	[F30-OS3.1] [F10-OS3.7]
	[F73-OA1]
3.4.6.6.	Guards
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1]
(5.1)	[F30-OS3.1]
(6)	[F30-OS3.1]
(7)	[F30-OS3.1]
3.4.6.7.	Ramp Slope
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F10-OS3.7] [F30-OS3.1]
3.4.6.8.	Treads and Risers
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
	[F73-OA1]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
(6)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
(8)	[F30-OS3.1]
(9)	[F10-OS3.7] [F30-OS3.1]
(10)	[F30-OS3.1]
3.4.6.9.	Curved Flights in Exits
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
3.4.6.10.	Horizontal Exits
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(4)	[F10, F73-OS3.7]
(5)	[F10-OS3.7]
(7)	[F10-OS1.5]
3.4.6.11.	Doors
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7] Applies to portion of Code text: "No *exit* door shall open directly onto a step..."
	[F10, F81-OS3.7] Applies where there is a danger of blockage from ice or snow.
(4)	[F10-OS3.7]
(5)	[F10, F12-OS3.7]
(6)	[F10-OS3.7]
3.4.6.12.	Direction of Door Swing
(1)	[F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F10-OS3.7]
3.4.6.13.	Self-Closing Devices
(1)	[F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
3.4.6.14.	Sliding Doors
(2)	[F12-OS3.7]
3.4.6.15.	Revolving Doors
(1)	(a) [F30-OS3.1] [F10-OS3.7]
	(b) [F10, F12-OS3.7]
	(c) [F10-OS3.7]
	(d) [F30-OS3.1] [F10-OS3.7]
	(e) [F20-OS3.1]
(2)	[F10-OS3.7]
(3)	(a), (b), (d), (e) [F20, F30-OS3.1] [F10, F81-OS3.7]
3.4.6.16.	Door Release Hardware
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10, F81-OS3.7]
(7)	[F10-OS3.7]
	[F73-OA1]
(10)	[F02-OS1.2]
	[F10-OS3.7]
3.4.6.18.	Emergency Crossover Access to Floor Areas
(1)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10, F12-OS3.7]
	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(5)	[F10-OS3.7]
3.4.6.19.	Floor Numbering and Identification of Stair Shafts
(1)	[F12-OS1.2]
	[F73-OA1]
	[F12-OP1.2]
	[F12-OS1.2]
	[F10, F12,F73-OS3.7]
(2)	[F12-OP1.2]
	[F12-OP1.2]
	[F10, F12,F73-OS3.7]
3.4.7.1.	Scope
(1)	[F10, F12-OS3.7]
(2)	[F12-OS1.2] [F10-OS1.5]
	[F30-OS3.1] [F10-OS3.7]
3.4.7.2.	Fire Escape Construction
(1)	[F06-OS1.2] [F05-OS1.5] Applies to the combustibility of materials used in the construction of fire escapes.
	[F20-OS3.1] [F10, F12-OS3.7] Applies to the type and construction of fire escapes.
	[F20-OS2.1] Applies to the type and construction of fire escapes.

Acceptable Solutions	Objectives and Functional Statements
3.4.7.3.	Access to Fire Escapes
(1)	[F10-OS3.7] Applies to portion of Code text: "Access to fire escapes shall be from corridors through doors at floor level..."
(2)	[F30-OS3.1] [F10-OS3.7]
3.4.7.4.	Protection of Fire Escapes
(1)	[F05, F06-OS1.5]
3.4.7.5.	Stairs
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7] Applies to the reduction in width permitted under certain conditions.
(4)	[F30-OS3.1] [F10-OS3.7]
3.4.7.6.	Guards and Railings
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1]
(5)	[F30-OS3.1]
3.5.2.1.	Required Elevator
(1)	[F12-OS3.7]
	[F73-OA1]
(2)	[F82-OS3.1, OS3.3, OS3.6]
3.5.2.2.	Barrier-Free Design
(1)	[F73-OA1]
3.5.3.1.	Fire Separations for Elevator Hoistways
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.5.3.2.	Vertical Service Spaces for Dumbwaiters
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.5.3.3.	Fire Separations for Elevator Machine Rooms
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.5.4.1.	Elevator Car Dimensions
(1)	[F12-OS3.7]
(3)	[F12-OS3.7]
3.6.1.4.	Storage Use Prohibition
(1)	[F01-OS1.1] [F02-OS1.2]
3.6.1.5.	Appliances Installed Outside a Building
(1)	[F03-OS1.2]
	(a) [F03-OP3.1]
	(b) [F03-OP1.2]
3.6.1.6.	Fixed Access Ladders
(1)	[F20-OS2.1]
	[F30-OS3.1]
3.6.2.1.	Fire Separations around Service Rooms
(1)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]

Acceptable Solutions	Objectives and Functional Statements
(3)	[F01-OP1.1] [F03-OP1.2]
	[F01-OS1.1] [F03-OS1.2]
(4)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
(5)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
(6)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
(7)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
3.6.2.2.	Service Rooms under Exits
(1)	[F02-OS1.2]
	[F05, F06-OS3.7]
3.6.2.4.	Incinerator Rooms
(1)	[F02-OS1.2]
3.6.2.5.	Combustible Refuse Storage
(1)	[F03-OP1.2]
	[F03-OS1.2]
3.6.2.6.	Door Swing for Service Rooms
(1)	[F10-OS1.5] Applies to portion of Code text: "A swing-type door from a *service room* containing a *boiler* or incinerator shall swing outward from the room ..."
	[F30-OS3.1] Applies to portion of Code text: "A swing-type door from a *service room* containing a *boiler* or incinerator shall swing ... inward if the door opens onto a corridor or any room used for an *assembly occupancy*."
3.6.2.7.	Electrical Equipment Vaults
(1)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
(2)	[F02-OP1.2] [F03-OP1.4]
	[F02-OS1.2] [F03-OS1.4] [F11-OS1.5]
(3)	[F02, F04-OS1.3]
	[F02, F04-OP1.3]
(4)	[F02, F04-OS1.3]
	[F02, F04-OP1.3]
(5)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
(7)	[F32-OS3.3]
	[F34-OS4.1]
(8)	[F02-OS1.2, OS1.3]
	[F02-OP1.2, OP1.3]
(9)	[F81-OS1.1]
(10)	[F81-OS1.1]
(11)	[F81-OS1.1]
(12)	[F81-OS1.1]
	(b) [F30-OS3.1]
	(d) [F03-OS1.2]
	(d) [F03-OP1.2]
(13)	[F81-OS1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F34-OS3.3]
	[F81-OP1.1]
(14)	[F01-OS1.1] [F03-OS1.2]
	[F01-OP1.1] [F03-OP1.2]
(15)	[F01-OS1.1] [F03-OS1.2]
	[F01-OP1.1] [F03-OP1.2]
(16)	[F02-OS1.1 OS1.3]
	[F02-OP1.1, OP1.3]
(17)	[F01-OS1.1]
	[F01-OP1.1]
(18)	(a) [F30-OS3.1] [F10-OS3.7]
	(b) (c) [F32-OS3.3]
3.6.2.8.	Emergency Power Installations
(1)	[F03, F06-OS1.2] [F03-OS1.4] [F06-OS1.5]
	[F03, F06-OP1.2] [F03-OP1.4]
3.6.2.9.	Storage of Oxygen Containers
(1)	[F01-OS1.1] [F03-OS1.2]
	[F43-OS3.4]
	[F01-OP1.1] [F03-OP1.2]
3.6.3.1.	Fire Separations for Vertical Service Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F03-OP1.2]
	[F03-OS1.2]
3.6.3.2.	Foamed Plastic Protection
(1)	[F02-OS1.2]
3.6.3.3.	Linen and Refuse Chutes
(1)	(a), (b), (c) [F41-OH2.4, OH2.5]
	(d), (e) [F02-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OS1.2]
(4)	(a) [F41-OH2.4, OH2.5]
	(b) [F03-OS1.2]
(5)	(a) [F03, F81-OP1.2]
	(a) [F03, F81-OS1.2]
	(a) [F41, F81-OH2.4, OH2.5]
	(b) [F03-OP1.2]
	(b) [F03-OS1.2]
	(c) [F01, F02-OP1.2]
	(c) [F01, F02-OS1.2]
	(d) [F06-OS1.2] [F05, F06-OS1.5]
	(d) [F06-OP1.2]
(6)	[F02-OP1.2]
	[F02-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
(7)	[F03-OP1.2]
	[F03-OS1.2]
(8)	[F02-OS1.2]
	[F41-OH2.4, OH2.5]
(9)	[F03-OP1.2]
	[F03-OS1.2]
(10)	[F41-OH2.4, OH2.5] Applies to portion of Code text: "The room or bin into which a refuse chute discharges shall be ...impervious to moisture and be equipped with a water connection and floor drain for washing-down purposes:"
	[F03, F81-OS1.2] Applies to portion of Code text: "The room or bin into which a refuse chute discharges shall be of sufficient size to contain the refuse between normal intervals of emptying ..."
	[F41, F81-OH2.4, OH2.5] Applies to portion of Code text: "The room or bin into which a refuse chute discharges shall be of sufficient size to contain the refuse between normal intervals of emptying ..."
(11)	[F01, F02-OS1.2]
3.6.3.4.	Exhaust Duct Negative Pressure
(1)	[F03-OS1.2]
3.6.3.5.	Grease Duct Enclosures
(1)	[F02, F03-OS1.2]
	[F03, F02-OP1.2]
(2)	[F02, F03-OS1.2]
	[F03, F02-OP1.2]
3.6.4.2.	Fire Separations for Horizontal Service Spaces
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.6.4.3.	Plenum Requirements
(1)	[F02-OS1.2]
(2)	[F03-OP1.2, OP1.3]
	[F03-OS1.2, OS1.3]
3.6.4.4.	Attic or Roof Space Access
(1)	[F01, F02, F12-OP1.2]
	[F01, F02, F12-OS1.2]
3.6.4.5.	Horizontal Service Space Access
(1)	[F01, F02, F12-OP1.2]
	[F01, F02, F12-OS1.2]
3.6.4.6.	Crawl Space Access
(1)	[F01, F02, F12-OP1.2]
	[F01, F02, F12-OS1.2]
3.6.5.1.	Duct Material
(1)	[F01, F02-OS1.2]
(2)	[F02-OS1.2]
(4)	[F02-OS1.2]
(5)	[F02-OS1.2]
3.6.5.2.	Vibration Isolation Connectors
(1)	[F01, F02-OS1.2]
(2)	[F02-OS1.2]
3.6.5.3.	Tape
(1)	[F02-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
3.6.5.4.	Coverings, Lining, Adhesives and Insulation
(1)	[F02-OS1.2]
(2)	[F02-OS1.2]
(3)	[F02-OS1.2]
(4)	[F02-OS1.2]
(5)	[F02-OS1.2]
(6)	[F02-OS1.2]
(7)	[F01, F02-OS1.2]
3.6.5.5.	Insulation and Coverings
(1)	[F01, F02-OS1.2]
(2)	[F02-OS1.2]
(3)	[F02-OS1.2]
(4)	[F02-OS1.2]
3.6.5.6.	Clearance of Ducts and Plenums
(2)	[F02-OS1.2]
(3)	[F02-OS1.2]
(4)	[F02-OS1.2]
(5)	[F02-OS1.2]
3.6.5.7.	Supply, Return, Intake and Exhaust-Air Openings
(1)	[F02-OS1.2]
3.6.5.8.	Return-Air System
(1)	[F02-OS1.2]
(2)	[F01, F02-OS1.2]
(3)	[F01, F02-OS1.2]
(4)	[F01, F02-OS1.2]
3.7.1.1.	Room and Space Height
(1)	[F30-OS3.1]
3.7.1.3.	Sleeping Areas in Group B and Child Care Facilities
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(3)	[F30-OS3.1]
3.7.1.4.	Sleeping Areas in Camps
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
3.7.2.1.	Window Areas
(1)	[F102-OH7]
(2)	[F102-OH7]
(3)	[F102-OH7]
3.7.3.	Reserved
3.7.4.1.	Plumbing and Drainage Systems
(1)	[F72-OH2.1] [F70-OH2.2] [F71-OH2.3]
(2)	[F72-OH2.1]
3.7.4.2.	Plumbing Fixtures, General
(3)	[F72-OH2.1] Applies to portion of Code text: "water closets shall be provided"
(5)	[F71-OH2.3]
(7)	[F74-OA2]
(10)	[F30-OS3.1]
(11)	[F71-OH2.3]

Acceptable Solutions	Objectives and Functional Statements
3.7.4.3.	Plumbing Fixtures for Assembly Occupancies
(1)	[F72-OH2.1]
(2)	[F72-OH2.1]
(3)	[F72-OH2.1]
(4)	[F72-OH2.1]
(5)	[F72-OH2.1]
(6)	[F72-OH2.1] [F71-OH2.3]
(7)	[F72-OH2.1]
(8)	[F72-OH2.1]
	(b) [F101-OH6]
(10)	[F72-OH2.1]
(11)	[F72-OH2.1]
(12)	[F72-OH2.1]
(13)	[F72-OH2.1]
(14)	[F72-OH2.1]
(15)	[F72-OH2.1]
(16)	[F72-OH2.1]
3.7.4.4.	Plumbing Fixtures for Care or Detention Occupancies
(1)	[F72-OH2.1] [F71-OH2.3]
(2)	[F72-OH2.1] [F71-OH2.3]
(3)	[F72-OH2.1]
3.7.4.5.	Plumbing Facilities for Dwelling Units
(1)	[F72-OH2.1] [F70-OH2.2] [F71-OH2.3]
3.7.4.6.	Plumbing Fixtures for Other Residential Occupancies
(1)	[F72-OH2.1]
(2)	[F72-OH2.1]
(3)	[F71-OH2.3]
(4)	[F50-OH1.1]
	[F71-OH2.3]
3.7.4.7.	Plumbing Fixtures for Business and Personal Services Occupancies
(1)	[F72-OH2.1]
3.7.4.8.	Plumbing Fixtures for Mercantile Occupancies
(1)	[F72-OH2.1]
(2)	[F72-OH2.1]
(4)	[F72-OH2.1] [F71-OH2.3]
3.7.4.9.	Plumbing Fixtures for Industrial Occupancies
(1)	[F72-OH2.1]
3.7.4.10.	Glazing
(1)	[F20-OS3.1]
3.7.4.11.	Surface Protection
(1)	[F72-OH2.1] [F40-OH2.4]
(2)	[F72-OH2.1] [F40-OH2.4]
3.7.4.12.	Floor Drains
(1)	[F30-OS3.1]
	[F40, F41-OH2.4, OH2.6]
3.7.4.13.	Grab Bar Installation
(1)	[F20-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
3.7.4.14.	Clearances for Water Closets
(1)	[F30-OS3.1]
3.7.4.15.	Privacy
(1)	[F101-OH6]
(2)	[F101-OH6]
3.7.4.67.	Water Temperature Control
(1)	
3.7.4.17.	Drinking Water
(1)	[F70-OH2.2]
3.7.4.18.	Pharmacies
(1)	[F40-OH2.4]
3.7.4.19.	Plumbing Fixtures for Mobile Home Facilities
(1)	[F72-OH2.1] [F71-OH2.3]
(2)	[F72-OH2.1]
(3)	[F71-OH2.3] Applies to the minimum number of laundry trays or similar facilities, and of bathtubs or showers for each sex.
3.7.5.1.	Electrical Systems
(1)	[F01-OS1.1]
	[F32-OS3.3]
	[F01-OP1.1]
3.7.5.2.	Medical Gas Piping
(1)	[F43, F81, F82-OS3.4]
	(b) [F01, F02-OS1.1]
	(b) [F01, F02-OP1.1]
3.7.5.3.	Shielding of X-Ray Equipment
(1)	[F44-OS3.4]
3.7.6.2.	Room Finishes
(1)	[F41-OH2.4]
(3)	[F41-OH2.4]
3.7.6.3.	Location of Plumbing Fixtures
(1)	[F40-OH2.1, OH2.4]
(2)	[F72-OH2.1] [F71-OH2.3]
3.7.6.4.	Lavatories, Appliances and Sinks
(1)	[F71-OH2.3]
(2)	[F40-OH2.4]
3.7.6.5.	Hot and Cold Water Supply
(1)	(a) [F71-OH2.3] [F40-OH2.4]
	(b) [F70-OH2.2]
	(c) [F40-OH2.4]
3.7.6.6.	Employee Facilities
(1)	[F41-OH2.4]
	[F101-OH6]
(2)	[F71-OH2.3]
3.7.6.7.	Sleeping Quarters
(1)	[F40-OH2.4]
3.8.1.2.	Entrances
(1)	[F73-OA1]
(2)	[F73-OA1]
(5)	[F73-OA1]

Acceptable Solutions	Objectives and Functional Statements
3.8.1.3.	Barrier-Free Path of Travel
(1)	[F73-OA1]
(2)	(a), (b) [F30-OS3.1]
	(a), (b) [F73-OA1]
	(c) [F30-OS3.1]
	(c) [F73-OA1]
	(d), (e) [F30-OS3.1]
	(d), (e) [F73-OA1]
(3)	[F73-OA1]
(4)	[F73-OA1]
(5)	[F30-OS3.1]
(6)	[F73-OA1]
3.8.1.4.	Escalators and Moving Walks
(1)	[F73-OA1]
(2)	[F73-OA1]
(3)	[F73-OA1]
3.8.1.5.	Controls
(1)	[F10-OS3.7]
	[F73-OA1]
	[F74-OA2]
(2)	[F74-OA2]
3.8.2.1.	Areas Requiring Barrier-Free Path of Travel
(1)	[F73-OA1]
(4)	[F74-OA2]
(5)	[F73-OA1]
	[F74-OA2]
(6)	[F74-OA2]
3.8.2.2.	Barrier-Free Paths of Travel to Building Entrances, Exterior Passenger Loading Zones, and Access to Parking Areas
(1)	[F73-OA1]
(2)	[F73-OA1]
(3)	(a) [F74-OA2]
	(b) [F73-OA1]
	(c) [F74-OA2]
3.8.2.3.	Washrooms Required to be Barrier-Free
(1)	[F74-OA2]
(2)	[F72-OH2.1] [F71-OH2.3]
(3)	[F72-OH2.1] [F71-OH2.3]
(6)	[F72-OH2.1] [F71-OH2.3]
	[F74-OA2]
3.8.2.4.	Hotels
(1)	[F73-OA1]
	[F74-OA2]
(3)	[F74-OA2]
(4)	[F74-OA2]
(5)	[F74-OA1]
(6)	[F74-OA1]
(7)	[F74-OA2]
(8)	[F73-OA1]

Acceptable Solutions	Objectives and Functional Statements
3.8.3.1.	Accessibility Signs
(1)	[F74-OA2]
(2)	[F74-OA2]
(3)	[F74-OA2]
(4)	[F74-OA2]
(5)	[F74-OA2]
(6)	[F74-OA2]
(7)	[F73-OA1]
	[F74-OA2]
(8)	[F73-OA1] [F74-OA2]
3.8.3.2.	Exterior Walks
(1)	[F73-OA1]
	[F30-OS3.1]
(3)	[F73-OA1]
	[F30-OS3.1]
3.8.3.3.	Doorways and Doors
(1)	[F73-OA1]
(2)	[F74-OA2]
(3)	[F10-OS3.7]
	[F74-OA2]
(4)	[F73-OA1]
(4.1)	[F73-OA1]
(5)	[F73-OA1]
(6)	[F71-OH2.3]
	[F74-OA1]
(7)	[F73-OA1]
(9)	[F30-OS3.1]
	[F73-OA1]
(10)	[F73-OA1]
(11)	[F30-OS3.1]
	[F73-OA1]
(13)	[F73-OA1]
(14)	[F30-OS3.1]
(15)	[F30-OS3.1]
(17)	[F73-OA1]
(18)	[F30-OS3.1]
(19)	[F73-OA1]
3.8.3.4.	Ramps
(1)	(b), (c), (d), (e), (h) [F73-OA1]
	(b), (c), (d), (f), (g), (h) [F30-OS3.1]
	(e)(iii) [F30-OS3.1]
	(e)(v) [F30-OS3.1]
3.8.3.5.	Passenger Elevating Devices
(1)	[F30-OS3.1] [F10-OS3.7] [F73-OA1] [F74-OA2]
3.8.3.6.	Wheelchair Spaces and Adaptive Seating
(1)	[F30-OS3.1] Applies to portion of Code text: "... level, or level with removable seats ..."
	[F74-OA2] Applies to entire Sentence except for portion of Code text: "... without infringing on egress from any row of seating or any aisle requirements ..."

Acceptable Solutions	Objectives and Functional Statements
	(d) [F10-OS3.7]
(2)	[F74-OA2]
(3)	[F73-OA1]
3.8.3.7.	Assistive Listening Devices
(1)	[F11-OS3.7]
	[F74-OA2]
(2)	[F74-OA2]
(3)	[F74-OA2]
3.8.3.8.	Water Closet Stalls and Enclosures
(1)	[F72-OH2.1]
	[F74-OA2]
	(c) [F101-OH6]
	(c)(i) [F74-OA2]
	(c)(vii) [F36-OS3.6]
	(e) [F30-OS3.1] Applies to portion of Code text: "... be equipped with a coat hook ... projecting not more than 50 mm from the wall ..."
(2)	[F74-OA2]
(3)	[F72-OH2.1]
	[F74-OA2]
(4)	[F72-OH2.1]
	[F74-OA2]
(5)	[F30-OS3.1]
	[F74-OA2]
(6)	[F30-OS3.1]
	[F74-OA2]
(7)	[F20-OS3.1]
	[F74-OA2]
(8)	[F20-OS3.1]
	[F74-OA2]
(9)	[F74-OA2]
(10)	[F74-OA2]
	(b)(vi) [F36-OS3.6]
	(d) [F30-OS3.1]
3.8.3.9.	Water Closets
(1)	[F72-OH2.1]
	[F74-OA2]
3.8.3.10.	Urinals
(1)	[F74-OA2]
(2)	[F74-OS2]
	(b) [F30-OS3.1]
(3)	[F74-OA2]
	[F101-OH3.2]
(4)	[F74-OA2]
3.8.3.11.	Lavatories, Mirrors and Washroom Accessories
(1)	[F71-OH2.3]
	[F74-OA2]
	(d) [F31-OS3.2]
(2)	[F74-OA2]
(5)	[F74-OA2]

Acceptable Solutions	Objectives and Functional Statements
3.8.3.12.	Universal Washrooms
(1)	[F72-OH2.1] [F71-OH2.3]
	[F74-OA2]
	(b) [F74-OA2] Applies to portion of Code text: "... a door that is capable of being locked from the inside ..."
	(b) [F10-OS3.7]
	(g) [F30-OS3.1] Applies to the requirement for a coat hook.
	(j) [F73-OA1]
	(k) [F131-OR2]
(2)	[F36-OS3.6]
(4)	[F20-OS3.1]
(5)	[F74-OA2.1]
	[F71-OH2.3]
	(b) [F20-OS3.1]
3.8.3.13.	Showers and Bathtubs
(1)	[F74-OA2]
(2)	[F74-OA2]
	(f)(iii) [F20-OS3.1]
(4)	[F74-OA2]
(5)	[F74-OA2]
	[F71-OH2.3]
	(a) [F73-OA1]
	(b) [F10-OS3.7] [F74-OA2]
	(g) [F74-OA2]
(7)	[F74-OA2]
(8)	[F74-OA2]
3.8.3.14.	Service Counters
(1)	[F74-OA2]
(2)	[F74-OA2]
3.8.3.15.	Shelves or Counters for Telephones
(1)	[F74-OA2]
(2)	[F74-OA2]
(3)	[F74-OA2]
(4)	[F74-OA2]
3.8.3.16.	Drinking Fountains
(1)	[F74-OA2]
(2)	[F74-OA2]
(3)	[F74-OA2]
3.8.3.16.A.	Water-Bottle Filling Station
(1)	[F74-OA2]
(2)	[F74-OA2]
3.8.3.17.	Platforms
(1)	[F30-OS3.1]
3.8.3.18.	Tactile Attention Indicators
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
3.9.2.1.	Flame-Spread Rating
(1)	[F02-OP1.2]
	[F02-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
3.9.3.1.	Building Areas
(1)	[F02-OP1.1]
	[F02-OS1.1]
3.9.3.2.	Spatial Separations
(1)	[F03-OP3.1]
	[F03-OS1.1]
(2)	[F03-OP3.1]
	[F03-OS1.1]
3.9.3.3.	Fire Alarm Systems
(1)	[F12-OS1.2, OS1.5]
3.9.3.4.	Provisions for Firefighting
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.9.3.5.	Portable Fire Extinguishers
(1)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
3.9.3.7.	Fuel-Fired Appliances
(1)	[F05-OS1.5]
	[F43-OS3.7]
(2)	[F03-OP1.2, OP1.4]
	[F03-OS1.2, OS1.4]
3.10.2.1.	Occupancy Classification
(1)	[F02, F03-OS1.2] [F10-OS1.5] Applies to portion of Code text: "(b) shall not contain a Group F, Division 1 *occupancy*."
3.10.2.3.	Structural Fire Protection
(2)	[F02, F03, F04-OP1.2] [F02, F04-OP1.3]
	[F02, F03, F04-OS1.2] [F02, F04-OS1.3]
3.10.2.4.	Safety Requirements Within Floor Areas
(5)	[F10-OS1.5] [F30-OS3.1, OS3.7]
(6)	[F10-OS1.5] [F30-OS3.1, OS3.7]
(7)	[F10-OS1.5]
(8)	[F10-OS1.5] [F30-OS3.1, OS3.7]
(9)	[F02, F03-OS1.2]
(10)	[F02, F03-OS1.2]
3.10.2.5.	Exit Requirements
(2)	[F10-OS3.7]
3.10.2.6.	Service Facilities
(2)	[F03-OP1.2]
	[F03-OS1.2]
3.10.2.7.	Sanitary Facilities
(2)	[F72-OH2.1] [F71-OH2.3]
3.10.3.2.	Spatial Separations
(2)	[F03-OP3.1]
	[F03-OS1.1]
3.10.3.3.	Fire Alarm Systems
(2)	[F11-OS1.5]
3.10.3.4.	Provisions for Firefighting
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OP1.2]
	[F12-OS1.2]
3.10.4. 3.	Spatial Separations
(3)	[F03-OP3.1]
	[F03-OS1.1]
(4)	[F03-OP3.1]
	[F03-OS1.1]
3.10.4.5.	Provisions for Firefighting
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OP1.2]
	[F12-OS1.2]
(5)	[F02-OP1.2]
	[F02-OP3.1]
	[F02-OS1.2]
3.11.3.1.	Construction Requirements
(4)	[F30, F120-OS3.1]
(5)	[F30, F120-OS3.1]
(6)	[F30, F121-OS3.1]
(7)	[F30, F121-OS3.1]
(8)	[F30, F121-OS3.1]
(9)	(a) [F12, F30, F121-OS3.1] [F123-OS3.7]
	(b), (c) [F122-OH2.3]
(10)	[F30, F121-OS3.1]
(11)	(a) [F123-OS3.7]
	(b), (c) [F122-OH2.3]
	(d) [F122-OH2.3]
	(d) [F30-OS3.1]
(12)	[F30, F123-OS3.1]
(13)	[F40-OH2.3]
	[F30-OS3.1]
(14)	[F40-OH2.3]
	[F30-OS3.1]
(15)	[F30-OS3.1]
(16)	[F122-OH2.3]
	[F30-OS3.1]
(17)	[F40, F41, F122-OH2.3]
(18)	[F40, F122-OH2.3]
(19)	[F30, F120-OS3.1]
	(b) [F74-OA2]
(20)	[F40, F41, F122-OH2.3]
(21)	[F123-OS3.1]
(22)	[F123-OS3.1]
(23)	[F122-OH2.3]
	[F34-OS3.1]
(24)	[F30, F123-OS3.1]
(25)	[F30, F120, F121-OS3.1]
(26)	[F30, F120-OS3.1]
(27)	[F30, F36, F120-OS3.1]
(28)	[F30, F36, F120-OS3.1]
3.11.3.2.	Barrier-Free Path of Travel for Outdoor Pool Deck
(1)	[F74-OA2]

Acceptable Solutions	Objectives and Functional Statements
3.11.3.3.	Access into Public Pools
(1)	[F74-OA2]
(2)	[F74-OA2]
	[F121-OS3.1]
(3)	[F74-OA2]
(4)	[F74-OA2]
(5)	[F30-OS3.1]
(6)	[F20-OP2.1]
3.11.4.1.	Diving Boards or Platforms
(2)	[F30-OS3.1]
(3)	[F30-OS3.1]
(4)	[F30-OS3.1]
(6)	[F30, F120-OS3.1]
(7)	[F30, F120-OS3.1]
(8)	[F30, F120-OS3.1]
(9)	[F30, F120-OS3.1]
(10)	[F30-OS3.1]
(11)	[F30-OS3.1]
(12)	[F30-OS3.1]
(13)	[F30-OS3.1]
(14)	[F30-OS3.1]
(15)	[F30, F120-OS3.1]
(16)	[F30, F34-OS3.1]
(17)	[F30, F120-OS3.1]
3.11.5.1.	Ramps into Public Pools
(1)	[F74-OA2]
(2)	[F30, F120-OS3.1]
	(d) [F40, F41-OH2.3, OH2.4]
(3)	[F74-OA2]
	[F30, F120, F121-OS3.1]
	(b) [F41-OH2.3]
	(d) [F32-OS3.7]
(4)	[F74-OA2]
	[F30, F120, F121-OS3.1]
	(c) [F34-OS3.7]
3.11.5.2.	Public Pools in Group B, Division 2 or 3 Major Occupancies
(2)	[F30, F120-OS3.1]
(3)	[F30, F34-OS3.1]
(4)	[F30, F34-OS3.1]
3.11.6.1.	Construction Requirements
(3)	[F40, F41-OH2.3, OH2.4]
(4)	[F30, F121-OS3.1]
(5)	[F30-OS3.1]
(6)	[F122-OH2.3]
	[F123-OS3.1]
(7)	[F30, F124-OS3.1]
(8)	[F30, F123-OS3.1]
(9)	[F30, F121-OS3.1]
3.11.7.1.	Construction Requirements
(3)	[F30, F121-OS3.1]
(4)	[F30, F121-OS3.1]
(5)	[F30, F123-OS3.1]
	[F122-OH2.3]
(6)	[F30, F123-OS3.1]
(7)	[F30, F120-OS3.1]
(8)	[F30, F34-OS3.1]
(9)	[F122-OH2.3]
(10)	[F30, F123-OS3.1]
(11)	[F12, F123-OS3.1]
3.11.8.1.	Recirculation Systems
(1)	[F122-OH2.3]
(3)	[F46-OH2.2] [F122-OH2.3]
(5)	[F122-OH2.3]
(6)	[F40, F41-OH2.3]
	[F124-OS3.1]
(7)	[F40, F41-OH2.3]
(8)	[F122-OH2.3]
(9)	[F122-OH2.3]
	[F43, F122-OS3.4]
(10)	[F43, F81-OS3.4]
(11)	[F43, F81-OS3.4]
(12)	[F40, F41-OH2.3]
(13)	[F40, F41-OH2.3]
(14)	[F30, F121, F124 -OS3.1]
(15)	[F30, F124-OS3.1]
(16)	[F30, F120-OS3.1]
(17)	[F30, F124-OS3.1]
(18)	[F30, F121, F124-OS3.1]
(20)	[F30, F124-OS3.1]
3.11.9.1.	Dressing Rooms and Sanitary Facilities
(1)	[F72-OH2.1] [F70-OH2.2] [F71-OH2.3]
	[F101-OH6]
(5)	[F40, F71, F122-OH2.3]
(6)	[F40, F122-OH2.3]
(7)	[F40, F71, F122-OH2.2]
(8)	[F31-OS3.2]
(9)	[F41, F45-OH2.3]
	[F30-OS3.1]
(10)	[F40, F41-OH2.3]
(11)	[F40, F41-OH2.3]
(12)	[F101-OH6]
(13)	[F40, F41-OH2.3]
	[F101-OH6]
(14)	[F40, F41-OH2.3]
	[F30-OS3.1]
3.11.10.1.	Lighting and Emergency Provisions
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30, F123-OS3.1] [F10-OS3.7]
(4)	[F30, F123-OS3.1] [F10-OS3.7]
(5)	[F30, F123-OS3.1] [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
(7)	[F30-OS3.1]
(8)	[F30-OS3.1]
(9)	[F30-OS3.1] [F11-OS3.7]
(10)	[F30-OS3.1] [F11, F12-OS3.7]
(11)	[F30-OS3.1] [F11, F12-OS3.7]
(12)	[F30, F124-OS3.1]
(13)	[F11, F10, F30-OS3.1]
(14)	[F11-OS3.1]
3.11.11.1.	Service Rooms and Storage Facilities
(2)	[F50-OH1.1]
	[F04-OS1.3]
	[F03-OS2.1]
	[F43, F44-OS3.4] [F10-OS3.7]
(3)	[F01-OS1.1]
	[F43-OS3.4]
(4)	[F50-OH1.1]
	[F40, F41-OH2.3]
	[F43-OS3.4]
(5)	[F50-OH1.1]
	[F32, F34-OS3.3] [F34, F43-OS3.4]
3.12.2.1.	Construction Requirements
(2)	[F30, F121-OS3.1]
(3)	[F30, F121-OS3.1]
(4)	(a), (b) [F12, F30, F121-OS3.1] [F123-OS3.7]
	(c), (d) [F122-OH2.3]
(6)	[F30, F121-OS3.1]
(7)	[F30, F120, F121-OS3.1]
(8)	[F70, F71, F72-OH2.3]
(9)	[F30, F36-OS3.1]
3.12.3.1.	Ramps into Public Spas
(1)	[F123-OS3.1]
3.12.3.2.	Access into Public Spas
(2)	[F74-OA2]
(3)	[F30, F120-OS3.1]
	[F74-OA2]
(4)	[F74-OA2]
(5)	[F74-OA2]
3.12.4.1.	Water Circulation Systems
(2)	[F40, F41-OH2.3]
(3)	[F40, F41, F81-OH2.3] [F122-OH2.2]
(4)	[F30, F124-OS3.1]
(5)	[F30, F124-OS3.1]
(6)	[F30, F124-OS3.1]
(7)	[F30, F81, F121, F124-OS3.1]
(8)	[F30, F124-OS3.1]
(10)	[F30, F124 - OS3.1]
(11)	[F30, F81, F124-OS3.1]
(12)	[F30, F81, F124-OS3.1]
(13)	[F30, F124-OS3.1]
(14)	[F40, F41-OH2.3]
	[F43-OS3.4]

Acceptable Solutions	Objectives and Functional Statements
(15)	[F40, F41, F81-OH2.3]
	[F81-OS3.1]
(16)	[F30, F124-OS3.1]
(17)	[F30, F121-OS3.1] [F31-OS3.2]
	[F31-OH1.2]
(18)	[F40, F41-OH2.3]
	[F30-OS3.1]
3.12.5.1.	Lighting and Emergency Provisions
(2)	[F13, F30-OS3.1]
(3)	[F30, F124-OS3.1]
(4)	[F11, F30-OS3.1]
(5)	[F30, F124-OS3.1]
3.13.2.1.	Requirements for Stations
(3)	[F02-OP1.2] Applies to portion of Code text: "... shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... shall be *of noncombustible construction*,"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b), (c) [F04–OP1.3]
	(b), (c) [F04-OS1.3]
(5)	[F02-OP1.2] Applies to portion of Code text: "... shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... shall be *of noncombustible construction*,"
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be fire *separations* with a *fire-resistance rating* not less than 2 h," and to Clause (d).
	(b), (d) [F04-OP1.3] [F04-OS1.3]
	(c), (d) [F04-OP1.3] [F04-OS1.3]
(6)	[F02-OP1.2] Applies to portion of Code text: "... shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... shall be *of noncombustible construction*,"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "(a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	(b), (d) [F04-OP1.3] [F04-OS1.3]
	(c), (d) [F04-OP1.3] [F04-OS1.3]
(10)	[F03-OP1.2] [F03-OS1.2]
(11)	[F03-OP1.2] [F03-OS1.2]
3.13.3.1.	Application
(6)	[F10-OS3.7]
3.13.3.2.	Booths and Kiosks
(1)	[F02-OP1.2] Applies to portion of Code text: "... shall be of *noncombustible construction*,"

Acceptable Solutions	Objectives and Functional Statements
	[F02-OS1.2] Applies to portion of Code text: "... shall be *of noncombustible construction*,"
(2)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
3.13.3.3.	Service Rooms and Ancillary Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F10-OS1.5]
(4)	[F10-OS1.5]
3.13.3.4.	Leased Areas
(1)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
(3)	[F10-OS1.5]
(4)	[F02-OP1.2]
	[F02-OS1.2]
(5)	[F02-OP1.2]
	[F02-OS1.2]
(7)	(a), (b) [F10-OS1.5]
	(c) [F10, F36-OS1.5]
3.13.3.5.	Vehicle Terminal
(1)	(a) [F02-OP1.2]
	(a) [F02-OS1.2]
	(b) [F03-OP1.2]
	(b) [F03-OS1.2]
3.13.3.6.	Access to Adjacent Building
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OS1.2] [F10-OS1.5]
(3)	[F10-OS1.5]
(4)	[F03-OP1.2]
	[F03-OS1.2] [F10-OS1.5]
(5)	[F10-OS1.5]
3.13.3.7.	Emergency Lighting
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
3.13.4.2.	General Requirements
(2)	[F10-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10-OS3.7]
(7)	[F03, F06-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
3.13.4.3.	Number and Location of Means of Egress
(1)	[F05, F10-OS1.2]
(3)	[F05, F10-OS1.5]
(5)	[F10-OS3.7]
3.13.4.4.	Egress Capacity
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
3.13.4.5.	Width of Means of Egress
(4)	[F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
(6)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
(8)	[F30-OS3.1] [F10-OS3.7]
3.13.4.6.	Egress Facilities
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	(a), (c) [F10-OS3.7]
	(b) [F81-OS3.7]
(5)	[F10, F40-OS1.5]
3.13.5.3.	Fire Detectors
(1)	[F11-OS1.5]
3.13.5.4.	Central Supervising Station
(1)	[F13, F81-OP1.2]
	[F13, F81-OS1.2, OS1.5]
3.13.5.5.	Annunciators
(1)	[F12-OS1.2, OS1.5]
3.13.5.6.	Annunciator Indication
(1)	[F12-OS1.2, OS1.5]
(2)	[F13, F81-OP1.2]
	[F13, F81-OS1.2, OS1.5]
(3)	[F10, F11-OS1.5]
(4)	[F10, F11-OS1.5]
3.13.5.8.	Communication Systems
(1)	[F11, F12-OS3.7]
(2)	[F11, F12-OS3.7]
(3)	[F11, F12-OS3.7]
3.13.5.9.	Emergency Reporting Devices
(1)	[F30-OS3.1] [F11, F12-OS3.7]
3.13.5.11.	Standpipe and Hose Systems
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OP1.2]
	[F12-OS1.2]
(4)	[F02, F12-OP1.2]
	[F02, F12-OS1.2]
(5)	[F02, F12-OP1.2]
	[F02, F12-OS1.2]
(6)	[F02-OP1.2]
	[F02-OS1.2]
(7)	[F02-OP1.2]
	[F02-OS1.2]
3.13.6.2.	Washrooms Required
(1)	[F72-OH2.1] [F71-OH2.3]
(2)	[F101-OH6] Applies to portion of Code text: "... provided the door to the room can be locked from the inside."
(4)	[F72-OH2.1] [F71-OH2.3]
3.13.7.1.	Application
(1)	[F06-OP1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F06-OS1.2] [F05, F06-OS1.5]
3.13.8.1.	Application
(3)	[F73-OA1]
3.13.8.3.	Elevator Requirements
(1)	[F73-OA1]
(2)	[F73-OA1]
3.13.8.4.	Emergency Operation of Elevators
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(4)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
3.13.8.5.	Washrooms Required to be Barrier-Free
(1)	[F73-OA1]
(2)	[F74-OA2]
(3)	[F74-OA2]
(4)	[F74-OA2]
(5)	[F74-OA2]
3.14.1.3.	Means of Egress
(3)	[F10, F12-OS3.7]
3.14.1.4.	Clearance to Other Structures
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
3.14.1.5.	Clearances to Flammable Material
(1)	[F01-OP1.1] [F03-OP1.2]
	[F01-OS1.1] [F03-OS1.2]
3.14.1.6.	Flame Resistance
(1)	[F01, F02-OP1.2]
	[F01, F02-OS1.2]
3.14.1.9.	Provision for Firefighting
(1)	[F12-OP1.2]
	[F12-OS1.2]
3.14.1.10.	Electrical Systems
(1)	[F34-OP1.1]
	[F34-OS1.1]
	[F34-OS3.3]
(2)	[F81-OP1.1]
	[F81-OS1.1]
3.14.2.2.	General
(1)	[F01, F02, F36-OS1.5] Applies to portion of Code text: "*Air-supported structures* shall not be used for ... Group F, Division 1 *major occupancies* ... "
	[F10, F36-OS3.7] Applies to portion of Code text: "*Air-supported structures* shall not be used for Groups B, C, ... *major occupancies* or for classrooms. "
(2)	[F02, F03-OS1.2]
3.14.2.3.	Spatial Separation
(1)	[F03-OP3.1]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
3.14.2.4.	Clearances to Flammable Material
(1)	[F01-OP1.1] [F03-OP1.2]
	[F01-OS1.1] [F03-OS1.2]
3.14.2.5.	Flame Resistance
(1)	F01, [F02-OP1.2]
	[F01, F02-OS1.2]
3.14.2.6.	Emergency Air Supply
(1)	[F20-OS3.7]
3.14.2.7.	Electrical Systems
(1)	[F34-OP1.1]
	[F34-OS1.1]
	[F34-OS3.3]
(2)	[F81-OP1.1]
	[F81-OS1.1]
3.15.4.1.	Combustible Sign Faces
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
(4)	[F02-OP1.2]
	[F02-OS1.2]
(5)	[F02-OP1.2]
	[F02-OS1.2]
3.15.5.1.	Obstructions not Permitted
(1)	[F50-OH1.1]
	[F102-OH7]
	[F12-OP1.2]
	[F12-OS1.2] [F10, F12-OS1.5]
	[F30-OS3.7]
3.15.5.2.	Clearance for Exterior Signs
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(4)	[F32-OS3.3]
3.16.1.2.	General
(1)	[F02, F03-OS1.2] [F10-OS1.5]
	[F30-OS3.1] [F36-OS3.6]
(3)	[F10-OS1.5]
(4)	[F10-OS1.5]
3.16.1.3.	Construction
(2)	[F30-OS3.1]
(4)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
3.16.1.4.	Signs
(1)	[F20-OP2.1]
	[F20-OS2.1]
(2)	[F01-OP1.1]
	[F01-OS1.1]

Acceptable Solutions	Objectives and Functional Statements
3.16.1.5.	Lighting
(1)	[F30-OS3.1]
(2)	[F10-OS3.7]
3.16.1.6.	Sprinkler System
(1)	[F02-OP1.2]
	[F02-OS1.2]
(2)	[F02, F81, F82-OP1.2]
	[F02, F81, F82-OS1.2]
(3)	[F02-OP1.2]
	[F02-OS1.2]
(4)	[F81-OP1.2]
	[F81-OS1.2]
(5)	[F81, F82-OP1.2]
	[F81, F82-OS1.2]
(6)	[F13-OP1.2]
	[F13-OS1.2, OS1.5]
(8)	[F02-OP1.2]
3.16.1.7.	Exits and Means of Egress
(1)	[F12-OP1.2]
	[F12-OS1.2]
	[F10, F12-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10-OS3.7]
(6)	[F10-OS3.7]
(7)	[F10-OS3.7]
(8)	[F10-OS3.7]
(9)	[F10-OS3.7]
(10)	[F10-OS3.7]
(11)	[F10-OS3.7]
(12)	[F30-OS3.1] [F10-OS3.7]
(13)	[F30-OS3.1] [F10-OS3.7]
3.16.2.2.	Construction
(1)	(a) [F13-OP1.2]
	(a) [F13-OS1.2] [F11, F13-OS1.5]
	(b) [F13-OP1.2]
	(b) [F13-OS1.2, OS1.5]
	(c) [F02-OP1.1]
3.16.3.2.	Construction
(2)	[F05-OS1.5]
(3)	[F10-OS1.5]
3.17.2.2.	Means of Egress
(2)	[F06, F12-OP1.2]
	[F06, F12-OS1.2]
	[F05, F06, F10, F12-OS3.7]
(4)	[F10-OS3.7]
(6)	[F05, F10-OS1.5]
(8)	[F30-OS3.1] [F10-OS3.7]
3.17.2.3.	Guards
(1)	[F30-OS3.1]
(3)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
3.17.2.4.	Clearance to Other Structures
(1)	[F03-OP3.1]
3.17.2.5.	Flame Resistance
(1)	[F01, F02-OS1.2]
	[F01, F02-OP1.2]
3.17.2.6.	Provision for Firefighting
(1)	[F12-OP1.2]
	[F12-OS1.2]
3.17.2.7.	Electrical Systems
(1)	[F34-OP1.1]
	[F34-OS1.1]
	[F34-OS3.3]
(2)	[F81-OP1.1]
	[F81-OS1.1]
3.17.2.8.	Structural Provisions
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1]
	[F20-OH4] Applies to footings that support floors and other elements that support floors.
	[F20-OS3.1] Applies to footings that support floors and other elements that support floors.
	[F20-OS3.7] Applies to footings that support access to egress facilities.
3.18.2.1.	Change of Use and Compensating Construction
(1)	3.2.6. Applies to additional requirements for high *buildings*. [F03, F06, F12, F13, F82-OP1.2] [F03-OP3.1] [F02, F03, F06, F12, F13, F82-OS1.2] [F02, F03, F05, F06, F10, F11, F12, F82-OS1.5] [F30-OS3.1] [F11, F12-OS3.7]
	3.7. Applies to health requirements for *buildings*. [F74-OA2] [F50-OH1.1] [F40, F72-OH2.1] [F70-OH2.2] [F71-OH2.3] [F40, F41-OH2.4] [F101-OH6] [F102-OH7] [F01-OP1.1] [F01-OS1.1] [F20, F30-OS3.1] [F32-OS3.3] [F43, F44-OS3.4]
	3.11. Applies to *public pools*. [F74-OA2] [F50- OH1.1] [F72-OH2.1] [F46, F70-OH2.2] [F40, F41, F45, F71, F122 - OH2.3] [F40, F41-OH2.4] [F101-OH6] [F01-OS1.1] [F04-OS1.3] [F03-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F12, F30, F34, F36, F120, F121, F123, F124-OS3.1] [F31- OS3.2] [F32, F34 - OS3.3] [F34, F43, F44, F81, F122-OS3.4] [F10, F11, F12, F34, F123-OS3.7]
	3.12. Applies to *public spas*. [F74-OA2] [F46-OH2.2] [F40, F41, F70, F71, F72, F81, F122 - OH2.3] [F40, F41-OH2.4] [F11, F12, F13, F30, F34, F36, F81, F120, F121, F123, F124-OS3.1] [F43, F81, F122-OS3.4] [F10, F34, F123-OS3.7]
3.18.2.2.	Performance Level and Compensating Construction
(1)	[F140-OC]

Table 4
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 4 of Division

Acceptable Solutions	Objectives and Functional Statements
4.1.1.3.	Design Requirements
(1)	[F20-OS2.1]
(2)	[F22-OH4]
	[F22-OP2.4]
(3)	[F20-OS2.1] Applies to structural members where temporary overloading during construction may result in impairment of that or any other member.
(5)	[F20-OS2.3, OS2.4]
	[F20-OP2.1] [F22-OP2.4]
4.1.1.5	Design Basis
(2)	[F20-OS2.1] [F22-OS2.4, OS2.5]
	[F20-OP2.1] [F22-OP2.4, OP2.5]
	[F22-OH4]
4.1.2.1.	Loads and Effects
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
(3)	[F20-OS2.1]
4.1.2.2.	Loads Not Listed
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.3.2.	Strength and Stability
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1] [F22-OS2.4, OS2.5] Applies to the stabilizing resistance of the *dead load*.
	[F20-OP2.1] [F22-OP2.4, OP2.5]
(3)	[F20-OS2.1] [F22-OS2.4, OS2.5] Applies to the stabilizing resistance of the *dead load*.
	[F20-OP2.1] [F22-OP2.4, OP2.5]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1] [F22-OS2.4, OS2.5]
	[F20-OP2.1] [F22-OP2.4, OP2.5]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(11)	[F20-OS2.1]
	[F22-OS2.4, OS2.5]
(12)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.3.3.	Fatigue
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
	[F22-OH4]
4.1.3.4.	Serviceability
(1)	[F22-OP2.4]
	[F22-OH4]
(2)	[F22-OP2.4]
	[F22-OH4]
(3)	[F22-OP2.4]
	[F22-OH4]
(4)	[F22-OP2.4]
	[F22-OH4]
(5)	[F22-OH4]
	[F22-OP2.4]
	(b), (c), (d) [F22-OP2.4]
(6)	[F21-OS2.5]
	[F21-OP2.4, OP2.5]
	[F22-OH4]
4.1.3.5.	Deflection
(1)	[F22-OH4]
	[F22-OP2.4]
	(b), (c), (d) [F22-OP2.4]
(2)	[F22-OS2.3, OS2.4]
	[F22-OP2.4]
(3)	[F22-OP2.4]
(5)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
4.1.3.6.	Vibration
(1)	[F22-OH4]
	[F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
	[F22-OH4]
4.1.4.1.	Dead Loads
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1] [F22-OS2.4, OS2.5]
4.1.5.1.	Loads Due to Use of Floors and Roofs
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.2.	Uses Not Stipulated
(1)	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.3.	Full and Partial Loading
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.4.	Loads for Occupancy Served
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.5.	Loads on Exterior Areas
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.7.	More Than One Occupancy
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.8.	Variation with Tributary Area
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.5.9.	Concentrated Loads
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.5.10.	Sway Forces in Assembly Occupancies
(1)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
4.1.5.11.	Crane-Supporting Structures and Impact of Machinery and Equipment
(1)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
(5)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
4.1.5.12.	Bleachers
(1)	[F20-OS2.1]
	[F20-OP2.1][F22-OP2.4]
(3)	[F20-OS2.4]
4.1.5.13.	Helicopter Landing Areas
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.5.14.	Loads on Guards and Handrails
(1)	[F20-OS2.1]
(2)	[F20-OS2.1]
(3)	[F20-OS2.1, OS2.4]
(4)	[F22-OS2.4]
(6)	[F20-OS2.1]
(7)	[F20-OS2.1]
4.1.5.15.	Loads on Vehicle Guardrails
(1)	[F20-OS2.1]
4.1.5.16.	Loads on Walls Acting as Guards
(1)	[F20-OS2.1]
4.1.5.17.	Firewalls
(1)	[F20-OS1.2]
	[F20-OP1.2]
	[F20-OP3.1]
(2)	[F04-OS1.2]
	[F04-OP1.2]
	[F04-OP3.1]
4.1.6.2.	Specified Snow Load
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1] Applies to portion of Code text: "The accumulation factor, C_a, shall be 1.0, …"
	[F20-OP2.1] [F22-OP2.4] Applies to portion of Code text: "The accumulation factor, C_a, shall be 1.0, …"
	(a) to (f) [F20-OS2.1] Applies to roof shapes and configurations that call for a higher accumulation factor.
	(a) to (f) [F20-OP2.1] [F22-OP2.4] Applies to roof shapes and configurations that call for a higher accumulation factor.
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
4.1.6.3.	Full and Partial Loading
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.4.	Specified Rain Load
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.5.	Multi-Level Roofs
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.6.	Horizontal Gap Between a Roof and a Higher Roof
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.7.	Areas Adjacent to Roof Projections
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.8.	Snow Drift at Corners
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.9.	Gable Roofs
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.10.	Arch Roofs, Curved Roofs and Domes
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.11.	Snow Loads Due to Sliding
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.12.	Valleys in Curved or Sloped Roofs
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.13.	Specific Weight of Snow
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.14.	Snow Removal
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.15.	Ice Loading of Structures
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.6.16.	Roofs with Solar Panels
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.7.1.	Specified Wind Load
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1][F22-OP2.4]
	[F22-OH4]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.2.	Classification of Buildings
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.3.	Static Procedure
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(10)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.4.	Topographic Factor
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.5.	External Pressure Coefficients
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(5)	[F20-OS2.1]
(6)	[F20-OS2.1]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.7.6.	External Pressure Coefficients for Low Buildings
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.7.	Internal Pressure Coefficient
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.8.	Dynamic Procedure

Acceptable Solutions	Objectives and Functional Statements
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.9.	Full and Partial Wind Loading
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
4.1.7.10.	Interior Walls and Partitions
(1)	[F20-OS2.1] [F20-OP2.1] [F22-OP2.4]
4.1.7.11.	Exterior Ornamentations, Equipment and Appendages
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.7.12.	Attached Canopies on Low Buildings with a Height **$H \leq 20$ m**
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.7.13.	Roof-Mounted Solar Panels on Buildings of Any Height
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
(4)	[F20-OS2.1]
(5)	[F20-OS2.1]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.7.14.	Wind Tunnel Procedure
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F22-OH4]
4.1.8.1.	Analysis
(2)	(a) [F20-OS2.1]
	(a) [F20-OP2.1,OP2.3] [F22-OP2.4]
	(b) [F20-OS2.1]
	(b) [F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(10)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(11)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(12)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(13)	[F20-OS2.1]
	[F20-OP2.3] [F22-OP2.3, OP2.4]
(14)	[F20-OS2.1]
	[F20-OP2.3] [F22-OP2.3, OP2.4]
4.1.8.3.	General Requirements
(2)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.4.	Site Properties
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.5.	Importance Factor and Seismic Category
(1)	[F20-OS2.1]
	[F20-OP2.1, OP2.3] [F22-OP2.4]
4.1.8.6.	Structural Configuration
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.7.	Methods of Analysis
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.8.	Direction of Loading
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.9.	Force Reduction Factors, System Overstrength Factors and General Restrictions
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.10.	Additional System Restrictions
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	(a) [F20-OP2.3] [F22-OP2.4]
	(b) [F20-OP2.3] [F22-OP2.4]
	(c) [F20-OP2.3] [F22-OP2.4]
	(d) [F20-OP2.3] [F22-OP2.4]
(3)	(a) [F20-OP2.3] [F22-OP2.4]
	(b) [F20-OP2.3] [F22-OP2.4]
	(c) [F20-OP2.3] [F22-OP2.4]
	(d) [F20-OP2.3] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
(9)	[F22-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(10)	(a) [F20-OS2.1]
	(a) [F20-OP2.1] [F22-OP2.4]
	(b) [F20-OS2.1]
	(b) [F20-OP2.1] [F22-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
4.1.8.11.	Equivalent Static Force Procedure for Structures Satisfying the Conditions of Article 4.1.8.7.
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	(a) [F20-OS2.1]
	(a) [F20-OP2.1] [F22-OP2.4]
	(b) [F20-OS2.1]
	(b) [F20-OP2.1] [F22-OP2.4]
(10)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(11)	(a) [F20-OP2.1] [F22-OP2.4]
	(a) [F20-OS2.1]
	(b) [F20-OS2.1]
	(b) [F20-OP2.1] [F22-OP2.4]
(12)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.12.	Dynamic Analysis Procedure
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	(a) [F20-OS2.1]
	(a) [F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1, OP2.3] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1, OP2.3] [F22-OP2.4]
(8)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(10)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(12)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.13.	Deflections and Drift Limits
(1)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
(3)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
4.1.8.14.	Structural Separation
(1)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
	[F22-OP4.3]
(2)	[F20-OS2.1, OS2.3, OS2.4]
	[F20-OP2.1, OP2.3, OP2.4]
	[F20-OP4.3]
(3)	[F20-OS2.1, OS2.3, OS2.4]
	[F20-OP2.1, OP2.3, OP2.4]
	[F20-OP4.3]
(4)	[F20-OS2.1, OS2.3, OS2.4]
	[F20-OP2.1, OP2.3, OP2.4]
	[F20-OP4.3]
4.1.8.15.	Design Provisions
(1)	[F20-OS2.1]
	[F20-OP2.1, OP2.3, OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1, OP2.3, OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1, OP2.3, OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
(5)	[F20-OS2.1, OS2.4]
	[F20-OP2.1, OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.16.	Foundation Provisions
(1)	[F20-OS2.2, OS2.4]
	[F20-OP2.2, OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1]
(5)	[F20-OS2.2, OS2.4]
	[F20-OP2.2, OP2.4]
(6)	(a) [F22-OS2.4]
	(a) [F22-OP2.4]
	(b) [F22-OS2.4]
	(b) [F22-OP2.4]
	(c) [F20-OS2.4]
	(c) [F20-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1, OP2.4]
(8)	(a) [F20-OS2.1]
	(a) [F20-OP2.1]
	(b) [F22-OS2.4]
	(b) [F22-OP2.4]
(9)	[F20-OS2.4]
	[F20-OP2.4]
(10)	[F20-OS2.2] [F22-OS2.4]
	[F20-OP2.2] [F22-OP2.4]
4.1.8.17.	Site Stability
(1)	[F20-OP2.1] [F22-OP2.4]
	[F20-OS2.1]
4.1.8.18.	Elements of Structures, Non-structural Components and Equipment
(1)	[F20, F22-OS2.4]
	[F20-OP2.3] [F22-OP2.3, OP2.4]
(4)	[F20, F22-OS2.4]
	[F20, F22-OP2.3, OP2.4]
(5)	[F20, F22-OS2.1]
	[F20, F22-OP2.1, OP2.4]
(6)	[F20, F22-OS2.4]
	[F20, F22-OP2.3, OP2.4]
(7)	[F20, F22-OS2.4] Applies to portion of Code text: "Connections to the structure of elements and components listed in Table 4.1.8.18. shall be designed to support the component or element for gravity loads, shall conform to the requirements of Sentence 4.1.8.18.(1) …"
	[F20, F22-OP2.3, OP2.4] Applies to portion of Code text: "Connections to the structure of elements and components listed in Table 4.1.8.18. shall be designed to support the component or element for gravity loads, shall conform to the requirements of Sentence 4.1.8.18.(1)…"
	(a) [F20, F22-OS2.4]
	(a) [F20, F22-OP2.3, OP2.4]
	(b), (c) [F20, F22-OS2.4]
	(b), (c) [F20, F22-OP2.3, OP2.4]
	(d) [F20, F22-OS2.4]
	(d) [F20, F22-OP2.3,O P2.4]
	(e) [F20, F22-OS2.4]
	(e) [F20, F22-OP2.3, OP2.4]
(9)	[F22-OS2.3, OS2.4]
	[F22-OP2.3, OP2.4]
(10)	[F22-OS2.1, OS2.3, OS2.4]
	[F22-OP2.1, OP2.3, OP2.4]
(11)	[F20-OS2.1] [F22-OS2.4]
	[F20, F22-OP2.3, OP2.4]
(12)	[F20-OS2.1] [F22-OS2.3]
	[F20-OP2.1] [F22-OP2.3]
(14)	[F20, F22-OS2.4]
(16)	[F20, F22-OS2.4]
	[F20-OP2.3] [F22-OP2.3, OP2.4]
4.1.8.19.	Seismic Isolation
(2)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.20.	Seismic Isolation Design Provisions

Acceptable Solutions	Objectives and Functional Statements
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(2)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(9)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(10)	[F22-OS2.4]
	[F22-OP2.3, OP2.4]
4.1.8.21.	Supplemental Energy Dissipation
(2)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.22.	Supplemental Energy Dissipation Design Consideration
(1)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(3)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(4)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(5)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(6)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
(7)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
(8)	[F20-OS2.1] [F22-OS2.4]
	[F20-OP2.1] [F22-OP2.4]
4.1.8.23.	Additional Performance Requirements for Post-Disaster Buildings, High Importance Category Buildings, and a Subset of Normal Importance Category Buildings
(2)	[F20-OS2.1]
	[F22-OP2.3,OP2.4]
(3)	[F20-OS2.1]
	[F22-OP2.3,OP2.4]
(4)	[F20-OS2.1]
4.2.2.1.	Subsurface Investigation
(1)	[F20-OS2.2] [F20, F21-OS2.6]
	[F20-OP2.2] [F21-OP2.6]
	[F21-OP4.1, OP4.4]
4.2.2.3.	Field Review
(1)	[F20-OS2.2, OS2.6] [F21-OS2.6]
	[F20-OP2.2] [F21-OP2.5]
	[F21-OP4.1, OP4.4]
4.2.2.4.	Altered Subsurface Condition
(1)	[F20-OP2.2] [F21-OP2.6]
	[F21-OP4.1, OP4.4]
	[F20-OS2.2] [F20, F21-OS2.6]
(2)	[F20-OP2.2] [F21-OP2.6]
	[F21-OP4.1, OP4.4]
	[F20-OS2.2] [F20, F21-OS2.6]
4.2.3.2.	Preservation Treatment of Wood
(1)	[F80-OS2.3]
	[F80-OP2.3]
(2)	[F80-OS2.3]
	[F80-OP2.3]
4.2.3.4.	Prevention of Deterioration of Masonry
(1)	[F80-OS2.3]
	[F80-OP2.3]
4.2.3.6.	Protection Against Chemical Attack
(1)	[F80-OS2.3]
	[F80-OP2.3]
4.2.3.8.	Steel Piles
(1)	[F20-OS2.3]
	[F20-OP2.3]
4.2.3.9.	High Strength Steel Tendons
(1)	[F20, F80-OS2.5, OS2.6]
	[F20, F80-OP2.5, OP2.6]
	[F20, F80-OP4.1, OP4.4]
4.2.3.10.	Corrosion of Steel
(1)	[F80-OS2.3]
	[F80-OP2.3]
	[F80-OP4.1]
4.2.4.1.	Design Basis
(1)	[F20-OS2.2] [F20, F21-OS2.6]
	[F20-OP2.2] [F21-OP2.5]
	[F21-OP4.1, OP4.4]
(5)	[F21-OS2.5]
	[F21-OP2.4, OP2.5]
4.2.4.2.	Subsurface Investigation
(1)	[F20-OS2.2] [F20, F21-OS2.6]
	[F20-OP2.2] [F21-OP2.6]
	[F21-OP4.1, OP4.4]
4.2.4.3.	Identification
(1)	[F20-OS2.2] [F20, F21-OS2.6]
	[F20-OP2.2] [F21-OP2.6]
	[F21-OP4.1, OP4.4]

Acceptable Solutions	Objectives and Functional Statements
4.2.4.4.	Depth of Foundations
(1)	[F21-OP2.4] Applies to portion of Code text: "... the *bearing surface* of a *foundation* shall be below the level of potential damage, including damage resulting from *frost action* ..."
	[F21-OP2.4] Applies to portion of Code text: "... the *foundation* shall be designed to prevent damage resulting from *adfreezing* and frost jacking."
(2)	[F21-OP2.4]
4.2.4.5.	Sloping Ground
(1)	[F21-OS2.2]
	[F21-OP2.2, OP2.4, OP2.6]
4.2.4.6.	Eccentric and Inclined Loads
(1)	[F20-OS2.1, OS2.2]
	[F20-OP2.1, OP2.2, OP2.4]
4.2.4.7.	Dynamic Loading
(1)	[F20-OS2.2]
	[F20-OP2.2, OP2.4, OP2.6]
	[F20-OH4]
4.2.4.8.	Hydrostatic Uplift
(1)	[F22-OP2.1, OP2.4]
4.2.4.9.	Groundwater Level Charge
(1)	[F21-OP4.1]
4.2.4.10.	Permafrost
(1)	[F20-OS2.2] [F21-OS2.5]
	[F20-OP2.2] [F20, F21-OP2.4] [F21-OP2.6]
4.2.4.11.	Swelling and Shrinking Soils
(1)	[F21-OP2.4, OP2.6]
4.2.4.12.	Expanding and Deteriorating Rock
(1)	[F21-OP2.4, OP2.6]
4.2.4.13.	Construction on Fill
(1)	(a) [F20-OS2.2] [F21-OS2.5]
	(b) [F20-OP2.2] [F20, F21-OP2.4] [F21-OP2.6]
	(c) [F01-OS1.1]
4.2.5.2.	Excavation Construction
(1)	[F21-OP4.1]
(2)	[F20-OS2.6]
	[F20-OP2.3]
	[F20, F21-OP4.1]
4.2.5.3.	Supported Excavations
(1)	[F20-OS2.6]
	[F21-OP4.1]
4.2.5.4.	Unsupported Excavations
(1)	[F20-OS2.6]
	[F21-OP4.1]
4.2.5.5.	Control of Water Around Excavations
(1)	[F60-OS2.6]
	[F60-OP4.1, OP4.4]
4.2.5.6.	Loss of Ground
(1)	[F21-OP4.1]

Acceptable Solutions	Objectives and Functional Statements
4.2.5.7.	Protection and Maintenance at Excavations
(1)	[F80-OS2.6]
	[F80-OP4.1]
4.2.5.8.	Backfilling
(1)	[F21-OP4.1]
	(a) [F21-OP2.1, OP2.4]
	(a) [F21-OS2.1]
(2)	[F21-OP2.4]
4.2.6.2.	Support of Shallow Foundations
(1)	[F20-OS2.2]
	[F20-OP2.2] [F20, F21-OP2.4]
4.2.6.3.	Incorrect Placement of Shallow Foundations
(1)	[F20-OS2.2]
	[F20-OP2.2,OP2.4] [F21-OP2.4]
4.2.6.4.	Damaged Shallow Foundations
(1)	[F20-OS2.1]
	[F20-OP2.1,OP2.4] [F22-OP2.4]
4.2.7.2.	Design for Deep Foundations
(3)	[F20-OS2.1, OS2.2] [F21-OS2.5]
	[F20-OP2.1, OP2.2] [F21, F22-OP2.4]
(5)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
(6)	[F20-OP2.1, OP2.4]
4.2.7.3.	Tolerance in Alignment and Location
(1)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
4.2.7.4.	Incorrect Alignment and Location
(1)	[F20-OS2.1]
	[F20-OP2.1,OP2.4] [F22-OP2.4]
4.2.7.5.	Installation of Deep Foundations
(1)	[F81-OS2.1] [F21-OS2.2, OS2.6]
	(a), (b) [F81-OP2.1] [F21-OP2.2] [F21, F81-OP2.4]
	(c) [F21-OP4.1]
4.2.7.6.	Damaged Deep Foundation Units
(1)	[F20-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
4.2.8.2.	Use of Existing Foundations
(1)	[F20-OS2.1, OS2.2]
	[F20-OP2.1, OP2.2] [F22-OP2.4]
4.3.1.1.	Design Basis for Wood
(1)	[F20-OS2.1] [F80-OS2.3]
	[F20-OP2.1] [F80-OP2.3] [F21, F22, F80-OP2.4]
	[F21, F22, F80-OH4]
4.3.1.2.	Glued-Laminated Members
(1)	[F20-OS2.1]
	[F20-OP2.1] [F21, F22-OP2.4]
	[F21, F22-OH4]
4.3.2.1.	Design Basis for Plain and Reinforced Masonry
(1)	[F20-OS2.1] [F80-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1] [F80-OP2.3] [F21, F22, F80-OP2.4]
	[F21, F22, F80-OH4]
4.3.3.1.	Design Basis for Plain, Reinforced and Prestressed Concrete
(1)	[F20-OS2.1] [F80, F81-OS2.3]
	[F20-OP2.1] [F80, F81-OP2.3] [F21, F22, F80, F81-OP2.4]
	[F21, F22, F80, F81-OH4]
4.3.4.1.	Design Basis for Structural Steel
(1)	[F20-OS2.1] [F80-OS2.3]
	[F20-OP2.1] [F80-OP2.3] [F20, F22, F80-OP2.4]
	[F22, F80-OH4]
4.3.4.2.	Design Basis for Cold Formed Steel
(1)	[F20-OS2.1] [F80-OS2.3]
	[F20-OP2.1] [F80-OP2.3] [F20, F22, F80-OP2.4]
	[F22, F80-OH4]
4.3.5.1.	Design Basis for Aluminum
(1)	[F20-OS2.1] [F80-OS2.3]
	[F20-OP2.1] [F80-OP2.3] [F20, F22, F80-OP2.4]
	[F22, F80-OH4]
4.3.6.1.	Design Basis for Glass
(1)	[F20-OS2.1]
	[F20-OP2.1]
4.4.1.1.	Design Basis for Air-, Cable- and Frame-Supported Membrane Structures
(1)	[F20-OS2.1] [F80-OS2.3]
	[F20-OP2.1] [F80-OP2.3] [F22-OP2.4]
	[F22-OH4]
4.4.2.1.	Design Basis for Storage Garages and Repair Garages
(1)	[F21, F61, F80-OS2.3]
	[F21, F61, F80-OP2.3, OP2.4]
	[F21, F61, F80-OH4]
4.4.4.1.	Guards Over Retaining Walls
(1)	[F30-OS3.1]
4.4.5.1.	Anchor Systems on Building Exterior
(1)	[F30-OS3.1]
(2)	[F20-OS2.1]
	[F30-OS3.1]
(4)	[F81-OS2.3]

Table 5
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 5 of Division B

Acceptable Solutions	Objectives and Functional Statements
5.1.4.1.	Structural and Environmental Loads
(1)	[F61-OH4]
	(a) [F20, F51, F55-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	(a) [F60, F61, F63-OS2.2, OS2.3]
	(a) [F55, F61, F63-OH1.1, OH1.2, OH1.3]
	(b) [F20-OS2.1] [F21, F22-OS2.3, OS2.4] Applies to snow fences and sloped glazing.
	(b) [F20-OS3.1] Applies to snow fences and sloped glazing.
	(b) [F20, F21, F22-OH1.1, OH1.2, OH1.3]
	(b) [F20-OH4]
(4)	[F20-OS2.1] [F21, F22-OS2.3, OS2.4]
	[F20, F21, F22-OH1.1, OH1.2, OH1.3]
(5)	(a) [F20-OS2.1] [F21, F22-OS2.3, OS2.4]
	(a) [F20, F21, F22-OH1.1, OH1.2, OH1.3]
	(b) [F20-OS2.1] [F21, F22-OS2.3, OS2.4]
	(b) [F20, F21, F22-OH1.1, OH1.2, OH1.3]
(6)	[F20, F21, F22-OH1.1, OH1.2, OH1.3]
	(a) [F20-OS2.1, OS2.3] (b), (c) [F21, F22-OS2.3]
	(b), (c) [F22-OH4]
5.1.4.2.	Resistance to Deterioration
(1)	[F80, F81-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F80, F81-OS2.3]
	[F80, F81-OS3.1] Applies to floor assemblies.
	[F80, F81-OH1.1, OH1.2, OH1.3]
	[F80, F81-OH4] Applies to floor assemblies.
5.2.1.1.	Exterior Environmental Loads
(2)	[F20-OS2.1]
	[F20, F40-OH1.1] [F20-OH1.2, OH1.3]
5.2.1.2.	Interior Environmental Loads
(1)	[F51, F55, F61, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F55, F61, F63-OS2.3]
	[F51, F55, F61, F63-OH1.1, OH1.2]
5.2.1.3.	Environmental Load and Transfer Calculations
(1)	[F51, F61, F63-OS2.3] Applies to heat, air and moisture transfer calculations.
	[F51, F55, F61, F63-OH1.1, OH1.2] [F51, F61-OH1.3] Applies to heat, air and moisture transfer calculations.
	[F56-OH3.1] Applies to sound transmission calculations.
(3)	[F20-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F20-OS2.1]
	[F55, F61, F63-OH1.1, OH1.2] [F55, F61-OH1.3]
5.2.2.1.	Determination of Structural Loads and Effects
(1)	[F20-OS2.1] [F21, F22-OS2.3, OS2.4]
	[F20, F21, F22-OH1.1, OH1.2, OH1.3]
	[F20, F21, F22-OH4]
(3)	[F20-OS2.1] [F21, F22-OS2.3, OS2.4]
	[F20, F21, F22-OH1.1, OH1.2, OH1.3]
	[F20, F21, F22-OH4]
5.2.2.2.	Determination of Wind Load
(2)	[F20-OS2.1] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4]
(3)	[F20-OS2.1] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4]
(4)	[F20, F55, F61-OS2.1, OS2.3]
	[F20, F55, F61-OH1.1, OH1.2, OH 1.3]
5.2.2.3.	Design Procedures
(1)	[F20-OS2.1] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4]
5.3.1.1.	Required Resistance to Heat Transfer
(1)	[F51, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F63-OS2.3]
	[F63-OH1.1] [F51, F63-OH1.2]
5.3.1.2.	Properties to Resist Heat Transfer or Dissipate Heat
(1)	(a), (b) [F51, F63-OH1.1]
	(b) [F51, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	(b), (d) [F51, F63-OS2.3]
	(c) [F51-OH1.2]
	(d) [F30-OS3.1]
5.3.1.3.	Location and Installation of Materials Providing Thermal Resistance
(1)	[F63-OS2.3]
	[F51, F63-OH1.1]
(2)	[F51, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F63-OS2.3]
	[F51, F63-OH1.1, OH1.2]
5.4.1.1.	Required Resistance to Air Leakage
(1)	(a), (b), (c), (e) [F40, F55-OH1.1]
	(a), (b), (f) [F51, F52, F54, F55-OH1.2]
	(c) [F55, F61, F63-OH1.3]
	(c), (d) [F55, F61, F62, F63-OS2.3]
	(d) [F55, F62-OS3.1]
	(f) [F55, F62-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
(2)	[F51, F55-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F61, F63-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F40, F51, F55, F61, F63-OH1.1] [F51, F52, F54, F55, F61, F63-OH1.2] [F51, F55, F61, F63-OH1.3]
(3)	[F55-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F55-OS2.3]
	[F55-OH1.1, OH1.2, OH1.3]
(4)	[F51, F61, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F61, F63-OS2.3]
	[F51, F55, F61, F63-OH1.1, OH1.2] [F55, F61-OH1.3]
5.4.1.2.	Air Barrier Assembies
(1)	[F55-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F55-OS2.3]
	[F55-OH1.1, OH1.2, OH1.3]
(2)	[F55-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
	[F55-OS2.3]
	[F55-OH1.1, OH1.2, OH1.3]
(4)	[F55-OH1.1]
5.5.1.1.	Required Resistance to Vapour Diffusion
(1)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
(2)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
5.5.1.2.	Vapour Barrier Properties and Installation
(1)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
(2)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
(3)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
5.6.1.1.	Required Protection from Precipitation
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.6.1.2.	Installation of Protective Materials
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.6.2.1.	Sealing and Drainage
(1)	[F61, F62-OS2.3]
	[F61, F62-OH1.1, OH1.2, OH1.3]
5.6.2.2.	Accumulation and Disposal
(1)	[F30-OS3.1]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(3)	[F21-OS2.2] [F60-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
	(b) [F21-OP2.6]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.7.1.2.	Required Protection
(1)	[F60-OS2.3]
	[F60-OH1.1, OH1.2, OH1.3]
(2)	[F60-OS2.2, OS2.3]
	[F60-OH1.1, OH1.2, OH1.3]
5.7.3.2.	Required Protection
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.7.3.3.	Waterproofing
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.7.3.4.	Where Dampproofing is Permitted
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
5.8.1.1.	Required Protection
(1)	[F56-OH3.1]
(2)	[F56-OH3.1]
5.8.1.2.	Determination of Sound Transmission Ratings
(1)	[F56-OH3.1]
(2)	[F56-OH3.1]
5.8.1.4.	Detailed Method for Calculating ASTC
(1)	[F56-OH3.1]
(2)	[F56-OH3.1]
(3)	[F56-OH3.1]
(4)	[F56-OH3.1]
(5)	[F56-OH3.1]
(6)	[F56-OH3.1]
(7)	[F56-OH3.1]
5.8.1.5.	Simplified Method for Calculating ASTC
(1)	[F56-OH3.1]
(2)	[F56-OH3.1]
(3)	[F56-OH3.1]
(4)	[F56-OH3.1]
(5)	[F56-OH3.1]
(6)	[F56-OH3.1]
5.9.1.1.	Compliance with Applicable Standards
(1)	[F20, F80-OS2.1] [F20-OS2.2] [F20, F22, F51, F61, F63, F80-OS2.3] [F51-OS2.5]
	F61, F63, F80-OS3.1]
	[F61, F63, F80-OH4] Applies to floor assemblies.
	[F55-OH1.1] [F20, F22, F51, F54, F55, F61, F63, F80-OH1.1,OH1.2] [F55, F61, F80-OH1.3]
	[F42-OH2.5]
	[F61, F63, F80-OH4] Applies to floor assemblies.
	[F20, F80-OP2.1, OP2.3] [F22,F80-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	(a) [F61, F63-OS1.4] Applies where required life safety systems are incorporated in environmental separators.
5.9.2.2.	Applicable Standards
(1)	[F20, F55, F61-OS2.3]
	[F20, F55, F61, F63-OH1.1, OH1.3] [F20, F55, F61, F63, F81-OH1.2]
	[F20, F55, F61-OP2.3]
5.9.2.4.	Heat Transfer
(2)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
5.9.3.3.	Heat Transfer
(2)	[F63-OS2.3]
	[F63-OH1.1, OH1.2]
5.9.3.4.	Air Leakage
(2)	[F55-OS1.4] Applies where required life safety systems are incorporated in environmental separation.
	[F55, F63-OS2.3]
	[F55, F63-OH1.1, OH1.2, OH1.3]
5.9.3.5.	Water Penetration
(2)	[F61-OS2.3]
	[F61-OH1.1, OH11.2, OH1.3]
5.9.4.1.	Structural Loads, Heat Transfer, Air Leakage, Vapour Diffusion and Water Penetration
(1)	(b) [F61, F62-OS2.3]
	(b) [F61, F62-OH1.1, OH1.2, OH1.3]

Table 6
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 6 of Division B

Acceptable Solutions	Objectives and Functional Statements
6.2.1.1	Good Engineering Practice
(1)	[F31, F50, F51, F52, F54, F63-OS3.2, OS3.4]
	(a) to (e) [F31, F51-OP1.1]
	(a) to (c), (e) to (i) [F40, F50, F51, F52, F54, F63-OH1.1]
	(a) to (c), (e) to (h) [F50, F51, F52, F54, F63-OH1.2, OH1.3]
	(d) [F01-OS1.1]
6.2.1.1A.	Design Indoor Air Temperatures
(1)	[F51-OH1.2]
(2)	[F51-OH1.2]
6.2.1.2.	Outdoor Design Conditions
(2)	[F40, F50-OH1.1]
(3)	[F40, F43, F44, F50-OH1.1]
	[F44-OS3.4]
6.2.1.3.	Expansion, Contraction and System Pressure
(1)	[F20-OS3.2]
6.2.1.4.	Structural Movement
(1)	[F23-OS3.1]
	[F50, F51, F63-OH1.1, OH1.2, OH1.3]
6.2.1.5.	Installation Standards
(1)	[F43-OP1.1]
	[F43-OS1.1]
	[F43-OS3.4]
(2)	[F43-OP1.1]
	[F43-OS1.1]
	[F43-OS3.4]
(3)	[F41, F50, F63-OH1.1] [F51, F52-OH1.2]
	[F63-OS2.3]
	[F44-OS3.4]
(4)	[F41, F50, F63-OH1.1] [F51, F52-OH1.2]
	[F63-OS2.3]
	[F44-OS3.4]
(5)	[F43-OP1.1]
	[F43-OS1.1]
	[F43-OS3.4]
(6)	[F51, F63-OH1.2, OH1.3]
	[F31, F51-OP1.1]
	[F31, F51, F63-OS3.2, OS3.4]
(7)	[F110-OE]
6.2.1.6.	**Installation — General**
(1)	[F82-OS1.1]
	[F82-OS3.4]
	[F82-OP1.1]
(2)	[F31-OS3.1]
(3)	[F81-OS3.2, OS3.3, OS3.4]
	[F81-OS1.1]
6.2.1.7.	Asbestos
(1)	[F43-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
6.2.2.1.	Applicable Standard
(1)	[F81-OS1.1]
6.2.3.1.	Solid Fuel Storage Bins
(1)	[F30-OH2.1]
(2)	[F01-OS1.1]
	[F01-OP1.1]
6.3.1.1.	Required Ventilation
(2)	[F41, F50, F52, F53, F63-OH1.1]
(3)	[F40, F41, F50, F52, F53, F63-OH1.1]
6.3.1.1.A.	Natural Ventilation
(1)	[F50-OH1.1]
(2)	[F50-OH1.1]
6.3.1.2.	Crawl Spaces and Attic or Roof Spaces
(1)	[F61, F63, F641-OH1.1, OH1.3]
6.3.1.3.	Ventilation of Storage and Repair Garages
(1)	[F44, F50-OS3.4]
(2)	[F44-OS3.4]
(3)	[F44-OS3.4]
(4)	[F44, F50-OS3.4]
(5)	[F44, F50-OH1.1]
	[F44, F50-OS3.4]
(7)	[F44, F50-OH1.1]
	[F44, F50-OS3.4]
(8)	[F44, F50-OH1.1]
	[F44, F50-OS3.4]
(9)	[F44, F50-OH1.1]
	[F44, F50-OS3.4]
6.3.1.5.	Indoor Air Contaminants
(1)	[F44-OH1.1]
	[F44-OS3.4]
(2)	[F44-OH1.1]
(3)	[F52-OH1.1]
6.3.1.6.	Commercial Cooking Equipment
(1)	[F01, F44-OP1.1]
	[F01, F44-OS1.1]
6.3.2.2.	Drain Pans
(1)	[F41, F44, F50, F82-OH1.1]
(2)	[F40, F41, F44, F50-OH1.1]
6.3.2.3.	Materials in Air Duct Systems
(2)	[F20, F80-OH1.1, OH1.2]
(3)	[F44, F81-OS3.4]
	[F81-OH1.1]
(4)	[F20, F80-OH1.1, OH1.2]
6.3.2.4.	Connections in Air Duct Systems
(1)	[F81-OH1.1, OH1.2]
	[F44, F81-OS3.4]
6.3.2.5.	Duct Coverings, Linings, Adhesives and Insulation
(2)	[F81-OH1.1, OH1.2]
	[F81-OS1.1]
	[F81-OP1.1]

Acceptable Solutions	Objectives and Functional Statements
6.3.2.6A.	Construction and Installation of Ducts and Plenums
(1)	[F20-OH4]
	[F20-OP2.4]
	[F20-OS2.3]
(2)	[F03-OP1.1]
	[F03-OS1.1]
(3)	[F63-OH1.1] [F51, F52-OH1.2]
	[F01-OS1.1]
	[F20, F63-OS2.3]
	[F20-OS3.1]
(4)	[F43, F63-OH1.1] [F51, F52-OH1.2]
	[F01-OP1.1]
	[F01-OS1.1]
	[F63-OS2.3]
(5)	[F43, F63-OH1.1] [F51, F52-OH1.2]
	[F01-OP1.1]
	[F01-OS1.1]
	[F63-OS2.3]
(6)	[F63-OH1.1] [F51, F52-OH1.2]
	[F01-OP1.1]
	[F01-OS1.1]
	[F63-OS2.3]
(7)	[F63-OH1.1] [F51, F52-OH1.2]
	[F63-OS2.3]
	[F20-OS3.1]
(8)	[F80-OH1.1, OH1.2]
	[F80-OS2.3]
(9)	[F44, F81-OH1.1] [F81-OH1.2]
6.3.2.7.	Interconnection of Systems
(1)	[F40-OH1.1]
	[F44-OS1.1]
(2)	[F44, F81-OH1.1]
	[F44, F81-OP1.1]
	[F44, F81-OS1.1]
(3)	[F44, F81-OH1.1]
(4)	[F40-OH1.1]
	[F44-OS1.1]
	[F10-OS3.7]
6.3.2.8.	Make-up Air
(1)	[F50, F81-OH1.1]
	[F44, F81-OS3.4]
(2)	[F81-OH1.1]
	[F44, F81-OS3.4]
(3)	[F81-OH1.2]
6.3.2.9.	Supply, Return, Intake and Exhaust Air Openings
(1)	[F81-OH1.2]
	[F30-OS3.1]
(2)	[F41, F44, F81-OH1.1]
	[F44, F81-OS3.4]
(3)	[F44, F81-OH1.1]
	[F44, F81-OS3.4]
(4)	[F81-OH1.1]
(5)	[F82, F81-OH1.1]
	[F82-OS3.4]
6.3.2.10.	Exhaust Ducts and Outlets
(1)	[F44-OH1.1]
(2)	[F44-OH1.1]
(3)	[F81-OH1.1, OH1.2]
(4)	[F81-OH1.1, OH1.2]
(5)	[F81-OH1.1]
(6)	[F81-OH1.1]
(7)	[F81-OS1.1]
(8)	[F52-OH1.1]
	[F01-OS1.1]
	[F01-OP1.1]
(9)	[F52-OH1.1]
(10)	[F81-OH1.1]
(11)	[F44, F81-OH1.1]
	[F44, F81-OS1.1]
(12)	[F44, F81-OH1.1]
(13)	[F44, F81-OH1.1]
	[F81-OH1.2]
(14)	[F40, F50-OH1.1]
(15)	[F40, F50-OH1.1]
(16)	[F40, F50-OH1.1]
6.3.2.11.	Return-Air System
(3)	[F10-OS1.5]
(4)	[F40-OH1.1]
	[F44-OS1.1]
	[F10-OS3.7]
(5)	[F50, F81-OH1.1]
	[F44, F81-OS3.4]
6.3.2.12.	Underground Ducts
(1)	(a) [F44, F81-OH1.2, OH1.3]
	(b) [F44, F81-OH1.1]
	(c) [F44, F81-OH1.1]
(2)	[F81-OH1.1, OH1.2, OH1.3]
6.3.2.13.	Filters
(1)	[F80-OS1.1]
	[F80-OP1.1]
(2)	[F30-OS3.3]
	[F~~43~~81, F43~~81~~-OH1.1]
6.3.2.14.	Cleaning Devices
(1)	[F40, F50-OH1.1]
(2)	[F40, F43, F44, F50-OH1.1]
	[F44-OS3.4]
6.3.2.15.	Evaporative Heat Rejection System
(1)	[F40, F41, F50-OH1.1]
(2)	[F40, F41, F50-OH1.1]
(3)	[F40, F41, F50-OH1.1]
(4)	[F40, F41, F50-OH1.1]
(5)	[F40, F41-OH1.1]
(6)	[F40, F41-OH1.1]
(7)	[F40, F41-OH1.1]
(8)	[F46-OH2.2]
(9)	[F40, F41-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
(10)	[F46, F81-OH2.1]
(11)	[F41, F82-OH1.1]
	[F82-OS3.1]
6.3.2.16.	Evaporative Air Coolers, Misters, Atomizers, Air Washers and Humidifiers
(1)	[F44, F50-OH1.1]
(2)	[F40, F41, F50-OH1.1]
(3)	[F40, F41, F50-OH1.1]
(4)	[F40, F41, F50-OH1.1]
	[F40, F41, F50, F82-OH1.1]
(5)	[F40, F41, F50-OH1.1]
(6)	[F46-OH2.2]
6.3.2.17.	Fans and Associated Air-Handling Equipment
(1)	[F44, F81-OH1.1]
	[F44, F81-OS3.4]
(2)	[F81-OH1.1]
6.3.3.1.	Requirement for Venting
(2)	[F40, F44, F50-OH1.1]
6.3.3.2.	Masonry or Concrete Chimneys
(2)	[F01-OS1.1]
	[F01-OP1.1]
6.3.3.3.	Metal Smoke Stacks
(1)	[F01-OS1.1]
	[F01-OP1.1]
6.3.3.4.	Access Ladders
(1)	[F20, F80-OS3.1]
(2)	[F30-OS3.1]
6.3.4.2.	General Ventilation
(1)	[F01-OS1.1]
	[F01-OP1.1]
	[F02-OP1.2]
	[F81, F82-OS1.1]
	[F02-OS1.2]
(2)	[F11, F81-OS1.1]
6.3.4.3.	Enclosure Exhaust Ventilation
(1)	(a), (c), (d) [F01-OS1.1]
	(a) [F02-OS1.2]
	(a) [F02-OP1.2]
	(b) [F02-OS1.2] [F81-OS1.1]
	(e) [F12-OS1.1, OS1.2]
	(e) [F12-OP1.1, OP1.2]
6.3.4.4.	Enclosure Construction
(1)	(a) [F01-OS1.1] Applies to portion of Code text: "… be constructed of … materials compatible with … the dangerous goods vapours and particles being exhausted,"
	(a) [F80-OS1.1] Applies to portion of Code text: "… be constructed of … materials … chemically resistant to the dangerous goods vapours and particles being exhausted,"
	(a) [F02-OS1.2] Applies to portion of Code text: "… be constructed of noncombustible materials …"
	(a) [F80-OS3.4] Applies to portion of Code text: "… be constructed of … materials … chemically resistant to the dangerous goods vapours and particles being exhausted,"

Acceptable Solutions	Objectives and Functional Statements
	(a) [F02-OP1.2] Applies to portion of Code text: "… be constructed of noncombustible materials …"
	(b) [F82-OS1.1] [F02-OS1.2]
	(b) [F02-OP1.2]
(3)	[F02-OS1.2]
	[F02-OP1.2]
6.4.1.2.	Appliances Installed Outside the Building
(1)	[F81-OS1.1]
	[F81-OH1.1]
	[F81-OP1.1]
6.4.2.1.	Clearances
(1)	[F01-OS1.1]
	[F01-OP1.1]
6.4.3.1.	Lining or Backing
(1)	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F01-OS1.1]
6.5.1.1.	Insulation and Coverings
(2)	[F20, F30-OS3.2, OS3.4]
(3)	[F31-OS3.2]
6.6.1.1.	Cooling Units
(1)	[F43, F81-OS3.4]
6.7.1.1.	Piping Materials and Installation
(1)	[F20-OS3.2, OS3.4]
(2)	[F21-OH1.1]
(3)	[F20-OS2.2]
6.7.1.2.	Clearances
(1)	[F01-OS1.1]
	[F01-OP1.1]
6.7.1.3.	Surface Temperature
(1)	[F31-OS3.2]
6.7.1.4.	Protection
(1)	[F01-OS1.1]
	[F01-OP1.1]
6.7.2.1.	Storage Bins
(1)	[F30, F31, F43-OS3.2, OS3.4]
(2)	[F01-OS1.1]
	[F01-OP1.1]
6.8.1.1.	Access Openings
(1)	[F36-OS3.6]
6.8.1.2.	Openings in Air Duct Systems
(1)	[F44, F81-OS3.4]
	[F81-OH1.1, OH1.2]
(2)	[F82-OS1.1]
6.8.1.3.	Odour Removal Equipment
(1)	[F82-OH1.1]
(2)	[F82-OH1.1]
6.9.1.2.	Hazardous Gases, Dusts or Liquids
(1)	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F01-OS1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F01-OP1.1]
6.9.1.3.	Commercial Cooking Equipment
(1)	[F02, F81-OS1.2]
	[F02, F81-OP1.2]
6.9.3.1.	Carbon Monoxide Alarms
(2)	(a), (b), (d) [F44-OS3.4]
	(c) [F81-OS3.4]
(3)	[F44-OS3.4]
(4)	[F44-OS3.4]
(5)	[F44-OS3.4]
6.9.4.1.	Ash Storage Bins
(1)	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F01-OS1.1]
	[F01-OP1.1]

Table 7
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 7 of Division B

Acceptable Solutions	Objective and Functional Statements
7.1.1B.2.	Floor Drains
(1)	[F62-OH1.3]
	[F62-OH2.1]
	[F62, F72-OP5]
(3)	[F62-OH1.3]
	[F62-OH2.1] [F41-OH2.4] Applies to floor drains in garbage rooms.
	[F62, F72-OP5]
7.1.2.1.	Sanitary Drainage Systems
(1)	[F72-OH2.1]
(2)	[F72-OH2.1]
	[F72-OP5]
7.1.2.2.	Storm Drainage Systems
(1)	[F72-OP5]
7.1.2.3.	Water Distribution Systems
(1)	[F46, F70-OH2.2]
7.1.2.4.	Separate Services
(1)	[F70-OH2.1] [F81-OH2.2] Applies to water service pipe. [F81-OH2.6] Applies to drainage pipe.
	[F81-OP5]
(2)	[F81-OH2.2] Applies to water service pipe. [F81-OH2.6] Applies to drainage pipe.
	[F81-OP5]
7.1.2.5.	Private Sewers and Private Water Supply
(1)	[F62, F70-OH2.1] [F81-OH2.2]
	[F81-OP5]
(2)	[F62, F70-OH2.1] [F81-OH2.6]
	[F81-OP5]
7.1.3.1.	Lighting and Ventilation Requirements
(1)	[F30-OS3.1] Applies to the requirement for lighting.
	[F40, F41, F50-OH1.1] Applies to the requirement for ventilation.
7.1.3.2.	Accessibility
(1)	[F40-OH2.1] [F71-OH2.3] [F41, F81-OH2.4] [F82-OH2.1, OH2.2, OH2.3, OH2.4] Applies to the need for maintenance.
	[F81-OP5]
7.1.3A.1.	Structural Movement
(1)	[F23-OS3.1]
	[F81-OH1.3, OH2.1, OH2.4, OH2.6]
7.2.1.1.	Exposure of Materials
(1)	[F80-OH2.1, OH2.2, OH2.3, OH2.4]
	[F80-OP5]
(2)	[F80-OH2.1]
	[F80-OP5]

Acceptable Solutions	Objective and Functional Statements
7.2.1.2.	Restrictions on Re-Use
(1)	[F41, F81-OH1.1] Applies to vent pipes. [F81-OH1.3] Applies to water pipes.
	[F81, F113-OH2.1] [F46, F70-OH2.2] [F71, F72-OH2.3] Applies to equipment.
	[F43-OS3.4] Applies to equipment.
	[F81, F113-OP5] Applies to drainage pipes. [F81-OP5] Applies to water pipes.
(2)	[F70-OH2.2]
7.2.1.5.	Withstanding Pressure
(1)	[F20, F81, F113-OE]
	[F20, F81, F113-OH2.1, OH2.3]
	[F20, F81, F113-OP5]
7.2.1.6.	Working Pressure of a Water Service Pipe
(1)	[F20, F81-OH2.3]
	[F20 -OP5]
7.2.2.1.	Surface Requirements
(1)	[F41-OH2.4]
7.2.2.2.	Conformance to Standards
(0.1)	[F80, F81-OH2.1, OH2.4]
	[F80, F81-OP5]
(1)	[F80, F81-OH2.1, OH2.4]
	[F80, F81-OP5]
7.2.2.3.	Showers
(1)	[F80-OH2.1]
	[F80-OP5]
(2)	[F80-OH2.1, OH2.4]
	[F40-OP5]
(3)	[F45-OH2.1]
(4)	[F45-OH2.1]
7.2.2.4.	Concealed Overflows
(1)	[F41, F81-OH2.1, OH2.4]
7.2.2.5.	Water Closets in Public Washrooms
(1)	[F40-OH2.4]
7.2.2.6.	Lavatories
(1)	[F41, F81-OH2.1, OH2.4]
7.2.2.7.	Trough Urinals
(1)	[F40-OH2.1, OH2.4]
7.2.3.1.	Traps
(1)	[F40, F81-OH1.1]
(2)	[F44, F81-OH1.1]
(3)	[F81-OH2.1, OH2.3, OH2.4,] [F81-OP5]
(4)	[F81-OH1.1]
(5)	[F81-OH1.1]
(6)	[F81-OH1.1]
(8)	[F81-OH1.1]
	[F81-OP5]

Acceptable Solutions	Objective and Functional Statements
7.2.3.2.	Interceptors
(1)	[F81, F82-OH2.1, OH2.3, OH2.4]
(2)	[F81-OH2.1, OH2.3, OH2.4]
(4)	[F81-OP5]
7.2.3.3.	Tubular Traps
(1)	[F82-OH2.1, OH2.4]
	[F82-OP5]
7.2.4.1.	T and Cross Fittings
(1)	[F81-OH2.1, OH2.4]
	[F81-OP5]
(2)	[F81-OH2.1, OH2.4]
	[F81-OP5]
7.2.4.2.	Sanitary T Fittings
(1)	[F81-OH2.1, OH2.4]
	[F81-OP5]
(2)	[F81-OH2.1, OH2.4]
	[F81-OP5]
7.2.4.3.	90° Elbows
(1)	[F81-OH2.1, OH2.4]
	[F81-OP5]
7.2.4.4.	Fittings Restricted in Use
(1)	[F81-OH2.1, OH2.4]
	[F81-OP5]
7.2.4.5.	Assembled Pipe or Tubing
(1)	[F81-OH2.1, OH2.4]
	[F81-OP5]
7.2.5.1.	Fibrocement Pipe and Fittings
(1)	[F20-OH2.1]
	[F20-OP5]
7.2.5.2.	Concrete Pipe and Fittings
(1)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(2)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(3)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(4)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(5)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
7.2.5.3.	Vitrified Clay Pipe and Fittings
(1)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(2)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
(3)	[F20, F80, F81-OH2.1, OH2.6]
	[F20, F80, F81-OP5]
7.2.5.4.	Polyethylene Pipe and Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(3)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.5.5.	Polyethylene Pipe Used Underground
(1)	[F20, F81-OH2.1, OH2.6]
	[F20, F81-OP5]
7.2.5.6.	Crosslinked Polyethylene Pipe and Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.5.7.	PVC Pipe and Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.5.8.	CPVC Pipe, Fittings and Solvent Cements
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.5.9.	Plastic Pipe, Fittings and Solvent Cement Used Underground
(1)	[F20, F80, F81, F113-OH2.1, OH2.6]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F80, F81, F113-OH2.1, OH2.6]
	[F20, F80, F81, F113-OP5]
7.2.5.10.	Transition Solvent Cement
(1)	[F20, F80, F81, F113-OH2.1, OH2.6]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F80, F81, F113-OH2.1, OH2.6]
	[F20, F80, F81, F113-OP5]
7.2.5.11.	Plastic Pipe, Fittings and Solvent Cement Used in Buildings
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(1.1)	[F20, F80, F81-OH1.3]
	[F20, F80, F81-OP5]
(1.2)	[F20-OH1.3]
	[F20-OP5]
7.2.5.12.	Polyethylene/Aluminum/Polyethylene Composite Pipe and Fittings
(1)	[F20-OH2.1, OH2.2, OH2.3]
	[F20-OP5]
(2)	[F20-OH2.1, OH2.2, OH2.3]
	[F20-OP5]
(3)	[F20-OH2.1, OH2.2, OH2.3]
	[F20-OP5]
(4)	[F20-OH2.1, OH2.2, OH2.3]
	[F20-OP5]
7.2.5.13.	Crosslinked Polyethylene/Aluminum/Polyethylene Composite Pipe and Fittings
(1)	[F20, F81-OH2.2]

Acceptable Solutions	Objective and Functional Statements
	[F20, F81-OP5]
7.2.5.14.	Polypropylene Pipe and Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.5.15.	Polyethylene of Raised Temperature Tube and Fittings
(1)	[F20, F70, F80-OH2.2]
	[F20, F70, F80-OP5]
(2)	[F80, F81-OH2.1]
	[F20, F70, F80-OP5]
7.2.5.16.	Cellular Core PVC Pipe and Fittings
(1)	[F20-OH2.1, OH2.2, OH2.3]
	[F20-OP5]
(2)	[F20-OH2.1]
	[F20-OP5]
7.2.6.1.	Cast-Iron Drainage and Vent Pipe and Fittings
(1)	[F20-OH2.1, OH2.3]
(2)	[F20-OH2.2]
7.2.6.2.	Maintenance Holes and Catch Basins
(1)	[F81-OH1.1]
	[F20-OS3.1]
7.2.6.3.	Threaded Cast Iron Drainage Fittings
(1)	[F20, F80, F81, F113-OH2.1, OH2.6]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.6.4.	Cast Iron Water Pipe
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(3)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(4)	[F20, F81-OH2.2]
	[F20, F81-OP5]
7.2.6.5.	Screwed Cast Iron Water Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(3)	[F81-OH2.1]
7.2.6.6.	Screwed Malleable Iron Water Fittings
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(3)	[F81-OH2.1]

Acceptable Solutions	Objective and Functional Statements
7.2.6.7.	Steel Pipe
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system. [F46, F80, F81-OH2.2] Applies to water piping.
	[F80, F81, F113-OP5] Applies to drainage system. [F46, F80, F81-OP5] Applies to water piping.
(3)	[F46, F80, F81-OH2.2]
	[F46, F80, F81-OP5]
(4)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system.
	[F80, F81, F113-OP5] Applies to drainage system.
(5)	[F80, F81, F113-OH2.1]
	[F80, F81, F113-OP5]
(6)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system.
	[F80, F81, F113-OP5] Applies to drainage system.
7.2.6.8.	Corrugated Steel Pipe and Couplings
(1)	[F20, F80, F81-OH1.3]
	[F20, F80, F81-OP5]
(2)	[F80, F81-OH1.3]
	[F80, F81-OP5]
(3)	[F80, F81-OH1.3]
	[F80, F81-OP5]
	(b) [F20-OH1.3]
	(b) [F20-OP5]
7.2.6.9.	Sheet Metal Leaders
(1)	[F80, F81-OH1.3]
	[F80, F81-OP5]
7.2.6.10.	Stainless Steel Pipe
(1)	[F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F20-OP5] [F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
7.2.6.11.	Stainless Steel Butt Weld Pipe Fittings
(1)	[F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
	[F80-OP5]
7.2.6.12.	Stainless Steel Pipe Flanges
(1)	[F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F80-OH2.1] Applies to drainage systems and venting systems.

Acceptable Solutions	Objective and Functional Statements
	[F46, F80-OH2.2] Applies to water systems.
	[F80-OP5]
7.2.6.13.	Stainless Steel Threaded Fittings
(1)	[F20-OP5] [F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
(2)	[F20-OP5] [F80-OH2.1] Applies to drainage systems and venting systems. [F46, F80-OH2.2] Applies to water systems.
7.2.6.14.	Stainless Steel Tube
(1)	[F46-OH2.2]
	[F80-OP5]
(2)	[F46-OH2.2]
	[F80-OP5]
7.2.6.15.	Stainless Steel Pipe and Tube
(1)	[F80-OH2.1, OH2.2, OH2.3]
7.2.7.1.	Copper and Brass Pipe
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system. [F46, F80, F81-OH2.2] Applies to water piping.
	[F80, F81, F113-OP5] Applies to drainage system. [F46, F80, F81-OP5] Applies to water piping.
(2)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system. [F46, F80, F81-OH2.2] Applies to water piping.
	[F80, F81, F113-OP5] Applies to drainage system. [F46, F80, F81-OP5] Applies to water piping.
7.2.7.2.	Brass or Bronze Pipe Flanges and Flanged Fittings
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81, F113-OH2.1] Applies to drainage system. [F46, F80, F81-OH2.2] Applies to water piping.
	[F80, F81, F113-OP5] Applies to drainage system. [F46, F80, F81-OP5] Applies to water piping.
7.2.7.3.	Brass or Bronze Threaded Water Fittings
(1)	[F46, F80, F81-OH2.2]
	[F46, F80, F81-OP5]
(2)	[F80-OH2.1]
7.2.7.4.	Copper Tube
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
(2)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
(3)	[F80-OH2.1, OH2.4]
(4)	[F20, F46, F80, F81, F113-OH2.1, OH2.2]
	[F20, F46, F80, F81, F113-OP5]

Acceptable Solutions	Objective and Functional Statements
(5)	[F20, F46, F80, F81, F113-OH2.1, OH2.2]
	[F20, F46, F80, F81, F113-OP5]
7.2.7.5.	Solder-Joint Drainage Fittings
(1)	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F80, F81-OH2.2]
	[F20, F80, F81-OP5]
7.2.7.6.	Solder-Joint Water Fittings
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
(2)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.7.7.	Flared-Joint Fittings for Copper Tube Water Systems
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
(2)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.7.8.	Lead Waste Pipe and Fittings
(1)	[F20, F80, F81, F113-OH2.1] Applies to building sewer. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
(2)	[F81, F113-OH2.1]
	[F81, F113-OP5]
7.2.8.1.	Pipe and Fittings
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system.
	[F20, F80, F81, F113-OP5] Applies to drainage system.
7.2.9.1.	Cement Mortar
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
7.2.9.2.	Solder and Fluxes
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
(2)	[F46-OH2.2]
(3)	[F80-OH2.1, OH2.2]
(4)	[F80-OH2.1, OH2.3]
7.2.10.1.	Floor Flanges
(1)	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(2)	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(3)	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]
(4)	[F20, F80, F81, F113-OH2.1]
	[F20, F80, F81, F113-OP5]

Acceptable Solutions	Objective and Functional Statements
7.2.10.2.	Screws, Bolts, Nuts and Washers
(1)	[F80-OH2.1]
	[F80-OP5]
7.2.10.3.	Cleanout Fittings
(1)	[F80-OH2.1, OH2.3] Applies to drainage systems. [F46-OH2.2] Applies to water systems.
(2)	[F43, F81-OH1.1] Applies to venting system.
	[F81-OH2.1] Applies to drainage system.
	[F81-OP5] Applies to drainage system.
(3)	[F80-OH2.1]
7.2.10.4.	Mechanical Couplings
(1)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F46, F80, F81-OH2.2] Applies to water piping.
	[F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F46, F80, F81-OP5] Applies to water piping.
(2)	[F20, F43, F81-OH1.1] Applies to venting system.
	[F20, F80, F81, F113-OH2.1] Applies to drainage system.
	[F20, F80, F81, F113-OP5] Applies to drainage system.
7.2.10.5.	Saddle Hubs
(1)	[F81-OH2.1]
	[F81-OP5]
7.2.10.6.	Valves, Supply and Waste Fittings
(1)	[F80-OP5]
(2)	[F131-O1.2]
(6)	[F80-OH2.1, OH2.3]
(7)	[F81-OP5]
	[F46-OH2.2
7.2.10.7.	Water Temperature Control
(1)	[F31-OS3.2]
(4)	[F31-OS3.2]
(5)	[F31-OS3.2]
7.2.10.7A.	Temperature Control Devices
(1)	[F31-OH1.2]
	[F31-OS3.2]
7.2.10.7B.	Showers
(1)	[F31-OH1.2]
	[F30-OS3.1] [F31-OS3.2]
(4)	[F31-OH1.2]
	[F31-OS3.2]
7.2.10.7C.	Linings and Coatings of Domestic Water Tanks
(1)	[F20, F46, F80, F81-OH2.1, OP5]
7.2.10.8.	Direct Flush Valves
(1)	(a), (b), (c) [F130-OR1]
	(a), (b) [F80, F81-OP5]
	(c), (d) [F80-OH2.1] [F81-OH2.4]
	(d) [F46-OH2.2]
7.2.10.9.	Drinking Fountain Bubblers
(1)	[F40, F46-OH2.4]
(2)	[F41, F46-OH2.2]
	[F130-OR1]

Acceptable Solutions	Objective and Functional Statements
7.2.10.10.	Back-Siphonage Preventers and Backflow Preventers
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
(2)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.10.11.	Relief Valves
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F31, F46, F80, F81-OP5]
	[F31-OS3.2]
7.2.10.12.	Reducing Valves
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.10.13.	Solar Domestic Hot Water
(1)	[F46-OH2.2]
	[F80, F81-OP5]
	[F81-OS3.2]
7.2.10.14.	Vent Pipe Flashing
(1)	[F61, F80-OH1.3]
	[F61, F80-OP2.3]
(2)	[F61, F80-OH1.3]
	[F61, F80-OP2.3]
7.2.10.15.	Water Hammer Arresters
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.10.16.	Air Admittance Valves
(1)	[F20, F43, F81-OH1.1]
7.2.10.17.	Drinking Water Treatment Systems
(1)	[F46-OH2.2]
	[F40-OS3.4]
	[F70-OP5]
7.2.10.18. Flexible Water Connectors	
(1)	[F81-OP5]
	[F46-OH2.2]
7.2.11.1.	Design, Construction, Installation and Testing
(1)	[F20, F46, F80, F81-OH2.2]
	[F12-OP1.4]
	[F20, F46, F80, F81-OP5]
	[F12-OS1.4]
7.2.11.2.	Certification or Conformance
(1)	[F20, F46, F80, F81-OH2.2]
	[F20, F46, F80, F81-OP5]
7.2.11.3.	Tracer Wire
(1)	[F82-OH2.2]
	[F82-OP5]
7.2.11.4.	Required Check Valve
(1)	[F46-OH2.2]
(2)	[F46-OH2.2]
7.3.2.1.	Caulked Lead Drainage Joints
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F80, F81-OH2.1] Applies to drainage system.
	[F80, F81-OP5] Applies to drainage system.

Acceptable Solutions	Objective and Functional Statements
(2)	[F80-OH2.1]
(3)	[F80, F81-OH2.1] Applies to drainage system.
	[F80, F81-OP5] Applies to drainage system.
(4)	[F81-OH2.1]
7.3.2.2.	Wiped Joints
(1)	[F43, F80, F81-OH1.1] Applies to venting system.
	[F80, F81-OH2.1] Applies to drainage system.
	[F80, F81-OP5] Applies to drainage system.
(2)	[F43, F80, F81-OH1.1] Applies to venting system.
	[F80, F81-OH2.1] Applies to drainage system.
	[F80, F81-OP5] Applies to drainage system.
(3)	[F43, F80, F81-OH1.1] Applies to venting system.
	[F80, F81-OH2.1] Applies to drainage system.
	[F80, F81-OP5] Applies to drainage system.
7.3.2.3.	Screwed Joints
(1)	[F81-OH2.1] Applies to drainage system. [F46, F81-OH2.2] Applies to water piping.
	[F81-OP5] Applies to drainage system.
(2)	[F46, F81-OH2.2] Applies to water piping.
7.3.2.4.	Solder Joints
(1)	[F43, F80, F81-OH1.1] Applies to venting system.
	[F80, F81-OH2.1] Applies to drainage system. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F80, F81-OP5] Applies to drainage system.
7.3.2.5.	Flared Joints
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F81-OH2.1] Applies to drainage system. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to drainage system.
(2)	[F43, F81-OH1.1] Applies to venting system.
	[F81-OH2.1] Applies to drainage system. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to drainage system.
7.3.2.6.	Mechanical Joints
(1)	[F43, F81-OH1.1] Applies to venting system.
	[F81-OH2.1] Applies to drainage system. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to drainage system.
7.3.2.7.	Cold-Caulked Joints
(1)	[F20, F43, F81-OH1.1] Applies to bell and spigot joints in venting systems.
	[F20, F81-OH2.1] Applies to bell and spigot joints in drainage systems. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to bell and spigot joints in drainage systems.

Acceptable Solutions	Objective and Functional Statements
(2)	[F20, F43, F81-OH1.1] Applies to bell and spigot joints in venting systems.
	[F20, F81-OH2.1] Applies to bell and spigot joints in drainage systems. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to bell and spigot joints in drainage systems.
(3)	[F20, F81-OH2.1] Applies to bell and spigot joints in drainage systems.
	[F20, F81-OP5] Applies to bell and spigot joints in drainage systems.
7.3.2.8.	Stainless Steel Welded Joints
(1)	[F20, F81-OH2.1, OH2.2, OH2.3]
(2)	[F20, F81-OH2.1, OH2.2, OH2.3]
7.3.3.1.	Drilled and Tapped Joints
(1)	[F81-OH2.1] Applies to drainage piping. [F20, F46, F81-OH2.2] Applies to water piping.
	[F20, F46, F81-OP5] Applies to water piping. [F20, F81-OP5] Applies to drainage piping.
(4)	[F81-OH2.1]
	[F81-OP5]
7.3.3.2.	Extracted Tees
(1)	[F81-OH2.1, OH2.3]
	[F20-OP5]
7.3.3.3.	Prohibition of Welding of Pipes and Fittings
(1)	[F20-OH1.1]
	[F20-OH2.1, OH2.2]
(2)	[F80-OH2.2]
	[F80-OP5]
7.3.3.4.	Unions and Slip Joints
(1)	[F81-OH1.1]
	[F81-OH2.1]
(2)	[F81-OH1.1]
	[F81-OH2.1]
7.3.3.5.	Increaser or Reducer
(1)	[F81-OH1.1]
	[F70, F80-OH2.2]
7.3.3.6.	Dissimilar Materials
(1)	[F80-OH1.1]
	[F80-OH2.1]
	[F80-OP5]
7.3.3.7.	Connection of Roof Drain to Leader
(1)	[F21, F61, F81-OP5]
7.3.3.8.	Connection of Floor Outlet Fixtures
(1)	[F80-OH2.1]
	[F80-OP5]
(2)	[F80-OH2.1]
	[F80-OP5]
(4)	[F20-OH2.1]
	[F20-OP5]
	[F20-OS3.1]

Acceptable Solutions	Objective and Functional Statements
(5)	[F20, F43-OH2.1]
	[F20, F30-OS3.1]
(6)	[F81-OH2.1]
(7)	[F21-OH2.1]
	[F21-OP5]
7.3.3.9.	Expansion and Contraction
(1)	[F21-OH1.1]
	[F21-OH2.1] [F21-OH2.2]
	[F21-OP5]
7.3.3.10.	Copper Tube
(1)	[F20-OH1.1]
	[F20-OH2.1] [F20-OH2.2]
	[F20-OP5]
(2)	[F20-OH1.1]
	[F20-OH2.1] [F20-OH2.2]
	[F20-OP5]
7.3.3.11.	Indirect Connections
(1)	[F81-OH2.2, OH2.4]
(2)	[F81-OH2.2, OH2.4]
7.3.3.12.	Copper Joints Used Underground
(1)	[F20, F80, F81, F113-OP5] Applies to drainage pipe. [F20, F46, F80, F81-OP5] Applies to water pipe.
(2)	[F80-OP5]
7.3.4.1.	Capability of Support
(1)	[F20-OH1.1]
	[F20-OH2.1, OH2.2]
	[F20-OP5]
	[F20-OS3.1]
(2)	[F20-OH2.1]
	[F20-OP5]
	[F20-OS3.1]
(3)	[F20-OH2.1]
	[F20-OP5]
	[F20-OS3.1]
7.3.4.2.	Independence of Support
(1)	[F20-OH2.1]
	[F20-OP5]
	[F20-OS3.1]
7.3.4.3.	Insulation of Support
(1)	[F80-OH1.1]
	[F80-OH2.1, OH2.2]
	[F80-OP5]
	[F80-OS3.1]
(2)	[F80-OH2.1, OH2.3]
	[F80-OS3.1]
	[F80-OP5]
7.3.4.4.	Support for Vertical Piping
(1)	[F20-OH1.1] Applies to vent piping.
	[F20-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(2)	[F20-OH1.1] Applies to vent piping.
	[F20-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
7.3.4.5.	Support for Horizontal Piping
(1)	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(2)	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(3)	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(4)	[F81-OP5]
	[F81-OS3.1]
(5)	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(6)	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
7.3.4.6.	Support for Underground Horizontal Piping
(1)	[F20-OE] Applies to drainage piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
(2)	[F20-OE] Applies to drainage piping.
	[F20-OH1.1] Applies to vent piping.
	[F20, F81-OH2.1] Applies to drainage piping. [F20-OH2.2] Applies to water piping.
	[F20-OP5]
	[F20-OS3.1]
7.3.4.7.	Support for Vent Pipe Above a Roof
(1)	[F20-OH1.1]
	[F61, F81-OP2.3]
	[F81-OS3.1]

Acceptable Solutions	Objective and Functional Statements
7.3.4.8.	Compression Fittings
(1)	[F20-OH2.1, OH2.2]
	[F20-OP5]
	[F20-OS3.1]
7.3.4.9.	Thrust Restraint of Water Service Pipes
(1)	[F20, F81-OH2.2]
	[F20, F81-OP5]
(2)	[F20, F81-OH2.2]
(3)	[F20, F81-OH2.2]
(4)	[F20, F81-OH2.2]
7.3.5.1.	Backfill of Pipe Trench
(1)	[F20-OE]
	[F81-OH2.1]
	[F81-OP5]
7.3.5.2.	Protection of Non-Metallic Pipe
(1)	[F20-OE]
	[F81-OH2.1]
	[F81-OP5]
7.3.5.3.	Isolation from Loads
(1)	[F20-OE] Applies to underground drainage piping.
	[F81-OH2.1]
	[F81-OP5]
7.3.5.4.	Protection from Frost
(1)	[F20-OE] Applies to underground drainage piping.
	[F81-OH2.1]
	[F81-OP5]
7.3.5.5.	Protection from Mechanical Damage
(1)	[F81-OH1.1] Applies to venting system.
	[F81-OH2.1] Applies to drainage system. [F81-OH2.2] Applies to water system.
	[F81-OP5]
7.3.5.6.	Protection from Condensation
(1)	[F63-OH2.4]
	[F63-OP2.3]
7.3.5.7.	Spatial Separation
(1)	[F46-OH2.2]
	[F46-OP5]
(2)	[F46-OH2.2]
	[F46-OP5]
(4)	[F46-OH2.2]
	[F46-OP5]
7.3.6.1.	Tests and Inspection of Drainage or Venting Systems
(1)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
(2)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
(3)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
(4)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
(5)	[F81-OH2.1] Applies to drainage systems.
(6)	[F22-OS2.6]
	[F36-OS3.6]
7.3.6.2.	Tests of Pipes in Drainage Systems
(1)	[F81-OE] Applies to underground drainage piping.
	[F81-OH2.1]
	[F81-OP5] Applies to drainage systems.
7.3.6.3.	Tests of Venting Systems
(1)	[F81-OH1.1]
7.3.6.4.	Water Pressure Tests
(1)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
(2)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
7.3.6.5.	Air Pressure Tests
(1)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
7.3.6.6.	Final Tests
(1)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
	[F81-OP5] Applies to drainage systems.
7.3.6.7.	Ball Tests
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
7.3.7.1.	Application of Tests
(1)	[F81-OP5]
(3)	[F81-OP5]
(4)	[F81-OP5]
7.3.7.2.	Tests of Potable Water Systems
(1)	[F20-OP5]
7.3.7.3.	Water Tests
(1)	[F81-OP5]
(2)	[F46-OH2.2]
7.4.2.1.	Connections to Sanitary Drainage Systems
(1)	[F81-OH1.1]
	[F41, F43-OH2.1, OH2.4]
(2)	[F81-OH1.1]
	[F43-OH2.1, OH2.4]
(3)	[F81-OH1.1]
(4)	[F81-OH1.1]
(5)	[F81-OH1.1]
7.4.2.2.	Connection of Overflows from Rainwater Tanks
(1)	[F40-OE]

Acceptable Solutions	Objective and Functional Statements
7.4.2.3.	Direct Connections
(1)	[F81-OH2.1]
(2)	[F81-OH2.1, OH2.4]
(3)	[F81-OH2.4]
(4)	[F81-OH2.4]
7.4.3.1.	Plumbing Fixtures
(1)	[F41-OH1.1]
	[F40, F41-OH2.1, OH2.4]
	[F80-OP2.3]
7.4.3.2.	Restricted Locations of Indirect Connections and Traps
(1)	[F81-OH2.1, OH2.4]
7.4.3.3.	Equipment Restrictions Upstream of Interceptors
(1)	[F81-OH2.1]
7.4.3.4.	Fixtures Located in Chemical Storage Locations
(1)	[F44-OE]
	[F44-OH5]
	[F01-OP1.1]
	[F81-OP2.3]
	[F01, F81-OS1.1]
	[F32-OS3.3] [F44-OS3.4]
7.4.3.5.	Macerating Toilet
(1)	[F72-OH2.3]
7.4.3.6.	Drains Serving Elevator Pits
(1)	[F43-OH1.1]
	[F43-OH2.1]
	[F62-OP2.3]
	[F62-OP5]
7.4.4.1.	Sewage Treatment
(1)	[F81-OE] Applies to underground drainage piping.
	[F81-OH2.1]
	[F81-OP2.3]
	[F81-OP5]
	[F44-OS3.4]
7.4.4.2.	Protection for Drainage System
(1)	[F81-OE] Applies to underground drainage piping.
	[F81-OH2.1]
	[F81-OH5]
7.4.4.3.	Interceptors
(1)	[F81, F112-OE]. [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
(2)	[F44, F81, F112-OE]. [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
	[F44-OH5]
	[F01-OP1.1]
	[F01-OS1.1]
(3)	[F81-OH2.1]
	[F111-OE] Applies to drainage systems served by a sewage system.
(4)	[F44-OE] Applies to oil interceptors. [F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
	[F44-OH5] Applies to oil interceptors.
	[F01-OP1.1] Applies to oil interceptors.
	[F01-OS1.1] Applies to oil interceptors.
(5)	[F44-OE] Applies to oil interceptors. [F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
	[F44-OH5] Applies to oil interceptors.
	[F01-OP1.1] Applies to oil interceptors.
	[F01-OS1.1] Applies to oil interceptors
(6)	[F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
(7)	[F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
(8)	[F44-OE] Applies to oil interceptors. [F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F81-OH2.1]
	[F44-OH5] Applies to oil interceptors.
	[F01-OP1.1] Applies to oil interceptors.
	[F01-OS1.1] Applies to oil interceptors.
7.4.4.4.	Neutralizing and Dilution Tanks
(1)	[F40-OE]
	[F80-OH2.1]
	[F40-OH5]
	[F81-OP2.3]
	[F80-OP5]
	[F40, F80-OS3.4]
(2)	[F40-OE]
	[F80-OH2.1]
	[F40-OH5]
	[F81-OP2.3]
	[F80-OP5]
	[F40, F80-OS3.4]
7.4.5.1.	Traps for Sanitary Drainage Systems
(1)	[F81-OH1.1]
	[F42-OH2.5]
(6)	[F81-OH1.1]
	[F42-OH2.5]
7.4.5.2.	Traps for Storm Drainage Systems
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]

Acceptable Solutions	Objective and Functional Statements
7.4.5.3.	Connection of Subsoil Drainage Pipe to a Sanitary Drainage System
(1)	[F40-OH1.1]
	[F40-OH2.1]
(3)	[F81-OH1.1]
	[F81-OH2.1]
7.4.5.4.	Location and Cleanout for Building Traps
(1)	[F81-OH2.1]
7.4.5.5.	Trap Seals
(1)	[F81-OH1.1]
	[F42-OH2.5]
(2)	[F81-OH1.1]
	[F42-OH2.5]
7.4.6.1.	Separate Systems
(1)	[F40-OR1]
(3)	[F81-OH1.1]
	[F41, F81-OH2.1]
7.4.6.2.	Location of Soil or Waste Pipes
(1)	[F81-OH2.1, OH2.2, OH2.4]
	(a), (b) [F46-OH2.2]
7.4.6.3.	Sumps or Tanks
(1)	[F81-OH2.1]
(2)	[F81-OH1.1]
	[F81-OH2.1]
(3)	[F40, F81-OH2.1]
	[F40, F81-OH1.1]
(4)	[F72-OH2.1]
	[F81-OH2.1]
(5)	[F81-OH2.1]
(6)	[F81-OH2.1]
(7)	[F81-OH2.1]
(8)	[F81-OH2.1]
(9)	[F81-OH2.1]
7.4.6.4.	Protection from Backflow
(1)	[F81-OH1.1]
	[F81-OH2.1]
(2)	[F81-OH1.1]
	[F81-OH2.1]
(3)	[F81-OH2.1]
(5)	[F40-OH1.1]
	[F40-OH2.1]
7.4.6.5.	Mobile Home Sewer Service
(1)	[F81-OH2.1]
7.4.7.1.	Cleanouts for Drainage Systems
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH2.1]
(4)	[F81-OH2.1]
(5)	[F81-OH2.1]

Acceptable Solutions	Objective and Functional Statements
(6)	[F81-OH2.1]
(7)	[F81-OH2.1]
(8)	[F81-OH2.1]
(9)	[F81-OH2.1]
(10)	[F81-OH2.1]
7.4.7.2.	Size and Spacing of Cleanouts
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH2.1]
(4)	[F81-OH2.1]
(5)	[F81-OH2.1]
(6)	[F81-OH2.1]
(7)	[F81-OH2.1]
7.4.7.3.	Manholes
(1)	[F20-OS3.1]
(2)	(a), (c) [F81-OH1.1]
	(a), (c) [F81-OS1.1]
	(b), [F20, F30, F80-OS3.1]
(3)	[F30-OS3.1] [F36-OS3.6]
(4)	[F81-OH2.1]
7.4.7.4.	Location of Cleanouts
(1)	[F81-OH2.1]
(2)	[F81-OH1.1]
	[F30-OS3.1]
(4)	[F81-OH2.1]
(4.1)	[F81-OH2.1]
(5)	[F43-OH2.1]
	[F43-OH5]
7.4.8.1.	Minimum Slope
(1)	[F81-OH2.1]
(3)	[F81-OH2.1]
7.4.8.2.	Length of Fixture Outlet Pipes
(1)	[F81-OH1.1]
7.4.9.1.	No Reduction in Size
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
7.4.9.2.	Serving Water Closets
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH2.1]
(4)	[F81-OH2.1]
(5)	[F81-OH1.1, OH2.1, OP5]
7.4.9.3.	Size of Fixture Outlet Pipes
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH1.1]
	[F81-OP5]
7.4.9.4.	Minimum Size of Building Drains and Sewers
(1)	[F81-OH2.1]

Acceptable Solutions	Objective and Functional Statements
(2)	[F81-OH2.1]
7.4.9.5.	Offset in Leaders
(1)	[F81-OH2.1, OH2.3]
(2)	[F81-OH2.1]
7.4.10.3.	Hydraulic Loads from Fixtures with Continuous or Semi-continuous Flow
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
7.4.10.4.	Hydraulic Loads from Roofs or Paved Surfaces
(2)	[F20, F81-OP5]
	(a), (d), (e) [F41, F81-OH2.4, OH2.5]
	(b), (c) [F20, F81-OS2.1]
(4)	[F20, F81-OP5]
7.4.10.5.	Conversion of Fixture Units to Litres and Gal/min
(1)	[F81-OH2.1]
7.4.10.6.	Hydraulic Loads to Soil or Waste Pipes
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH2.1]
7.4.10.7.	Hydraulic Loads on Branches
(1)	[F81-OH2.1]
7.4.10.8.	Hydraulic Loads on Sanitary Horizontal Drain
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
7.4.10.9.	Hydraulic Loads on Horizontal Storm Drains
(1)	[F81-OH2.1]
7.4.10.10.	Rain Leaders
(2)	[F62, F81-OH1.3]
(3)	[F62, F81-OH1.3]
2.4.10.11.	Hydraulic Loads on Leaders
(1)	[F81-OP5]
2.4.10.12.	Hydraulic Loads from Fixtures with a Semi-Continuous Flow
(1)	[F81-OP5]
7.5.1.1.	Venting for Traps
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
7.5.2.1.	Wet Venting
(1)	[F40, F81-OH1.1]
7.5.3.1.	Circuit Venting
(1)	[F40, F81-OH1.1]
(2)	[F40, F81-OH1.1]
(3)	[F40, F81-OH1.1]
(4)	[F40, F81-OH1.1]
(5)	[F40, F81-OH1.1]
(6)	[F40, F81-OH1.1]
(7)	[F40, F81-OH1.1]
(8)	[F40, F81-OH1.1]
(9)	[F40, F81-OH1.1]
(10)	[F40, F81-OH1.1]

Acceptable Solutions	Objective and Functional Statements
7.5.4.1.	Stack Vents
(1)	[F40, F81-OH1.1]
7.5.4.2.	Vent Stacks
(1)	[F40, F81-OH1.1]
(3)	[F40, F81-OH1.1]
(4)	[F40, F81-OH1.1]
7.5.4.3.	Yoke Vents
(1)	[F40, F81-OH1.1]
(2)	[F40, F81-OH1.1]
(3)	[F40, F81-OH1.1]
7.5.4.4.	Offset Relief Vents
(1)	[F40, F81-OH1.1]
7.5.4.5.	Fixtures Draining into Vent Pipes
(1)	[F40, F81-OH1.1]
7.5.5.1.	Venting of Sanitary Sewage Sumps
(1)	[F40, F81-OH1.1]
7.5.5.2.	Venting of Interceptors
(1)	[F40, F81-OH1.1]
	[F81-OH2.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
(2)	[F40, F81-OH1.1]
	[F81-OH2.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
(3)	[F40, F81-OH1.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
(4)	[F40, F81-OH1.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
(5)	[F40, F81-OH1.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
(6)	[F40, F81-OH1.1]
	[F81-OH2.1]
(7)	[F40, F81-OH1.1]
	[F81-OH2.1]
	[F01, F40, F81-OP1.1]
	[F01, F40, F81-OS1.1]
7.5.5.3.	Venting of Drain Piping and Dilution Tanks for Corrosive Waste
(1)	[F81-OS3.4]
7.5.5.4.	Fresh Air Inlets
(1)	[F81-OH1.1]
7.5.5.5.	Provision for Future Installations
(1)	[F81-OH1.1] Applies to venting systems.
	[F81-OH2.1] Applies to drainage systems.
(2)	[F40, F81-OH1.1]

Acceptable Solutions	Objective and Functional Statements
7.5.6.1.	Drainage of Vent Pipes
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
7.5.6.2.	Vent Pipe Connections
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
(3)	[F40, F81-OH1.1]
7.5.6.3.	Location of Vent Pipes
(1)	[F81-OH1.1]
(2)	[F81-OH2.1]
(3)	[F81-OH1.1]
(4)	[F40, F81-OH1.1]
7.5.6.4.	Connection of Vents Above Fixtures Served
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
7.5.6.5.	Terminals
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
(4)	[F81-OH1.1]
(5)	[F81-OH1.1]
(6)	[F81-OH1.1]
(7)	[F20, F81-OH1.1]
(8)	[F61, F80-OH1.3]
	[F61, F80-OP2.3]
(9)	[F61-OH1.3]
	[F61-OP2.3]
(10)	[F81-OH1.1]
7.5.7.1.	General
(1)	[F81-OH1.1]
7.5.7.2.	Size Restriction
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]
(3)	[F81-OH1.1]
7.5.7.3.	Additional Circuit Vents and Relief Vents
(2)	[F81-OH1.1]
7.5.7.4.	Offset Relief Vents
(1)	[F81-OH1.1]
7.5.7.5.	Yoke Vents
(1)	[F81-OH2.1]
7.5.7.6.	Vent Pipes for Manholes
(1)	[F81-OH2.1]
7.5.7.7.	Vents for Sewage Sumps, Neutralizing and Dilution Tanks, and Macerating Toilet Systems
(1)	[F81-OH2.1]
(2)	[F81-OH2.1]
(3)	[F81-OH1.1]
7.5.8.1.	Hydraulic Loads Draining to Wet Vents
(1)	[F81-OH1.1]
(2)	[F81-OH1.1]

Acceptable Solutions	Objective and Functional Statements
7.5.8.2.	Individual Vents and Dual Vents
(1)	[F81-OH1.1]
7.5.8.3.	Branch Vents, Headers, Continuous Vents and Circuit Vents
(1)	[F81-OH1.1]
7.5.8.4.	Vent Stacks or Stack Vents
(1)	[F81-OH1.1]
(3)	[F81-OH1.1]
(4)	[F81-OH1.1]
(5)	[F81-OH1.1]
7.5.9.2.	Air Admittance Valves
(1)	[F40, F81-OH1.1]
	(a) [F140-OC]
(2)	[F40, F81-OH1.1]
(3)	[F40, F81-OH1.1]
7.5.9.3.	Installation Conditions
(1)	[F40, F81-OH1.1]
(2)	[F40, F81-OH1.1]
(3)	[F40, F81-OH1.1]
(4)	[F40, F81-OH1.1]
(5)	[F40, F81-OH1.1]
7.6.1.1.	Design
(1)	[F31-OS3.2]
(2)	[F31-OS3.2]
(3)	[F71-OH2.3]
7.6.1.2.	Drainage
(1)	[F81-OP5]
7.6.1.3.	Control and Shut-off Valves
(1)	[F81-OP5]
(2)	[F81-OP5]
(2.1)	[F81-OP5]
(2.2)	[F81-OP5]
(3)	[F81-OP5]
(4)	[F81-OP5]
(5)	[F70, F72-OH2.1, OH2.3]
(6)	[F70, F72-OH2.1, OH2.3]
(47)	[F81-OP5]
(8)	[F81-OP5]
(9)	[F81-OP5]
7.6.1.3A.	Public Washrooms
(1)	[F81-OP5]
7.6.1.3B.	Tanks
(1)	[F81-OP5]
7.6.1.4.	Protection for Exterior Water Supply
(1)	[F81-OP5]
7.6.1.5.	Check Valves
(1)	[F20, F81-OP5]
7.6.1.6.	Flushing Devices
(1)	[F72-OH2.1]

Acceptable Solutions	Objective and Functional Statements
(2)	[F72-OH2.1]
(3)	[F130-OE1.2]
(4)	[F81-OH2.1]
(5)	[F130-OE1.2]
7.6.1.7.	Relief Valves
(1)	[F20, F81-OP1.1]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2] Applies to pressure vessels containing hot water.
(2)	[F20, F81-OP1.1]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2]
(4)	[F20, F81-OP1.1] [F20, F81-OS1.1] [F20, F81-OS2.3] (b) [F31, F81-OS3.2]
(5)	[F20, F81-OP1.1]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2]
	(b) [F81-OH2.2] Applies to the size of air break.
(6)	[F20, F81-OP1.1]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2]
(7)	[F20, F81-OP1.1]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2]
7.6.1.8.	Solar Domestic Hot Water Systems
(1)	[F61-OH1.3]
	[F70-OH2.2]
	[F20-OS2.2, OS2.3]
	[F31-OS3.2] [F81-OS3.4]
7.6.1.9.	Water Hammer
(1)	[F20-OH4]
	[F20, F81-OP5]
	[F20, F81-OS3.2]
7.6.1.10.	Mobile Home Water Service
(1)	[F46, F70-OH2.2]
7.6.1.11.	Thermal Expansion
(1)	[F20, F46, F81-OP5]
7.6.2.1.	Connection of Systems
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(3)	[F70, F81, F82-OH2.2, OH2.3]
(3.1)	[F46, F70, F81-OH2.2]
7.6.2.2.	Back-Siphonage
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(2)	[F81-OH2.1] [F46, F70, F81-OH2.2]

Acceptable Solutions	Objective and Functional Statements
7.6.2.3.	Backflow Caused by Back Pressure
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(2)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(3)	[F81-OH2.1] [F46, F70, F81-OH2.2]
7.6.2.4.	Backflow from Fire Protection Systems.
(2)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(3)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
(4)	[F81-OH2.1] [F46, F70, F81-OH2.2]
7.6.2.5A.	Backflow from Buildings with a Solar Domestic Hot Water System
(1)	[F70, F81, F46-OH2.1, OH 2.2, OH2.3]
7.6.2.6.	Premise Isolation
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(3)	[F46, F70, F81-OH2.2]
7.6.2.7.	Hose Bibb
(1)	[F70, F81, F46-OH2.1, OH2.2, OH2.3]
7.6.2.8.	Cleaning of Systems
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
7.6.2.9.	Air Gap
(1)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(2)	[F81-OH2.1] [F46, F70, F81-OH2.2]
7.6.2.10.	Vacuum Breakers and Flood Levels
(2)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(3)	[F81-OH2.1] [F46, F70, F81-OH2.2]
(4)	[F81-OH2.1] [F46, F70, F81-OH2.2]
7.6.2.11.	Tank-Type Water Closets
(1)	[F70, F81, F46-OH2.1, OH2.2, OH2.3]
7.6.3.1.	Design
(1)	[F70, F81-OH2.2]
(2)	[F70-OH2.2]
(4)	[F70, F81-OH2.2] [F40-OH2.1, OH2.4]
7.6.3.2.	Hydraulic Load
(1)	[F70, F81-OH2.2]
(2)	[F70, F81-OH2.2]
(3)	[F70, F81-OH2.2]
(4)	[F70, F81-OH2.2]
7.6.3.3.	Static Pressure
(1)	[F20, F81-OP1.1]
	[F20, F81-OP5]
	[F20, F81-OS1.1]
	[F20, F81-OS2.3]
	[F31, F81-OS3.2] Applies to pipes containing hot water
7.6.3.4.	Size
(1)	[F70, F81-OH2.2]
(2)	[F70, F81-OH2.2]
(4)	[F70, F81-OH2.2]
(5)	[F71, F72-OH2.1, OH2.3]
(6)	[F71, F72-OH2.1, OH2.3]

Acceptable Solutions	Objective and Functional Statements
7.6.4.1.	Water Supply Fittings
(31)	[F130-OR1]
(2)	[F30-OS3.1]
	[F31-OS3.2]
(3)	[F130-OR1]
7.7.1.1.	General
(1)	[F81-OH2.2]
(2)	[F82-OH2.2]
(3)	[F40-OH2.2]
(4)	[F46-OH2.2]
(5)	[F80, F81-OS3.4]
	[F81-OP5]
7.7.1.2.	Identification and Marking
(0.1)	[F46, F81-OH2.2]
(1)	[F46, F81-OH2.2]
7.7.1.3.	Location of Pipes
(1)	[F81-OH2.1, OH2.2, OH2.4]
	(c), (d) [F46-OH2.2]
7.7.1.4.	Location of Outlets
(1)	[F46-OH2.2] [F40-OH2.4]
7.7.2.2.	Permitted Applications
(1)	[F46-OH2.2]
	[F81-OH2.2]
7.7.2.3.	Roof Design
(1)	[F41-OH2.2]
(2)	[F41-OH2.2]
7.7.2.4.	Non-Potable Rainwater Harvesting System Design
(1)	[F46, F80, F81-OH2.2]
(2)	[F41-OH2.2]
(3)	[F40-OH2.2]
(4)	[F41-OH2.2]
(5)	[F80, F81-OS3.4]
	[F81-OP5]
(6)	[F81-OH2.2]
(7)	[F81-OH2.2]
	[F81-OP5]
(8)	[F81-OH2.2]
	[F81-OH2.2]
(9)	[F46-OH2.2]
(10)	[F46-OH2.2]
7.7.3.1.	Conformance to Standards
(1)	[F81, F82-OH2.1, OH2.2, OH2.4] [F130-OR1]

Table 8
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 8 of Division B

Acceptable Solutions	Objective and Functional Statements
8.1.3.1.	Discharge
(1)	[F81, F110, F111-OE]
	[F81, F110, F111-OH5]
(7)	[F81, F110, F111-OE]
	[F81, F110, F111-OH5]
(8)	[F81, F111-OE]
	[F81, F111-OH5]
8.2.1.2.	Site Evaluation
(1)	[F110, F111, F112-OE]
	[F110, F111, F112-OH5]
8.2.1.4.	Clearances
(2)	[F110, F112-OE]
	[F110, F112-OH5]
(3)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(4)	[F110, F111, F112-OE]
	[F110, F111, F112-OH5]
8.2.1.5.	Clearance Distances for Class 1, 2 and 3 Sewage Systems
(1)	[F110, F112-OE]
	[F110, F112-OH5]
8.2.1.6.	Clearances for a Class 4 or 5 Sewage System
(1)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(2)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(3)	[F110-OE]
	[F110-OH2.1]
	[F110-OH5]
8.2.2.2.	Tanks
(1)	[F110, F111, F112-OE]
	[F110, F111, F112-OH5]
	[F20-OP2.3]
(2)	[F110, F111, F112-OE]
	[F110, F111, F112-OH5]
	[F20-OP2.3]
(5)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
(6)	[F20-OP2.3]
(7)	[F81-OP2.6]
8.2.2.3.	Septic Tanks
(1)	[F111-OE]
	[F111-OH2.1]
	[F111-OH5]

Acceptable Solutions	Objective and Functional Statements
(2)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(3)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(4)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
	(e) [F110-OE]
	(e) [F110-OH5]
(5)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(6)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(7)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(8)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(9)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
(10)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
(11)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
8.2.2.4.	Holding Tanks
(1)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
(2)	[F111-OE]
	[F111-OH2.1]
	[F111-OH5]
8.3.1.2.	Application
(1)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(3)	[F110-OE]
	[F110-OH5]
8.3.2.1.	Construction Requirements
(1)	(a), (b) [F42-OH2.5]
	(c), (d), (h) [F40-OH2.4]

Acceptable Solutions	Objective and Functional Statements
	(e) [F101-OH6]
	(f), (g) [F50-OH1.1]
	(f), (g) [F42-OH2.5]
8.3.3.1.	Construction Requirements
(1)	(a) [F110, F112-OE]
	(a) [F110, F112-OH5]
	(b) [F20-OS2.2]
	(b), (d) [F113-OH2.6]
	(c) [F112-OE]
	(c) [F112-OH5]
	(d) [F110-OE]
8.3.4.1.	Construction Requirements
(1)	(a) [F40-OH2.4] [F113-OH2.6]
	(b) [F113-OH2.6]
	(c) [F111-OE]
	(c) [F111-OH5]
8.3.5.1.	Construction Requirements
(1)	(a) [F113-OH2.6]
	(b) [F40-OH2.4]
	(c) [F20-OS2.1]
8.4.1.2.	Application
(1)	[F110-OE]
	[F110-OH5]
8.4.2.1.	Construction Requirements
(1)	[F110, F112-OE]
	[F110, F112-OH5]
(2)	[F113-OH2.6]
	[F20-OS2.2]
(3)	[F112-OE]
	[F112-OH5]
(4)	[F82-OE]
	[F42-OH2.5] [F113-OH2.6]
	[F82-OH5]
	[F30-OS3.1]
(5)	[F113-OH2.6]
(6)	[F111-OE]
	[F111-OH5]
(7)	[F112-OE]
	[F112-OH5]
8.4.2.2.	Maximum Sewage Flow
(1)	[F110, F112-OE]
	[F110, F112-OH5]
8.4.2.3.	Sizing
(1)	[F110, F112-OE]
	[F110, F112-OH5]
8.5.1.2.	Application
(1)	[F110, F112-OE]
	[F110, F112-OH5]
(2)	[F112-OE]
	[F112-OH5]

Acceptable Solutions	Objective and Functional Statements
8.5.2.1.	Construction Requirements
(1)	[F110, F112-OE]
	[F110, F112-OH5]
(2)	[F113-OH2.6]
	[F20-OS2.2]
(3)	[F112-OE]
	[F112-OH5]
(4)	[F82-OE]
	[F42-OH2.5] [F113-OH2.6]
	[F82-OH5]
	[F30-OS3.1]
(5)	[F30-OS3.1]
(6)	[F113-OH2.6]
(7)	[F111-OE]
	[F111-OH5]
(8)	[F112-OE]
	[F112-OH5]
8.6.1.2.	General Requirements
(1)	[F112-OE]
	[F112-OH5]
8.6.1.3.	Pumps and Siphons
(1)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110, F111, F112-OE]
	[F110, F111, F112-OH5]
(4)	[F111, F113-OE]
	[F111, F113-OH5]
(5)	[F112-OE]
	[F112-OH5]
(6)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.6.2.1.	Septic Tank Systems
(1)	[F110, F111-OE]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH5]
(3)	[F82-OE]
	[F82-OH2.1]
8.6.2.2.	Other Treatment Units
(1)	[F110-OE]
	[F110-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH5]
(3)	[F111-OE]
	[F111-OH2.1]
	[F111-OH5]

Acceptable Solutions	Objective and Functional Statements
(4)	[F111-OE]
	[F111-OH2.1]
	[F111-OH5]
(6)	[F82, F111-OE]
	[F82, F111-OH2.1]
	[F82, F111-OH5]
8.7.1.1.	Application Scope
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.1.2.	Limitation on Installation
(1)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
8.7.2.1.	General Requirements
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F104, F110, F111-OE]
	[F104, F110, F111-OH2.1]
	[F104, F110, F111-OH5]
	[F104, F110, F111-OR2]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(4)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(5)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.2.2.	Distribution Pipes within Leaching Beds
(2)	[F111-OE]
8.7.2.3.	Leaching Chambers within Leaching Beds
(3)	[F111, F112-OE]
	[F111, F112-OH2.1]
	[F111, F112-OH5]
(4)	[F111-OE]
8.7.3.1.	Length of Distribution Pipe
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110-OE]
	[F110-OH5]
(3)	[F110-OE]
	[F110-OH5]
(4)	[F110-OE]
	[F110-OH5]
8.7.3.1A.	Length of Leaching Chamber
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]

Acceptable Solutions	Objective and Functional Statements
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110-OE]
	[F110-OH2.1]
	[F110-OH5]
(4)	[F110-OE]
	[F110-OH5]
8.7.3.2.	Absorption Trenches
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.3.3.	Distribution Pipe
(1)	[F111-OE]
	[F111-OH5]
(2)	[F111-OE]
	[F111-OH5]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(4)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.3.4.	Leaching Chamber
(1)	[F111-OE]
	[F111-OH5]
(2)	[F111-OE]
	[F111-OH5]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.4.1.	Loading Requirements
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.4.2.	Construction Requirements
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(5)	[F110, F111-OE]
	[F110, F111-OH2.1]

Acceptable Solutions	Objective and Functional Statements
	[F110, F111-OH5]
(6)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(7)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(8)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(9)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(10)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(11)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.5.1.	Application
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.5.2.	Loading Requirements
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(4)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(5)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
8.7.5.3.	Construction Requirements
(2)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(3)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(4)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(5)	[F110, F111-OE]
	[F110, F111-OH2.1]

Acceptable Solutions	Objective and Functional Statements
	[F110, F111-OH5]
(6)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
8.7.6.1.	Construction Requirements
(1)	[F112-OE]
	[F112-OH5]
(2)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(4)	[F20-OS2.2]
(5)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.7.1.	Construction Requirements
(1)	[F112-OE]
	[F112-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(4)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(5)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(6)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(7)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(8)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(9)	[F111-OE]
	[F111-OH5]
(10)	[F111-OE]
	[F111-OH5]
(11)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
8.7.7.2.	Construction Requirements
(2)	[F111-OE]

Acceptable Solutions	Objective and Functional Statements
8.7.8.1.	General Requirements
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.7.8.2.	Construction Requirements
(1)	[F112-OE]
	[F112-OH5]
(2)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(3)	[F110, F112-OE]
	[F110, F112-OH5]
(4)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(5)	[F110, F111, F112-OE]
	[F110, F111, F112-OH2.1]
	[F110, F111, F112-OH5]
(7)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
(8)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(9)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(10)	[F110, F112-OE]
	[F110, F112-OH2.1]
	[F110, F112-OH5]
8.7.8.3.	Design Requirements
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(3)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(4)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.8.1.2.	Acceptable Installation
(1)	[F110-OE]
	[F110-OH5]
(2)	[F82, F110-OE]
	[F82, F110-OH5]
8.8.2.1.	Construction Requirements
(1)	[F82, F110-OE]
	[F82, F110-OH5]
(2)	[F82, F110-OE]
	[F82, F110-OH5]
(3)	[F110-OE]
	[F110-OH5]
(4)	[F110-OE]
	[F110-OH5]
8.8.2.2.	Sizing of Holding Tanks
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.9.1.2.	General Requirements for Operation and Maintenance
(1)	[F110-OE]
	[F110-OH5]
8.9.2.2.	General
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.9.2.3.	Class 4 Sewage Systems
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F82, F110-OE]
	[F82, F110-OH5]
8.9.2.4.	Sampling of Treatment Units
(1)	[F82, F110-OE]
	[F82, F110-OH5]
(2)	[F82, F110-OE]
	[F82, F110-OH5]
(3)	[F82, F110-OE]
	[F82, F110-OH5]
(4)	[F82, F110-OE]
	[F82, F110-OH5]
8.9.2.5.	Class 5 Sewage Systems
(1)	[F82, F110-OE]
	[F82, F110-OH5]
(2)	[F110-OE]
	[F110-OH5]
8.9.3.2.	General
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
(2)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.9.3.3.	Interceptors
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]
8.9.3.4.	Class 4 Sewage Systems
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]

Acceptable Solutions	Objective and Functional Statements
	[F110, F111-OH5]
8.9.3.5.	Pressurized Distribution Systems
(1)	[F110, F111-OE]
	[F110, F111-OH2.1]
	[F110, F111-OH5]

Table 9
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 9 of Division B

Acceptable Solutions	Objectives and Functional Statements
9.1.1.7.	Radon
(1)	[F40, F50-OH1.1]
9.1.1.8.	Building in Flood Plains
(1)	(a) [F20-OP2.1]
	(a) [F20-OS2.1, OS2.3]
	(a) [F61-OH1.3]
	(b) [F10, F12-OS3.1] [F10, F30-OS3.7]
9.3.1.1.	General
(1)	[F20-OP2.1, OP2.4] [F21-OP2.3, OP2.4] [F80-OP2.3] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F21, F55, F61, F80-OH1.1, OH1.2] [F20, F21, F80, F61-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F80-OH4] Applies where concrete elements support wood-frame floors.
	[F20, F21, F80-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F21, F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F20, F21, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
(4)	[F20-OP2.1, OP2.4] [F21, F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F21, F55, F80, F61-OH1.1, OH1.2] [F20, F21, F80, F61-OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OH4] Applies to elements that support floors.
	[F20, F80-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to concrete that supports wood-frame floors or steps. [F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
9.3.1.2.	Cement
(1)	[F20-OP2.1, OP2.4] [F80-OP2.3, OP2.4]
	[F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F55, F61, F80-OH1.1, OH1.2] [F20, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F80-OH4] Applies where concrete elements support wood-frame floors.
	[F20, F80-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
9.3.1.3.	Concrete in Contact with Sulfate Soil
(1)	[F20-OP2.1, OP2.4] [F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F80-OH1.1, OH1.2, OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F80-OH4] Applies where concrete elements support wood-frame floors.
	[F80-OS1.1] Applies where concrete is used in footings for *chimneys* or fireplaces.
	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
9.3.1.4.	Aggregates
(1)	[F20-OP2.1, OP2.4] [F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.1] Applies to concrete used in *chimneys* or fireplaces.
	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.4] Applies to concrete used in *chimneys* or fireplaces.
	[F20, F55, F61, F80-OH1.1, OH1.2] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces. [F20, F61, F80-OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
9.3.1.5.	Water
(1)	[F20-OP2.1, OP2.4] [F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in chimneys or fireplaces.
	[F20, F55, F61, F80-OH1.1, OH1.2] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces. [F20, F61, F80-OH1.3] Applies to elements that support or are part of an environment+tal separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies where concrete elements support wood-frame floors.
9.3.1.6.	Compressive Strength
(1)	(a) [F20-OP2.1, OP2.4] (a) [F21-OP2.3, OP2.4] (a) [F80-OP2.3] (a) [F20-OP2.3] Applies to elements that support are part of an environmental separator.
	(a) [F20, F21, F80-OS1.1] Applies where concrete supports or is used in chimneys or fireplaces.
	(a) [F20-OS2.1] (a) [F21, F80-OP2.3] (a) [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OS3.1] Applies to elements that support floors or steps. (a) [F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
	(a) [F20, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. (a) [F20, F55, F61, F80-OH1.1, OH1.2] [F20, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	(a) [F20, F21, F80-OH4] Applies to elements that support floors.
	(b) [F20-OP2.1, OP2.4] (b) [F21-OP2.3, OP2.4] (b) [F80-OP2.3] (b) [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20-OS2.1] (b) [F21, F80-OS2.3] (b) [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20, F21, F80-OS3.1]
	(b) [F20, F21, F55, F61, F80-OH1.1, OH1.2] [F20, F21, F61, F80-OH1.3],
	(c) [F20-OP2.1] [F20, F21, F80-OP2.3, OP2.4]
	(c) [F20-OS2.1] [F20, F21, F80-OS2.3]
	(c) [F20, F21, F80-OS3.1]
(2)	[F80-OS3.1]
9.3.1.7.	Concrete Mixes
(1)	(a) [F20-OP2.1, OP2.4] (a) [F21-OP2.3, OP2.4] (a) [F20, F55, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F21, F61-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	(a) [F20-OS2.1] (a) [F21-OS2.3] (a) [F20, F61, F55-OS2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F21, F61-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. (a) [F20, F21, F61-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
	(a) [F20, F21, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. (a) [F20, F21, F80, F61, F55-OH1.1, OH1.2] [F20, F21, F80, F61-OH1.3] Applies where concrete supports or is used in an environmental separator.
	(a) [F20, F21, F61-OH4] Applies to elements that support floors.
	(b) [F20-OP2.1, OP2.4] (b) [F21-OP2.3, OP2.4] (b) [F80-OP2.3] (b) [F20-OP2.3] Applies where concrete is used in an environmental separator.
	(b) [F20, F21, F55, F61, F80-OH1.1, OH1.2] [F20, F21, F61, F80-OH1.3]
	(b) [F20-OS2.1] (b) [F21, F80-OS2.3] (b) [F20-OS2.3] Applies where concrete is used in an environmental separator.
	(b) [F20, F21, F80-OS3.1]
	(c) [F20, F21, F80-OP2.3, OP2.4]
	(c) [F20, F21-OS2.1] [F20, F21, F80-OS2.3]
	(c) [F20, F21, F80-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F20-OP2.1, OP2.4] [F21-OP2.3, OP2.4] [F20, F61, F55-OP2.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F21-OS2.3] [F20, F55, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F20, F80-OS3.1, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20, F21, F55, F61-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F21-OH1.2, OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F55, F61-OH4] Applies where concrete elements support wood-frame floors.
9.3.1.8.	Admixtures
(1)	[F20-OP2.1, OP2.4] [F21-OP2.3, OP2.4] [F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OS1.1] Applies where concrete supports or is used in chimneys or fireplaces.
	[F20-OS2.1] [F21-OS2.3] [F20, F55, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support *guards* or handrails. [F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F55, F61, F80-OH1.1, OH1.2] [F20, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F80-OH4] Applies where concrete elements support wood-frame floors.
9.3.1.9.	Cold Weather Requirements
(1)	[F20-OP2.1, OP2.4] [F21, F80-OP2.3, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OS1.1] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F21-OS2.3] [F20-OS2.3] Applies to elements that support or are part of en environmental separator.
	[F20, F80-OS3.1] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support guards or handrails.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F80-OS3.4, OS3.7] Applies where concrete supports or is used in *chimneys* or fireplaces.
	[F20, F80-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F55, F61, F80-OH1.1, OH1.2] [F20, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F80-OH4] Applies where concrete elements support wood-frame floors.
(2)	[F20-OH1.1] Applies where concrete supports or is used in the walls of *chimneys* or fireplaces. [F20, F55, F61-OH1.1, OH1.2] [F20, F61-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F55, F61-OH4] Applies to elements that support floors.
	[F20-OP2.1, OP2.4] [F20, F55, F61-OP2.3] [F55, F61-OP2.4] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.1] Applies to concrete that supports or is used in *chimneys* or fireplaces.
	[F20-OS2.1] [F20, F55, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F55, F61-OS3.1] Applies to floors and elements that support floors. [F20, F55, F61-OS3.4] Applies to concrete that supports or is used in *chimneys* or fireplaces.
9.3.2.2.	Lumber Grades
(1)	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, or elements that support walls, that contain doors or windows required for emergency egress.
9.3.2.5.	Moisture Content
(1)	[F21, F80-OP2.3, OP2.4]
	[F21, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F21, F80-OH4] Applies to floors and elements that support floors.
	[F21, F80-OS1.2] Applies to assemblies required to provide fire resistance.

Acceptable Solutions	Objectives and Functional Statements
	[F21, F80-OS2.3]
	[F21, F80-OS3.1] Applies to floors and elements that support floors.
9.3.2.8.	Undersized Lumber
(1)	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.3.2.9.	Termite and Decay Protection
(1)	[F80, F82-OP2.3, OP2.4]
	[F80, F82-OS1.2] Applies where wood elements support or are used in assemblies that are required to provide fire resistance.
	[F80, F82-OS2.3]
	[F80, F82-OS3.1] Applies where structural wood elements support or are used in floors.
	[F55, F61, F80, F82-OH1.1, OH1.2] Applies where structural wood elements support or are used in an environmental separator.
	[F80, F82-OH4] Applies where structural wood elements support or are used in floors.
(2)	[F80, F82-OP2.3, OP2.4]
	[F80, F82-OS2.1] Applies where structural wood elements support or are used in assemblies that are required to provide fire resistance.
	[F80, F82-OS2.3]
	[F80, F82-OS3.1] Applies where structural wood elements support or are used in floors.
	[F55, F61, F82, F80-OH1.1, OH1.2] [F61, F80, F82-OH1.3] Applies where structural wood elements support or are used in an environmental separator.
	[F80, F82-OH4] Applies where structural wood elements support or are used in floors.
(3)	[F80-OP2.3, OP2.4]
	[F80-OS1.2] Applies where structural wood elements support or are used in assemblies that are required to provide fire resistance.
	[F80-OS2.3]
	[F80-OS3.1] Applies where structural wood elements support or are used in floors.
	[F82,F80,F61,F55-OH1.1,OH1.2] [F82,F80,F61-OH1.3] Applies where structural wood elements support or are used in an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F80-OH4] Applies where structural wood elements support or are used in floors.
(4)	[F80-OS2.3,OS2.5]
	[F80-OP2.3,OP2.4,OP2.5]
	[F80,F61,F55-OH1.1,OH1.2] [F80,F61-OH1.3] Applies where cribbing or retaining walls support an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OS3.1] Applies where cribbing or retaining walls support floors.
	[F80-OS1.2] Applies where cribbing or retaining walls support assemblies that are required to provide fire resistance.
(5)	[F80,F81-OS2.3,OS2.4
	[F80,F81-OP2.3,OP2.4]
	[F80,F81-OH4] Applies where structural wood elements support wood-frame floors.
	[F80,F81-OS3.1] Applies where structural wood elements support or are used in floors.
	[F55, F61, F80-OH1.1, OH1.2] [F61, F80-OH1.3] Applies where cribbing or retaining walls support an environmental separator.
	[F80,F81-OS1.2] Applies where structural wood elements support or are used in assemblies that are required to provide fire resistance.
(6)	[F20,F60-OS2.3
	[F80, F81-OS1.2] Applies where structural wood elements support or are used in assemblies that are required to provide fire resistance.
	[F20,F61-OP2.3,OP2.4]
	[F20,F55,F61-OH1.1,OH1.2] [F20,F61-OH1.3] Applies where structural wood elements support or are used in an environmental separator.
	[F61,F80-OH4] Applies to floors and elements that support floors.
	[F20,F61-OS3.1] Applies where structural wood elements support or are used in floors.
9.3.3.2.	Galvanized Sheet Steel
(1)	[F80-OP2.3, OP2.4]
	[F80-OH1.1, OH1.2, OH1.3] Applies where sheet metal is used in an environmental separator.
	[F80-OH4.1] Applies where sheet metal is used in assemblies that support floors.
	[F80-OS2.3]
	[F80-OS3.1] Applies where sheet metal is used in assemblies that support floors.
(2)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP2.3]
	[F80-OS2.3]
9.4.2.2.	Specified Design Snow Loads
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3]
	[F20-OS2.1, OS2.3] [F22-OS2.3]
	[F22-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F20-OP2.1]
	[F20-OS2.1]
(4)	[F20-OS2.1,OS2.3] [F22-OS2.3]
	[F20-OP2.1,OP2.3] [F22-OP2.3]
	[F22-OH1.1,OH1.2,OH1.3]
9.4.2.3.	Platforms Subject to Snow and Occupancy Loads
(1)	[F20-OP2.1]
	[F20-OS2.1]
9.4.2.4.	Attics and Roof Spaces
(1)	[F20-OP2.1]
	[F20-OS2.1]
9.4.3.1.	Deflections
(1)	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F22-OP2.1, OP2.4] [F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.4.4.1.	Allowable Bearing Pressures
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to footings that support an environmental separator.
	[F20-OH4] Applies to footings that support floors and other elements that support floors.
	[F20-OP2.2, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.2] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to footings that support floors and other elements that support floors. [F20-OS3.7] Applies to footings that support walls that contain doors or windows required for emergency egress.
9.4.4.2.	Foundation Capacity in Weaker Soil and Rock
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.2, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.2] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.2, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.2] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.4.4.3.	High Water Table
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.2, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.2] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.4.4.4.	Soil Movement
(1)	[F21-OH1.1, OH1.2, OH1.3] Applies to walls that support or are part of an environmental separator.
	[F21-OH4] Applies to foundations that support floors and other elements that support floors.
	[F21-OP2.1, OP2.4] [F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS2.1] [F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS3.1] Applies to footings that support floors and other elements that support floors. [F21-OS3.7] Applies to footings that support walls that contain doors or windows required for emergency egress.
9.4.4.6.	Walls Supporting Drained Earth
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.3, OP2.4]
	[F20-OS2.1, OS2.3]
	[F20-OS3.1] Applies to floors and elements that support floors. [F20-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.3, OP2.4]
	[F20-OS2.1, OS2.3]
	[F20-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.5.1.2.	Combination Rooms
(2)	[F10-OS3.7]
9.5.2.3.	Stud Wall Reinforcement
(1)	[F74-OA2]
9.5.3.1.	Ceiling Heights of Rooms or Spaces
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
9.5.3.2.	Mezzanines
(1)	[F30-OS3.1] [F10-OS3.7]
9.5.3.3.	Storage Garages
(1)	[F30-OS3.1] [F10-OS3.7]
9.5.3A.1.	Areas of Living Rooms and Spaces
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.5.3B.1.	Area of Dining Rooms or Spaces
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.5.3C.1.	Kitchen Areas
(1)	[F10-OS3.7]
9.5.3D.1.	Areas of Bedrooms
(1)	[F10-OS3.7]
9.5.3D.2.	Areas of Master Bedrooms
(1)	[F10-OS3.7]
9.5.3D.3.	Areas of Combination Bedrooms
(1)	[F10-OS3.7]
9.5.3D.4.	Areas of Other Sleeping Rooms
(1)	[F10-OS3.7]
9.5.3D.5.	Recreational Camps
(1)	[F10-OS3.7]
9.5.3D.6.	Camps for Housing Workers
(1)	[F10-OS3.7]
9.5.3E.1.	Combined Living, Dining, Bedroom and Kitchen Spaces
(1)	[F10-OS3.7]
9.5.3F.1.	Space to Accommodate Fixtures
(1)	[F70, F71-OH2.3]
	[F101-OH6]
9.5.3F.2.	Doors to Rooms Containing Water Closets
(1)	[F101-OH6] Applies to portion of Code text: "to each room containing a water closet"
9.5.4.1.	Hallway Width
(1)	[F10-OS3.7]
9.5.5.1.	Doorway Opening Sizes
(1)	[F30-OS3.1] [F10-OS3.7]
9.5.5.2.	Doors to Public Water Closet Rooms
(1)	[F30-OS3.1] [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
9.5.5.3.	Doors to Bathrooms
(1)	[F74-OA2]
9.6.1.2.	Material Standards for Glass
(1)	[F20-OS2.1] [F63-OS2.3]
	(e),(i) [F63-OH1.1] [F51,F63-OH1.2]
	(h) [F03-OS1.2]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
9.6.1.3.	Structural Sufficiency of Glass
(1)	[F20-OS2.1]
(2)	[F20-OS2.1]
(3)	[F30-OS3.1] [F10-OS3.7]
9.6.1.4.	Types of Glass and Protection of Glass
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7] Applies to portion of Code text: "... except that such *partitions* shall be suitably marked to indicate their existence and position."
(5)	[F30-OS3.1] [F10-OS3.7]
(6)	[F20,F30-OS3.1]
9.7.2.1.	Entrance Doors
(1)	[F40, F42, F61-OH1.1] [F51, F54-OH1.2]
	[F42-OH2.5] Applies to portion of Code text: "at each entrance to a *dwelling unit*"
	[F131-OR2] Applies to portion of Code text: "at each entrance to a *dwelling unit*"
	[F42, F61-OS2.3] Applies to portion of Code text: "at each entrance to a *dwelling unit*"
(2)	[F35-OS4.2]
9.7.2.3.	Minimum Window Areas
(1)	[F102-OH7]
	[F10-OS3.7]
9.7.3.1.	General Performance Criteria
(1)	[F42, F55, F61, F62, F63-OH1.1] [F81-OH1.1] Applies to windows that provide required non-heating season ventilation. [F54, F55, F61, F62, F63-OH1.2] [F63, F61, F62-OH1.3]
	[F20, F55, F61-OS2.1,OS2.3]
	[F42-OH2.5]
	[F81-OS3.7]
	[F34-OS4.1]
(2)	F81-OH1.1] Applies to skylights that provide required non-heating season ventilation. [F20, F22-OH1.3]
	[F20-OS2.1, OS2.3]
(3)	[F42, F55-OH1.1]
	[F42-OH2.5]
	[F81-OS3.7]
	[F34-OS4.1]
(4)	[F20, F22-OS2.3]
	[F30-OS3.1]
	[F20, F61-OH1.1, OH1.2]

Acceptable Solutions	Objectives and Functional Statements
	[F34-OS4.1]
9.7.3.2.	Heat Transfer Performance
(1)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
9.7.3.3.	Thermal Characteristics of Windows, Doors and Skylights
(1)	[F63-OH1.1, OH1.2, OH1.3]
	[F63-OS2.3]
(2)	F63-OS2.3]
	F63-OH1.1, OH1.2]
(3)	[F63-OH1.1, OH1.2, OH1.3]
	[F63-OS2.3]
(4)	[F63-OH1.1, OH1.2, OH1.3]
	[F63-OS2.3]
	[F63-OS3.1]
9.7.4.2.	General
(1)	[F20, F55, F61, F62, F63-0H1.1] [F81-OH1.1] Applies to windows that provide required non-heating season ventilation. [F54, F55, F61, F62, F63-OH1.2] [F63, F20, F61, F62-OH1.3]
	[F20, F21, F61-OS2.3]
	[F10-OS1.5] Applies where windows, doors or skylights serve bedrooms, except bedrooms that have direct access to the exterior through an *exit* door or bedrooms that are in *sprinklered* suites.
9.7.4.3.	Performance Requirements
(1)	[[F20, F55, F61-OH1.1]
	[F55-OH1.2] [F20, F61, F62-OH1.3]
(4)	[F40, F61, F42-OH1.1] [F51, F54-OH1.2]
	[F61, F42-OS2.3]
	[F80-OS3.7]
	[F80-OS4.1]
	[F42-OH2.5]
9.7.5.2.	Resistance to Forced Entry for Doors
(2)	[F34-OS4.1]
(3)	[F20-OS4.1]
(4)	[F34-OS4.1]
(5)	[F34-OS4.1]
(6)	[F20-OS4.1]
(7)	[F20-OS4.1]
(8)	[F34-OS4.1]
(9)	[F20-OS4.1]
9.7.5.3.	Resistance to Forced Entry for Windows
(1)	[F34-OS4.1]
9.7.6.1.	Installation of Windows, Doors and Skylights
(1)	[F20, F54, F55, F61, F63-OH1.1, OH1.2, OH1.3]
	[F20, F61, F63-OS2.3]
(2)	[F54, F55, F61, F63-OH1.1, OH1.2, OH1.3]
	[F61, F63-OS2.3]
(3)	[F55, F61, F63-OS2.3]
	[F55, F61, F63-OH1.1, OH1.2]

Acceptable Solutions	Objectives and Functional Statements
9.7.6.2.	Sealants, Trim and Flashing
(1)	[F61, F63-OH1.1, OH1.3] [F61, F51, F54, F63-OH1.2]
	[F61,F63-0S2.3]
(4)	[F80-OS2.1, OS2.3]
	[F80-OP2.1, OP2.3]
	[F80-OH1.1, OH1.2,OH1.3]
9.8.1.1.	General
9.8.2.1.	Stair Width
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
9.8.2.2.	Height Over Stairs
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
9.8.3.1.	Straight and Curved Runs in Stairs
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
9.8.3.2	Minimum Number of Risers
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.3.3.	Maximum Height of Flights
(1)	[F30-OS3.1]
9.8.4.1.	Dimensions for Risers
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.4.2.	Dimensions for Runs and Rectangular Treads
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.4.3.	Dimensions for Tapered Treads
(1)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
9.8.4.4.	Uniformity and Tolerances for Risers, Runs and Treads
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
9.8.4.5.	Uniformity of Runs in Flights with Mixed Treads within a House or Dwelling Unit
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.4.6.	Winders
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.4.7.	Spiral Stairs
(1)	[F30-OS3.1]
(3)	[F30-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
9.8.4.8.	Tread Nosings
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.4.9.	Open Risers
(1)	[F30-OS3.1]
9.8.4.10.	Interior Stairs Extending Through the Roof
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.5.2.	Ramp Width
(1), (2)	[F30-OS3.1] [F10-OS3.7]
9.8.5.3.	Height Over Ramps
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.5.4.	Ramp Slope
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.5.5.	Maximum Rise
(1)	[F30-OS3.1]
9.8.6.2.	Required Landings
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.6.3.	Dimensions of Landings
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
(6)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
9.8.6.4.	Height Over Landings
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.7.1.	Required Handrails
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
9.8.7.2.	Continuity of Handrails
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.7.3.	Termination of Handrails
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.7.4.	Height of Handrails
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.7.5.	Ergonomic Design
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.8.7.6.	Projections into Stairs and Ramps
(1)	[F30-OS3.1] [F10-OS3.7]
9.8.7.7.	Design and Attachment of Handrails
(1)	[F20-OS2.1]
	[F20-OS3.1, OS3.7]
(2)	[F20-OS2.1]
	[F20-OS3.1, OS3.7]

Acceptable Solutions	Objectives and Functional Statements
9.8.8.1.	Required Guards
(1)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1]
(6)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
(8)	[F30-OS3.1]
9.8.8.2.	Loads on Guards
(1)	[F20-OS2.1]
(2)	[F20-OS2.4]
9.8.8.3.	Height of Guards
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(3.1)	[F30-OS3.1] [F10-OS3.7]
9.8.8.4.	Guards for Floors and Ramps in Garages
(1)	[F10-OS3.1]
(2)	[F20-OS2.1]
9.8.8.5.	Openings in Guards
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(3)	[F30-OS3.1]
9.8.8.6.	Guards Designed not to Facilitate Climbing
(1)	[F30-OS3.1]
9.8.8.7.	Glass in Guards
(1)	[F20-OS2.1]
	[F20-OS3.1, OS3.7]
9.8.9.1.	Loads on Stairs and Ramps
(1)	[F20-OS2.1]
	[F22-OH4]
9.8.9.2.	Exterior Concrete Stairs
(1)	[F22-OS3.1, OS3.7]
9.8.9.3.	Exterior Wood Steps
(1)	[F80-OS2.3]
	[F80-OS3.1, OS3.7]
9.8.9.4.	Wooden Stair Stringers
(1)	[F20-OS2.1]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F22-OH4]
9.8.9.5.	Treads
(1)	[F20-OS2.1]
	[F22-OH4]
(2)	[F20-OS2.1]
	[F22-OH4]
9.8.9.6.	Finish for Treads, Landings and Ramps
(0.1)	[F30, F80-OS3.1] [F10-OS3.7]
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F73-OA1]
(4)	[F30-OS3.1] [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
9.8.10.1.	Design
(1)	[F20-OS2.1]
	[F22-OS3.1, OS3.7]
9.8.10.2.	Anchorage
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1]
	[F22-OS3.1, OS3.7]
9.8.10.3.	Prevention of Damage Due to Frost
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.1]
	[F21-OS3.1]
9.9.2.1.	Types of Exits
(2.1)	[F04-OP1.2, OP1.3] [F06, F12, F81-OP1.2]
	[F80-OP2.3]
	[F04-OS1.2, OS1.3] [F05, F10, F12-OS1.5] [F06-OS1.2]
	[F20, F80-OS2.1] [F80, F81-OS2.3]
	[F20, F30-OS3.1] [F10, F12-OS3.7]
9.9.2.2.	Purpose of Exits
(1)	[F10-OS3.7] Applies to portion of Code text "An *exit* shall be designed for no purpose other than exiting ..."
9.9.2.3.	Elevators, Slide Escapes and Windows as Means of Egress
(1)	[F10-OS3.7]
9.9.2.4.	Principle Entrances
(1)	[F10-OS3.7]
9.9.2.5.	Front Edge of Stair Treads
(1)	[F30-OS1.5]
	[F30-OS3.1]
9.9.2.6.	Exterior Exit Stairs that Serve a Hotel
(1)	[F30-OS1.5]
	[F30-OS3.1]
9.9.3.2.	Exit Width
(1)	[F10-OS3.7]
9.9.3.3.	Width of Corridors
(1)	[F30-OS3.1] [F10-OS3.7]
9.9.3.4.	Clear Height
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.9.4.2.	Fire Separation for Exits
(1)	[F03-OP1.2]
	[F03-OS1.2] [F05-OS1.5]
(2)	[F03-OP1.2]
	[F03-OS1.2] [F05-OS1.5]
(3)	[F05-OS1.5]
(4)	[F03-OS1.2] [F05-OS1.5]
9.9.4.3.	Wired Glass or Glass Block
(2)	[F05-OS1.5]
9.9.4.4.	Openings Near Unenclosed Exit Stairs and Ramps
(1)	[F05-OS1.5]
9.9.4.5.	Openings in Exterior Walls of Exits
(1)	[F05-OS1.5]

Acceptable Solutions	Objectives and Functional Statements
9.9.4.6.	Openings Near Exit Doors
(2)	[F05-OS1.5]
9.9.4.7.	Stairways in Group D or E Buildings
(1)	[F05-OS1.5]
9.9.5.2.	Occupancies in Corridors
(1)	[F10-OS3.7]
9.9.5.3.	Obstructions in Public Corridors
(1)	[F30-OS3.1]
9.9.5.4.	Obstructions in Exits
(1)	[F10-OS3.7]
9.9.5.5.	Obstructions in Means of Egress
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.9.5.6.	Mirrors or Draperies
(1)	[F30-OS3.1] [F10-OS3.7]
9.9.5.7.	Fuel-Fired Appliances
(1)	[F10-OS1.5]
	[F10-OS3.7]
9.9.5.8.	Service Rooms
(1)	[F30-OS3.1] [F10-OS3.7]
9.9.5.9.	Ancillary Rooms
(1)	[F05, F06-OS1.5]
	[F10-OS3.7]
9.9.6.1.	Obstructions by Doors
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
9.9.6.2.	Clear Opening Height at Doorways
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.9.6.3.	Clear Opening Width at Doorways
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
9.9.6.4.	Door Action
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.9.6.5.	Direction of Door Swing
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
9.9.6.6.	Nearness of Doors to Stairs
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F10-OS3.7]
9.9.6.7.	Door Latching, Locking and Opening Mechanisms
(1)	(a) [F10-OS3.7]
	(b) [F10, F81-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
	[F73-OA1]
(4)	[F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
9.9.6.8.	Effort Required to Open
(1)	[F10-OS3.7]
9.9.7.1.	Egress from Roof Area, Podiums, Terraces, Platforms and Contained Open Spaces
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.9.7.2.	Means of Egress from Suites
(1)	[F10-OS1.5]
(2)	[F10-OS3.7]
9.9.7.3.	Dead End Corridors
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F31-OS1.2] [F05-OS1.5]
	[F30-OS3.1] [F10-OS3.7]
9.9.7.4.	Number and Spacing of Egress Doors
(1)	[F10-OS3.7]
(2)	[F10-OS1.5]
9.9.7.5.	Independent Access to Exit
(1)	[F10-OS3.7]
9.9.8.2.	Number of Required Exits
(1)	[F10-OS3.7]
9.9.8.3.	Contribution of Each Exit
(1)	[F10-OS3.7]
9.9.8.4.	Location of Exits
(1)	[F10-OS1.5]
9.9.8.5.	Exiting through a Lobby
(1)	[F10-OS1.5]
(2)	[F10-OS1.5]
(3)	[F10-OS1.5]
(3.1)	[F10-OS1.5]
(4)	[F10-OS1.5]
(5)	[F10-OS1.5]
(6)	[F10-OS1.5]
9.9.8.6.	Mezzanine Means of Egress
(1)	[F05-OS1.5]
(4)	[F05-OS1.5]
9.9.9.1.	Travel Limit to Exits or Egress Doors
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
9.9.9.2.	Two Separate Exits
(1)	[F10-OS3.7]
9.9.9.3.	Shared Egress Facilities
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.9.10.1.	Egress Windows or Doors for Bedrooms
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10-OS3.7]
(4)	[F10-OS3.7]
(5)	[F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
9.9.11.2.	Visibility of Exits
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
9.9.11.3.	Exit Signs
(1)	[F10-OS3.7]
(2)	[F10-OS3.7]
(3)	[F10, F81-OS3.7]
(4)	[F10, F81-OS3.7]
(5)	[F10-OS3.7]
(6)	[F10-OS3.7]
(7)	[F10-OS3.7]
9.9.11.4.	Signs for Stairs and Ramps at Exit Level
(1)	[F10-OS3.7]
9.9.11.5.	Floor Numbering
(1)	[F10-OS3.7]
	[F73-OA1]
9.9.12.2.	Required Lighting in Egress Facilities
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
9.9.12.3.	Emergency Lighting
(1)	[F30-OS3.1] [F10-OS3.7]
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
(4)	[F30-OS3.1] [F10-OS3.7]
(5)	[F30-OS3.1] [F10-OS3.7]
(6)	[F30-OS3.1] [F10-OS3.7]
(7)	[F30-OS3.1] [F10-OS3.7]
9.10.1.2	Testing of Integrated Fire Protection and Life Safety Systems
(1)	[F02,F81,F82-OS1.2,OS1.5]
	[F02,F81,F82-OP1.2]
9.10.1.3.	Items Under Part 3 Jurisdiction
(5)	[F01-OS1.1] Applies to portion of Code text: " ... facilities for the dispensing of fuel shall not be installed in any building."
9.10.3.4.	Suspended Membrane Ceiling
(1)	[F03-OP1.3]
	[F04-OS1.3]
9.10.4.3.	Basement Storage Garages
(1)	[F03-OS1.2]
	[F03-OP1.2]
9.10.5.1.	Permitted Openings in Wall and Ceiling Membranes
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(2)	[F04-OP1.3]
	[F04-OS1.3]
(2.1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F04-OP1.3]
	[F04-OS1.2, OS1.3]

Acceptable Solutions	Objectives and Functional Statements
9.10.7.1.	Protection of Structural Steel Members
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
9.10.8.1.	Fire-Resistance Ratings for Floors and Roofs
(1)	[F03-OP1.2] [F04-OP1.2, OP1.3] Applies to portion of Code text: "Except as other wise provided in this Subsection, the *fire-resistance ratings* of floors and roofs shall conform to Table 9.10.8.1."
	[F03-OS1.2] [F04-OS1.2, OS1.3] Applies to portion of Code text: "Except as otherwise provided in this Subsection, the *fire-resistance ratings* of floors and roofs shall conform to Table 9.10.8.1."
9.10.8.2.	Fire-Resistance Ratings in Sprinklered Buildings
(1)	(a), (b) [F13-OP1.2] [F02, F82-OP1.3]
	(a), (b) [F13-OS1.2, OS1.5] [F02, F82-OS1.3]
9.10.8.3.	Fire-Resistance Ratings for Walls, Columns and Arches
(1)	[F04-OP1.2, OP1.3]
	[F04-OS1.2, OS1.3]
(2)	[F04-OP1.2, OP1.3]
	[F04-OP1.2,OP1.3]
9.10.8.4.	Support of Noncombustible Construction
(1)	[F04-OS1.3]
	[F04-OP1.3]
9.10.8.7.	Roofs Supporting an Occupancy
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.8.8.	Floors of Exterior Passageways
(1)	[F06-OP1.2] [F04-OP1.3]
	[F05-OS1.5] [F06-OS1.2, OS1.5]
9.10.9.2.	Continuous Barrier
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.3.	Openings to be Protected With Closures
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.4.	Floor Assemblies
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.6. Separations	General Requirements for Penetration of Fire
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.7.	Piping Penetrations
(1)	[F03-OS1.2] [F04-OS1.2]
	[F03-OS1.2] [F04-OS1.3] [F03-OP1.2] [F04-OP1.2]
(2)	[F03-OS1.2]
	[F03-OS1.2]
(5)	[F03-OS1.2] [F04-OS1.2]
	[F03-OP1.2] [F04-OP1.2]
9.10.9.8.	Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
(6)	[F03-OS1.2] [F04-OS1.2]
	[F03-OP1.2] [F04-OP1.2]
9.10.9.10.	Colapse of Combustible Constructions
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.12.	Concealed Spaces Above Fire Separation
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.13.	Separation of Residential Occupancies
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.14.	Residential Suites in Industrial Buildings
(1)	[F02-OS1.2]
(2)	[F02, F03-OS1.2]
9.10.9.15.	Separation of Suites
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F02-OP1.2]
	[F02-OS1.2]
9.10.9.16.	Separation of Residential Suites
(1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.17.	Separation of Public Corridors
(1)	[F03, F06-OP1.2]
	[F03, F05-OS1.5] [F06-OS1.2, OS1.5]
(2)	[F03-OS1.2] [F06, F05-OS1.5]

Acceptable Solutions	Objectives and Functional Statements
	[F03, F06-OP1.2]
(3)	[F03-OS1.2] [F05, F06-OS1.5]
	[F03, F06-OP1.2]
9.10.9.18.	Separation of Storage Garages
(1), (2)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F01-OS1.1]
	[F44-OS3.4]
(5)	[F01-OS1.1]
	[F44-OS3.4]
9.10.9.19.	Separation of Repair Garages
(1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F44-OH1.1]
	[F44-OS1.1]
	[F44-OS3.4]
(5)	[F44-OH1.1]
	[F44-OS1.1]
	[F44-OS3.4]
9.10.9.20.	Exhaust Ducts Serving More Than One Fire Compartment
(1)	[F03-OS1.2]
(2)	[F03-OS1.2]
9.10.9.21.	Central Vacuum Systems
(1)	[F03-OS1.2]
9.10.10.3.	Separation of Service Rooms
(1)	[F03-OP1.2] [F03, F81-OP1.4]
	[F03-OS1.2] [F03, F81-OS1.4]
9.10.10.4.	Location of Fuel Fired Appliances
(1)	[F03-OP1.2] [F03, F81-OP1.4]
	[F03-OS1.2] [F03, F81-OS1.4]
9.10.10.5.	Incinerators
(1)	[F03-OP1.2] [F03, F81-OP1.4]
	[F03-OS1.2] [F03, F81-OS1.4]
(2)	[F01-OS1.1]
(3)	[F01-OP1.1]
	[F20-OP2.1] [F80-OP2.3]
	[F01-OS1.1]
	[F20-OS2.1] [F80-OS2.3]
	[F40, F61-OH1.1, OH1.3]
(4)	[F01, F02-OS1.2]
9.10.10.6.	Storage Rooms
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.11.1.	Required Firewalls
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
9.10.11.2.	Firewalls Not Required
(2)	[F03-OP3.1]
	[F03-OS1.2]
(3)	[F03-OP3.1]
	[F03-OS1.2]
9.10.12.1.	Termination of Floors or Mezzanines
(1)	[F03-OP1.2, OP1.4]
	[F03-OS1.5]
9.10.12.2	Location of Skylights
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.12.3.	Exterior Walls Meeting at an Angle
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
9.10.12.4.	Protection of Soffits
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.1.	Closures
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.2.	Solid Core Wood Door as a Closure
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.5.	Wired Glass as a Closure
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.6.	Steel Door Frames
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.8.	Maximum Size of Opening
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.9.	Door Latch
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.10.	Self-Closing Device
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.12.	Service Room Doors
(1)	[F10-OS1.5] Applies to portion of Code text: "... but shall swing outward from such rooms in all other cases."

Acceptable Solutions	Objectives and Functional Statements
	[F30-OS3.1] Applies to portion of Code text: "Swing-type doors shall open into *service rooms* containing fuel-fired equipment where such doors lead to *public corridors* or rooms used for assembly ..."
9.10.13.13.	Fire Dampers
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.13.14.	Fire Stop Flaps
(1)	[F03-OP1.3]
	[F03-OS1.3]
9.10.13.15.	Doors Between Garages and Houses or Dwelling Units
(1)	[F01-OS1.1]
	[F44-OS3.4]
(2)	[F01-OS1.1]
	[F44-OS3.4]
9.10.13.16.	Door Stops
(1)	[F81-OP1.4]
	[F81-OS1.4]
9.10.14.4.	Openings in Exposing Building Face
(1)	[F03-OP3.1]
(2)	[F03-OP3.1]
(6)	[F03-OP3.1]
(7)	[F03-OP3.1]
9.10.14.5.	Construction of Exposing Building Face and Walls above Exposing Building Face
(1)	[F02, F03-OP3.1]
(2)	[F02, F03-OP3.1]
(4)	[F03-OP3.1]
(6)	[F03-OP3.1]
(12)	[F03-OP3.1]
9.10.15.3A.	Inadequate Firefighting Facilities
(1)	[F03-OP3.1]
9.10.15.4.	Glazed Openings in Exposing Building Face
(1)	[F03-OP3.1]
(7)	[F03-OP3.1]
(8)	[F03-OP3.1]
9.10.15.5.	Construction of Exposing Building Face of Houses
(1)	[F02, F03-OP3.1]
(1.1)	[F02, F03-OP3.1]
(2)	[F02, F03-OP3.1]
(5)	[F03-OP3.1]
9.10.16.1.	Required Fire Blocks in Concealed Spaces
(1)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	[F03-OP1.2]
	[F03-OS1.2]
(5)	[F03-OP1.2]
	[F03-OS1.2]
(6)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
(7)	[F02, F03-OP1.2]
	[F02, F03-OS1.2]
9.10.16.2.	Required Fire Blocks in Wall Assemblies
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.16.3.	Fire Block Materials
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F04-OP1.2]
	[F04-OS1.2]
9.10.16.4.	Penetration of Fire Blocks
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.17.1.	Flame-Spread Rating of Interior Surfaces
(1)	[F02-OS1.2]
9.10.17.2.	Ceilings in Exits or Public Corridors
(1)	[F05-OS1.5]
9.10.17.3.	Walls in Exits
(1)	[F05-OS1.5]
(2)	[F05-OS1.5]
9.10.17.4.	Exterior Exit Passageways
(1)	[F05-OS1.5]
9.10.17.5.	Walls in Public Corridors
(1)	[F05-OS1.5]
9.10.17.9.	Combustible Skylights
(1)	[F02, F05-OS1.5]
9.10.17.10.	Protection of Foamed Plastics
(1)	[F01, F02, F05-OS1.5]
(2)	[F02-OS1.2] [F05-OS1.5]
	[F02-OP1.2]
(3)	[F01, F02-OS1.2]
9.10.18.1.	Access Provided through a Firewall
(1)	[F11-OS1.5]
9.10.18.2.	Fire Alarm System Required
(2)	[F11-OS1.5]
9.10.18.4.	Rooms and Spaces Requiring Heat Detectors or Smoke Detectors
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
(3)	[F02-OS1.2] Applies to *sprinklered buildings*. [F11-OS1.5] Applies to the supervision of the system and flow alarm.
(4)	[F11-OS1.5]
9.10.18.5.	Smoke Detectors in Recirculating Air Handling Systems
(1)	[F03-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
9.10.18.6.	Portions of Buildings Considered as Separate Buildings
(1)	[F03-OS1.2]
(2)	[F11-OS1.2]
9.10.18.7.	Central Vacuum Systems
(1)	[F03-OS1.2]
9.10.18.9.	Fire Alarm System in a Hotel
(1)	[F11-OS1.5]
9.10.18.10.	Commissioning of Life Safety and Fire Protection Systems
(1)	[F02, F81, F82-OS1.2, OS1.5]
	[F02, F81, F82-OP1.2]
9.10.19.1.	Required Smoke Alarms
(1)	[F11, F81-OS1.5]
(2)	[F11, F81-OS1.5]
	[F74-OA2]
(4)	[F11, F81-OS1.5]
	[F74-OA2]
	[F74-OA2]
9.10.19.2.	Sound Patterns of Smoke Alarms
(1)	[F11-OS1.5]
9.10.19.3.	Location of Smoke Alarms
(1)	[F11-OS1.5]
(1.1)	[F11-OS1.5]
(2)	[F11, F81-OS1.5]
(3)	[F11-OS1.5]
(4)	[F11-OS1.5]
(6)	[F11, F81-OS1.5]
	[F74-OA2]
9.10.19.4.	Power Supply
(1)	[F81-OS1.5]
(3)	[F81-OS1.5]
9.10.19.5.	Interconnection of Smoke Alarms
(1)	[F11-OS1.5]
(2)	[F11-OS1.5]
9.10.19.6.	Silencing of Smoke Alarms
(1)	[F11, F81-OS1.5]
9.10.19.7.	Instructions for Maintenance and Care
(1)	[F82-OS1.5]
9.10.19.8.	Residential Fire Warning Systems
(1)	[F81, F11-OS1.5]
9.10.20.1.	Windows or Access Panels Required
(1), (2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
9.10.20.2.	Access to Basements
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2] Applies to portion of Code text: "Access required in Sentence (1) ... provides an opening not less than 1 100 mm high and 550 mm wide, the sill of which shall not be more than 900 mm above the floor."

Acceptable Solutions	Objectives and Functional Statements
	[F12-OS1.2, OS1.5] Applies to portion of Code text: "Access required in Sentence (1) ... provides an opening not less than 1 100 mm high and 550 mm wide, the sill of which shall not be more than 900 mm above the floor."
9.10.20.3.	Fire Department Access to Buildings
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
9.10.20.4.	Portable Fire Extinguishers
(1)	[F02, F12, F81-OP1.2]
	[F81, F02, F12-OS1.2]
9.10.20.5.	Freeze Protection for Fire Protection Systems
(1)	[F02, F81-OP1.2]
	[F02, F81-OS1.2]
9.10.21.2.	Separation of Sleeping Rooms
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.21.3.	Floor Assemblies Between the First and Second Storey
(1)	[F03-OP1.2]
	[F03-OS1.2, OS1.5]
9.10.21.4.	Walkways Connecting Buildings
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03, F06-OS1.2, OS1.5]
9.10.21.5.	Spatial Separations
(1)	[F03-OP3.1]
9.10.21.6.	Flame-Spread Ratings
(1)	[F05-OS1.2, OS1.5]
9.10.21.7.	Smoke Detectors
(1)	[F11-OS1.5]
9.10.21.8.	Portable Fire Extinguishers
(1)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
9.10.21.9.	Hose Stations
(1)	[F02, F12, F81-OP1.2]
	[F02, F12, F81-OS1.2]
(2)	[F12-OP1.2]
	[F12-OS1.2]
(3)	[F12-OP1.2]
	[F12-OS1.2]
9.10.22.2.	Vertical Clearances above Cooktops
(1)	[F01-OS1.1, OS1.2]
(2)	[F01-OS1.1, OS1.2]
9.10.22.3.	Protection Around Cooktops
(1)	[F01-OS1.1, OS1.2]
(3)	[F01-OS1.1, OS1.2]
9.11.1.1.	Required Protection
(1)	[F56-OH3.1]
(3)	[F56-OH3.1]

Acceptable Solutions	Objectives and Functional Statements
9.11.1.2.	Determination of Sound Transmission Ratings
(1)	[F56-OH3.1]
(2)	[F56-OH3.1]
9.11.1.4.	Adjoining Construction
(2)	[F56-OH3.1]
(3)	[F56-OH3.1]
(4)	[F56-OH3.1]
9.12.1.1.	Removal of Topsoil and Organic Matter
(1)	[F20, F40, F41-OH1.1]
(2)	[F81-OP2.3, OP2.4]
	[F81-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F81-OS1.2] Applies to assemblies required to provide fire resistance.
	[F81-OS2.3]
	[F81-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.2] [F20, F21-OP2.3, OP2.4]
	[F20-OS2.2, OS2.3] [F21-OS2.3]
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
	[F20, F21, F40, F41-OH1.1] [F20, F21-OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
9.12.1.2.	Standing Water
(1)	[F60-OP2.2, OP2.3, OP2.4]
	[F60-OS2.2, OS2.3]
	[F60-OS3.1] Applies to floors and elements that support floors.
	[F60-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F60-OH4] Applies to floors and elements that support floors.
9.12.1.3.	Protection from Freezing
(1)	[F21-OP2.3, OP2.4]
	[F21-OS2.3]
	[F21-OS3.1] Applies to floors and elements that support floors.
	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F21-OH4] Applies to floors and elements that support floors.
9.12.1.4.	Precautions During Excavation
(1)	[F20-OP2.3]
	[F20, F21, F22, F62, F80-OP4.1]
	[F20, F22, F80-OS2.6]
(2)	[F20-OP2.3]
	[F20, F21, F80-OP4.1]
	[F20, F80-OS2.6]
9.12.2.1.	Excavation to Undisturbed Soil
	[F20-OP2.2, OP2.3, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
(1)	[F20-OS2.2, OS2.3]
	[F20-OS3.1] Applies to floors and elements that support floors.
	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
9.12.2.2.	Minimum Depth of Foundations
(1)	[F21-OP2.3, OP2.4]
	[F21-OS2.3]
	[F21-OS3.1] Applies to floors, elements that support floors, and concrete steps with more than 2 risers.
	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F21-OH4] Applies to floors and elements that support floors.
9.12.3.1.	Placement of Backfill
(1)	[F81-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F81-OP2.1] [F22-OP2.4] [F81-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F81-OS2.1] [F81-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.12.3.2.	Grading of Backfill
(1)	[F60, F61-OH1.1, OH1.2, OH1.3]
	[F60, F61-OP2.3]
	[F60, F61-OS2.3]
9.12.3.3.	Deleterious Debris and Boulders
(1)	[F81-OH1.1, OH1.2, OH1.3]
	[F81-OP2.3]
	[F81-OS2.3]
	[F81-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
	[F20-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
9.12.3.4.	Lateral Support of Foundation Wall
(1)	[F20, F22-OP2.1]
	[F20, F22-OS2.1]
9.12.4.1.	Support of Footings
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OH2.1] Applies to sewer-line locations beneath footings.
	[F21-OP2.2] [F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS2.1] [F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS3.1] Applies to floors and elements that support floors.
9.13.2.1.	Required Dampproofing
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.13.2.2.	Dampproofing Materials
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.2.3.	Preparation of Surface
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(3)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(4)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(5)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(6)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.2.4.	Application of Dampproofing Material
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(3)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.2.5.	Moisture Protection for Interior Finishes
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2]
(3)	[F61-OS2.3]
	[F61-OH1.1, OH1.2]

Acceptable Solutions	Objectives and Functional Statements
9.13.2.6.	Dampproofing of Floors-on-Ground
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.2.7.	Dampproofing of Preserved Wood Foundation Walls
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.3.1.	Required Waterproofing
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.3.2.	Waterproofing Materials
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.3.3.	Preparation of Surfaces
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(2)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(3)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(4)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
(5)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.3.4.	Application of Waterproofing Membranes
	[F61-OH1.1, OH1.2, OH1.3]
9.13.3.5.	Floor Waterproofing System
(1)	[F61-OS2.3]
	[F61-OH1.1, OH1.2, OH1.3]
9.13.4.1.	Application and Scope
(3)	[F40-OH1.1]
9.13.4.2.	Protection from Soil Gas Ingress
(1)	[F40-OH1.1]
(1.2)	[F40-OH1.1]
(2)	[F40-OH1.1]
(3)	[F40-OH1.1]
9.13.4.3.	Providing for the Rough-In for a Subfloor Depressurization System
(1)	[F40-OH1.1]
(2)	[F40-OH1.1]
(3)	[F40-OH1.1]
9.14.2.1.	Foundation Wall Drainage
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
(1.1)	[F60-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
(2)	(a) [F60-OH1.1, OH1.2, OH1.3] Applies where *foundations* serve as or support an environmental separator.
	(a) [F60-OS2.1] (a) [F60-OS2.3] Applies where *foundations* serve as or support an environmental separator.
	(b) [F21-OH1.1, OH1.2, OH1.3] Applies where *foundations* serve as or support an environmental separator.
	(b) [F21-OH4.1] Applies where *foundations* support floors or elements supporting floors.
	(b) [F21-OP2.1] (b) [F21-OP2.3] Applies where *foundations* serve as or support an environmental separator. (b) [F21-OP2.4] Applies where foundations support walls or floors.
	(b) [F21-OS2.1] (b) [F21-OS2.3] Applies where *foundations* serve as or support an environmental separator.
	(b) [F21-OS3.1] Applies where *foundations* support floors or elements supporting floors. (b) [F21-OS3.7] Applies where *foundations* support walls that contain windows or doors required for emergency egress.
(3)	[F60-OH1.1, OH1.2, OH1.3]
9.14.3.1.	Material Standards
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.3]
	[F60-OS2.1, OS2.3]
9.14.3.2.	Minimum Size
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.3.3.	Installation
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
(2)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
(3)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
(4)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.4.1.	Type of Granular Material
(1)	(a) [F60-OH1.1, OH1.2, OH1.3]
	(a) [F60-OP2.3] [F21-OP2.6]
	(a) [F21-OS2.2] [F60-OS2.3]
	(b) [F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(b) [F21-OH4] Applies to floors and elements that support floors.
	(b) [F21-OP2.1, OP2.4]
	(b) [F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	(b) [F21-OS2.1] (b) [F21-OS2.3] Applies to elements that support or are part of an environmental separator
	(b) [F21-OS3.1] Applies to floors and elements that support floors.
9.14.4.2.	Installation
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.4.3.	Grading
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.4.4.	Wet Site Conditions
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.5.1.	Drainage Disposal
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.5.2.	Sump Pits
(1)	(a),(b) [F60,F61-OH1.1,OH1.3] (c) [F40-OH1.1] [F52-OH1.2]
	(a),(b) [F60,F61-OS2.1,OS2.3] (c) [F52-OS2.3]
	(a),(b) [F60,F61-OP2.3,OP2.4] (c) [F52-OP2.3]
	(c) [F30-OS3.1]
(2)	[F30-OS3.1]
	[F40-OH1.1]
(3)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.5.3.	Dry Wells
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
(2)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.6.1.	Surface Drainage
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.2, OP2.3]
	[F60-OS2.1, OS2.2, OS2.3]
9.14.6.2.	Drainage away from Wells or Leaching Beds
(1)	[F46-OH2.2] Applies to directing drainage away from the location of a water supply. [F44-OH2.1] Applies to directing drainage away from a septic tank disposal system.

Acceptable Solutions	Objectives and Functional Statements
9.14.6.3.	Window Wells
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OP2.1, OP2.3]
	[F60-OS2.1, OS2.3]
9.14.6.4.	Catch Basin
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS2.3]
	[F61-OS3.1]
9.15.1.3.	Foundations for Deformation Resistant Buildings
(1)	[F20-OP2.2] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.15.2.2.	Unit Masonry Construction
(1)	[F20-OP2.1] [F21, F61-OP2.4] [F20, F21, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F21, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OS3.1] Applies to floors and elements that support floors.
(3)	(a) [F20-OP2.1] (a) [F80-OP2.4] (a) [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OH4] Applies to floors and elements that support floors.
	(a) [F20-OS2.1] (a) [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OS3.1] Applies to floors and elements that support floors.
	(b) [F20-OP2.1] (b) [F20-OP2.4]
	(b) [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20, F80-OH4] Applies to floors and elements that support floors.
	(b) [F20-OS2.1] (b) [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20, F80-OS3.1] Applies to floors and elements that support floors.
	(c) [F20-OP2.1] (c) [F61-OP2.4] (c) [F20, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	(c) [F20, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(c) [F20, F61-OH4] Applies to floors and elements that support floors.
	(c) [F20-OS2.1] (c) [F20, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	(c) [F20, F61-OS3.1] Applies to floors and elements that support floors.
9.15.2.3.	Pier Type Foundations
(1)	[F20-OP2.1, OP2.2] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.2] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.2] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.2] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1, OP2.4] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.4] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.15.2.4.	Wood Frame Foundations
(1)	(a) [F20-OP2.1, OP2.2] (a) [F20, F80-OP2.3] Applies to elements support or are part of an environmental separator.
	(a) [F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OH4] Applies to floors and elements that support floors.
	(a) [F20-OS2.1, OS2.2] (a) [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F80-OS3.1] Applies to floors and elements that support floors.
9.15.3.1.	Footings Required
(1)	[F20-OP2.2] [F20, F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
9.15.3.2.	Support of Footings
(1)	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS2.4] [F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS3.1] Applies to floors and elements that support floors.
(2)	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.1, OP2.4] [F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS2.1] [F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F21-OS3.1] Applies to floors and elements that support floors.
9.15.3.4.	Basic Footing Widths and Areas
(1)	[F20-OP2.1] [F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.2] [F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.2] [F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
9.15.3.5.	Adjustments to Footing Widths for Exterior Walls
(1)	[F20-OP2.2, OP2.3] [F21-OP2.3, OP2.4]
	[F20-OS2.2, OS2.3] [F21-OS2.3]
	[F20, F21-OH1.1, OH1.2, OH1.3]
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
9.15.3.6.	Adjustments to Footing Widths for Interior Walls
(1)	[F20-OP2.2] [F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.2]
	[F10-OS2.2]
9.15.3.7.	Adjustments to Footing Area for Columns
(1)	[F20-OP2.2] [F21-OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20-OS2.2] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
9.15.3.8.	Footing Thickness
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
9.15.3.9.	Step Footings
(1)	[F20, F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where the *foundation* supports or is part of an environmental separator.
	[F20, F22-OH4] Applies to *foundations* that support floors.
	[F20, F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to *foundations* that support floors.
9.15.4.1.	Flat Wall Insulating Concrete Form Units
(1)	[F22, F55, F63-OH1.1, OH1.2, OH1.3]
9.15.4.2.	Foundation Wall Thickness and Required Lateral Support
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2.1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS3.2, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(5)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(6)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(7)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floor and elements that support floors.
9.15.4.5.	Reinforcement for Flat Insulating Concrete Form Foundation Walls
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.15.4.6.	Extension above Ground Level
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS2.3]
9.15.4.7.	Reduction in Thickness
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.15.4.9.	Crack Control Joints
(1)	[F21-OP2.3]
	[F21-OS2.3]
	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OP2.1] [F20, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
9.15.5.1.	Support of Floor Joists
(1)	[F20-OP2.1, OP2.4] [F20-OP2.3] [F40, F61-OP2.3, OP2.4] Applies to elements that support or are part of an environmental separator.
	[F20, F40, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F40, F61-OH4] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1] [F40, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F40, F61-OS3.1] Applies to floors and elements that support floors.
9.15.5.2.	Support of Beams
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.3, OP2.4] Applies to elements that support or are part of an environmental separator.
	[F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS3.1] Applies to floors and elements that support floors.
9.15.5.3.	Pilasters
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.15.6.2.	Foundation Walls Above Ground
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS2.3]
9.15.6.3.	Form Ties
(1)	[F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F30-OS3.1]
9.16.1.3.	Required Floors-on-Ground
(1)	(a), (b) [F30-OS3.1]
	(a), (b) [F40-OH2.4]
9.16.2.1.	Required Installation of Granular Fill
(1)	[F40, F61-OH1.1] [F61, F60-OH1.2, OH1.3]
	[F60-OS2.3]
9.16.2.2.	Support of Floors
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OP2.1, OP2.3, OP2.4]
	[F21-OS2.1, OS2.3]
	[F21-OS3.1]
(2)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OP2.1, OP2.3, OP2.4]
	[F21-OS2.1, OS2.3]
	[F21-OS3.1]
(3)	[F22-OS3.1]
9.16.3.1.	Control of Water Ingress
(1)	[F60-OH1.1, OH1.2, OH1.3]
	[F60-OS2.3]
	[F60-OS3.1]
9.16.3.2.	Hydrostatic Pressure
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1] [F61-OP2.6]
	[F20-OS2.1] [F61-OS2.3]
	[F20-OS3.1]
9.16.3.3.	Floor Drains
(1)	[F62-OH1.1, OH1.2, OH1.3]
	[F62-OS2.3]
	[F62-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
9.16.4.1.	Surface Finish
(1)	[F30, F80-OS3.1]
	[F40-OH2.4]
	[F62-OH1.1, OH1.2, OH1.3]
(2)	[F20, F80-OS3.1]
	[F41-OH1.1]
9.16.4.2.	Topping Course
(1)	[F20, F80-OS3.1]
(2)	[F20, F80-OS3.1]
9.16.4.3.	Thickness
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OH4]
	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
	[F20-OS3.1]
9.16.4.4.	Bond Break
(1)	[F21-OS3.1]
9.16.5.1.	Wood Frame Floors
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies where wood-frame floors-on-ground serve as an environmental separator.
	[F20-OH4]
	[F20-OP2.1] [F20-OP2.3] Applies where wood-frame floors-on-ground serve as an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies where wood-frame floors-on-ground serve as an environmental separator.
	[F20-OS3.1]
9.17.2.1.	Location
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.2, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.2] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.17.2.2.	Lateral Support
(1)	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OP2.4, OP2.5] [F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS2.4, OS2.5] [F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors.
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OP2.4, OP2.5] [F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS2.4, OS2.5] [F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.17.3.1.	Size and Thickness
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.3.2.	End Bearing Plates
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.3.3.	Paint
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP2.3, OP2.4]
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OS2.3]
	[F80-OS3.1] Applies to floors and elements that support floors.
9.17.3.4.	Design of Adjustable Steel Columns
(1)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.17.4.1.	Column Sizes
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.4.2.	Materials
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.4.3.	Columns in Contact with Concrete
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS3.1] Applies to floors and elements that support floors.
9.17.4.4.	Wood Column Termite Protection
(1)	[F80, F82-OP2.3, OP2.4]
	[F80, F82-OS2.3]
9.17.5.1.	Materials
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F11-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.5.2.	Sizes
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.17.6.2.	Sizes
(1)	[F20-OP2.1] [F20, F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.18.2.1.	Access Openings
(1)	[F82-OH1.1, OH1.2]
(2)	[F42-OH2.4, OH2.5] Applies where crawl spaces are heated or unheated and access is from the exterior.
	[F51, F63-OS2.3] Applies where crawl spaces are unheated and access is from the interior. [F42, F61-OS2.3] Applies where crawl spaces are heated or unheated and access is from the exterior.
	[F63-OS2.3] Applies where crawl spaces are unheated and access is from the interior. [F42, F61-OS2.3] Applies where crawl spaces are heated or unheated and access is from the exterior.
9.18.3.1.	Ventilation of Unheated Crawl Spaces
(1)	[F62-OH1.1]
	[F62-OS2.3]
(2)	[F62-OH1.1]
	[F62-OS2.3]
(3)	(a) [F62-OH1.1, OH1.2]
	(a), (b) [F42, F61, F62-OS2.3]
	(b) [F42, F61-OH1.1, OH1.2]
	(b) [F42-OH2.3, OH2.5]
9.18.4.1.	Access Way to Services
(1)	[F82-OH1.1, OH1.2]
	[F82-OH2.1]
9.18.5.1.	Drainage
(1)	[F60-OH1.1, OH1.2]
	[F60-OS2.3]
9.18.6.1.	Ground Cover in Unheated Crawl Spaces
(1)	[F61-OH1.1, OH1.2]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2]
	[F61-OS2.3]
9.18.6.2.	Ground Cover in Heated Crawl Spaces
(1)	[F40, F61-OH1.1] [F61-OH1.2]
	[F61-OS2.3]
(2)	[F40, F61-OH1.1] [F61-OH1.2]
	[F61-OS2.3]
(3)	[F40-OH1.1]
(4)	[F40,F61-OH1.1,OH1.2]
	[F61-OS2.3]
9.18.7.1.	Crawl Spaces as Warm Air Plenums
(1)	[F51-OH1.1, OH1.2]
	[F51-OS2.3]
(2)	[F02-OS1.2]
(3)	[F01-OS1.1]
(4)	[F01-OS1.1]
9.19.1.1.	Required Venting
(1)	[F51, F62-OS2.3]
	[F51, F62-OH1.1, OH1.2] [F51-OH1.3] Applies to sloped roof assemblies that may be subject to ice damming.
9.19.1.2.	Vent Requirements
(1)	[F51, F62-OS2.3]
	[F51, F62-OH1.1, OH1.2] [F51-OH1.3] Applies to sloped roof assemblies that may be subject to ice damming.
(2)	[F51, F62-OS2.3]
	[F51, F62-OH1.1, OH1.2] [F51-OH1.3] Applies to sloped roof assemblies that may be subject to ice damming.
(3)	[F51, F62-OS2.3]
	[F51, F62-OH1.1, OH1.2] [F51-OH1.3] Applies to sloped roof assemblies that may be subject to ice damming.
(4)	[F51, F62-OS2.3]
	[F51, F61-OH1.1, OH1.2] [F51-OH1.3] Applies to sloped roof assemblies that may be subject to ice damming.
(5)	[F42, F51, F61, F62-OS2.3]
	[F42-OH1.1] Applies to resistance to the entry of insects. [F51, F61, F62-OH1.1, OH1.2, OH1.3]
	[F42-OH2.5] Applies to resistance to the entry of insects.
9.19.1.3.	Clearances
(1)	[F51, F62-OH1.1, OH1.2, OH1.3]
	[F51, F62-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F51, F62-OH1.1, OH1.2, OH1.3]
	[F51, F62-OS2.3]
(3)	[F51, F62-OH1.1, OH1.2, OH1.3]
	[F51, F62-OS2.3]
9.19.2.1.	Access
(1)	[F82-OH1.1, OH1.2, OH1.3]
	[F82-OS2.3]
(2)	[F82-OH1.1, OH1.2]
	[F82-OS2.3]
(3)	[F42-OH1.1] Applies where access is from an unheated enclosed space. [F51-OH1.2] Applies where access is from an interior heated space. [F42-OH1.1] [F61-OH1.1, OH1.2, OH1.3] Applies where access is from the exterior.
	[F42-OH2.5] Applies where access is from the exterior or an unheated enclosed space.
	[F42, F61-OS2.3] Applies where access is from the exterior or an unheated enclosed space.
9.20.2.1.	Masonry Unit Standards
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F01-OP1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OP1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F01-OS1.1, OS1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.4] Applies to masonry used in *chimneys* and fireplaces.
9.20.2.2.	Used Brick
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F01-OP1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OP1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1, OP2.4]
	[F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F01-OS1.1, OS1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.4] Applies to masonry used in *chimneys* and fireplaces.
9.20.2.3.	Glass Blocks
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F01, F20-OP1.1] [F20-OP1.2] Applies to assemblies required to provide fire resistance.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F01, F20-OS1.1] [F20-OS1.2] Applies to assemblies required to provided fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors. [F01, F20-OS3.4] Applies to masonry used in *chimneys* and fireplaces.
9.20.2.4.	Cellular Concrete
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP1.2] Applies to masonry used in *chimneys* and fireplaces.
	[F80-OS1.2] Applies to masonry used in *chimneys* and fireplaces.
	[F80-OP1.2, OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F80-OS2.1] [F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F80-OS3.1] Applies to floors and elements that support floors. [F80-OS3.4] Applies to masonry used in *chimneys* and fireplaces.

Acceptable Solutions	Objectives and Functional Statements
9.20.2.5.	Stone
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F01, F20, F80-OP1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OP1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F01-OS1.1, OS1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, 80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
9.20.2.6.	Concrete Units Exposed to the Weather
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.1, OP2.3] [F61-OP2.3]
	[F80-OP1.2] Applies to concrete blocks in *chimneys* and fireplaces.
	[F80-OS2.1, OS2.3] [F61-OS2.3]
	[F80-OS3.1] Applies to elements that support floors. [F80-OS3.4] Applies to masonry used in *chimneys* and fireplaces.
9.20.2.7.	Compressive Strength
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F01, F20, F80-OP1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OP1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F01-OS1.1, OS1.2] Applies to masonry used in *chimneys* and fireplaces. [F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.4] Applies to masonry used in *chimneys* and fireplaces.
9.20.3.1.	Mortar Materials
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OS3.1] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.1, OP2.4] [F21-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F21-OS2.1] [F21-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F21-OS3.1] Applies to floors and elements that support floors.
(4)	[F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.1, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F21-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F21-OS2.1] [F21-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F21-OS3.1] Applies to floors and elements that support floors.
9.20.3.2.	Mortar and Grout Mixes
(1)	[F20, F21, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F21, F61-OH4] Applies to floors and elements that support floors.
	[F20, F21, F61-OP2.1, OP2.4] [F20, F21, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F21, F61-OS2.1] [F20, F21, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OS3.1] Applies to floors and elements that support floors.
(2)	(a) [F21, F55, F61-OH1.1, OH1.2, OH1.3]
	(a) [F21, F55, F61-OP2.1, OP2.3]
	(a) [F21, F55, F61-OS2.1, OS2.3]
	(b) [F2-OP2.1]
	(b) [F21, F44-OS1.2] Applies to assemblies required to provide fire resistance.
	(b) [F21-OS2.1]
(3)	[F20, F21, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F21, F61-OH4] Applies to floors and elements that support floors.
	[F20, F21, F61-OP2.1, OP2.4] [F20, F21, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F21, F61-OS2.1] [F20, F21, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OS3.1] Applies to floors and elements that support floors.
(4)	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20, F21-OP2.1, OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F21-OS2.1] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
(5)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(6)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(7)	[F20, F21, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20, F21, F61-OH4] Applies to floors and elements that support floors.
	[F20, F21, F61-OP2.1, OP2.4] [F20, F21, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F21, F61-OS2.1] [F20, F21, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F61-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
9.20.4.1.	Thickness
(1)	[F20, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F61-OH4] Applies to floors and elements that support floors.
	[F20, F61-OP2.1, OP2.4] [F20, F61-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F61-OS2.1] [F20, F61-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F61-OS3.1] Applies to floors and elements that support floors.
(2)	[F20, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F61-OH4] Applies to floors and elements that support floors.
	[F20, F61-OP2.1, OP2.4] [F20, F61-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F61-OS2.1] [F20, F61-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F61-OS3.1] Applies to floors and elements that support floors.
9.20.4.2.	Masonry Units
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4]
	[F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator and to masonry used in *chimneys* and fireplaces.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.5.1.	Masonry Support
(1)	[F20, F21-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21-OH4] Applies to floors and elements that support floors.
	[F20, F21-OP2.1, OP2.4] [F20, F21-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F21-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F21-OS2.1] [F20, F21-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F21-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.2] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
9.20.5.2.	Lintels or Arches
(1)	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22–OP2.1, OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OP2.1, OP2.3, OP2.4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1, OS2.3]
(3)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OP2.1, OP2.3, OP2.4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1, OS2.3]
(3.1)	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OP2.1, OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
(4)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.1, OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1] [F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F80-OS3.1] Applies to floors and elements that support floors.
	[F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OP2.1, OP2.3, OP2.4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1, OS2.3]
(6)	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OP2.1, OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS2.1] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.6.1.	Thickness of Exterior Walls
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1.OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support are or part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.6.2.	Cavity Walls
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assembles required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22, F61-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22, F61-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors
	[F20, F22, F61-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
9.20.6.3.	Thickness of Interior Walls
(2)	(b) [F20-OP2.1, OP2.3, OP2.5] [F22-OP2.5]
	(b) [F20-OS2.1, OS2.3, OS2.5] [F22-OS2.5]

Acceptable Solutions	Objectives and Functional Statements
9.20.6.4.	Masonry Veneer
(1)	[F20-OP2.1, OP2.5] [F22-OP2.5] [F20, F22-OP2.3] Applies to elements that are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that are part of an environmental separator.
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61-OS2.3]
(3)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.20.6.5.	Parapet Walls
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.5]
	[F20-OS2.1, OP2.3, OP2.5] [F22-OS2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS1.2]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3]
	[F61-OS1.2]
	[F61-OS2.3]
9.20.7.1.	Maximum Dimensions
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.7.2.	Minimum Wall Thickness
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are a part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.7.3.	Separation of Chases and Recesses
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.7.4.	Non-Conforming Chases or Recesses
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.7.5.	Chases or Recesses Cut into Walls
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.8.1.	Capping of Hollow Masonry Walls
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.8.2.	Cavity Walls Supporting Framing Members
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F80-OP2.3]
	[F80-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.8.3.	Bearing of Beams and Joists
(1)	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
(3)	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.8.4.	Support of Beams and Columns
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.2] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(5)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.8.5.	Projection of Masonry Veneer Beyond Supporting Members
(1)	[F20-OP2.1, OP2.4, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.9.1.	Joints to be Offset or Reinforced
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4]
	[F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.9.2.	Bonding or Tying of Other than Masonry Veneer
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contains doors or windows required for emergency egress.
9.20.9.3.	Bonding
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.9.4.	Tying
(2)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows for emergency egress.
(4)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.7] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors and windows required for emergency egress.
(5)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(6)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(7)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS3.1] Applies to floors and elements that support floors.
(8)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(9)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.9.5.	Ties for Masonry Veneer
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1] [F20, F22, F80-OP2.5] [F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS2.1] [F20, F22, F80-OS2.5] [F20, F22, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OP2.1] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
(4)	[F20, F22, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OP2.1] [F20, F22, F80-OP2.5] [F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS2.1] [F20, F22, F80-OS2.5] [F20, F22, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.9.6.	Reinforcing for Glass Block
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that are part of an environmental separator.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that are part of an environmental separator.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that are part of an environmental separator.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that are part of an environmental separator.
9.20.10.1.	Lateral Support Required
(1)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.4] [F20, F22-OP2.5]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5]
	(a) [F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	(a) [F20, F22-OH4] Applies to floors and elements that support floors.
	(a) [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	(a) [F20, F22-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support fire resistance.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.11.1.	Anchorage to Floor or Roof Assemblies where Masonry Walls Require Lateral Support
(1)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator. [F20-OS2.1] [F20,F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support are part of an environmental separator.
	[F20, F80-OS3.1] Applies to floors and elements that support walls. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.20.11.2.	Bonding and Tying of Intersecting Masonry Walls where Walls Require Lateral Support
(1)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support floors or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.20.11.3.	Anchoring Intersecting Wood Frame Walls to Masonry Walls
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OH4] Applies to floors and elements that support floors.
	[F20, F22, F80-OS1.2] Applies to assemblies to provide fire resistance.
	[F20, F80-OS2.1] [F20, F22, F80-OS2.5] [F20, F22, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS3.1] Applies to floors and elements that support floors. [F20, F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F80-OP2.1] [F20, F22, F80-OP2.4, OP2.5] [F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.11.4.	AnchoringWood Frame Roof Systems to Masonry Walls
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
9.20.11.5.	Anchoring Masonry Cornices, Sills and Trim to Masonry Walls
(1)	[F20, F80-OS2.1, OS2.3, OS2.5] [F22-OS2.5]
9.20.11.6.	Anchoring to Masonry Piers
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.12.1.	Corbelling
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.12.2.	Corbelling for Cavity Walls
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.12.3.	Corbelling for Masonry Veneer
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
9.20.13.1.	Materials for Flashing
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1, OS2.3]
(2)	[F80-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1, OS2.3]
9.20.13.2.	Fastening of Flashing
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3]
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1, OS2.3]
9.20.13.3.	Location of Flashing
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS2.1, OS2.3]
(2)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS2.1, OS2.3]
9.20.13.4.	Extension of Flashing
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.1, OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61-OS2.1, OS2.3]
9.20.13.5.	Flashing for Weep Holes in Masonry Veneer/Masonry Walls
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61, F62-OS2.1, OS2.3]
9.20.13.6.	Flashing for Weep Holes in Masonry Veneer
(2)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61, F62-OS2.1, OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.1, OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61-OS2.1, OS2.3]
9.20.13.7.	Flashing Joints
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61, F62-OS2.1, OS2.3]
9.20.13.8.	Required Weep Holes
(1)	[F62-OH1.1, OH1.2, OH1.3]
	[F62-OP2.1, OP2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F62-OS1.2] Applies to assemblies required to provide fire resistance.
	[F62-OS2.1, OS2.3]
(3)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS2.1, OS2.3]
9.20.13.9.	Protection of Interior Finish
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.1, OP2.3]
	[F61-OS2.1, OS2.3]
(2)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS2.1, OS2.3]
9.20.13.10.	Mortar Droppings
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61, F62-OS2.1, OS2.3]
9.20.13.12.	Drips Beneath Window Sills
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OP2.1, OP2.3]
	[F61, F62-OS1.2] Applies to assemblies required to provide fire resistance.
	[F61, F62-OS2.1, OS2.3]
9.20.14.1.	Laying Temperature of Mortar and Masonry
(1)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance. [F20, F80-OS1.3]
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F80-OH4] Applies to floors and elements that support floors.
	[F20, F80-OP2.1, OP2.4] [F20, F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS1.2] Applies to assemblies required to provide fire resistance. [F20, F80-OS1.3]
	[F20, F80-OS2.1] [F20, F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F20, F80-OS3.1] Applies to floors and elements that support floors. [F20, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.20.14.2.	Protection from Weather
(1)	[F80-OP2.1, OP2.3]
	[F80-OS2.1, OS2.3]
9.20.15.1.	Amount of Reinforcement
(1)	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
9.20.15.2.	Installation Standard
(1)	[F20-OP2.1, OP2.3]
	[F20-OS2.1, OS2.3]
9.20.16.1.	Corrosion Resistance of Connectors
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.1, OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1] [F80-OS2.3] Applies to elements that support or are part of an environmental separator or are exposed to moisture.
	[F80-OS3.1] Applies to floors and elements that support floors. [F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.20.17.1.	Thickness of Flat Insulating Concrete Form Walls
(1)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.20.17.2.	Reinforcement for Flat Insulating Concrete Form Walls
(1)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
9.20.17.3.	Openings in Flat Non-Loadbearing Insulating Concrete Form Walls
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency.
(2)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(6)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.20.17.4.	Openings in Loadbearing Flat Insulating Concrete Form Walls
(1)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.7] Applies to floors and elements that support floors. [F20, F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.20.17.5.	Framing Supported on Flat Insulating Concrete Form Walls
(1)	[F20, F22-OH4]
	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1]
(2)	[F20, F22-OH4]
	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1]
(3)	[F20, F22-OH4]
	[F20-OP2.1] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1]
9.20.17.6.	Anchoring of Roof Framing to Top of Flat Insulating Concrete Form Walls
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
9.21.1.2.	Chimney or Flue Pipe Walls
(1)	[F01-OP1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F01-OS1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F44-OH1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be smoke-tight.
9.21.1.3.	Factory Built Chimneys
(1)	[F01-OP1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F01-OS1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F44-OH1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be smoke-tight.

Acceptable Solutions	Objectives and Functional Statements
9.21.1.4.	Flue Pipes
(1)	[F01-OP1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F01-OS1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be flame-tight.
	[F44-OH1.1] Applies to the walls of any *chimney* or *flue pipe*, which are required to be constructed to be smoke-tight.
9.21.2.1.	Chimney Flue Limitations
(1)	[F44-OH1.1]
	[F44-OS3.4]
(2)	[F44-OH1.1]
	[F44-OS3.4]
(3)	[F44-OH1.1]
	[F44-OS3.4]
9.21.2.2.	Connections of More Than One Appliance
(1)	[F44-OH1.1]
	[F44-OS3.4]
(2)	[F44-OS3.4]
(3)	[F44-OH1.1]
	[F44-OS3.4]
9.21.2.3.	Inclined Chimney Flues
(1)	[F44-OH1.1]
	[F44-OS3.4]
9.21.2.4.	Size of Chimney Flues
(2)	[F44-OH1.1]
	[F44-OS3.4]
9.21.2.5.	Fireplace Chimneys
(1)	[F44-OH1.1]
	[F44-OS3.4]
9.21.2.6.	Oval Chimney Flues
(1)	[F44-OH1.1]
	[F44-OS3.4]
9.21.3.1.	Lining Materials
(1)	[F20-OH1.1]
	[F01-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
	[F01, F20, F44-OP1.1]
9.21.3.2.	Joints in Chimney Liners
(1)	[F01-OP1.1]
	[F44-OH1.1]
	[F01-OS1.1]
	[F20, F44-OS2.3]
	[F01-OS3.4]
(2)	[F01-OP1.1]
	[F44-OH1.1]
	[F01-OS1.1]
	[F01-OS3.4]

Acceptable Solutions	Objectives and Functional Statements
9.21.3.3.	Clay Liners
(1)	[F01-OS1.1]
	[F20-OS2.2]
	[F20, F44-OS3.4]
	[F01, F20-OP1.1]
	[F20, F44-OH1.1]
(2)	[F01, F20-OP1.1]
	[F44-OH1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3] Applies to the liners referred to in Sentence (1), which are required to be not less than 15.9 mm thick.
	[F44-OS3.4]
9.21.3.4.	Firebrick Liners
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F20, F44-OS3.4]
	[F44-OH1.1]
(2)	[F01, F20-OP1.1]
	[F20-OH1.1]
	[F01, F20-OS1.1]
	[F20-OS2.2]
	[F20, F44-OS3.4]
9.21.3.5.	Concrete Liners
(1)	[F01-OP1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F20, F44-OS3.4]
	[F44-OH1.1]
9.21.3.6.	Metal Liners
(1)	[F01, F20-OP1.1]
	[F20, F44-OH1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F20, F44-OS3.4]
(2)	[F20-OP1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F20, F44-OS3.4]
	[F44-OH1.1]
9.21.3.7.	Installation of Chimney Liners
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
	[F44-OH1.1]
9.21.3.8.	Spaces Between Liners and Surrounding Masonry
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F20-OS2.3]
(2)	[F01-OP1.1]
	[F44-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
9.21.3.9.	Mortar for Chimney Liners
(1)	[F20, F44-OH1.1]
	[F20, F44-OS3.4]
	(a), (b) [F01, F20-OP1.1]
	(a), (b) [F01, F20-OS1.1]
	(b) [F20-OS2.3]
(2)	[F01, F20-OP1.1]
	[F20, F44-OH1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
9.21.3.10.	Extension of Chimney Liners
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
	[F20, F44-OH1.1]
9.21.4.4.	Height of Chimney Flues
(1)	(a), (b) [F44-OH1.1]
	(a), (b) [F44-OS3.4]
9.21.4.6.	Chimney Caps
(1)	[F01-OP1.1]
	[F20, F44-OH1.1]
	[F01-OS1.1]
	[F20-OS2.3]
	[F44-OS3.4]
(2)	[F20-OS2.3]
(3)	[F01, F20-OP1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F20, F44-OS3.4]
(4)	[F01, F20-OP1.1]
	[F20, F44-OH1.1]
	[F01, F20-OS1.1]
	[F20-OS2.3]
	[F20, F44-OS3.4]
9.21.4.7.	Cleanout
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.21.4.8.	Wall Thickness
(1)	[F01-OP1.1]
	[F22-OP2.1]
	[F01-OS1.1]
	[F20, F22-OS2.1]
9.21.4.9.	Separation of Flue Liners
(1)	[F01-OS1.1]
	[F20, F22-OS2.3]
	[F44-OS3.4]

Acceptable Solutions	Objectives and Functional Statements
	[F01, F20-OP1.1]
	[F20, F44-OH1.1]
(2)	[F01-OS1.1]
	[F20, F22-OS2.3]
	[F20, F44-OS3.4]
	[F20, F44-OH1.1]
9.21.4.10.	Flashing
(1)	[F20, F61-OS2.3]
9.21.5.1.	Clearance from Combustible Materials
(1)	(a), (b) [F01-OP1.1]
	(a), (b) [F01-OS1.1]
(2)	[F01-OP1.1]
	[F01-OS1.1]
(3)	[F01-OP1.1]
	[F01-OS1.1]
9.21.5.2.	Sealing of Spaces
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.21.5.3.	Support of Joists or Beams
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.22.1.2.	Masonry and Concrete
(2)	[F22, F20-OS2.3]
9.22.1.4.	Combustion Air
(0.1)	[F50, F81-OH1.1]
	[F44, F81-OS3.4]
(0.2)	[F01, F80-OP1.1] [F03-OP1.2]
	[F01, F80-OS1.1] [F03-OS1.2]
(0.3)	[F50, F81-OH1.1]
	[F44, F81-OS3.4]
(0.4)	[F54-OH1.2]
(0.5)	[F50, F81-OH1.1]
	[F44, F81-OS3.4]
(0.6)	(a) [F50, F81-OH1.1]
	(a) [F44, F81-OS3.4]
	(b) [F03-OP1.2]
	(b) [F03-OS1.2]
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.22.2.1.	Brick or Steel Liners
(1)	[F01, F20-OP1.1]
	[F01, F20-OS1.1]
9.22.2.2.	Firebrick Liners
(1)	(a), (b) [F01-OP1.1]
	(a), (b) [F01-OS1.1]
(2)	[F01-OP1.1]
	[F01-OS1.1]
(3)	[F01-OP1.1]
	[F01-OS1.1]
9.22.2.3.	Steel Liners
(1)	[F01-OP1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F01-OS1.1]
	[F44-OS3.4]
	[F44-OH1.1]
9.22.3.1.	Thickness of Walls
(1)	[F01-OP1.1]
	[F01-OS1.1]
(2)	(a), (b) [F01-OP1.1]
	(a), (b) [F01-OS1.1]
9.22.4.1.	Fire Chamber Dimensions
(1)	[F22-OH1.1]
	[F44-OS3.4]
9.22.5.1.	Hearth Extension
(1)	[F01-OP1.1]
	[F01-OS1.1]
(2)	(a), (b) [F01-OP1.1]
	(a), (b) [F01-OS1.1]
9.22.5.2.	Support of Hearth
(1)	[F01-OS1.1]
	[F20-OS2.3]
	[F01, F20-OP1.1]
(2)	[F01-OP1.1]
	[F01-OS1.1]
9.22.6.1.	Required Damper and Size
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F54-OH1.2]
9.22.7.1.	Slope of Smoke Chamber
(1)	[F44-OH1.1]
	[F44-OS3.4]
9.22.7.2.	Wall Thickness
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.22.8.1.	Conformance to Standard
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F44-OS3.4]
	[F44-OH1.1]
9.22.9.1.	Clearance to the Fireplace Opening
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.22.9.2.	Metal Exposed to the Interior
(1)	[F01-OP1.1]
	[F01-OS1.1]
9.22.9.3.	Clearance to Combustible Framing
(1)	[F01-OP1.1]
	[F01-OS1.1]
(2)	[F01-OP1.1]
	[F01-OS1.1]
9.22.9.4.	Heat Circulating Duct Outlets
(1)	(a), (b) [F01-OS1.1]
	(a), (b) [F01-OP1.1]

Acceptable Solutions	Objectives and Functional Statements
9.22.10.1.	Appliance Standard
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F44-OS3.4]
	[F44-OH1.1]
9.22.10.2.	Installation
(1)	[F01-OP1.1]
	[F01-OS1.1]
	[F44-OS3.4]
	[F44-OH1.1]
(3)	[F01-OP1.1]
	[F01-OS1.1]
	[F44-OS3.4]
	[F44-OH1.1]
9.23.2.1.	Strength and Rigidity
(1)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.2.2.	Protection from Decay
(1)	[F80-OP2.3, OP2.4]
	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.3]
	[F80-OS3.1] Applies to floors and elements that support floors. [F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F81-OP2.3]
	[F81-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F81-OH4] Applies to floors and elements that support floors.
	[F81-OS1.2] Applies to assemblies required to provide fire resistance.
	[F81-OS2.3]
	[F81-OS3.1] Applies to floors and elements that support floors.
9.23.2.3.	Protection from Dampness
(1)	[F80-OP2.1, OP2.3, OP2.4]
	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1, OS2.3]
	[F80-OS3.1] Applies to floors and elements that support floors.
9.23.2.4.	Connection to Preservative Treated Wood
(1)	[F20,F80-OS2.3]
	[F20,F80-OS2.3]
(2)	[F20,F80-OS2.3]
	[F20,F80-OS2.3]
(3)	[F20,F80-OS2.3]
	[F20,F80-OS2.3]
9.23.3.1.	Standards for Nails and Screws
(1)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.5] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
(2)	[F20-OP2.1] [F20, F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F22-OH4] Applies to floors and elements that support floors.
(3)	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.3.2.	Length of Nails
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
9.23.3.3.	Prevention of Splitting
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.1, OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1] [F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS3.1] Applies to floors and elements that support floors.
9.23.3.4.	Nailing of Framing
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
9.23.3.5.	Fastening for Sheathing or Subflooring
(1)	[F22-OH4] Applies to floors and elements that support floors.
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20-OS2.1] [F20,F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
(2)	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20-OS2.1][F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1][F20, F22-OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
(3)	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20-OS2.1][F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1][F20, F22-OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
(5)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
(6)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
(7)	[F20,F22-OS2.1]
	[F20-OP2.1] [F22-OP2.4]
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OS3.1] Applies to floors and elements that support floors.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
(7.1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1] [F20, F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
(8)	[F20-OS2.1] [F20,F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.23.4.2.	Spans for Joists, Rafters and Beams
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.3, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5]
(4)	[F20-OP2.1, OP2.3, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5]
9.23.4.3.	Steel Beams
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.4.4.	Concrete Topping
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.4.5.	Heavy Roofing Materials
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.5.1.	Holes Drilled in Framing Members
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors.

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.5.2.	Notching of Framing Members
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.5.3.	Wall Studs
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.5.4.	Top Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.5.5.	Roof Trusses
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
9.23.6.1.	Anchorage of Building Frames
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(4)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS3.1] Applies to floors and elements that support floors.
(5)	[F20-OS2.1,OS2.5] [F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20,F22-OS3.1] Applies to floors and elements that support floors.
(6)	[F20-OS2.1,OS2.5] [F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OS3.1] Applies to floors and elements that support floors.
9.23.6.2.	Anchorage of Columns and Posts
(1)	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OP2.4, OP2.5] [F22-OP2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS2.4, OS2.5] [F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and the elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OP2.4, OP2.5] [F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS2.4, OS2.5] [F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to floors and elements that support floors.
9.23.6.3.	Anchorage of Smaller Buildings
(1)	[F22-OS2.3, OS2.5]
9.23.7.1.	Size of Sill Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.7.2.	Levelling of Sill Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.5] [F22-OS2.4, OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.23.8.1.	Bearing for Beams
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.8.2.	Priming of Steel Beams
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F80-OH4] Applies to floors and elements that support floors.
	[F80-OP2.1, OP2.4] [F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F80-OS2.1] [F80-OS2.3] Applies to floors and elements that support floors.
	[F80-OS3.1] Applies to floors and elements that support floors.
9.23.8.3.	Built-up Wood Beams
(1)	[F20-OP2.1]
	[F20-OS2.1]
(2)	[F20-OP2.1]
	[F20-OS2.1]
(3)	[F20-OP2.1]
	[F20-OS2.1]
(4)	[F20-OP2.1]
	[F20-OS2.1]
(5)	[F20-OP2.1]
	[F20-OS2.1]
(6)	[F20-OP2.1]
	[F20-OS2.1]
(7)	[F20-OP2.1]
	[F20-OS2.1]
(8)	[F20-OP2.1]
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
9.23.9.1.	End Bearing for Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1]
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1]
9.23.9.2.	Joists Supported by Beams
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.9.3.	Restraint of Joist Bottoms
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.9.4.	Strapping, Bridging, Furring and Ceilings in Span Tables 9.23.4.2.-A and 9.23.4.2.-B
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OS2.1,OS2.5] [F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OS2.1,OS2.5] [F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
(6)	[F20-OS2.1, OS2.5] [F22-O2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.9.5.	Header Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.9.6.	Trimmer Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
9.23.9.7.	Support of Tail and Header Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.9.8.	Support of Walls
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(6)	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20-OS2.1,OS2.5] [F22-OS2.5] [F20,F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.23.9.9.	Cantilevered Floor Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.10.1.	Stud Size and Spacing
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.10.2.	Bracing and Lateral Support
(0.1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to walls that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
(0.2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to walls that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
(0.3)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to walls that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
(0.4)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to walls that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to walls that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to walls that support of are part of an environmental separator.
	[F22-OH4] Applies to walls that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to walls that support or are part of an environmental separator.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
9.23.10.3.	Orientation of Studs
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.10.4.	Continuity of Studs
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.10.5.	Support for Cladding Materials
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS2.1, OS2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.10.6.	Studs at Sides of Openings
(1)	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20,F22-OS3.1] Applies to floors and elements that support floors. [F20,F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
(2)	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.5] [F22-OP2.4,OP2.5] [F20,F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20,F22-OS3.1] Applies to floors and elements that support floors. [F20,F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
(3)	(b) [F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	(b) [F20, F22-OH4] Applies to floors and elements that support floors
	(b) [F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	(b) [F20, F22-OS3.1] Applies floors and elements that support floors

Acceptable Solutions	Objectives and Functional Statements
	(b) [F20, F22-OS3.7] Applies walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20-OP2.1] (b) [F20-OP2.5] (b) [F20-OP2.4, OP2.5] (b) [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	F20-OS2.1] (b) [F20, F22-OS2.5] (b) [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
9.23.10.7.	Stud Posts Built into Walls
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and roofs and elements that support floors and roofs.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and roofs and elements that support floors and roofs. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.11.1.	Size of Wall Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.11.2.	Bottom Wall Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.11.3.	Top Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.11.4.	Joints in Top Plates
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OS2.1, OS2.5] [F22-OS2.5]
	[F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.12.1.	Openings in Non-Loadbearing Walls
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20, F22-OS1.2]
9.23.12.2.	Openings in Loadbearing Walls
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	
9.23.12.3.	Lintel Spans and Sizes
(1)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors.
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.5] [F22-OP2.4, OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.

Acceptable Solutions	Objectives and Functional Statements
9.23.13.1 Forces	Requirements for Low to Moderate Wind and Seismic
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OH1.1,OH1.2,OH1.3]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors
9.23.13.4.	Braced Wall Bands
(1)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	F20,F22-OH1.1,OH1.2,OH1.3]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	F20,F22-OH4] Applies to walls that support floors.
(3)	F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator
9.23.13.5	Braced Wall Panels in Braced Wall Bands
(1)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]

Acceptable Solutions	Objectives and Functional Statements
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.23.13.6	Materials in Braced Wall Panels
(1)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors.
	[F20,F22-OH4] Applies to walls that support floors
(4)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator
(5)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3]
(6)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.

Acceptable Solutions	Objectives and Functional Statements
9.23.13.7	Additional System Considerations
(7)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.23.14.1.	Continuity of Rafters and Joists
(1)	[F20-OP2.1, OP2.5] [F22-OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
9.23.14.2.	Framing around Openings
(1)	[F20-OP2.1, OP2.5] [F22-OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
9.23.14.3.	End Bearing Length
(1)	[F20-OP2.1, OP2.5] [F22-OP2.5] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.5] [F22-OS2.5] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
9.23.14.4.	Location and Attachment of Rafters
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(3)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.23.14.5.	Shaping of Rafters
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.23.14.6.	Hip and Valley Rafters
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.23.14.7.	Intermediate Support for Rafters and Joists
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(4)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(5)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(6)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F22-OH4]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.23.14.8.	Ridge Support
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(5)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(6)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OH1.1,OH1.2,OH1.3]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(7)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OH1.1,OH1.2,OH1.3]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(8)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(9)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.14.9.	Restraint of Joist Bottoms
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.23.14.10.	Ceiling Joists Supporting Roof Load
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
9.23.14.11.	Roof Trusses
(1)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.5]
	[F20,F22-OH1.1,OH1.2,OH1.3]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
(3)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.5]
9.23.15.1.	Subflooring Required
(1)	[F20-OS2.1]
9.23.15.2.	Material Standards
(1)	[F22-OH4]
	[F22-OP2.4]
	[F20-OS2.1]
	[F22-OS3.1]
(2)	[F80-OH4]
	[F80-OP2.4]
	[F80-OS2.1]
	[F80-OS3.1]
(3)	[F22-OH4]
	[F22-OP2.4]
	[F20-OS2.1]
	[F22-OS3.1]
(4)	[F80-OH4]
	[F80-OP2.4]
	[F80-OS2.1]
	[F80-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
9.23.15.3.	Edge Support
(1)	[F22-OH4]
	[F22-OP2.4]
	[F22-OS3.1]
9.23.15.4.	Direction of Installation
(1)	[F22-OH4]
	[F22-OP2.4]
	[F22-OS3.1]
(2)	[F22-OH4]
	[F22-OP2.4]
	[F22-OS3.1]
9.23.15.5.	Subfloor Thickness or Rating
(1)	[F22-OH4]
	[F22-OP2.4]
	[F20-OS2.1]
	[F22-OS3.1]
(2)	[F22-OH4]
	[F22-OP2.4]
	[F20-OS2.1]
	[F22-OS3.1]
(3)	[F22-OH4]
	[F22-OP2.4]
	[F20-OS2.1]
	[F22-OS3.1]
9.23.15.6.	Annular Grooved Nails
(1)	[F81-OH1.1]
	[F81-OP2.3]
	[F81-OS2.3]
9.23.15.7.	Lumber Subflooring
(1)	[F22-OH4]
	[F22-OP2.4]
	[F22-OS3.1]
(2)	[F22-OH4]
	[F22-OP2.4]
	[F22-OS3.1]
(3)	[F22-OP2.4]
	[F22-OS3.1]
9.23.16.1.	Required Roof Sheathing
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.23.16.2.	Material Standards
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
9.23.16.3.	Direction of Installation
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
9.23.16.4.	Joints in Panel-Type Sheathing
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
9.23.16.5.	Lumber Roof Sheathing
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
9.23.16.6.	Edge Support
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.4, OS2.5]
(2)	
9.23.16.7.	Thickness or Rating
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F22-OH4]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.1]
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
(3)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
(4)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.23.17.1.	Required Sheathing
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.1] Applies to floors and elements that support floors. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.17.2.	Thickness, Rating and Material Standards
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
9.23.17.3.	Attachment of Cladding to Sheathing
(2)	[F20, F22, F80-OH1.1, OH1.2, OH1.3]
	[F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22, F80-OS2.1] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.17.4.	Lumber Sheathing
(1)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F20, F22-OS3.1] Applies to floors and elements that support floors.
(2)	[F20-OP2.1, OP2.3, OP2.5] [F22-OP2.3, OP2.4, OP2.5]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH4] Applies to floors and elements that support floors.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.5] [F22-OS2.3, OS2.5]
	[F22-OS3.1] Applies to floors and elements that support walls. [F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.23.17.5.	Joints in Panel-Type Sheathing
(1)	[F80, F81-OH1.1, OH1.2, OH1.3]
	[F80, F81-OH4] Applies to floors and elements that support floors.
	[F80, F81-OP2.3, OP2.4]
	[F80, F81-OS2.3]
	[F80, F81-OS3.1] Applies to floors and elements that support floors.
9.24.1.2.	Material Standards
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22, F80-OP2.4] [F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.4] [F22, F80-OS2.4] [F20, F22, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.1.4.	Screws
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22, F80-OP2.4] [F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22, F80-OS2.4] [F20, F22, F80-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.1.5.	Cladding, Sheathing and Interior Finish Required
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3]
	[F20, F22, F80-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22, F80-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20, F22, F80-OS2.1] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.2.1.	Size and Spacing of Studs in Interior Walls
(1)	[F20-OP2.1, OP2.4] [F22-OP2.4]
	[F20-OS2.1, OS2.4] [F22-OS2.4]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.2.2.	Thickness of Studs
(1)	[F20-OP2.1, OP2.4] [F22-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.4] [F22-OS2.4]
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.2.3.	Runners
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are a part of an environmental separator.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are a part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
9.24.2.4.	Openings in Fire Separations
(1)	[F20-OS1.2]
(2)	[F20-OS1.2]
(3)	[F20-OS1.2]
(4)	[F20-OS1.2]
9.24.2.5.	Size and Spacing of Studs in Exterior Walls
(1)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4]
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.3.1.	Installation of Runners
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(3)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(4)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.3.2.	Fire-Rated Walls
(1)	[F21-OS1.2]
(2)	[F21-OS1.2]
(3)	[F20-OS1.2]
(4)	[F20-OS1.2]
9.24.3.3.	Orientation of Studs
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.3.4.	Support for Cladding Materials
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.3.5.	Framing around Openings
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
9.24.3.6.	Attachment of Studs to Runners
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.4] [F22-OP2.4] [F20, F22-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1, OS2.4] [F22-OS2.4] [F20, F22-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22, F80-OS3.7] Applies to walls, and elements that support walls, that contain doors or windows required for emergency egress.
(2)	[F21-OS1.2]
9.24.3.7.	Openings for Fire Dampers
(1)	[F20-OS1.2]
(2)	[F20-OS1.2]
(3)	[F03-OS1.2]
9.25.1.1.	Scope and Application
(2)	[F51, F63-OH1.1, OH1.2] [F55, F63-OS2.3]
9.25.2.1.	Required Insulation
(1)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
9.25.2.2.	Insulation Materials
(1)	[F51, F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
(3)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
(4)	[F51, F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
9.25.2.3.	Installation of Thermal Insulation
(1)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
(2)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
(3)	[F55-OH1.1, OH1.2]
	[F55-OS2.3]
(4)	[F51, F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
(5)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.2, OS2.3]
(6)	[F80-OH1.1, OH1.2]
	[F80-OS2.3]
(7)	[F80-OH1.1, OH1.2]
	[F80-OS2.3]
(8)	[F21-OH1.1, OH1.2]
	[F21-OS2.3]
9.25.2.4.	Installation of Loose-Fill Insulation
(1)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
(2)	[F51-OH1.1, OH1.2, OH1.3]
	[F51-OS2.3]
(4)	(a) [F21, F51-OH1.1, OH1.2]
	(a) [F21, F51-OS2.3]
	(c) [F81-OH1.1, OH1.2] (c) [F81-OH1.1, OH1.2, OH1.3] Applies where the interior finish provide the required bracing.
	(c) [F81-OH4] Applies where the interior finish provides the required bracing of walls that support floors.
	(c) [F81-OP2.1, OP2.3, OP2.4, OP2.5] Applies where the interior finish provides the required bracing.
	(c) [F81-OP3.1] Applies where the interior finish contributes to the required fire resistance of the wall.
	(c) [F81-OS2.1, OS2.3] (c) [F81-OS2.1, OS2.3, OS2.4, OS2.5] Applies where the interior finish provides the required bracing.
	(c) [F81-OS3.7] Applies where the interior finish provides the required bracing. (c) [F81-OS3.1] Applies where the interior finish provides the required bracing of walls that support floors.

Acceptable Solutions	Objectives and Functional Statements
	(d) [F80-OH1.1, OH1.2, OH1.3]
	(d) [F80-OS2.3]
(5)	[F51, F63-OH1.1, OH1.2]
	[F63-OS2.3]
(6)	(a) [F51, F62-OH1.1, OH1.2, OH1.3]
	(a) [F62, F51-OS2.3]
	(b) [F51, F63-OH1.1, OH1.2]
	(b) [F51, F63-OS2.3]
9.25.2.5.	Installation of Spray-Applied Polyurethane
(1)	[F41, F51, F63-OH1.1] [F51, F63-OH1.2]
	[F63-OS2.3]
9.25.3.1.	Required Barrier to Air Leakage
(1)	[F55-OH1.1, OH1.2, OH1.3]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(2)	[F55-OH1.1, OH1.2, OH1.3]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
9.25.3.2.	Air Barrier System Properties
(1)	[F20, F55-OH1.1, OH1.2, OH1.3]
	[F20, F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F20, F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(2)	[F20, F55-OH1.1, OH1.2, OH1.3]
	[F20, F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F20, F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
9.25.3.3.	Continuity of the Air Barrier System
(1)	[F55-OH1.1, OH1.2, OH1.3]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(2)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F55-OS2.3]
	(a) [F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	(a) [F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(2.1)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F55-OS2.3]
	(a) [F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	(a) [F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(5)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(5.1)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(6)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(6.1)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(6.2)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F44-OS1.1] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
	[F55-OS2.3]
	[F44-OS3.4] Applies where the *air barrier system* separates a garage, or *suite* containing a garage, from residential space.
(7)	[F55-OH1.1, OH1.2, OH1.3]
	[F55-OS2.3]
(8)	[F01-OS1.1]
(9)	[F55-OH1.1, OH1.2, OH1.3]
(10)	[F55-OH1.1, OH1.2, OH1.3] [F40-OH1.1]
	[F55-OS2.3]
9.25.4.1.	Required Barrier to Vapour Diffusion
(1)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
9.25.4.2.	Vapour Barrier Materials
(1)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
(2)	[F63-OH1.1, OH1.2, OH1.3]
	[F63-OS2.3]
(3)	[F62, F63-OH1.1, OH1.2, OH1.3]
	[F62, F63-OS2.3]
(4)	[F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
(5)	[F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
(6)	[F63, F80-OH1.1, OH1.2]
	[F63, F80-OS2.3]
(7)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
(8)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
9.25.4.3.	Installation of Vapour Barriers
(1)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
(2)	[F63-OH1.1, OH1.2]
	[F63-OS2.3]
(3)	[F63-OS2.3]
	[F63-OH1.1,OH1.2]
9.25.5.1.	General
(2)	[F62, F63-OS2.3]
	[F62, F63-OH1.1, OH1.2]
9.25.5.2.	Position of Low Permeance Materials
(1)	[F62, F63-OS2.3]
	[F62, F63-OH1.1, OH1.2]
9.26.1.2.	Required Protection
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.1.3.	Alternate Installation Methods
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
9.26.2.1.	Material Standards
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.2.2.	Installation of Materials
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.2.3.	Nails
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(4)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.26.2.4.	Staples
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.26.3.1.	Slope
(1)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F61, F80-OS2.3]
(2)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20, F61, F80-OS2.3]
(3)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
(4)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
(5)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.3]
9.26.4.1.	Required Flashing at Intersections
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.4.2.	Materials
(1)	[F61, F62, F80-OH1.1, OH1.2, OH1.3]
	[F61, F62, F80-OS2.3]
9.26.4.3.	Valley Flashing
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3.1)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20, F61, F80-OS2.3]
(4)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F61, F80-OS2.3]
(5)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20, F61, F80-OS2.3]
(6)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20, F61, F80-OS2.3]
9.26.4.4.	Intersection of Shingle Roofs and Masonry
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where a shingle roof intersects with a masonry *chimney*.
	[F61-OS1.1] Applies where a shingle roof intersects with a masonry *chimney*.
	[F61-OS2.3]
	[F61-OS3.4] Applies where a shingle roof intersects with a masonry *chimney*.
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where counter flashing is installed between a shingle roof and a masonry *chimney*.
	[F61-OS1.1] Applies where counter flashing is installed between a shingle roof and a masonry *chimney*.
	[F61-OS2.3]
	[F61-OS3.4] Applies where counter flashing is installed between a shingle roof and a masonry *chimney*.
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where flashing is installed between a shingle roof and a masonry *chimney*.
	[F61-OS1.1] Applies where flashing is installed between a shingle roof and a masonry *chimney*.
	[F61-OS2.3]
	[F61-OS3.4] Applies where flashing is installed between a shingle roof and a masonry *chimney*.
(4)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where a shingle roof slopes upward from a masonry *chimney*.
	[F61-OS1.1] Applies where a shingle roof slopes upward from a masonry *chimney*.
	[F61-OS2.3]
	[F61-OS3.4] Applies where a shingle roof slopes upward from a masonry *chimney*.
9.26.4.5.	Intersection of Shingle Roofs and Walls Other Than Masonry
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.4.6.	Intersection of Built-Up Roofs and Masonry
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where a built-up roof intersects with a masonry *chimney*.
	[F61-OS1.1] Applies where a built-up roof intersects with a masonry *chimney*.
	[F61-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F61-OS3.4] Applies where a built-up roof intersects with a masonry *chimney*.
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1] Applies where counter flashing is installed between a built-up roof and a masonry *chimney*.
	[F61-OS1.1] Applies where counter flashing is installed between a built-up roof and a masonry *chimney*.
	[F61-OS2.3]
	[F61-OS3.4] Applies where counter flashing is installed between a built-up roof and a masonry *chimney*.
9.26.4.7.	Intersection of Built-Up Roofs and Walls Other Than Masonry
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.4.8.	Chimney Saddles
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1]
	[F61-OS1.1]
	[F61-OS2.3]
	[F61-OS3.4]
(2)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1]
	[F20, F80-OS1.1]
	[F20, F80-OS2.3]
	[F20, F80-OS3.4]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(5)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP1.1]
	[F61-OS1.1]
	[F61-OS2.3]
	[F61-OS3.4]
9.26.5.1.	Required Eave Protection
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.5.2.	Materials
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.6.1.	Materials
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F62-OH1.1, OH1.2, OH1.3]
	[F62-OS2.3]
9.26.6.2.	Installation
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.7.1.	Coverage
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.1]
9.26.7.2.	Starter Strip
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.7.3.	Head Lap
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.7.4.	Fasteners
(1)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(4)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(5)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.26.7.5.	Securing of Tabs
(1)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
9.26.7.6.	Hips and Ridges
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.26.8.1.	Coverage
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.8.2.	Starter Strip
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.8.3.	Securing of Tabs
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.8.4.	Securing of Shingle Courses
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
9.26.8.5.	Hips and Ridges
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
9.26.9.2.	Grade
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.9.3.	Size
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.9.4.	Spacing and Joints
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.9.5.	Fastening
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.26.9.6.	Exposure
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.10.1.	Size and Thickness
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.10.2.	Underlay
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.10.3.	Spacing and Joints
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.10.4.	Fastening
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.26.10.5.	Exposure
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.10.8.	Grade
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.11.1.	Quantity of Materials
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.11.2.	Coal-Tar and Asphalt Products
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
9.26.11.3.	Roof Felts
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.26.11.4.	Aggregate Surfacing
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.11.6.	Number of Layers
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.26.11.7.	Installation of Layers
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(2)	[F61, F81-OH1.1, OH1.2, OH1.3]
	[F61, F81-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.26.11.8.	Roofing over Wood-Based Sheathing
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.11.9.	Attachment to Decking
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.11.10.	Cant Strips
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
	[F61-OS3.1]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(4)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
	[F61-OS3.1]
(5)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(6)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.12.1.	Coverage
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
9.26.12.2.	Joints
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.13.1.	Thickness
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
9.26.13.2.	Support
(1)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4]
	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.26.14.1.	Support
(1)	[F20-OS2.1, OS2.3] [F22-OS2.3, OS2.4]
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.26.15.1.	Installation
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
9.26.16.1.	Installation
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
9.26.17.1.	Installation
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.26.18.2.	Downspouts
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.2.1.	Minimizing and Preventing Ingress and Damage
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F80, F81-OH1.1, OH1.2, OH1.3]
	[F80, F81-OS2.3]
9.27.2.2.	Minimum Protection from Precipitation Ingress
(4)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.2.3.	First and Second Planes of Protection
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
9.27.2.4.	Protection of Cladding from Moisture
(1)	[F61, F80-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61, F80-OS2.3]
9.27.3.1.	Elements of the Second Plane of Protection
(1)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
(3)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
9.27.3.2.	Sheathing Membrane Material Standard
(1)	[F20, F55, F61, F62-OH1.1, OH1.2, OH1.3]
	[F20, F55, F61, F62-OS2.3]
9.27.3.3.	Required Sheathing Membrane and Installation
(1)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
(2)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
9.27.3.4.	Insulating Sheathing in Lieu of Sheathing Membrane
(2)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
9.27.3.5.	Sheathing Membranes in Lieu of Sheathing
(1)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
(2)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
9.27.3.6.	Face Sealed Cladding
(2)	[F20, F55, F61-OH1.1, OH1.2, OH1.3]
	[F20, F55, F61-OS2.3]
(3)	[F55, F61-OH1.1, OH1.2, OH1.3]
	[F55, F61-OS2.3]
9.27.3.7.	Flashing Materials
(1)	[F61, F62, F80-OH1.1, OH1.2, OH1.3]
	[F61, F62, F80-OS2.3]
9.27.3.8.	Flashing Installation
(1)	(a), (b), (c)(i) [F61-OH1.1, OH1.2, OH1.3]
	(a), (b), (c)(i) [F61-OS2.3]
	(c)(ii) [F61, F62-OH1.1, OH1.2, OH1.3]
	(c)(ii) [F61, F62-OS2.3]
(2)	(a), (b)(ii), (c)(i) [F61-OH1.1, OH1.2, OH1.3] Applies to detailing of horizontal joints.
	(a), (b)(ii), (c)(i) [F61-OS2.3] Applies to detailing of horizontal joints.
	(b)(i), (c)(ii) [F61, F62-OH1.1, OH1.2, OH1.3] Applies to cladding installed outboard of a drained and vented air space.
	(b)(i), (c)(ii) [F61, F62-OS2.3] Applies to cladding installed outboard of a drained and vented air space.
(3)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
(4)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
(5)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62-OS2.3]
9.27.4.1.	Required Sealants
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.4.2.	Materials
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OS2.3]
(2)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OS2.3]
(3)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OS2.3]
9.27.5.1.	Attachment
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OH4] Applies where panel-type cladding is installed to provide the required bracing of walls that support floors.
	[F20, F22-OS3.1] Applies where panel-type cladding is installed to provide the required bracing of walls that support floors. [F20, F22-OS3.7] Applies where panel-type cladding is installed to provide bracing of walls that contain doors or windows required for emergency egress.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(4)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3]
9.27.5.2.	Blocking
(1)	[F20-OH1.1, OH1.2, OH1.3] [F20, F22-OH1.1, OH1.2, OH1.3] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OP2.1, OP2.3, OP2.4][F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.5.3.	Furring
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where furring is used for the attachment if panel-type cladding installed to provide the required bracing.
(2)	[F20-OH1.1, OH1.2, OH1.3] [F20, F22-OH1.1, OH1.2, OH1.3] Applies where furring is used for the attachment of panel-type cladding installed to provide the required bracing.
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where furring is used for the attachment of panel-type cladding installed to provide the required bracing.
(3)	[F20-OH1.1, OH1.2, OH1.3] [F20, F22-OH1.1, OH1.2, OH1.3] Applies where furring is used for the attachment of panel-type cladding installed to provide the required bracing.
	[F20-OS2.1, OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where furring is used for the attachment of panel-type cladding installed to provide the required bracing.
9.27.5.4.	Size and Spacing of Fasteners
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies to the attachment of panel-type cladding installed to provide the required bracing.
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F20-OH1.1,OH1.2,OH1.3]
	[F20-OS2.1,OS2.3]
9.27.5.5.	Fastener Materials
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP2.1, OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F80-OS2.3]
	[F80-OS2.3, OS2.4] Applies where panel-type cladding is installed to provide required bracing.
9.27.5.6.	Expansion and Contraction
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.3]
9.27.5.7.	Penetration of Fasteners
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3] [F20, F22-OH1.1, OH1.2, OH1.3] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OS2.1, OS2.3]
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.6.1.	Materials
(1)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F62-OS2.3]
9.27.6.2.	Thickness and Width
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.27.6.3.	Joints
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F21, F61-OH1.1, OH1.2, OH1.3]
	[F21, F61-OS2.3]
9.27.7.1.	Materials
(1)	[F61-OH1.1, OH1.1, OH1.3]
	[F61-OS2.3]
(2)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
(3)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
9.27.7.2.	Width
(1)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
9.27.7.3.	Fasteners
(1)	[F20, F61-OH1.1, OH1.2, OH1.3]
	[F20, F61-OS2.3]
9.27.7.4.	Offsetting of Joints
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.7.5.	Fastening to Lath
(1)	[F81-OH1.1, OH1.2, OH1.3]
	[F81-OS2.3]
(2)	[F62-OH1.1, OH1.2, OH1.3]
	[F62-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(4)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(5)	[F62-OH1.1, OH1.2, OH1.3]
	[F62-OS2.3]
9.27.7.6.	Exposure and Thickness
(1)	[F20, F62-OH1.1, OH1.2, OH1.3]
	[F20, F62-OS2.3]
9.27.8.1.	Material Standards
(1)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OS2.1, OS2.3]
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide required bracing.
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.27.8.2.	Thickness
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.1, OS2.3]
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide required bracing.
(2)	[F20-OP2.1, OP2.3] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20-OS2.1, OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OH1.1, OH1.2, OH1.3]
9.27.8.3.	Edge Treatment
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F61-OS2.3] [F61-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.8.4.	Panel Cladding
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(4)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.8.5.	Lapped Strip Siding
(1)	[F21, F61-OH1.1, OH1.2, OH1.3]
	[F21, F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.9.1.	Material Standards
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.9.2.	Thickness
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OS2.1, OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(3)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.9.3.	Panel Cladding
(1)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F21, F22-OH1.1, OH1.2, OH1.3]
	[F20, F21, F22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F33-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.9.4.	Lapped Strip Siding
(1)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(2)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.9.5.	Clearance
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OP2.1, OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F21-OS2.1, OS2.3] [F21-OS2.1, OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.10.1.	Material Standard
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] Applies where panel-type cladding is installed to provide required bracing.
9.27.10.2.	Thickness
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, 22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.1, OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(3)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, 22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(4)	[F20-OP2.1, OP2.3, OP2.4] [F22-OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.1, OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.10.3.	Panel Cladding
(1)	[F20, F22, F80-OH1.1, OH1.2, OH1.3]
	[F20, F22, F80-OS2.1, OS2.3] [F20, F80-OS2.1, OS2.3, OS2.4] [F22, F80-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OS2.3]
(3)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
(4)	[F61-OH1.1, OH1.2, OH1.3]
	[F61-OS2.3]
9.27.10.4.	Clearance
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OP2.1, OP2.3, OP2.4, OP2.5] Applies where panel-type cladding is installed to provide the required bracing.
	[F21-OS2.1, OS2.3] [F21-OS2.1, OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.11.1.	Material Standards
(1)	[F20,F22,F61-OH1.1,OH1.2,OH1.3]
	[F20-OS2.1,OS2.3] [F22,F61-OS2.3] [F20-OS2.1,OS2.3,OS2.4] [F22-OS2.3,OS2.4,OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
(2)	[F20, F22, F61-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F22, F61-OS2.3]
(3)	[F20, F22, F61-OH1.1, OH1.2, OH1.3]
	[F20-OS2.1, OS2.3] [F22, F61-OS2.3] [F20-OS2.1, OS2.3, OS2.4] [F22-OS2.3, OS2.4, OS2.5] Applies where panel-type cladding is installed to provide the required bracing.
9.27.12.1.	Material Standard
(1)	[F62,F61,F20-OH1.1,OH1.2,OH1.3]
	[F62,F61,F20-OS2.3]
(2)	[F62,F61,F20-OH1.1,OH1.2,OH1.3]
	[F62,F61,F20-OS2.3]
(3)	[F62,F61,F20,F42-OH1.1,OH1.2,OH1.3]
	[F62,F61,F20,F42-OS2.3]
(4)	[F02-OS1.2]
	[F02-OP1.2]
9.27.13.1.	Material Standard
(1)	[F62,F61,F20-OH1.1,OH1.2,OH1.3]
	[F62,F61,F20-OS2.3]
(2)	[F02-OS1.2]
	[F02-OS1.2]
9.27.14.2.	Materials
(1)	[F20, F61, F62-OH1.1, OH1.2, OH1.3]
	[F20, F61, F62-OH2.3]
(2)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.3]
9.27.14.3	Design and Installation
(1)	[F20,F61,F62-OH1.1,OH1.2,OH1.3]
	[F20,F61,F62-OS2.3]
9.28.1.1.	Sheathing Beneath Stucco
(1)	[F20, F22-OH1.1, OH1.2, OH1.3]
	[F20, F22-OS2.3]
9.28.1.2.	Lath and Reinforcing
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20, F21-OH1.1]
	[F20, F21-OP1.1]
	[F20, F21-OS1.1]
	[F20, F21-OS2.3]
	[F20, F21-OS3.4]
9.28.1.3.	Concrete Masonry Units
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.1.4.	Clearance over Ground Level
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OS2.3]
9.28.1.5.	Flashing and Caulking
(1)	[F80-OH1.1, OH1.2, OH1.3] Applies to the separation of aluminum flashing from stucco.
	[F80-OS2.3] Applies to the separation of aluminum flashing from stucco.
9.28.2.1.	Portland Cement
(1)	[F20-OH1.1, OH1.2, OH1.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.2.2.	Aggregate
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.2.3.	Water
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.3.1.	Materials
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.3.2.	Nails and Staples
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(4)	[F20-OS2.1]
9.28.4.1.	Materials
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.4.2.	No Sheathing Required
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
9.28.4.3.	Stucco Lath Specifications
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.4.4.	Self-Furring Devices
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.4.5.	Application of Stucco Lath
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OS2.3]
(4)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.4.6.	Fastening
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(3)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(4)	[F20-OS2.1]
9.28.5.1.	Mixes
(1)	[F20, F61, F80-OH1.1, OH1.2, OH1.3]
	[F20, F61, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F61, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F61, F80-OS2.3]
	[F20, F61, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.5.2.	Pigments
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OS2.3]
9.28.5.3.	Mixing
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.6.1.	Low Temperature Conditions
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3].
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.6.2.	Number of Coats and Total Thickness
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.6.3.	First Coat
(1)	[F20, F80-OH1.1, OH1.2, OH1.3]
	[F20, F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20, F80-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.6.4.	Second Coat
(1)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.28.6.5.	Finish Coat
(1)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(2)	[F20-OH1.1, OH1.2, OH1.3]
	[F20-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F20-OS2.3]
	[F20-OS3.4] Applies where stucco is applied to masonry *chimneys*.
(3)	[F80-OH1.1, OH1.2, OH1.3]
	[F80-OP1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS1.1] Applies where stucco is applied to masonry *chimneys*.
	[F80-OS2.3]
	[F80-OS3.4] Applies where stucco is applied to masonry *chimneys*.
9.29.2.1.	Where Required
(1)	[F80, F81-OP2.3, OP2.4]
	[F80, F81-OS2.3]
	[F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F80, F81-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
9.29.2.2.	Materials
(1)	[F80-OP2.3, OP2.4]
	[F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F80-OS2.3]
	[F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.3.1.	Size and Spacing of Furring
(1)	[F20, F22-OP2.1, OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F22-OS2.1]
9.29.3.2.	Fastening
(1)	[F20-OP2.1, OP2.4]
	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.4.1.	Application
(1)	[F20, F80-OS2.1, OS2.3]
	[F20, F80-OP2.1, OP2.3] [F22, F80-OP2.4]
	[F20, F22, F81, F90-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
9.29.5.1.	Application
(1)	[F20, F80-OP2.1, OP2.3] [F22, F80-OP2.4]
	[F20, F22, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F80-OS2.1, OS2.3]
	[F20, F22, F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serves as required environmental separation elements.
(3)	[F20, F80-OP2.1, OP2.3] [F22, F80-OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F80-OS2.1, OS2.3]
	[F20, F22, F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serves as required environmental separation elements.
9.29.5.2.	Materials
(1)	[F20, F80-OP2.1, OP2.3] [F22, F80-OP2.4]
	[F20, F22, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F80-OS2.1, OS2.3]
	[F20, F22, F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serves as required environmental separation elements.
9.29.5.3.	Maximum Spacing of Supports
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.5.4.	Support of Insulation
(1)	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
9.29.5.5.	Length of Fasteners
(1)	[F20-OP2.1, OP2.4]
	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.5.6.	Nails
(1)	[F20-OP2.1, OP2.4]
	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.5.7.	Screws
(1)	[F20-OP2.1, OP2.4]
	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.5.8.	Spacing of Nails
(1)	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
(3)	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP2.1] [F20-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS2.1] [F20-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
(4)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS3.1, OS3.7] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support studs or where interior support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where finishes support or serve as required environmental separation elements.
	[F20, F22-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support studs or where interior support or serve as required environmental separation elements.
(5)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS3.1, OS3.7] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior support or serve as required environmental separation elements.
(6)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS3.1, OS3.7] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior support or serve as required environmental separation elements.
(7)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS3.1, OS3.7] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.

Acceptable Solutions	Objectives and Functional Statements
9.29.5.9.	Spacing of Screws
(1)	[F20-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
(3)	[F20-OH1.1, OH1.2, OH1.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP1.2] Applies where gypsum board is required to provide the fire resistance and the rating of the assembly is determined according to Table 1 in SB-3.
	[F20-OP2.1] [F20-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where gypsum board is required to provide the fire resistance and the rating of the assembly is determined according to Table 1 in SB-3.
	[F20-OS2.1] [F20-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS2.1] [F20-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
(4)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS3.1, OS3.7] Applies where the walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH4] Applies where the walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
(6)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS3.1, OS3.7] Applies where the walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
(7)	[F20-OP1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OP3.1] Applies where interior finishes are installed to contribute to the required fire resistance of exterior walls.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes support or serve as required environmental separation elements. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS3.1, OS3.7] Applies where the walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
	[F20-OH4] Applies where walls support floors and where interior finishes contribute to the required bracing or lateral support for studs or where interior finishes support or serve as required environmental separation elements.
9.29.5.10.	Low Temperature Conditions
(1)	[F81-OS1.2] Applies where the finishing of joints is required to maintain required *fire-resistance ratings*.
9.29.6.1.	Thickness
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.6.2.	Grooved Plywood
(1)	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.6.3.	Nails and Staples
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.29.6.4.	Edge Support
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.7.1.	Material Standard
(1)	[F20, F80-OP2.1, OP2.3] [F20, F22-OP2.4]
	[F20, F22, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F80-OS2.1, OS2.3]
	[F20, F22, F80-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.7.2.	Thickness
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20-OS2.1]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
9.29.7.3.	Nails
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.7.4.	Edge Support
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.8.1.	Material Standard
(1)	[F20F80-OP2.1, OP2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OP2.4]
	[F20, F22, F80-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20, F80-OS2.1, OS2.3]
	[F20, F22, F80, F81-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.8.2.	Thickness
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
(2)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.8.3.	Nails
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
(2)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.8.4.	Edge Support
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.9.1.	Material Standard
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
(2)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
9.29.9.2.	Minimum Thickness
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
(4)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
(5)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OP2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where interior finishes contribute to the required bracing or lateral support for studs. [F20, F22-OS2.3] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OH1.1, OH1.2, OH1.3] Applies where interior finishes support or serve as required environmental separation elements, or where interior finishes contribute to the required bracing of exterior walls.
9.29.9.3.	Nails
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
(2)	[F20-OS2.1,OS2.3,OS2.5] [F22-OS2.3,OS2.4,OS2.5]
	[F20-OP2.1,OP2.3,OP2.5] [F22-OP2.3,OP2.4,OP2.5]
	[F20,F22-OS1.2] Applies to assemblies required to provide fire resistance.
	[F22-OS3.1] Applies to walls that support floors. [F22-OS3.7] Applies to walls that contain doors or windows required for emergency egress.
	[F20,F22-OH4] Applies to walls that support floors.
	[F20,F22-OH1.1,OH1.2,OH1.3] Applies to elements that support or are part of an environmental separator.
9.29.9.4.	Edge Support
(1)	[F20-OP2.1] [F20, F22-OP2.4]
	[F20, F22-OH1.1, OH1.2] Applies where interior finishes support or serve as required environmental separation elements.
	[F20, F22-OS1.2] Applies where interior finishes are required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1]
9.29.10.1.	Tile Application
(1)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs. [F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20, F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
(2)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs. [F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20, F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
9.29.10.2.	Mortar Base
(1)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs. [F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20, F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
(2)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs. [F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20, F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
(3)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs.

Acceptable Solutions	Objectives and Functional Statements
	[F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20, F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
(4)	[F20-OP2.1] [F20-OP2.5] [F22-OP2.4, OP2.5] Applies where the substrate for the tile contribute to the required bracing or lateral support for studs. [F20-OP2.3] Applies where the substrate for the tile serves as a require environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.1] [F20-OS2.5] [F22-OS2.4, OS2.5] Applies where the substrate for the tile contributes to the required bracing or lateral support for studs. [F20-OS2.3] Applies where the substrate for the tile serves as a required environmental separation element or where the tile is installed to provide the required waterproof wall finish.
	[F20-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
9.29.10.3.	Adhesives
(1)	[F20-OP2.3, OP2.4]
	[F20-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.3]
9.29.10.4.	Moisture Resistant Backing
(1)	[F81-OP2.3, OP2.4]
	[F20-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F20-OS2.3]
	[F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
9.29.10.5.	Joints between Tiles and Bathtub
(1)	[F81-OP2.3, OP2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F81-OH1.1, OH1.2] Applies where the substrate serves as a required environmental separation element.
	[F81-OS1.2] Applies where the substrate is required to act as fire protection for foamed plastics or to contribute to the required fire resistance of assemblies.
	[F81-OS2.3]
9.30.1.1.	Required Finish Flooring
(1)	[F30-OS3.1]
	[F40, F41-OH2.4]
9.30.1.2.	Water Resistance
(1)	[F41, F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F80-OS2.3] Applies where finished flooring is required to provide water resistance.
9.30.1.3.	Sleepers
(1)	[F20, F80-OS3.1]
	[F80-OH1.1] Applies to portion of Code text: "Wood sleepers support finished flooring over a concrete base supported on the ground ... shall be treated with a wood preservative."
9.30.2.1.	Required Underlay
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
(2)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
(3)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
(4)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
9.30.2.2.	Materials and Thickness
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
9.30.2.3.	Fastening
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
(3)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
9.30.2.4.	Joints Offset
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
9.30.2.5.	Surface Defects
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
9.30.3.1.	Thickness
(1)	[F20-OS2.1]
	[F30-OS3.1]
9.30.3.2.	Strip Direction and End Joints
(1)	[F30-OS3.1]
(2)	[F20-OS2.1]
(3)	[F20-OS2.1]
9.30.3.3.	Nailing
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
9.30.3.4.	Staples
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
9.30.4.1.	Adhesive
(1)	[F81-OS3.1]
9.30.5.1.	Materials
(1)	[F41, F80-OH1.1]
	[F80-OS3.1]
(2)	[F41-OH1.1]
	[F81, F80-OS3.1]
9.30.6.1.	Substrate
(1)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]
(2)	[F81-OH1.1] Applies where finished flooring is required to provide water resistance.
	[F81-OS2.3] Applies where finished flooring is required to provide water resistance.
	[F81-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
9.31.2.2.	Corrosion Protection
(1)	[F80-OH2.1]
	[F80-OS2.3]
9.31.2.3.	Grab Bars
(1)	[F20-OS3.1]
9.31.3.1.	Required Water Supply
(1)	[F70, F71-OH2.2, OH2.3]
9.31.3.2.	Required Connections
(1)	[F70, F71-OH2.3]
(2)	[F70, F71-OH2.3]
9.31.4.1.	Required Fixtures
(1)	[F70, F71, F72-OH2.1, OH2.3]
9.31.4.2.	Hot Water Supply
(1)	[F40-OH2.1, OH2.4] [F71-OH2.3] applies to "a hot water supply shall be provided"
9.31.4.3.	Floor Drains
(1)	[F40, F41, F62-OH1.2, OH1.3] [F62-OH1.1]
9.31.6.1.	Hot Water Supply
(1)	(a) [F40-OH2.1,OH2.4] [F71-OH2.3]
9.31.6.1A.	Hot Water Temperature
(1)	[F31-OS2.3] Applies to hot water supply equipment.
	[F41-OH2.2] Applies to hot water supply equipment.
(2)	[F41-OH2.2]
9.31.6.2.	Equipment and Installation
(3)	[F23-OS3.4]
	[F01-OS1.1]
9.31.6.3.	Corrosion-Resistant Coating
(1)	[F80, F81-OH2.3]
9.31.6.4.	Fuel-Burning Heaters
(1)	[F01-OS1.1]
	[F41-OH1.1]
9.31.6.5.	Heating Coils
(1)	[F31-OS2.3]
	[F71-OH2.3]
9.32.1.2.	Required Ventilation
(1)	[F40, F50, F52-OH1.1] [F51, F52-OH1.2]
(2)	[F40, F50, F52-OH1.1] [F51, F52-OH1.2]
9.32.1.3.	Venting of Laundry-Drying Equipment
(1)	[F40, F44, F50, F52-OH1.1]
	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F40, F80-OH1.1]
	[F81-OS1.1]
	[F63, F80-OS2.3]
	[F81-OP1.1]
(3)	[F40, F44, F50, F52-OH1.2]
	[F01-OS1.1]
	[F01-OP1.1]
9.32.2.1.	Required Ventilation
(1)	[F40, F50, F52-OH1.1] [F51, F52-OH1.2]

Acceptable Solutions	Objectives and Functional Statements
9.32.2.2.	Non-Heating Season Ventilation
(1)	[F51,F52-OH1.2] [F40,F52,F50-OH1.1]
(3)	[F42-OH2.5]
	[F61,F42-OH1.1]
	[F61,F42-OS2.3]
(4)	[F80-OH2.5]
	[F80,F42-OH1.1,OH1.2]
9.32.2.3	Non Heating Season Mechanical Ventilation
(1)	[F40,F50,F52-OH1.1]
(3)	[F40,F50,F52-OH1.1] [F51,F52-OH1.2]
(4)	[F40,F50,F52-OH1.1] [F51,F52-OH1.2]
9.32.3.1.	Required Ventilation
(1)	[F40,F50,F53-OS3.4]
	[F40,F50,F52-OH1.1] [F51,F52-OH1.2]
(2)	(a),(b) [F40,F50,F52-OH1.1] (a),(b) [F51,F52-OH1.2] (c) [F53-OH1.1]
	(c) [F53-OS3.4]
9.32.3.2.	Design and Installation
(1)	[F52-OS2.3]
	[F40,F52,F50-OH1.1] [F52,F51-OH1.2]
(2)	[F81-OH1.1]
(3)	[F81-OH1.1]
	[F81-OS3.4]
(4)	[F40,F43,F50,F53-OH1.1]
	[F43,F53,F82-OS3.4]
(5)	[F82-OH1.1]
(6)	[F63,F81-OH1.1]
9.32.3.3.	Principal Ventilation System
(1)	[F40, F50, F52-OH1.1] [F51, F52-OH1.2]
(2)	[F40,F50,F52-OH1.1] [F51,F52-OH1.2]
(4)	[F80,F81-OH1.1]
(5)	[F81-OH1.1]
(6)	[F81-OH1.1]
(7)	[F81-OH1.1]
(8)	[F81-OH1.1]
(9)	[F40,F50,F52-OH1.1]
(10)	[F40-OH1.1]
9.32.3.4.	Ventilation Systems Used in Conjunction with Forced Air Heating Systems
(2)	[F50,F51,F81-OH1.1] [F51,F81-OH1.2]
	[F43,F50,F81-OS3.4]
(5)	[F40,F43,F50,F52-OH1.1]
	(a) [F43,F50,F53-OS3.4] (b) [F43,F50,F81-OS3.4]
(7)	[F40,F50,F52,F53-OH1.1]
	[F43,F50,F53-OS3.4]
(8)	(a),(b) [F81-OH1.1] (c) [F53-OH1.1]
	(c) [F53,F63-OS2.3]
	(a),(b) [F43,F53-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
(9)	(c) [F53,F63-OH1.1]
	(a),(b) [F43,F50,F53-OS3.4]
	(c) [F53,F63-OS2.3]
(10)	[F53-OH1.1]
	[F43,F50,F53-OS3.4]
	[F53,F63-OS2.3]
(11)	[F53-OH1.1]
(12)	[F81-OH1.2]
9.32.3.5.	Ventilation Systems Not Used in Conjunction with Forced Air Heating Systems
(2)	[F53-OH1.1]
	[F43,F50,F53-OS3.4]
(3)	(a) [F43,F53-OH1.1] (b) [F53,F63-OH1.1]
	(a) [F43, F50, F53, F81-OS3.4]
	(b) [F53,F63-OS2.3]
(4)	[F40, F43, F50, F52-OH1.1]
	[F43,F50,F53-OS3.4]
(5)	[F53-OH1.1]
	[F53,F63-OS2.3]
	[F43,F50,F53-OS3.4]
(6)	[F53-OH1.1]
	[F53,F63-OS2.3]
	[F43,F50,F53-OS3.4]
(7)	[F53-OH1.1]
(8)	[F51,F54-OH1.2]
(9)	[F54-OH1.2]
(10)	[F40, F50, F52-OH1.1]
(12)	[F40, F50, F52-OH1.1]
(13)	[F51,F54-OH1.2]
(14)	[F40, F50, F52-OH1.1]
9.32.3.6.	Exhaust Only Ventilation Systems
(1)	[F40,F50,F52-OH1.1]
	[F43-OS3.4]
(2)	[F40,F50,F52-OH1.1]
(3)	[F40,F50,F52-OH1.1]
9.32.3.7.	Supplemental Exhaust
(1)	[F40, F52-OH1.1]
(3)	[F40, F52-OH1.1]
(4)	[F40, F52-OH1.1]
(5)	[F40, F52-OH1.1]
(6)	[F81-OH1.1]
(7)	[F81-OH1.1]
(8)	[F81-OH1.1]
9.32.3.8.	Protection Against Depressurization
(2)	[F53-OH1.1]
	(a)[F43, F50, F53-OS3.4]
	(b) [F53,F63-OS2.3]
(3)	[F53,F81-OH1.1]
	[F43,F50,F53,F81-OS3.4]
(4)	[F81-OS3.4

Acceptable Solutions	Objectives and Functional Statements
	[F81-OH1.1,OH1.2]
(5)	[F53-OH1.1]
	[F81-OS1.1]
	[F80,F81-OS3.4]
(7)	[F43,F50,F53-OS3.4]
	[F53-OH1.1]
9.32.3.9A.	Location of Carbon Monoxide Alarms
(1)	[F44-OS3.4]
(2)	[F44-OS3.4]
(3)	[F44-OS3.4]
(4)	[F44-OS3.4]
(5)	[F44-OS3.4]
(6)	[F44-OS3.4]
9.32.3.9B.	Location of Carbon Monoxide Alarms in All Buildngs
(1)	[F44-OS3.4]
9.32.3.9C.	Installation and Conformance Standards
(1)	[F44-OS3.4]
	(a), (e) [F81-OS3.4]
(3)	[F11, F81-OS1.5]
	[F74-OA2]
(4)	[F11, F81-OS1.5]
	[F74-OA2]
(6)	[F44-OS3.4]
9.32.3.10.	Fans
(1)	[F40, F50, F52, F53-OH1.1] [F51, F52-OH1.2]
	[F53, F63-OS2.3]
(2)	[F81-OH1.1, OH1.2]
(3)	[F53-OH1.1, OH1.2]
	[F53-OS3.4]
(4)	[F40,F50,F52,F53-OH1.1] [F51,F52-OH1.2]
(5)	[F81-OH1.1,OH1.2]
(6)	[F81-OS3.4]
	[F81-OH1.1,OH1.2]
(7)	[F40, F50, F52, F53-OH1.1] [F51, F52-OH1.2]
	[F81-OS3.4]
9.32.3.11.	Ducts
(1)	[F81-OH1.1]
(2)	[F40, F52, F63-OH1.1]
	[F52, F63-OS2.3]
(3)	[F63-OH1.1]
	[F63, F80-OS2.3]
(4)	[F63-OH1.1]
(5)	[F41,F82-OH1.1]
	[F01,F82-OS1.1]
(6)	(a),(b),(c) [F02,F03-OS1.1] (a) [F80-OS1.1] (c) [F82-OS1.1]
(7)	[F41,F53,F80-OH1.1]
(8)	[F40, F41-OH1.1]
	[F40, F63-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
(9)	[F40, F50, F52, F53-OH1.1]
	[F53-OS3.4]
(12)	[F40, F50, F52, F53-OH1.1]
	[F53-OS3.4]
9.32.3.12.	Heat Recovery Ventilators
(2)	[F40,F50,F52-OH1.1]
(3)	[F40,F50,F52-OH1.1]
(4)	[F53-OH1.1,OH1.2]
	[F53,F63-OS2.3]
	[F43,F53-OS3.4]
(5)	[F62-OH1.1]
(6)	[F81-OH1.1]
9.32.3.13.	Outdoor Intake and Exhaust Openings
(1)	[F40, F50, F52-OH1.1]
	[F40, F44, F50-OS3.4]
(2)	[F40, F50, F52, F53-OH1.1]
	[F43, F53-OS3.4]
(3)	[F40, F50, F52-OH1.1]
	[F40, F50, F44-OS3.4]
(4)	[F62,F63-OS2.3]
	[F62,F63-OP2.3]
(5)	[F62,F63-OS2.3]
	[F62,F63-OP2.3]
(6)	[F62,F63-OS2.3]
	[F62,F63-OP2.3]
(7)	[F40,F50,F52-OH1.1]
	[F40,F44,F50,F53-OS3.4]
(8)	[F40,F53-OH1.1]
(9)	[F61-OH1.1]
	[F61-OS2.3]
(10)	[F42-OH1.1]
	[F01,F42-OS1.1]
	[F42-OH2.5]
(11)	[F42,F63-OH1.1]
	[F01,F42-OS1.1]
(12)	[F42-OH1.1]
	[F01,F42-OS1.1]
(13)	[F53,F82-OH1.1]
	[F43,F53,F82-OS3.4]
(14)	[F53,F82-OH1.1]
	[F43,F53-OS3.4]
(15)	[F42,F80-OH2.5]
	[F01,F42,F80-OS1.1]
9.33.1.1.	Application
(3)	[F40-OH1.1]
	[F40-OS3.4]
9.33.2.1.	Residential Heating Systems
(1)	[F51, F52-OH1.2] [F63-OH1.1]
	[F63-OS2.3]
9.33.3.1.	Indoor Design Temperatures
(1)	[F51-OH1.2]

Acceptable Solutions	Objectives and Functional Statements
9.33.4.1	Design of Heating and Air-Conditioning Systems
(1)	[F41,F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3] Applies only to heating systems.
	[F44-OS3.4] Applies only to heating systems.
9.33.4.2	Installation of Hydronic Heating Systems
(1)	[F01-OS1.1]
	[F01-OP1.1]
	[F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
	[F44-OS3.4] Applies to heating equipment.
9.33.4.3.	Heating System Control
(1)	[F51,F52-OH1.2] [F63-OH1.1]
9.33.4.4.	Access
(1)	[F82-OH1.1,OH1.2]
	[F82-OS2.3] Applies only to heating systems
	[F82-OS1.1]
	[F82-OP1.1]
9.33.4.5	Protection from Freezing
(1)	[F81-OH1.1,OH1.2]
	[F81-OS2.3] Applies only to heating systems.
9.33.4.6.	Expansion, Contraction and System Pressure
(1)	[F20-OH1.1,OH1.2]
	[F20-OS3.2]
	[F20-OS2.3] Applies only to heating systems.
9.33.4.7.	Structural Movement
(1)	[F23-OS3.4]
	[F23-OH1.1,OH1.2]
	[F23-OS1.1]
	[F23-OP1.1]
(2)	[F20-OS3.3,OS3.4]
	[F20-OS1.1]
9.33.4.8.	Asbestos
(1)	[F43-OH1.1]
9.33.4.9	Contaminant Transfer
(1)	[F44-OH1.1]
	[F44-OS3.4]
9.33.5.1	Capacity of Heating Appliances
(1)	[F131, F132, F133, F150-OR1.2]
(2)	[F131, F132, F133, F150-OR1.2]
(3)	[F131, F132, F133, F150-OR1.2]
9.33.5.2.	Installation Standards
(1)	[F41,F50, F63-OH1.1][F51, F52-OH1.2]
	[F63-OS2.3]
	[F44-OS3.4]
(2)	[F41,F50, F63-OH1.1][F51, F52-OH1.2]
	[F63-OS2.3]
	[F44-OS3.4]
9.33.5.3	Design, Construction and Installation Standard for Solid-Fuel-Burning Appliances
(1)	[F41,F43-OH1.1] [F51-OH1.2]
	[F51-OS2.3]

Acceptable Solutions	Objectives and Functional Statements
	[F43-OS3.4]
	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F10-OE
9.33.6.2	Materials in Air Duct Systems
(1)	[F01-OS1.1]
	[F01-OP1.1]
(2)	(a),(b),(c),(d) [F01-OS1.1]
	(a),(b),(c),(d) [F01-OP1.1]
(3)	[F01-OS1.1]
	[F01-OP1.1]
(4)	(a),(b),(c),(d) [F01-OS1.1]
	a),(b),(c),(d) [F01-OP1.1]
(6.1)	[F81-OH1.1]
	[F44, F81-OS3.4
(6.2)	F20, F80-OH1.1,OH1.2]
(7)	(a),(b) [F41,F63-OH1.1] [F50,F51,F52-OH1.2]
	(a),(b) [F63-OS2.3]
9.33.6.3.	Tape
(1)	[F01-OS1.1]
	[F01-OP1.1]
9.33.6.4.	Covering, Linings, Adhesives and Insulation
(5)	[F01-OS1.1]
	[F01-OP1.1]
(6)	[F01-OS1.1]
	(c) [F01,F02,F05-OS1.5]
	[F01-OP1.1]
(7)	[F01-OP1.1]
	[F01-OP1.1]
(9)	[F63-OH1.1] Applies to ventilation ducts and their fittings. [F51,F52-OH1.2] Applies to air duct distribution systems serving heating systems.
	[F03-OS1.1] Applies to air duct distribution systems.
	[F03-OP1.1] Applies to air duct distribution systems.
	[F63-OS2.3] Applies to air duct distribution systems.
9.33.6.5.	Galvanized Steel or Aluminum Supply Ducts
(1)	[F20-OH1.1,OH1.2]
	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F20,F63-OH1.1] [F20,F51,F52-OH1.2]
	[F20,F63-OS2.3]
9.33.6.6	Construction of Ducts and Plenums
(1)	[F03-OS1.1]
	[F03-OP1.1]
(2)	[F01-OS1.1]
	[F20-OS3.1]
	[F63-OH1.1] [F51,F52-OH1.2]
	[F20,F63-OS2.3]
(3)	[F43,F63-OH1.1] [F51,F52-OH1.2]
	[F01-OS1.1]
	[F63-OS2.3]
	[F01-OP1.1]

Acceptable Solutions	Objectives and Functional Statements
(4)	[F43,F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
	[F01-OS1.1]
	[F01-OP1.1]
(4.1)	[F20-OH4]
	[F20-OP2.4]
	[F20-OS2.3]
(5)	[F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
	[F01-OS1.1]
	[F01-OP1.1]
9.33.6.7.	Installation fo Ducts and Plenums
(1)	[F40-OH1.1]
	[F40-OS3.4]
(2)	[F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
	[F01-OS1.1]
	[F01-OP1.1]
(3)	[F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
	[F20-OS3.1]
(4)	[F51,F52-OH1.2] [F63,F50-OH1.1]
	[F63,F80-OS2.3]
(5)	[F01-OS1.1]
	[F01-OP1.1]
(6)	[F80-OH1.1,OH1.2]
	[F80-OS2.3]
(7)	(a) [F44,F81-OH1.2,OH1.3]
	(b),(c) [F44,F81-OH1.1]
(8)	[F44, F81-OH1.1][F81-OH1.2]
(9)	[F44, F81-OH1.1][F81-OH1.2]
(10)	[F131-OR2]
(11)	[F81-OH1.1, OH1.2, OH1.3]
9.33.6.8	Clearances of Ducts and Plenums
(2)	(a),(b) [F01-OS1.1]
	(a),(b) [F01-OP1.1]
(3)	(a),(b) [F01-OS1.1]
	(a),(b) [F01-OP1.1]
(4)	(a),(b),(c) [F01-OS1.1]
	(a),(b),(c) [F01-OP1.1]
(5)	[F01-OS1.1]
	[F01-OP1.1]
9.33.6.9	Adjustable Dampers and Balance Stops
(1)	[F40,F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3] Applies to branch supply ducts that are not fitted with diffusers with adjustable balance stops.
9.33.6.10	Warm-Air Supply Outlets and Return Inflets – General
(2)	(a),(b) [F01,F02-OS1.1]
	(a),(b) [F01,F02-OP1.1]
9.33.6.10A.	Supply, Return, Intake and Exhaust Openings
(1)	[F30-OS3.1

Acceptable Solutions	Objectives and Functional Statements
	[F81-OH1.2]
(2)	[F81-OH1.1]
	[F81,F44-OS3.4]
	[F41,F44-OH1.1]
(3)	[F81-OH1.1]
	[F82,F81-OH1.1]
(4)	[F82-OS3.4]
9.33.6.11.	Warm Air Supply Outlets
(1)	[F40,F63-OH1.1] [F51,F52-OH1.2]
	[F63-OS2.3]
(2)	[F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3]
(3)	[F40,F63-OH1.1] [F51-OH1.2]
(4)	[F40,F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3]
(5)	[F40,F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3]
(6)	[F40,F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3
(8)	[F31-OS3.2]
(9)	[F40,F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3] Applies to warm-air supply outlets located in finished areas.
(10)	[F40-OH1.1]
	[F40-OS3.4]
9.33.6.12.	Return-Air Inlets
(1)	[F44,F40-OH1.1]
	[F44,F40-OS3.4]
(2)	[F63-OH1.1] [F51-OH1.2]
(3)	[F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3]
9.33.6.13.	Return-Air System
(1)	[F63-OH1.1][F51-OH1.2]
	[F63-OS2.3]
(1.1)	[F01, F02-OP1.1]
	[F01, F02-OS1.1]
(2)	[F01-OS1.1]
	[F01-OP1.1]
(3)	[F01-OS1.1]
	[F01-OP1.1]
(4)	(a),(b),(c) [F01-OS1.1]
	(a),(b),(c) [F01-OP1.1]
(5)	[F51,F52-OH1.1,OH1.2]
	[F51,F52-OS2.3]
(6)	[F63-OH1.1] [F51-OH1.2]
	[F63-OS2.3]
(7)	(a),(b) [F44-OH1.1]
	(a),(b) [F44-OS3.4]
9.33.6.14.	Filters and Odour Removal Equipment
(1)	[F01-OS1.1]
	[F01-OP1.1]

Acceptable Solutions	Objectives and Functional Statements
(2)	[F32-OS3.3]
	[F41-OH1.1]
(3)	(a),(b) [F81-OH1.1]
9.33.7.1. Recessed Radiators and Convectors	
(1)	[F01-OS1.1]
	[F01-OP1.1]
9.33.7.2. Surface Temperature	
(1)	[F31-OS3.2]
9.33.8.1. Piping Materials and Installation	
(1)	[F20-OS3.2]
	[F20-OH1.1,OH1.2]
(2)	[F21,F40-OH1.1] [F21,F51-OH1.2]
(3)	[F20-OS2.2]
9.33.8.2. Insulation and Coverings	
(1)	[F80-OH1.2]
	[F80-OS3.2]
(2)	(a),(b) [F01-OS1.1]
	(a),(b) [F01-OP1.1]
(3)	(a),(b) [F01,F02-OS1.1,OS1.2]
	(a),(b) [F01,F02-OP1.1,OP1.2]
(4)	[F01,F02-OS1.1,OS1.2]
	[F01,F02-OP1.1]
(5)	[F31-OS3.2]
9.33.8.3.	Clearances
(1)	[F01-OS1.1]
	[F01-OP1.1]
9.33.8.4.	Protection
(1)	[F01-OS1.1]
	[F01-OP1.1]
(2)	[F01-OS1.1]
	[F01-OP1.1]
9.33.9.1.	Cooling Units
(1)	(a),(b),(c) [F43-OH1.1] [F51-OH1.2]
9.33.10.2.	Factory-Built Chimneys
(1)	[F01-OS1.1]
	[F44-OS3.4]
	[F44,F41-OH1.1]
	[F01-OP1.1]
9.34.1.3.	Location of Equipment in Public Areas
(1)	[F10-OS3.1] [F32, F81-OS3.3]
9.34.1.4.	Recessed Lighting Fixtures
(1)	[F01-OS1.1]
9.34.1.5.	Wiring and Cables
(1)	[F02-OS1.2]
	[F02-OP1.2]
9.34.2.1.	Lighting of Entrances
(1)	[F30-OS3.1]
	[F34-OS4.2]
9.34.2.2.	Outlets in Houses and Dwelling Units
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
9.34.2.3.	Stairways
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
9.34.2.4.	Basements
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
9.34.2.5.	Storage Rooms
(1)	[F30-OS3.1]
9.34.2.6.	Garages and Carports
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(3)	[F30-OS3.1]
9.34.2.7.	Public and Service Areas
(1)	[F30-OS3.1]
(2)	[F30-OS3.1]
(3)	[F30-OS3.1]
9.35.2.2.	Garage Floor
(1)	[F40-OS1.1]
9.35.3.2.	Protection from Damage due to Soil Movement
(1)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.3, OP2.4]
	[F21-OS2.3]
	[F21-OS3.1] Applies to floors and elements that support floors.
(2)	[F21-OH1.1, OH1.2, OH1.3]
	[F21-OH4] Applies to floors and elements that support floors.
	[F21-OP2.3, OP2.4]
	[F21-OS2.3]
	[F21-OS3.1] Applies to floors and elements that support floors.
9.35.3.4.	Column Piers
(1)	[F80-OP2.3]
	[F80-OS2.3]
(2)	[F20-OP2.1, OP2.2]
	[F20-OS2.1, OS2.2]
9.35.4.2.	Columns
(1)	[F20-OP2.1]
	[F20-OS2.1]
9.35.4.3.	Anchorage
(1)	[F22-OP2.4, OP2.5]
	[F22-OS2.4, OS2.5]
9.37.2.1.	Exclusions
(2)	[F42-OH2.5]
	[F20-OP2.1]
	[F20-OS2.1] [F30-OS3.1]
9.37.2.2.	Foundations
(2)	[F20-OP2.1]
	[F20-OS2.1]

Acceptable Solutions	Objectives and Functional Statements
9.38.1.1.	Material Requirements
(1)	[F20-OP2.1]
	[F20-OS2.1]
9.38.1.2.	Requirement for Wood Preservative
(1)	[F80-OH4]
	[F80-OP2.1, OP2.3]
	[F80-OS2.3, OS3.1]
9.38.1.3.	Exterior Joints
(1)	[F61-OH1.3]
	[F42-OH2.5]
	[F61-OP2.3]
9.38.2.2.	Attachment of Logs
(1)	[F61-OH1.3]
	[F42-OH2.5]
	[F61-OP2.3]
9.38.2.3.	Joining Logs
(1)	[F22-OP2.5]
	[F22-OS2.5]
9.38.2.4.	Vertical Logs
(1)	[F22-OP2.5]
	[F22-OS2.5]
9.38.2.5.	Plates
(1)	[F20-OP2.1]
	[F20-OS2.1]
9.38.3.1.	Support Over Openings
(1)	[F22-OP2.5]
	[F22-OS2.5]
9.38.3.2.	Clearance
(1)	[F21-OP2.4]
	[F21-OS2.4]
9.39.3.3.	Foundations and Anchorage
(1)	[F20, F22-OS2.1, OS2.2, OS2.5]
	[F20, F22-OP2.1, OP2.2, OP2.4, OP2.5]
9.40.1.3.	Reinforcing Steel
(1)	[F20, F21-OH4]
	[F20-OP2.1, OP2.4] [F21-OP2.4]
	[F20-OS2.1]
9.40.1.4.	Slab Construction
(1)	[F20, F21, F55, F61, F80-OH1.1, OH1.2] [F20, F21, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F80-OH4]
	[F20-OP2.1, OP2.4] [F21-OP2.3, OP2.4] [F80-OP2.3] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F21, F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OS3.1]
(2)	[F20, F21, F55, F61, F80-OH1.1, OH1.2] [F20, F21, F61, F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20, F21, F80-OH4]
	[F20-OP2.1, OP2.4] [F21-OP2.3, OP2.4] [F80-OP2.3] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OS2.1] [F21, F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20, F21, F80-OS3.1]
(3)	[F20, F21-OH4]
	[F20-OP2.1, OP2.4] [F21-OP2.4]
	[F20-OS2.1]
(4)	[F22-OP2.5]
	[F22-OS2.5]
(5)	[F61, F62-OH1.1, OH1.2, OH1.3]
	[F61, F62, F80-OP2.3]
	[F61, F62, F80-OS2.3]
	[F30-OS3.1]
9.41.2.1.	Change of Use and Compensating Construction
(1)	9.5 Applies to the design of areas and spaces in *buildings*. [F74-OA2] [F70, F71-OH2.3] [F101-OH6] [F30-OS3.1] [F10-OS3.7]
	9.7 Applies to windows and skylights in Part 9 buildings. [F55, F61, F62, F63, F80, F81, F82-OH1.1] [F51, F53, F54, F55, F61, F62, F63, F80, F82-OH1.2] [F61, F62, F63-OH1.3] [F102-OH7] [F42-OP2.3] [F03, F20-OS1.2] [F10-OS1.5] [F20-OS2.1] [F20, F21, F42, F61, F63-OS2.3] [F30-OS3.1] [F10, F30-OS3.7] [F34-OS4.1] [F131-OR2]
	9.10.17. Applies to flame-spread limits in Part 9 buildings. [F01, F02-OS1.2] [F01, F02, F05-OS1.5]
	9.31. Applies to plumbing facilities serving Part 9 dwelling units. [F44, F62-OH1.1] [F40, F41, F62-OH1.2, OH1.3] [F70, F71, F72, F80-OH2.1] [F41-OH2.2]

Acceptable Solutions	Objectives and Functional Statements
	[F70, F71, F72, F80, F81-OH2.3] [F01-OS1.1] [F31, F80-OS2.3] [F20-OS3.1] [F23-OS3.4]
	9.32. Applies to ventilation in Part 9 residential occupancies. [F40, F42, F50, F52, F53, F61, F80, F81, F82-OH1.1] [F42, F51, F52, F80, F81-OH1.2] [F42, F80-OH2.5] [F82-OP1.1] [F131-OR2] [F02, F03, F80, F82-OS1.1] [F42, F53, F61, F63-OS2.3] [F40, F43, F44, F50, F53, F81-OS3.4]
	9.34.1. [F01-OS1.1] [F10-OS3.1] [F32, F81-OS3.3] Applies to electrical facilities in Part 9 buildings.
	9.34.2. [F30-OS3.1] Applies to lighting outlets for Part 9 buildings. [F34-OS4.2] Applies to lighting outlets for Part 9 buildings.
	9.34.3. [F30-OS3.1] [F10-OS3.7] Applies to emergency lighting for Part 9 buildings.
9.41.2.2.	Performance Level Evaluation and Compensating Construction
(1)	[F140-OC]

Table 10
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 10 of Division B

Acceptable Solution	Objectives and Functional Statements
10.3.1.1.	General
(1)	3.2.6. Applies to additional requirements for high *buildings*. [F03, F06, F12, F13, F82-OP1.2] [F03-OP3.1] [F02, F03, F06, F12, F13, F82-OS1.2] [F02, F03, F05, F06, F10, F11, F12, F82-OS1.5] [F30-OS3.1] [F11, F12-OS3.7]
	3.7. Applies to health requirements for *buildings*. [F74-OA2] [F50-OH1.1] [F40, F72-OH2.1] [F70-OH2.2] [F71-OH2.3] [F40, F41-OH2.4] [F101-OH6] [F102-OH7] [F01-OP1.1] [F01-OS1.1] [F20, F30-OS3.1] [F32-OS3.3] [F43, F44-OS3.4]
	3.11. Applies to *public pools*. [F74-OA2] [F50-OH1.1] [F72-OH2.1] [F46, F70-OH2.2] [F40, F41, F45, F71, F122-OH2.3] [F40, F41-OH2.4] [F101-OH6] [F01-OS1.1] [F04-OS1.3] [F03-OS2.1] [F12, F30, F34, F36, F120, F121, F123, F124-OS3.1] [F31-OS3.2] [F32, F34-OS3.3] [F34, F43, F44, F81, F122-OS3.4] [F10, F11, F12, F34, F123-OS3.7]
	3.12. Applies to public spas. [F74-OA2] [F46-OH2.2] [F40, F41, F70, F71, F72, F81, F122-OH2.3] [F40, F41-OH2.4] [F11, F12, F13, F30, F34, F36, F81, F120, F121, F123, F124-OS3.1] [F43, F81, F122-OS3.4] [F10, F34, F123-OS3.7]
	9.5. Applies to the design of areas and spaces in *buildings*. [F74-OA2] [F70, F71-OH2.3] [F101-OH6] [F30-OS3.1] [F10-OS3.7]
	9.7. Applies to windows and skylights in Part 9 *buildings*. [F55, F61, F62, F63, F80, F81, F82-OH1.1] [F51, F53, F54, F55, F61, F62, F63, F80, F82-OH1.2] [F61, F62, F63-OH1.3] [F102-OH7] [F42-OP2.3] [F03, F20-OS1.2] [F10-OS1.5] [F20-OS2.1] [F20, F21, F42, F61, F63-OS2.3] [F30-OS3.1] [F10, F30-OS3.7]
	[F34-OS4.1] [F131-OR2]
	9.10.17. Applies to flame spread limits in Part 9 *buildings*. [F01, F02-OS1.2] [F01, F02, F05-OS1.5]
	9.31. Applies to plumbing facilities serving Part 9 dwelling units. [F44, F62-OH1.1] [F40, F41, F62-OH1.2, OH1.3] [F70, F71, F72, F80-OH2.1] [F41-OH2.2] [F70, F71, F72, F80, F81-OH2.3] [F01-OS1.1] [F31, F80-OS2.3] [F20-OS3.1] [F23-OS3.4]
	9.32. Applies to ventilation in Part 9 residential occupancies. [F40, F42, F50, F52, F53, F61, F80, F81, F82-OH1.1] [F42, F51, F52, F80, F81-OH1.2] [F42, F80-OH2.5] [F82-OP1.1] [F131-OR2] [F02, F03, F80, F82-OS1.1] [F42, F53, F61, F63-OS2.3] [F40, F43, F44, F50, F53, F81-OS3.4]
	9.34.1. [F01-OS1.1] [F10-OS3.1] [F32, F81-OS3.3] Applies to electrical facilities in Part 9 *buildings*.
	9.34.2. [F30-OS3.1] Applies to lighting outlets for Part 9 *buildings*. [F34-OS4.2] Applies to lighting outlets for Part 9 *buildings*.
	9.34.3. [F30-OS3.1] [F10-OS3.7] Applies to emergency lighting for Part 9 *buildings*.
10.3.2.1.	General
(1)	[F140-OC]

Table 11
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 11 of Division B

Acceptable Solutions	Objectives and Functional Statements
11.2.1.3.	Prohibition of Occupancy Combinations
(1)	[F41-OH2.1]
	[F02, F03-OS1.2] [F10-OS1.5]
11.3.1.1.	Material Alteration or Repair of a Building System
(1)	[F140-OC]
11.3.3.2.	Extensive Renovation
(4)	[F02, F04-OP1.2, OP1.3]
(5)	[F02, F04-OS1.2, OS1.3]
11.3.5.2.	Vertical Separations and Existing Sewage Systems
(1)	[F110-OE]
	[F113- OH2.1,OH5]
11.4.1.1.	Performance Level
(1)	[F140-OC]
11.4.3.2.	Structural
(1)	[F110-OE] Applies to manure storage tanks.
	[F21, F22, F61, F80, F81-OH4]
	[F04-OP1.2]
	[F20-OP2.1, OP2.2, OP2.3, OP2.4, OP2.6] [F21-OP2.1, OP2.2, OP2.4, OP2.5, OP2.6] [F22-OP2.1, OP2.3, OP2.4, OP2.5] [F81-OP2.1, OP2.4] [F82-OP2.3] [F61-OP2.3, OP2.4] [F80-OP2.3, OP2.4, OP2.6]
	[F04-OP3.1]
	[F21-OP4.1, OP4.4] [F20-OP4.3]
	[F04-OS1.2]
	[F20-OS2.1, OS2.2, OS2.3, OS2.4] [F21-OS2.1, OS2.2, OS2.3, OS2.5, OS2.6] [F61-OS2.3] [F80-OS2.3] [F81-OS2.3] [F82-OS2.3]
	[F30-OS3.1] [F43-OS3.4] Applies to manure storage tanks.
11.4.3.3.	Increase in Occupant Load
(1)	As applied to fire alarm systems in Subsection 3.2.4.: [F12, F13, F81, F82-OP1.2] [F02, F03, F11, F12, F13, F81, F82-OS1.2] [F11, F13-OS1.4] [F10, F11, F12, F13, F81, F82-OS1.5] [F11, F12-OS3.7] Applies to voice communication systems.
	As applied to smoke control measures, and at least one elevator to permit transport of firefighters to all floors in *hotels* whose floor level is more than 18 m high measured between *grade* and floor level of the top *storey* in Subsection 3.2.6.: [F02, F03, F06, F12, F13, F82-OP1.2] [F03-OP3.1] [F02, F03, F06, F12, F13, F82-OS1.2] [F02, F03, F05, F06, F10, F12-OS1.5] [F30-OS3.1]

Acceptable Solutions	Objectives and Functional Statements
	As applied to lighting of *exits*, lighting of access to *exits* and emergency lighting in Subsection 3.2.7.:
	[F40-OH2.4] [F12-OH5] Applies to the requirement for a suitably identified shut-off valve outside the *building*. [F01-OP1.1] [F01, F02, F03, F06, F12, F81-OP1.2] [F02-OP3.1] [F12-OS1.1] Applies to the requirement for a suitably identified shut-off valve outside the *building*. [F02, F03, F06, F10, F11, F12, F81-OS1.2] [F02, F03, F06, F10, F11, F12, F81-OS1.5] [F02, F06, F30, F81-OS3.1] [F36-OS3.6] [F10, F11, F12, F81-OS3.7]
	As applied to access to *exit* widths based on *occupant load* in Article 3.3.1.16.: [F10-OS3.7]
	As applied to door release hardware in Article 3.3.1.12.: [F73-OA1] [F30-OS3.1] [F10, F12-OS3.7]
	As applied to travel distance in Article 3.4.2.4.: [F10-OS3.7]
	As applied to number of *exits* in Articles 3.4.2.3. and 3.4.2.5.: [F05, F10-OS1.5] [F10-OS3.7]
	As applied to exit widths based on *occupant load* in Article 3.4.3.2.: [F12-OP1.2] [F12-OS1.2] [F30-OS3.1] [F10, F12-OS3.7]
	As applied to *exit* signs in Articles 3.4.5.1. and 3.4.5.2.: [F10, F81-OS3.7]
	As applied to door release hardware in Article 3.4.6.15.: [F73-OA1] [F02-OS1.2] [F10, F81-OS1.5] [F10, F81-OS3.7]
	As applied to access to *exit* widths based on *occupant load* in Subsection 9.9.3.: [F30-OS3.1] [F10-OS3.7]
	As applied to *exit* widths based on *occupant load* in Subsection 9.9.3.: [F30-OS3.1] [F10-OS3.7]
	As applied to travel distance in Article 9.9.9.1.: [F10-OS3.7]
	As applied to number of *exits* in Articles 9.9.8.2. and 9.9.9.2.: [F10-OS3.7]
	As applied to *exit* signs in Subsection 9.9.10.: [F73-OA1] [F10-OS1.5] [F10-OS3.7]
	As applied to lighting of *exits*, lighting of *access to exits* and emergency lighting in Article 9.9.11.: [F30-OS3.1] [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
	As applied to fire alarm systems in Subsection 9.10.18.: [F02-OS1.2] Applies to a *sprinklered building*. [F03, F11-OS1.2] [F11-OS1.5]
	As applied to smoke alarms in Subsection 9.10.19.: [F11, F81-OS1.4] [F11, F81, F82-OS1.5]
(3)	As applied to required ventilation for *buildings* in Sentence 6.2.2.1.(2): [F50-OH1.1]
	As applied to plumbing facilities for *buildings* in Subsection 3.7.4.: [F74-OA2] [F50-OH1.1] [F72-OH2.1] [F70-OH2.2] [F71-OH2.3] [F40-OH2.4] [F101-OH6]
	[F20, F30-OS3.1]
	As applied to plumbing facilities serving Part 9 *dwelling units* in Article 9.31.1.1.: [F44, F62-OH1.1] [F40, F41, F62-OH1.2, OH1.3] [F70, F71, F72, F80-OH2.1] [F41-OH2.2] [F70, F71, F72, F80, F81-OH2.3] [F01-OS1.1] [F31, F80-OS2.3] [F20-OS3.1] [F23-OS3.4]
11.4.3.4.	Change in Major Occupancy
(1)	[F02, F03, F04-OP1.2, OP1.3] Applies to increase in *construction index*. [F02, F04-OP1.2, OP1.3] Applies where the *building* is required to be *sprinklered*. [F02, F03, F04-OS1.2, OS1.3] Applies to increase in construction index. [F02, F04-OS1.2, OS1.3] Applies where the *building* is required to be *sprinklered*.
	Applies where an Early Warning system is provided for a Part 3 *building*, in accordance with Subsection 3.2.4.: [F12, F13, F81, F82-OP1.2] [F02, F03, F11, F12, F13, F81, F82-OS1.2] [F11, F13-OS1.4] [F10, F11, F12, F13, F81, F82-OS1.5] [F11, F12-OS3.7] Applies to voice communication systems.
	Applies where an Early Warning system is provided for a Part 9 *building*, in accordance with Subsection 9.10.18.: [F02-OS1.2] Applies to a *sprinklered building*. [F03, F11-OS1.2] [F11-OS1.5]
	Applies where an Early Warning system is provided for a Part 9 *building*, in accordance with Subsection 9.10.19.: [F11, F81-OS1.4] [F11, F81, F82-OS1.5]
(2)	As applied to additional requirements for high *buildings* in Subsection 3.2.6.: [F03, F06, F12, F13, F82-OP1.2] [F03-OP3.1] [F02, F03, F06, F12, F13, F82-OS1.2] [F02, F03, F05, F06, F10, F11, F12, F82-OS1.5] [F30-OS3.1] [F11, F12-OS3.7]
	As applied to health requirements for *buildings* in Section 3.7.: [F74-OA2] [F50-OH1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F40, F72-OH2.1] [F70-OH2.2] [F71-OH2.3] [F40, F41-OH2.4] [F101-OH6] [F102-OH7] [F01-OP1.1] [F01-OS1.1] [F20, F30-OS3.1] [F32-OS3.3] [F43, F44-OS3.4]
	As applied to *public pools* in Section 3.11.: [F74-OA2] [F50-OH1.1] [F72-OH2.1] [F46, F70-OH2.2] [F40, F41, F45, F71, F122-OH2.3] [F40, F41-OH2.4] [F101-OH6] [F01-OS1.1] [F04-OS1.3] [F03-OS2.1] [F12, F30, F34, F36, F120, F121, F123, F124-OS3.1] [F31-OS3.2] [F32, F34-OS3.3] [F34, F43, F44, F81, F122-OS3.4] [F10, F11, F12, F34, F123-OS3.7]
	As applied to *public spas* in Section 3.12.: [F74-OA2] [F46-OH2.2] [F40, F41, F70, F71, F72, F81, F122-OH2.3] [F40, F41-OH2.4] [F11, F12, F13, F30, F34, F36, F81, F120, F121, F123, F124-OS3.1] [F43, F81, F122-OS3.4] [F10, F34, F123-OS3.7]
	As applied to required ventilation for *buildings* in Sentence 6.2.2.1.(2): [F50-OH1.1]
	As applied to Sentence 6.2.3.9.(1): [F40-OH1.1] [F44-OS1.1]
	As applied to Sentence 6.2.4.7.(10): [F40-OH1.1]
	[F44-OS1.1]
	As applied to Subsection 9.5.1.: [F10-OS3.7]
	As applied to Articles 9.5.3.1. to 9.5.10.1.: [F70, F71-OH2.3] [F101-O H6] [F30-OS3.1] [F10-OS3.7]
	As applied to windows and skylights in Part 9 *buildings* in Section 9.7.: [F55, F61, F62, F63, F80, F81, F82-OH1.1] [F51, F53, F54, F55, F61, F62, F63, F80, F82-OH1.2] [F61, F62, F63-OH1.3] [F102-OH7] [F42-OP2.3] [F03, F20-OS1.2] [F10-OS1.5] [F20-OS2.1] [F20, F21, F42, F61, F63-OS2.3] [F30-OS3.1] [F10, F30-OS3.7] [F34-OS4.1] [F131-OR2]
	As applied to flame spread limits in Part 9 *buildings* Subsection 9.10.17.: [F01, F02-OS1.2] [F01, F02, F05-OS1.5]
	As applied to plumbing facilities serving Part 9 *dwelling units* in Section 9.31.: [F44, F62-OH1.1] [F40, F41, F62-OH1.2, OH1.3] [F70, F71, F72, F80-OH2.1] [F41-OH2.2] [F70, F71, F72, F80, F81-OH2.3] [F01-OS1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F31, F80-OS2.3] [F20-OS3.1]
	As applied to ventilation in Part 9 *residential occupancies* in Section 9.32.: [F40, F42, F50, F52, F53, F61, F80, F81, F82-OH1.1] [F42, F51, F52, F80, F81-OH1.2] [F42, F80-OH2.5] [F82-OP1.1] [F131-OR2] [F02, F03, F80, F82-OS1.1] [F42, F53, F61, F63-OS2.3] [F40, F43, F44, F50, F53, F81-OS3.4]
	As applied to Subsection 9.34.1.: [F01-OS1.1] [F10-OS3.1] [F32, F81-OS3.3] Applies to electrical facilities in Part 9 *buildings*.
	As applied to Subsection 9.34.2.: [F30-OS3.1] Applies to lighting outlets for Part 9 buildings. [F34-OS4.2] Applies to lighting outlets for Part 9 *buildings*.
	As applied to Subsection 9.34.3.: [F30-OS3.1] [F10-OS3.7] Applies to emergency lighting for Part 9 *buildings*.
(3)	As applied to fire alarm systems in Subsection 3.2.4.: [F12, F13, F81, F82-OP1.2] [F02, F03, F11, F12, F13, F81, F82-OS1.2] [F11, F13-OS1.4] [F10, F11, F12, F13, F81, F82-OS1.5] [F11, F12-OS3.7] Applies to voice communication systems.
	As applied to smoke control measures, and at least one elevator to permit transport of fire fighters to all floors in hotels whose floor level is more than 18 m high, measured between grade and the floor level of the top storey in Subsection 3.2.6.: [F02, F03, F06, F12, F13, F82-OP1.2] [F03-OP3.1] [F02, F03, F06, F12, F13, F82-OS1.2] [F02, F03, F05, F06, F10, F12-OS1.5] [F30-OS3.1]
	As applied to lighting of exits, lighting of access to exits and emergency lighting in Subsection 3.2.7.: [F40-OH2.4] Applies to the requirement for a suitably identified shut-off valve outside the *building*. [F01-OP1.1] [F01, F02, F03, F06, F12, F81-OP1.2] [F02-OP3.1]
	[F12-OS1.1] Applies to the requirement for a suitably identified shut-off valve outside the *building*. [F02, F03, F06, F10, F11, F12, F81-OS1.2] [F02, F03, F06, F10, F11, F12, F81-OS1.5] [F02, F06, F30, F81-OS3.1] [F36-OS3.6] [F10, F11, F12, F81-OS3.7]
	As applied to access to exit widths based on *occupant load* in Article 3.3.1.16.: [F10-OS3.7]
	As applied to door release hardware in Article 3.3.1.12.: [F73-OA1] [F30-OS3.1] [F10, F12-OS3.7]
	As applied to travel distance in Article 3.4.2.4.: [F10-OS3.7]

Acceptable Solutions	Objectives and Functional Statements
	As applied to number of *exits* in Articles 3.4.2.3. and 3.4.2.5.: [F05, F10-OS1.5] [F10-OS3.7]
	As applied to *exit* widths based on *occupant load* in Article 3.4.3.2.: [F12-OP1.2] [F12-OS1.2] [F30-OS3.1] [F10, F12-OS3.7]
	As applied to *exit* signs in Articles 3.4.5.1. and 3.4.5.2.: [F10, F81-OS3.7]
	As applied to door release hardware in Article 3.4.6.15.: [F73-OA1] [F02-OS1.2] [F10, F81-OS1.5] [F10, F81-OS3.7]
	As applied to access to *exit* widths based on *occupant load* in Subsection 9.9.3.: [F30-OS3.1] [F10-OS3.7]
	As applied to *exit* widths based on *occupant load* in Subsection 9.9.3.: [F30-OS3.1] [F10-OS3.7]
	As applied to travel distance in Article 9.9.9.1.: [F10-OS3.7]
	As applied to number of *exits* in Articles 9.9.8.2. and 9.9.9.2.: [F10-OS3.7]
	As applied to exit signs in subsection 9.9.10.: [F10-OS1.5] [F10-OS3.7] [F73-OA1]
	As applied to lighting of exits, lighting of access to exits and emergency lighting in Article 9.9.11.: [F30-OS3.1] [F10-OS3.7]
	As applied to fire alarm systems in Subsection 9.10.18.: [F02-OS1.2] Applies to a *sprinklered building*. [F03, F11-OS1.2] [F11-OS1.5]
	As applied to smoke alarms in Subsection 9.10.19.: [F11, F81-OS1.4] [F11, F81, F82-OS1.5]
(4)	As applied to *fire separations* in Article 3.1.3.1.: [F03-OP1.2] [F03-OS1.2]
	As applied to Table 11.4.3.4.B.: [F140-OC]
(6)	[F02, F04-OP1.2, OP1.3]
	[F02, F04-OS1.2, OS1.3]
11.4.3.5.	Plumbing
(1)	[F140-OC]
	[F20-OE] [F20-OE] Applies to drainage piping. [F20-OE] Applies to underground drainage piping. [F20, F81, F113-OE] [F40-OE] [F44-OE] [F44-OE] Applies to oil interceptors. [F44, F81, F112-OE] [F81-OE] Applies to underground drainage piping.

Acceptable Solutions	Objectives and Functional Statements
	[F81, F112-OE] [F111-OE] Applies to drainage systems served by a sewage system.
	[F20-OH1.1] [F20-OH1.1] Applies to vent piping. [F20, F43, F81-OH1.1] [F20, F43, F81-OH1.1] Applies to venting system. [F20, F43, F81-OH1.1] Applies to bell and spigot joints in venting systems. [F20, F81-OH1.1] [F21-OH1.1] [F40-OH1.1] [F40, F41, F50-OH1.1] Applies to the requirement for ventilation. [F40, F81-OH1.1] [F41-OH1.1] [F41, F81-OH1.1] Applies to vent pipes. [F43-OH1.1] [F43, F80, F81-OH1.1] Applies to venting system. [F43, F81-OH1.1] Applies to venting system. [F44, F81-OH1.1] [F80-OH1.1] [F81-OH1.1] [F81-OH1.1] Applies to venting system. [F31-OH1.2] [F20-OH1.3] [F20, F80, F81-OH1.3] [F61-OH1.3] [F61, F80-OH1.3] [F62-OH1.3] [F62, F81-OH1.3] [F80, F81-OH1.3] [F81-OH1.3] Applies to water pipes.
	[F20-OH2.1] [F20-OH2.1] Applies to drainage piping. [F20, F80, F81, F113-OH2.1] [F20, F80, F81, F113-OH2.1] Applies to building sewer. [F20, F80, F81, F113-OH2.1] Applies to drainage system. [F20, F80, F81, F113-OH2.1] Applies to Waste Fittings. [F20, F81-OH2.1] Applies to drainage piping. [F20, F81-OH2.1] Applies to bell and spigot joints in drainage systems. [F21-OH2.1] [F40-OH2.1] [F41, F81-OH2.1] [F43-OH2.1] [F45-OH2.1] [F62-OH2.1] [F62, F70-OH2.1] [F70-OH2.1] [F72-OH2.1] [F80-OH2.1] [F80, F81-OH2.1] Applies to drainage system.
	[F80, F81, F113-OH2.1] [F80, F81, F113-OH2.1] Applies to drainage system. [F81-OH2.1] [F81-OH2.1] Applies to drainage system. [F81, F113-OH2.1] [F20-OH2.2] [F20-OH2.2] Applies to water piping.

Acceptable Solutions	Objectives and Functional Statements
	[F20, F46, F80, F81-OH2.2] [F20, F46, F80, F81-OH2.2] Applies to water piping. [F20, F46, F80, F81-OH2.2] Applies to Supply Fittings. [F20, F46, F81-OH2.2] Applies to water piping. [F20, F80, F81-OH2.2] [F20, F81-OH2.2] [F21-OH2.2]
	[F41, F46-OH2.2] [F46-OH2.2] [F46-OH2.2] Applies to Water Systems. [F46, F70-OH2.2] [F46, F70, F81-OH2.2] [F46, F80, F81-OH2.2] [F46, F80, F81-OH2.2] Applies to water piping. [F46, F81-OH2.2] [F46, F81-OH2.2] Applies to water piping. [F70-OH2.2] [F70, F80-OH2.2] [F70, F81-OH2.2] [F80-OH2.2] [F81-OH2.2] Applies to the size of air break. [F81-OH2.2] Applies to water service pipe. [F81-OH2.2] Applies to private water supply. [F81-OH2.2] Applies to water system. [F82-OH2.2] [F71-OH2.3] [F71, F72-OH-2.3] Applies to equipment. [F72-OH2.3] [F40-OH2.4] [F40, F46-OH2.4] [F41-OH2.4] [F41-OH2.4] Applies to floor drains in garbage rooms. [F41, F81-OH2.4] [F63-OH2.4] [F81-OH2.4] [F42-OH2.5] [F81-OH2.6] Applies to drainage pipe. [F81-OH2.6] Applies to private sewers. [F20-OH2.1, OH2.2] [F20, F46, F80, F81, F113-OH2.1, OH2.2] [F80-OH2.1, OH2.2] [F80-OH2.1, OH2.2 ,OH2.3, OH2.4] [F82-OH2.1, OH2.2, OH2.3, OH2.4] Applies to the need for maintenance. [F81-OH2.1, OH2.2, OH2.4] [F20, F81-OH2.1, OH2.3] [F20, F81, F113-OH2.1, OH2.3] [F80-OH2.1, OH2.3] Applies to Drainage Systems. [F81-OH2.1, OH2.3, OH2.4] [F81, F82-OH2.1, OH2.3, OH2.4] [F40-OH2.1, OH2.4] [F40, F41-OH2.1, OH2.4]
	[F41, F43-OH2.1, OH2.4] [F41, F81-OH2.1, OH2.4] [F43-OH2.1, OH2.4] [F80-OH2.1, OH2.4] [F80, F81-OH2.1, OH2.4] [F81-OH2.1, OH2.4] [F82-OH2.1, OH2.4]

Acceptable Solutions	Objectives and Functional Statements
	[F20, F80, F81-OH2.1, OH2.6] [F20, F80, F81, F113-OH2.1, OH2.6] [F20, F81-OH2.1, OH2.6] [F81-OH2.2, OH2.4] [F41, F81-OH2.4, OH2.5]
	[F20-OH4]
	[F43-OH5] [F44-OH5] [F44-OH5] Applies to oil interceptors. [F81-OH5]
	[F20-OS2.2, OS2.3]
	[F01-OP1.1] [F01-OP1.1] Applies to oil interceptors. [F01, F40, F81-OP1.1] [F20, F81-OP1.1] [F02, F12, F81-OP1.2] [F12-OP1.4]
	[F61-OP2.3] [F61, F80-OP2.3] [F61, F81-OP2.3] [F62-OP2.3] [F63-OP2.3] [F80-OP2.3] [F81-OP2.3]
	[F20-OP5] [F20, F31, F46, F80, F81-OP5] [F20, F46, F80, F81-OP5] [F20, F46, F80, F81-OP5] Applies to Supply Fittings. [F20, F46, F80, F81-OP5] Applies to water piping. [F20, F46, F80, F81, F113-OP5] [F20, F46, F81-OP5] [F20, F46, F81-OP5] Applies to water piping. [F20, F80, F81-OP5] [F20, F80, F81-OP5] Applies to drainage system. [F20, F80, F81, F113-OP5] [F20, F80, F81, F113-OP5] Applies to drainage system. [F20, F80, F81, F113-OP5] Applies to Waste Fittings. [F20, F81-OP5] [F20, F81-OP5] Applies to drainage system. [F20, F81-OP5] Applies to bell and spigot joints in drainage systems. [F20, F81, F113-OP5] [F21-OP5] [F21, F61, F81-OP5] [F40-OP5] [F46-OP5] [F46, F80, F81-OP5] [F46, F80, F81-OP5] Applies to water piping. [F62-OP5] [F62, F72-OP5] [F72-OP5]
	[F80-OP5] [F80, F81-OP5] [F80, F81-OP5] Applies to drainage system. [F80, F81, F113-OP5] [F80, F81, F113-OP5] Applies to drainage system. [F81-OP5] [F81-OP5] Applies to water pipes. [F81-OP5] Applies to Drainage Systems. [F81, F113-OP5] [F81, F113-OP5] Applies to drainage pipes. [F82-OP5]
	[F01-OS1.1]

Acceptable Solutions	Objectives and Functional Statements
	[F01-OS1.1] Applies to oil interceptors. [F01, F40, F81-OS1.1] [F01, F81-OS1.1] [F20, F81-OS1.1] [F81-OS1.1] [F02, F12, F81-OS1.2] [F12-OS1.4]
	[F20, F81-OS2.1] [F20, F81-OS2.3]
	[F20-OS3.1] [F20, F30, F80-OS3.1] [F30-OS3.1] [F30-OS3.1] Applies to the requirement for lighting. [F80-OS3.1] [F81-OS3.1] [F20, F81-OS3.2] [F31-OS3.2] [F31, F81-OS3.2] [F31, F81-OS3.2] Applies to pipes containing hot water. [F31, F81-OS3.2] Applies to pressure vessels containing hot water. [F81-OS3.2]
	[F32-OS3.3] [F40, F80-OS3.4] [F43-OS3.4] Applies to equipment. [F44-OS3.4] [F81-OS3.4] [F36-OS3.6]
	[F40-OR1] [F130-OR1]
11.4.3.6.	Sewage Systems
(1)	[F81, F110, F111-OE] [F81, F111-OE] [F82-OE] [F82, F110-OE] [F82, F111-OE] [F104, F110, F111-OE] [F110-OE] [F110, F111-OE] [F110, F111, F112-OE] [F110, F112-OE] [F111-OE] [F111, F112-OE] [F111, F113-OE] [F112-OE]
	[F50-OH1.1]
	[F82-OH2.1] [F82, F111-OH2.1] [F104, F110, F111-OH2.1] [F110-OH2.1] [F110, F111-OH2.1] [F110, F111, F112 -OH2.1] [F110, F112-OH2.1] [F111-OH2.1] [F111, F112-OH2.1] [F40-OH2.4] [F42-OH2.5] [F113-OH2.6]
	[F81, F110, F111-OH5] [F81, F111-OH5]

Acceptable Solutions	Objectives and Functional Statements
	[F82-OH5] [F82, F110-OH5] [F82, F111-OH5] [F104, F110, F111-OH5] [F110-OH5] [F110, F111-OH5] [F110, F111, F112-OH5] [F110, F112-OH5] [F111-OH5] [F111, F112-OH5] [F111, F113-OH5] [F112-OH5]
	[F101-OH6]
	[F20-OP2.3] [F81-OP2.6]
	[F104, F110, F111-OR2]
	[F20-OS2.1] [F20-OS2.2]
	[F30-OS3.1]

Table 12
Objectives and Functional Statements Attributed to the
Acceptable Solutions in Part 12 of Division B

Acceptable Solutions	Objectives and Functional Statements
12.2.1.1.	Energy Efficiency Design
(1)	[F131-OR2] [F131-OR1, OR1.2]
(2)	[F131-OR2] [F131-OR1, OR1.2]
(3)	[F131-OR2] [F131-UR1, OR1.2]
12.2.2.1.	Carbon Dioxide Equivalents
(1)	[F131-OR1, OR1.2]
(2)	[F131-OR1, OR1.2]
12.2.3.1.	Peak Electric Demand
(1)	[F131-OR1, OR1.2] [F133-OR2.1]
12.2.4.1.	Motion Sensors
(2)	[F30-OS3.1] [F10-OS3.7]
(3)	[F30-OS3.1] [F10-OS3.7]
12.3.1.2.	Windows and Sliding Glass Doors
(1)	[F131-OR1.2]
12.3.1.3.	Temperature Control in Houses and Dwelling Units
(1)	[F131-OR1.2]
(2)	(a) [F131-OR1.2] [F133-OR2.1]
	(b) [F131-OR1.2] [F133-OR2.1]
	(c) [F131-OR1.2] [F133-OR2.1]
(3)	[F131-OR1.2] [F132-OR2.1]
12.3.1.4.	Hot Water Piping Insulation
(1)	[F131-OR1.2] [F132-OR2.1]
(2)	[F131-OR1.2] [F132-OR2.1]
(3)	[F131-OR1.2] [F132-OR2.1]
12.3.1.5.	Residential Furnaces
(1)	[F131-OR1.2] [F132-OR2.1]
	[F150-OE1.1]
12.3.1.6.	Energy Supply for Kitchen and Laundry Facilities
(1)	[F131-OR1.2]

MMAH Supplementary Standard SB-1

Climatic and Seismic Data

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-1 comes into force on the1st day of January, 2025.

SB-1 Climatic and Seismic Data

Introduction

The great diversity of climate in Ontario has a considerable effect on the performance of buildings; consequently, building design must reflect this diversity. This Supplementary Standard briefly describes how climatic design values are computed and provides recommended design data for a number of cities, towns, and lesser populated locations. Through the use of such data, appropriate allowances can be made for climate variations in different localities of Ontario and the Building Code can be applied provincially.

The climatic design data provided in Table 2 are based on weather observations collected by the Meteorological Service of Canada, Environment and Climate Change Canada. The data were researched and analyzed for the Canadian Commission on Building and Fire Codes by Environment and Climate Change Canada.

As it is not practical to list values for all municipalities in Ontario, recommended climatic design values for locations not listed can be obtained by e-mail from the Engineering Climate Services Unit of Environment and Climate Change Canada at scg-ecs@ec.gc.ca. It should be noted, however, that these recommended values may differ from the values accepted by municipal building authorities based on local experience.

The information on seismic hazard given in Table 3 has been provided by Natural Resources Canada.

General

The choice of climatic elements tabulated in this Supplementary Standard and the form in which they are expressed have been dictated largely by the requirements for specific values in several sections of the Building Code. These elements include ground snow loads, wind pressures, design temperatures, heating degree-days, one-day and 15-minute rainfalls, and annual total precipitation values. The following notes briefly explain the significance of these particular elements in building design, and indicate which weather observations were used and how they were analyzed to yield the required design values.

Climatic design data in Table 2 provides weather information and elevations for over 230 locations which have been chosen based on a variety of reasons. Many incorporated cities and towns with significant populations are included unless located close to larger cities. For sparsely populated areas, many smaller towns and villages are listed. Other locations have been added to the list when the demand for climatic design recommendations at these sites has been significant. The named locations refer to the specific latitude and longitude defined by the Gazetteer of Canada (Natural Resources Canada), available from Publishing and Depository Services Canada, Public Works and Government Services Canada, Ottawa, Ontario KIA OS5.

Almost all of the weather observations used in preparing Table 2 were, of necessity, observed at inhabited locations. To estimate design values for arbitrary locations, the observed or computed values for the weather stations were mapped and interpolated appropriately. Where possible, adjustments have been applied for the influence of elevation and known topographical effects. Such influences include the tendency of cold air to collect in depressions, for precipitation to increase with elevation, and for generally stronger winds near large bodies of water. Elevations have been added to Table 2 because of their potential to significantly influence climatic design values. The elevations are given in metres and refer to heights above sea level.

Since interpolation from the values in Table 2 to other locations may not be valid due to local and other effects, Environment and Climate Change Canada will provide climatic design element recommendations for locations not listed in Table 2. Local effects are particularly significant in mountainous areas, where the values apply only to populated valleys and not to the mountain slopes and high passes, where very different conditions are known to exist.

Changing and Variable Climates

Climate is not static. At any location, weather and climatic conditions vary from season to season, year to year, and over longer time periods (climate cycles). This has always been the case. Evidence is mounting that the climates of Ontario are changing and will continue to change significantly in the future. When estimating climatic design loads, this variability can be considered using appropriate statistical analysis, data records spanning sufficient periods, and meteorological judgement. The analysis generally assumes that the past climate will be representative of the future climate.

Past and ongoing modifications to atmospheric chemistry (from greenhouse gas emissions and land use changes) are expected to alter most climatic regimes in the future despite the success of the most ambitious greenhouse gas mitigation plans.(1) Some regions could see an increase in the frequency and intensity of many weather extremes, which will accelerate weathering processes. Consequently, many buildings will need to be designed, maintained and operated to adequately withstand ever changing climatic loads.

Similar to global trends, the last decade in Canada was noted as the warmest in instrumented record. Canada has warmed, on average, at almost twice the rate of the global average increase, while the western Arctic is warming at a rate that is unprecedented over the past 400 years.(1) Mounting evidence from Arctic communities indicates that rapid changes to climate in the North have resulted in melting permafrost and impacts from other climate changes have affected nearly every type of built structure. Furthermore, analyses of Canadian precipitation data shows that many regions of the country have, on average, also been tending towards wetter conditions.(1) In the United States, where the density of climate monitoring stations is greater, a number of studies have found an unambiguous upward trend in the frequency of heavy to extreme precipitation events, with these increases coincident with a general upward trend in the total amount of precipitation. Climate change model results, based on an ensemble of global climate models worldwide, project that future climate warming rates will be greatest in higher latitude countries such as Canada.(2)

January Design Temperatures

A building and its heating system should be designed to maintain the inside temperature at some pre-determined level. To achieve this, it is necessary to know the most severe weather conditions under which the system will be expected to function satisfactorily. Failure to maintain the inside temperature at the pre-determined level will not usually be serious if the temperature drop is not great and if the duration is not long. The outside conditions used for design should, therefore, not be the most severe in many years, but should be the somewhat less severe conditions that are occasionally but not greatly exceeded.

The January design temperatures are based on an analysis of January air temperatures only. Wind and solar radiation also affect the inside temperature of most buildings and may need to be considered for energy-efficient design.

The January design temperature is defined as the lowest temperature at or below which only a certain small percentage of the hourly outside air temperatures in January occur. In the past, stations with records from all or part of the period 1951-1966 formed the basis for calculation of the 2.5 and 1% January temperatures. Where necessary, the data were adjusted for consistency. Since most of the temperatures were observed at airports, design values for the core areas of large cities could be 1° or 2°C milder, although the values for the fringe areas are probably about the same as for the airports. No adjustments were made for this urban heat island effect. The design values for the next 20 to 30 years will probably differ from these tabulated values due to year-to-year climate variability and global climate change resulting from the impact of human on atmospheric chemistry.

The design temperatures were reviewed and updated using hourly temperature observations from stations for a 25-year period up to 2006 with at least 8 years of complete data. These data are consistent with data shown for Canadian locations in the 2009 Handbook of Fundamentals(3) published by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). The most recent 25 years of record were used to provide a balance between accounting for trends in the climate and the sampling variation owing to year-to-year variation. The 1% and 2.5% values used for the design conditions represent percentiles of the cumulative frequency distribution of hourly temperatures and correspond to January temperatures that are colder for 8 and 19 hours, respectively, on average over the long term.

The 2.5% January design temperature is the value ordinarily used in the design of heating systems. In special cases, when the control of inside temperature is more critical, the 1% value may be used. Other temperature-dependent climatic design parameters may be considered for future issues of this document.

July Design Temperatures

A building and its cooling and dehumidifying system should be designed to maintain the inside temperature and humidity at certain pre-determined levels. To achieve this, it is necessary to know the most severe weather conditions under which the system is expected to function satisfactorily. Failure to maintain the inside temperature and humidity at the pre-determined levels will usually not be serious if the increases in temperature and humidity are not great and the duration is not long. The outside conditions used for design should, therefore, not be the most severe in many years, but should be the somewhat less severe conditions that are occasionally but not greatly exceeded.

The summer design temperatures in this Supplementary Standard are based on an analysis of July air temperatures and humidities. Wind and solar radiation also affect the inside temperature of most buildings and may, in some cases, be more important than the outside air temperature. More complete summer and winter design information can be obtained from Environment and Climate Change Canada.

The July design dry-bulb and wet-bulb temperatures were reviewed and updated using hourly temperature observations from stations for a 25-year period up to 2006. These data are consistent with data shown for Canadian locations in the 2009 Handbook of Fundamentals[3] published by ASHRAE. As with January design temperatures, data from the most recent 25-year period were analyzed to reflect any recent climatic changes or variations. The 2.5% values used for the dry- and wet-bulb design conditions represent percentiles of the cumulative frequency distribution of hourly dry- and wet-bulb temperatures and correspond to July temperatures that are higher for 19 hours on average over the long term.

Heating Degree-Days

The rate of consumption of fuel or energy required to keep the interior of a small building at 21°C when the outside air temperature is below 18°C is roughly proportional to the difference between 18°C and the outside temperature. Wind speed, solar radiation, the extent to which the building is exposed to these elements and the internal heat sources also affect the heat required and may have to be considered for energy-efficient design. For average conditions of wind, radiation, exposure, and internal sources, however, the proportionality with the temperature difference generally still holds.

Since the fuel required is also proportional to the duration of the cold weather, a convenient method of combining these elements of temperature and time is to add the differences between 18°C and the mean temperature for every day in the year when the mean temperature is below 18°C. It is assumed that no heat is required when the mean outside air temperature for the day is 18°C or higher.

Although more sophisticated computer simulations using other forms of weather data have now almost completely replaced degree-day-based calculation methods for estimating annual heating energy consumption, degree-days remain a useful indicator of relative severity of climate and can form the basis for certain climate-related code requirements.

The degree-days below 18°C were compiled for stations for the 25-year period ending in 2006. This analysis period is consistent with the one used to derive the design temperatures described above and with the approach used by ASHRAE.[3]

A difference of only one Celsius degree in the mean annual temperature will cause a difference of 250 to 350 in the Celsius degree-days. Since differences of 0.5 of a Celsius degree in the mean annual temperature are quite likely to occur between two stations in the same town, heating degree-days cannot be relied on to an accuracy of less than about 100 degree-days.

Heating degree-day values for the core areas of larger cities can be 200 to 400 degree-days less (warmer) than for the surrounding fringe areas. The observed degree-days, which are based on daily temperature observations, are often most representative of rural settings or the fringe areas of cities.

Climatic Data for Energy Consumption Calculations

The climatic elements tabulated in this Supplementary Standard represent commonly used design values but do not include detailed climatic profiles, such as hourly weather data. Where hourly values of weather data are needed for the purpose of simulating the annual energy consumption of a building, they can be obtained from multiple sources, such as Environment and Climate Change Canada, Natural Resources Canada, the Regional Conservation Authority and other such public agencies that record this information. Hourly weather data are also available from public and private agencies that format this information for use with annual energy consumption simulation software; in some cases, these data have been incorporated into the software.

Snow Loads

The roof of a building should be able to support the greatest weight of snow that is likely to accumulate on it in many years. Some observations of snow on roofs have been made in Canada, but not enough to form the basis for estimating roof snow loads throughout the country. Similarly, observations of the weight, or water equivalent, of the snow on the ground have not been available in digital form in the past. The observations of roof loads and water equivalents are very useful, as noted below, but the measured depth of snow on the ground is used to provide the basic information for a consistent set of snow loads.

The estimation of the design snow load on a roof from snow depth observations involves the following steps:

1. The depth of snow on the ground, which has an annual probability of exceedance of 1-in-50, is computed.
2. The appropriate specific weight is selected and used to convert snow depth to loads, S_s.
3. The load, S_r, which is due to rain falling on the snow, is computed.
4. Because the accumulation of snow on roofs is often different from that on the ground, adjustments are applied to the ground snow load to provide a design snow load on a roof.

The annual maximum depth of snow on the ground has been assembled from stations for which data has been recorded by the Meteorological Service of Canada (MSC). The period of record used varied from station to station, ranging from 7 to 38 years. These data were analyzed using a Gumbel extreme value distribution fitted using the method of moments[(4)] as reported by Newark et al.[(5)] The resulting values are the snow depths, which have a probability of 1-in-50 of being exceeded in any one year.

The specific weight of old snow generally ranges from 2 to 5 kN/m^3, and it is usually assumed in Canada that 1 kN/m^3 is the average for new snow. Average specific weights of the seasonal snow pack have been derived for different regions across the country[(6)] and an appropriate value has been assigned to each weather station. Typically, the values average 2.01 kN/m^3 east of the continental divide (except for 2.94 kN/m^3 north of the treeline), and range from 2.55 to 4.21 kN/m^3 west of the divide. The product of the 1-in-50 snow depth and the average specific weight of the seasonal snow pack at a station is converted to the snow load (SL) in units of kilopascals (kPa).

Except for the mountainous areas of western Canada, the values of the ground snow load at MSC stations were normalized assuming a linear variation of the load above sea level in order to account for the effects of topography. They were then smoothed using an uncertainty-weighted moving-area average in order to minimize the uncertainty due to snow depth sampling errors and site-specific variations. Interpolation from analyzed maps of the normalized values yielded a value for each location in Table 2, which could then be converted to the listed code values (S_s) by means of an equation in the form:

$$S_s = \text{smooth normalized SL} + bZ$$

where b is the assumed rate of change of SL with elevation at the location and Z is the location's elevation above mean sea level (MSL). Although they are listed in Table 2 to the nearest tenth of a kilopascal, values of S_s typically have an uncertainty of about 20%. Areas of sparse data in northern Canada were an exception to this procedure. In these regions, an analysis was made of the basic SL values. The effects of topography, variations due to local climates, and smoothing were all subjectively assessed. The values derived in this fashion were used to modify those derived objectively.

Tabulated values cannot be expected to indicate all the local differences in S_s. For this reason, especially in complex terrain areas, values should not be interpolated from Table 2 for unlisted locations. The values of S_s in Table 2 apply for the elevation and the latitude and longitude of the location, as defined by the Gazetteer of Canada. Values at other locations can be obtained from Environment and Climate Change Canada.

The heaviest loads frequently occur when the snow is wetted by rain, thus the rain load, S_r, was estimated to the nearest 0.1 kPa and is provided in Table 2. When values of S_r, are added to S_s, this provides a 1-in-50-year estimate of the combined ground snow and rain load. The values of S_r are based on an analysis from weather station values of the 1-in-50-year one-day maximum rain amount. This return period is appropriate because the rain amounts correspond approximately to the joint frequency of occurrence of the one-day rain on maximum snow packs. For the purpose of estimating rain on snow, the individual observed one-day rain amounts were constrained to be less than or equal to the snow pack water equivalent, which was estimated by a snow pack accumulation model reported by Bruce and Clark.[7]

The results from surveys of snow loads on roofs indicate that average roof loads are generally less than loads on the ground. The conditions under which the design snow load on the roof may be taken as a percentage of the ground snow load are given in Subsection 4.1.6. of Division B of the Building Code. The Code also permits further decreases in design snow loads for steeply sloping roofs, but requires substantial increases for roofs where snow accumulation may be more rapid due to such factors as drifting. Recommended adjustments are given in the "Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)".

The ground snow values, S_s, were updated for this edition of the Building Code using a similar approach to the one used for the ground snow load update in the 1990 edition. The Gumbel extreme value distribution was fitted to the annual maxima of daily snow depth observations made at weather stations, which were compiled from 1990 onward – to as recently as 2012 for some stations – to calculate the 50-year return period snow depth. The 50-year ground snow load was then calculated for each weather station by combining the 50-year snow pack with the assigned snow pack density. The S_s values for each location in Table 2 were compared with the updated weather station values and revised accordingly. As a result, S_s values remain unchanged for about 89% of the locations, have increased for 5.7% of the locations, and have decreased for 5.3% of the locations.

Annual Total Precipitation

Total precipitation is the sum in millimetres of the measured depth of rainwater and the estimated or measured water equivalent of the snow (typically estimated as 0.1 of the measured depth of snow, since the average density of fresh snow is about 0.1 that of water).

The average annual total precipitation amounts in Table 2 have been interpolated from an analysis of precipitation observations from stations for the 30-year period from 1961 to 1990.

Annual Rainfall

The total amount of rain that normally falls in one year is frequently used as a general indication of the wetness of a climate, and is therefore included in this Supplementary Standard.

Rainfall Intensity

Roof drainage systems are designed to carry off rainwater from the most intense rainfall that is likely to occur. A certain amount of time is required for the rainwater to flow across and down the roof before it enters the gutter or drainage system. This results in the smoothing out of the most rapid changes in rainfall intensity. The drainage system, therefore, need only cope with the flow of rainwater produced by the average rainfall intensity over a period of a few minutes, which can be called the concentration time.

In Canada, it has been customary to use the 15-minute rainfall that will probably be exceeded on an average of once in 10 years. The concentration time for small roofs is much less than 15 minutes and hence the design intensity will be exceeded more frequently than once in 10 years. The safety factors in Part 7 of Division B of the Building Code will probably reduce the frequency to a reasonable value and, in addition, the occasional failure of a roof drainage system will not be particularly serious in most cases.

The rainfall intensity values were updated for the 2012 edition of the Building Code using observations of annual maximum 15-minute rainfall amounts from stations with 10 or more years of record, including data up to 2007 for some stations. Ten-year return period values − the 15-minute rainfall having a probability of 1-in-10 of being exceeded in any year − were calculated by fitting the annual maximum values to the Gumbel extreme value distribution[4] using the method of moments. The updated values are compiled from the most recent short-duration rainfall intensity-duration-frequency (IDF) graphs and tables available from Environment and Climate Change Canada.

It is very difficult to estimate the pattern of rainfall intensity in mountainous areas, where precipitation is extremely variable and rainfall intensity can be much greater than in other types of areas. Many of the observations for these areas were taken at locations in valley bottoms or in extensive, fairly level areas.

One-Day Rainfall

If for any reason a roof drainage system becomes ineffective, the accumulation of rainwater may be great enough in some cases to cause a significant increase in the load on the roof. In the past, when the period during which rainwater could accumulate was unknown, it had been common practice to use the maximum one-day rainfall ever observed for estimating the additional load. Since the length of record for weather stations in Canada is quite variable, the maximum one-day rainfall amounts in previous editions often reflected the variable length of record at nearby stations as much as the climatology. As a result, the maximum values often differed greatly within relatively small areas where little difference should be expected. The current values have been standardized to represent the one-day rainfall amounts that have 1 chance in 50 of being exceeded in any one year or the 1-in-50-year return value one-day rainfalls.

The one-day rainfall values were updated using daily rainfall observations from stations with 10 years or more of record, including data up to 2008 for some stations. The 50-year return period values were calculated by fitting the annual maximum one-day rainfall observations to the Gumbel extreme value distribution using the method of moments.[4]

Rainfall frequency observations can vary considerably over time and space. This is especially true for mountainous areas, where elevation effects can be significant. In other areas, small scale intense storms or local influences can produce significant spatial variability in the data. As a result, the analysis incorporates some spatial smoothing.

Moisture Index (MI)

Moisture index (MI) values were developed through the work of a consortium that included representatives from industry and researchers from NRC.[1] The MI is an indicator of the moisture load imposed on a building by the climate and is used in Part 9 to define the minimum levels of protection from precipitation to be provided by cladding assemblies on exterior walls.

It must be noted, in using MI values to determine the appropriate levels of protection from precipitation, that weather conditions can vary markedly within a relatively small geographical area. Although the values provided in the Table give a good indication of the average conditions within a particular region, some caution must be exercised when applying them to a locality that is outside the region where the weather station is located.

MI is calculated from a wetting index (WI) and a drying index (DI).

Wetting Index (WI)

To define, quantitatively, the rainwater load on a wall, wind speed and wind direction have to be taken into consideration in addition to rainfall, along with factors that can affect exposure, such as nearby buildings, vegetation and topography. Quantitative determination of load, including wind speed and wind direction, can be done. However, due to limited weather data, it is not currently possible to provide this information for most of the locations identified in the Table.

This lack of information, however, has been shown to be non-critical for the purpose of classifying locations in terms of severity of rain load. The results of the research indicated that simple annual rainfall is as good an indicator as any for describing rainwater load. That is to say, for Canadian locations, and especially once drying is accounted for, the additional sensitivity provided by hourly directional rainfall values does not have a significant effect on the order in which locations appear when listed from wet to dry.

Consequently, the wetting index (WI) is based on annual rainfall and is normalized based on 1000 mm.

Drying Index (DI)

Temperature and relative humidity together define the drying capacity of ambient air. Based on simple psychrometrics, values were derived for the locations listed in the Table using annual average drying capacity normalized based on the drying capacity at Lytton, B.C. The resultant values are referred to as drying indices (DI).

Determination of Moisture Index (MI)

The relationship between WI and DI to correctly define moisture loading on a wall is not known. The MI values provided in the Table are based on the root mean square values of WI and 1-DI, with those values equally weighted. This is illustrated in Figure 1. The resultant MI values are sufficiently consistent with industry's understanding of climate severity with respect to moisture loading as to allow limits to be identified for the purpose of specifying where additional protection from precipitation is required.

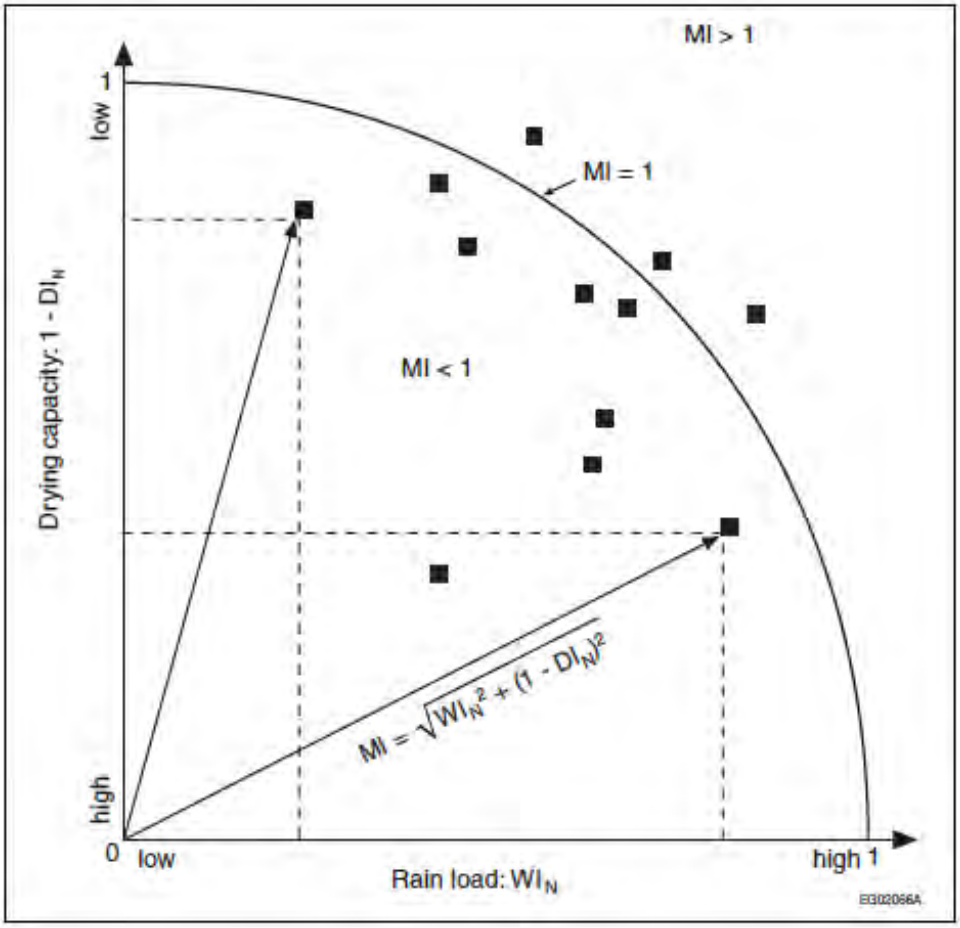

Figure 1
Derivation of Moisture Index (MI) Based on Normalized Values for Wetting Index (WI) and Drying Index (DI)

Notes to Figure 1:
(1) MI equals the hypotenuse of the triangle defined by WI_N and $1\text{-}DI_N$.

Driving Rain Wind Pressure (DRWP)

The presence of rainwater on the face of a building, with or without wind, must be addressed in the design and construction of the building envelope so as to minimize the entry of water into the assembly. Wind pressure on the windward faces of a building will promote the flow of water through any open joints or cracks in the facade.

Driving rain wind pressure (DRWP) is the wind load that is coincident with rain, measured or calculated at a height of 10 m. The values provided in Table 2 represent the loads for which there is 1 chance in 5 of being reached or exceeded in any one year, or a probability of 20% within any one year. Approximate adjustments for height can be made using the values for C_e given in Sentence 4.1.7.3.(5) of Division B as a multiplier.

Because of inaccuracies in developing the DRWP values related to the averaging of extreme wind pressures, the actual heights of recording anemometers, and the use of estimated rather than measured rainfall values, the values are considered to be higher than actual loads.[8][9] Thus the actual probability of reaching or exceeding the DRWP in a particular location is less than 20% per year and these values can be considered to be conservative.

DRWP can be used to determine the height to which wind will drive rainwater up enclosed vertical conduits. This provides a conservative estimate of the height needed for fins in window extrusions and end dams on flashings to control water ingress. This height can be calculated as:

height of water, mm = DRWP / 10, Pa

Note that the pressure difference across the building envelope may be augmented by internal pressures induced in the building interior by the wind. These additional pressures can be estimated using the information provided in the Commentary entitled Wind Load and Effects of the "Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)".

Wind Effects

All structures need to be designed to ensure that the main structural system and all secondary components, such as cladding and appurtenances, will withstand the pressures and suctions caused by the strongest wind likely to blow at that location in many years. Some flexible structures, such as tall buildings, slender towers and bridges, also need to be designed to minimize excessive wind-induced oscillations or vibrations.

At any time, the wind acting upon a structure can be treated as a mean or time-averaged component and as a gust or unsteady component. For a small structure, which is completely enveloped by wind gusts, it is only the peak gust velocity that needs to be considered. For a large structure, the wind gusts are not well correlated over its different parts and the effects of individual gusts become less significant. The "Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)" evaluates the mean pressure acting on a structure, provide appropriate adjustments for building height and exposure and for the influence of the surrounding terrain and topography (including wind speed-up for hills), and then incorporate the effects of wind gusts by means of the gust factor, which varies according to the type of structure and the size of the area over which the pressure acts.

The wind speeds and corresponding velocity pressures used in the Code are regionally representative or reference values. The reference wind speeds are nominally one-hour averages of wind speeds representative of the 10 m height in flat open terrain corresponding to Exposure A or open terrain in the terminology of the "Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)". The reference wind speeds and wind velocity pressures are based on long-term wind records observed at a large number of weather stations across Canada.

Reference wind velocity pressures in the 1975 to 2006 editions of the Building Code were based mostly on records of hourly averaged wind speeds (i.e, the number of miles of wind passing an anemometer in an hour) from several stations across Ontario with 10 to 22 years of observations ending in the 1950s. The wind pressure values derived from these measurements represented true hourly wind pressures.

The reference wind velocity pressures were reviewed and updated for the 2012 edition of the Building Code. The primary data set used for the analysis comprised wind records compiled from stations with hourly averaged wind speeds and from stations with aviation (one- or two-minute average) speeds or surface weather (ten-minute average) speeds observed once per hour at the top of the hour; the periods of record used ranged from 10 to 54 years. In addition, peak wind gust records from stations with periods of record ranging from 10 to 43 years were used. Peak wind gusts (gust durations of approximately 3 to 7 seconds) were used to supplement the primary once-per-hour observations in the analysis.

Several steps were involved in updating the reference wind values. Where needed, speeds were adjusted to represent the standard anemometer height above ground of 10 m. The data from years when the anemometer at a station was installed on the top of a lighthouse or building were eliminated from the analysis since it is impractical to adjust for the effects of wind flow over the structure. (Most anemometers were moved to 10 m towers by the 1960s.) Wind speeds of the various observation types-hourly averaged, aviation, surface weather and peak wind gust — were adjusted to account for different measure durations to represent a one-hour averaging period and to account for differences in the surface roughness of flat open terrain at observing stations.

The annual maximum wind speed data was fitted to the Gumbel distribution using the method of moments[4] to calculate hourly wind speeds having the annual probability of occurrence of 1-in-10 and 1-in-50 (10-year and 50-year return periods). The values were plotted on maps, then analyzed and abstracted for the locations in Table 2.

The wind velocity pressures, q, were calculated in Pascals using the following equation:

$$q = ½ \rho V^2$$

where ρ is an average air density for the windy months of the year and V is wind speed in metres per second. While air density depends on both air temperature and atmospheric pressure, the density of dry air at 0°C and standard atmospheric pressure of 1.2929 kg/m^3 was used as an average value for the wind pressure calculations. As explained by Boyd[10], this value is within 10% of the monthly average air densities for most of Canada in the windy part of the year.

As a result of the updating procedure for the 2012 edition of the Building Code, the 1-in-50 reference wind velocity pressures remain unchanged for most of the locations listed in Table 2; both increases and decreases were noted for the remaining locations. Many of the decreases resulted from the fact that anemometers at most of the stations used in the previous analysis were installed on lighthouses, airport hangers and other structures. Wind speeds on the tops of buildings are often much higher compared to those registered by a standard 10 m tower. Eliminating anemometer data recorded on the tops of buildings from the analysis resulted in lower values at several locations.

For the 2024 edition of the Building Code, the reference wind velocity pressures were updated to reflect the new data collected in the approximately 10 years since the previous update for the 2012 edition. Only data collected at stations with a period of record of at least 20 years were used in the analysis. As a result, the data set comprised wind records from many hourly and daily peak wind gust stations across Ontario with periods of record ranging from 20 to 65 years. The annual maximum wind speed data were fitted to the Gumbel distribution

The 1-in-50 hourly wind speeds, after adjusting for roughness to represent open exposure, were mapped and compared to the 2012 Building Code values for the locations in Table 2. This updating procedure resulted in small changes to the 1-in-50 reference wind velocity pressures for some locations.

The 1-in-10 reference wind velocity pressures were updated using the same procedure, except that regional values of the coefficient of variation were used in the calculations instead of the national value used previously. This procedure resulted in small changes to the 1-in-10 reference wind velocity pressures for many locations across Ontario, including many for which there was no change to the 1-in-50 reference wind velocity pressure.

Wind speeds that have a 1-in-"n" chance of being exceeded in any year can be calculated from the wind speeds corresponding to the 1-in-10 and 1-in-50 return period values in Table 2 using the following equation:

$$V_{1/n} = \frac{1}{1.4565}\left\{V_{1/50} + 0.4565\, V_{1/10} + \frac{V_{1/50} - V_{1/10}}{1.1339} \times \ln\frac{-0.0339}{\ln(1-1/n)}\right\}$$

Table 1 has been arranged to give pressures to the nearest one-hundredth of a kPa and their corresponding wind speeds. The value of "q" in kPa is assumed to be equal to 0.00064645 V^2, where V is given in m/s.

Table 1
Wind Speeds

q kPa	V m/s	q kPa	V m/s	q kPa	V m/s	q kPa	V m/s
0.15	15.2	0.53	28.6	0.91	37.5	1.29	44.7
0.16	15.7	0.54	28.9	0.92	37.7	1.30	44.8
0.17	16.2	0.55	29.2	0.93	37.9	1.31	45.0
0.18	16.7	0.56	29.4	0.94	38.1	1.32	45.2
0.19	17.1	0.57	29.7	0.95	38.3	1.33	45.4
0.20	17.6	0.58	30.0	0.96	38.5	1.34	45.5
0.21	18.0	0.59	30.2	0.97	38.7	1.35	45.7
0.22	18.4	0.60	30.5	0.98	38.9	1.36	45.9
0.23	18.9	0.61	30.7	0.99	39.1	1.37	46.0
0.24	19.3	0.62	31.0	1.00	39.3	1.38	46.2
0.25	19.7	0.63	31.2	1.01	39.5	1.39	46.4
0.26	20.1	0.64	31.5	1.02	39.7	1.40	46.5
0.27	20.4	0.65	31.7	1.03	39.9	1.41	46.7
0.28	20.8	0.66	32.0	1.04	40.1	1.42	46.9
0.29	21.2	0.67	32.2	1.05	40.3	1.43	47.0
0.30	21.5	0.68	32.4	1.06	40.5	1.44	47.2
0.31	21.9	0.69	32.7	1.07	40.7	1.45	47.4
0.32	22.2	0.70	32.9	1.08	40.9	1.46	47.5
0.33	22.6	0.71	33.1	1.09	41.1	1.47	47.7
0.34	22.9	0.72	33.4	1.10	41.3	1.48	47.8
0.35	23.3	0.73	33.6	1.11	41.4	1.49	48.0
0.36	23.6	0.74	33.8	1.12	41.6	1.50	48.2
0.37	23.9	0.75	34.1	1.13	41.8	1.51	48.3
0.38	24.2	0.76	34.3	1.14	42.0	1.52	48.5
0.39	24.6	0.77	34.5	1.15	42.2	1.53	48.6
0.40	24.9	0.78	34.7	1.16	42.4	1.54	48.8
0.41	25.2	0.79	35.0	1.17	42.5	1.55	49.0
0.42	25.5	0.80	35.2	1.18	42.7	1.56	49.1
0.43	25.8	0.81	35.4	1.19	42.9	1.57	49.3
0.44	26.1	0.82	35.6	1.20	43.1	1.58	49.4
0.45	26.4	0.83	35.8	1.21	43.3	1.59	49.6
0.46	26.7	0.84	36.0	1.22	43.4	1.60	49.7
0.47	27.0	0.85	36.3	1.23	43.6	1.61	49.9
0.48	27.2	0.86	36.5	1.24	43.8	1.62	50.1
0.49	27.5	0.87	36.7	1.25	44.0	1.63	50.2
0.50	27.8	0.88	36.9	1.26	44.1	1.64	50.4
0.51	28.1	0.89	37.1	1.27	44.3	1.65	50.5
0.52	28.4	0.90	37.3	1.28	44.5	1.66	50.7
Column 1	2	3	4	5	6	7	8

Table 2
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Ailsa Craig	230	-17	-19	30	23	3840	25	103	800	0.9	950	180	2.2	0.4	0.37	0.48
Ajax	95	-20	-22	30	23	3820	23	92	760	0.9	825	160	1.0	0.4	0.37	0.48
Alexandria	80	-24	-26	30	23	4600	25	103	800	0.9	975	160	2.4	0.4	0.31	0.40
Alliston	220	-23	-25	29	23	4200	28	113	690	0.8	875	120	2.0	0.4	0.28	0.36
Almonte	120	-26	-28	30	23	4620	25	97	730	0.8	800	140	2.5	0.4	0.32	0.41
Armstrong	340	-37	-40	28	21	6500	23	97	525	0.8	725	100	2.7	0.4	0.22	0.30
Arnprior	85	-27	-29	30	23	4680	23	86	630	0.8	775	140	2.5	0.4	0.29	0.37
Atikokan	400	-33	-35	29	22	5750	25	103	570	0.8	760	100	2.4	0.3	0.22	0.30
Attawapiskat	10	-37	-39	28	21	7100	18	81	450	0.8	650	160	2.8	0.3	0.30	0.41
Aurora	270	-21	-23	30	23	4210	28	108	700	0.8	800	140	2.0	0.4	0.34	0.44
Bancroft	365	-28	-31	29	23	4740	25	92	720	0.9	900	100	3.1	0.4	0.25	0.32
Barrie	245	-24	-26	29	23	4380	28	97	700	0.8	900	120	2.5	0.4	0.28	0.36
Barriefield	100	-22	-24	28	23	3990	23	108	780	1.0	950	160	2.1	0.4	0.37	0.47
Beaverton	240	-24	-26	30	23	4300	25	108	720	0.9	950	120	2.2	0.4	0.28	0.36
Belleville	90	-22	-24	29	23	3910	23	97	760	0.9	850	180	1.7	0.4	0.34	0.43
Belmont	260	-17	-19	30	24	3840	25	97	850	1.0	950	180	1.7	0.4	0.37	0.47
Big Trout Lake (Kitchenuhmaykoosib)	215	-38	-40	26	20	7450	18	92	400	0.75	600	150	3.2	0.2	0.31	0.42
Borden (CBF)	225	-23	-25	29	23	4300	28	103	690	0.82	875	120	2.2	0.4	0.28	0.36
Bracebridge	310	-26	-28	29	23	4800	25	103	830	1.0	1050	120	3.1	0.4	0.27	0.35
Bradford	240	-23	-25	30	23	4280	28	108	680	0.8	800	120	2.1	0.4	0.28	0.36
Brampton	215	-19	-21	30	23	4100	28	119	720	0.8	820	140	1.3	0.4	0.34	0.44
Brantford	205	-18	-20	30	23	3900	23	103	780	0.9	850	160	1.3	0.4	0.33	0.42
Brighton	95	-21	-23	29	23	4000	23	94	760	0.9	850	160	1.6	0.4	0.37	0.48
Brockville	85	-23	-25	29	23	4060	25	103	770	0.9	975	180	2.2	0.4	0.34	0.44
Burk's Falls	305	-26	-28	29	22	5020	25	97	810	0.9	1010	120	2.7	0.4	0.27	0.35
Burlington	80	-17	-19	31	23	3740	23	103	770	0.9	850	160	1.1	0.4	0.36	0.46
Caledon	425	-21	-23	30	23	4450	28	119	730	0.84	875	140	2.2	0.4	0.31	0.40
Cambridge	295	-18	-20	29	23	4100	25	113	800	0.9	890	160	1.6	0.4	0.28	0.36
Campbellford	150	-23	-26	30	23	4280	25	97	730	0.9	850	160	1.7	0.4	0.32	0.41
Cannington	255	-24	-26	30	23	4310	25	108	740	0.9	950	120	2.2	0.4	0.28	0.36
Carleton Place	135	-25	-27	30	23	4600	25	97	730	0.8	850	160	2.5	0.4	0.32	0.41
Cavan	200	-23	-25	30	23	4400	25	97	740	0.9	850	140	2.0	0.4	0.34	0.44
Centralia	260	-17	-19	30	23	3800	25	103	820	1.0	1000	180	2.3	0.4	0.37	0.48
Chapleau	425	-35	-38	27	21	5900	20	97	530	0.7	850	80	3.6	0.4	0.23	0.30
Chatham	180	-16	-18	31	24	3470	28	103	800	0.9	850	180	1.0	0.4	0.34	0.43
Chesley	275	-19	-21	29	22	4320	28	103	810	0.9	1125	140	2.8	0.4	0.35	0.45
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Clinton	280	-17	-19	29	23	4150	25	103	810	0.9	1000	160	2.6	0.4	0.36	0.46
Coboconk	270	-25	-27	30	23	4500	25	108	740	0.9	950	120	2.5	0.4	0.27	0.35
Cobourg	90	-21	-23	29	23	3980	23	94	760	0.9	825	160	1.2	0.4	0.38	0.49
Cochrane	245	-34	-36	29	21	6200	20	92	575	0.8	875	80	2.8	0.3	0.27	0.35
Colborne	105	-21	-23	29	23	3980	23	94	760	0.9	850	160	1.6	0.4	0.38	0.49
Collingwood	190	-21	-23	29	23	4180	28	97	720	0.9	950	160	2.7	0.4	0.30	0.39
Cornwall	35	-23	-25	30	23	4250	25	103	780	0.9	960	180	2.2	0.4	0.32	0.41
Corunna	185	-16	-18	31	24	3600	25	100	760	0.9	800	180	1.0	0.4	0.37	0.47
Deep River	145	-29	-32	30	22	4900	23	92	650	0.8	850	100	2.5	0.4	0.27	0.35
Deseronto	85	-22	-24	29	23	4070	23	92	760	0.9	900	160	1.9	0.4	0.34	0.43
Dorchester	260	-18	-20	30	24	3900	28	103	850	1.0	950	180	1.9	0.4	0.37	0.47
Dorion	200	-33	-35	28	21	5950	20	103	550	0.8	725	160	2.8	0.4	0.29	0.39
Dresden	185	-16	-18	31	24	3750	28	97	760	0.8	820	180	1.0	0.4	0.34	0.43
Dryden	370	-34	-36	28	22	5850	25	97	550	0.7	700	120	2.4	0.3	0.22	0.30
Dundalk	525	-22	-24	29	22	4700	28	108	750	0.9	1080	150	3.2	0.4	0.33	0.42
Dunnville	175	-15	-17	30	24	3660	23	108	830	1.0	950	160	2.0	0.4	0.36	0.46
Durham	340	-20	-22	29	22	4340	28	103	815	0.9	1025	140	2.8	0.4	0.34	0.44
Dutton	225	-16	-18	31	24	3700	28	92	850	1.0	925	180	1.3	0.4	0.37	0.47
Earlton	245	-33	-36	29	22	5730	23	92	560	0.8	820	120	3.1	0.4	0.35	0.45
Edison	365	-34	-36	28	22	5740	25	108	510	0.7	680	120	2.4	0.3	0.23	0.31
Elliot Lake	380	-26	-28	29	21	4950	23	108	630	0.8	950	160	2.9	0.4	0.30	0.38
Elmvale	220	-24	-26	29	23	4200	28	97	720	0.9	950	140	2.6	0.4	0.28	0.36
Embro	310	-19	-21	30	23	3950	28	113	830	0.9	950	160	2.0	0.4	0.37	0.48
Englehart	205	-33	-36	29	22	5800	23	92	600	0.8	880	100	2.8	0.4	0.32	0.41
Espanola	220	-25	-27	29	21	4920	23	108	650	0.8	840	160	2.3	0.4	0.33	0.42
Exeter	265	-17	-19	30	23	3900	25	113	810	0.9	975	180	2.4	0.4	0.37	0.48
Fenelon Falls	260	-25	-27	30	23	4440	25	108	730	0.9	950	120	2.3	0.4	0.28	0.36
Fergus	400	-20	-22	29	23	4300	28	108	760	0.9	925	160	2.2	0.4	0.28	0.36
Forest	215	-16	-18	31	23	3740	25	103	810	1.0	875	160	2.0	0.4	0.37	0.48
Fort Erie	180	-15	-17	30	24	3650	23	108	860	1.0	1020	160	2.3	0.4	0.36	0.46
Fort Erie (Ridgeway)	190	-15	-17	30	24	3600	25	108	860	1.0	1000	160	2.3	0.4	0.36	0.46
Fort Frances	340	-33	-35	29	22	5440	25	108	570	0.7	725	120	2.3	0.3	0.23	0.31
Gananoque	80	-22	-24	28	23	4010	23	103	760	0.9	900	180	2.1	0.4	0.37	0.47
Geraldton	345	-36	-39	28	21	6450	20	86	550	0.8	725	100	2.9	0.4	0.22	0.30
Glencoe	215	-16	-18	31	24	3680	28	103	800	0.9	925	180	1.5	0.4	0.34	0.43
Goderich	185	-16	-18	29	23	4000	25	92	810	1.0	950	180	2.4	0.4	0.37	0.48
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Gore Bay	205	-24	-26	28	22	4700	23	92	640	0.8	860	160	2.6	0.4	0.34	0.44
Graham	495	-35	-37	29	22	5940	23	97	570	0.8	750	140	2.6	0.3	0.22	0.30
Gravenhurst (Muskoka Airport)	255	-26	-28	29	23	4760	25	103	790	0.9	1050	120	2.7	0.4	0.28	0.36
Grimsby	85	-16	-18	30	23	3520	23	108	760	0.9	875	160	0.9	0.4	0.36	0.46
Guelph	340	-19	-21	29	23	4270	28	103	770	0.9	875	140	1.9	0.4	0.28	0.36
Guthrie	280	-24	-26	29	23	4300	28	103	700	0.8	950	120	2.5	0.4	0.28	0.36
Haileybury	210	-32	-35	30	22	5600	23	92	590	0.8	820	120	2.4	0.4	0.34	0.44
Haldimand (Caledonia)	190	-18	-20	30	23	3750	23	108	810	0.9	875	160	1.2	0.4	0.34	0.44
Haldimand (Hagersville)	215	-17	-19	30	23	3760	25	97	840	1.0	875	160	1.3	0.4	0.36	0.46
Haliburton	335	-27	-29	29	23	4840	25	92	780	0.9	980	100	2.9	0.4	0.27	0.35
Halton Hills (Georgetown)	255	-19	-21	30	23	4200	28	119	750	0.8	850	140	1.4	0.4	0.29	0.37
Hamilton																
Above Escarpment - West of John C. Munro Int'l Airport	240	-17	-19	31	23	3460	23	108	810	0.9	875	160	1.5	0.4	0.36	0.46
Above Escarpment - East of John C. Munro Int'l Airport	200	-17	-19	31	23	3460	23	108	810	0.9	875	160	1.3	0.4	0.36	0.46
Below Escarpment - West of Highway 403	90	-17	-19	31	23	3460	23	108	810	0.9	875	160	1.1	0.4	0.36	0.46
Below Escarpment - East of Highway 403	90	-17	-19	31	23	3460	23	108	810	0.9	875	160	1.1	0.4	0.36	0.46
Hanover	270	-19	-21	29	22	4300	28	103	790	0.9	1050	140	2.6	0.4	0.34	0.44
Hastings	200	-24	-26	30	23	4280	25	92	730	0.9	840	140	2.0	0.4	0.32	0.41
Hawkesbury	50	-25	-27	30	23	4610	23	103	800	0.9	925	160	2.3	0.4	0.32	0.41
Hearst	245	-35	-37	29	21	6450	20	86	520	0.7	825	80	2.8	0.3	0.23	0.30
Honey Harbour	180	-24	-26	29	23	4300	25	97	710	0.9	1050	160	2.7	0.4	0.30	0.39
Hornepayne	360	-37	-40	28	21	6340	20	93	420	0.7	750	80	3.3	0.4	0.22	0.30
Huntsville	335	-26	-29	29	22	4850	25	103	800	0.9	1000	120	2.9	0.4	0.27	0.35
Ingersoll	280	-18	-20	30	23	3920	28	108	840	1.0	950	180	1.7	0.4	0.37	0.48
Iroquois Falls	275	-33	-36	29	21	6100	20	86	575	0.8	825	100	2.9	0.3	0.29	0.37
Jellicoe	330	-36	-39	28	21	6400	20	86	550	0.8	750	100	2.7	0.4	0.22	0.30
Kapuskasing	245	-34	-36	29	21	6250	20	86	550	0.8	825	100	3.0	0.3	0.24	0.31
Kemptville	90	-25	-27	30	23	4540	25	92	750	0.9	925	160	2.3	0.4	0.32	0.41
Kenora	370	-33	-35	28	22	5630	25	113	515	0.6	630	120	2.5	0.3	0.23	0.31
Killaloe	185	-28	-31	30	22	4960	23	86	680	0.8	825	120	2.7	0.4	0.27	0.35
Kincardine	190	-17	-19	28	22	3890	25	92	800	1.0	950	180	2.6	0.4	0.37	0.48
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Kingston	80	-22	-24	28	23	4000	23	108	780	1.0	950	180	2.1	0.4	0.37	0.47
Kinmount	295	-26	-28	29	23	4600	25	108	750	0.9	950	120	2.7	0.4	0.27	0.35
Kirkland Lake	325	-33	-36	29	22	6000	23	92	600	0.8	875	100	2.9	0.3	0.30	0.39
Kitchener	335	-19	-21	29	23	4200	28	119	780	0.9	925	140	2.0	0.4	0.29	0.37
Lakefield	240	-24	-26	30	23	4330	25	92	720	0.9	850	140	2.2	0.4	0.30	0.38
Lansdowne House	240	-38	-40	28	21	7150	23	92	500	0.8	680	140	3.0	0.2	0.24	0.32
Leamington	190	-15	-17	31	24	3400	28	113	800	0.9	875	180	0.8	0.4	0.37	0.47
Lindsay	265	-24	-26	30	23	4320	25	103	720	0.8	850	140	2.3	0.4	0.30	0.38
Lion's Head	185	-19	-21	27	22	4300	25	103	700	0.9	950	180	2.7	0.4	0.37	0.48
Listowel	380	-19	-21	29	23	4300	28	119	800	0.9	1000	160	2.6	0.4	0.34	0.43
London	245	-18	-20	30	24	3900	28	103	825	0.9	975	180	1.9	0.4	0.37	0.47
Lucan	300	-17	-19	30	23	3900	25	113	810	0.9	1000	180	2.3	0.4	0.37	0.48
Maitland	85	-23	-25	29	23	4080	25	103	770	0.9	975	180	2.2	0.4	0.34	0.44
Markdale	425	-20	-22	29	22	4500	28	103	820	0.9	1050	160	3.2	0.4	0.32	0.41
Markham	175	-21	-23	31	24	4000	25	86	720	0.8	825	140	1.3	0.4	0.34	0.44
Martin	485	-35	-37	29	22	5900	25	103	560	0.8	750	120	2.6	0.3	0.22	0.30
Matheson	265	-33	-36	29	21	6080	20	86	580	0.8	825	100	2.8	0.3	0.30	0.39
Mattawa	165	-29	-31	30	22	5050	23	86	700	0.9	875	100	2.1	0.4	0.25	0.32
Midland	190	-24	-26	29	23	4200	25	97	740	0.9	1060	160	2.7	0.4	0.30	0.39
Milton	200	-18	-20	30	23	3920	25	125	750	0.9	850	160	1.3	0.4	0.34	0.43
Milverton	370	-19	-21	29	23	4200	28	108	800	0.9	1050	160	2.4	0.4	0.34	0.43
Minden	270	-27	-29	29	23	4640	25	97	780	0.9	1010	100	2.7	0.4	0.27	0.35
Mississauga	160	-18	-20	30	23	3880	25	113	720	0.9	800	160	1.1	0.4	0.34	0.44
Mississauga (Lester B. Pearson International Airport)	170	-20	-22	31	24	3890	26	108	685	0.8	790	160	1.1	0.4	0.34	0.44
Mississauga (Port Credit)	75	-18	-20	29	23	3780	25	108	720	0.9	800	160	0.9	0.4	0.37	0.48
Mitchell	335	-18	-20	29	23	4100	28	113	810	0.9	1050	160	2.4	0.4	0.35	0.45
Moosonee	10	-36	-38	28	22	6800	18	81	500	0.8	700	160	2.7	0.3	0.26	0.35
Morrisburg	75	-23	-25	30	23	4370	25	103	800	0.9	950	180	2.3	0.4	0.32	0.41
Mount Forest	420	-21	-24	28	22	4700	28	103	740	0.9	940	140	2.7	0.4	0.32	0.41
Nakina	325	-36	-38	28	21	6500	20	86	540	0.8	750	100	2.8	0.4	0.22	0.30
Nanticoke (Jarvis)	205	-17	-18	30	23	3700	28	108	840	1.0	900	160	1.4	0.4	0.37	0.48
Nanticoke (Port Dover)	180	-15	-17	30	24	3600	25	108	860	1.0	950	140	1.2	0.4	0.37	0.48
Napanee	90	-22	-24	29	23	4140	23	92	770	0.9	900	160	1.9	0.4	0.34	0.43
Newcastle	115	-20	-22	30	23	3990	23	86	760	0.9	830	160	1.5	0.4	0.37	0.48
Newcastle (Bowmanville)	95	-20	-22	30	23	4000	23	86	760	0.9	830	160	1.4	0.4	0.37	0.48
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rainfall, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
New Liskeard	180	-32	-35	30	22	5570	23	92	570	0.8	810	100	2.6	0.4	0.34	0.43
Newmarket	185	-22	-24	30	23	4260	28	108	700	0.8	800	140	2.0	0.4	0.30	0.38
Niagara Falls	210	-16	-18	30	23	3600	23	96	810	0.9	950	160	1.8	0.4	0.34	0.43
North Bay	210	-28	-30	28	22	5150	25	95	775	0.9	975	120	2.2	0.4	0.27	0.34
Norwood	225	-24	-26	30	23	4320	25	92	720	0.8	850	120	2.1	0.4	0.32	0.41
Oakville	90	-18	-20	30	23	3760	23	97	750	0.9	850	160	1.1	0.4	0.37	0.47
Orangeville	430	-21	-23	29	23	4450	28	108	730	0.8	875	140	2.3	0.4	0.28	0.36
Orillia	230	-25	-27	29	23	4260	25	103	740	0.9	1000	120	2.4	0.4	0.28	0.36
Oshawa	110	-19	-21	30	23	3860	23	86	760	0.9	875	160	1.4	0.4	0.37	0.48
Ottawa (Metropolitan)																
Ottawa (Barrhaven)	98	-25	-27	30	23	4500	25	92	750	0.8	900	160	2.4	0.4	0.32	0.41
Ottawa (City Hall)	70	-25	-27	30	23	4440	23	86	750	0.8	900	160	2.4	0.4	0.32	0.41
Ottawa (Kanata)	98	-25	-27	30	23	4520	25	92	730	0.8	900	160	2.5	0.4	0.32	0.41
Ottawa (MacDonald-Cartier Int'l Airport)	125	-25	-27	30	23	4500	24	89	750	0.8	900	160	2.4	0.4	0.32	0.41
Ottawa (Orleans)	70	-26	-28	30	23	4500	23	91	750	0.8	900	160	2.4	0.4	0.32	0.41
Owen Sound	215	-19	-21	29	22	4030	28	113	760	0.9	1075	160	2.8	0.4	0.34	0.44
Pagwa River	185	-35	-37	28	21	6500	20	86	540	0.8	825	80	2.7	0.4	0.22	0.30
Paris	245	-18	-20	30	23	4000	23	96	790	0.9	925	160	1.4	0.4	0.33	0.42
Parkhill	205	-16	-18	31	23	3800	25	103	800	0.9	925	180	2.1	0.4	0.37	0.48
Parry Sound	215	-24	-26	28	22	4640	23	97	820	1.0	1050	160	2.8	0.4	0.30	0.39
Pelham (Fonthill)	230	-15	-17	30	23	3690	23	96	820	0.9	950	160	2.1	0.4	0.33	0.42
Pembroke	125	-28	-31	30	23	4980	23	105	640	0.8	825	100	2.5	0.4	0.27	0.35
Penetanguishene	220	-24	-26	29	23	4200	25	97	720	0.9	1050	160	2.8	0.4	0.30	0.39
Perth	130	-25	-27	30	23	4540	25	92	730	0.8	900	140	2.3	0.4	0.32	0.41
Petawawa	135	-29	-31	30	23	4980	23	92	640	0.8	825	100	2.6	0.4	0.27	0.35
Peterborough	200	-23	-25	30	23	4400	25	92	710	0.8	840	140	2.0	0.4	0.32	0.41
Petrolia	195	-16	-18	31	24	3640	25	108	810	0.9	920	180	1.3	0.4	0.37	0.47
Pickering																
Zone 1	85	-19	-21	30	23	3800	23	92	730	0.9	825	140	1.0	0.4	0.37	0.48
Zone 2	175	-20	-22	30	23	3900	23	92	730	0.9	825	140	1.5	0.4	0.37	0.48
Zone 3	255	-21	-23	30	23	4010	23	86	770	0.91	850	140	1.9	0.4	0.35	0.45
Zone 4	315	-22	-24	30	23	4200	23	86	770	0.91	850	140	2.3	0.4	0.35	0.45
Picton	95	-21	-23	29	23	3980	23	92	770	0.9	940	160	2.0	0.4	0.38	0.49
Plattsville	300	-19	-21	29	23	4150	28	103	820	0.9	950	140	1.9	0.4	0.33	0.42
Point Alexander	150	-29	-32	30	22	4960	23	92	650	0.8	850	100	2.5	0.4	0.27	0.35
Port Burwell	195	-15	-17	30	24	3800	25	92	930	1.1	1000	180	1.2	0.4	0.37	0.47
Port Colborne	180	-15	-17	30	24	3600	23	108	850	1.0	1000	160	2.1	0.4	0.36	0.46
Port Elgin	205	-17	-19	28	22	4100	25	92	790	0.9	850	180	2.8	0.4	0.37	0.48
Port Hope	100	-21	-23	29	23	3970	23	94	760	0.9	825	180	1.2	0.4	0.37	0.48
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Port Perry	270	-22	-24	30	23	4260	25	97	720	0.8	850	140	2.4	0.4	0.34	0.44
Port Stanley	180	-15	-17	31	24	3850	25	92	940	1.1	975	180	1.2	0.4	0.37	0.47
Prescott	90	-23	-25	29	23	4120	25	103	770	0.9	975	180	2.2	0.4	0.34	0.44
Princeton	280	-18	-20	30	23	4000	25	97	810	0.9	925	160	1.5	0.4	0.33	0.42
Raith	475	-34	-37	28	22	5900	23	97	570	0.8	750	120	2.7	0.4	0.22	0.30
Rayside-Balfour (Chelmsford)	270	-28	-30	29	21	5200	25	92	650	0.8	850	180	2.5	0.4	0.35	0.45
Red Lake	360	-35	-37	28	21	6220	20	92	470	0.7	630	120	2.6	0.3	0.22	0.30
Renfrew	115	-27	-30	30	23	4900	23	97	620	0.8	810	140	2.5	0.4	0.27	0.35
Richmond Hill	230	-21	-23	31	24	4000	25	97	740	0.8	850	140	1.5	0.4	0.34	0.44
Rockland	50	-26	-28	30	23	4600	23	92	780	0.9	950	160	2.4	0.4	0.31	0.40
Sarnia	190	-16	-18	31	24	3750	25	100	750	0.9	825	180	1.1	0.4	0.37	0.47
Sault Ste. Marie	190	-25	-28	29	22	4960	23	97	660	0.9	950	200	3.1	0.4	0.33	0.44
Schreiber	310	-34	-36	27	21	5960	20	103	600	0.8	850	160	3.3	0.4	0.29	0.39
Seaforth	310	-17	-19	30	23	4100	25	108	810	0.9	1025	160	2.5	0.4	0.35	0.45
Shelburne	495	-22	-24	29	23	4700	28	108	740	0.9	900	150	3.1	0.4	0.31	0.40
Simcoe	210	-17	-19	30	24	3700	28	113	860	1.0	950	160	1.3	0.4	0.35	0.45
Sioux Lookout	375	-34	-36	28	22	5950	25	97	520	0.7	710	100	2.6	0.3	0.22	0.30
Smiths Falls	130	-25	-27	30	23	4540	25	92	730	0.8	850	140	2.3	0.4	0.32	0.41
Smithville	185	-16	-18	30	23	3650	23	108	800	0.9	900	160	1.5	0.4	0.33	0.42
Smooth Rock Falls	235	-34	-36	29	21	6250	20	92	560	0.8	850	80	2.7	0.3	0.25	0.32
Southampton	180	-17	-19	28	22	4100	25	92	800	1.0	830	180	2.7	0.4	0.37	0.48
South River	355	-27	-29	29	22	5090	25	103	830	1.0	975	120	2.8	0.4	0.27	0.35
St. Catharines	105	-16	-18	30	23	3540	23	92	770	0.9	850	160	1.0	0.4	0.36	0.46
St. Mary's	310	-18	-20	30	23	4000	28	108	820	1.0	1025	160	2.2	0.4	0.37	0.47
St. Thomas	225	-16	-18	31	24	3780	25	103	900	1.0	975	180	1.4	0.4	0.37	0.47
Stirling	120	-23	-25	30	23	4220	25	97	740	0.9	850	120	1.7	0.4	0.31	0.40
Stratford	360	-18	-20	29	23	4050	28	113	820	1.0	1050	160	2.3	0.4	0.35	0.45
Strathroy	225	-17	-19	31	24	3780	25	103	770	0.9	950	180	1.9	0.4	0.37	0.47
Sturgeon Falls	205	-28	-30	29	21	5200	25	95	700	0.9	910	140	2.4	0.4	0.27	0.35
Sudbury	275	-28	-30	29	21	5180	25	97	650	0.8	875	200	2.5	0.4	0.36	0.46
Sundridge	340	-27	-29	29	22	5080	25	97	840	1.0	975	120	2.8	0.4	0.27	0.35
Tavistock	340	-19	-21	29	23	4100	28	113	820	1.0	1010	160	2.1	0.4	0.35	0.45
Temagami	300	-30	-33	30	22	5420	23	92	650	0.8	875	120	2.6	0.4	0.29	0.37
Thamesford	280	-19	-21	30	23	3950	28	108	820	0.9	975	160	1.9	0.4	0.37	0.48
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Table 2 (Cont'd)
Climatic Design Data

Location	Elevation, m	Design Temperature				Degree Days Below 18°C	15 Min Rain, mm	One Day Rain, 1/50, mm	Annual Rain, mm	Moisture Index	Annual Total Precipitation, mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%											1/10	1/50
		2.5%, °C	1%, °C	Dry, °C	Wet, °C								S_s	S_r		
Thedford	205	-16	-18	31	23	3710	25	103	810	1.0	900	180	2.1	0.4	0.37	0.48
Thunder Bay	210	-31	-33	29	21	5650	23	108	560	0.8	710	160	2.9	0.4	0.29	0.39
Tillsonburg	215	-17	-19	30	24	3840	25	103	880	1.0	980	160	1.3	0.4	0.34	0.44
Timmins	300	-34	-36	29	21	5940	20	108	560	0.8	875	100	3.1	0.3	0.27	0.35
Timmins (Porcupine)	295	-34	-36	29	21	6000	20	103	560	0.8	875	100	2.9	0.3	0.29	0.37
Toronto Metropolitan Region																
Etobicoke	160	-20	-22	31	24	3800	26	108	720	0.8	800	160	1.1	0.4	0.34	0.44
North York	175	-20	-22	31	24	3760	25	108	730	0.8	850	150	1.2	0.4	0.34	0.44
Scarborough	180	-20	-22	31	24	3800	25	92	730	0.9	825	160	1.2	0.4	0.37	0.47
Toronto (City Hall)	90	-18	-20	31	23	3520	25	97	720	0.9	820	160	0.9	0.4	0.34	0.44
Trenton	80	-22	-24	29	23	4110	23	97	760	0.9	850	160	1.6	0.4	0.37	0.47
Trout Creek	330	-27	-29	29	22	5100	25	103	780	0.9	975	120	2.7	0.4	0.27	0.35
Uxbridge	275	-22	-24	30	23	4240	25	103	700	0.8	850	140	2.4	0.4	0.33	0.42
Vaughan (Woodbridge)	165	-20	-22	31	24	4100	26	113	700	0.8	800	140	1.1	0.4	0.34	0.44
Vittoria	215	-15	-17	30	24	3680	25	113	880	1.0	950	160	1.3	0.4	0.37	0.47
Walkerton	275	-18	-20	30	22	4300	28	103	790	0.9	1025	160	2.7	0.4	0.36	0.46
Wallaceburg	180	-16	-18	31	24	3600	28	97	760	0.9	825	180	0.9	0.4	0.35	0.45
Waterloo	330	-19	-21	29	23	4200	28	119	780	0.9	925	160	2.0	0.4	0.29	0.37
Watford	240	-17	-19	31	24	3740	25	108	790	0.9	950	160	1.9	0.4	0.37	0.47
Wawa	290	-34	-36	26	21	5840	20	93	725	0.9	950	160	3.4	0.4	0.30	0.39
Welland	180	-15	-17	30	23	3670	23	103	840	1.0	975	160	2.0	0.4	0.34	0.43
West Lorne	215	-16	-18	31	24	3700	28	103	840	1.0	900	180	1.3	0.4	0.37	0.47
Whitby	85	-20	-22	30	23	3820	23	86	760	0.9	850	160	1.2	0.4	0.37	0.48
Whitby (Brooklin)	160	-20	-22	30	23	4010	23	86	770	0.9	850	140	1.9	0.4	0.35	0.45
White River	375	-39	-42	28	21	6150	20	92	575	0.8	825	100	3.6	0.4	0.22	0.30
Wiarton	185	-19	-21	29	22	4300	25	103	740	0.9	1000	180	2.7	0.4	0.34	0.44
Windsor	185	-16	-18	32	24	3400	28	103	800	0.9	900	180	0.8	0.4	0.37	0.47
Wingham	310	-18	-20	30	23	4220	28	108	780	0.9	1050	160	2.6	0.4	0.36	0.46
Woodstock	300	-19	-21	30	23	3910	28	113	830	0.9	930	160	1.9	0.4	0.34	0.44
Wyoming	215	-16	-18	31	24	3700	25	103	815	0.9	900	180	1.6	0.4	0.37	0.47
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Seismic Data for Part 4

The seismic hazard values to be used for the design of buildings under Part 4 can be obtained from the 2020 National Building Code of Canada Seismic Hazard Tool (https://doi.org/10.23687/b1bd3cf0-0672-47f4-8bfa- 290ae75fde9b), which provides seismic hazard values for any site in Canada defined by latitude, longitude and site designation. The seismic hazard values used for the design of buildings under Part 4 must correspond to the applicable probability of exceedance stated in Subsection 4.1.8. The tool also provides seismic hazard values at additional probabilities and periods.

Seismic hazard values can be appreciably different for localities across a large locale. Therefore, applying the same seismic hazard value to a large geographic area could result in buildings being over-designed or under-designed. Given the large number of data points in Ontario, listing every locality in a table is not practical. For archival purposes, the seismic hazard values of locations for specific latitudes and longitudes are reproduced from the 2020 National Building Code of Canada Seismic Hazard Tool on NPARC at https://doi.org/10.4224/nqzr-dz38. The digital properties of the NPARC website are more suited for a static, archival data set. As such, Figure A-1.1.3.1.(4) for Division B identifies the NPARC website as the primary data set for the specified latitude and longitudes.

The parameters used to represent seismic hazard for specific geographical locations are the 5%-damped horizontal spectral acceleration for periods of 0.2 s, 0.5 s, 1.0 s, 2.0 s, 5.0 s and 10.0 s, the horizontal peak ground acceleration (PGA) and the horizontal peak ground velocity (PGV) corresponding to a 2% probability of being exceeded in 50 years. The six spectral acceleration parameters are deemed sufficient to define spectra closely matching the shape of the uniform hazard spectra (UHS) for design purposes. Spectral acceleration values for additional periods are provided for use in the selection of ground motion time histories. Spectral acceleration values for additional probabilities of exceedance are also provided.

The seismic hazard values are mean values based on a statistical analysis of the earthquakes that have been experienced in Ontario and adjacent regions.[11] They were updated for the 2024 edition of the Building Code by slightly revising the seismic source zones[12] to match new information, revising the ground motion models (GMMs),[13] and using a probabilistic model to combine all inputs.

In addition, the method of determining seismic hazard values for different site designations has changed. For the 2012 Building Code, the seismic hazard values were calculated for reference Site Class C, and the values for other site designations were determined by applying a site coefficient to the calculated values. For the 2024 Building Code, the seismic hazard values for each site designation were calculated directly.

For almost all locations, the revised GMMs are the most significant reason for changes in the seismic hazard values from the 2012 Building Code. In general, the estimated seismic hazard has increased across Ontario.

Further details regarding the representation of seismic hazard can be found in the Commentary entitled Design for Seismic Effects in the “Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)”.

Seismic Data for Part 9

Table 3 lists the seismic hazard values to be used in the application of the prescriptive requirements in Part 9 relating to lateral loads due to earthquake (these values are the same as those listed in Table 3 of Supplementary Standard SB-1 in the 2012 Building Code Compendium).

Table 3
Seismic Design Data for Selected Locations in Ontario for Part 9 Design

Location	$S_a(0.2)$ for Seismic Design in Part 9
Ailsa Craig	0.095
Ajax	0.210
Alexandria	0.589
Alliston	0.111
Almonte	0.337
Armstrong	0.064
Arnprior	0.371
Atikokan	0.069
Attawapiskat	0.074
Aurora	0.138
Bancroft	0.151
Barrie	0.108
Barriefield	0.162
Beaverton	0.117
Belleville	0.162
Belmont	0.116
Big Trout Lake (Kitchenuhmaykoosib)	0.054
CFB Borden	0.107
Bracebridge	0.116
Bradford	0.123
Brampton	0.168
Brantford	0.155
Brighton	0.173
Brockville	0.259
Burk's Falls	0.143
Burlington	0.266
Caledon	0.168
Cambridge	0.141
Campbellford	0.144
Cannington	0.122
Carleton Place	0.302
Cavan	0.140
Centralia	0.092
Chapleau	0.071
Chatham	0.112
Chesley	0.083
Clinton	0.084
Coboconk	0.120
Cobourg	0.179

Location	$S_a(0.2)$ for Seismic Design in Part 9
Cochrane	0.222
Colborne	0.176
Collingwood	0.096
Cornwall	0.587
Corunna	0.087
Deep River	0.389
Deseronto	0.158
Dorchester	0.112
Dorion	0.059
Dresden	0.104
Dryden	0.072
Dundalk	0.097
Dunnville	0.232
Durham	0.088
Dutton	0.116
Earlton	0.182
Edison	0.070
Elliot Lake	0.074
Elmvale	0.101
Embro	0.111
Englehart	0.175
Espanola	0.086
Exeter	0.090
Fenelon Falls	0.121
Fergus	0.115
Forest	0.087
Fort Erie	0.312
Fort Erie (Ridgeway)	0.307
Fort Frances	0.064
Gananoque	0.180
Geraldton	0.057
Glencoe	0.107
Goderich	0.079
Gore Bay	0.071
Graham	0.071
Gravenhurst (Muskoka Airport)	0.112
Grimsby	0.301
Guelph	0.133
Guthrie	0.109

Location	$S_a(0.2)$ for Seismic Design in Part 9
Haileybury	0.219
Haldimand (Caledonia)	0.215
Haldimand (Hagersville)	0.172
Haliburton	0.133
Halton Hills (Georgetown)	0.155
Hamilton	0.260
Hanover	0.085
Hastings	0.141
Hawkesbury	0.506
Hearst	0.073
Honey Harbour	0.103
Hornepayne	0.063
Huntsville	0.129
Ingersoll	0.116
Iroquois Falls	0.196
Jellicoe	0.057
Kapuskasing	0.112
Kemptville	0.429
Kenora	0.064
Killaloe	0.264
Kincardine	0.076
Kingston	0.161
Kinmount	0.123
Kirkland Lake	0.159
Kitchener	0.122
Lakefield	0.130
Lansdowne House	0.056
Leamington	0.114
Lindsay	0.126
Lion's Head	0.080
Listowel	0.093
London	0.108
Lucan	0.097
Maitland	0.282
Markdale	0.089
Markham	0.182
Martin	0.072
Matheson	0.160

Location	$S_a(0.2)$ for Seismic Design in Part 9
Mattawa	0.446
Midland	0.101
Milton	0.191
Milverton	0.098
Minden	0.124
Mississauga	0.219
Mississauga (Lester B. Pearson International Airport)	0.193
Mississauga (Port Credit)	0.247
Mitchell	0.093
Moosonee	0.081
Morrisburg	0.558
Mount Forest	0.093
Nakina	0.057
Nanticoke (Jarvis)	0.156
Nanticoke (Port Dover)	0.144
Napanee	0.156
New Liskeard	0.209
Newcastle	0.186
Newcastle (Bowmanville)	0.188
Newmarket	0.132
Niagara Falls	0.321
North Bay	0.247
Norwood	0.136
Oakville	0.260
Orangeville	0.115
Orillia	0.109
Oshawa	0.192
Ottawa (Metropolitan)	
Ottawa (City Hall)	0.439
Ottawa (Barrhaven)	0.427
Ottawa (Kanata)	0.401
Ottawa (MacDonald-Cartier Int'l Airport)	0.446
Ottawa (Orleans)	0.474
Owen Sound	0.083
Pagwa River	0.060
Paris	0.141
Parkhill	0.092
Parry Sound	0.110

Location	$S_a(0.2)$ for Seismic Design in Part 9
Pelham (Fonthill)	0.311
Pembroke	0.379
Penetanguishene	0.101
Perth	0.225
Petawawa	0.379
Peterborough	0.135
Petrolia	0.092
Pickering (Zones 1 to 4)	0.219
Picton	0.159
Plattsville	0.119
Point Alexander	0.391
Port Burwell	0.132
Port Colborne	0.298
Port Elgin	0.077
Port Hope	0.181
Port Perry	0.144
Port Stanley	0.123
Prescott	0.350
Princeton	0.129
Raith	0.067
Rayside-Balfour (Chelmsford)	0.104
Red Lake	0.068
Renfrew	0.352
Richmond Hill	0.163
Rockland	0.510
Sarnia	0.085
Sault Ste. Marie	0.062
Schreiber	0.057
Seaforth	0.087
Shelburne	0.104
Simcoe	0.141
Sioux Lookout	0.073
Smiths Falls	0.256
Smithville	0.296
Smooth Rock Falls	0.200
South River	0.164
Southampton	0.077
St. Catharines	0.319
St. Mary's	0.101
St. Thomas	0.117
Stirling	0.149

Location	$S_a(0.2)$ for Seismic Design in Part 9
Stratford	0.103
Strathroy	0.100
Sturgeon Falls	0.183
Sudbury	0.110
Sundridge	0.157
Tavistock	0.108
Temagami	0.239
Thamesford	0.111
Thedford	0.089
Thunder Bay	0.061
Tillsonburg	0.126
Timmins	0.125
Timmins (Porcupine)	0.140
Toronto Metropolitan Region	
Etobicoke	0.193
North York	0.195
Scarborough	0.219
Toronto (City Hall)	0.249
Trenton	0.167
Trout Creek	0.186
Uxbridge	0.139
Vaughan (Woodbridge)	0.167
Vittoria	0.139
Walkerton	0.083
Wallaceburg	0.098
Waterloo	0.118
Watford	0.095
Wawa	0.062
Welland	0.308
West Lorne	0.118
Whitby	0.203
Whitby (Brooklin)	0.176
White River	0.060
Wiarton	0.080
Windsor	0.096
Wingham	0.083
Woodstock	0.118
Wyoming	0.090

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(12) Atkinson, G.M. and Adams, J. Ground motion prediction equations for application to the 2015 Canadian national seismic hazard maps, Can. J. Civ. Eng. 40, 988-998, 2013.

(13) Kolaj, M., Allen, T., Mayfield, R., Adams, J., and Halchuk, S. Ground-Motion Models for the 6th Generation Seismic Hazard Model of Canada. 12th Canadian Conference on Earthquake Engineering, Québec, QC, paper 192-hHtH-159, 2019.

MMAH Supplementary Standard SB-2

Fire Performance Ratings

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-2 comes into force on the 1st day of January 2025.

SB-2 Fire-Performance Ratings

Section 1 General

This Supplementary Standard is based in large measure on Appendix D of the National Building Code of Canada 2020. The content of Appendix D was prepared on the recommendations of the Standing Committee on Fire Performance Ratings, which was established by the Canadian Commission on Building and Fire Codes (CCBFC) for this purpose.

1.1. Introduction

1.1.1. Scope

(1) This fire-performance information is presented in a form closely linked to the performance requirements and the minimum materials specifications of the 2024 Building Code.

(2) The ratings have been assigned only after careful consideration of all available literature on assemblies of common building materials, where they are adequately identified by description. The assigned values based on this information will, in most instances, be conservative when compared to the ratings determined on the basis of actual tests on individual assemblies.

(3) The fire-performance information set out in this Supplementary Standard applies to materials and assemblies of materials which comply in all essential details with the minimum structural design standards described in Part 4 of Division B in the 2024 Building Code. Additional requirements, where appropriate, are described in other Sections of this Supplementary Standard.

(4) Section 2 of this Supplementary Standard assigns fire-resistance ratings for walls, floors, roofs, columns and beams related to CAN/ULC-S101, "Standard Method of Fire Endurance Tests of Building Construction and Materials", and describes methods for determining these ratings.

(5) Section 3 assigns flame-spread ratings and smoke developed classifications for surface materials related to CAN/ULC-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies" and CAN/ULC-S102.2, "Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies".

(6) Section 4 describes noncombustibility in building materials when tested in accordance with CAN/ULC-S114, "Standard Method of Test for Determination of Non-Combustibility in Building Materials".

(7) Section 5 contains requirements for the installation of fire doors and fire dampers in fire-rated stud wall assemblies.

(8) Section 6 contains construction specifications for exterior wall assemblies that are deemed to satisfy the criteria of Clause 3.1.5.5.(1)(b) when tested in accordance with CAN/ULC-S134, “Standard Method of Fire Test of Exterior Wall Assemblies”.

(9) Section 7 contains background information regarding fire test reports, obsolete materials and assemblies, assessment of archaic assemblies and the development of the component additive method.

1.1.2. Referenced Documents

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Table 1.1.2.

Table 1.1.2.
Documents Referenced in SB-2 Fire-Performance Ratings(1)

Issuing Agency	Document Number	Title of Document	Reference
ANSI	A208.1-2009	Particleboard	Table 3.1.1.A.
ASTM	C330 / C330M-17	Standard Specification for Lightweight Aggregates for Structural Concrete	1.4.3.(2)
ASTM	C840-18b	Standard Specification for Application and Finishing of Gypsum Board	2.3.9.(1)
ASTM	C1396 / C1396M-17	Standard Specification for Gypsum Board	1.5.1.(1); 1.5.1.(2) Table 3.1.1.A.
ASTM	D2898-10	Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing	6.1.1.
CCBFC	NRCC 30629	Supplement to the National Building Code of Canada 1990	7.2.; 7.3.
CGSB	4-GP-36M-1978	Carpet Underlay, Fibre Type	Table 3.1.1.B.
CGSB	CAN/CGSB-4.129-97	Carpets for Commercial Use	Table 3.1.1.B.
CGSB	CAN/CGSB-92.2-M90	Trowel or Spray Applied Acoustical Material	2.3.4.(5)
CSA	A23.1:19 / A23.2:19	Concrete materials and methods of concrete construction / Test methods and standard practices for concrete	1.4.3.(1)
CSA	A23.3:19	Design of concrete structures	2.1.5.(2); 2.6.6.(1) Table 2.6.6.B. 2.8.2.(1); Table 2.8.2.
CSA	CAN/CSA-A82:14	Fired masonry brick made from clay or shale	Table 2.6.1.A.
CSA	A82.22-M1977	Gypsum Plasters	Table 3.1.1.A.
CSA	CAN/CSA-A82.27-M91	Gypsum Board	1.5.1.(1); 1.5.1.(2) Table 3.1.1.A.
CSA	A82.30-M1980	Interior Furring, Lathing and Gypsum Plastering	1.7.2.(1); 2.3.9.(1) Table 2.5.1.
CSA	A165.1-14	Concrete block masonry units	Table 2.1.1.
CSA	O86:19	Engineering design in wood	2.11.3.; 2.11.4.
CSA	O112.10-08	Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)	2.3.6.(4)
CSA	O121-17	Douglas fir plywood	Table 3.1.1.A.
CSA	O141:05	Softwood lumber	2.3.6.(2); Table 2.4.1.
CSA	O151:17	Canadian softwood plywood	Table 3.1.1.A.
CSA	O153-13	Poplar plywood	Table 3.1.1.A.
CSA	O325-16	Construction sheathing	Table 3.1.1.A.
CSA	O437.0-93	OSB and Waferboard	Table 3.1.1.A.
CSA	S16:19	Design of steel structures	2.6.6.(1); 2.6.6.(3) Table 2.6.6.B.
Column 1	2	3	4

Table 1.1.2. (Cont'd)
Documents Referenced in SB-2 Fire-Performance Ratings(1)

Issuing Agency	Document Number	Title of Document	Code Reference
NFPA	80-2013	Standard for Fire Doors and Other Opening Protectives	5.2.1.(1); 5.2.1.(2)
ULC	CAN/ULC-S101-14	Standard Method of Fire Endurance Tests of Building Construction and Materials	1.1.1.(4); 1.12.1. 2.3.2.; 2.11.1.
ULC	CAN/ULC-S102-10	Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies	1.1.1.(5); 6.1.1.
ULC	CAN/ULC-S102.2:2018	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies	1.1.1.(5) Table 3.1.1.B.
ULC	CAN/ULC-S112.2-07	Standard Method of Fire Test of Ceiling Firestop Flap Assemblies	2.3.10.; 2.3.11.
ULC	CAN/ULC-S114:2018	Standard Method of Test for Determination of Non-Combustibility in Building Materials	1.1.1.(6) 4.1.1.; 4.2.1.
ULC	CAN/ULC-S134-13	Standard Method of Fire Test of Exterior Wall Assemblies	1.1.1.; 6.1.1.
ULC	CAN/ULC-S702.1-14	Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification	Table 2.3.4.A. Table 2.3.4.G. 2.3.5.(2); 2.3.5.(4) Table 2.6.1.E.; 6.1.1.; 7.4.
ULC	CAN/ULC-S703-09	Standard for Cellulose Fibre Insulation (CFI) for Buildings	2.3.4.(5)
ULC	CAN/ULC-S706.1:2016	Standard for Wood Fibre Insulating Boards for Buildings	Table 3.1.1.A.
Column 1	2	3	4

Notes to Table 1.3.1.2.:
(1) Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.

1.1.3. Applicability of Ratings

(1) The ratings shown in this document apply if more specific test values are not available. The construction of an assembly that is the subject of an individual test report must be followed in all essential details if the fire-resistance rating reported is to be applied for use with the Building Code.

1.1.4. Higher Ratings

(1) The authority having jurisdiction may allow higher fire-resistance ratings than those derived from this Supplementary Standard, where supporting evidence justifies a higher rating. Additional information is provided in summaries of published test information and the reports of fire tests carried out by NRC, which are included in Section 7, Background Information.

1.1.5. Additional Information on Fire Rated Assemblies

(1) Assemblies containing materials for which there is no nationally recognized standard are not included in this Supplementary Standard. Many such assemblies have been rated by Underwriters Laboratories (UL), Underwriters' Laboratories of Canada (ULC) or Intertek Testing Services NA Ltd. (ITS).

1.2. Interpretation of Test Results

1.2.1. Limitations

(1) The fire-performance ratings set out in this Supplementary Standard are based on those that would be obtained from the standard methods of test described in the Building Code. The test methods are essentially a means of comparing the performance of one building component or assembly with another in relation to its performance in fire.

(2) Since it is not practicable to measure the fire resistance of constructions in situ, they must be evaluated under some agreed test conditions. A specified fire-resistance rating is not necessarily the actual time that the assembly would endure in situ in a building fire, but is that which the particular construction must meet under the specified methods of test.

(3) Considerations arising from departures in use from the conditions established in the standard test methods may, in some circumstances, have to be taken into account by the designer and the authority having jurisdiction. Some of these conditions are covered at present by the provisions of the Building Code.

(4) For walls and partitions, the stud spacing previously specified as 16 and 24 inch on centre have been converted to 406 and 610 mm respectively to represent actual stud spacing used in the field to accommodate modular sheathing panel dimensions. These metric dimensions are deemed to comply with test results based on reported stud spacing of 400 mm or 600 mm on centre.

1.3. Concrete

1.3.1. Aggregates in Concrete

(1) Low density aggregate concretes generally exhibit better fire performance than natural stone aggregate concretes. A series of tests on concrete masonry walls, combined with mathematical analysis of the test results, has allowed further distinctions between certain low density aggregates to be made.

1.4. Types of Concrete

1.4.1. Description

(1) For purposes of this Supplementary Standard, concretes are described as Types S, N, L, L_1, L_2, L40S, $L_1$20S or $L_2$20S as described in Sentences (2) to (8).

(2) Type S concrete is the type in which the coarse aggregate is granite, quartzite, siliceous gravel or other dense materials containing at least 30% quartz, chert or flint.

(3) Type N concrete is the type in which the coarse aggregate is cinders, broken brick, blast furnace slag, limestone, calcareous gravel, trap rock, sandstone or similar dense material containing not more than 30% of quartz, chert or flint.

(4) Type L concrete is the type in which all the aggregate is expanded slag, expanded clay, expanded shale or pumice.

(5) Type L_1 concrete is the type in which all the aggregate is expanded shale.

(6) Type L_2 concrete is the type in which all the aggregate is expanded slag, expanded clay or pumice.

(7) Type L40S concrete is the type in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 40% of the total volume of all aggregates in the concrete.

(8) Type $L_1$20S and Type $L_2$20S concretes are the types in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 20% of the total volume of all aggregates in the concrete.

1.4.2. Determination of Ratings

(1) Where concretes are described as being of Type S, N, L, L_1 or L_2, the rating applies to the concrete containing the aggregate in the group that provides the least fire resistance. If the nature of an aggregate cannot be determined accurately enough to place it in one of the groups, the aggregate shall be considered as being in the group that requires a greater thickness of concrete for the required fire resistance.

1.4.3. Description of Aggregates

(1) The descriptions of the aggregates in Type S and Type N concretes apply to the coarse aggregates only. Coarse aggregate for this purpose means that retained on a 5 mm sieve using the method of grading aggregates described in CSA A23.1 / A23.2, "Concrete materials and methods of concrete construction / Test methods and standard practices for concrete".

(2) Increasing the proportion of sand as fine aggregate in low density concretes requires increased thicknesses of material to produce equivalent fire-resistance ratings. Low density aggregates for Type L and Types L-S concretes used in loadbearing components shall conform to ASTM C330 / C330M, "Standard Specification for Lightweight Aggregates for Structural Concrete".

(3) Non-loadbearing low density components of vermiculite and perlite concrete, in the absence of other test evidence, shall be rated on the basis of the values shown for Type L concrete.

1.5. Gypsum Board

1.5.1. Types of Gypsum Board

(1) Where the term “gypsum board” is used in this Supplementary Standard, it is intended to include, in addition to gypsum board, gypsum backing board and gypsum base for veneer plaster as described in
(a) CAN/CSA-A82.27-M, "Gypsum Board", or
(b) ASTM C1396 / C1396M, "Standard Specification for Gypsum Board".

(2) Where the term “Type X gypsum board” is used in this Supplementary Standard, it applies to special fire-resistant gypsum board as described in
(a) CAN/CSA-A82.27-M, "Gypsum Board", or
(b) ASTM C1396 / C1396M, "Standard Specification for Gypsum Board".

1.6. Equivalent Thickness

1.6.1. Method of Calculating

(1) The thickness of solid-unit masonry and concrete described in this Supplementary Standard shall be the thickness of solid material in the unit or component thickness. For units that contain cores or voids, the Tables refer to the equivalent thickness determined in conformance with Sentences (2) to (10).

(2) Where a plaster finish is used, the equivalent thickness of a wall, floor, column or beam protection shall be equal to the sum of the equivalent thicknesses of the concrete or masonry units and the plaster finish measured at the point that will give the least value of equivalent thickness.

(3) Except as provided in Sentence (5), the equivalent thickness of a hollow masonry unit shall be calculated as equal to the actual overall thickness of a unit in millimetres multiplied by a factor equal to the net volume of the unit and divided by its gross volume.

(4) Net volume shall be determined using a volume displacement method that is not influenced by the porous nature of the units.

(5) Gross volume of a masonry unit shall be equal to the actual length of the unit multiplied by the actual height of the unit multiplied by the actual thickness of the unit.

(6) Where all the core spaces in a wall of hollow concrete masonry or hollow-core precast concrete units are filled with grout, mortar, or loose fill materials such as expanded slag, burned clay or shale (rotary kiln process), vermiculite or perlite, the equivalent thickness rating of the wall shall be considered to be the same as that of a wall of solid units, or a solid wall of the same concrete type and the same overall thickness.

(7) The equivalent thickness of hollow-core concrete slabs and panels having a uniform thickness and cores of constant cross section throughout their length shall be obtained by dividing the net cross-sectional area of the slab or panel by its width.

(8) The equivalent thickness of concrete panels with tapered cross sections shall be the cross section determined at a distance of 2 t or 150 mm, whichever is less, from the point of minimum thickness, where t is the minimum thickness.

(9) Except as permitted in Sentence (10), the equivalent thickness of concrete panels with ribbed or undulating surfaces shall be

(a) t_a for s less than or equal to 2 t,

(b) $t + (4\ t/s - 1)(t_a - t)$ for s less than 4 t and greater than 2 t, and

(c) t for s greater than or equal to 4 t

where

t = minimum thickness of panel,

t_a = average thickness of panel (unit cross-sectional area divided by unit width), and

s = centre to centre spacing of ribs or undulations.

(10) Where the total thickness of a panel described in Sentence (9), exceeds 2 t, only that portion of the panel which is less than 2 t from the non-ribbed surface shall be considered for the purpose of the calculations in Sentence (9).

1.7. Contribution of Plaster or Gypsum Board Finish to Fire Resistance of Masonry or Concrete

1.7.1. Determination of Contribution

(1) Except as provided in Sentences (2) to (5), the contribution of a plaster or gypsum board finish to the fire resistance of a masonry or concrete wall, floor or roof assembly shall be determined by multiplying the actual thickness of the finish by the factor shown in Table 1.7.1., depending on the type of masonry or concrete to which it is applied. This corrected thickness shall then be included in the equivalent thickness as described in Subsection 1.6.

(2) Where a plaster or gypsum board finish is applied to a concrete or masonry wall, the calculated fire-resistance rating of the assembly shall not exceed twice the fire-resistance rating provided by the masonry or concrete because structural collapse may occur before the limiting temperature is reached on the surface of the non-fire-exposed side of the assembly.

(3) Where a plaster or gypsum board finish is applied only on the non-fire-exposed side of a hollow clay tile wall, no increase in fire resistance is permitted because structural collapse may occur before the limiting temperature is reached on the surface of the non-fire-exposed side of the assembly.

(4) The contribution to fire resistance of a plaster or gypsum board finish applied to the non-fire-exposed side of a monolithic concrete or unit masonry wall shall be determined in conformance with Sentence (1), but shall not exceed 0.5 times the contribution of the concrete or masonry wall.

(5) When applied to the fire-exposed side, the contribution of a gypsum lath and plaster or gypsum board finish to the fire resistance of masonry or concrete wall, floor or roof assemblies shall be determined from Table 2.3.4.A. to 2.3.4.D.

Table 1.7.1.
Multiplying Factors for Masonry or Concrete Construction

Type of Surface Protection	Type of Masonry or Concrete			
	Solid Clay Brick, Unit Masonry and Monolithic Concrete, Type N or S	Cored Clay Brick, Clay Tile, Monolithic Concrete, Type L40S and Unit Masonry, Type $L_1$20S	Concrete Unit Masonry, Type L_1 or L_2 20S and Monolithic Concrete, Type L	Concrete Unit Masonry, Type L_2
Portland cement-sand plaster or lime sand plaster	1.00	0.75	0.75	0.50
Gypsum-sand plaster, wood fibred gypsum plaster or gypsum board	1.25	1.00	1.00	1.00
Vermiculite or perlite aggregate plaster	1.75	1.50	1.25	1.25
Column 1	2	3	4	5

1.7.2. Plaster

(1) Gypsum plastering shall conform to CSA A82.30-M, "Interior Furring, Lathing and Gypsum Plastering".

(2) Portland cement-sand plaster shall be applied in 2 coats: the first coat containing 1 part Portland cement to 2 parts sand by volume, and the second coat containing 1 part Portland cement to 3 parts sand by volume.

(3) Plaster finish shall be securely bonded to the wall or ceiling.

(4) The thickness of plaster finish applied directly to monolithic concrete without metal lath shall not exceed 10 mm on ceilings and 16 mm on walls.

(5) Where the thickness of plaster finish on masonry or concrete exceeds 38 mm, wire mesh with 1.57 mm diam wire and openings not exceeding 50 mm by 50 mm shall be embedded midway in the plaster.

1.7.3. Attachment of Gypsum Board and Lath

(1) Gypsum board and gypsum lath finishes applied to masonry or concrete walls shall be secured to wood or steel furring members in conformance with Article 2.3.9.

1.7.4. Sample Calculations

(1) The following examples are included as a guide to the method of calculating the fire resistance of concrete or hollow masonry walls with plaster or gypsum board protection:

Example (1)

A 3 h fire-resistance rating is required for a monolithic concrete wall of Type S aggregate with a 20 mm gypsum-sand plaster finish on metal lath on each face.

(a) The minimum equivalent thickness of Type S monolithic concrete needed to give a 3 h fire-resistance rating = 158 mm (Table 2.1.1.).
(b) Since the gypsum-sand plaster finish is applied on metal lath, Sentence 1.7.1.(5) does not apply. Therefore, the contribution to the equivalent thickness of the wall of 20 mm gypsum-sand plaster on each face of the concrete is 20 × 1.25 = 25 mm (see Sentences 1.7.1.(1) to (4)).
(c) The total contribution of the plaster finishes is 2 × 25 = 50 mm.
(d) The minimum equivalent thickness of concrete required is 158 mm - 50 mm = 108 mm.
(e) From Table 2.1.1., the 108 mm equivalent thickness of monolithic concrete gives a contribution of less than 1.5 h. This is less than half the rating of the assembly so that the conditions in Sentence 1.7.1.(2) are not met. Thus the equivalent thickness of monolithic concrete must be increased to 112 mm to give 1.5 h contribution.
(f) The total equivalent thickness of the plaster finishes can then be reduced to 158 mm − 112 mm = 46 mm.
(g) The total actual thickness of the plaster finishes required is therefore 46 mm ÷ 1.25 = 37 mm (Sentences 1.7.1.(1) to (4)) or 18.5 mm on each face.
(h) Since the thickness of the plaster finish on each face exceeds 16 mm, metal lath is still required (Sentence 1.7.2.(4)).
(i) Since this wall is symmetrical with plaster on both faces, the contribution to fire resistance of the plaster finish on either face is limited to one-quarter of the wall rating by virtue of Sentence 1.7.1.(2). Under these circumstances, the conditions in Sentence 1.7.1.(4) are automatically met.

Example (2)

A 2 h fire-resistance rating is required for a hollow masonry wall of Type N concrete with a 12.7 mm Type X gypsum board finish on each face.

(a) Since gypsum board is used, Sentence 1.7.1.(5) applies. The 12.7 mm gypsum board finish on the fire-exposed side is, therefore, assigned 25 min by using Table 2.3.4.A.
(b) The fire resistance required of the balance of the assembly is 120 min − 25 min = 95 min.
(c) Interpolating between 1.5 h and 2 h in Table 2.1.1. for 95 min fire resistance, the equivalent thickness for hollow masonry units required is 95 mm + (18 mm × 5/30) = 95 mm + 3 mm = 98 mm.
(d) The contribution to the equivalent thickness of the wall of the 12.7 mm gypsum board finish on the non-fire-exposed side using Table 1.7.1. = 12.7 × 1.25 = 16 mm.
(e) Equivalent thickness required of concrete masonry unit = 98 − 16 = 82 mm.
(f) The fire-resistance rating of a concrete masonry wall having an equivalent thickness of 82 mm = 1 h for 73 mm + (9 mm × 30/22) = 1 h 12 min. As this is more than 1 h, the conditions of Sentence 1.7.1.(2) are met and the rating of 2 h is justified.

Example (3)

A 2 h fire-resistance rating is required for a hollow masonry exterior wall of Type $L_2$20S concrete with a 15.9 mm Type X gypsum board finish on the non-fire-exposed side only.

(a) According to Table 2.1.1., the minimum equivalent thickness for Type $L_2$20S concrete masonry units needed to achieve a 2 h rating is 94 mm.
(b) Since gypsum board is not used on the fire-exposed side, Sentence 1.7.1.(5) does not apply. The contribution to the equivalent thickness of the wall by the 15.9 mm Type X gypsum board finish applied on the non-fire-exposed side is 15.9 × 1 ≈ 16 mm (see Sentence 1.7.1.(1) and Table 1.7.1.).
(c) Therefore, the equivalent thickness required of the concrete masonry unit is 94 − 16 = 78 mm.
(d) The contribution to fire resistance of a 78 mm $L_2$20S concrete hollow masonry unit is 85 min. The contribution of the Type X gypsum board finish is 120 − 85 = 35 min, which does not exceed half the 85 min contribution of the masonry unit or 42.5 min, so that the conditions in Sentence 1.7.1.(4) are met.
(e) The rating of the wall (120 min) is less than twice the contribution of the masonry unit (170 min) so that the conditions in Sentence 1.7.1.(2) are also met.

1.8. Tests on Floors and Roofs

1.8.1. Exposure to Fire

(1) All tests relate to the performance of a floor assembly or floor-ceiling or roof-ceiling assembly above a fire. It has been assumed on the basis of experience that fire on top will take a longer time to penetrate the floor than one below, and that the fire resistance in such a situation will be at least equal to that obtained from below in the standard test.

1.9. Moisture Content

1.9.1. Effect of Moisture

(1) The moisture content of building materials at the time of fire test may have a significant influence on the measured fire resistance. In general, an increase in the moisture content should result in an increase in the fire resistance, though in some materials the presence of moisture may produce disruptive effects and early collapse of the assembly.

(2) Moisture content is now controlled in standard fire test methods and is generally recorded in the test reports. In earlier tests, moisture content was not always properly determined.

1.10. Permanence and Durability

1.10.1. Test Conditions

(1) The ratings in this Supplementary Standard relate to tested assemblies and do not take into account possible changes or deterioration in use of the materials. The standard fire test measures the fire resistance of a sample building assembly erected for the test. No judgment as to the permanence or durability of the assembly is made in the test.

1.11. Steel Structural Members

1.11.1. Thermal Protection

(1) Since the ability of a steel structural member to sustain the loading for which it was designed may be impaired because of elevated temperatures, measures shall be taken to provide thermal protection. The fire-resistance ratings, as established by the provisions of this Supplementary Standard, indicate the time periods during which the effects of heat on protected steel structural members are considered to be within acceptable limits.

1.12. Restraint Effects

1.12.1. Effect on Fire-Resistance Ratings

(1) In fire tests of floors, roofs and beams, it is necessary to state whether the rating applies to a thermally restrained or thermally unrestrained assembly. Edge restraint of a floor or roof, structural continuity, or end restraint of a beam can significantly extend the time before collapse in a standard test. A restrained condition is one in which expansion or rotation at the supports of a load-carrying element resulting from the effects of fire is resisted by forces or moments external to the element. An unrestrained condition is one in which the load-carrying element is free to thermally expand and rotate at its supports.

Whether an assembly or structural member can be considered thermally restrained or thermally unrestrained depends on the type of construction and location in a building. Guidance on this subject can be found in Appendix A of CAN/ULC-S101, "Standard Method of Fire Endurance Tests of Building Construction and Materials". Different acceptance criteria also apply to thermally unrestrained and thermally restrained assemblies. These are described in CAN/ULC-S101.

The ratings for floors, roofs, and beams in this Supplementary Standard meet the conditions of CAN/ULC-S101, "Standard Method of Fire Endurance Tests of Building Construction and Materials" for thermally unrestrained specimens. In a thermally restrained condition, the structural element or assembly would probably have greater fire resistance, but the extent of this increase can be determined only by reference to behavior in a standard test.

Section 2 Fire-Resistance Ratings

2.1. Masonry and Concrete Walls

2.1.1. Minimum Equivalent Thickness for Fire-Resistance Rating

(1) The minimum thicknesses of unit masonry and monolithic concrete walls are shown in Table 2.1.1. Hollow masonry units and hollow-core concrete panels shall be rated on the basis of equivalent thickness as described in Subsection 1.6.

Table 2.1.1.
Minimum Equivalent Thicknesses(1) of Unit Masonry and Monolithic Concrete Walls Loadbearing and Non-Loadbearing, mm

Type of Wall	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Solid brick units (80% solid and over), actual overall thickness	63	76	90	108	128	152	178
Cored brick units and hollow tile units (less than 80% solid), equivalent thickness	50	60	72	86	102	122	142
Solid and hollow concrete masonry units, equivalent thickness							
Type S or N concrete(2)	44	59	73	95	113	142	167
Type $L_1$20S concrete	42	54	66	87	102	129	152
Type L_1 concrete	42	54	64	82	97	122	143
Type $L_2$20S concrete	42	54	64	81	94	116	134
Type L_2 concrete	42	54	63	79	91	111	127
Monolithic concrete and concrete panels, equivalent thickness							
Type S concrete	60	77	90	112	130	158	180
Type N concrete	59	74	87	108	124	150	171
Type L40S or Type L concrete	49	62	72	89	103	124	140
Column 1	2	3	4	5	6	7	8

Notes to Table 2.1.1.:

(1) See definition of equivalent thickness in Subsection 1.6.

(2) Hollow concrete masonry units made with Type S or N concrete shall have a minimum compressive strength of 15 MPa based on net area, as defined in CSA A165.1, "Concrete block masonry units".

2.1.2. Applicability of Ratings

(1) Ratings obtained as described in Article 2.1.1. apply to either loadbearing or non-loadbearing walls, except for walls described in Sentences (2) to (6).

(2) Ratings for walls with a thickness less than the minimum thickness prescribed for loadbearing walls in this Supplementary Standard apply to non-loadbearing walls only.

(3) Masonry cavity walls (consisting of 2 wythes of masonry with an air space between) that are loaded to a maximum allowable compressive stress of 380 kPa have a fire resistance at least as great as that of a solid wall of a thickness equal to the sum of the equivalent thicknesses of the 2 wythes.

(4) Masonry cavity walls that are loaded to a compressive stress exceeding 380 kPa are not considered to be within the scope of this Supplementary Standard.

(5) A masonry wall consisting of 2 types of masonry units, either bonded together or in the form of a cavity wall, shall be considered to have a fire-resistance rating equal to that which would apply if the whole of the wall were of the material that gives the lesser rating.

(6) A non-loadbearing cavity wall made up of 2 precast concrete panels with an air space or insulation in the cavity between them shall be considered to have a fire-resistance rating as great as that of a solid wall of a thickness equal to the sum of the thicknesses of the 2 panels.

2.1.3. Framed Beams and Joists

(1) Beams and joists that are framed into a masonry or concrete fire separation shall not reduce the thickness of the fire separation to less than the equivalent thickness required for the fire separation.

2.1.4. Credit for Plaster Thickness

(1) On monolithic walls and walls of unit masonry, the full plaster finish on one or both faces multiplied by the factor shown in Table 1.7.1. shall be included in the wall thickness shown in Table 2.1.1., under the conditions and using the methods described in Subsection 1.7.

2.1.5. Walls Exposed to Fire on Both Sides

(1) Except as permitted in Sentence (2), portions of loadbearing reinforced concrete walls, which do not form a complete fire separation and thus may be exposed to fire on both sides simultaneously, shall have minimum dimensions and minimum cover to steel reinforcement in conformance with Articles 2.8.2. to 2.8.5.

(2) A concrete wall exposed to fire from both sides as described in Sentence (1) has a fire-resistance rating of 2 h if the following conditions are met:

(a) its equivalent thickness is not less than 200 mm,
(b) its aspect ratio (width/thickness) is not less than 4.0,
(c) the minimum thickness of concrete cover over the steel reinforcement specified in Clause (d) is not less than 50 mm,
(d) each face of the wall is reinforced with both vertical and horizontal steel reinforcement in conformance with either Clause 10 or Clause 14 of CSA A23.3, "Design of concrete structures",
(e) the structural design of the wall is governed by the minimum eccentricity (15 + 0.03h) specified in Clause 10.15.3.1. of CSA A23.3, "Design of concrete structures", and
(f) the effective length of the wall, kl_u, is not more than 3.7 m

where

k = effective length factor obtained from CSA A23.3, "Design of concrete structures",

l_u = unsupported length of the wall in metres.

2.2. Reinforced and Prestressed Concrete Floor and Roof Slabs

2.2.1. Assignment of Rating

(1) Floors and roofs in a fire test are assigned a fire-resistance rating which relates to the time that an average temperature rise of 140°C or a maximum temperature rise of 180°C at any location is recorded on the unexposed side, or the time required for collapse to occur, whichever is the lesser. The thickness of concrete shown in Table 2.2.1.A. shall be required to resist the transfer of heat during the fire resistance period shown.

(2) The concrete cover over the reinforcement and steel tendons shown in Table 2.2.1.B. shall be required to maintain the integrity of the structure and prevent collapse during the same period.

Table 2.2.1.A.
Minimum Thickness of Reinforced and Prestressed Concrete Floor or Roof Slabs, mm

Type of Concrete	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S concrete	60	77	90	112	130	158	180
Type N concrete	59	74	87	108	124	150	171
Type L40S or Type L concrete	49	62	72	89	103	124	140
Column 1	2	3	4	5	6	7	8

Table 2.2.1.B.
Minimum Concrete Cover Over Reinforcement in Concrete Slabs, mm

Type of Concrete	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S, N, L40S or L concrete	20	20	20	20	25	32	39
Prestressed concrete slabs Type S, N, L40S or L Concrete	20	25	25	32	39	50	64
Column 1	2	3	4	5	6	7	8

2.2.2. Floors With Hollow Units

(1) The fire resistance of floors containing hollow units may be determined on the basis of equivalent thickness as described in Subsection 1.6.

2.2.3. Composite Slabs

(1) For composite concrete floor and roof slabs consisting of one layer of Type S or N concrete and another layer of Type L40S or L concrete in which the minimum thickness of both the top and bottom layers is not less than 25 mm, the combined fire-resistance rating may be determined using the following expressions:

(a) when the base layer consists of Type S or N concrete,

$$R = 0.00018t^2 - 0.00009dt + \frac{8.7}{t}$$

(b) when the base layer consists of Type L40S or L concrete,

$$R = 0.0001t^2 + 0.0002dt - 0.0001d^2 + \frac{6.4}{t}$$

where

R = fire resistance of slab, h,

t = total thickness of slab, mm, and

d = thickness of base layer, mm.

(2) If the base course described in Sentence (1) is covered by a top layer of material other than Type S, N, L40S or L concrete, the top course thickness may be converted to an equivalent concrete thickness by multiplying the actual thickness by the appropriate factor listed in Table 2.2.3.A. This equivalent concrete thickness may be added to the thickness of the base course and the fire-resistance rating calculated using Table 2.2.1.A.

(3) The minimum concrete cover under the main reinforcement for composite concrete floor and roof slabs with base slabs less than 100 mm thick shall conform to Table 2.2.3.B. For base slabs 100 mm or more thick, the minimum cover thickness requirements of Table 2.2.1.B. shall apply.

(4) Where the top layer of a 2-layer slab is less than 25 mm thick, the fire-resistance rating for the slab shall be calculated as though the entire slab were made up of the type of concrete with the lesser fire resistance.

Table 2.2.3.A.
Multiplying Factors for Equivalent Thickness

Top Course Material	Base Slab Normal Density Concrete (Type S or N)	Base Slab Low Density Concrete (Type L40S or L)
Gypsum board	3.00	2.25
Cellular concrete (mass density 400 - 560 kg/m^3)	2.00	1.50
Vermiculite and perlite concrete (mass density 560 kg/m^3 or less)	1.75	1.50
Portland cement with sand aggregate	1.00	0.75
Terrazzo	1.00	0.75
Column 1	2	3

Table 2.2.3.B.
Minimum Concrete Cover Under Bottom Reinforcement in Composite Concrete Slabs, mm

Base Slab Concrete Type	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Reinforced concrete							
Type S, N, L40S or L	15	15	20	25	30	40	55
Prestressed concrete							
Type S	20	25	30	40	50	65	75
Type N	20	20	25	35	45	60	70
Type L40S or L	20	20	25	30	40	50	60
Column 1	2	3	4	5	6	7	8

2.2.4. Contribution of Plaster Finish

(1) The contribution of plaster finish securely fastened to the underside of concrete may be taken into account in floor or roof slabs under the conditions and using the methods described in Subsection 1.7.

(2) Plaster finish on the underside of concrete floors or roofs may be used in lieu of concrete cover referred to in Sentence 2.2.1.(2) under the conditions and using the methods described in Subsection 1.7.

2.2.5. Concrete Cover

(1) In prestressed concrete slab construction, the concrete cover over an individual tendon shall be the minimum thickness of concrete between the surface of the tendon and the fire-exposed surface of the slab, except that for ungrouted ducts the assumed cover thickness shall be the minimum thickness of concrete between the surface of the duct and the bottom of the slab. For slabs in which several tendons are used, the cover is assumed to be the average of those of individual tendons, except that the cover for any individual tendon shall be not less than half of the value given in Table 2.2.1.B. nor less than 20 mm.

(2) Except as provided in Sentence (3), in post-tensioned prestressed concrete slabs, the concrete cover to the tendon at the anchor shall be not less than 15 mm greater than the minimum cover required by Sentence (1). The minimum concrete cover to the anchorage bearing plate and to the end of the tendon, if it projects beyond the bearing plate, shall be 20 mm.

(3) The requirements of Sentence (2) do not apply to those portions of slabs not likely to be exposed to fire, such as the ends and tops.

2.2.6. Minimum Dimensions for Cover

(1) Minimum dimensions and cover to steel tendons of prestressed concrete beams shall conform to Subsection 2.10.

2.3. Wood and Steel Framed Walls, Floors and Roofs

2.3.1. Maximum Fire-Resistance Rating

(1) The fire-resistance rating of walls constructed of wood studs or cold-formed-steel studs, of floors constructed of wood joists, wood I-joists, pre-manufactured wood trusses, cold-formed-steel joists or open web steel joists, and of roofs constructed of wood joists, pre-manufactured metal-plate-connected wood trusses or open web steel joists, can be determined for ratings of not more than 90 min from the information in this Subsection.

2.3.2. Loadbearing Conditions

(1) The fire-resistance ratings derived from the information in this Subsection apply to loadbearing and non-loadbearing wood-framed and cold-formed-steel-framed walls, and to loadbearing floors and roofs, as specifically described in this Subsection.

(2) Loadbearing conditions shall be as defined in CAN/ULC-S101, "Standard Method of Fire Endurance Tests of Building Construction and Materials".

2.3.3. Limitations of Component Additive Method

(See Section 7 Background Information.)

(1) The fire-resistance rating of a framed assembly depends primarily on the time during which the membrane on the fire-exposed side remains in place.

(2) The assigned times in Sentences 2.3.4.(2) to (4) are not intended to be construed as the fire-resistance ratings of the individual components of an assembly, nor are they intended to be construed as times that are applicable or acceptable for use beyond the method and systems described in this Subsection. These assigned times are the individual contributions of each component to the overall fire-resistance rating of an assembly, which are permitted to be derived using the component additive method described in this Subsection..

(3) The fire-resistance rating calculated by the component additive method cannot be increased by installing membranes in multiple layers, other than as specified in Tables 2.3.4.A., 2.3.4.B. and 2.3.4.C.

2.3.4. Method of Calculation

(1) In the component additive method, the fire-resistance rating of a framed assembly is calculated by adding the time assigned in Sentence (2) for the membrane on the fire-exposed side to the time assigned in Sentence (3) for the framing members and then adding any time assigned in Sentence (4) for additional protective measures, such as the inclusion of insulation or of reinforcement of a membrane. For loadbearing walls where resilient metal channels are installed with a single layer of gypsum board membrane in accordance with Table 2.3.4.A, the fire-resistance rating determined using this method of calculation must be reduced by 10 min.

(2) The times to be used in the component additive method that have been assigned to membranes on the fire-exposed side of the assembly, which are partly based on their ability to remain in place during fire tests, are listed in Tables 2.3.4.A., 2.3.4.B., 2.3.4.C. and 2.3.4.D. (This is not to be confused with the fire-resistance rating of the membrane, which also takes into account the rise in temperature on the unexposed side of the membrane. [See Sentence 2.3.3.(2).])

(3) The times to be used in the component additive method that have been assigned to wall framing members and to floor and roof framing members are listed in Tables 2.3.4.E. and 2.3.4.F. respectively.

(4) Preformed insulation of glass, rock or slag fibre and cellulose fibre insulation provide additional protection to wood studs by shielding the studs from exposure to the fire and thus delaying the time of collapse. The use of preformed glass fibre, preformed rock or slag fibre and dry-blown cellulose insulation material does not decrease the rating of wall assemblies with the membranes identified in Table 2.3.4.A. Similarly, the use of preformed glass fibre, preformed rock or slag fibre and cellulose insulation material does not decrease the rating of floors joists constructed with wood joists, wood trusses, wood I-joists and cold-formed-steel floor joists (C-shaped joists), provided the insulation is not in direct contact with the members identified in Table 2.3.4.B. The use of reinforcement in the membrane exposed to fire also adds to the fire resistance by extending the time to failure. Table 2.3.4.G. shows the time increments that may be added to the fire resistance if these features are incorporated in the assembly.

(5) Cellulose fibre insulation conforming to CAN/ULC-S703, "Standard for Cellulose Fibre Insulation for Buildings", applied in conformance with CAN/CGSB-92.2-M, "Trowel or Spray Applied Acoustical Material", does not affect the fire-resistance rating of a non-loadbearing cold-formed-steel stud wall assembly, provided that it is sprayed to either face of the wall cavity.

Table 2.3.4.A.
Time Assigned to Protective Membranes on Fire-Exposed Side of Wood-Framed and Cold-Formed-Steel-Framed Walls

Description of Finish	Time, min	
	Loadbearing Walls	Non-Loadbearing Walls
11.0 mm Douglas Fir plywood phenolic bonded	—	10(1)
14.0 mm Douglas Fir plywood phenolic bonded	—	15(1)
12.7 mm Type X gypsum board	25(2)	25
15.9 mm Type X gypsum board	40(2)	40(3)
Double 12.7 mm Type X gypsum board(4)	50	80
Column 1	2	3

Notes to Table 2.3.4.A.:

(1) Applies to stud cavities filled with mineral wool conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and having a mass per unit area of not less than 2 kg/m^2, with no additional credit for insulation according to Table 2.3.4.G.

(2) Applies only to wood-framed walls.

(3) Applies only to steel-framed walls.

(4) Resilient metal channels are permitted to be installed at a spacing of 406 mm o.c. with no effect on the rating of the wall assembly.

Table 2.3.4.B.
Time Assigned to Gypsum Board Membranes on Fire-Exposed Side of Floors

Description of Finish	Resilient Metal Channels(1)	Time, min	
		Floors with Wood or Steel Joists	Floors with Open-Web Steel Joists
12.7 mm Type X gypsum board	Spaced ≤ 406 mm o.c.(2)	25(3)	–
15.9 mm Type X gypsum board		40	–
12.7 mm Type X gypsum board	—	25(4)	25
15.9 mm Type X gypsum board		40(4)	40
Double 12.7 mm Type X gypsum board	Spaced ≤ 406 mm o.c.(5)	50(3)	—
Double 12.7 mm Type X gypsum board	Spaced at 610 mm o.c.(6)	45(3)	—
Double 15.9 mm Type X gypsum board	Spaced ≤ 610 mm o.c.(6)	60(3)	—
Column 1	2	3	4

Notes to Table 2.3.4.B.:

(1) See Figures 1, 2 and 4 in MMAH Supplementary Standard SB-3, “Fire and Sound Resistance Tables” for the attachment of single and double layers of gypsum board to resilient metal channels.

(2) Resilient metal channels must be installed to achieve the stated rating.

(3) Applies to wood joists, wood trusses, wood I-joists and cold-formed steel joists (C-shaped joists).

(4) Applies to wood joists and pre-fabricated metal-plate-connected wood trusses.

(5) Resilient metal channels must be installed or gypsum board must be applied directly to the structural members, which must be spaced not more than 406 mm o.c.

(6) Resilient metal channels are permitted to be installed with no effect on the rating of the floor assembly. Gypsum board is also permitted to be applied directly to the structural members.

Table 2.3.4.C.
Time Assigned to Gypsum Board Membranes on Fire-Exposed Side of Roofs

Description of Finish	Time, min[1]
12.7 mm Type X gypsum board	25
15.9 mm Type X gypsum board	40
Column 1	2

Notes to Table 2.3.4.C.:

(1) Applies to wood joists, pre-fabricated metal-plate-connected wood trusses and open-web steel joists with ceiling supports spaced not more than 406 mm o.c.

Table 2.3.4.D.
Time Assigned for Contribution of Lath and Plaster Protection on Fire-Exposed Side

Type of Lath	Plaster Thickness, mm	Type of Plaster Finish		
		Portland Cement and Sand[1] or Lime and Sand	Gypsum and Sand or Gypsum Wood Fibre	Gypsum and Perlite or Gypsum and Vermiculite
		Time, min[2]		
9.5 mm gypsum	13	—	35	55
	16	—	40	65
	19	—	50	80[3]
Metal	19	20	50	80[3]
	23	25	65	80[3]
	26	30	80	80[3]
Column 1	2	3	4	5

Notes to Table 2.3.4.D.:

(1) For mixture of Portland cement-sand plaster, see Sentence 1.7.2.(2).

(2) Applies to loadbearing and non-loadbearing wood studs or non-loadbearing cold-formed-steel studs, to floors constructed of wood joists or open-web steel joists, and to roofs constructed of wood joists, pre-manufactured metal-plate-connected wood trusses or open-web steel joists.

(3) Values shown for these membranes have been limited to 80 min because the fire-resistance ratings of framed assemblies derived from these Tables must not exceed 1.5 h.

Table 2.3.4.E.
Time Assigned for Contribution of Wood-Framed or Cold-Formed-Steel-Framed Walls

Description of Frame	Time, min	
	Loadbearing Walls	Non-Loadbearing Walls
Wood studs spaced ≤ 406 mm o.c.	20	20
Wood studs spaced ≤ 610 mm o.c.	15	15
Cold-formed-steel studs spaced ≤ 406 mm o.c.	10	10
Cold-formed-steel studs spaced ≤ 610 mm o.c.	10	—
Column 1	2	3

Table 2.3.4.F.
Time Assigned for Contribution of Wood or Steel Frame of Floors and Roofs

Description of Frame		Time, min
Type of Assembly	Structural Members	
Floor[1]	Wood joists, wood I-joists, wood trusses and cold-formed-steel joists spaced ≤ 610 mm o.c.	10[2]
	Open-web steel joists with ceiling supports spaced ≤ 406 mm o.c.	
Roof	Wood joists spaced ≤ 406 mm o.c.	10
	Open-web steel joists with ceiling supports spaced ≤ 406 mm o.c.	10
	Wood truss assemblies (metal-plate-connected) spaced ≤ 610 mm o.c.	5
Column 1	2	3

Notes to Table 2.3.4.F.:

(1) Resilient metal channels are permitted to be installed with no effect on the rating of the floor assembly.
(2) Applies only to floor structural members that are protected by a membrane.

Table 2.3.4.G.
Time Assigned for Additional Protection

Description of Additional Protection	Time, min
Add to the fire-resistance rating of wood stud walls, sheathed with gypsum board or lath and plaster, if the spaces between the studs are filled with preformed insulation of rock or slag fibres conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and with a mass per unit area of not less than 1.22 kg/m^2 of wall surface	15[1]
Add to the fire-resistance rating of non-loadbearing wood stud walls, sheathed with gypsum board or lath and plaster, if the spaces between the studs are filled with preformed insulation of glass fibres conforming to CAN/ULC- S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and having a mass per unit area of not less than 0.6 kg/m^2 of wall surface	5[2]
Add to the fire-resistance rating of loadbearing wood stud walls, sheathed with gypsum board if the spaces between the studs are filled with of cellulose fibres conforming to CAN/ULC-S703, "Standard for Cellulose Fibre Insulation for Buildings", and having a density of not less than 50 kg/m^3	10
Add to the fire-resistance rating of plaster on gypsum lath ceilings if 0.76 mm diam wire mesh with 25 mm by 25 mm openings or 1.57 mm diam diagonal wire reinforcing at 250 mm o.c. is placed between lath and plaster	30
Add to the fire-resistance rating of plaster on gypsum lath ceilings if 76 mm wide metal lath strips are placed over joints between lath and plaster	10
Add to the fire-resistance rating of plaster on 9.5 mm thick gypsum lath ceilings (Table 2.3.4.D.) if supports for lath are 305 mm o.c.	10
Add to the fire-resistance rating of floor assemblies if the spaces between the structural member are filled with preformed insulation of rock or slag fibres conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and having a mass per unit area of not less than 1.22 kg/m^2 of floor surface	5[2]
Add to the fire-resistance rating of floor assemblies if the spaces between the structural members studs are filled with wet-blown cellulose fibres conforming to CAN/ULC-S703, "Standard for Cellulose Fibre Insulation for Buildings", and having a density of not less than 50 kg/m^3	5[2][3]
Add to the fire-resistance rating of floor assemblies where the floor topping on the unexposed side of the floor assemblies consists of concrete not less than 38 mm thick	5[2]
Column 1	2

Notes to Table 2.3.4.G.:

(1) Applies to wood-framed walls only.

(2) Applies to wood joists, wood trusses, wood I-joists and cold-formed-steel joists (C-shaped joists).

(3) Applies to cellulose fibre:

(i) for wood joists, wood I-joist and wood trusses − that is sprayed-applied with a minimum density of 50 kg/m^3, a minimum depth of 90 mm on the underside of the subfloor, and of 90 mm on the sides of the structural members.

(ii) for cold-formed-steel joists – that is spray-applied with a minimum density of 50 kg/m^3 and a minimum thickness of 90 mm on the underside of the subfloor, of 90 mm on the sides of the structural members, and of 13 mm on the underside of the bottom flange other than at resilient metal channel locations.

2.3.5. Considerations for Various Types of Assemblies

(1) Interior vertical fire separations are to be rated for exposure to fire on each side (See Sentence 3.1.3.7.(2) of Division B of the 2024 Building Code). The method described in this Subsection applies when a membrane is provided on both sides of the assembly. However, in the calculation of the fire-resistance rating of such an assembly using this method, no additional contribution to fire-resistance is to be assigned for a membrane on the non-fire-exposed side, since its contribution is already accounted for in the values assigned to the other components of the assembly.

(2) Exterior wall assemblies required to have a fire-resistance rating are required to be rated for exposure to fire from the interior side only (See Sentence 3.1.3.7.(3) of Division B of the 2024 Building Code). When deriving a fire-resistance rating for such wall assemblies using the method described in this Subsection, only wood studs with a single layer of gypsum board or non-loadbearing cold-formed-steel studs conforming to Table 2.3.4.E. may be used. Such walls must have a membrane on the exterior side of the stud consisting of plywood, oriented strandboard or gypsum sheathing and exterior cladding. Additional materials are also permitted between the required sheathing and cladding. The spaces between the studs are to be filled with insulation conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and having a mass per unit area of not less than 1.22 kg/m^2 of wall surface. However, in the calculation of the fire-resistance rating of such an assembly, no additional contribution to fire resistance is to be assigned for a membrane on the non-fire-exposed side, since its contribution is already accounted for in the values assigned to the other components of the assembly.

(3) In the case of a floor or roof assembly, the Building Code only requires testing for fire exposure from below. Floors or roofs must have an upper flooring or roofing membrane in accordance with Table 2.3.5.

(4) Insulation used in the cavities of a wood joist or metal-plate-connected wood truss floor assembly with a single layer of gypsum board will not reduce the assigned fire-resistance rating of the assembly provided:

(a) the insulation is preformed of rock, slag or glass fibre conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", and having a mass per unit area of not more than 1.1 kg/m^2 and is installed adjacent to the bottom edge of the framing member, directly above steel furring channels,

(b) the gypsum board ceiling membrane is attached to

(i) wood trusses in conformance with Sentence 2.3.9.(2) by way of steel furring channels spaced not more than 406 mm o.c., and the channels are secured to each bottom truss member with a double strand of 1.2 mm galvanized steel wire, or

(ii) wood joists by way of resilient metal or steel furring channels spaced not more than 406 mm o.c. in conformance with Sentences 2.3.9.(2) and (3), and

(c) a steel furring channel is installed midway between each furring channel mentioned in Clause (b) to provide additional support for the insulation.

(5) Except as required in Sentence 2.3.5.(4), resilient metal or steel furring channels may be used to attach a gypsum board ceiling membrane to a floor assembly using wood joists, metal-plate-connected wood trusses and open-web steel joists, or to a roof assembly. The channels must be made of galvanized steel not less than 0.5 mm thick spaced not more than 610 mm o.c. perpendicular to the framing membranes, with an overlap of not less than 100 mm at splices and a minimum end clearance between the channels and walls of 15 mm.

Table 2.3.5.
Flooring of Roofing Membranes

Type of Assembly	Structural Members	Subfloor or Roof Deck	Finish Flooring or Roofing
Floor	Wood or open-web steel joists(1) and metal-plate-connected wood trusses(1)	12.5 mm plywood or 15.5 mm oriented strandboard or 17 mm T & G softwood, or 14 mm phenolic-bonded Douglas Fir plywood (no finished flooring required)	Hardwood or softwood flooring on building paper Resilient flooring, parquet floor, felted synthetic fibre floor coverings, carpeting, or ceramic tile on 8 mm thick panel-type underlay Ceramic tile on 30 mm mortar bed
	Open-web steel joists(1)	50 mm reinforced concrete or 50 mm concrete on metal lath or formed steel sheet, or 40 mm reinforced gypsum-fibre concrete on 12.7 mm gypsum board	Finish flooring
	Wood joists, wood I-joists, wood trusses and cold-formed-steel joists	Minimum 15.5 mm T&G plywood or Minimum 15.5 mm oriented strandboard	No requirement
Roof	Wood or open-web steel joists(1) and wood trusses(1)	12.5 mm plywood or 15.5 mm oriented strandboard or 17 mm T & G softwood, or 14 mm phenolic-bonded Douglas Fir plywood (no finished flooring required)	Finish roofing material with or without insulation
	Open-web steel joists(1)	50 mm reinforced concrete or 50 mm concrete on metal lath or formed steel sheet or 40 mm reinforced gypsum-fibre concrete on 12.7 mm gypsum board	Finish roofing material with or without insulation
Column 1	2	3	4

Notes to Table 2.3.5.:
(1) Applies to single layer of gypsum board membrane, and lath and plaster.

2.3.6. Framing Members

(1) The values shown in Tables 2.3.4.A., 2.3.4.B., 2.3.4.D. and 2.3.12. apply to membranes supported on framing members installed in their conventional orientation and spaced in conformance with Tables 2.3.4.E. and 2.3.4.F.

(2) Wood studs and wood roof framing members are to be not less than 38 mm by 89 mm. Wood floor joists are to be not less than 38 mm by 184 mm, except where they are used in an assembly from Table 2.3.4.D. or from Table 2.3.5. that uses a single layer of gypsum board as the lower (ceiling) membrane, in which case, wood floor joists are to be not less than 38 mm by 89 mm.

(3) Wood roof trusses are to consist of wood chord and web framing members not less than 38 mm by 89 mm and metal connector plates fabricated from galvanized steel not less than 1 mm in nominal thickness with projecting teeth not less than 8 mm long.

(4) Wood floor trusses are to consist of:

(a) metal-plate-connected wood trusses that are not less than 305 mm deep with wood chord and web framing members not less than 38 mm by 64 mm and metal connector plates fabricated from galvanized steel not less than 1 mm in nominal thickness with projecting teeth not less than 8 mm long,

(b) metal-web wood trusses that are not less than 286 mm deep with wood chords not less than 38 mm by 64 mm and V-shaped webs made from galvanized steel not less than 1 mm in nominal thickness with plate areas having projecting teeth not less than 8 mm long, or.

(c) fingerjoined wood trusses that are not less than 330 mm deep with fingerjoined connections, chord members not less than 38 mm by 64 mm, and web members not less than 38 mm by 38 mm glued together with a R-14 phenol-resorcinol resin conforming to CSA O112.10, "Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)".

(5) Wood I-joists are to be not less than 241 mm deep with flanges that are not less than 38 mm by 38 mm and an oriented strandboard or plywood web that is not less than 9.5 mm thick.

(6) The dimensions for dressed lumber given in CSA O141, "Softwood lumber", are to be used for wood studs, joists, I-joists and trusses.

(7) Cold-formed-steel studs for non-loadbearing walls are to consist of galvanized steel that is not less than 0.5 mm thick and not less than 63 mm wide, and have a flange width that is not less than 31 mm wide.

(8) Cold-formed-steel studs in non-loadbearing wall assemblies are to be installed with not less than a 12 mm clearance between the top of the stud and the top of the runner to allow for expansion in the event of a fire. Where the studs are required to be attached for alignment purposes during erection, they must be attached to the bottom runners only.

(9) Cold-formed-steel studs for loadbearing walls are to consist of galvanized steel that is not less than 0.912 mm thick but not greater than 1.52 mm thick, with a C-shaped cross-section not less than 92 mm deep by 41 mm wide and 12.7 mm stiffening lips.

(10) Cold-formed-steel studs in loadbearing wall assemblies are to be installed with diagonal cross-bracing.

(11) Cold-formed-steel floor joists (C-shaped joists) are to be not less than 41 mm wide by 203 mm deep by 1.22 mm material thickness.

(12) The allowable spans for wood joists listed in the Span Tables in Part 9 of Division B of the Building Code are provided for floors supporting specific occupancies.

2.3.7. Plaster Finish

(1) The thickness of plaster finish shall be measured from the face of gypsum or metal lath.

2.3.8. Edge Support for Gypsum Board in Wall Assembly

(1) Gypsum board installed over framing or furring in a wall assembly shall be installed so that all edges are supported, except that 15.9 mm Type X gypsum board may be installed horizontally with the horizontal joints unsupported when framing members are at 406 mm o.c. maximum.

2.3.9. Membrane Fastening

(1) Except as provided in Sentences (2) to (5), Table 2.3.4.B. and Sentence 2.3.5.(5), the application of lath and plaster finish shall conform to CSA A82.30-M, "Interior Furring, Lathing and Gypsum Plastering", and of gypsum board finish shall conform to ASTM C840, “Standard Specification for Application and Finishing of Gypsum Board".

(2) Where a membrane referred to in Table 2.3.4.A., 2.3.4.B., 2.3.4.C., 2.3.4.D. or 2.3.12. is applied to steel framing or furring, fasteners shall penetrate not less than 10 mm through the metal.

(3) Except as provided in Sentence (4), where a membrane referred to in Table 2.3.4.A., 2.3.4.B., 2.3.4.C., 2.3.4.D. or 2.3.12. is applied to wood framing or furring, minimum fastener penetrations into wood members shall conform to Table 2.3.9. for the time assigned to the membrane.

(4) Where a membrane is applied in 2 layers, the fastener penetrations described in Table 2.3.9. shall apply to the base layer. Fasteners for the face layer shall penetrate not less than 20 mm into wood supports.

(5) In a double layer application of gypsum board on wood supports, fastener spacing shall conform to ASTM C840, "Standard Specification for Application and Finishing of Gypsum Board".

Table 2.3.9.
Membrane Fastening

Type of Membrane	Minimum Penetration of Fasteners for Membrane Protection on Wood Framing, mm					
	5 – 25	30 – 35	40	50	55 – 70	80
	Time,(1) min					
Single layer	20	29	32	—	—	—
Double layer	20	20	20	29	35	44
Gypsum lath	20	20	23	23	29	29
Column 1	2	3	4	5	6	7

Notes to Table 2.3.9.:

(1) Assigned contributions of membranes to fire resistance are listed in Tables 2.3.4.A., 2.3.4.B., 2.3.4.C., 2.3.4.D. and 2.3.12.

2.3.10. Ceiling Membrane Openings - Combustible Construction

(1) Except as permitted in Article 2.3.12., where a floor or roof assembly of combustible construction is assigned a fire-resistance rating on the basis of this Subsection and incorporates a ceiling membrane described in Table 2.3.4.B., 2.3.4.C. or 2.3.4.D., the ceiling membrane may be penetrated by openings leading to ducts within concealed spaces above the membrane provided:

(a) the assembly is not required to have a fire-resistance rating in excess of 1 h,
(b) the area of any openings does not exceed 930 cm^2 (see Sentence (2)),
(c) the aggregate area of openings does not exceed 1% of the ceiling area of the fire compartment,
(d) the depth of the concealed space above the ceiling is not less than 230 mm,
(e) no dimension of any opening exceeds 310 mm,
(f) supports are provided for openings with any dimension exceeding 150 mm where framing members are spaced greater than 406 mm o.c.,
(g) individual openings are spaced not less than 2 m apart,
(h) the ducts above the membrane are sheet steel and are supported by steel strapping firmly attached to the framing members, and
(i) the clearance between the top surface of the membrane and the bottom surface of the ducts is not less than 100 mm.

(2) Where an individual opening permitted in Sentence (1) exceeds 130 cm^2 in area, it shall be protected by

(a) a fire stop flap conforming to CAN/ULC-S112.2, "Standard Method of Fire Test of Ceiling Firestop Flap Assemblies", that activates at a temperature approximately 30°C above the normal maximum temperature that occurs in the ducts, whether the air duct system is operating or shut down, or
(b) thermal protection above the duct consisting of the same materials as used for the ceiling membrane, mechanically fastened to the ductwork and extending 200 mm beyond the opening on all sides (see Figure 2.3.10.).

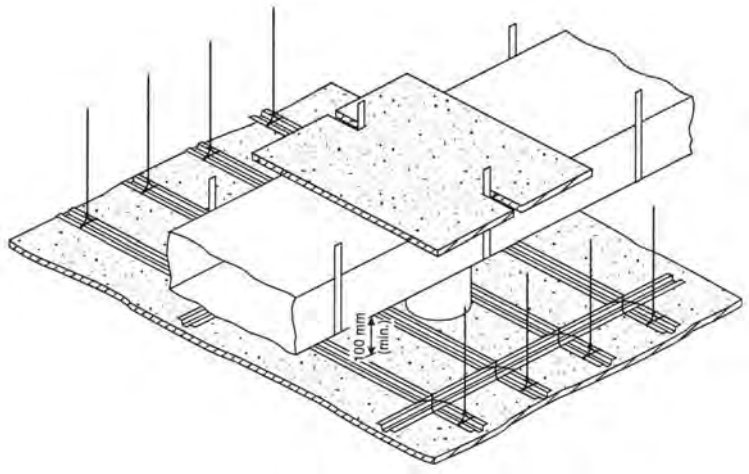


Figure 2.3.10.
Thermal Protection Above a Duct

2.3.11. Ceiling Membrane Openings - Noncombustible Construction

(1) Except as permitted in Article 2.3.12., where a floor or roof assembly of noncombustible construction is assigned a fire-resistance rating on the basis of this Subsection and incorporates a ceiling membrane described in Table 2.3.4.B., 2.3.4.C. or 2.3.4.D. the ceiling membrane may be penetrated by openings leading to ducts located within concealed spaces provided:

(a) the area of any opening does not exceed 930 cm^2 (see Sentence (2)),
(b) the aggregate area of openings does not exceed 2% of the ceiling area of the fire compartment,
(c) no dimension of any opening exceeds 400 mm,
(d) individual openings are spaced not less than 2 m apart,
(e) openings are located not less than 200 mm from major structural members such as beams, columns or joists,
(f) the ducts above the membrane are sheet steel and are supported by steel strapping firmly attached to the framing members, and
(g) the clearance between the top surface of the membrane and the bottom surface of the duct is not less than 100 mm.

(2) Where an individual opening permitted in Sentence (1) exceeds 130 cm^2 in area, it shall be protected by

(a) a fire stop flap conforming to CAN/ULC-S112.2, “Standard Method of Fire Test of Ceiling Firestop Flap Assemblies”, that activates at a temperature approximately 30°C above the normal maximum temperature that occurs in the ducts, whether the air duct system is operating or shut down, or
(b) thermal protection above the duct consisting of the same materials as used for the ceiling membrane, mechanically fastened to the ductwork and extending 200 mm beyond the opening on all sides (see Figure 2.3.10.).

2.3.12. Ceiling Membrane Rating

(1) Where the fire-resistance rating of a ceiling assembly is to be determined on the basis of the membrane only and not of the complete assembly, the ratings may be determined from Table 2.3.12., provided no openings described in Articles 2.3.10. and 2.3.11. are located within the ceiling membrane.

Table 2.3.12.
Fire-Resistance Rating for Ceiling Membranes

Description of Membrane	Fire-Resistance Rating, min
15.9 mm Type X gypsum board with ≥ 75 mm mineral wool batt insulation above board	30
19 mm gypsum-sand plaster on metal lath	30
Double 14.0 mm Douglas Fir plywood phenolic bonded	30
Double 12.7 mm Type X gypsum board	45
25 mm gypsum-sand plaster on metal lath	45
Double 15.9 mm Type X gypsum board	60
32 mm gypsum-sand plaster on metal lath	60
Column 1	2

2.3.13. Membrane Penetrations in Combustible and Noncombustible Construction

(1) Where a wall, floor or roof assembly is assigned a fire-resistance rating on the basis of this Subsection and includes a membrane or membranes described in Table 2.3.4.A., 2.3.4.B., 2.3.4.C., 2.3.4.D. or 2.3.12., penetrations of the membrane or membranes must be fire stopped in conformance with the applicable requirements in Article 3.1.9.1. or Sentence 9.10.9.6.(1) of Division B of the Building Code.

2.3.14. Beams

(1) Where a steel beam is included with an open-web steel joist and is protected by the same continuous ceiling, the beam is assumed to have a fire-resistance rating equal to that assigned to the rest of the assembly.

(2) The ratings in this Subsection assume that the construction to which the beam is related is a normal one and does not carry unusual loads from the floor or slab above.

2.3.15. Wired Glass Assembly Support

(1) Openings in a vertical fire separation having a fire-resistance rating of not more than 1 h are allowed to be protected by wired glass assemblies, provided the wired glass is

(a) not less than 6 mm thick,
(b) reinforced by a steel wire mesh in the form of diamonds, squares or hexagons having dimensions of
  (i) approximately 25 mm across the flats, using wire of not less than 0.45 mm diameter, or
  (ii) approximately 13 mm across the flats, using wire of not less than 0.40 mm diameter, the wire to be centrally embedded during manufacture and welded or intertwined at each intersection,
(c) set in fixed steel frames with metal not less than 1.35 mm thick and providing a glazing stop of not less than 20 mm on each side of the glass, and
(d) limited in area so that
  (i) individual panes are not more than 0.84 m^2, with neither height nor width more than 1.4 m, and
  (ii) the area not structurally supported by mullions is not more than 7.5 m^2.

(2) It is intended that the structural mullions referred to in Subclause (1)(d)(ii) will not distort or be displaced to the extent that there would be a failure of the wired glass closure during the period for which a closure in the fire separation would be expected to function. Hollow structural steel tubing not less than 100 mm square filled with a Portland cement-based grout will satisfy the intent of the Subclause.

2.4. Solid Wood Walls, Floors and Roofs

2.4.1. Minimum Thickness

(1) The minimum thickness of solid wood walls, floors and roofs for fire-resistance ratings from 30 min to 1.5 h is shown in Table 2.4.1.

Table 2.4.1.
Minimum Thickness of Solid Wood Walls, Roofs and Floors,(1)(2) mm

Type of Construction	Fire-Resistance Rating			
	30 min	45 min	1 h	1.5 h
Solid wood floor with building paper and finish flooring on top(3)	89	114	165	235
Solid wood, splined or tongued and grooved floor with building paper and finish flooring on top(4)	64	76	—	—
Solid wood walls of loadbearing vertical plank(3)	89	114	140	184
Solid wood walls of non-loadbearing horizontal plank(3)	89	89	89	140
Column 1	2	3	4	5

Notes to Table 2.4.1.:

(1) See CSA O141, "Softwood lumber", for sizes.

(2) The fire-resistance ratings and minimum dimensions for floors also apply to solid wood roof decks of comparable thickness with finish roofing material.

(3) The assembly shall consist of 38 mm thick members on edge fastened together with 101 mm common wire nails spaced not more than 406 mm o.c. and staggered in the direction of the grain.

(4) The floor shall consist of 64 mm by 184 mm wide planks either tongued and grooved or with 19 mm by 38 mm splines set in grooves and fastened together with 88 mm common nails spaced not more than 406 mm o.c.

2.4.2. Increased Fire-Resistance Rating

(1) The fire-resistance rating of the assemblies described in Table 2.4.1. may be increased by 15 min if one of the following finishes is applied on the fire-exposed side:
(a) 12.7 mm thick gypsum board,
(b) 20 mm thick gypsum-sand plaster on metal lath, or
(c) 13 mm thick gypsum-sand plaster on 9.5 mm gypsum lath.

(2) Fastening of the plaster to the wood structure shall conform to Subsection 2.3.

2.4.3. Supplementary Ratings

(1) Supplementary ratings based on tests are included in Table 2.4.3. The ratings given shall apply to construction that conform in all details with the descriptions given.

Table 2.4.3.
Fire-Resistance Rating of Non-Loadbearing Built-up Solid Wood Partitions(1)

Construction Details	Actual Overall Thickness, mm	Fire-Resistance Rating
Solid panels of wood boards 64 mm to 140 mm wide grooved and joined with wood splines, nailed together, boards placed vertically with staggered joints, 3 boards thick	58	30 min
Solid panels with 4 mm plywood facings(2) glued to 46 mm solid wood core of glued, tongued and grooved construction for both sides and ends of core pieces with tongued and grooved rails in the core about 760 mm apart	54	1 h
Column 1	2	3

Notes to Table 2.4.3.:

(1) The ratings and notes are taken from "Fire Resistance Classifications of Building Constructions", Building Materials and Structures Report BMS 92, National Bureau of Standards, Washington, 1942.

(2) Ratings for plywood faced panel are based on phenolic resin glue being used for gluing facings to wood frames. If other types of glue are used for this purpose, the ratings apply if the facings are nailed to the frames in addition to being glued.

2.5. Solid Plaster Partitions

2.5.1. Minimum Thickness

(1) The minimum thickness of solid plaster partitions for fire-resistance ratings from 30 min to 4 h is shown in Table 2.5.1.

Table 2.5.1.
Minimum Thickness of Non-Loadbearing Solid Plaster Partitions, mm

Type of Plaster on Metal Lath(1)	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Portland cement-sand(2) or Portland cement-lime-sand	50(3)	—	—	—	—	—	—
Gypsum-sand	50(3)	50(3)	64	—	—	—	—
Gypsum-vermiculite, gypsum-perlite, Portland cement-vermiculite or Portland cement-perlite	50(3)	50(3)	50(3)	58	64	83	102
Column 1	2	3	4	5	6	7	8

Notes to Table 2.5.1.:

(1) Metal lath shall be expanded metal lath or welded woven wire fabric supported on 19 mm vertical light steel studs spaced not more than 610 mm o.c. Plaster shall be applied to both sides of the lath.

(2) For mixture of Portland cement-sand plaster, see Sentence 1.7.2.(2).

(3) CSA A82.30-M, "Interior Furring, Lathing and Gypsum Plastering", does not permit solid plaster partitions less than 50 mm thick.

2.6. Protected Steel Columns

2.6.1. Minimum Thickness of Protective Covering

(1) The minimum thickness of protective covering to steel columns is shown in Tables 2.6.1.A. to 2.6.1.F. for fire-resistance ratings from 30 min to 4 h.

Table 2.6.1.A.
Minimum Thickness of Concrete or Masonry Protection to Steel Columns, mm

Description of Cover	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Monolithic concrete							
Type S concrete(1) (column spaces filled)(2)	25	25	25	25	39	64	89
Type N or L concrete(1) (column spaces filled)(2)	25	25	25	25	32	50	77
Concrete masonry units(3) or precast reinforced concrete units							
Type S concrete (column spaces not filled)	50	50	50	50	64	89	115
Type N or L concrete (column spaces not filled)	50	50	50	50	50	77	102
Clay or shale brick(4) (column spaces filled)(2)	50	50	50	50	50	64	77
Clay or shale brick(4) (column spaces not filled)	50	50	50	50	50	77	102
Hollow clay tile(5) (column spaces filled)(2)	50(6)	50(6)	50(6)	50(6)	(7)	(7)	(7)
Hollow clay tile(5) (column spaces not filled)	50(6)	50(6)	50(6)	—	—	—	—
Column 1	2	3	4	5	6	7	8

Notes to Table 2.6.1.A.:

(1) Applies to cast-in-place concrete reinforced with 5.21 mm diam wire wrapped around column spirally 200 mm o.c., or 1.57 mm diam wire mesh with 100 mm by 100 mm openings.

(2) The space between the protective covering and the web or flange of the column shall be filled with concrete, cement mortar or a mixture of cement mortar and broken bricks.

(3) Concrete masonry shall be reinforced with 5.21 mm diam wire or wire mesh with 1.19 mm diam wire and 10 mm by 10 mm openings, laid in every second course.

(4) Brick cover 77 mm thick or less shall be reinforced with 2.34 mm diam wire or 1.19 mm diam wire mesh with 10 mm by 10 mm openings, laid in every second course.

(5) Hollow clay tiles and masonry mortar shall be reinforced with 1.19 mm diam wire mesh with 10 mm by 10 mm openings, laid in every horizontal joint and lapped at corners.

(6) Hollow clay tiles shall conform to CAN/CSA-A82, “Fired masonry brick made from clay or shale".

(7) 50 mm nominal hollow clay tile, reinforced with 1.19 mm diam wire mesh with 10 mm by 10 mm openings laid in every horizontal joint and covered with 19 mm gypsum-sand plaster and with limestone concrete fill in column spaces, has a 4 h fire-resistance rating.

Table 2.6.1.B.
Minimum Thickness of Plaster Protection to Steel Columns, mm

Description	Fire-Resistance Rating[1][2]						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Gypsum-sand plaster on 9.5 mm gypsum lath[3]	13	13	13	20	—	—	—
Gypsum-perlite or vermiculite plaster on 9.5 mm gypsum lath[3]	13	13	13	20	25	—	—
Gypsum perlite or vermiculite plaster on 12.7 mm gypsum lath[3]	13	13	13	20	25	32	50
Gypsum perlite or vermiculite plaster on double 12.7 mm gypsum lath[3]	13	13	13	20	25	25	32
Portland cement-sand plaster on metal lath[4][5]	25	25	25	—	—	—	—
Column 1	2	3	4	5	6	7	8

Notes to Table 2.6.1.B.:

(1) Fire-resistance ratings of 30 min and 45 min apply to columns whose M/D ratio is 30 or greater. Fire-resistance ratings greater than 45 min apply to columns whose M/D ratio is greater than 60. Where the M/D ratio is between 30 and 60 and the required fire-resistance rating is greater than 45 min, the total thickness of protection specified in the Table shall be increased by 50%. (To determine M/D, refer to Article 2.6.4.)

(2) Where the thickness of plaster over gypsum lath is 25 mm or more, wire mesh with 1.57 mm diam wire and openings not exceeding 50 mm by 50 mm shall be placed midway in the plaster.

(3) Lath held in place by 1.19 mm diam wire wrapped around lath 450 mm o.c.

(4) Expanded metal lath 1.36 kg/m^2 fastened to 9.5 mm by 19 mm steel channels held in vertical position around column by 1.19 mm diam wire ties.

(5) For mixture of Portland cement-sand plaster, see Sentence 1.7.2.(2).

Table 2.6.1.C.
Minimum Thickness of Gypsum-Sand Plaster on Metal Lath Protection to Steel Columns, mm

M/D[1]	Fire-Resistance Rating					
	30 min	45 min	1 h	1.5 h	2 h	3 h
30 to 60	16	16	32	—	—	—
over 60 to 90	16	16	16	32	—	—
over 90 to 120	16	16	16	25	39	—
over 120 to 180	16	16	16	16	25	—
over 180	16	16	16	16	25	39
Column 1	2	3	4	5	6	7

Notes to Table 2.6.1.C.:

(1) To determine the M/D ratio, refer to Article 2.6.4.

Table 2.6.1.D.
Minimum Thickness of Gypsum-Perlite or Gypsum-Vermiculite Plaster on Metal Lath Protection to Steel Columns, mm

M/D[1]	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
30 to 60	16	16	20	32	35	—	—
over 60 to 90	16	16	16	20	26	35	45
over 90 to 120	16	16	16	16	26	35	45
over 120 to 180	16	16	16	16	20	32	35
over 180	16	16	16	16	16	26	35
Column 1	2	3	4	5	6	7	8

Notes to Table 2.6.1.D.:

(1) To determine the M/D ratio, refer to Article 2.6.4.

Table 2.6.1.E.
Steel Columns with Sheet-Steel Membrane and Insulation as Shown in Figures 2.6.1.A. and 2.6.1.B.

Type of Protection	Steel Thickness,[1] mm	Fastening[2]	Insulation	Fire-Resistance Rating
See Figure 2.6.1.A.	0.51	No. 8 sheet-metal screws 9.5 mm long, 200 mm o.c.	50 mm mineral wool batts[3]	45 min
See Figure 2.6.1.B.	0.64	Self-threading screws or No. 8 sheet-metal screws, 600 mm o.c.	2 layers 12.7 mm gypsum board	1.5 h
See Figure 2.6.1.A.	0.64	No. 8 sheet-metal screws, 9.5 mm long, 200 mm o.c.	75 mm mineral wool batts,[3] 12.7 mm gypsum board	2 h
See Figure 2.6.1.B.	0.76	Crimped joint or No. 8 sheet-metal screws, 300 mm o.c.	2 layers 15.9 mm gypsum board	2 h
Column 1	2	3	4	5

Notes to Table 2.6.1.E.:

(1) Minimum thickness, galvanized or wiped-zinc-coated sheet-steel.

(2) Sheet-steel shall be securely fastened to the floor and superstructure, or where sheet-steel cover does not extend floor to floor, fire stopping shall be provided at the level where sheet-steel protection ends. In the latter case, an alternate type of fire protection shall be applied between the fire stopping and the superstructure.

(3) Conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification", Type 1A, minimum density 30 kg/m^3: column section and batts wrapped with 25 mm mesh chicken wire.

Table 2.6.1.F.
Minimum M/D Ratio for Steel Columns Covered With Type X Gypsum Board Protection(1)

Minimum Thickness of Type X Gypsum Board Protection(2), mm	Fire-Resistance Rating			
	1 h	1.5 h	2 h	3 h
12.7	75	—	—	—
15.9	55	—	—	—
25.4	35	60	—	—
28.6	35	50	—	—
31.8	35	40	75	—
38.1	35	35	55	—
41.3	35	35	45	—
44.5	35	35	35	—
47.6	35	35	35	—
50.8	35	35	35	75
63.5	35	35	35	45
Column 1	2	3	4	5

Notes to Table 2.6.1.F.:

(1) To determine the M/D ratio, refer to Article 2.6.4.

(2) See Article 2.6.5.

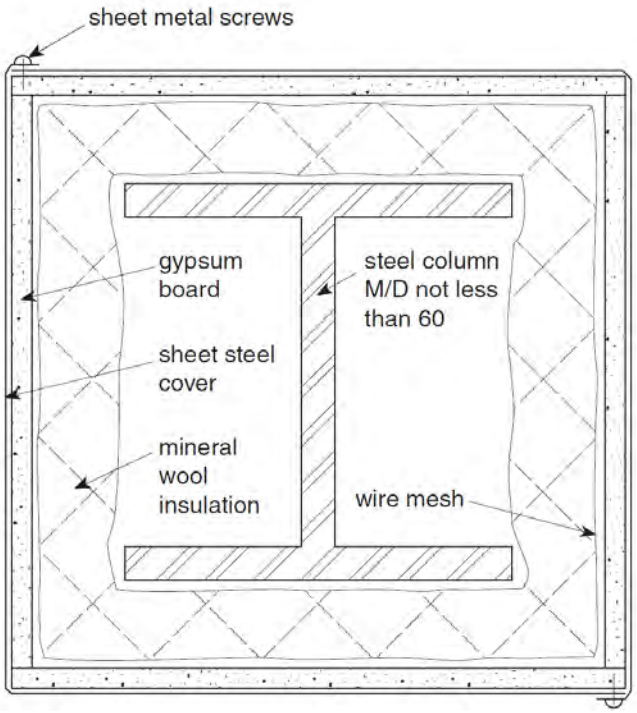


Figure 2.6.1.A.
Column Protected by Sheet-Steel Membrane, Gypsum Board and Mineral-Wool Insulation

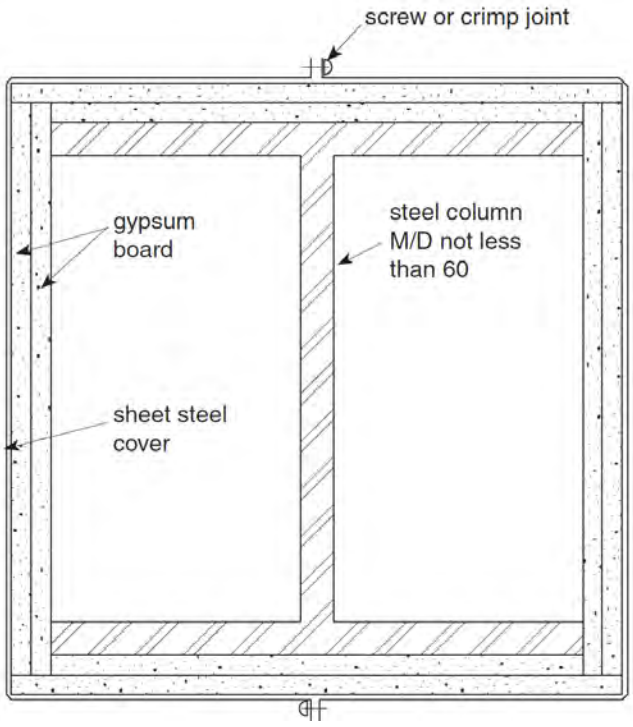


Figure 2.6.1.B.
Column Protected by Sheet-Steel Membrane and Gypsum Board

2.6.2. Hollow Unit Masonry Columns

(1) For hollow-unit masonry column protection, the thickness shown in Tables 2.6.1.A. to 2.6.1.D. is the equivalent thickness as described in Subsection 1.6.

2.6.3. Effect of Plaster

(1) The effect on fire-resistance ratings of the addition of plaster to masonry and monolithic concrete column protection is described in Subsection 1.7.

2.6.4. Determination of M/D Ratio

(1) The ratio M/D to which reference is made in Tables 2.6.1.B., 2.6.1.C., 2.6.1.D. and 2.6.1.F. shall be found by dividing "M," the mass of the column in kilograms per metre by "D," the heated perimeter of the steel column section in metres.

(2) The heated perimeter "D" of steel columns, shown as the dashed line in Figure 2.6.4.A., shall be equal to 2 (B+H) in Examples (1) and (2), and 3.14B in Example (3). In Figure 2.6.4.B., the heated perimeter "D" shall be equal to 2 (B+H).

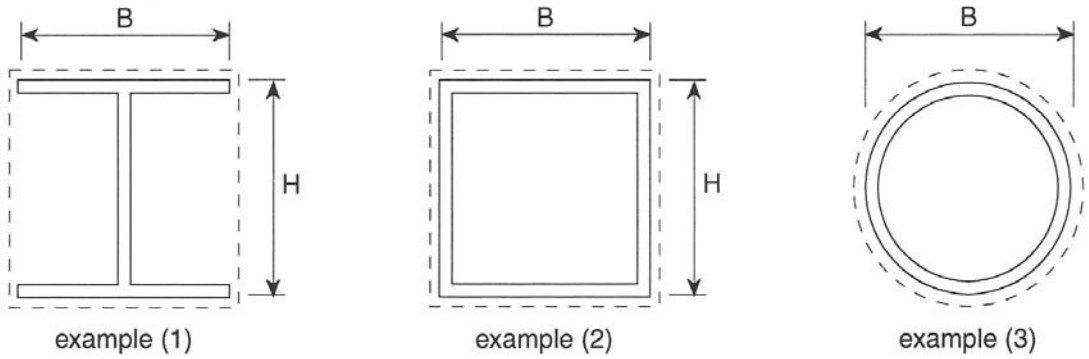


Figure 2.6.4.A.
Example (1), Standard or Wide-Flange Beam,
Example (2), Hollow Structural Section (Rectangular or Square),
Example (3), Hollow Structural Section (Round)

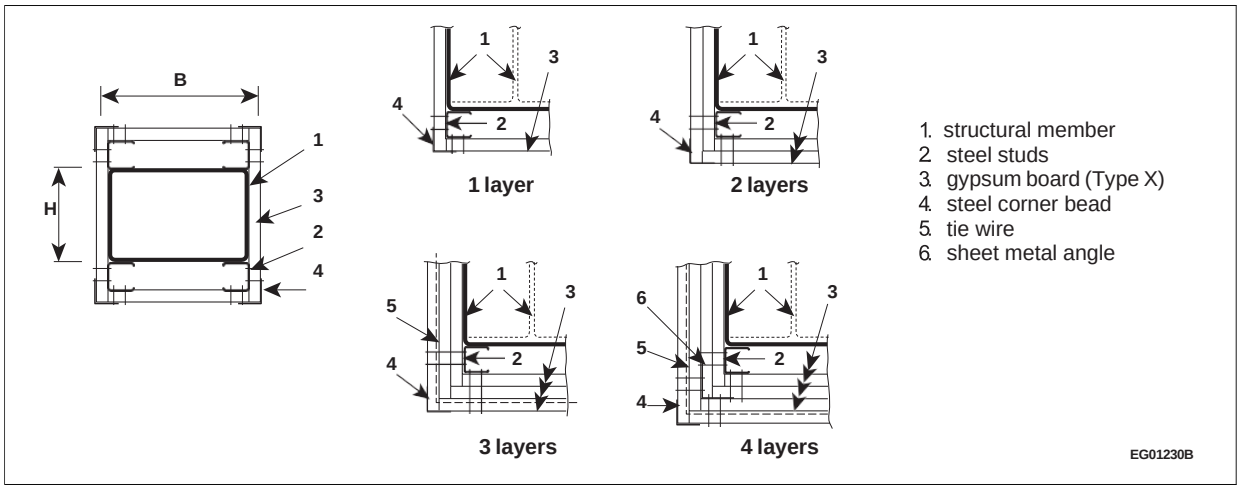


Figure 2.6.4.B.
Columns Protected by Type X Gypsum Board Without Sheet-Steel Membrane

2.6.5. Attachment of Gypsum Board

(1) Where Type X gypsum board is used to protect a steel column without an outside sheet-steel membrane, the method of gypsum board attachment to the column shall be as shown in Figure 2.6.4.B. and shall meet the construction details described in Sentences (2) to (7).

(2) The Type X gypsum board shall be applied vertically without horizontal joints.

(3) The first layer of gypsum board shall be attached to steel studs with screws spaced not more than 610 mm o.c. and other layers of gypsum board shall be attached to steel studs and steel corner beads with screws spaced at a maximum of 305 mm o.c. Where a single layer of gypsum board is used, attachment screws shall be spaced not more than 305 mm o.c.

(4) Steel tie wires spaced at a maximum of 610 mm o.c. shall be used to secure the second last layer of gypsum board in 3- and 4-layer systems.

(5) Studs shall be fabricated of galvanized steel not less than 0.53 mm thick and not less than 41.3 mm wide, with legs not less than 33.3 mm long and shall be 12.7 mm less than the assembly height.

(6) Corner beads shall
(a) be fabricated of galvanized steel that is not less than 0.41 mm thick,
(b) have legs not less than 31 mm long,
(c) be attached to the gypsum board or stud with 25.4 mm screws spaced not more than 305 mm o.c., and
(d) have the attaching fasteners penetrate either another corner bead in multiple layer assemblies or the steel stud member.

(7) In a 4-layer system, metal angles shall be fabricated of galvanized steel and shall be not less than 0.46 mm thick with legs not less than 51 mm long.

2.6.6. Concrete Filled Hollow Steel Columns

(1) A fire-resistance rating, R, is permitted to be assigned to concentrically loaded hollow steel columns that are filled with plain concrete, steel-fibre reinforced concrete or bar-reinforced concrete, that are fabricated and erected within the tolerances stipulated in CSA S16, "Design of steel structures", and that comply with Sentences (2) and (3), provided:

$$C \leq C_{max}$$

where

C = axial compressive force due to dead and live loads without load factors, kN,

$$C_{max} = \left(\frac{a\left(f_c' + 20\right) D^{2.5}}{R\left(KL - 1000\right)}\right)^2$$

but shall not exceed

1.0 C_r' for plain concrete filling (PC),
1.1 C_r' for steel-fibre reinforced concrete filling (FC), and
1.7 C_r' for bar-reinforced concrete filling (RC),

where

$$C_r' = 0.85\phi_c f_c' A_c \lambda_c^{-2}\left[\sqrt{1 + 0.25\lambda_c^{-4}} - 0.5\lambda_c^{-2}\right]$$

where

a = constant obtained from Table 2.6.6.A.,

f_c' = specified compressive strength of concrete in accordance with CSA A23.3, "Design of concrete structures", MPa,

r_c = radius of gyration of the concrete area,

A_c = area of concrete, mm^2,

D = outside diameter of a round column or outside width of a square column, mm,

E_c = initial elastic modulus for concrete, considering the effects of long-term load for normal-weight concrete = $\left(1 + \frac{S}{T}\right) 2500\sqrt{f_c'}$, where f_c' is expressed in MPa, S is the short-term load, and T is the total load on the column,

R = specified fire-resistance rating, min,

KL = effective length of column as defined in CSA S16, "Design of steel structures", mm,

$\lambda_c = \frac{KL}{r_c}\sqrt{\frac{f_c'}{\pi^2 E_c}}$, and

ϕ_c = 0.60

subject to the validity limits specified in Table 2.6.6.B.

(2) A pair of steam vent holes shall be provided at each end of the hollow steel column and at each intermediate floor level, and the holes shall be
(a) not less than 13 mm in diameter,
(b) located on opposite faces, 150 mm above or below a base plate, cap plate or concrete slab,
(c) orientated so that adjacent pairs are perpendicular, and
(d) not obstructed by other building elements.

(3) Load application and reaction shall be through end bearing in accordance with CSA S16, "Design of steel structures".

Table 2.6.6.A.
Values of Constant "a"

Filling Type	Concrete Type(1)	Steel Reinforcement	Circular Columns	Square Columns
PC	S	n/a	0.070	0.060
FC	S	≈ 2%	0.075	0.065
RC	S	1.5% – 3%	0.080	0.070
RC	S	3% – 5%	0.085	0.075
PC	N	n/a	0.080	0.070
FC	N	≈ 2%	0.085	0.075
RC	N	1.5% – 3%	0.090	0.080
RC	N	3% – 5%	0.095	0.085
Column 1	2	3	4	5

Notes to Table 2.6.6.A.:
(1) See Subsection 1.4.

Table 2.6.6.B.
Validity Limits

Parameter	Type of Concrete Filling		
	PC	FC	RC
f_c'(MPa)	20 to 40	20 to 55	20 to 55
D (round) (mm)	140 to 410	120 to 410	165 to 410
D (square) (mm)	140 to 305	102 to 305	175 to 305
Reinforcement (%)	n/a	≈ 2% of the concrete mix by mass	1.5% to 5% of cross-sectional area(1)
Concrete Cover (mm)	n/a	n/a	≥ 25
R (min)	≤ 120	≤ 180	≤ 180
KL (mm)	2 000 to 4 000	2 000 to 4 500	2 000 to 4 500
Class(2)	1, 2 or 3	1, 2 or 3	1, 2 or 3
Column 1	2	3	4

Notes to Table 2.6.6.B.:
(1) Limits on size, number and spacing of bars and ties in accordance with CSA A23.3, "Design of concrete structures".
(2) Classification of sections in accordance with CSA S16, "Design of steel structures".

2.7. Individually Protected Steel Beams

2.7.1. Minimum Thickness of Protective Covering

(1) The minimum thickness of protective covering on steel beams exposed to fire on 3 sides for fire-resistance ratings from 30 min to 4 h is shown in Table 2.7.1.

Table 2.7.1.
Minimum Thickness of Cover to Individual Protected Steel Beams,(1) mm

Description of Cover	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5	2 h	3 h	4 h
Type S concrete(2) (beam spaces filled solid)	25	25	25	25	32	50	64
Type N or L concrete(2) (beam spaces filled solid)	25	25	25	25	25	39	50
Gypsum-sand plaster on 9.5 mm gypsum lath(3)	13	13	13	20	—	—	—
Gypsum-perlite or vermiculite plaster on 9.5 mm gypsum lath(3)	13	13	13	13	25	—	—
Gypsum-perlite or gypsum-vermiculite on 12.7 mm gypsum lath(3)	13	13	13	20	25	39	50
Gypsum-perlite or vermiculite plaster on double 12.7 mm gypsum lath(3)	13	13	13	20	25	25	39
Portland cement-sand on metal lath(4)	23	23	23	—	—	—	—
Gypsum-sand on metal lath(4) (plaster in contact with lower flange)	16	20	25	39	—	—	—
Gypsum-sand on metal lath with air gap between plaster and lower flange(4)	16	16	16	25	25	—	—
Gypsum-perlite or gypsum-vermiculite on metal lath(4)	16	16	16	23	23	35	48(5)
Column 1	2	3	4	5	6	7	8

Notes to Table 2.7.1.:

(1) Where the thickness of plaster finish applied over gypsum lath is 26 mm or more, the plaster shall be reinforced with wire mesh with 1.57 mm diam wire and 50 mm by 50 mm openings placed midway in the plaster.

(2) Applies to cast-in-place concrete reinforced by 5.21 mm diam wire spaced 200 mm o.c. or 1.57 mm diam wire mesh with 100 mm by 100 mm openings.

(3) Lath held in place by 1.18 mm diam wire wrapped around the gypsum lath 450 mm o.c.

(4) Expanded metal lath 1.63 kg/m^2 fastened to 9.5 mm by 19 mm steel channels held in position by 1.19 mm diam wire.

(5) Plaster finish shall be reinforced with wire mesh with 1.57 mm diam wire and 50 mm by 50 mm openings placed midway in the plaster.

2.7.2. Types of Concrete

(1) Concrete is referred to as Type S, N or L, depending on the nature of the aggregate used. This is described in Article 1.4.1.

2.7.3. Effect of Plaster

(1) The effect on fire-resistance ratings of the addition of plaster finish to concrete or masonry beam protection is described in Article 1.7.1.

2.7.4. Exceptions

(1) The fire resistance of protected steel beams depends on the means used to hold the protection in place. Because of the importance of this factor, no rating has been assigned in Table 2.7.1. to masonry units used as protective cover to steel beams. These ratings, however, may be determined on the basis of comparison with column protection at the discretion of the authority having jurisdiction, if satisfactory means of fastening are provided.

2.7.5. Beam Protected by a Membrane

(1) A steel beam or steel joist assembly that is entirely above a horizontal ceiling membrane will be protected from fire below the membrane and will resist structural collapse for a period equal to the fire-resistance rating determined in conformance with Subsection 2.3. The support for this membrane shall be equivalent to that described in Subsection 2.3. The rating on this basis shall not exceed 1.5 h.

2.8. Reinforced Concrete Columns

2.8.1. Minimum Dimensions

(1) Minimum dimensions for reinforced concrete columns and minimum concrete cover for vertical steel reinforcement are obtained from Articles 2.8.2. to 2.8.5., taking into account the type of concrete, the effective length of the column and the area of the vertical reinforcement.

2.8.2. Method

(1) The minimum dimension, t, in millimetres, of a rectangular reinforced concrete column shall be equal to

(a) 75 f (R + 1) for all Types L and L40S concrete,

(b) 80 f (R + 1) for Type S concrete when the design condition of the concrete column is defined in the second and fourth columns of Table 2.8.2.,

(c) 80 f (R + 0.75) for Type N concrete when the design condition of the concrete column is defined in the second and fourth columns of Table 2.8.2., and

(d) 100 f (R + 1) for Types S and N concrete when the design condition of the concrete column is defined in the third column of Table 2.8.2.

where

f = the value shown in Table 2.8.2.,

R = the required fire-resistance rating in hours,

k = the effective length factor obtained from CSA A23.3, "Design of concrete structures",

h = the unsupported length of the column in metres, and

p = the area of vertical reinforcement in the column as a percentage of the column area.

(2) The diameter of a round column shall be not less than 1.2 times the value "t" determined in Sentence (1) for a rectangular column.

Table 2.8.2.
Values of Factor "f"(1)

Overdesign Factor(2)	Values of Factor f to be Used in Applying Article 2.8.2.		
	Where kh is not more than 3.7 m	Where kh is more than 3.7 m but not more than 7.3 m	
		t is not more than 300 mm, p is not more than 3%(3)	All other cases(4)
1.00	1.00	1.20	1.00
1.25	0.90	1.10	0.90
1.50	0.83	1.00	0.83
Column 1	2	3	4

Notes to Table 2.8.2.:

(1) For conditions that do not fall within the limits described in Table 2.8.2., further information may be obtained from Reference (7) in Subsection 6.1.

(2) Overdesign factor is the ratio of the calculated load carrying capacity of the column to the column strength required to carry the specified loads determined in conformance with CSA A23.3, "Design of concrete structures".

(3) Where the factor "f" results in a "t" greater than 300 mm, the appropriate factor "f" for "All other cases" shall be applicable.

(4) Where "p" is equal to or less than 3% and the factor "f" results in a "t" less than 300 mm, the minimum thickness shall be 300 mm.

2.8.3. Minimum Thickness of Concrete Cover

(1) Where the required fire-resistance rating of a concrete column is 3 h or less, the minimum thickness in millimetres of concrete cover over vertical steel reinforcement shall be equal to 25 times the number of hours of fire resistance required or 50 mm, whichever is less.

(2) Where the required fire-resistance rating of a concrete column is greater than 3 h, the minimum thickness in millimetres of concrete cover over vertical steel reinforcement shall be equal to 50 plus 12.5 times the required number of hours of fire resistance in excess of 3 h.

(3) Where the concrete cover over vertical steel required in Sentence (2) exceeds 62.5 mm, wire mesh reinforcement with 1.57 mm diameter wire and 100 mm openings shall be incorporated midway in the concrete cover to retain the concrete in position.

2.8.4. Minimum Requirements

(1) The structural design standards may require minimum column dimensions or concrete cover over vertical steel reinforcement differing from those obtained in Sentences 2.8.2.(1) and (2). Where a difference occurs, the greater dimension shall govern.

2.8.5. Addition of Plaster

(1) The addition of plaster finish to the concrete column may be taken into account in determining the cover over vertical steel reinforcement by applying the multiplying factors described in Subsection 1.7. The addition of plaster shall not, however, justify any decrease in the minimum column sizes shown.

2.8.6. Built-in Columns

(1) The fire-resistance rating of a reinforced concrete column that is built into a masonry or concrete wall so that not more than one face may be exposed to the possibility of fire at one time may be determined on the basis of cover to vertical reinforcing steel alone. In order to meet this condition, the wall shall conform to Subsection 2.1. for the fire-resistance rating required.

2.9. Reinforced Concrete Beams

2.9.1. Minimum Cover Thickness

(1) The minimum thickness of cover over principal steel reinforcement in reinforced concrete beams is shown in Table 2.9.1. for fire-resistance ratings from 30 min to 4 h where the width of the beam or joist is at least 100 mm.

Table 2.9.1.
Minimum Cover to Principal Steel Reinforcement in Reinforced Concrete Beams, mm

Type of Concrete	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S, N or L	20	20	20	25	25	39	50
Column 1	2	3	4	5	6	7	8

2.9.2. Maximum Rating

(1) No rating over 2 h may be assigned on the basis of Table 2.9.1. to a beam or joist where the average width of the part that projects below the slab is less than 140 mm, and no rating over 3 h may be assigned where the average width of the part that projects below the slab is less than 165 mm.

2.9.3. Beam Integrated in Floor or Roof Slab

(1) For the purposes of these ratings, a beam may be either independent of or integral with a floor or roof slab assembly.

2.9.4. Minimum Thickness

(1) Where the upper extension or top flange of a joist or T-beam in a floor assembly contributes wholly or partly to the thickness of the slab above, the total thickness at any point shall be not less than the minimum thickness described in Table 2.2.1.A. for the fire-resistance rating required.

2.9.5. Effect of Plaster

(1) The addition of plaster finish to a reinforced concrete beam may be taken into account in determining the cover over principal reinforcing steel by applying the multiplying factors described in Subsection 1.7.

2.10. Prestressed Concrete Beams

2.10.1. Minimum Cross-Sectional Area and Thickness of Cover

(1) The minimum cross-sectional area and thickness of concrete cover over steel tendons in prestressed concrete beams for fire-resistance ratings from 30 min to 4 h are shown in Table 2.10.1.

Table 2.10.1.
Minimum Thickness of Concrete Cover Over Steel Tendons in Prestressed Concrete Beams,(1) mm

Type of Concrete	Area of Beam, cm^2	Fire-Resistance Rating						
		30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S or N	260 to 970	25	39	50	64	—	—	—
	Over 970 to 1 940	25	26	39	45	64	—	—
	Over 1 940	25	26	39	39	50	77	102
Type L	Over 970	25	25	25	39	50	77	102
Column 1	2	3	4	5	6	7	8	9

Notes to Table 2.10.1.:

(1) Where the thickness of concrete cover over the tendons exceeds 64 mm, a wire mesh reinforcement with 1.57 mm diam wire and 100 mm by 100 mm openings shall be incorporated in the beams to retain the concrete in position around the tendons. The mesh reinforcement shall be located midway in the cover.

2.10.2. Minimum Cover Thickness

(1) The cover for an individual tendon shall be the minimum thickness of concrete between the surface of the tendon and the fire-exposed surface of the beam, except that for ungrouted ducts the assumed cover thickness shall be the minimum thickness of concrete between the surface of the duct and the surface of the beam. For beams in which several tendons are used, the cover is assumed to be the average of the minimum cover of the individual tendons. The cover for any individual tendon shall be not less than half the value given in Table 2.10.1. nor less than 25 mm.

2.10.3. Applicability of Ratings

(1) The ratings in Table 2.10.1. apply to a beam that is either independent of or integral with a floor or roof slab assembly. Minimum thickness of slab and minimum cover to steel tendons in prestressed concrete slabs are contained in Subsection 2.2.

2.10.4. Effect of Plaster

(1) The addition of plaster finish to a prestressed concrete beam may be taken into account in determining the cover over steel tendons by applying the multiplying factors described in Subsection 1.7.

2.10.5. Minimum Cover

(1) Except as provided in Sentence (2), in unbonded post- tensioned prestressed concrete beams, the concrete cover to the tendon at the anchor shall be not less than 15 mm greater than the minimum required away from the anchor. The concrete cover to the anchorage bearing plate and to the end of the tendon, if it projects beyond the bearing plate, shall be not less than 25 mm.

(2) The requirements in Sentence (1) do not apply to those portions of beams not likely to be exposed to fire (such as the ends and the tops of flanges of beams immediately below slabs).

2.11. Mass Timber Elements

2.11.1. Determination of Ratings

(1) The calculation methods described in this Subsection are intended to be used to determine fire-resistance ratings for structural mass timber elements on the basis of the elements being subjected to the standard fire exposure conditions described in CAN/ULC-S101, “Standard Method of Fire Endurance Tests of Building Construction and Materials”.

(2) Loadbearing mass timber members, such as beams and columns, subjected to the conditions described in Sentence (1) are assigned a fire-resistance rating that relates to the time at which the applied load is no longer sustained.

(3) Mass timber wall, floor and roof assemblies subjected to the conditions described in Sentence (1) are assigned a fire-resistance rating that relates to the lesser of the times at which

(a) an average temperature rise of 140°C or a maximum temperature rise of 180°C at any individual location is recorded on the unexposed side of the assembly,
(b) there is passage of flame or gases hot enough to ignite cotton pads through the unexposed side of the assembly, or
(c) the applied load is no longer sustained, where the assembly is loadbearing.

2.11.2. Applicability of Calculation Methods

(1) Method A described in Article 2.11.3. applies to glued-laminated timber beams and columns required to have fire-resistance ratings greater than those afforded under the provisions of Article 3.1.4.6.

(2) Method B described in Article 2.11.4. applies to mass timber elements, including solid sawn timber and glued-laminated timber beams and columns, required to have fire-resistance ratings greater than those afforded under the provisions of Article 3.1.4.6.

(3) The calculation methods described in Articles 2.11.3. and 2.11.4. are separate and independent methods that use different approaches to determine fire-resistance ratings for mass timber elements.

2.11.3. Method A for Glued-Laminated Timber Beams and Columns

(1) The fire-resistance rating of glued-laminated timber beams and columns in minutes is permitted to be taken as equal to

(a) 0.1 fB [4 - 2(B/D)] for beams which may be exposed to fire on 4 sides,
(b) 0.1 fB [4 - (B/D)] for beams which may be exposed to fire on 3 sides,
(c) 0.1 fB [3 - (B/D)] for columns which may be exposed to fire on 4 sides, and
(d) 0.1 fB [3 - (B/2D)] for columns which may be exposed to fire on 3 sides,

where

f = the load factor shown in Figure 2.11.3.A.,

B = the full dimension of the smaller side of a beam or column in millimetres before exposure to fire (see Figure 2.11.3.B.),

D = the full dimension of the larger side of a beam or column in millimetres before exposure to fire (see Figure 2.11.3.B.),

k = the effective length factor obtained from CSA O86, "Engineering design in wood",

L = the unsupported length of a column in millimetres.

(2) The factored resistance of a beam or column shall be determined by using the specified strengths in CSA O86, "Engineering design in wood".

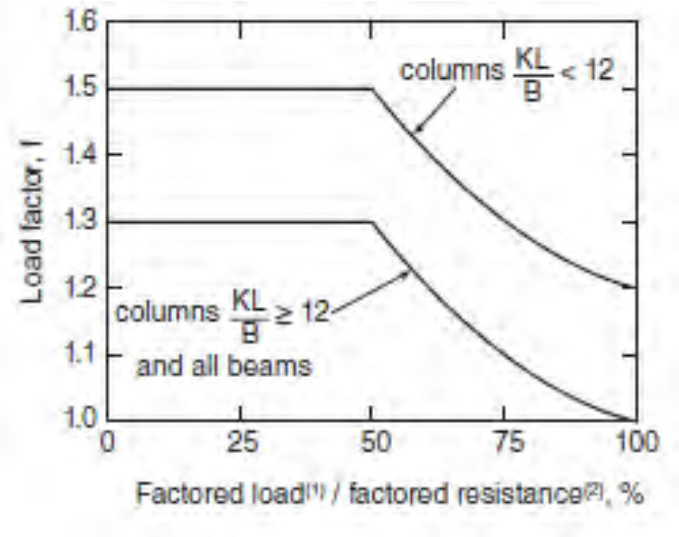


Figure 2.11.3.A.
Factors to Compensate for Partially Loaded Columns and Beams

Notes to Figure 2.11.3.A.:

(1) In the case of beams, use bending moment in place of load.

(2) See Sentence 2.11.3.(2).

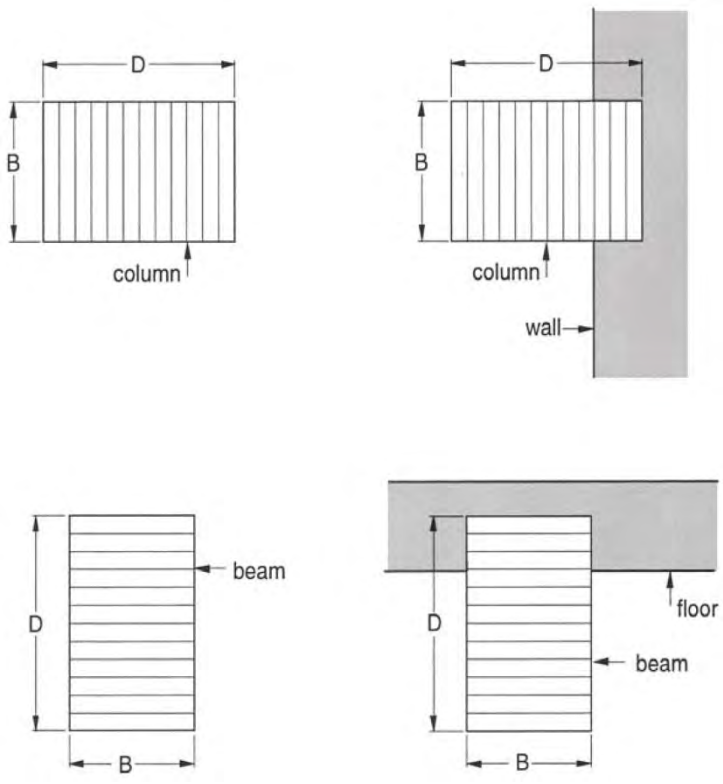


Figure 2.11.3.B.
Full Dimensions of Glued-Laminated Beams and Columns

2.11.4. Method B for Mass Timber Elements

(1) The fire-resistance rating of structural mass timber members, such as beams and columns constructed of glued-laminated timber, solid sawn timber, or structural composite lumber, is permitted to be determined using the calculation method described in Annex B, Fire resistance of large cross-section wood elements, of CSA O86, "Engineering design in wood".

(2) Except as provided in Sentences (3) to (6), the fire-resistance rating of mass timber wall, floor and roof assemblies, including those constructed of cross-laminated timber, is permitted to be determined using the calculation method described in Annex B, Fire resistance of large cross-section wood elements, of CSA O86, "Engineering design in wood".

(3) Except as provided in Sentence (4), the assemblies described in Sentence (2) shall be protected to maintain the integrity and thermal insulation properties of the assembly for the time period corresponding to the calculated fire-resistance rating as follows:

(a) except as provided in Clause (b), for floor and roof assemblies, by applying at least one of the following layers to the unexposed surface of the assembly:
  (i) OSB or plywood not less than 12.5 mm thick, with the joints in the layer staggered relative to those in the assembly,
  (ii) concrete topping not less than 38 mm thick, or
  (iii) gypsum-concrete topping not less than 25 mm thick,

(b) for plank decking designed in accordance with Clause B.10 of CSA O86, "Engineering design in wood", by applying at least one of the layers described in Clause B.10.4 of CSA O86 to the unexposed surface of the assembly,

(c) for interior wall assemblies, by applying at least one of the following layers to at least one side of the assembly, with the joints in the layer staggered relative to those in the assembly:
  (i) OSB or plywood not less than 12.5 mm thick, or
  (ii) Type X gypsum board not less than 12.7 mm thick, and

(d) for exterior wall assemblies, by applying at least one of the following layers to at least one side of the assembly, with the joints in the layer staggered relative to those in the assembly:
  (i) OSB or plywood not less than 12.5 mm thick,
  (ii) Type X gypsum board not less than 12.7 mm thick,
  (iii) gypsum sheathing not less than 12.7 mm thick applied to the exterior (unexposed) side of the assembly, or
  (iv) rock or slag insulation sheathing not less than 50 mm thick applied to the exterior (unexposed) side of the assembly.

(4) For wall, floor and roof assemblies constructed of cross-laminated timber, the joints between cross-laminated timber panels in the assembly need not be protected in accordance with Sentence (3), provided the joints are either lapped or splined to maintain the integrity and thermal insulation properties of the assembly for the time period corresponding to the calculated fire-resistance rating. (See Figure 2.11.4.(4).)

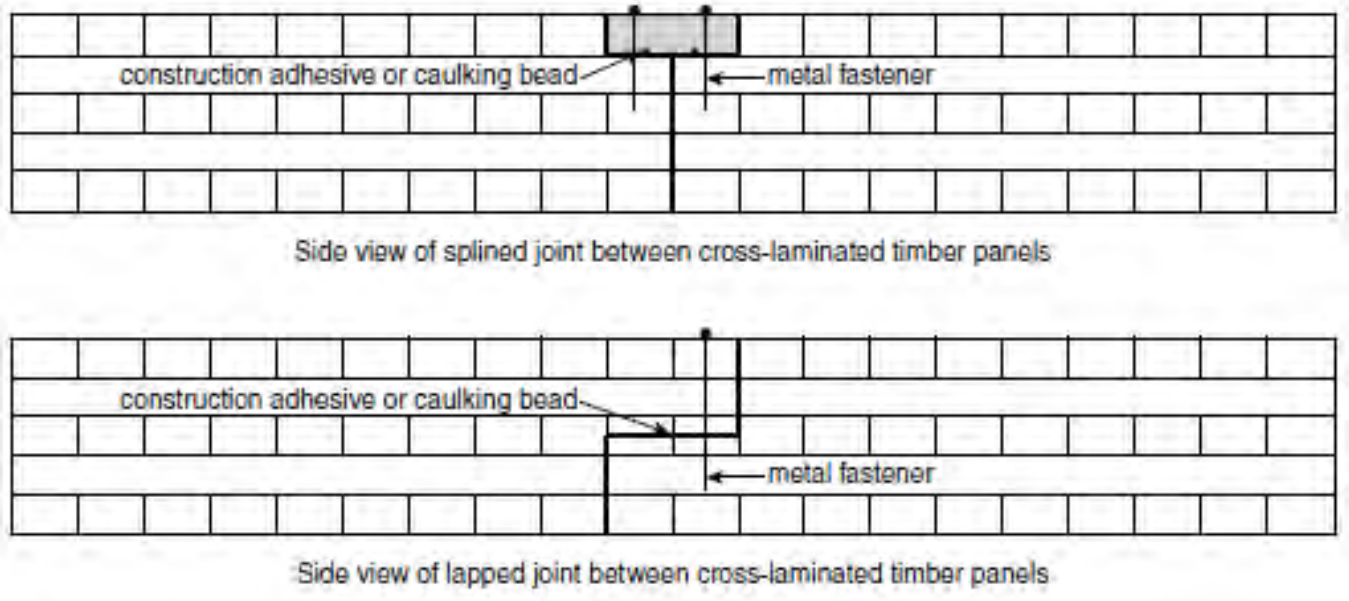


Figure 2.11.4.(4)
Joints Between Cross-Laminated Timber Panels in Wall, Floor and Roof Assemblies

(5) For interior wall assemblies, the additional times assigned in Clause B.8.1 of CSA O86, "Engineering design in wood", shall only be applied to the calculated fire-resistance rating where both sides of the assembly are protected in accordance with Clause B.8 of CSA O86. Where the level of protection differs on the two sides, the additional time corresponding to the lesser level of protection shall be applied.

(6) For exterior wall assemblies, the additional times assigned in Clause B.8.1 of CSA O86, "Engineering design in Wood", shall only be applied to the calculated fire-resistance rating where

(a) the interior (fire-exposed) side of the assembly is protected in accordance with Clause B.8 of CSA O86, and

(b) except where the assembly is constructed of cross-laminated timber panels with lapped or splined joints as described in Sentence (4), the exterior (unexposed) side of the assembly is protected in accordance with Clause (3)(d).

Section 3 Flame-Spread Ratings and Smoke Developed Classifications

3.1. Interior Finish Materials

3.1.1. Scope of Information

(1) Tables 3.1.1.A. and 3.1.1.B. show flame-spread ratings and smoke developed classifications for combinations of some common interior finish materials. The values are based on all the evidence available at present. Many materials have not been included because of lack of test evidence or because of inability to classify or describe the material in generic terms for the purpose of assigning ratings.

Table 3.1.1.A.
Assigned Flame-Spread Ratings and Smoke Developed Classifications
for Combinations of Wall and Ceiling Finish Materials and Surface Coatings(1)

Materials	Applicable Material Standard	Minimum Thickness, mm	Surface Coating	
			Unfinished	Paint or Varnish not more than 1.3 mm Thick
				Cellulosic Wallpaper not more than One Layer(2)(3)
Brick, concrete, tile	None	None	0/0	25/50
Steel, copper, aluminum	None	0.33		
Gypsum plaster	CSA A82.22-M	None		
Gypsum board	CAN/CSA-A82.27-M ASTM C1396 / C1396M	9.5	25/50	25/50
Lumber	None	16	150/300	150/300
Douglas Fir plywood(4)	CSA O121	11	150/100	150/300
Poplar plywood(4)	CSA O153			
Plywood with Spruce face veneer(4)	CSA O151			
Douglas Fir plywood(4)	CSA O121	6	150/100	150/100
Fiberboard low density	CAN/ULC-S706	11	X/100	150/100
Particleboard	ANSI A208.1	12.7	150/300	(5)
Waferboard, OSB	CSA O325	—	(5)	(5)
	CSA O437.0	—	(5)	(5)
Column 1	2	3	4	5

Notes to Table 3.1.1.A.:

(1) See Sentence 1.1.1.(5) for standards used to assign flame-spread ratings and smoke developed classifications.

(2) Flame-spread ratings and smoke developed classifications for paints and varnish are not applicable to shellac and lacquer.

(3) Flame-spread ratings and smoke developed classifications for paints apply only to alkyd and latex paints.

(4) The flame-spread ratings and smoke developed classifications shown are for those plywoods without a cellulose resin overlay.

(5) Insufficient test information available.

Table 3.1.1.B.
Flame-Spread Ratings and Smoke Developed Classifications
for Combinations of Common Floor Finish Materials and Surface Coatings(1)

Materials	Applicable Standard	FSR/SDC(2)
Hardwood or softwood flooring either unfinished or finished with a spar or urethane varnish coating	None	300/300
Wool carpet (woven), pile weight not less than 1120 g/m^2, applied with or without felt underlay(3)	CAN/CGSB-4.129	300/300
Nylon carpet, pile weight not less than 610 g/m^2 and not more than 800 g/m^2, applied with or without felt underlay(3)	CAN/CGSB-4.129	300/500
Nylon carpet, pile weight not less than 610 g/m^2 and not more than 1355 g/m^2, glued down to concrete	CAN/CGSB-4.129	300/500
Wool/nylon blend carpet (woven) with not more than 20% nylon and pile weight not less than 1120 g/m^2	CAN/CGSB-4.129	300/500
Nylon/wool blend carpet (woven) with not more than 50% wool, pile weight not less than 610 g/m^2 and not more than 800 g/m^2	CAN/CGSB-4.129	300/500
Polypropylene carpet, pile weight not less than 500 g/m^2 and not more than 1200 g/m^2, glued down to concrete	CAN/CGSB-4.129	300/500
Column 1	2	3

Notes to Table 3.1.1.B.:

(1) Tested on the floor of the tunnel in conformance with provisions of CAN/ULC-S102.2, "Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies".

(2) Flame-Spread Rating/Smoke Developed Classification

(3) Type 1 or 2 underlay as described in CGSB 4-GP-36M, "Carpet Underlay, Fiber Type".

3.1.2. Ratings

(1) The ratings shown in Tables 3.1.1.A. and 3.1.1.B. are arranged in groups corresponding to the provisions of this Code. The ratings apply to materials falling within the general categories indicated.

3.1.3. Table Entries

(1) In Tables 3.1.1.A. and 3.1.1.B., the first number of each entry relates to flame spread and the second number to smoke developed limit. For example:

25/50 represents a flame-spread rating of 0 to 25 and a smoke developed classification of 0 to 50.

150/300 represents a flame-spread rating of 75 to 150 and a smoke developed classification of 100 to 300.

X/X applied to walls and ceilings means a flame-spread rating over 150 and a smoke developed classification over 300.

3.1.4. Effect of Surface Coatings

(1) Thin surface coatings can modify flame-spread characteristics either upward or downward. Table 3.1.1.A. includes a number of thin coatings that increase the flame-spread rating of the base material, so that these may be considered where more precise control over flame spread hazard is desired.

3.1.5. Proprietary Materials

(1) Information on flame-spread rating of proprietary materials and fire-retardant treatments that cannot be described in sufficient detail to ensure reproducibility is available through the listing and labelling services of Underwriters' Laboratories of Canada, Intertek Testing Services NA Ltd. or other recognized testing laboratory.

(2) A summary of flame-spread test results published prior to 1965 has been prepared by NRC (see Item (1) in Subsection 7.1.).

3.1.6. Limitations and Conditions

(1) The propagation of flame along a surface in the standard test involves some finite depth of the material or materials behind the surface, and this involvement extends to the depth to which temperature variations are to be found during the course of the test; for many commonly used lining materials, such as wood, the depth involved is about 25 mm.

(2) For all the combustible materials described in Table 3.1.1.A., a minimum dimension is shown, and this represents the thickness of the test samples on which the rating has been based; when used in greater thicknesses than that shown, these materials may have a slightly lower flame-spread rating, and thinner specimens may have higher flame-spread ratings.

(3) No rating has been included for foamed plastic materials because it is not possible at this time to identify these products with sufficient accuracy on a generic basis. Materials of this type which melt when exposed to the test flame generally show an increase in flame-spread rating as the thickness of the test specimen increases.

3.1.7. Referenced Standards

In Tables 3.1.1.A. and 3.1.1.B., the standards applicable to the materials described are noted because the ratings depend on conformance with these specifications.

Section 4 Noncombustibility

4.1. Test Method

4.1.1. Determination of Noncombustibility

(1) Noncombustibility is required of certain components of buildings by the provisions of this Code, which specifies noncombustibility by reference to CAN/ULC-S114, "Standard Method of Test for Determination of Non-Combustibility in Building Materials".

(2) The test to which reference is made in Sentence (1) is severe, and it may be assumed that any building material containing even a small proportion of combustibles will itself be classified as combustible. The specimen, 38 mm by 51 mm, is exposed to a temperature of 750°C in a small furnace. The essential criteria for noncombustibility are that the specimen does not flame or contribute to temperature rise.

4.2. Materials Classified as Combustible

4.2.1. Combustible Materials

(1) Most materials from animal or vegetable sources will be classed as combustible by CAN/ULC-S114, "Standard Method of Test for Determination of Non-Combustibility in Building Materials", and wood, wood fibreboard, paper, felt made from animal or vegetable fibres, cork, plastics, asphalt and pitch would therefore be classed as combustible.

4.2.2. Composite Materials

(1) Materials that consist of combustible and noncombustible elements in combination will in many cases also be classed as combustible, unless the proportion of combustibles is very small. Some mineral wool insulations with combustible binder, cinder concrete, cement and wood chips and wood-fibred gypsum plaster would also be classed as combustible.

4.2.3. Effect of Chemical Additives

(1) The addition of a fire-retardant chemical is not sufficient to change a combustible product to a noncombustible product.

4.3. Materials Classified as Noncombustible

4.3.1. Typical Examples

(1) Noncombustible materials include brick, ceramic tile, concrete made from Portland cement with noncombustible aggregate, plaster made from gypsum with noncombustible aggregate, metals commonly used in buildings, glass, granite, sandstone, slate, limestone and marble.

Section 5 Protection of Openings in Fire-Rated Assemblies

5.1. Scope

5.1.1. Installation Information

(1) The information in this Section specifies requirements for the installation of fire doors and fire dampers in gypsum-board-protected stud wall assemblies.

5.2. Installation of Fire Doors and Fire Dampers

5.2.1. References

(1) Fire doors and fire dampers in gypsum-board-protected steel stud non-loadbearing walls required to have a fire-resistance rating shall be installed in conformance with Section 9.24. of Division B of the Building Code and the applicable requirements of NFPA 80, "Fire Doors and Other Opening Protectives".

(2) Fire doors and fire dampers in gypsum-board-protected wood stud walls required to have a fire-resistance rating shall be installed in conformance with Section 9.23. of Division B of the Building Code and the applicable requirements of NFPA 80, "Fire Doors and Other Opening Protectives".

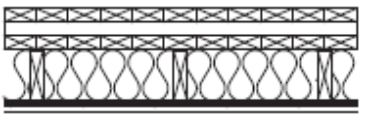
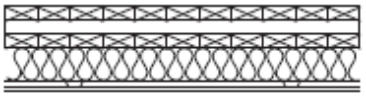
Section 6 Fire Performance of Exterior Wall Assemblies

6.1. Scope

6.1.1. Exterior Wall Assemblies

(1) Table 6.1.1. shows construction specifications for exterior wall assemblies that are deemed to satisfy the criteria of Clause 3.1.5.5.(1)(b) when tested in accordance with CAN/ULC-S134, "Standard Method of Fire Test of Exterior Wall Assemblies".

Table D-6.1.1.
Construction Specifications for Exterior Wall Assemblies that are Deemed to Satisfy the Criteria of Clause 3.1.5.5.(1)(b) when Tested in Accordance with CAN/ULC-S134

Wall Number	Structural Members	Absorptive Material	Sheathing	Cladding	Design
EXTW-1	38 mm × 89 mm wood studs spaced at 400 mm o.c.[(1)(2)]	89 mm thick rock or slag fibre in cavities formed by studs[(3)(4)]	—	12.7 mm thick fire-retardant-treated plywood siding[(5)]	
EXTW-2	38 mm × 140 mm wood studs spaced at 400 mm o.c.[(1)(2)]	140 mm thick rock or slag fibre in cavities formed by studs[(3)(4)]	Gypsum sheathing ≥ 12.7 mm thick	Noncombustible exterior cladding	
EXTW-3	38 mm × 140 mm wood studs spaced at 400 mm o.c.[(1)(2)]	140 mm thick rock or slag fibre in cavities formed by studs[(3)(4)]	15.9 mm thick fire-retardant-treated plywood[(6)]	Noncombustible exterior cladding	
EXTW-4	38 mm × 140 mm wood studs spaced at 600 mm o.c.[(1)(7)] attached to cross-laminated timber (CLT) wall panels ≥ 38 mm thick[(8)]	140 mm thick glass, rock or slag fibre in cavities formed by studs[(3)]	Gypsum sheathing ≥ 12.7 mm thick	Noncombustible exterior cladding	
EXTW-5	89 mm horizontal Z-bars spaced at 600 mm o.c. attached to CLT wall panels ≥ 105 mm thick[(8)]	89 mm thick rock or slag fibre in cavities formed by Z-bars[(3)(4)]	—	Noncombustible exterior cladding attached to 19 mm vertical hat channels spaced at 600 mm o.c.	
Col. 1	2	3	4	5	6

Notes to Table 6.1.1.:

(1) The stated stud dimensions are maximum values. Where wood studs with a smaller depth are used, the thickness of the absorptive material in the cavities formed by the studs must be reduced accordingly.

(2) Horizontal blocking between the vertical studs or horizontal stud plates must be installed at vertical intervals of not more than 2 324 mm, such that the maximum clear length between the horizontal blocking or stud plates is 2 286 mm.

(3) The absorptive material must conform to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification".

(4) The absorptive material must have a density not less than 32 kg/m^3.

(5) The fire-retardant-treated plywood siding must conform to the requirements of Article 3.1.4.5. and must have been conditioned in conformance with ASTM D2898, "Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing", before being tested in accordance with CAN/ULC-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies".

(6) The fire-retardant-treated plywood must conform to the requirements of Article 3.1.4.5.

(7) Horizontal blocking between the vertical studs or horizontal stud plates must be installed at vertical intervals of not more than 2 438 mm, such that the maximum clear length between the horizontal blocking or stud plates is 2 400 mm.

(8) A water-resistant barrier is permitted to be attached to the face of the CLT wall panels.

Section 7 Background Information

7.1. Fire Test Reports

Summaries of available fire test information have been published by NRC as follows:

(1) M. Galbreath, Flame Spread Performance of Common Building Materials. Technical Paper No. 170, Division of Building Research, National Research Council Canada, Ottawa, April 1964. NRCC 7820.

(2) M. Galbreath and W.W. Stanzak, Fire Endurance of Protected Steel Columns and Beams. Technical Paper No. 194, Division of Building Research, National Research Council Canada, Ottawa, April 1965. NRCC 8379.

(3) T.Z. Harmathy and W.W. Stanzak, Elevated-Temperature Tensile and Creep Properties of Some Structural and Prestressing Steels. American Society for Testing and Materials, Special Technical Publication 464, 1970, p. 186 (DBR Research Paper No. 424) NRCC 11163.

(4) T.Z. Harmathy, Thermal Performance of Concrete Masonry Walls in Fire. American Society for Testing and Materials, Special Technical Publication 464, 1970, p. 209 (DBR Research Paper No. 423) NRCC 11161.

(5) L.W. Allen, Fire Endurance of Selected Non-Loadbearing Concrete Masonry Walls. DBR Fire Study No. 25, Division of Building Research, National Research Council Canada, Ottawa, March 1970. NRCC 11275.

(6) A. Rose, Comparison of Flame Spread Ratings by Radiant Panel, Tunnel Furnace, and Pittsburgh-Corning Apparatus. DBR Fire Study No. 22, Division of Building Research, National Research Council Canada, Ottawa, June 1969. NRCC 10788.

(7) T.T. Lie and D.E. Allen, Calculation of the Fire Resistance of Reinforced Concrete Columns. DBR Technical Paper No. 378, Division of Building Research, National Research Council Canada, Ottawa, August 1972. NRCC 12797.

(8) W.W. Stanzak, Column Covers: A Practical Application of Sheet Steel as a Protective Membrane. DBR Fire Study No. 27, Division of Building Research, National Research Council Canada, Ottawa, February 1972. NRCC 12483.

(9) W.W. Stanzak, Sheet Steel as a Protective Membrane for Steel Beams and Columns. DBR Fire Study No. 23, Division of Building Research, National Research Council Canada, Ottawa, November 1969. NRCC 10865.

(10) W.W. Stanzak and T.T. Lie, Fire Tests on Protected Steel Columns with Different Cross-Sections. DBR Fire Study No. 30, Division of Building Research, National Research Council Canada, Ottawa, February 1973. NRCC 13072.

(11) G. Williams-Leir and L.W. Allen, Prediction of Fire Endurance of Concrete Masonry Walls. DBR Technical Paper No. 399, Division of Building Research, National Research Council Canada, Ottawa, November 1973. NRCC 13560.

(12) G. Williams-Leir, Prediction of Fire Endurance of Concrete Slabs. DBR Technical Paper No. 398, Division of Building Research, National Research Council Canada, Ottawa, November 1973. NRCC 13559.

(13) A. Rose, Flammability of Fibreboard Interior Finish Materials. Building Research Note No. 68, Division of Building Research, National Research Council Canada, Ottawa, October 1969.

(14) L.W. Allen, Effect of Sand Replacement on the Fire Endurance of Lightweight Aggregate Masonry Units. DBR Fire Study No. 26, Division of Building Research, National Research Council Canada, Ottawa, September 1971. NRCC 12112.

(15) L.W. Allen, W.W. Stanzak and M. Galbreath, Fire Endurance Tests on Unit Masonry Walls with Gypsum Board. DBR Fire Study No. 32, Division of Building Research, National Research Council Canada, Ottawa, February 1974, NRCC 13901.

(16) W.W. Stanzak and T.T. Lie, Fire Resistance of Unprotected Steel Columns. Journal of Structural Division, Proc., Am. Soc. Civ. Eng., Vol. 99, No. ST5 Proc. Paper 9719, May 1973 (DBR Research Paper No. 577) NRCC 13589.

(17) T.T. Lie and T.Z. Harmathy, Fire Endurance of Concrete-Protected Steel Columns. A.C.I. Journal, January 1974, Title No. 71-4 (DBR Technical Paper No. 597) NRCC 13876.

(18) T.T. Lie, A Method for Assessing the Fire Resistance of Laminated Timber Beams and Columns. Can. J. Civ. Eng., Vol. 4, No. 2, June 1977 (DBR Technical Paper No. 718) NRCC 15946.

(19) T.T. Lie, Calculation of the Fire Resistance of Composite Concrete Floor and Roof Slabs. Fire Technology, Vol. 14, No. 1, February 1978 (DBR Technical Paper No. 772) NRCC 16658.

(20) M.A. Sultan, Y.P Séguin and P. Leroux. Results of Fire Resistance Tests on Full-Scale Floor Assemblies, Institute for Research in Construction, National Research Council of Canada, Ottawa, May 1998, IRC-IR-764.

(21) M.A. Sultan, J.C. Latour, P. Leroux, R.C. Monette, Y.P Séguin and J.P. Henrie, Results of Fire Resistance Tests on Full-Scale Floor Assemblies – Phase II, Institute for Research in Construction, National Research Council of Canada, Ottawa, March 2005, RR-184.

(22) M.A. Sultan and G.D. Lougheed, Results of Fire Resistance Tests on Full-Scale Gypsum Board Wall Assemblies, Institute for Research in Construction, National Research Council of Canada, Ottawa, August 2002, IRC-IR-833.

(23) V.K.R. Kodur, M.A. Sultan, J.C. Latour, P. Leroux, R.C. Monette, Experimental Studies on the Fire Resistance of Load-Bearing Steel Stud Walls, Research Report, National Research Council of Canada, Ottawa, August 2013, RR-343.

(24) E. Gibbs, B.C. Taber, G.D. Lougheed, J.Z. Su and N. Bénichou, Solutions for Mid-Rise Wood Construction: Full-Scale Standard Fire Test for Exterior Wall Assembly Using Lightweight Wood Frame Construction with Gypsum Sheathing (Test EXTW-1), Report to Research Consortium for Wood and Wood-Hybrid Mid-Rise Buildings, National Research Council Canada, Ottawa, December 2014, A1-100035-01.4.

(25) E. Gibbs, B.C. Taber, G.D. Lougheed, J.Z. Su and N. Bénichou, Solutions for Mid-Rise Wood Construction: Full-Scale Standard Fire Test for Exterior Wall Assembly Using a Simulated Cross-Laminated Timber Wall Assembly with Gypsum Sheathing (Test EXTW-2), Report to Research Consortium for Wood and Wood-Hybrid Mid-Rise Buildings, National Research Council Canada, Ottawa, December 2014, A1-100035-01.5.

(26) E. Gibbs, B.C. Taber, G.D. Lougheed, J.Z. Su and N. Bénichou, Solutions for Mid-Rise Wood Construction: Full-Scale Standard Fire Test for Exterior Wall Assembly Using Lightweight Wood Frame Construction with Interior Fire-Retardant-Treated Plywood Sheathing (Test EXTW-3), Report to Research Consortium for Wood and Wood-Hybrid Mid-Rise Buildings, National Research Council Canada, Ottawa, December 2014, A1-100035-01.6.

(27) E. Gibbs and J. Su, Full Scale Exterior Wall Test on Nordic Cross-Laminated Timber System, National Research Council Canada, Ottawa, January 2015, A1-006009.1.

7.2. Obsolete Materials and Assemblies

Building materials, components and structural members and assemblies in buildings constructed before 1995 may have been assigned ratings based on earlier editions of The Supplement to the National Building Code of Canada or older reports of fire tests. To assist users in determining the ratings of these obsolete assemblies and structural members, the following list of reference documents has been prepared. Although some of these publications are out of print, reference copies are available through NRC.

(1) M. Galbreath, Fire Endurance of Unit Masonry Walls. Technical Paper No. 207, Division of Building Research, National Research Council Canada, Ottawa, October 1965. NRCC 8740.

(2) M. Galbreath, Fire Endurance of Light Framed and Miscellaneous Assemblies. Technical Paper No. 222, Division of Building Research, National Research Council Canada, Ottawa, June 1966. NRCC 9085.

(3) M. Galbreath, Fire Endurance of Concrete Assemblies. Technical Paper No. 235, Division of Building Research, National Research Council Canada, Ottawa, November 1966. NRCC 9279.

(4) Guideline on Fire Ratings of Archaic Materials and Assemblies. Rehabilitation Guideline #8, U.S. Department of Housing and Urban Development, Germantown, Maryland 20767, October 1980.

(5) T.Z. Harmathy, Fire Test of a Plank Wall Construction. Fire Study No. 2, Division of Building Research, National Research Council Canada, Ottawa, July 1960. NRCC 5760.

(6) T.Z. Harmathy, Fire Test of a Wood Partition. Fire Study No. 3, Division of Building Research, National Research Council Canada, Ottawa, October 1960. NRCC 5769.

7.3. Assessment of Archaic Assemblies

Information in this document applies to new construction. Please refer to early editions of the Supplement to the National Building Code of Canada for the assessment or evaluation of assemblies that do not conform to the information in this edition of the Building Code. As with other documents, this Code is revised according to the information presented to the standing committee responsible for its content, and with each update new material may be added and material that is not relevant may be deleted.

7.4. Development of the Component Additive Method

The component additive method was developed based upon the following observations and conclusions drawn from published as well as unpublished test information.

Study of the test data showed that structural failure preceded failure by other criteria (transmission of heat or hot gases) in most of the tests of loadbearing wood-framed assemblies. The major contributor to fire resistance was the membrane on the fire-exposed side.

Fire tests of wood joist floors without protective ceilings resulted in structural failure between 8 and 10 min. Calculation of the time for wood joists to approach breaking stress, based upon the charring rate of natural woods, suggested a time of 10 min for structural failure. This time was subtracted from the fire-resistance test results of wood joist floors and the remainder considered to be the contribution of the membrane.

The figures obtained for the contribution of membranes were then applied to the test results for open web steel joist floors and wood and steel stud walls and values of 20 min for the contribution of wood stud framing and 10 min for steel framing were derived.

The fire-resistance rating has been limited to 1.5 h as this method of developing ratings for framed assemblies was new and untried. Although this is the subject of current review, no decision has been made to extend the ratings beyond 1.5 h.

(1) M. Galbreath, G. C. Gosselin, and R. B. Chauhan, Historical Guide to Chapter 2 of the Supplement to the National Building Code of Canada, Committee Paper FPR 1-3, Prepared for the Standing Committee on Fire Performance Ratings, May 1987.

Example showing fire-resistance rating of a typical membrane assembly, calculated using the component additive method.

1 Hour Gypsum Board/Wood Stud Interior Partition

A 1 h fire-resistance rating is required for an interior wood framed partition, using 12.7 mm Type X gypsum board.

(a) Since gypsum board is used (Sentence 2.3.4.(2) and Table 2.3.4.A.) time assigned to 12.7 mm Type X gypsum board membrane on the fire-exposed side of the partition = 25 min
(b) Time assigned to wood framing members at 406 mm o.c. (Sentence 2.3.4.(3) and Table 2.3.4.E.) = 20 min
(c) Time assigned to insulation, if the spaces between the studs are filled with preformed insulation of rock or slag fibres conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification ", (Sentence 2.3.4.(4) and Table 2.3.4.G.) = 15 min
(d) Time assigned to the membrane on the non-fire-exposed side (Sentence 2.3.5.(1)) = 0 min
Fire-resistance rating = 25 + 20 + 15 = 60 min

MMAH Supplementary Standard SB-3

Fire and Sound Resistance Tables

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-3 comes into force on the 1st day of January 2025.

SB-3 Fire and Sound Resistance Tables

(This Standard is based in large measure on the Fire and Sound Resistance Tables of the National Building Code of Canada 2020)

The following Tables may be used to select building assemblies for compliance with Articles 5.8.1.3., Sentence 9.10.3.1.(1), Articles 9.10.5.1., 9.11.1.3., 9.11.1.4. and Sentence 9.29.5.9.(5) of Division B of the 2024 Building Code.

Tables 1 and 2 have been developed from information gathered from tests. While a large number of the assemblies listed were tested, the fire-resistance and acoustical ratings for others were assigned on the basis of extrapolation of information from tests of similar assemblies. Where there was enough confidence relative to the fire performance of an assembly, the fire-resistance ratings were assigned relative to the commonly used minimum ratings of 30 min, 45 min and 1 h, including a designation of "< 30 min" for assemblies that are known not to meet the minimum 30-minute rating. Where there was not enough comparative information on an assembly to assign to it a rating with confidence, its value in the Tables has been left blank (hyphen), indicating that its rating remains to be assessed through another means

These Tables are provided only for the convenience of Code users and do not limit the number of assemblies permitted to those in the Tables. The notes to Tables 1 and 2 are mandatory parts of the Tables and must be used by designers in complying with the design requirements of a particular assembly. Assemblies not listed or not given a rating in these Tables are equally acceptable provided their fire and sound resistance can be demonstrated to meet the above-noted requirements either on the basis of tests referred to in Article 9.10.3.1. and Subsection 9.11.1. or by using the data in MMAH Supplementary Standard SB-2, “Fire-Performance Ratings”. It should be noted, however, that Tables 1 and 2 of this Supplementary Standard are not based on the same assumptions as those used in MMAH Supplementary Standard SB-2. Assemblies in Tables 1 and 2 are described through their generic descriptions and variants and the important details given in the notes to the Tables. Assumptions for MMAH Supplementary Standard SB-2 include different construction details that must be followed rigorously for the calculated ratings to be expected. These are two different methods of choosing assemblies that meet required fire ratings.

Table 2 presents fire-resistance and acoustical ratings for floor, ceiling and roof assemblies. The fire-resistance ratings are appropriate for all assemblies conforming to the construction specifications given in Table 2, including applicable Table notes. Acoustical ratings for assemblies decrease with decreasing depth and decreasing separation of the structural members; the values listed for sound transmission class and impact insulation class are suitable for the minimum depth of structural members identified in the description, including applicable Table notes, and for structural member spacing of 305 mm o.c., unless other values are explicitly listed for the assembly. Adjustments to the acoustical ratings to allow for the benefit of deeper or more widely spaced structural members are given in Table Notes (9) and (10).

For wall, floor and ceiling assemblies, framing spacing previously specified as 16 and 24 inch on centre has been converted to 406 and 610 mm respectively to represent actual framing spacing used in the field to accommodate modular sheathing panel dimensions. These metric dimensions are deemed to comply with test results based on reported framing spacing of 400 mm or 600 mm on centre.

Section 1 Fire and Sound Resistance of Walls

Table 1
Fire and Sound Resistance of Walls[1]

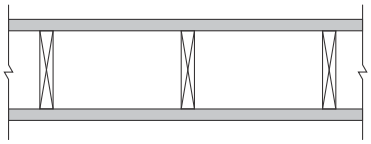
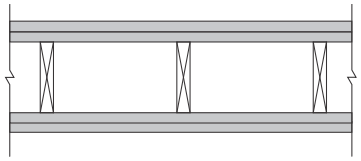
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Single Row • Loadbearing or Non-Loadbearing	W1	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	W1a	W1 with • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	1 h	1 h	36
	W1b	W1 with • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	45 min [1 h][8]	34
	W1c	W1 with • 89 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7][9]	30 min	30 min [45 min][8]	32
	W1d	W1 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1 h	1 h	32
	W1e	W1 with • no absorptive material • 12.7 mm Type X gypsum board[7]	45 min	45 min	32
	W2	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 2 layers of gypsum board on each side			
	W2a	W2 with • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	38
	W2b	W2 with • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	38
	W2c	W2 with • 89 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	45 min	1 h	36
	W2d	W2 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	36
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

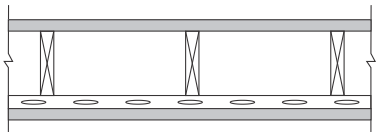
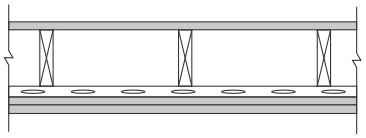
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Single Row • Loadbearing or Non-Loadbearing	W2e	W2 with • no absorptive material • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	35
	W2f	W2 with • no absorptive material • 12.7 mm regular gypsum board[7]	45 min	1 h	34
	W3	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on each side			
	W3a	W3 with • studs spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7]	45 min	1 h	45
	W3b	W3 with • studs spaced 610 mm o.c. • 15.9 mm Type X gypsum board[7]	45 min	1 h	48
	W3c	W3 with • studs spaced 406 mm or 610 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min	45 min	43
	W4	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on resilient metal channel side • 1 layer of gypsum board on other side			
	W4a	W4 with • studs spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	1 h [1.5 h][8]	51
	W4b	W4 with • studs spaced 610 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	1 h [1.5 h][8]	54
	W4c	W4 with • studs spaced 406 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	1 h	49
	W4d	W4 with • studs spaced 610 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	1 h	53
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

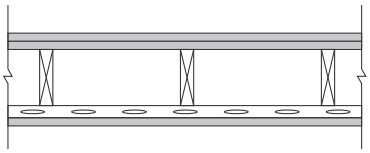
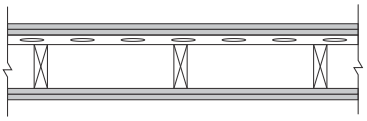
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Single Row • Loadbearing or Non-Loadbearing	W5	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on resilient metal channel side • 2 layers of gypsum board on other side			
	W5a	W5 with • studs spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7]	45 min	1 h	51
	W5b	W5 with • studs spaced 610 mm o.c. • 15.9 mm Type X gypsum board[7]	45 min	1 h	54
	W5c	W5 with • studs spaced 406 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min	1 h	49
	W5d	W5 with • studs spaced 610 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min	1 h	53
	W6	• 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • resilient metal channels on one side • 2 layers of gypsum board on each side			
	W6a	W6 with • studs spaced 406 mm or 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	55
	W6b	W6 with • studs spaced 406 mm or 610 mm o.c. with blocking at mid-height[10] • 89 mm thick rock or slag fibre insulation[11] • resilient metal channels spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7]	2 h	2 h	–
	W6c	W6 with • studs spaced 406 mm o.c. with blocking at mid-height[10] • 89 mm thick dry-blown cellulose fibre insulation[12] • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7]	2 h	2 h	–
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Single Row • Loadbearing or Non-Loadbearing	W6d	W6 with • studs spaced 406 mm or 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	58
	W6e	W6 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	53
	W6f	W6 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	55
	W6g	W6 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	55
	W6h	W6 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	58
	W6i	W6 with • studs spaced 406 mm or 610 mm o.c. • no absorptive material • resilient metal channels spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	47
	W6j	W6 with • studs spaced 406 mm or 610 mm o.c. • no absorptive material • resilient metal channels spaced 406 mm or 610 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	46
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

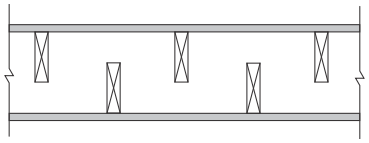
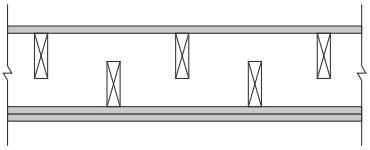
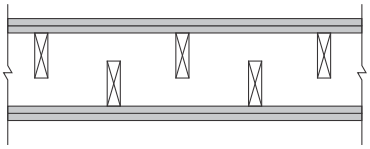
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows Staggered on 38 mm x 140 mm plate • Loadbearing or Non-Loadbearing	W7	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 1 layer of gypsum board on each side			
	W7a	W7 with • 15.9 mm Type X gypsum board[7]	1 h	1 h	47
	W7b	• W7 with • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	45 min [1 h][8]	45
	W7c	W7 with • 12.7 mm regular gypsum board[7][9]	30 min	30 min [45 min][8]	42
	W8	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 2 layers of gypsum board on one side • 1 layer of gypsum board on other side			
	W8a	W8 with • 15.9 mm Type X gypsum board[7]	1 h	1.5 h	52
	W8b	W8 with • 12.7 mm Type X gypsum board[7]	45 min	1 h	50
	W9	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • with or without absorptive material • 2 layers of gypsum board on each side			
	W9a	W9 with • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	56
	W9b	W9 with • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	55
	W9c	W9 with • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 12.7 mm regular gypsum board[7]	45 min	1 h	53
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

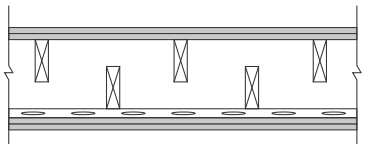
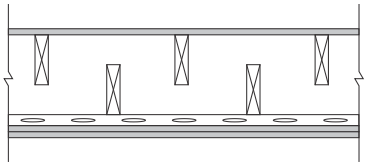
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows Staggered on 38 mm x 140 mm plate • Loadbearing or Non-Loadbearing	W9d	W9 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	48
	W10	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • with or without absorptive material • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on each side			
	W10a	W10 with • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	62
	W10b	W10 with • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	60
	W10c	W10 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	50
	W10d	W10 with • no absorptive material • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	48
	W11	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on resilient channel side • 1 layer of gypsum board on other side			
	W11a	W11 with • 15.9 mm Type X gypsum board[7]	1 h	1 h	56
	W11b	W11 with • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	1 h	54
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

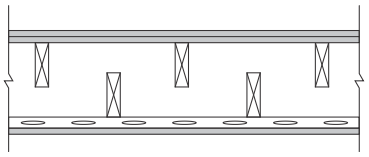
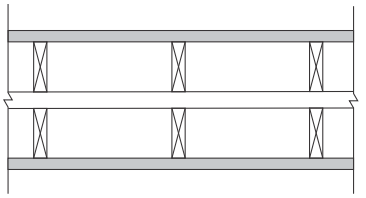
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows Staggered on 38 mm x 140 mm plate • Loadbearing or Non-Loadbearing	W12	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. staggered on common 38 mm x 140 mm plate • 89 mm thick absorptive material on one side or 65 mm thick on each side[6] • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on resilient metal channel side • 2 layers of gypsum board on other side			
	W12a	W12 with • 15.9 mm Type X gypsum board[7]	45 min	1 h	56
	W12b	W12 with • 12.7 mm Type X gypsum board[7]	45 min	1 h	54
• Wood Studs • Two Rows on Separate Plates • Loadbearing or Non-Loadbearing	W13	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. on separate 38 mm x 89 mm plates set 25 mm apart • with or without absorptive material • 1 layer of gypsum board on each side			
	W13a	W13 with • 89 mm thick absorptive material on each side[6][13] • 15.9 mm Type X gypsum board[7]	1 h	1 h	57
	W13b	W13 with • 89 mm thick absorptive material on each side[6][13] • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	45 min [1 h][8]	57
	W13c	W13 with • 89 mm thick absorptive material on one side only[6][13] • 15.9 mm Type X gypsum board[7]	1 h	1 h	54
	W13d	W13 with • 89 mm thick absorptive material on one side only[6][13] • 12.7 mm Type X gypsum board[7]	45 min	45 min	53
	W13e	W13 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1 h	1 h	45
	W13f	W13 with • no absorptive material • 12.7 mm Type X gypsum board[7]	45 min	45 min	45
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

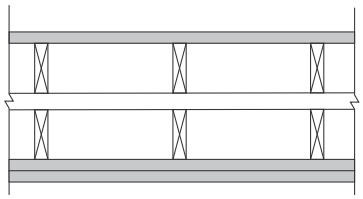
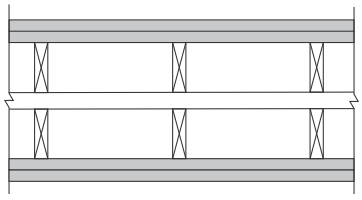
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows on Separate Plates • Loadbearing or Non-Loadbearing	W14	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. on separate 38 mm x 89 mm plates set 25 mm apart • with or without absorptive material • 2 layers of gypsum board on one side • 1 layer of gypsum board on other side			
	W14a	W14 with • 89 mm thick absorptive material on each side[6][13] • 15.9 Type X gypsum board[7]	1 h	1 h [1.5 h][8]	61
	W14b	W14 with • 89 mm thick absorptive material on each side[6][13] • 12.7 Type X gypsum board[7]	45 min	1 h	61
	W14c	W14 with • 89 mm thick absorptive material on one side only[6][13] • 15.9 Type X gypsum board[7]	1 h	1 h	57
	W14d	W14 with • 89 mm thick absorptive material on one side only[6][13] • 12.7 Type X gypsum board[7]	45 min	1 h	57
	W14e	W14 with • no absorptive material • 15.9 Type X gypsum board[7]	1 h	1 h	51
	W14f	W14 with • no absorptive material • 12.7 Type X gypsum board[7]	45 min	1 h	51
	W15	• two rows 38 mm x 89 mm wood studs each spaced 406 mm or 610 mm o.c. on separate 38 mm x 89 mm plates set 25 mm apart • with or without absorptive material • 2 layers of gypsum board on each side			
	W15a	W15 with • 89 mm thick absorptive material on each side[6][13] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	66
	W15b	W6 with • 89 mm thick absorptive material on each side[6][13] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	65
	W15c	W15 with • 89 mm thick absorptive material on each side[6][13] • 12.7 mm regular gypsum board[7]	45 min	1 h	61
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

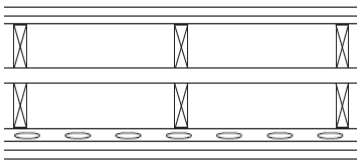
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows on Separate Plates • Loadbearing or Non-Loadbearing	W15d	W15 with • 89 mm thick absorptive material on one side only[6][13] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	62
	W15e	W15 with • 89 mm thick absorptive material on one side only[6][13] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	60
	W15f	W15 with • 89 mm thick absorptive material on one side only[6][13] • 12.7 mm regular gypsum board[7]	45 min	1 h	57
	W15g	W15 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	56
	W15h	W15 with • no absorptive material • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	55
	W15i	W15 with • no absorptive material • 12.7 mm regular gypsum board[7]	45 min	1 h	51
	W16	• two rows 38 mm x 89 mm studs, each spaced 406 mm or 610 mm o.c. on separate 38 mm x 89 mm plates set 25 mm apart • resilient metal channels on one side spaced 406 mm or 610 mm o.c. • with or without absorptive material • 2 layers of gypsum board on each side			
	W16a	W16 with • 89 mm thick absorptive material on each side[6][13] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	66
	W16b	W16 with • studs spaced 406 mm o.c. with blocking at mid-height[10] • 89 mm thick rock or slag fibre insulation on each side[11] • resilient metal channels on one side spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7][14]	2 h	2 h	–
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

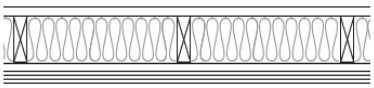
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Wood Studs • Two Rows on Separate Plates • Loadbearing or Non-Loadbearing	W16c	W16 with • 89 mm thick absorptive material on each side[6][13] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	65
	W16d	W16 with • 89 mm thick absorptive material on one side only[6][13] • 15.9 mm Type X gypsum board[7]	1.5 h	2 h	62
	W16e	W16 with • 89 mm thick absorptive material on one side only[6][13] • 12.7 mm Type X gypsum board[7]	1 h	1.5 h	60
	W16f	W16 with • no absorptive material • 12.7 mm regular gypsum board[7]	1.5 h	2 h	56
	W16g	W16 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1 h	1.5 h	55
• Exterior • Wood Studs • Single Row • Loadbearing and Non-Loadbearing	EW1	• wood studs • rock or slag fibre insulation[11] • 1 layer of gypsum board on inside • exterior sheathing and cladding			
	EW1a	EW1 with • 38 mm x 89 mm wood studs spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	1 h	1 h	N/A
	EW1b	EW1 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
	EW1c	EW1 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

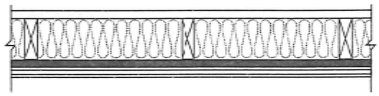
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Exterior • Wood Studs • Single Row • Loadbearing and Non-Loadbearing	EW1d	EW1 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 12.7 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	–	45 min	N/A
	EW1e	EW1 with • 38 mm x 140 mm studs spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior wood sheathing, exterior gypsum sheathing, or insulated exterior sheathing[20] • masonry veneer cladding not less than 89 mm thick	45 min	45 min	N/A
	EW2	• wood studs • glass fibre insulation[21] • 1 layer of gypsum board on inside • exterior sheathing and cladding			
	EW2a	EW2 with • 38 mm × 89 mm studs spaced 406 mm o.c. • 15.9 mm Type X gypsum board[7][15][22] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[23] and cladding[19]	1 h	1 h	N/A
	EW2b	EW2 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
	EW2c	EW2 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17]) and cladding[19]	45 min	1 h	N/A
	EW2d	EW2 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] and cladding[19]	-–	45 min	N/A
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

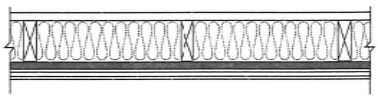
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Exterior • Wood Studs • Single Row • Loadbearing and Non-Loadbearing	EW2e	EW2 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 15.9 mm Type X gypsum board[7][15] • exterior gypsum sheathing[18] and cladding[19]	-–	45 min	N/A
	EW2f	EW2 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] exterior OSB or plywood sheathing[17] and cladding[19]	45 min	1 h	N/A
	EW2g	EW2 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] and cladding[19]	–	45 min	N/A
	EW2h	EW2 with • 38 mm x 89 mm studs spaced 406 mm or 610 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior gypsum sheathing[18] and cladding[19]	–	45 min	N/A
	EW2i	EW2 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] and cladding[19]	–	45 min	N/A
	EW2j	EW2 with • 38 mm x 140 mm studs spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior wood sheathing, exterior gypsum sheathing or insulated exterior sheathing[20] • masonry veneer cladding not less than 89 mm thick	45 min	45 min	N/A
	EW3	• wood studs • dry-blown cellulose fibre insulation[12] • 1 layer of gypsum board on inside • exterior sheathing and cladding			
	EW3a	EW3 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	1 h	1 h	N/A
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Exterior • Wood Studs • Single Row • Loadbearing and Non-Loadbearing	EW3b	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] and cladding[19]	1 h	1 h	N/A
	EW3c	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
	EW3d	EW3 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7][15] exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
	EW3e	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] and cladding[19]	45 min	1 h	N/A
	EW3f	EW3 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	45 min	1 h	N/A
	EW3g	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior OSB or plywood sheathing[17] and cladding[19]	45 min	1 h	N/A
	EW3h	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7][15][16] • exterior gypsum sheathing[18] and cladding[19]	—	45 min	N/A
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

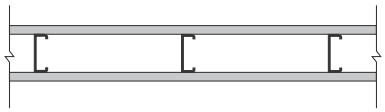
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Exterior • Wood Studs • Single Row • Loadbearing and Non-Loadbearing	EW3i	EW3 with • 38 mm x 89 mm studs spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] or exterior gypsum sheathing[18] and cladding[19]	—	45 min	N/A
	EW3j	EW3 with • 38 mm x 89 mm studs spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7][15] • exterior OSB or plywood sheathing[17] and cladding[19]	—	45 min	N/A
	EW3k	EW3 with • 38 mm x 140 mm studs spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7][15][16] • exterior wood sheathing, exterior gypsum sheathing or insulated exterior sheathing[20] • masonry veneer cladding not less than 89 mm thick	45 min	45 min	N/A
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S1	• 31 mm x 64 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	S1a	S1 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	45 min [1 h][8]	43
	S1b	S1 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	45 min [1 h][8]	39
	S1c	S1 with • studs spaced 406 mm or 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	45 min	35
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

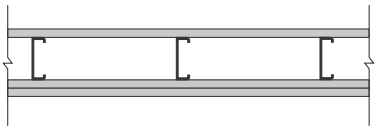
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S2	• 31 mm x 64 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on one side • 2 layers of gypsum board on other side			
	S2a	S2 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	1 h	50
	S2b	S2 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	1 h	44
	S2c	S2 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1 h	50
	S2d	S2 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1 h	42
	S2e	S2 with • studs spaced 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	1 h	41
	S2f	S2 with • studs spaced 406 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	1 h	37
	S2g	S2 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1 h	40
	S2h	S2 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1 h	35
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

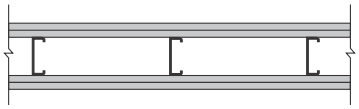
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S3	• 31 mm x 64 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 2 layers of gypsum board on each side			
	S3a	S3 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	2 h	54
	S3b	S3 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	2 h	51
	S3c	S3 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1.5 h	53
	S3d	S3 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1.5 h	47
	S3e	S3 with • studs spaced 610 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	1 h	49
	S3f	S3 with • studs spaced 406 mm o.c. • 65 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	1 h	41
	S3g	S3 with • studs spaced 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	2 h	45
	S3h	S3 with • studs spaced 406 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	2 h	42
	S3i	S3 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1.5 h	44
	S3j	S3 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1.5 h	39
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

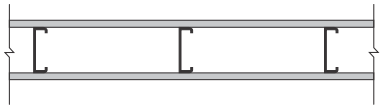
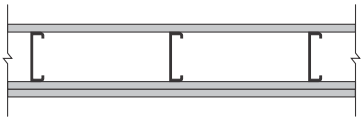
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S3k	S3 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm regular gypsum board[7]	—	1 h	40
	S3l	S3 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm regular gypsum board[7]	—	1 h	37
	S4	• 31 mm x 92 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	S4a	S4 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	45 min [1 h][8]	48
	S4b	S4 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	45 min [1 h][8]	47
	S4c	S4 with • studs spaced 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	45 min	38
	S4d	S4 with • studs spaced 406 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	45 min	38
	S5	• 31 mm x 92 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on one side • 2 layers of gypsum board on other side			
	S5a	S5 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	53
	S5b	S5 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	52
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

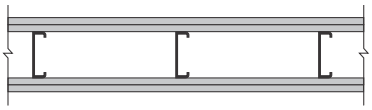
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S5c	S5 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	51
	S5d	S5 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	50
	S5e	S5 with • studs spaced 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	1 h	43
	S5f	S5 with • studs spaced 406 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	1 h	42
	S5g	S5 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1 h	41
	S5h	S5 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1 h	40
	S6	• 31 mm x 92 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 2 layers of gypsum board on each side			
	S6a	S6 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	2 h	56
	S6b	S6 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	2 h	55
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S6c	S6 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1.5 h	55
	S6d	S6 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1.5 h	54
	S6e	S6 with • studs spaced 610 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	1 h	50
	S6f	S6 with • studs spaced 406 mm o.c. • 89 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	1 h	48
	S6g	S6 with • studs spaced 610 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	2 h	47
	S6h	S6 with • studs spaced 406 mm o.c. • no absorptive material • 15.9 mm Type X gypsum board[7]	—	2 h	45
	S6i	S6 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1.5 h	45
	S6j	S6 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1.5 h	44
	S6k	S6 with • studs spaced 610 mm o.c. • no absorptive material • 12.7 mm regular gypsum board[7]	—	1 h	41
	S6l	S6 with • studs spaced 406 mm o.c. • no absorptive material • 12.7 mm regular gypsum board[7]	—	1 h	39
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

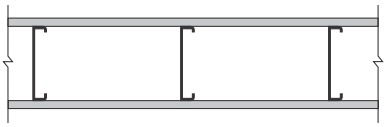
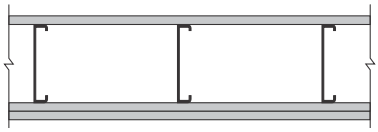
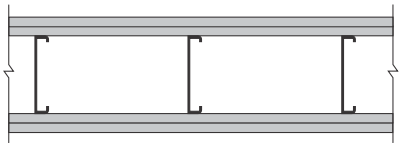
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S7	• 31 mm x 152 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	S7a	S7 with • 150 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	45 min [1 h][8]	51
	S7b	S7 with • no absorptive material • 15.9 mm Type X gypsum board[7]	—	45 min	41
	S8	• 31 mm x 152 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on one side • 2 layers of gypsum board on other side			
	S8a	S8 with • 150 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	55
	S8b	S8 with • 150 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1 h [1.5 h][8]	54
	S8c	S8 with • no absorptive material • 15.9 mm Type X gypsum board[7]	—	1 h	45
	S8d	S8 with • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1 h	44
	S9	• 31 mm x 152 mm steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • 2 layers of gypsum board on each side			
	S9a	S9 with • 150 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	—	2 h	59
	S9b	S9 with • 150 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	—	1.5 h	57
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

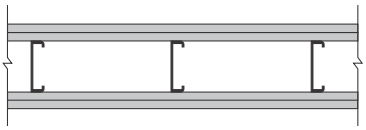
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Non-Loadbearing Steel Studs • 0.46 mm (25 Gauge)	S9c	S9 with • 150 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	1 h	53
	S9d	S9 with • no absorptive material • 15.9 mm Type X gypsum board[7]	—	2 h	49
	S9e	S9 with • no absorptive material • 12.7 mm Type X gypsum board[7]	—	1.5 h	47
	S9f	S9 with • no absorptive material • 12.7 mm regular gypsum board[7]	—	1 h	43
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S10	• 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. • with or without cross-bracing on one side • with or without absorptive material • 2 layers of gypsum board on each side			
	S10a	S10 with • 89 mm thick absorptive material[6] • 15.9 mm Type X gypsum board[7]	1 h	—	38
	S10b	S10 with • 89 mm thick absorptive material[6] • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	—	38
	S10c	S10 with • 89 mm thick absorptive material[6] • 12.7 mm regular gypsum board[7]	—	—	36
	S10d	S10 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1 h	—	36
	S10e	S10 with • no absorptive material • 12.7 mm Type X gypsum board[7]	1 h	—	35
	S10f	S10 with • no absorptive material • 12.7 mm regular gypsum board[7]	—	—	34
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

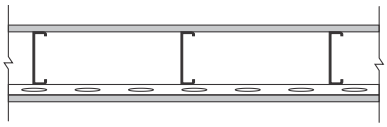
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S11	• 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. • with or without cross-bracing on one side • with or without absorptive material • resilient metal channels on one side • 1 layer of gypsum board on each side			
	S11a	S11 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	50
	S11b	S11 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	47
	S11c	S11 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	41
	S11d	S11 with • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	39
	S11e	S11 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	47
	S11f	S11 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	45
	S11g	S11 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	38
	S11h	S11 with • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	36
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

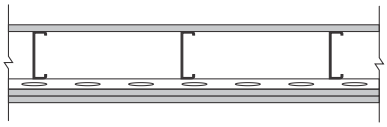
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S12	• 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. • with or without cross-bracing on one side • with or without absorptive material • resilient metal channels on one side • 2 layers of gypsum board on resilient channel side • 1 layer of gypsum board on other side			
	S12a	S12 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	54
	S12b	S12 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	52
	S12c	S12 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	46
	S12d	S12 with • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	—	—	43
	S12e	S12 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	52
	S12f	S12 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	50
	S12g	S12 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	43
	S12h	S12 with • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	—	—	41
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

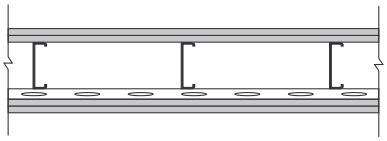
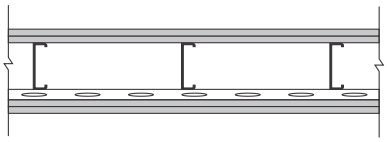
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S13	• 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • resilient metal channels on one side spaced at 406 mm o.c. • 2 layers of gypsum board on resilient channel side • 1 layer shear membrane and 1 layer gypsum board on other side			
	S13a	S13 with • 89 mm thick absorptive material[6] • 12.7 mm OSB shear membrane • 12.7 mm Type X gypsum board[7]	30 min	—	57
	S14	• 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. • with or without absorptive material • resilient metal channels on one side • 2 layers of gypsum board on each side			
	S14a	S14 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	60
	S14b	S14 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	—	57
	S14c	S14 with • 89 mm thick absorptive material[6] • resilient metal channels spaced at 610 mm o.c. • 12.7 mm regular gypsum board[7]	—	—	54
	S14d	S14 with • 89 mm thick absorptive material • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	45 min [1 h][8]	—	55
	S14e	S14 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	51
	S14f	S14 with • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 12.7 mm regular gypsum board[7]	—	—	45
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

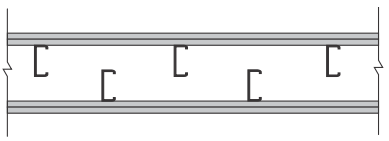
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S14g	S14 with • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	—	47
	S14h	S14 with • studs at 610 mm o.c. • 89 mm thick absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	60
	S14i	S14 with • studs at 406 mm o.c. • 89 mm thick absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	58
	S14j	S14 with • studs at 610 mm o.c. • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	51
	S14k	S14 with • studs at 406 mm o.c. • no absorptive material • resilient metal channels spaced at 406 mm o.c. • 15.9 mm Type X gypsum board[7]	1 h	—	49
	S14l	S14 with • studs at 406 mm o.c. • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 12.7 mm Type X gypsum board[7]	1 h	—	49
	S14m	S14 with • studs at 610 mm o.c. • no absorptive material • resilient metal channels spaced at 610 mm o.c. • 12.7 mm regular gypsum board[7]	1 h	—	50
	S15	• 2 rows of 41 mm x 92 mm loadbearing steel studs spaced 406 mm or 610 mm o.c. staggered on 152 mm common plate • with cross-bracing • with or without absorptive material • 2 layers of gypsum board on each side			
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

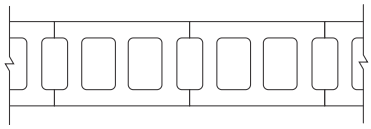
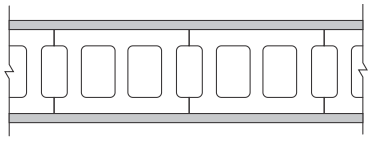
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Loadbearing Steel Studs • 0.84 mm to 1.52 mm thickness	S15a	S15 with • 89 mm thick absorptive material in each cavity[6] • 15.9 mm Type X gypsum board[7]	1 h	—	68
	S15b	S15 with • 89 mm thick absorptive material in each cavity[6] • 12.7 mm Type X gypsum board[7]	1 h	—	68
	S15c	S15 with • no absorptive material • 15.9 mm Type X gypsum board[7]	1.5 h	—	52
	S15d	S15 with • no absorptive material • 12.7 mm Type X gypsum board[7]	1 h	—	52
• Hollow Concrete Block (Normal Weight Aggregate)	B1	• 140 mm or 190 mm concrete block			
	B1a	• 140 mm bare concrete block[5]	1 h	1 h	48
	B1b	• 190 mm bare concrete block[5]	1.5 h	1.5 h	50
	B2	• 140 mm or 190 mm concrete block • no absorptive material • 1 layer of gypsum-sand plaster or gypsum board on each side			
	B2a	B2 with • 140 mm concrete block • 12.7 mm gypsum-sand plaster	2 h	2 h	50
	B2b	B2 with • 140 mm concrete block • 12.7 mm Type X gypsum board or 15.9 mm Type X gypsum board[7]	2 h	2 h	47
	B2c	B2 with • 140 mm concrete block • 12.7 mm regular gypsum board[7]	1.5 h	1.5 h	46
	B2d	B2 with • 190 mm concrete block • 12.7 mm gypsum-sand plaster	2.5 h	2.5 h	51
	B2e	B2 with • 190 mm concrete block • 15.9 mm Type X gypsum board[7]	3 h	3 h	50
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

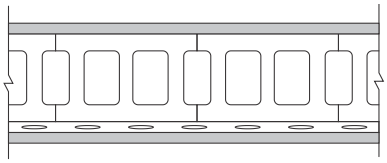
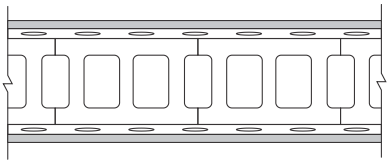
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Hollow Concrete Block (Normal Weight Aggregate)	B2f	B2 with • 190 mm concrete block • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	49
	B2g	B2 with • 190 mm concrete block • 12.7 mm regular gypsum board[7]	2 h	2 h	48
	B3	• 140 mm or 190 mm concrete block • resilient metal channels on one side spaced at 406 mm or 610 mm o.c. • absorptive material filling resilient metal channel space[6] • 1 layer of gypsum board on each side			
	B3a	B3 with • 140 mm concrete block • 12.7 mm Type X gypsum board or 15.9 mm Type X gypsum board[7]	2 h	2 h	51
	B3b	B3 with • 140 mm concrete block • 12.7 mm regular gypsum board[7][9]	1.5 h	1.5 h	48
	B3c	B3 with • 190 mm concrete block • 15.9 mm Type X gypsum board[7]	3 h	3 h	54
	B3d	B3 with • 190 mm concrete block • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	53
	B3e	B3 with • 190 mm concrete block • 12.7 mm regular gypsum board[7][9]	2 h	2 h	51
	B4	• 140 mm or 190 mm concrete block • resilient metal channels on each side spaced at 406 mm or 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	B4a	B4 with • 140 mm concrete block • 12.7 mm Type X gypsum board or 15.9 mm Type X gypsum board[7]	2 h	2 h	47
	B4b	B4 with • 140 mm concrete block • 12.7 mm regular gypsum board[7][9]	1.5 h	1.5 h	42
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

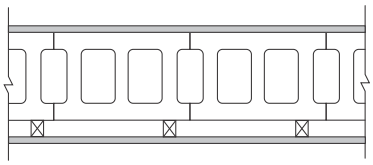
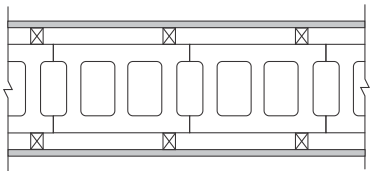
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Hollow Concrete Block (Normal Weight Aggregate)	B4c	B4 with • 190 mm concrete block • 15.9 mm Type X gypsum board[7]	3 h	3 h	50
	B4d	B4 with • 190 mm concrete block • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	49
	B4e	B4 with • 190 mm concrete block • 12.7 mm regular gypsum board[7][9]	2 h	2 h	45
	B5	• 190 mm concrete block • 38 mm x 38 mm horizontal or vertical wood strapping on one side spaced at 610 mm o.c. • with or without absorptive material • 1 layer of gypsum board on each side			
	B5a	B5 with • 15.9 mm Type X gypsum board[7]	3 h	3 h	54
	B5b	B5 with • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	53
	B5c	B5 with • 12.7 mm regular gypsum board[7][9]	2 h	2 h	51
	B6	• 140 mm or 190 mm concrete block • 38 mm x 38 mm horizontal or vertical wood strapping on each side spaced at 610 mm o.c. • absorptive material filling strapping space on each side[6] • 1 layer of gypsum board on each side			
	B6a	B6 with • 140 mm concrete block • 12.7 mm Type X gypsum board or 15.9 mm Type X gypsum board[7]	2 h	2 h	57
	B6b	B6 with • 140 mm concrete block • 12.7 mm regular gypsum board[7][9]	1.5 h	1.5 h	56
	B6c	B6 with • 190 mm concrete block • 15.9 mm Type X gypsum board[7]	3 h	3 h	60
	B6d	B6 with • 190 mm concrete block • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	59
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

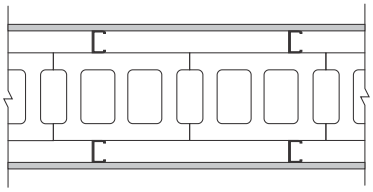
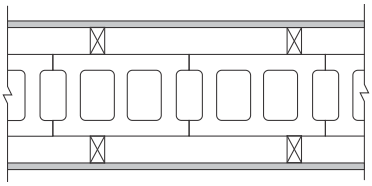
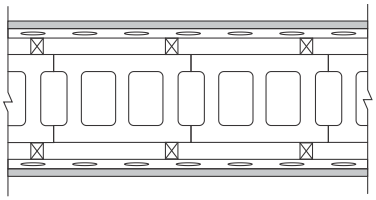
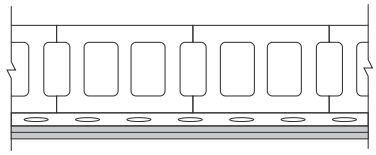
Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
• Hollow Concrete Block (Normal Weight Aggregate)	B6e	B6 with • 190 mm concrete block • 12.7 mm regular gypsum board[7][9]	2 h	2 h	57
	B7	• 190 mm concrete block • 65 mm steel studs each side spaced at 610 mm o.c. • absorptive material filling stud space on each side[6] • 1 layer of gypsum board on each side			
	B7a	B7 with • 15.9 mm Type X gypsum board[7]	3 h	3 h	71
	B7b	B7 with • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	70
	B7c	B7 with • 12.7 mm regular gypsum board[7][9]	2 h	2 h	69
	B8	• 190 mm concrete block • 38 mm x 64 mm wood studs on each side spaced at 610 mm o.c. • absorptive material filling stud space on each side[6] • 1 layer of gypsum board on each side			
	B8a	B8 with • 15.9 mm Type X gypsum board[7]	3 h	3 h	71
	B8b	B8 with • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	70
	B8c	B8 with • 12.7 mm regular gypsum board[7][9]	2 h	2 h	69
	B9	• 190 mm concrete block • 50 mm metal Z-bars on each side spaced at 610 mm o.c. (or 38 mm x 38 mm horizontal or vertical wood strapping plus resilient metal channels) • absorptive material filling Z-bar space on each side[6] • 1 layer of gypsum board on each side			
	B9a	B9 with • 15.9 mm Type X gypsum board[7]	3 h	3 h	65
	B9b	B9 with • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	64
	B9c	B9 with • 12.7 mm regular gypsum board[7][9]	2 h	2 h	63
Column 1	2	3	4	5	6

Table 1 (Cont'd)
Fire and Sound Resistance of Walls[1]

Type of Wall	Wall Number	Description	Fire-Resistance Rating[2][3][4]		Typical Sound Transmission Class[2][4][5] (STC)
			Loadbearing	Non-Loadbearing	
	B10	• 190 mm concrete block • resilient metal channels on one side spaced at 610 mm o.c. • absorptive material filling resilient metal channel space[6] • 2 layers of gypsum board on one side only			
	B10a	B10 with • 15.9 mm Type X gypsum board[7]	3 h	3 h	56
	B10b	B10 with • 12.7 mm Type X gypsum board[7]	2.5 h	2.5 h	55
	B10c	B10 with • 12.7 mm regular gypsum board[7]	2 h	2 h	54
Column 1	2	3	4	5	6

Notes to Table 1:

(1) Reserved.

(2) Fire-resistance ratings and STC ratings of wood-frame construction were evaluated only for assemblies with solid-sawn 38 mm × 89 mm lumber. However, the fire-resistance ratings and STC ratings provided for 38 mm × 89 mm wood-frame assemblies may be applied to wood-frame assemblies with solid-sawn 38 mm × 140 mm lumber; in some cases the ratings may be conservative. Where 38 mm × 140 mm framing is used and absorptive material is called for, the absorptive material must be 140 mm thick. (See 1.2.1.(2) in MMAH Supplementary Standard SB-2 for the significance of fire-resistance ratings).

The STC ratings may also be applied to fingerjoined lumber. The fire-resistance ratings are applicable to wall assemblies using fingerjoined lumber that has been manufactured with a heat-resistant adhesive (HRA) in accordance with NLGA special product standard SPS-1-2017 "Fingerjoined Structural Lumber", or SPS-3-2017, "Fingerjoined 'Vertical Stud Use Only' Lumber". (See also Appendix Note A-9.23.10.4.(1) under Division B in Appendix A of the Building Code).

(3) For all fire-resistance ratings, the given spacing for framing is a maximum value.

(4) Sound ratings listed are based on the most reliable laboratory test data available for specimens conforming to installation details required by CSA A82.31-M1980, "Gypsum Board Application". Results of specific tests may differ slightly because of measurement precision and minor variations in construction details. These results should only be used where the actual construction details, including spacing of fasteners and supporting framing, correspond exactly to the details of the test specimens on which the ratings are based. For wood- and steel-framed assemblies, if the fasteners are spaced less than 300 mm o.c., subtract 1 from the sound transmission class value; if the fasteners are spaced less than 200 mm o.c., subtract 2 from the sound transmission class value. Narrower fastener spacing is not detrimental to the fire-resistance rating. Assemblies with sound transmission class ratings of 50 or more require methods to minimize airborne sound transmission at electrical boxes and other openings, and at the junction of intersecting walls and floors, except intersection of walls constructed of concrete or solid masonry units where the masonry joints at the intersection are mortared.

(5) Sound ratings are only valid where there are no discernible cracks or voids in the visible surfaces. For concrete block walls, surfaces must be sealed by at least 2 coats of paint or other surface finish described in Section 9.29. of Division B of the Building Code to prevent sound leakage.

(6) Sound absorptive material includes fibre processed from rock, slag, glass or cellulose fibre. It must fill at least 90% of the cavity thickness for the wall to provide the listed STC value. The absorptive material should not overfill the cavity to the point of producing significant outward pressure on the finishes; such an assembly will not achieve the STC rating. Where the absorptive material used with steel stud assemblies is in batt form, "steel stud batts", which are wide enough to fill the cavity from the web of one stud to the web of the adjacent studs, must be used.

(7) The complete descriptions of indicated finishes are as follows:
- 12.7 mm regular gypsum board — 12.7 mm regular gypsum board conforming to Article 9.29.5.2. of Division B of the Building Code.
- 12.7 mm Type X gypsum board — 12.7 mm special fire-resistant Type X gypsum board conforming to Article 9.29.5.2. of Division B of the Building Code.
- 15.9 mm Type X gypsum board — 15.9 mm special fire-resistant Type X gypsum board conforming to Article 9.29.5.2. of Division B of the Building Code.
- Except for exterior walls (see Note 15), the outer layer of finish on both sides of the wall must have its joints taped and finished.
- Except as otherwise required for fastener spacing (see Table Notes (14), (16) and (22)), fastener type, spacing and penetration depth for the attachment of gypsum board must conform to Subsection 9.29.5. of Division B of the Building Code and fasteners must consist of
  - nails or screws when attaching gypsum board to wood studs or wood strapping, and
  - screws when attaching gypsum board to cold-formed steel studs or resilient metal channels.

(8) Absorptive material required for the higher fire-resistance rating shall be mineral fibre processed from rock or slag with a mass pr unit of wall surface of at least 4.8 kg/m^2 for 150 mm thickness, 2.8 kg/m^2 for 89 mm thickness and 2.0 kg/m^2 for 65 mm thickness and shall completely fill the wall cavity. For assemblies with double wood studs on separate plates, absorptive material is required in the stud cavities on both sides.

(9) Regular gypsum board used in single layer assemblies must be installed so all edges are supported.

(10) The fire-resistance rating values are achieved as follows:
- for a single row of studs, by installing blocking at a spacing of not more than 1 524 mm o.c. as shown in Case A of Figure 5, or
- for two rows of studs on separate plates, by installing blocking in both rows at a spacing of not more than 1 524 mm o.c. as shown in Case B of Figure 5.

(11) The mineral fibre insulation processed from rock or slag shall have a mass per unit area of wall surface of not less than 4.48 kg/m^2 for 140 mm thickness and 2.85 kg/m^2 for 89 mm thickness and shall completely fill the wall cavity.

(12) The dry-blown cellulose fibre insulation shall have a mass per unit area of wall surface of not less than 6.80 kg/m^2 for 140 mm thickness and 4.32 kg/m^2 for 89 mm thickness and shall completely fill the wall cavity.

(13) Where bracing material, such as diagonal lumber or plywood, OSB, gypsum board or fibreboard sheathing is installed on the inner face of one row of studs in double stud assemblies, the STC rating will be reduced by 3 for any assemblies containing absorptive material in both rows of studs or in the row of studs opposite to that to which the bracing material is attached. Attaching such layers on both inner faces of the studs may drastically reduce the STC value but enough data to permit assignment of STC ratings for this situation is not available. The fire-resistance rating is not affected by the inclusion of such bracing.

(14) For the attachment of the gypsum board, fasteners shall be spaced at not more than 200 mm (nominal) o.c. along the framing members and resilient metal channels in both the base and face layers.

(15) For exterior walls, the finish joints must be taped and finished for the outer layer of the interior side only.

(16) For the attachment of the gypsum board on the interior side of exterior wall assemblies, fasteners shall be spaced at not more than 200 mm (nominal) o.c. along the framing members. All joints shall be backed with lumber having the same dimensions as the framing members as shown in Figures 6 and 7. For EW1e, EW2j and EW3k walls, blocking shall be installed at a spacing of not more than 1 524 mm o.c. as shown in Case A of Figure 5 where joints are backed at a spacing of more than 1 524 mm o.c. along the height of the wall.

(17) The exterior OSB or plywood sheathing shall be not less than 11.1 mm thick and shall be installed with a gap of not less than 2 mm between sheets. Fastener types and spacing shall conform to Table 9.23.3.5.-A of Division B of the Building Code. All joints shall be backed with lumber having the same dimensions as the framing members as shown in Figures 6 and 7.

(18) The exterior gypsum sheathing shall be Type X gypsum sheathing not less than 15.9 mm thick. Fasteners shall be spaced at not more than 200 mm (nominal) o.c. along the framing members.

(19) Any cladding allowed under Part 9 is permitted. The cladding can include foamed plastic and other insulations outboard of the sheathing, where permitted by spatial separation requirements in Subsection 9.10.14. or 9.10.15. of Division B of the Building Code. Where OSB or plywood sheathing acts as the cladding, no additional outboard cladding is required, but is permitted.

(20) Includes any exterior wall sheathing listed in Table 9.23.17.2.-A of Division B of the Building Code and masonry veneer cladding conforming to Section 9.20. of Division B of the Building Code. Foamed plastic sheathing is permitted in EW1e, EW2j and EW3k walls without the use of other sheathing, provided it is directly attached to the framing.

(21) The glass fibre insulation shall have a mass per unit area of wall surface of not less than 1.30 kg/m^2 for 140 mm thickness and 1.0 kg/m^2 for 89 mm thickness and shall completely fill the wall cavity.

(22) For the attachment of the gypsum board on the interior side of exterior wall assemblies, fasteners shall be spaced at not more than 150 mm (nominal) o.c. along the edges and 200 mm (nominal) o.c. along the intermediate supports. All joints shall be backed with lumber having the same dimensions as the framing members as shown in Figures 6 and 7.

(23) The exterior gypsum sheathing shall be not less than 12.7 mm thick. Fasteners shall be spaced at not more than 200 mm (nominal) o.c. along the framing members.

Section 2 Fire and Sound Resistance of Floors, Ceilings and Roofs

Table 2
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

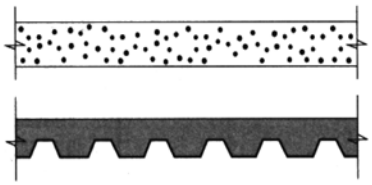
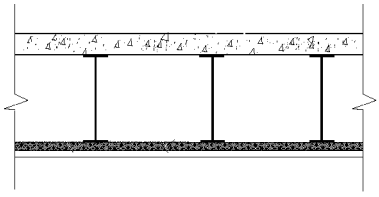
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Concrete Slabs	F1	• concrete floors			
	F1a	• 90 mm reinforced concrete with 20 mm minimum cover over reinforcing steel	1 h	47	23
	F1b	• 130 mm reinforced concrete with 25 mm minimum cover over reinforcing steel	2 h	52	27
	F1c	• pre-stressed hollow core slab 200 mm deep with 25 mm minimum cover over reinforcing steel	1 h	50	28
	F1d	• 150 mm composite slab on 75 mm steel deck with 152 x 152 x MW3.8 x MW3.8 wire mesh	—	51	21
	F1e	• 150 mm composite slab on 75 mm steel deck with 152 x 152 x MW3.8 x MW3.8 wire mesh • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of 12.7 mm Type X gypsum board or 2 layers of 15.9 mm Type X gypsum board	1.5 h	57	36
Open Web Steel Joists	F2	• open web steel joists with concrete floor			
	F2a	• 50 mm thick concrete deck • on open web steel joists spaced 406 mm o.c. • steel furring channels spaced not more than 610 mm o.c. wired to underside of joists • 1 layer of 15.9 mm Type X gypsum board on ceiling side	45 min	53	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

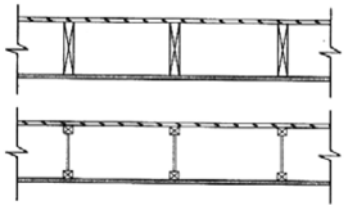
Type of Assembly	Assembly Number	Description[2][3][4]	Fire- Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Open Web Steel Joists	F2b	• 65 mm regular concrete minimum 155 kg/m^2 • on composite steel joists spaced 1250 mm o.c. • steel furring channels spaced not more than 610 mm o.c. wired to underside of joists • 1 layer of 12.7 mm Type X gypsum board or 15.9 mm Type X gypsum board on ceiling side	1.5 h	53	28
Wood Floor Joists[13]	F3[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F3a	F3 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	29	27
	F3b	F3 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	31	30
	F3c	F3 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	27	26
	F3d	F3 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	29	29
	F3e	F3 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	27	25
	F3f	F3 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	29	28
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

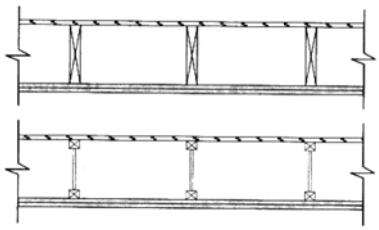
Type of Assembly	Assembly Number	Description[2][3][4]	Fire- Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F4[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F4a	F4 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity	1 h	33	31
	F4b	F4 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity	1 h	34	31
	F4c	F4 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity	45 min [1 h][15]	35	34
	F4d	F4 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity	45 min	38	34
	F4e	F4 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity	1 h	32	30
	F4f	F4 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity	45 min	33	30
	F4g	F4 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity	45 min	34	33
	F4h	F4 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity	—	35	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

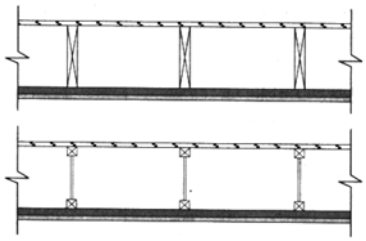
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F4i	F4 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	31	30
	F4j	F4 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	33	33
	F5[13]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F5a	F5 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min	35	37
	F5b	F5 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	30 min	37	30
	F5c	F5 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][16]	38	30
	F5d	F5 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	40	33
	F5e	F5 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min	33	26
	F5f	F5 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	35	29
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

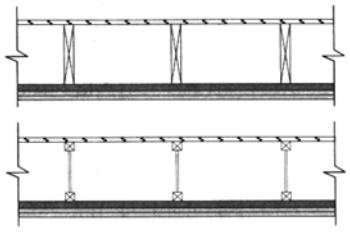
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F5g	F5 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][16]	36	29
	F5h	F5 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	38	32
	F5i	F5 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	33	25
	F5j	F5 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	35	28
	F5k	F5 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	36	28
	F5l	F5 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	38	33
	F6[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F6a[17]	F6 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	39	32
	F6b[17]	F6 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	41	32
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F6c[17]	F6 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	42	35
	F6d[17]	F6 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	44	37
	F6e[17]	F6 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	38	30
	F6f[17]	F6 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	40	33
	F6g[17]	F6 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	41	33
	F6h[17]	F6 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	43	36
	F6i	F6 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	37	30
	F6j	F6 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	39	33
	F6k	F6 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	40	33
	F6l	F6 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	42	36
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

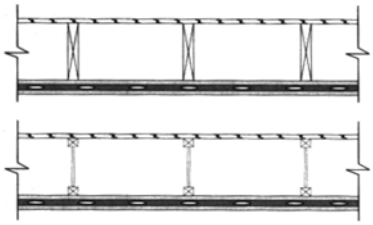
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F7[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board attached directly to joists on ceiling side • resilient metal channels spaced 406 mm or 610 mm o.c. attached to joists through gypsum board • 1 layer of gypsum board attached to resilient channels			
	F7a[17]	F7 with • no absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	1 h	35	27
	F7b[17]	F7 with • absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	1 h	37	30
	F7c[17]	F7 with • no absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	1 h	35	27
	F7d[17]	F7 with • absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	1 h	37	30
	F7e	F7 with • no absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	32	26
	F7f	F7 with • absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	35	28
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

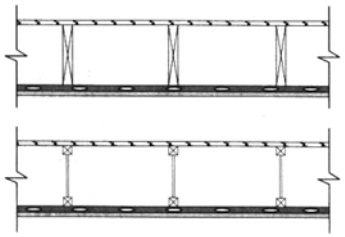
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F8[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F8a	F8 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min	41	33
	F8b	F8 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	43	36
	F8c	F8 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][16]	48	41
	F8d	F8 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	50	44
	F8e	F8 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min	39	32
	F8f	F8 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	41	35
	F8g	F8 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][16]	46	40
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

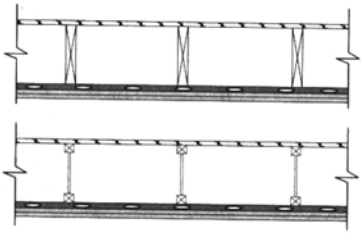
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F8h	F8 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	48	43
	F8i	F8 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	41	31
	F8j	F8 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	41	34
	F8k	F8 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	46	39
	F8l	F8 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	48	42
	F9[14]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F9a[17]	F9 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	45	38
	F9b[17]	F9 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	47	40
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[12]	F9c[17]	F9 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	52 [54][19]	46
	F9d[17]	F9 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	54 [56][19]	48
	F9e[17]	F9 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	44	36
	F9f[17]	F9 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	46	39
	F9g[17]	F9 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h [1.5 h][19]	51 [53][19]	44
	F9h[17]	F9 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	53	47
	F9i	F9 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	43	36
	F9j	F9 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	45	39
	F9k	F9 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	50	44
	F9l	F9 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	52	47
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

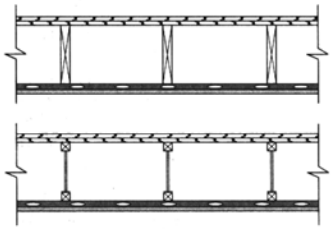
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F10[14]	• one subfloor layer of 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 305 mm, 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F10a	F10 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min	44	34
	F10b	F10 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	30 min	46	37
	F10c	F10 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][18]	51	42
	F10d	F10 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][16]	53	45
	F10e	F10 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	53[20]	44
	F10f[21]	F10 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	52[20]	43
	F10g	F10 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min	42	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

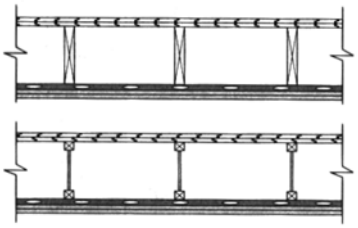
Type of Assembly	Assembly Number	Description[2][3][4]	Fire- Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F10h	F10 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	44	36
	F10i	F10 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][18]	49	41
	F10j	F10 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][16]	51	44
	F10k	F10 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	42	33
	F10l	F10 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	44	35
	F10m	F10 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	49	41
	F10n	F10 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	51	43
	F11[14]	• one subfloor layer of 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F11a[17]	F11 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	48	39
	F11b[17]	F11 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	50	42
	F11c[17]	F11 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	55 [56][19]	47
	F11d[17]	F11 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	57 [58][19]	50
	F11e[17]	F11 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1.5 h[22]	56[22]	47
	F11f[21]	F11 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	1.5 h[22]	56[22]	46
	F11g[17]	F11 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	47	38
	F11h[17]	F11 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	49	40
	F11i[17]	F11 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h [1.5 h][19]	54 [55][19]	46
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

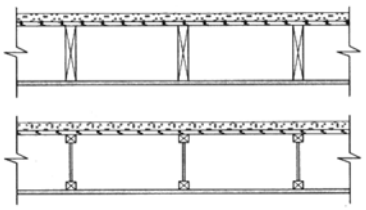
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F11j[17]	F11 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	56	48
	F11k	F11 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	46	37
	F11l	F11 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	48	40
	F11m	F11 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	53	45
	F11n	F11 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	55	48
	F12[14]	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F12a	F12 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	41	13
	F12b	F12 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	43	16
	F12c	F12 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	39	12
	F12d	F12 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	41	15
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

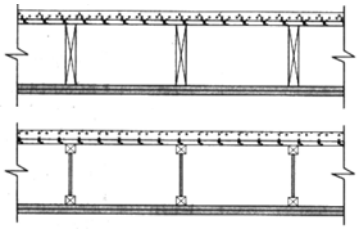
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F12e	F12 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	39	12
	F12f	F12 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	41	15
	F13[14]	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F13a	F13 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	43	16
	F13b	F13 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	45	16
	F13c	F13 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min [1 h][15]	45	19
	F13d	F13 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	47	19
	F13e	F13 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	42	15
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

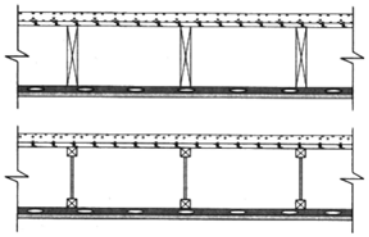
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F13f	F13 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	44	15
	F13g	F13 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	44	18
	F13h	F13 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	—	46	18
	F13i	F13 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	41	14
	F13j	F13 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	45	14
	F14[14]	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 305 mm, 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F14a	F14 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	53	22
	F14b	F14 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	55	22
	F14c	F14 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][18]	60	30
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F14d	F14 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	62	30
	F14e	F14 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	60[20]	31
	F14f[21]	F14 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	61[20]	31
	F14g	F14 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	51	21
	F14h	F14 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	53	21
	F14i	F14 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	58	29
	F14j	F14 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	60	29
	F14k	F14 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	51	21
	F14l	F14 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	53	21
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

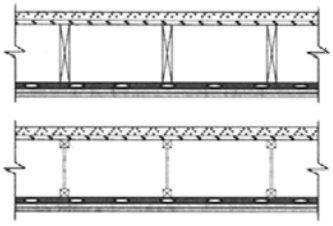
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F14m	F14 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	58	29
	F14n	F14 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	60	29
	F15[14]	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F15a[17]	F15 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h[23]	57	25
	F15b[17]	F15 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	59	25
	F15c[17]	F15 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	64 [65][19]	33
	F15d[17]	F15 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	66 [67][19]	33
	F15e[17]	F15 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1.5 h[22]	65[22]	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F15f[21]	F15 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	1.5 h[22]	64[22]	33
	F15g[17]	F15 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	56	24
	F15h[17]	F15 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	58	24
	F15i[17]	F15 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h [1.5 h][19]	63 [64][19]	32
	F15j[17]	F15 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	65	32
	F15k	F15 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	55	23
	F15l	F15 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	57	23
	F15m	F15 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	62	31
	F15n	F15 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	64	31
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

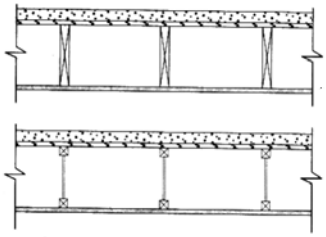
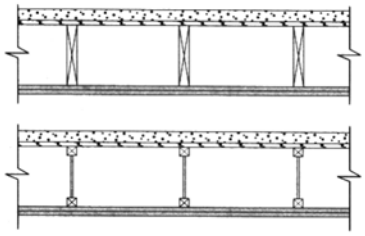
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F16[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F16a	F16 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	44	22
	F16b	F16 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	46	25
	F16c	F16 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	43	21
	F16d	F16 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	45	24
	F16e	F16 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	42	21
	F16f	F16 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	44	24
	F17[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F17a	F17 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	48	24
	F17b	F17 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	51	24
	F17c	F17 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min [1 h][15]	48	27
	F17d	F17 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	51	27
	F17e	F17 with • wood joists or wood I-joists spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	47	23
	F17f	F17 with • wood joists or wood I-joists spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	48	23
	F17g	F17 with • wood joists or wood I-joists spaced 406 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	49	26
	F17h	F17 with • wood joists or wood I-joists spaced 610 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	—	50	26
	F17i	F17 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	47	23
	F17j	F17 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	49	26
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

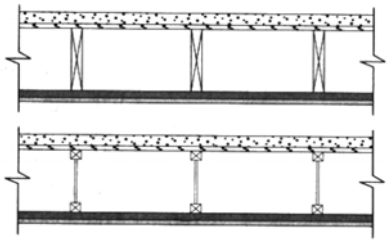
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F18[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F18a	F18 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	50	25
	F18b	F18 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	52	25
	F18c	F18 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	53	28
	F18d	F18 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	55	28
	F18e	F18 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	49	24
	F18f	F18 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	51	24
	F18g	F18 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	52	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

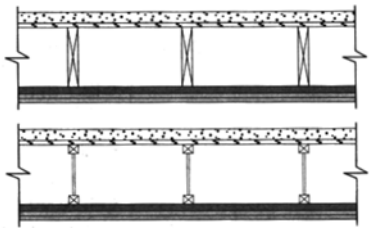
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F18h	F18 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	54	27
	F18i	F18 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	48	24
	F18j	F18 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	50	24
	F18k	F18 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	51	27
	F18l	F18 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	53	27
	F19[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F19a[17]	F19 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	54	27
	F19b[17]	F19 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	56	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F19c[17]	F19 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	57	30
	F19d[17]	F19 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	59	30
	F19e[17]	F19 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	53	26
	F19f[17]	F19 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	55	26
	F19g[17]	F19 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	56	29
	F19h[17]	F19 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	58	29
	F19i	F19 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	53	26
	F19j	F19 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	55	26
	F19k	F19 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	56	29
	F19l	F19 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	58	29
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

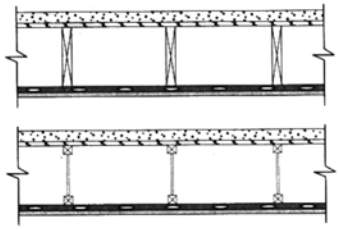
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F20[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 305 mm, 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F20a	F20 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	[45 min][23]	56	31
	F20b	F20 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	58	31
	F20c	F20 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][18][23]	63	39
	F20d	F20 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	65	39
	F20e	F20 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	64[20]	40
	F20f[21]	F20 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	1 h[20]	65[20]	40
	F20g	F20 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	55	30
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

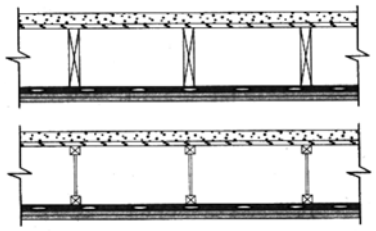
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F20h	F20 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	57	30
	F20i	F20 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	62	38
	F20j	F20 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	64	38
	F20k	F20 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	54	30
	F20l	F20 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	56	30
	F20m	F20 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	61	38
	F20n	F20 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	63	38
	F21[14]	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 305 mm, 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F21a[17]	F21 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	60	33
	F21b[17]	F21 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	62	33
	F21c[17]	F21 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	67 [68][19]	41 [42][19]
	F21d[17]	F21 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][19]	69 [70][19]	41 [42][19]
	F21e[17]	F21 with • wood joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	[1.5 h][22]	68[22]	42
	F21f[21]	F21 with • wood I-joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 305 mm o.c. • 15.9 mm Type X gypsum board	[1.5 h][22]	68[22]	42
	F21g[17]	F21 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	59	32
	F21h[17]	F21 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	61	32
	F21i[17]	F21 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h [1.5 h][19]	66 [67][19]	40
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

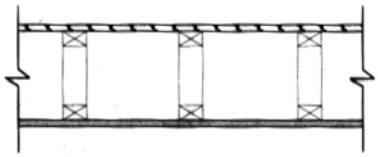
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Joists[13]	F21j[17]	F21 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	68	40
	F21k	F21 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	59	32
	F21l	F21 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	61	32
	F21m	F21 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	66	40
	F21n	F21 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	68	40
Wood Floor Trusses[24]	F22	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F22a	F22 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	29	27
	F22b	F22 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	31	30
	F22c	F22 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	28	26
	F22d	F22 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	30	29
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

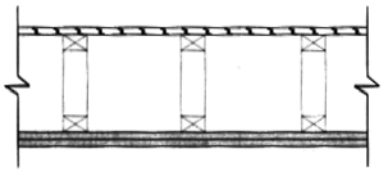
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F22e	F22 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	27	25
	F22f	F22 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	31	28
	F23	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F23a	F23 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	34	31
	F23b	F23 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	35	31
	F23c	F23 with • wood trusses spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min [1 h][15]	36	34
	F23d	F23 with • wood trusses spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	37	34
	F23e	F23 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	32	30
	F23f	F23 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	33	30
	F23g	F23 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	34	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

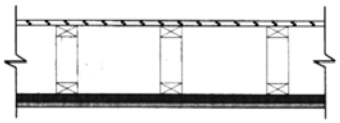
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F23h	F23 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	32	30
	F23i	F23 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	34	33
	F24	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F24a	F24 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	35	27
	F24b	F24 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	37	30
	F24c	F24 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	38	30
	F24d	F24 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	40	33
	F24e	F24 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	33	26
	F24f	F24 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	36	29
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

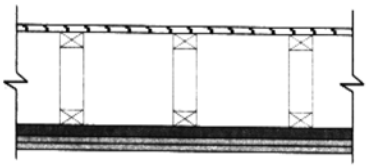
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F24g	F24 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	37	29
	F24h	F24 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	39	32
	F24i	F24 with • no absorptive material in cavity • steel furring channels spaced 406 mm • 12.7 mm regular gypsum board	—	33	25
	F24j	F24 with • no absorptive material in cavity • steel furring channels spaced 610 mm • 12.7 mm regular gypsum board	—	35	28
	F24k	F24 with • absorptive material in cavity • steel furring channels spaced 406 mm • 12.7 mm regular gypsum board	—	36	28
	F24l	F24 with • absorptive material in cavity • steel furring channels spaced 610 mm • 12.7 mm regular gypsum board	—	38	31
	F25	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c.			
	F25a	F25 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	40	32
	F25b	F25 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	42	34
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F25c	F25 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	43	35
	F25d	F25 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][18]	45	37
	F25e	F25 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	38	30
	F25f	F25 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	40	33
	F25g	F25 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	41	33
	F25h	F25 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	43	36
	F25i	F25 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	38	30
	F25j	F25 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	40	33
	F25k	F25 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	41	33
	F25l	F25 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	43	36
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

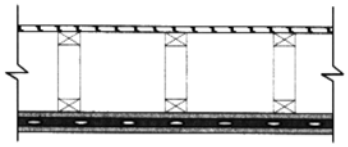
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F26	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board attached directly to trusses on ceiling side • resilient metal channels spaced 406 mm or 610 mm o.c. attached to trusses through the gypsum board • 1 layer of gypsum board attached to resilient metal channels			
	F26a	F26 with • no absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	—	35	27
	F26b	F26 with • absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	—	37	30
	F26c	F26 with • no absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	—	35	27
	F26d	F26 with • absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	—	37	30
	F26e	F26 with • no absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	32	26
	F26f	F26 with • absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	35	28
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

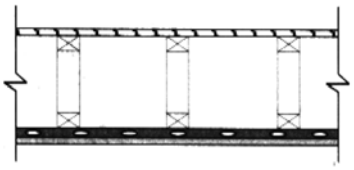
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F27	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F27a	F27 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	41	33
	F27b	F27 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	43	36
	F27c	F27 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	48	41
	F27d	F27 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	50	44
	F27e	F27 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	40	32
	F27f	F27 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	42	35
	F27g	F27 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	47	40
	F27h	F27 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	49	43
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

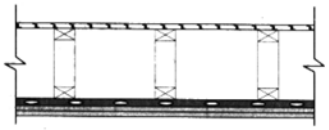
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F27i	F27 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	39	31
	F27j	F27 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	41	34
	F27k	F27 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	46	39
	F27l	F27 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	48	42
	F28	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c.			
	F28a	F28 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	46	38
	F28b	F28 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	48	40
	F28c	F28 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	54	46
	F28d	F28 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][18]	55	48
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F28e	F28 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	44	36
	F28f	F28 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	46	39
	F28g	F28 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	51	44
	F28h	F28 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	53	47
	F28i	F28 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	44	36
	F28j	F28 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	46	39
	F28k	F28 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	51	44
	F28l	F28 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	53	47
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

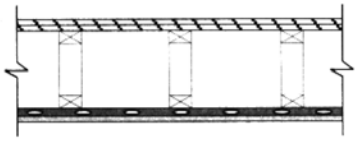
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F29	• one subfloor layer 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F29a	F29 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	44	35
	F29b	F29 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	46	37
	F29c	F29 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	51	43
	F29d	F29 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	53	45
	F29e	F29 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	43	33
	F29f	F29 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	45	36
	F29g	F29 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	50	41
	F29h	F29 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	52	44
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

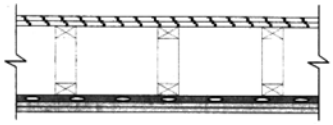
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F29i	F29 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	42	34
	F29j	F29 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	44	36
	F29k	F29 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	49	41
	F29l	F29 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	51	44
	F30	• one subfloor layer 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F30a	F30 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	49	39
	F30b	F30 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	51	42
	F30c	F30 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][26]	56 [58][26]	47 [50][26]
	F30d	F30 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][18]	58	50
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

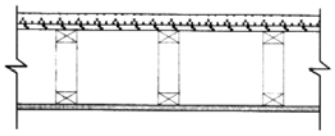
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F30e	F30 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	47	38
	F30f	F30 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	49	40
	F30g	F30 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	54	46
	F30h	F30 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	56	48
	F30i	F30 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	47	37
	F30j	F30 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	49	40
	F30k	F30 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	54	45
	F30l	F30 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	56	48
	F31	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

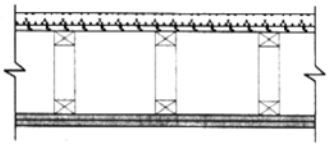
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F31a	F31 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	41	17
	F31b	F31 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	43	20
	F31c	F31 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	40	17
	F31d	F31 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	42	20
	F31e	F31 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	39	16
	F31f	F31 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	41	19
	F32	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F32a	F32 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	46	20
	F32b	F32 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	47	20
	F32c	F32 with • wood trusses spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min [1 h][15]	48	23
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

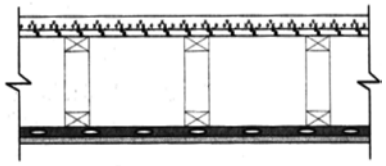
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F32d	F32 with • wood trusses spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	49	23
	F32e	F32 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	44	19
	F32f	F32 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	45	19
	F32g	F32 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	46	19
	F32h	F32 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	44	19
	F32i	F32 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	46	22
	F33	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F33a	F33 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	53	26
	F33b	F33 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	55	26
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F33c	F33 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	60	34
	F33d	F33 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	62	34
	F33e	F33 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	52	26
	F33f	F33 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	54	26
	F33g	F33 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	59	34
	F33h	F33 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	61	34
	F33i	F33 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	51	25
	F33j	F33 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	53	25
	F33k	F33 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	58	33
	F33l	F33 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	60	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

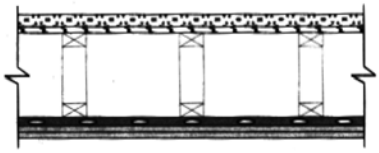
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F34	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F34a	F34 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	57	29
	F34b	F34 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	60	29
	F34c	F34 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][26]	65 [67][26]	37
	F34d	F34 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][18]	67	37
	F34e	F34 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	56	28
	F34f	F34 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	58	28
	F34g	F34 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	63	36
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

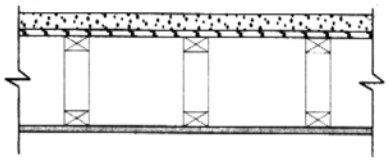
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F34h	F34 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][18]	65	36
	F34i	F34 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	56	28
	F34j	F34 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	58	28
	F34k	F34 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	63	36
	F34l	F34 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	65	36
	F35	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F35a	F35 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	45	26
	F35b	F35 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	47	29
	F35c	F35 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	43	26
	F35d	F35 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	45	29
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

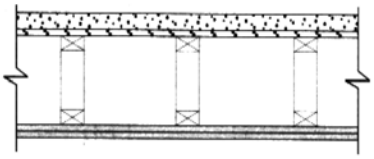
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F35e	F35 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	43	26
	F35f	F35 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	45	29
	F36	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F36a	F36 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	49	28
	F36b	F36 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	50	28
	F36c	F36 with • wood trusses spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min [1 h][15]	51	31
	F36d	F36 with • wood trusses spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	52	31
	F36e	F36 with • wood trusses spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	48	27
	F36f	F36 with • wood trusses spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	49	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

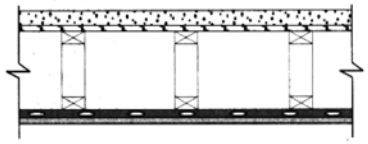
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F36g	F36 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	50	30
	F36h	F36 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	47	27
	F36i	F36 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	49	30
	F37	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F37a	F37 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	45 min	56	35
	F37b	F37 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	59	35
	F37c	F37 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	63	43
	F37d	F37 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	66	43
	F37e	F37 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	55	35
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

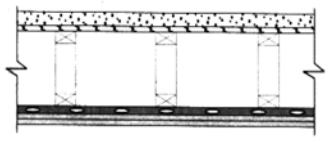
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F37f	F37 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	57	35
	F37g	F37 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	62	43
	F37h	F37 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	64	43
	F37i	F37 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	54	35
	F37j	F37 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	57	35
	F37k	F37 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	61	43
	F37l	F37 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	64	43
	F38	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood trusses spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F38a	F38 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	61	37
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F38b	F38 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	63	37
	F38c	F38 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][26]	69 [71][26]	45
	F38d	F38 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	70	45
	F38e	F38 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	60	36
	F38f	F38 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	62	36
	F38g	F38 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	67	44
	F38h	F38 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	69	44
	F38i	F38 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	59	36
	F38j	F38 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	61	36
	F38k	F38 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	66	44
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

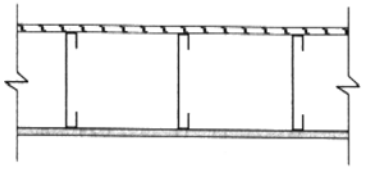
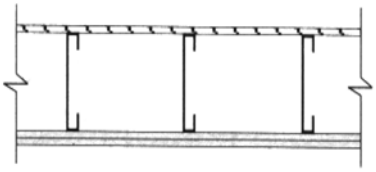
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Wood Floor Trusses[24]	F38l	F38 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	68	44
Cold Formed Steel Floor Joists[27]	F39	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
	F39a	F39 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	29	27
	F39b	F39 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	31	30
	F39c	F39 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	27	26
	F39d	F39 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	29	29
	F39e	F39 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	27	25
	F39f	F39 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	29	28
	F40	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F40a	F40 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	1 h	34	31
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F40b	F40 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	35	31
	F40c	F40 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	36	34
	F40d	F40 with • steel joists spaced 610 mm o.c. • absorptive material in cavity • 15.9 mm Type X gypsum board	45 min	37	34
	F40e	F40 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	1 h	32	30
	F40f	F40 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	33	30
	F40g	F40 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	34	33
	F40h	F40 with • steel joists spaced 610 mm o.c. • absorptive material in cavity • 12.7 mm Type X gypsum board	45 min	35	33
	F40i	F40 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	31	30
	F40j	F40 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	33	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

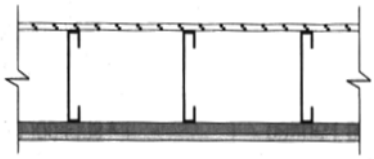
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F41	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F41a	F41 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	34	27
	F41b	F41 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	37	30
	F41c	F41 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	37	30
	F41d	F41 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	40	33
	F41e	F41 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	33	26
	F41f	F41 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	35	29
	F41g	F41 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][25]	36	29
	F41h	F41 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	38	32
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

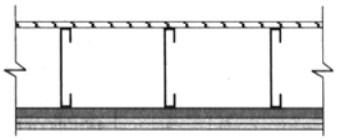
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F41i	F41 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	32	25
	F41j	F41 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	35	28
	F41k	F41 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	< 30 min	35	28
	F41l	F41 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	< 30 min	38	31
	F42	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • steel furring channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F42a	F42 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	39	32
	F42b	F42 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • steel furring channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	45 min	42	34
	F42c	F42 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min	43	34
	F42d	F42 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	42	35
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F42e	F42 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][28]	45	37
	F42f	F42 with • steel joists spaced 610 mm o.c. • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][15]	46	37
	F42g	F42 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	38	30
	F42h	F42 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min	40	33
	F42i	F42 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min	41	33
	F42j	F42 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	41	33
	F42k	F42 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][28]	43	36
	F42l	F42 with • steel joists spaced 610 mm o.c. • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][15]	44	36
	F42m	F42 with • no absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	37	30
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

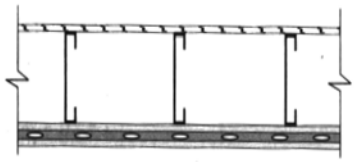
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F42n	F42 with • no absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	39	33
	F42o	F42 with • absorptive material in cavity • steel furring channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	40	33
	F42p	F42 with • absorptive material in cavity • steel furring channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	42	36
	F43	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board attached directly to joists on ceiling side • resilient metal channels spaced 406 mm or 610 mm o.c. attached to joists through the gypsum board • 1 layer of gypsum board attached to resilient metal channels			
	F43a	F43 with • no absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	1 h	35	37
	F43b	F43 with • absorptive material in cavity • 15.9 mm Type X gypsum board • resilient metal channels • 15.9 mm Type X gypsum board	1 h	37	30
	F43c	F43 with • no absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	1 h	35	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

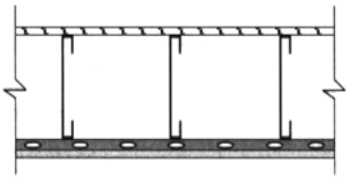
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F43d	F43 with • absorptive material in cavity • 12.7 mm Type X gypsum board • resilient metal channels • 12.7 mm Type X gypsum board	1 h	37	30
	F43e	F43 with • no absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	32	26
	F43f	F43 with • absorptive material in cavity • 12.7 mm regular gypsum board • resilient metal channels • 12.7 mm regular gypsum board	—	35	28
	F44	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F44a	F44 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	40	33
	F44b	F44 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	43	36
	F44c	F44 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][25]	47	41
	F44d	F44 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	50	44
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

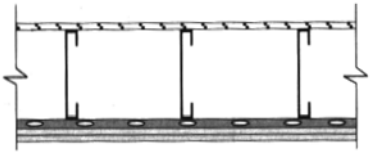
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F44e	F44 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	39	32
	F44f	F44 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	41	35
	F44g	F44 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min [45 min][25]	46	40
	F44h	F44 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	30 min	48	43
	F44i	F44 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 regular gypsum board	< 30 min	38	31
	F44j	F44 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 regular gypsum board	< 30 min	41	34
	F44k	F44 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 regular gypsum board	< 30 min	45	39
	F44l	F44 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 regular gypsum board	< 30 min	48	42
	F45	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F45a	F45 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	45	38
	F45b	F45 with • steel joists spaced 406 mm • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min	48	40
	F45c	F45 with • steel joists spaced 610 mm • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min	49	40
	F45d	F45 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	52	46
	F45e	F45 with • steel joists spaced 406 mm • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][28]	55	48
	F45f	F45 with • steel joists spaced 610 mm • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][15]	56	48
	F45g	F45 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	44	36
	F45h	F45 with • steel joists spaced 406 mm • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min	46	39
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F45i	F45 with • steel joists spaced 610 mm • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min	47	39
	F45j	F45 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	51	44
	F45k	F45 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][28]	53	47
	F45l	F45 with • steel joists spaced 610 mm • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][15]	54	47
	F45m	F45 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	43	36
	F45n	F45 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	45	39
	F45o	F45 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	50	44
	F45p	F45 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	52	47
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

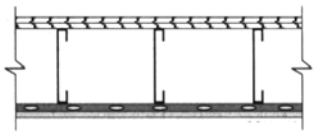
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F46	• one subfloor layer of 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F46a	F46 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	43	34
	F46b	F46 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	46	37
	F46c	F46 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	50	42
	F46d	F46 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	53	45
	F46e	F46 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	42	33
	F46f	F46 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	44	36
	F46g	F46 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	49	41
	F46h	F46 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	51	44
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

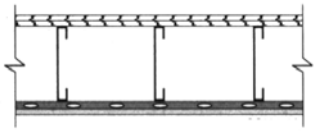
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F46i	F46 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	41	33
	F46j	F46 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	44	36
	F46k	F46 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	48	41
	F46l	F46 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	51	44
	F47	• one subfloor layer of 15.5 mm plywood or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 406 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F47a	F47 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min	45	35
	F47b	F47 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	30 min	47	38
	F47c	F47 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	30 min [45 min][18] [1 h][28]	51	45
	F47d	F47 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	[30 min][18] [45 min][28]	53	47
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

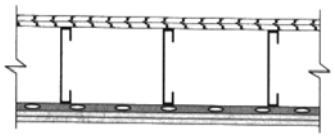
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F47e	F47 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	30 min	43	44
	F47f	F47 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	45	47
	F47g	F47 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	[30 min][18] [45 min][28]	50	43
	F47h	F47 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	52	46
	F48	• one subfloor layer of 11 mm sanded plywood, or OSB or waferboard • one subfloor layer of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F48a	F48 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	48	39
	F48b	F48 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	50	42
	F48c	F48 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	56	47
	F48d	F48 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	57	50
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

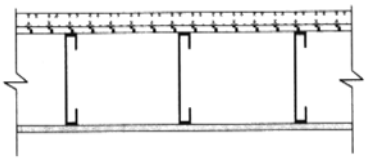
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F48e	F48 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	47	38
	F48f	F48 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	49	40
	F48g	F48 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	54	46
	F48h	F48 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	56	48
	F48i	F48 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	46	37
	F48j	F48 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	48	40
	F48k	F48 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	53	45
	F48l	F48 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	55	48
	F49	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 1 layer of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

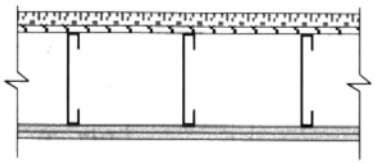
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F49a	F49 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	40	13
	F49b	F49 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	42	16
	F49c	F49 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	39	12
	F49d	F49 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	41	15
	F49e	F49 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	38	12
	F49f	F49 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	40	15
	F50	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • 2 layers of gypsum board on ceiling side			
	F50a	F50 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	45	16
	F50b	F50 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	47	19
	F50c	F50 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	44	15
	F50d	F50 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	46	18
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

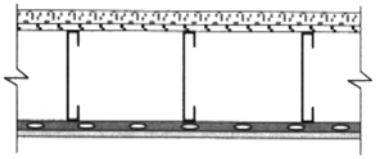
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F50e	F50 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	43	14
	F50f	F50 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	45	17
	F51	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F51a	F51 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	52	22
	F51b	F51 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	54	22
	F51c	F51 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	59	30
	F51d	F51 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	61	30
	F51e	F51 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	51	21
	F51f	F51 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	53	21
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

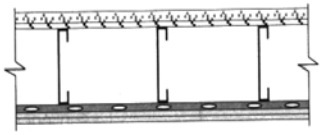
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F51g	F51 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	58	29
	F51h	F51 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	60	29
	F51i	F51 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	50	21
	F51j	F51 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	52	21
	F51k	F51 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	57	29
	F51l	F51 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	59	29
	F52	• 25 mm gypsum-concrete topping (at least 44 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F52a	F52 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	57	25
	F52b	F52 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	59	25
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[25]	F52c	F52 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	64	33
	F52d	F52 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][25]	66	33
	F52e	F52 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	55	24
	F52f	F52 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	58	24
	F52g	F52 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	62	32
	F52h	F52 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][25]	65	32
	F52i	F52 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	55	23
	F52j	F52 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	57	23
	F52k	F52 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	62	31
	F52l	F52 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	64	31
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

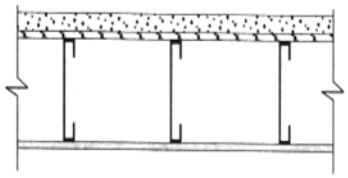
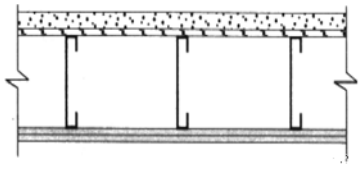
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F53	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 12.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F53a	F53 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	44	22
	F53b	F53 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	46	25
	F53c	F53 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	42	21
	F53d	F53 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	44	24
	F53e	F53 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	42	21
	F53f	F53 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	44	24
	F54	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F54a	F54 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	48	24
	F54b	F54 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	50	27
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

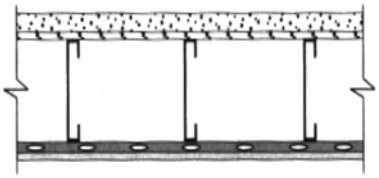
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F54c	F54 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	47	23
	F54d	F54 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	49	26
	F54e	F54 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	47	23
	F54f	F54 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	49	26
	F55	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F55a	F55 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	56	31
	F55b	F55 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	58	31
	F55c	F55 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	63	39
	F55d	F55 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	65	39
	F55e	F55 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	54	30
	F55f	F55 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	56	30
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

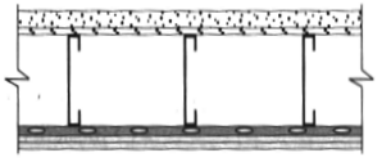
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F55g	F55 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	61	38
	F55h	F55 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	63	38
	F55i	F55 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	54	30
	F55j	F55 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	56	30
	F55k	F55 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	61	38
	F55l	F55 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	63	38
	F56	• 38 mm concrete topping (at least 70 kg/m^2) • subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	56a	F56 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	60	33
	56b	F56 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	62	33
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F56c	F56 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	67	41
	F56d	F56 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][25]	69	41
	F56e	F56 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	59	32
	F56f	F56 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	61	32
	F56g	F56 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	66	40
	F56h	F56 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][25]	68	40
	F56i	F56 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	58	32
	F56j	F56 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	61	32
	F56k	F56 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	65	40
	F56l	F56 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	68	40
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

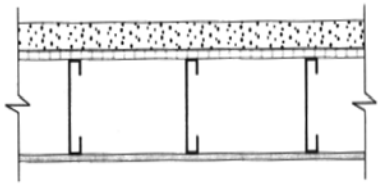
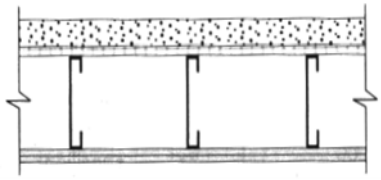
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F57	• 50 mm concrete • 0.46 mm metal pan with a 19 mm rib • on steel joists spaced not more than 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F57a	F57 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	45	26
	F57b	F57 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	47	29
	F57c	F57 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	44	25
	F57d	F57 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	46	28
	F57e	F57 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	43	25
	F57f	F57 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	45	28
	F58	• 50 mm concrete • 0.38 mm metal pan with a 16 mm rib • on steel joists spaced not more than 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F58a	F58 with • no absorptive material in cavity • 15.9 mm Type X gypsum board	—	50	27
	F58b	F58 with • absorptive material in cavity • 15.9 mm Type X gypsum board	—	52	30
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

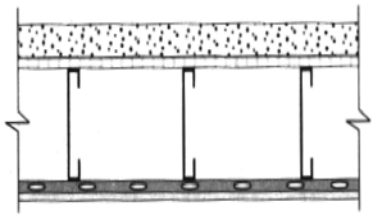
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F58c	F58 with • no absorptive material in cavity • 12.7 mm Type X gypsum board	—	48	27
	F58d	F58 with • absorptive material in cavity • 12.7 mm Type X gypsum board	—	50	30
	F58e	F58 with • no absorptive material in cavity • 12.7 mm regular gypsum board	—	48	27
	F58f	F58 with • absorptive material in cavity • 12.7 mm regular gypsum board	—	50	30
	F59	• 50 mm concrete • 0.38 mm metal pan with a 16 mm rib • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 1 layer of gypsum board on ceiling side			
	F59a	F59 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	57	35
	F59b	F59 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	—	59	35
	F59c	F59 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	—	64	43
	F59d	F59 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	66	43
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

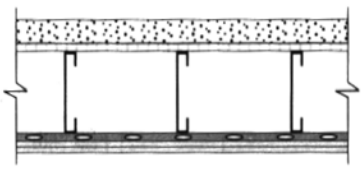
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F59e	F59 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	56	34
	F59f	F59 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	56	34
	F59g	F59 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	—	63	42
	F59h	F59 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	65	42
	F59i	F59 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	55	34
	F59j	F59 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	57	34
	F59k	F59 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	62	42
	F59l	F59 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	64	42
	F60	• 50 mm concrete • 0.46 mm metal pan with a 19 mm rib • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F60a	F60 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum	1 h	62	36
	F60b	F60 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	64	36
	F60c	F60 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	69	44
	F60d	F60 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	45 min [1 h][25]	71	44
	F60e	F60 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	60	36
	F60f	F60 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	62	36
	F60g	F60 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	67	44
	F60h	F60 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	45 min [1 h][25]	69	44
	F60i	F60 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	60	36
	F60j	F60 with • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	62	36
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

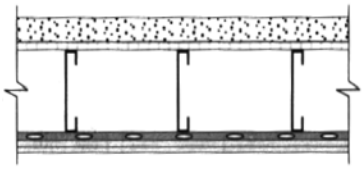
Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F60k	F60 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm regular gypsum board	—	67	44
	F60l	F60 with • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm regular gypsum board	—	69	44
	F61	• 50 mm concrete • 0.38 mm metal pan with a 16 mm rib • on steel joists spaced not more than 610 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 406 mm or 610 mm o.c. • 2 layers of gypsum board on ceiling side			
	F61a	F61 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	62	32
	F61b	F61 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c • 15.9 mm Type X gypsum board	1 h	64	32
	F61c	F61 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	65	29
	F61d	F61 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 15.9 mm Type X gypsum board	1 h	68	37
	F61e	F61 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	1 h	66	34
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Floors and Ceilings					
Cold Formed Steel Floor Joists[27]	F61f	F61 with • steel joists spaced 610 mm o.c. • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 15.9 mm Type X gypsum board	—	71	34
	F61g	F61 with • no absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	62	32
	F61h	F61 with • steel joists spaced 406 mm o.c. • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	64	32
	F61i	F61 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	64	28
	F61j	F61 with • absorptive material in cavity • resilient metal channels spaced 406 mm o.c. • 12.7 mm Type X gypsum board	1 h	68	36
	F61k	F61 with • steel joists spaced 406 mm o.c. • absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	1 h	64	32
	F61l	F61 with • steel joists spaced 610 mm o.c. • no absorptive material in cavity • resilient metal channels spaced 610 mm o.c. • 12.7 mm Type X gypsum board	—	70	34
Column 1	2	3	4	5	6

Table 2 (Cont'd)
Fire and Sound Resistance of Floors, Ceilings and Roofs[1]

Type of Assembly	Assembly Number	Description[2][3][4]	Fire-Resistance Rating[5][6][7][8]	Typical Sound Transmission Class[5][6][7][9][10][11] (STC)	Typical Impact Insulation Class[5][9][12] (IIC)
Roofs					
Wood Roof Trusses	R1	• wood roof trusses spaced not more than 610 mm o.c. • 1 layer 15.9 mm Type X gypsum board	45 min	—	—
Roofs - Rating Provided by Membrane Only					
	M1	• supporting members spaced not more than 610 mm o.c. • 1 layer 15.9 mm Type X gypsum board	30 min	—	—
	M2	• supporting members spaced not more than 610 mm o.c. • 2 layers 15.9 mm Type X gypsum board	1 h	—	—
Column 1	2	3	4	5	6

Notes to Table 2:

(1) Reserved.

(2) For assemblies with a ceiling consisting of a single layer of gypsum board on resilient metal channels to obtain the listed ratings, the resilient metal channel arrangement at the gypsum board butt end joints should be as shown in Figure 1.

(3) For assemblies with a ceiling consisting of 2 layers of gypsum board on resilient metal channels to obtain the listed ratings, the fastener and resilient metal channel arrangement at the gypsum board butt end joints should be as shown in Figure 2.

(4) The fire-resistance rating and sound transmission class values given are for a minimum thickness of subfloor or deck as shown. Minimum subfloor thickness required is determined by structural member spacing (see Table 9.23.15.5.A. of Division B of the Building Code). Thicker subflooring or decking is also acceptable.

(5) Sound absorptive material includes
   (i) fibre processed from rock, slag or glass, and
   (ii) loose-fill or spray-applied cellulose fibre.

   To obtain the listed sound transmission class rating, the nominal insulation thickness is 150 mm for rock, slag, or glass fibres or loose-fill cellulose fibre, and 90 mm for spray-applied cellulose fibre, unless otherwise specified. Absorptive material will affect the sound transmission class by approximately adding or subtracting 1 per 50 mm change of thickness. However, no additional sound transmission class value is achieved by adding a greater thickness of insulation than the depth of the assembly.

(6) The fire-resistance rating and sound transmission class values are based on the spacing of ceiling supports as noted. [See also Table Note (10)]. A narrower spacing will be detrimental to the sound transmission class rating, but not to the fire-resistance rating.

(7) To obtain the listed rating, fastener type, spacing and penetration depth for the attachment of gypsum board must conform to Subsection 9.29.5. of Division B of the Building Code, and
   (i) fastener distance to board edges and butt ends shall be no less than 38 mm, except for fasteners on the butt ends of the base layer in ceilings with two layers (see Figure 2),
   (ii) fasteners are spaced not more than 305 mm o.c.,
   (iii) fasteners must consist of nails or screws when attaching gypsum board to wood members, and
   (iv) fasteners must consist of screws when attaching gypsum board to cold-formed steel channels or resilient metal channels.

   For wood- and steel-framed assemblies, if fasteners are spaced less than 300 mm o.c., subtract 1 from the sound transmission class value; if fasteners are spaced less than 200 mm o.c., subtract 2 from the sound transmission class value. Narrower fastener spacing is not detrimental to the fire-resistance rating.

(8) See Sentence 1.2.1.(2) in MMAH Supplementary Standard SB-2, “Fire Performance Ratings” for the significance of fire-resistance ratings.

(9) The sound transmission class values given in the Table are for the minimum depth of structural member noted in the description and applicable Table notes. To obtain sound transmission class values for structural members deeper than that minimum, add 1 to the sound transmission class value in the Table for each 170 mm increase in structural member depth.

(10) The sound transmission class values given in the Table are for structural member spacing of 305 mm o.c., unless otherwise noted in the description and applicable Table notes. To obtain sound transmission class values for assemblies with structural members spaced more than 500 mm o.c., add 1 to the sound transmission class value in the Table.

(11) Assemblies with sound transmission class ratings of 50 or more require methods to minimize airborne sound transmission at electrical boxes and other openings, and at wall/wall and wall/floor junctions, except at junctions constructed of concrete-to-concrete, concrete-to-masonry, or masonry-to-masonry where the intersecting joint along the junction is cast or mortared.

(12) The impact insulation class values given are for floor assemblies tested with no finished flooring.

(13) Wood floor joists are:
- (i) wood joists with a minimum member size of 38 mm (width) x 235 mm (depth), except as otherwise noted [See Table Note (16)], or
- (ii) wood I-joists with a minimum flange size of 38 mm x 38 mm, a minimum OSB or plywood web thickness of 9.5 mm, and a minimum joist depth of 241 mm.

(14) Except where assemblies with wood I-joists are tested according to CAN/ULC-S101-14, "Fire Endurance Tests of Building Construction and Materials”, the fire-resistance rating values apply only to I-joists that have been fabricated with a phenolic-based structural wood adhesive complying with CSA O112.10-08, “Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)”. For I-joists with flanges made of laminated veneer lumber (LVL), the fire-resistance rating values apply only where the adhesive used in the LVL fabrication is a phenolic-based structural wood adhesive complying with CSA O112.9-10, "Evaluation of Adhesives for Structural Wood Products (Exterior Exposure)”.

(15) The fire-resistance rating value within square brackets is achieved only where absorptive material includes spray-applied cellulose fibre with
- (i) adhesive that is capable of providing a minimum cohesive/adhesive bond strength per unit area of 5 times the weight of the material under the test plate when tested in accordance with ASTM E736/E736M-17, “Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members”,
- (ii) a minimum density of 35 kg/m^3, and
- (iii) a minimum thickness of 90 mm on the underside of the subfloor or deck, of 90 mm on the sides of the structural members, and for cold-formed steel joists, of 13 mm on the underside of the bottom flange other than at resilient metal channel locations.

(16) The fire-resistance rating value within square brackets only applies to assemblies with solid wood joists and is achieved only where absorptive material includes:
- (i) fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m^2, or
- (ii) spray-applied cellulose fibre with a minimum density of 50 kg/m^3 and a minimum depth of 90 mm on the underside of the subfloor and of 90 mm on the sides of the floor joists.

(17) The fire-resistance rating, sound transmission class and impact insulation class values given are also applicable to assemblies with 38 mm (width) x 184 mm (depth) solid wood joists.

(18) The fire-resistance rating value within square brackets is achieved only where absorptive material includes:
- (i) fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m^2, or
- (ii) spray-applied cellulose fibre with a minimum density of 50 kg/m^3 and a minimum depth of 90 mm on the underside of the subfloor and of 90 mm on the webs or the sides of the structural members.

(19) The fire-resistance rating, sound transmission class and impact insulation class values within the square brackets only apply to assemblies with solid wood joists and are achieved only where absorptive material includes dry-blown cellulose fibre with a minimum density of 40 kg/m^3 filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390-06, “Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)” which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists with metal staples having legs that are 50 mm long.

(20) The fire-resistance rating and sound transmission class values are achieved only where absorptive material includes:
- (i) fibre processed from rock or slag that fills the joist cavity and has a minimum surface area mass of 2.8 kg/m^2, and for structural members at least 270 mm in depth, the fibre includes three layers each of which has a minimum thickness of 90 mm, or
- (ii) dry-blown cellulose fibre with a minimum density of 40 kg/m^3 filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390-06, “Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)” which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists or wood I-joists with metal staples having legs that are 50 mm or 30 mm long, respectively.

(21) The fire-resistance rating value only applies to assemblies with wood I-joists with flanges with a minimum thickness of 38 mm and a minimum width of 63 mm.

(22) The fire-resistance rating and sound transmission class values are achieved only where absorptive material includes:
- (i) fibre processed from rock or slag that fills the joist cavity and has a minimum surface area mass of 2.8 kg/m^2, and for structural members at least 270 mm in depth, the fibre includes three layers each of which has a minimum thickness of 90 mm, or
- (ii) dry-blown cellulose fibre with a minimum density of 40 kg/m^3 filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390-06, “Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)” which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists with metal staples having legs that are 50 mm long.

(23) The fire-resistance rating values given only apply to assemblies with solid wood joists spaced not more than 406 mm o.c. No information is available for assemblies constructed with wood I-joists.

(24) Wood floor trusses are:
- (i) metal plate-connected wood trusses with wood framing members not less than 38 mmx 64 mm, metal connector plates not less than 1 mm (nominal) thick with teeth not less than 8 mm long, and a minimum truss depth of 305 mm,
- (ii) metal web wood trusses with wood chords not less than 38 mm x 64 mm, V-shaped webs made from galvanized steel of 1 mm (nominal) thickness with plate areas having teeth not less than 8 mm long, and a minimum truss depth of 286 mm, or
- (iii) fingerjoined wood trusses with glued fingerjoined connections, chord members not less than 38 mm x 64 mm, web members not less than 38 mm x 38 mm and a minimum truss depth of 330 mm, all of which is glued together with an R-14 phenol-resorcinol resin conforming to CSA O112.10-08, "Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)”.

(25) The fire-resistance rating value within square brackets is achieved only where absorptive material includes fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m^2.

(26) The fire-resistance rating and sound transmission class values within square brackets are achieved only where absorptive material includes dry-blown cellulose fibre with a minimum density of 40 kg/m^3 filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390-06, “Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)” which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood trusses with metal staples having legs that are 38 mm long.

(27) Cold-formed steel floor joists (C-shaped joists) are members with a minimum size of 41 mm (width) x 203 mm (depth) x 1.22 mm (material thickness).

(28) The fire-resistance rating value within square brackets is achieved only where absorptive material includes spray-applied cellulose fibre with a minimum density of 50 kg/m^3 and a minimum thickness of 90 mm on the underside of the subfloor, of 90 mm on the sides of the cold-formed steel floor joists, and of 13 mm on the underside of the bottom flange other than at resilient metal channel locations.

Figures 1 to 7

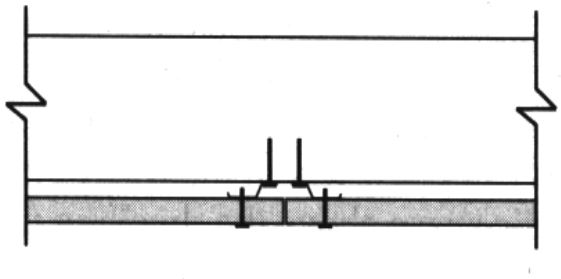


Figure 1

Butt Joint Detail of Single Gypsum Board Layer Application

Notes to Figure 1:

(1) Figure is for illustration purposes only and is not to scale.

(2) The structural member can be any one of the types described in the Table.

(3) Adjacent gypsum board butt ends are to be attached to separate resilient channels using regular Type S screws, located a minimum of 38 mm from the butt end.

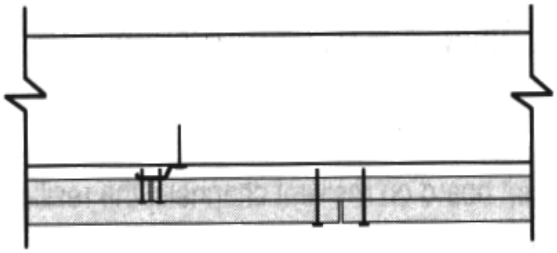


Figure 2

Butt Joint Detail of Double Gypsum Board Layer Application

Notes to Figure 2:

(1) Figure is for illustration purposes only and is not to scale.

(2) The structural member can be any one of the types described in the Table.

(3) Base layer butt ends can be attached to a single resilient channel using regular Type S screws.

(4) Type G screws measuring a minimum of 32 mm in length and located a minimum of 38 mm from the butt end are to be used to fasten the butt ends of the face layer to the base layer.

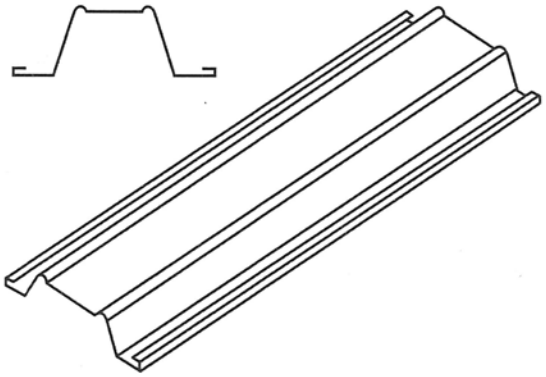


Figure 3

Example of Steel Furring Channel

Notes to Figure 3:

(1) Figure is for illustration purposes only and is not to scale.

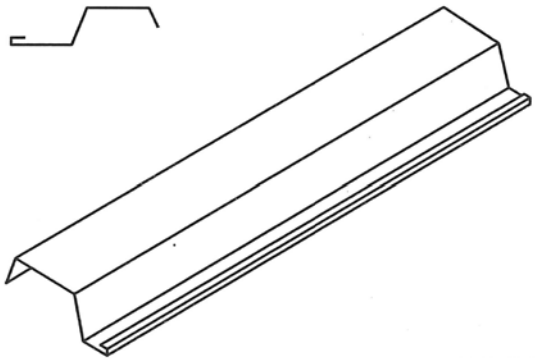


Figure 4

Example of Resilient Metal Channel

Notes to Figure 4:

(1) Figure is for illustration purposes only and is not to scale.

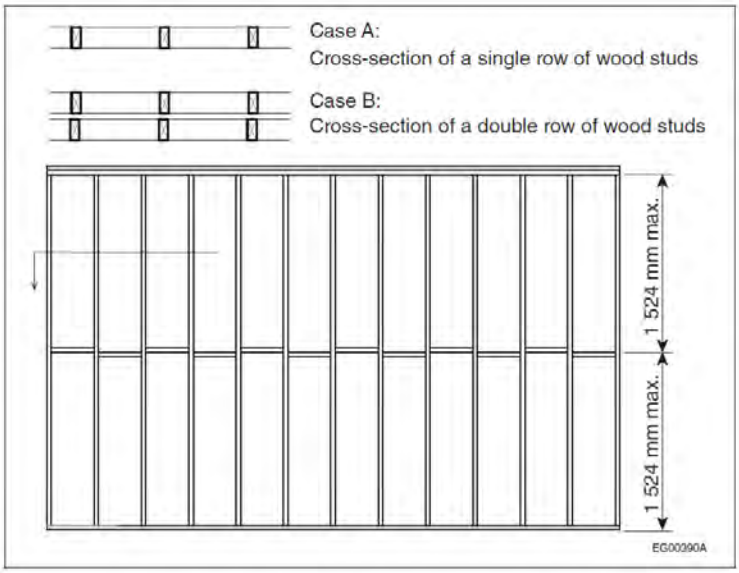


Figure 5
Blocking for Lightweight Wood-Frame Walls With a Single or Double Row of Studs

Notes to Figure 5:

(1) Figure is for illustrative purposes only and is not to scale.

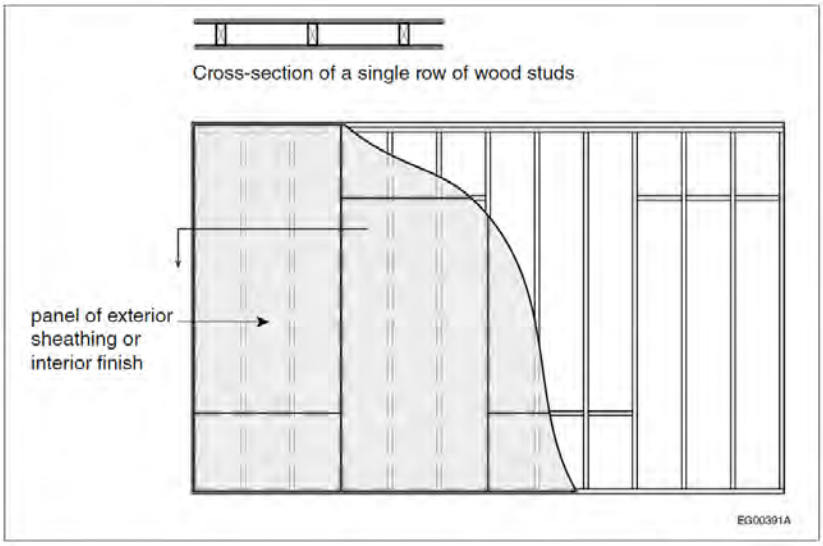


Figure 6

Vertical Application of Exterior Wall Sheathing or Interior Wall Finish With All Joints Backed With Lumber Having the Same Dimensions as the Framing Members

Notes to Figure 6:

(1) Figure is for illustration purposes only and is not to scale.

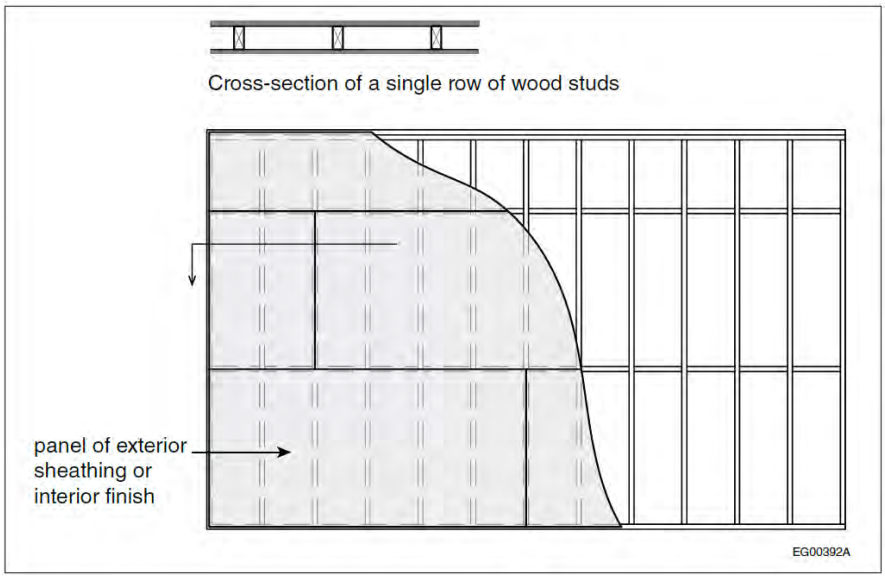


Figure 7

Horizontal Application of Exterior Wall Sheathing or Interior Wall Finish With All Joints Backed With Lumber Having the Same Dimensions as the Framing Members

Notes to Figure 7:

(1) Figure is for illustration purposes only and is not to scale.

MMAH Supplementary Standard SB-4

Measures for Fire Safety in High Buildings

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-4 comes into force on the 1st day of January 2025.

CONTENTS

SB-4 Measures for Fire Safety in High Buildings

(This Supplementary Standard is based in large measure on the Supplement to the National Building Code of Canada 1990 and the Appendix Notes to Subsection 3.2.6. of the National Building Code of Canada 2020)

Introduction

Experience with high buildings has shown that the time required for complete evacuation can exceed that which is considered necessary for the safe egress of all occupants. Studies of the "chimney effect" and observations of smoke movement in actual fires have shown that fire compartmentation to contain a fire on any storey will not usually prevent the movement of smoke through elevator, stair and other vertical shafts to the upper floors of a high building. Occupants of a high building in which an automatic sprinklers are not installed, and particularly those on upper storeys, could be faced with severe smoke conditions from fires occurring in storeys below them before their own evacuation is possible. The requirements in Section 3.2.6. of Division B in the Building Code are intended to maintain safe conditions for occupants of a high building who may have to remain in the building during a fire, and to assist the firefighters by providing efficient access to the fire floor.

This Supplementary Standard is intended to assist a designer in complying with the requirements of Subsection 3.2.6. of Division B of the Code. The knowledge requirements are well within the capabilities of a competent designer. The designer should acknowledge however, that successful application requires a clear understanding of the principles that govern smoke movement. Subsection 3.2.6. contains only those items that relate to the design and construction of a building while the operation of the facilities and recommended actions to be taken by the building owner, building occupants and fire department are covered by the Fire Code.

Application of SB-4: Design of New Buildings and Renovations to Existing Buildings

Section 1: Section 1 of this standard, describes compliance with the requirements of Subsection 3.2.6. of Division B of the Code and is applicable to both new and existing buildings. The Code user should review the provisions contained in Section 1 with the corresponding provisions in Subsection 3.2.6. of Division B and determine the applicability of each. Provision [3.2.6.2.(1)] is applicable to the renovation of existing buildings that are sprinklered. Provision [3.2.6.2.(7)] is specifically applicable to the renovation of existing buildings that are not sprinklered.

Section 2: Section 2 of this standard summarizes smoke control measures applicable to certain common building designs. Compliance with one of these measures is considered to meet the requirements of the code for smoke control in existing buildings.

Section 3: Section 3 further details the measures that are referenced in Section 2 and can be utilized to achieve the strategies described in Section 2.

Smoke Control in High Buildings

The designer is cautioned that the tabular and graphical information in this standard was developed for buildings having conventional configurations. The designer has to judge the extent to which the building under consideration has characteristics that will allow the application of this information; this is particularly true of designs employing air-handling systems for which a realistic assessment of the leakage characteristics of the enclosures of spaces may be critical.

It is assumed that buildings regulated by Subsection 3.2.6. of Division B will be in an area served by a fire department capable of an early response and that all firefighting and rescue situations will be under the direct control of the officer in charge of the fire department responding to the emergency. It is important that firefighters be provided with a smoke free access to fire floors below grade. Provisions are included to separate exit stairways serving storeys above grade from those serving storeys below grade, and to limit entry of smoke into these shafts. Similarly, elevator hoistways and service shafts are required to be provided with a separation near grade, or be designed to limit their functioning as paths of smoke movement into upper floor areas from storeys below grade.

It is assumed that in the event of fire, occupants of the floor on which the fire occurs will leave by exit stairs immediately following the sounding of a fire alarm, and that occupants of the floor immediately above the floor on which the fire occurs will be advised to leave by the first fire department officer on the scene or other person assigned this responsibility. Occupants of all other floors may remain on their floors unless otherwise directed. It is also assumed that the owner of the building has complied with the Emergency Planning Section of the Fire Code by preparing a comprehensive fire safety plan to safeguard the building occupants and that the building supervisory staff are familiar with the requirements of Subsection 3.2.6. of Division B and with their responsibilities under the fire safety plan.

It is further assumed that the cumulative population of storeys below grade divided by 1.8 times the width in metres of all exit stairs at the storey under consideration will not exceed the 300 limit referred to in Article 3.2.6.1. of Division B, and that occupants of storeys below grade will evacuate the building by the stair shafts immediately after the discovery of a fire in a storey below grade.

The Building Code requires that a check be made of the smoke control system when requested by the authority having jurisdiction in accordance with the procedures described in Appendix C of this Supplementary Standard. This check will indicate deficiencies caused by inexact estimates of the leakage characteristics or of air supply requirements and, in all but the most extreme cases, will provide an opportunity for appropriate adjustments before the system is put into service.

Section 1 Building Code Provisions

[3.2.6.2.(1)] Limits to Smoke Movement in New and Existing Buildings that are Sprinklered

(1) A new or an existing building that is sprinklered and is required to conform to the provisions of Subsection 3.2.6. of Division B shall be designed in accordance with Sentences 3.2.6.2.(2) to (5) and this Supplementary Standard to limit the danger to occupants and firefighters from exposure to smoke in a building fire.

(2) Except as required in Sentence (1), where smoke control system of an existing sprinklered building is materially altered, the altered portions of the system shall meet the requirements of Sentences 3.2.6.2.(2) to (5) and this Supplementary Standard to limit the danger to occupants and firefighters from exposure to smoke in a building fire.

Electrical Sprinkler Supervision

(3) The sprinkler system is equipped with a water flow and supervisory signal system that will,
(a) transmit automatically a waterflow signal directly to the fire department, or through an independent central station,
(b) transmit automatically other supervisory signals to a proprietary control centre or to an independent central station, and
(c) actuate a signal at the central alarm and control facility described in Article 3.2.6.7. of Division B.

[3.2.6.2.(2)] Stairway Protection Below Lowest Exit Level

These provisions are intended to apply to common building designs. Where a stair serving floors below the lowest exit level is open to the exterior or the stair serves only one storey below grade, compliance with the following provisions may not be necessary.

A stairway serving floors below the lowest exit level is considered to comply with the intent of Sentence 3.2.6.2.(2) of Division B if all of the following conditions are satisfied.

(1) The stairway has a vent or door to the outdoors at or near the top of the stair shaft that has an openable area of not less than 0.1 m^2 for each storey served by the stairway, less 0.01 m^2 for each weatherstripped door and 0.02 m^2 for each door that is not weatherstripped opening into the stairway.

(2) The stairway is enclosed in a shaft that
(a) does not pass through the floor above the lowest exit level and is separate from a shaft that contains a stairway serving upper storeys, or
(b) contains a stairway serving upper storeys, but is separated from that stairway at the lowest exit level by a fire separation having a fire resistance rating not less than that required for the shaft enclosure.

(3) The stairway is provided with equipment capable of maintaining a flow of air introduced at or near the bottom of the stair shaft, at a rate equal to 0.47 m^3/s for each storey served by the stairway.

[3.2.6.2.(3)] Requirements for Stair Shafts Serving Storeys Above Lowest Exit Level

Open doors and vents at the bottom of a stair shaft that serve storeys above the lowest exit level, will create a positive pressure in the shaft relative to adjacent floor areas and thus prevent smoke infiltration into the shaft. This pressure differential, created as a result of the stack effect will be the greatest during the winter, when the difference in temperature between the interior and the exterior of the building is most pronounced. If a stair shaft does not have a direct opening to the exterior, alternative means must be provided to achieve the pressure differential and consequent smoke control. In the instance where a corridor or vestibule is used as a link between the exit level of an interior stair shaft and the outdoors, it will be necessary to assess the reliability and performance of the overall system in creating the necessary stairway pressurization. The probability of all doors or closures being opened at the same time, as well as the size of the vestibule and its impact on the overall smoke control system, are factors that need to be considered.

(1) Each stairway that serves storeys above the lowest exit level shall have a vent to the outdoors, at or near the bottom of the stair shaft, that,
(a) has an openable area of 0.05 m^2 for every door between the stair shaft and a floor area, but not less than 1.8 m^2,
(b) opens directly to the outdoors or into a vestibule that has a similar opening to the outdoors, and
(c) has a door or closure that,
  (i) is openable manually, and
  (ii) can remain in the open position during a fire emergency.

If mechanical methods are used to develop a positive pressure in a stair shaft, a minimum pressure differential of 12 Pa is recommended to prevent smoke migration from floor areas in a sprinklered building where fire temperatures are controlled and smoke movement may be dominated by stack effect in a stair shaft. During a fire emergency, persons will be entering and exiting a stair shaft as they move to a place of safety and under these conditions the number of doors open to the stair shaft cannot be predetermined. The number will vary depending on the occupancy of the building, population density and the evacuation plan for the building. It should be assumed that two doors are open. This is based in part as a practical level for most buildings and considers the positive fire experience in sprinklered buildings.

The maximum pressure differential created by a mechanical system should not prevent doors to the stair shafts from being opened. A specific maximum value cannot be given, as this value will depend on the door opening force and size of the door. These values should be calculated for each specific case. A maximum value of 130 N is suggested by research as the force that can be opened by the majority of people in most occupancies, however this value is above the maximum value of 90 N generally specified in this Code (Section 3.4. of Division B). The use of values below 130 N can create a practical problem in achieving effective smoke control as it is difficult to design for the acceptable minimum and maximum pressure differential range. Special consideration may need to be given to doors located in a barrier free path of travel.

Care should be taken by designers and by building and fire officials in implementation of these requirements. Assumptions involved in the design of a smoke control system may be different from final construction conditions. For this reason each system should be tested after installation to ensure that the design intent is met. The minimum pressure differential is not intended to apply to locations in stair shafts when nearby doors are open to adjacent floor areas.

[3.2.6.2.(4)] Limiting Smoke Movement into Storeys Above Lowest Exit Level.

Measures to prevent the migration of smoke from floor areas below the lowest exit storey into upper storeys include the following.

(1) An elevator hoistway that passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, unless there is a vestibule between the shaft and each floor area below the lowest exit storey that

(a) has a fire separation, with a fire resistance rating not less than 45 min, between the vestibule and any public corridor,
(b) has a fire separation, with a fire resistance rating not less than that required for an exit by Article 3.4.4.1. of Division B, between the vestibule and any stair or elevator enclosure or any part of a floor area, other than a public corridor, and
(c) except for elevator hoistway entrances, has a self-closing device on any door through the fire separation required by Clauses (a) and (b), with the door opening in the direction of travel from the floor area to the exit stairway.

(2) A vertical service space, other than an elevator hoistway, that passes through the floor assembly above the lowest exit storey, should be provided with a tight fitting noncombustible seal or fire stop at the floor assembly of the storey immediately below the lowest exit storey, unless

(a) the vertical service space is vented to the outdoors at the top and the vent has an openable area that is not less than
  (i) that obtained from Graph 1 in Appendix A to SB-4 if the vertical service space is in a building in which other shafts are not mechanically pressurized, or
  (ii) that obtained from Graph 2 in Appendix A to SB-4 if the vertical service space is in a building in which other shafts are mechanically pressurized,
(b) for a shaft that serves floor areas above the lowest exit storey, a vent is located
  (i) at or near the top of the shaft if the shaft is above the mid height of the building, or
  (ii) at or near the foot of the shaft at or near the exit level if the top of the shaft is below the mid height of the building, or
(c) for a shaft that serves floor areas below the lowest exit storey, a vent is located at or near the top of the shaft.

(3) Any closure provided for a vent opening referred to in Sentence (2) must be openable:

(a) manually,
(b) on a signal from a smoke detector located at or near the top of the shaft, and
(c) by a control device located at the central alarm and control facility.

[3.2.6.2.(5)] Air Moving Fans

(1) Except for exhaust fans in kitchens, washrooms and bathrooms in dwelling units, and except for fans used for smoke venting in Article 3.2.6.6. of Division B, air moving fans in a system that serves more than 2 storeys shall be designed and installed so that in the event of a fire these fans can be stopped by means of a manually operated switch at the central alarm and control facility.

Equivalent Measure

Where a building is designed in accordance with Measure A as described in Sections 2 and 3 of this Supplementary Standard, the building shall be deemed to comply with Sentences 3.2.6.2.(2) to (5) of Division B of the Building Code.

[3.2.6.2.(7)] Limits to Smoke Movement in Existing Buildings that are Not Sprinklered

(1) An existing building that is not sprinklered and that is governed by the provisions of Subsection 3.2.6. of Division B shall be designed in accordance with Sentences (2) to (8) to limit the danger to occupants and firefighters from exposure to smoke in a building fire.

Smoke Protection for Floor Areas

(2) Except as provided in Sentences (5) to (8), a building referred to in Sentence (1), shall be designed so that, during a period of 2 h after the start of a fire, all floor areas that are above the lowest exit storey will not contain more than 1% by volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature on a 2.5% basis determined in conformance with Supplementary Standard SB-1.

Smoke Protection for Exit Stairs

(3) Except as provided in Sentences (7) and (8), a building referred to in Sentence (1), shall be designed so that during a period of 2 h after the start of a fire, the limit described in Sentence (2) on the movement of contaminated air into other floor areas is not exceeded in,

(a) each exit stair serving storeys above the lowest exit level, and
(b) each exit stair serving storeys below the lowest exit level.

Smoke Protection for Firefighters' Elevators

(4) Except as provided in Sentence (7), a building referred to in Sentence (1), shall be designed so that during a period of 2 h after the start of a fire, the limit described in Sentence (2) on the movement of contaminated air into other floor areas is not exceeded in a shaft that contains an elevator for use by firefighters required by Article 3.2.6.5. of Division B.

Areas of Refuge

(5) In a building of Group C major occupancy classification, the requirements of Sentence (2) are waived where occupants above the first storey can enter and be safely accommodated in floor areas or parts of floor areas that shall

(a) be designated and identified in the building as areas of refuge,
(b) be located on every storey except if the building is not more than 75 m, measured between grade and the floor level of the top storey, on every fifth storey,
(c) provide not less than 0.5 m^2 of floor space per ambulatory occupant and 1.5 m^2 of floor space per non-ambulatory occupant,
(d) have access corridors and doors leading to each designated part of a floor area on the same storey sufficient to provide 3.67 mm of width for every person who may have to use these passages to reach the designated part of a floor area,

(e) have access stairs from intervening storeys leading to each designated part of a floor area sufficient to provide 5.5 mm of width for every person who may have to use these stairs to reach the designated part of a floor area, and
(f) not contain more than 1% by volume of contaminated air from the fire floor during a period of 2 h after the start of a fire, assuming an outdoor temperature equal to the January design temperature on a 2.5% basis determined in conformance with Supplementary Standard SB-1.

Lower Buildings

(6) The requirements of Sentence (2) are waived in a building of Group C major occupancy classification where,
(a) the building is not more than 75 m high measured between grade and the floor level of the top storey, and
(b) the number of occupants of storeys above grade is not more than 3.6 times the area in square metres of treads and landings in the exit stairs serving these storeys.

Residential Buildings

(7) The requirements of Sentences (2) and (4) and Clause (3)(a) are waived in a building of Group C major occupancy classification, where
(a) each suite above grade has direct access to an exterior balcony that conforms to the requirements of Sentence 3.3.1.7.(4) of Division B,
(b) each stairway that serves storeys above the lowest exit level is vented to the outdoors at or near the bottom of the stair shaft,
(c) measures are taken to limit movement of smoke from a fire in a floor area below the lowest exit storey into upper storeys, and
(d) where, except for exhaust fans in kitchens, washrooms and bathrooms in dwelling units, air moving fans are designed and installed so that in the event of a fire such fans can be stopped by means of a manually operated switch at the central alarm and control facility where the system serves more than 2 storeys.

(8) The requirements of Sentences (2) and (3) are waived in a Group C major occupancy apartment building.

[3.2.6.3.(1)] Connected Buildings

The measures described here are intended to prevent movement of smoke from one building to another where at least one building is a high building. They are of particular significance for two buildings of unequal height that are joined together. The measures suggested include the provision of a large opening to the outdoors in a connecting vestibule enabling smoke entering through leakage areas around doors to be vented to the outdoors, or pressurization to maintain a higher pressure in the vestibule than in adjacent spaces, as illustrated in Figures 17 to 19 in Section 2.

The provisions for protection of openings are described in terms applicable doorways, as this is expected to be the most commonly occurring opening. Openings other than doorways should be avoided if possible. Openings should be protected by an airlock that gives the at least the same level of protection as the vestibule described below.

The requirement of Article 3.2.6.3. of Division B limiting the movement of smoke from one building to another may be met by incorporating in the link between the buildings the provisions of Sentences (1) and (2) described below.

(1) A firewall conforming to Subsection 3.1.10. of Division B is constructed between one building and the other with any opening in the firewall protected against the passage of smoke by a vestibule that has
(a) a fire separation between the vestibule and a public corridor with a fire resistance rating not less than 45 min,
(b) a fire separation between the vestibule and the remainder of the floor area, other than a public corridor, with a fire resistance rating not less than that required by Article 3.4.4.1. of Division B for an exit,
(c) a fire separation between the vestibule and a stair enclosure or elevator hoistway with a fire resistance rating not less than that required by Article 3.4.4.1. of Division B for an exit, and
(d) any door in the fire separation required by Clauses (a), (b) or (c), except for an elevator entrance, provided with a self-closing device as required by Article 3.1.8.13. of Division B and opening in the direction of travel from the floor area to the exit stairway.

(2) The vestibule referred to in Sentence (1) should have
(a) a vent to the outdoors that has a net area of $10(0.023d + 0.00045a)$ m^2, where 'd' is the number of doors having a perimeter not more than 6 m that open into the vestibule, or if the perimeter of doors exceeds 6 m, the value 'd' is increased in direct proportion to the increase in the perimeter, and 'a' is the area in square metres of enclosing walls, floors and ceilings whose outer face is in contact with the outside air, except that where the outer face of a wall is in contact with the ground or fill, it is assumed that there is no leakage through that portion, and the value of 'a' is assumed to be zero, or
(b) equipment capable of maintaining a supply of air into the vestibule sufficient to ensure that the air pressure in the vestibule when the doors are closed is higher by at least 12 Pa than that in adjacent floor areas when the outdoor temperature is equal to the January design temperature on a 2.5% basis.

[3.2.6.5.(6)(b)] Electrical Cable Protection

Electrical cables that provide continuous operation for 1 hour when subjected to the fire exposure/temperature curve of CAN/ULC-S101-14, “Standard Methods of Fire Endurance Tests of Building Construction and Materials”, do not need additional protection against exposure to fire.

[3.2.6.6.(1)] Venting to Aid Firefighting

(1) The requirements of Sentence 3.2.6.6.(1) of Division B and of Measures H or I are met by incorporating in a floor area windows or wall panels as described in Sentence (2), by smoke shafts as described in Sentences (3) to (7) or by the use of building exhaust systems as described in Sentence (8).

(2) Where windows or wall panels are used for venting as required in Sentence (1), they must
(a) be uniformly distributed along the exterior wall of each storey,
(b) have a total area of not less than one percent of the exterior wall area of each storey,
(c) be readily openable from the interior without the use of wrenches or keys,
(d) be readily identified from the interior, and from the exterior where they are accessible to firefighters, and
(e) be designed so that when opened they will not endanger persons outside the building during a fire.

(3) Where one or more smoke shafts or vertical service spaces are used for venting to meet the requirements of Sentence (1), they must
(a) have an opening or openings into each storey with an aggregate area not less than that obtained from Table 1 for the height of the shaft, the area of the largest floor area served by the smoke shaft and the leakage characteristics of the shaft wall and closures obtained from Tables 2 and 3,
(b) have an aggregate unobstructed cross-sectional area equal to that provided in Clause (a), and
(c) be designed to comply with the requirements of Sentence (4).

(4) Each smoke shaft or vertical service space described in Sentence (3) must
(a) be separated from the remainder of the building by a fire separation that has a fire-resistance rating at least equal to that required for the floor assembly through which it passes, or be designed as a chimney conforming to Part 6 of Division B, except that flue liners need not be provided,
(b) have an opening to the outdoors at the top that has an area not less than the cross-sectional area of the shaft which may be protected from the weather,
(c) terminate not less than 900 mm above the roof surface where it penetrates the roof, and
(d) contain no combustible material, fuel lines or services that are required for use in an emergency.

(5) Each opening required by Clause (3)(a) must be located so that the top of the opening is not more than 250 mm below the ceiling, except that the opening may be above the ceiling if the ceiling freely allows passage of air and the opening into the smoke shaft is provided with a closure that

(a) has a fire-protection rating conforming to Sentence 3.1.8.4.(2) of Division B, except that the temperature on the unexposed face of the closure is not more than 250°C after 30 min during the fire test and there is no combustible material within the distances described in Table 4, and except that paint or tightly-adhering paper covering not more than 1 mm thick shall be exempted from these requirements when applied to a noncombustible backing,

(b) can be opened from a remote location such as a stair shaft, the storey immediately below or the central alarm and control facility, and

(c) must not open automatically on any floor, other than the fire floor, when smoke or hot gases pass through the shaft.

(6) Closures for openings described in Clause 4(b) are to be openable from the outside and will open automatically on a signal from a smoke detector in the shaft, by operation of the fire alarm system and when a closure required in Sentence (5) opens.

(7) A smoke shaft opening referred to in Sentence (2) or (3) that is less than 1 070 mm above the floor must be protected by guards in conformance with Article 3.3.1.18. of Division B.

(8) In a sprinklered building, the air handling system may be used for smoke venting provided

(a) the system can maintain an exhaust to the outdoors at the rate of six air changes per hour from any floor area, and

(b) emergency power to the fans required by (a) is provided as described in Article 3.2.7.9. of Division B.

(9) Where a closure is required by Sentence (5), the leakage area between closure components and between damper and frame must be not more than 3 percent of the openable area of the damper.

Table 1
Minimum Size of Vent Openings into Smoke Shafts from Each Floor Area, m^2 (1),(3)

Floor Area, m^2	Leakage Area, %(2)	Building Height, m								
		18	37	73	110	146	183	220	256	293
200	0	0.1	0.11	0.13	0.15	0.16	0.18	0.19	0.2	0.22
500		0.22	0.25	0.29	0.32	0.36	0.37	0.39	0.41	0.43
1 000		0.43	0.48	0.53	0.59	0.63	0.67	0.71	0.75	0.77
2 000		0.83	0.91	1.01	1.08	1.16	1.22	1.29	1.34	1.39
3 000		1.21	1.33	1.46	1.55	1.67	1.75	1.82	1.9	1.97
4 000		1.62	1.75	1.9	2.02	2.15	2.25	2.35	2.44	2.53
5 000		2.01	2.17	2.34	2.46	2.63	2.74	2.86	2.88	3.07
6 000		2.39	2.57	2.76	2.91	3.1	3.23	3.37	3.47	3.58
200	1	0.1	0.12	0.15	0.19	0.22	0.27	0.35	0.43	0.55
500		0.23	0.27	0.35	0.4	0.49	0.57	0.69	0.83	1.04
1 000		0.44	0.5	0.71	0.72	0.86	1.01	1.19	1.43	1.73
2 000		0.85	0.97	1.15	1.33	1.56	1.81	2.1	2.48	2.95
3 000		1.26	1.42	1.67	1.91	2.23	2.56	2.97	3.47	4.08
4 000		1.66	1.88	2.18	2.49	2.37	3.28	3.79	4.4	5.16
5 000		2.07	2.32	2.69	3.05	3.51	3.99	4.6	5.32	6.21
6 000		2.47	2.76	3.18	3.59	4.14	4.68	5.37	6.2	7.23
200	2	0.1	0.13	0.18	0.24	0.37	0.61	1.28	4.6	89.57
500		0.24	0.29	0.39	0.52	0.75	1.13	2.1	6.11	94.5
1 000		0.46	0.55	0.72	0.94	1.3	1.9	3.27	8.29	102.11
2 000		0.88	1.05	1.34	1.73	2.32	3.28	5.36	12.14	116.8
3 000		1.31	1.53	1.95	2.47	3.29	4.58	7.28	15.63	130.83
4 000		1.73	2.01	2.55	3.2	4.23	5.83	9.12	19.97	144.03
5 000		2.15	2.49	3.13	3.92	5.15	7.05	10.9	22.15	157.05
6 000		2.57	2.96	3.73	4.63	6.07	8.26	12.65	25.39	169.29
200	3	0.11	0.14	0.21	0.37	0.88	2.06			
500		0.25	0.31	0.47	0.76	1.58	9			
1 000		0.47	0.59	0.86	1.33	2.6	11.99			
2 000		0.91	1.12	1.6	2.41	4.47	17.46			
3 000		1.35	1.64	2.31	3.43	5.21	22.48			
4 000		1.79	2.17	3.02	4.43	7.91	27.29			
5 000		2.22	2.68	3.71	5.42	9.55	31.95			
6 000		2.65	3.2	4.4	6.39	11.18	36.47			
200	4	0.11	0.15	0.28	0.7	24.83				
500		0.25	0.34	0.58	1.33	29.18				
1 000		0.49	0.63	1.06	2.27	36.07				
2 000		0.95	1.21	1.97	3.99	48.56				
3 000		1.41	1.78	2.84	6.63	60.15				
4 000		1.86	2.34	3.7	7.22	71.15				
5 000		2.21	2.9	4.55	8.79	81.81				
6 000		2.75	3.46	5.4	10.33	90.05				
Column 1	2	3	4	5	6	7	8	9	10	11

Table 1 (Cont'd)
Minimum Size of Vent Openings into Smoke Shafts from Each Floor Area, m^2 (1),(3)

Floor Area, m^2	Leakage Area, %(2)	Building Height, m								
		18	37	73	110	146	183	220	256	293
200	5	0.11	0.16	0.36	3.33					
500		0.28	0.36	0.76	5.09					
1 000		0.5	0.69	1.37	7.67					
2 000		0.99	1.31	2.54	12.35					
3 000		1.46	1.94	3.65	16.75					
4 000		1.92	2.55	4.75	20.99					
5 000		2.4	3.16	5.84	25.11					
6 000		2.87	3.74	6.92	29.11					
Column 1	2	3	4	5	6	7	8	9	10	11

Notes to Table 1:

(1) The minimum size of a vent opening into a smoke shaft is obtained from Table 1 and is dependent on the floor area and total leakage area of the smoke shaft walls and closures. This total leakage area may be estimated by adding the leakage areas for the shaft wall obtained from Table 2 and for the dampered openings obtained from Table 3 provided the cross-sectional area of the smoke shaft, the opening into the shaft and the opening to the outdoors at the top of the shaft are equal.

(2) Leakage area is the total of the leakage area of smoke shaft wall obtained from Table 2 and the leakage area of openings in smoke shafts obtained from Table 3.

(3) The size of the vent opening refers to the free or unobstructed area of the opening.

Table 2
Leakage Area of Smoke Shaft Wall

Wall Construction	Leakage Area as % of Wall Area
Monolithic concrete	0.5
Masonry wall unplastered	1.5
Masonry wall plastered	0.5
Gypsum board on steel studs	1.0
Column 1	2

Table 3
Leakage Area of Closures into Smoke Shaft

Type of Closure	Leakage Area as % of Closure Area(1), (2)
Curtain fire damper	2.5
Single-blade fire damper	3.5
Multi-blade fire damper	4.5
Column 1	2

Notes to Table 3:

(1) Values include allowance for 0.5% leakage between frame and wall construction.

(2) These leakage data contemplate clearances applicable to closures that have been tested in accordance with CAN/ULC-S112-10, "Fire Test of Fire-Damper Assemblies."

Table 4
Minimum Distance from Closure to Combustible Material

Area of Closure, m^2 (1)	Minimum Distance in Front of or Above Closure, m	Minimum Distance to the Sides or Below Closure, m
0.5	0.35	0.20
1.0	0.50	0.25
1.5	0.60	0.30
2.0	0.70	0.35
2.5(2)	0.80	0.40
Column 1	2	3

Notes to Table 4:

(1) For closure areas between those given in Table 4, interpolation may be used to determine the appropriate distances.

(2) For closure areas greater than 2.5 m^2, the minimum distance in front of or above the closure shall be one half of the square root of the closure area, and the minimum distance to the sides or below the closure shall be one quarter of the square root of the closure area.

[3.2.6.7.(1)] Protection of Central Control Room

The design of a room provided for a central alarm and control facility should be adequately protected from fire and smoke and take into account the nature and sensitivity of the electronic components of the equipment it contains. The room should also be ventilated with a supply of fresh air in order to maintain a clean environment. Adequate lighting is also required.

[3.2.6.7.(2)] Central Control Room Air Control

Depending on the method of mechanical venting and air control that is selected for the building, additional controls may be required at the central alarm and control facility. These additional controls include those with a capability of opening closures to vents in shafts, stopping air handling systems, and initiating mechanical air supply to stair shafts.

[3.2.6.9.(1)] Testing for Smoke Control

The efficiency of a smoke control system maybe checked by measuring pressure differences and the directions of airflow around doors and through separating walls of compartments. A pressure meter can be used to measure pressure differences on either side of a door or partition. Where this is impracticable, a punk stick held near a crack will indicate the direction of airflow. Measurements of airflow may be taken on the intake side of supply fans or in supply ducts to determine whether the specified airflow is being provided. In general, airflow should be from the spaces which may be occupied for various lengths of time during a fire emergency (e.g., vestibules, stair shafts, and elevator hoistways) toward the space in which the fire is assumed to have occurred. Measurements may be taken at certain critical locations to check the overall efficiency of the smoke control system.

In buildings where protection is obtained by venting corridors or vestibules to the outdoors, inspection of the building to determine whether the requirements have been met should be sufficient. Where service shafts are vented to the outdoors at the top, a check may be made of the wall between the shaft and the uppermost occupied floor areas, to ensure that the direction of flow is from each floor area into the shaft, when the vent to the outside is open and the outdoor air temperature is significantly less than that indoors. Where mechanically pressurized vestibules are used, a check may be made to ensure that the pressure in each vestibule or area of refuge is greater than that in the adjacent floor areas at each floor level.

Doors to stair shafts, elevator hoistways and vestibules in locations subject to pressure differences that may interfere with normal opening should be checked when the outdoor temperature is near the January design temperature, with the air injection system operating and a number of windows open to the outdoors on each floor in turn.

Section 2 Scope of Measures for Fire Safety in Existing High Buildings

This Supplementary Standard includes a number of detailed measures that may be incorporated in a building in order to comply with the requirements relating to control of smoke for existing buildings. It is not the intention to exclude other means of attaining the same objectives. Where smoke control methods other than those described in this Supplementary Standard are developed, they may be based on the information in Appendix B of this Supplementary Standard.

Smoke control measures appropriate to existing buildings vary depending on the height and occupancy of a building. In a sprinklered building, the requirements for control of smoke movement are minimal (see Measure A, Section 3). In very tall buildings, limits are placed on the penetration of smoke into exit stairs, elevators for firefighters and all floor areas other than the one on which fire occurs. Such limits are achieved by Measures B, D, F, H and I in Section 3. In certain buildings of lesser height and limited population, exit stairs and elevators for firefighters are protected and smoke may be expected to enter upper floor areas. This situation applies where Measures C, E, G and J, described in Section 3, are employed. In other buildings, the spread of smoke into shafts and floor areas is accepted, but areas of refuge are provided that are maintained smoke free, that can be reached by all people in the building within a few minutes and that are linked to outdoors by safe means of egress. They are described in Measures K and L in Section 3.

Where Measures A, B, D, F, H and I in Section 3 are applied, it is assumed that in the event of fire occupants of the floor on which the fire occurs will leave by exit stairs immediately following the sounding of a fire alarm, and that occupants of the floor immediately above the floor on which the fire occurs will be advised to leave by the first fire department officer on the scene or other person assigned this responsibility. Occupants of all other floors may remain on their floors unless otherwise directed.

Where Measures C, E, G and J in Section 3 are applied, it is assumed that occupants of all floors will move immediately into the stair shafts and will then proceed slowly to the outdoors following the sounding of a general fire alarm.

Where Measure K in Section 3 is applied (i.e. the building is divided vertically into two zones), it is assumed that occupants of the floor on which the fire originates will leave by exit stairs, and that the occupants of all other floors in the zone in which the fire is discovered will move through vestibules or bridges to floor areas on the same level in the fire-free smoke control region immediately following the sounding of a fire alarm. Occupants may remain in these areas of refuge until further directed by the fire department officer.

Where Measure L in Section 3 is applied, it is assumed that occupants of the floor on which the fire originates will leave by the exit stairs, and that occupants of all other floors will move by corridors or stairs to areas of refuge that are distributed throughout the building immediately following the sounding of the fire alarm. Occupants may remain in these areas of refuge until otherwise directed.

In a residential building where reliance is placed on balconies as places of refuge from smoke, as described in Measure M in Section 3, occupants may remain in their suites when a general fire alarm is given, but should be prepared to move on to their balconies if conditions in the suite should become untenable.

It is assumed that the cumulative population of storeys below grade divided by 1.8 times the width in metres of all exit stairs at the storey under consideration will not exceed the 300 limit referred to in Article 3.2.6.1. of Division B, and that occupants of storeys below grade will evacuate the building by the stair shafts immediately after the discovery of a fire in a storey below grade.

It is also important that firefighters are provided with a smoke-free access to fire floors below grade. Measures A, B, C, D, E, F, G, L and M include provisions designed to separate the exit stairs serving storeys above grade from those serving storeys below grade, and to limit entry of smoke into these shafts. Elevator shafts and service shafts are required to be provided with a separation near grade, or be designed to limit their functioning as paths of smoke movement into upper floor areas. In Measures H, I and J, no special precautions are necessary to protect shafts in storeys below grade, because the system of pressurization plus venting of the fire floor protects all shafts, whether or not these penetrate storeys below grade. In Measure K, the separation into two zones is maintained in storeys below grade. Smoke-free access will thus be available to any floor on which the fire occurs.

Synopsis of Measures for Fire Safety in High Buildings

Each of the measures is illustrated by a sketch with notes describing the applicable conditions (Figures 1 to 19). These sketches are intended as a guide to the detailed requirements and as an aid to finding the relative clauses, but they are not intended to limit in any way the scope of the detailed provisions which in general provide a wider range of choice than can be shown in the sketches and notes. A summary of requirements applicable to all buildings, regardless of the measure being used, is given in the following paragraph.

Requirements Common to all Measures for Fire Safety in High Buildings

(1) Elevators controlled by keyed switch (Article 3.2.6.4. of Division B).

(2) Elevator for firefighters required (Article 3.2.6.5. of Division B).

(3) Means of venting each floor area to outdoors by smoke shaft, windows or building exhaust system (Article 3.2.6.6. of Division B).

(4) Certain floor areas in the building to be sprinklered (Articles 3.2.1.5. and 3.2.2.15. of Division B).

(5) Limits on flame-spread rating and smoke developed classification for interior finish materials in certain locations (Article 3.1.13.7. of Division B).

(6) Central alarm and control facility required (Article 3.2.6.7. of Division B).

(7) Voice communication system required if building is more than 36 m high (Article 3.2.6.8. of Division B).

(8) Fire protection required for electrical feeders to emergency equipment (Article 3.2.7.10. of Division B).

(9) Power to operate emergency lighting, fire alarm and voice communication systems (Articles 3.2.7.4. and 3.2.7.8. of Division B).

(10) Emergency power to operate elevators required if building is more than 36 m high (Article 3.2.7.9. of Division B).

Measure A Fully Sprinklered Building

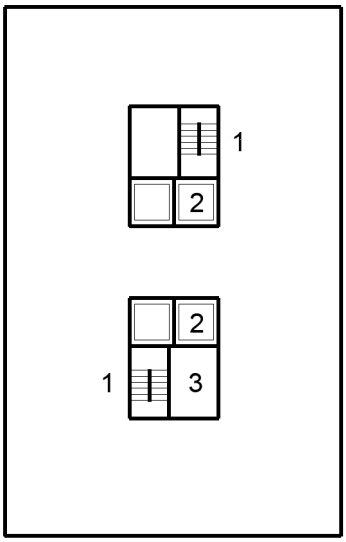


Figure 1
Typical floor plan, Measure A

Measure A satisfies 3.2.6.2.(1) provision (6) as described in Section 1 for existing sprinklered buildings of any major occupancy classification.

No limit on height.

All floor areas sprinklered (3.2.6.2.(1) provision (6) as described in Section 1).

Limits on flame-spread ratings and smoke developed classifications described in Sentence 3.1.13.7.(1) of Division B are relaxed (Sentence 3.1.13.7.(2) of Division B).

1. Door to outdoors in each stair shaft held open during a fire emergency (3A(2))*
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that storey (3A(3)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3A(3)).

2. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3A(5)).

3. Vertical service spaces, other than elevator shafts, provided with firestops at the first floor below the lowest exit storey or vented to outdoors at top during a fire emergency (3A(6)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3.2.6.2.(1) provision (6)(d) as described in Section 1).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure B Open Corridor Access to Stairs and Elevators (including restrictions on movement of smoke from floor to floor)

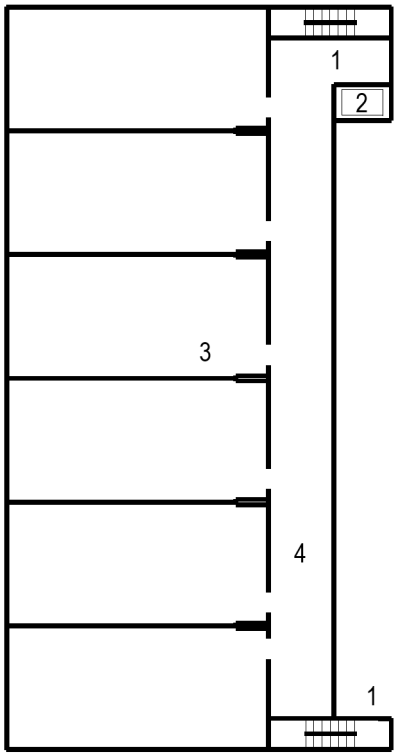


Figure 2
Typical floor plan, Measure B

Measure B satisfies 3.2.6.2.(7) provisions (2) to (4) as described in Section 1 for any major occupancy classification. No limit on height.

1. Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that storey (3B(3)).*
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3B(3)).

2. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3B(4)).

3. Vertical service spaces, other than elevator shafts, provided with firestops at the first floor below the lowest exit storey and at intervals of not more than five storeys or vented to outdoors at top during a fire emergency (3B(5)).

4. Open corridor or balcony providing access to stairs and elevator for firefighters (3B(2)).
   Elevator shaft and stair shaft heating restrictions.
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3B(6)).
   Certain dampers close in air handling ducts during a fire emergency (3B(8)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure C Open Corridor Access to Stairs and Elevators (no additional restrictions on movement of smoke from floor to floor)

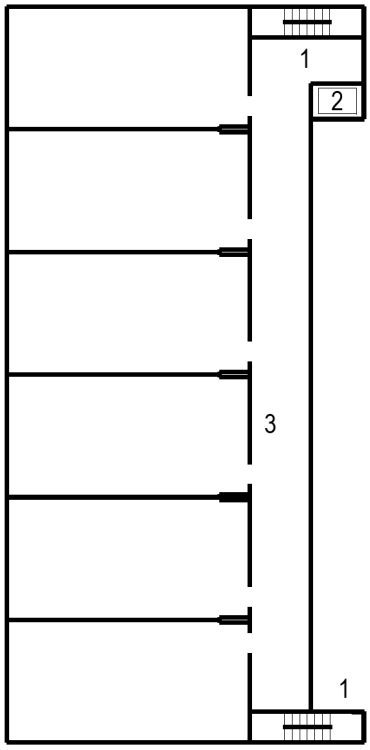


Figure 3
Typical floor plan, Measure C

Measure C satisfies 3.2.6.2.(7) provision (6) as described in Section 1 for Group A, C, D, E or F major occupancy classification.

Limit on population (3.2.6.2.(7) provision (6) as described in Section 1).

Limited to buildings not more than 75 m high (3.2.6.2.(7) provision (6) as described in Section 1).

1. Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that storey (3C(3)).*
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3C(3)).

2. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3C(4)).

3. Open corridor or balcony providing access to stairs and elevator for firefighters (3C(2)).
   Elevator shaft and stair shaft heating restrictions.
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3C(5)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure D Protected Vestibule Access to Stairs and Elevators (including restrictions on movement of smoke from floor to floor)

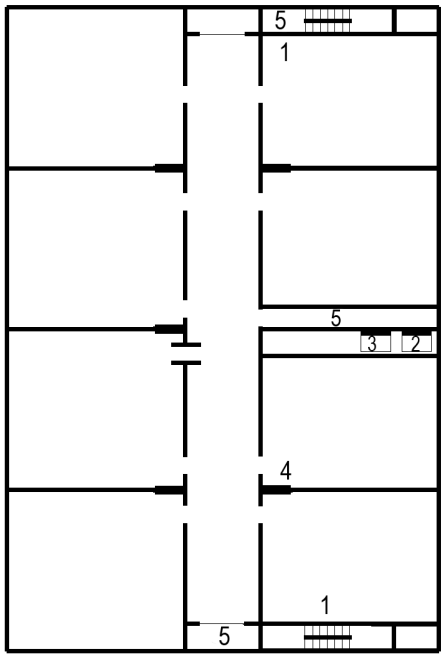


Figure 4
Typical floor plan, Measure D

Measure D satisfies 3.2.6.2.(7) provisions (2) to (4) as described in Section 1 in existing buildings of any major occupancy classification.

No limit on height.

1. Door to outdoors in each stair shaft held open during a fire emergency (3D(7)).*
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that level (3D(8)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3D(8)).
2. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3D(13)).
3. Shaft containing an elevator for firefighters is provided with vent to outdoors at bottom during a fire emergency if the vestibule protection is by pressurization (3D(9)).
4. Vertical service spaces, other than elevator shafts, provided with firestops at the first floor below the lowest exit storey and at intervals of not more than five storeys or vented to outdoors at top during a fire emergency (3D(11)).
5. Vestibule vented to outdoors during a fire emergency or pressurized (3D(5)).
   Vents to vestibules openable from central control facility if building is more than 36 m high (3D(6)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3D(14)).
   Certain dampers close in air handling ducts during a fire emergency (3D(15)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure E Protected Vestibule Access to Stairs and Elevators (no additional restrictions on movement of smoke from floor to floor)

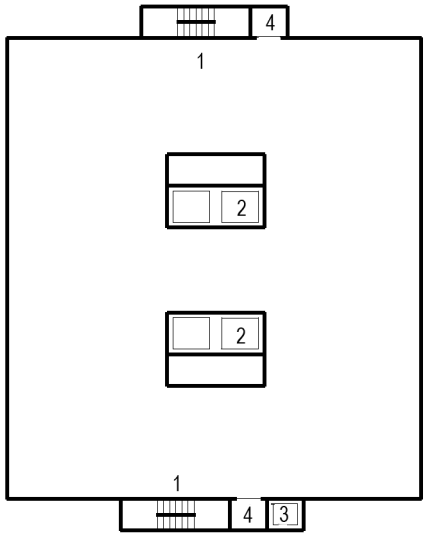


Figure 5
Typical floor plan, Measure E

Measure E satisfies 3.2.6.2.(7) provision (6) as described in Section 1 for Group A, C, D, E or F major occupancy classification.

Limit on population (3.2.6.2.(7) provision (6) as described in Section 1).

Limited to buildings not more than 75 m high (3.2.6.2.(7) provision (6) as described in Section 1).

1. Door to outdoors in each stair shaft held open during a fire emergency (3E(6)).*
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that level (3E(7)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3E(7)).

2. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3E(10)).
   No special protection against smoke for elevator shafts or vertical service spaces other than a shaft containing an elevator for firefighters.

3. Shaft containing an elevator for firefighters is provided with vent to outdoors at bottom during a fire emergency (3E(8)).

4. Vestibule vented to outdoors during a fire emergency or pressurized (3E(4)).
   Vents to vestibules openable from central control facility if building is more than 36 m high (3E(5)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3E(11)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure F Pressurized Stair Shafts and Elevator Shafts (including restrictions on movement of smoke from floor to floor)

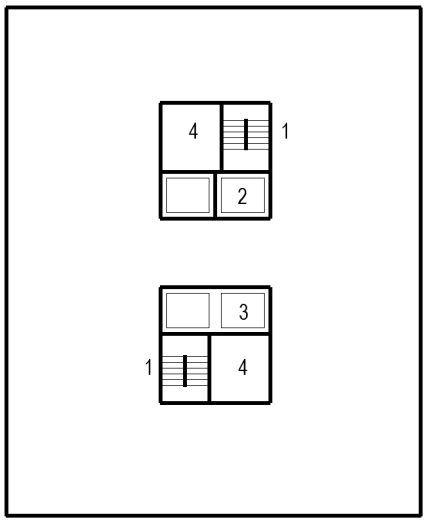


Figure 6
Typical floor plan, Measure F

Measure F satisfies 3.2.6.2.(7) provisions (2) to (4) as described in Section 1 in existing buildings of any major occupancy classification.

No limit on height.

1. Door to outdoors in each stair shaft held open during a fire emergency (3F(2)).*
   Stair shaft pressurized during a fire emergency (3F(2)).
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that level (3F(3)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3F(3)).

2. Shaft containing an elevator for firefighters is pressurized during a fire emergency (3F(4)).

3. Vertical service spaces, other than elevator shafts, provided with firestops at the first floor below the lowest exit storey and at intervals of not more than five storeys or vented to outdoors at top during a fire emergency (3F(7)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3F(11)).
   Certain dampers in air-handling ducts close during a fire emergency (3F(12)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure G Pressurized Stair Shafts and Elevator Shafts (no additional restrictions on movement of smoke from floor to floor)

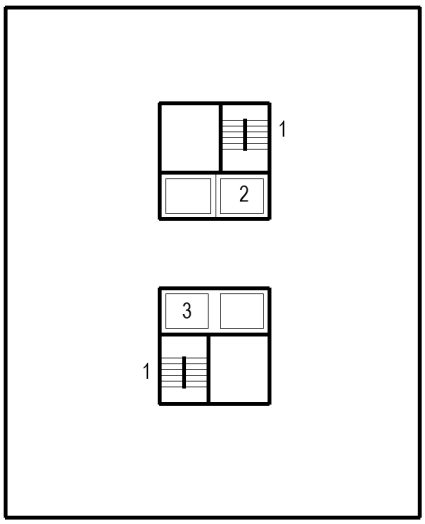


Figure 7
Typical floor plan, Measure G

Measure G satisfies 3.2.6.2.(7) provision (6) as described in section 1 for Group A, C, D, E or F major occupancy classification.

Limit on population (3.2.6.2.(7) provision (6) as described in section 1).

Limited to buildings not more than 75 m high (3.2.6.2.(7) provision (6) as described in section 1).

1. Door to outdoors in each stair shaft held open during a fire emergency (3G(2)).*
   Stair shaft pressurized during a fire emergency (3G(2)).
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that level (3G(3)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3G(3)).

2. Shaft containing an elevator for firefighters is pressurized during a fire emergency (3G(4)).

3. No special protection against smoke for elevator shafts or vertical service spaces other than a shaft containing an elevator for firefighters.
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3G(7)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure H Building Fully Pressurized

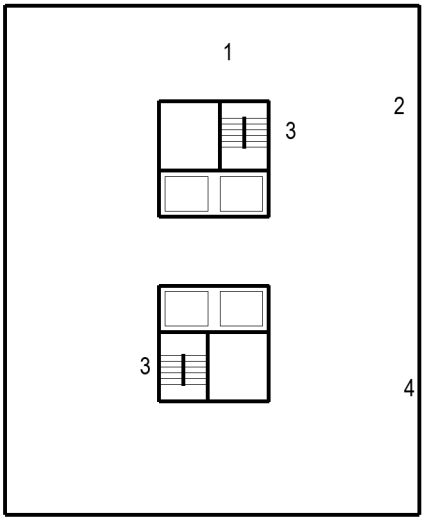


Figure 8
Typical floor plan, Measure H

Measure H satisfies 3.2.6.2.(7) provisions (2) to (4) as described in Section 1 in existing buildings of any major occupancy classification.

No limit on height

1. All floor areas pressurized during a fire emergency (3H(2)). *
   Provision for modulating air supply for building pressurization during warm weather (3H(4)).

2. Fire floor provided with means of venting to outdoors by smoke shaft or windows (3H(7)).

3. A proportion of air for building pressurization directed into stair shafts (3H(2)).
   Doors to outdoors in stair shafts not held open during a fire emergency (3H(5)).

4. Except as required for venting, all openings in perimeter walls and roof are kept closed during a fire emergency (3H(5)).
   Except as required for pressurization, air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3H(4)).
   Certain dampers in air handling ducts are closed during a fire emergency (3H(6)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure I Partially Pressurized Building (including restrictions on movement of smoke from floor to floor outside core)

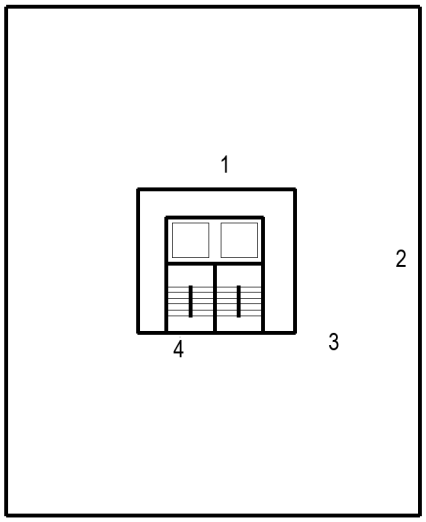


Figure 9
Typical floor plan, Measure I

Measure I satisfies 3.2.6.2.(7) provisions (2) to (4) as described in Section 1 in existing buildings of any major occupancy classification.

No limit on height.

1. Enclosing wall of core is a fire separation with self-closing doors.
   Central core is pressurized during a fire emergency (3I(2)).*
   All openings in perimeter walls and roof of core kept closed during a fire emergency (3I(3)).

2. Fire compartment is vented to outdoors during a fire emergency by smoke shaft or windows (3I(4)).

3. Vertical service spaces, other than elevator shafts, outside core provided with firestops at the level of the first floor below the lowest exit storey and at intervals of not more than five storeys or vented to outdoors at the top during a fire emergency (3I(6)).

4. Doors to outdoors in stair shafts not held open during a fire emergency except as required for pressurizing the core (3I(3)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3I(7)).
   Certain dampers in air handling ducts are closed during a fire emergency (3I(8)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure J Partially Pressurized Building (no additional restrictions on movement of smoke from floor to floor outside core)

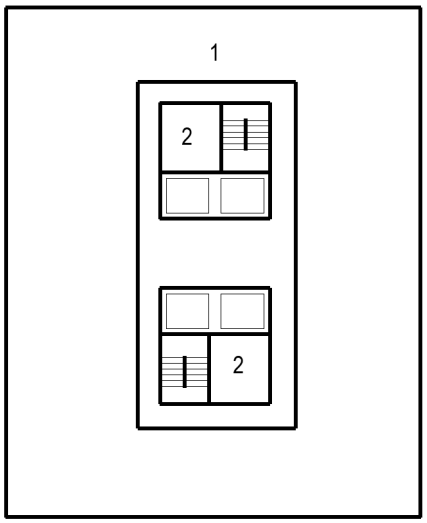


Figure 10
Typical floor plan, Measure J

Measure J satisfies 3.2.6.2.(7) provision (6) as described in Section 1 for Group A, C, D, E or F major occupancy classification.

Limit on population (3.2.6.2.(7) provision (6) as described in Section 1).

Limited to buildings not more than 75 m high (3.2.6.2.(7) provision (6) as described in Section 1).

1. Enclosing wall of core is a fire separation with self-closing doors.
   Central core is pressurized during a fire emergency (3J(2)).*
   All openings in perimeter walls and roof of core are kept closed during a fire emergency (3J(3)).

2. Doors to outdoors in stair shafts not held open during a fire emergency (3J(3)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3J(4))

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure K Vertically Divided Buildings (with spatial separation)

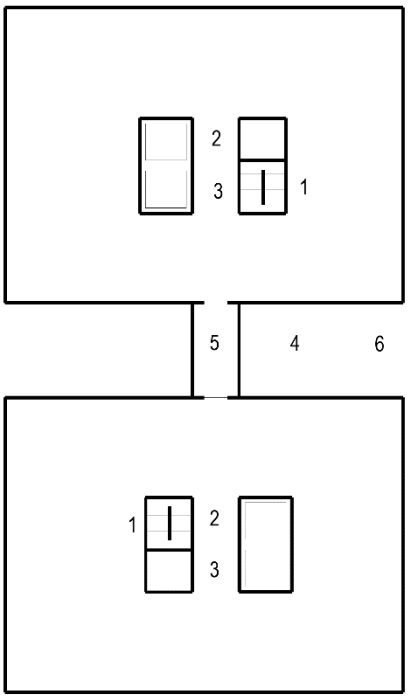


Figure 11
Typical floor plan, Measure K

Measure K satisfies 3.2.6.2.(7) provision (5) as described in Section 1 for buildings of Group A, C, D, E or F major occupancy classification.

No limit on height.

1. Door to outdoors in each stair shaft held open during a fire emergency (3K(13)).*

2. One elevator for fire fighters and one stairshaft in each smoke control region (3K(4)).

3. If bridges do not occur at each storey, two stairshafts are required in each smoke control region (Sentence 3.4.2.1. of Division B).

4. Building designed as two smoke control regions with spatial separation between (3K(2)).

5. Bridges at intervals of not more than five storeys, except that in buildings of Group C major occupancy more than 75 m high, the bridge is at each storey (3K(3)).
   Bridges vented to outdoors or pressurized during a fire emergency (3K(11)).

6. Fire separation in storeys below grade to maintain separation between smoke control regions (3K(15)). Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3K(14)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure K Vertically Divided Buildings (with fire separation)

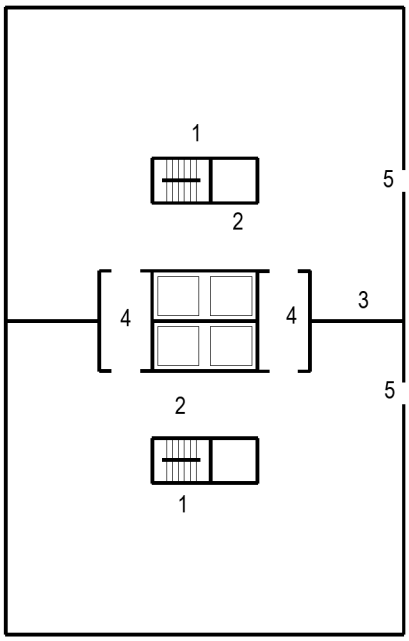


Figure 12
Typical floor plan, Measure K

Measure K satisfies 3.2.6.2.(7) provision (5) as described in Section 1 for buildings of Group A, C, D, E or F major occupancy classification.

No limit on height.

1. Door to outdoors in each stair shaft held open during a fire emergency (3K(13)).*

2. One elevator for firefighters and one stair shaft in each smoke control region (3K(4)).
   If vestibules do not occur at each storey, two stair shafts are required in each smoke control region (Sentence 3.4.2.1. of Division B).

3. Building designed as two smoke control regions with fire separation between (3K(2)).
   Fire separation in storeys below grade to maintain separation between smoke control regions (3K(15)).

4. Vestibule at intervals of not more than five storeys, except that in the case of buildings of Group C major occupancy more than 75 m high, the vestibule is at each storey (3K(3)).
   Vestibules vented to outdoors or pressurized during a fire emergency (3K(11)).

5. Vent to outdoors in each smoke control region on floors below mid height of building (3K(12)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3K(14)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure L Areas of Refuge (duplicate groups of areas of refuge at every fifth storey except as required in item 5)

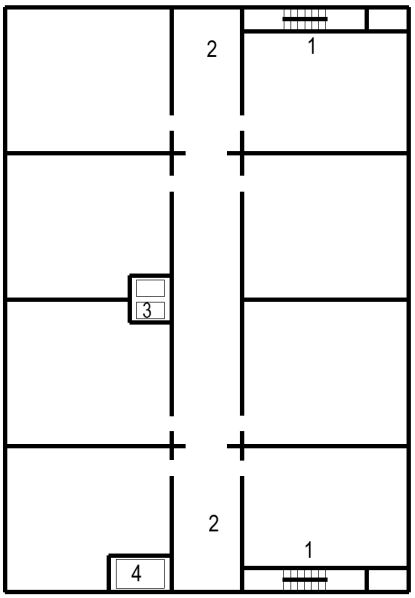


Figure 13
Typical floor plan, Measure L

Measure L satisfies 3.2.6.2.(7) provision (5) as described in Section 1 for buildings of Group A, C, D, E or F major occupancy classification.

No limit on height.

1. Stair shaft and shaft containing an elevator for firefighters protected by area of refuge or vestibule (3L(11)).*
   Door to outdoors in each stair shaft held open during a fire emergency (3L(14)).
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that storey (3L(15)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3L(15)).
2. Stair shaft and shaft containing an elevator for firefighters is protected at intermediate floors by pressurized vestibules (3L(11)).
3. Shaft containing an elevator for firefighters terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3L(13)).
   Shaft containing an elevator for firefighters provided with vent to outdoors at bottom during a fire emergency (3L(16)).
4. No special protection against smoke for elevator shafts or vertical service spaces other than a shaft containing an elevator for firefighters.
5. Two areas of refuge on each fifth floor pressurized during a fire emergency (3L(10)), or areas of refuge staggered on intermediate storeys (see Figure 15), except that in buildings of Group C major occupancy more than 75 m high the areas of refuge shall be located on each storey.
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3L(18)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure L Areas of Refuge (areas of refuge located in pairs)

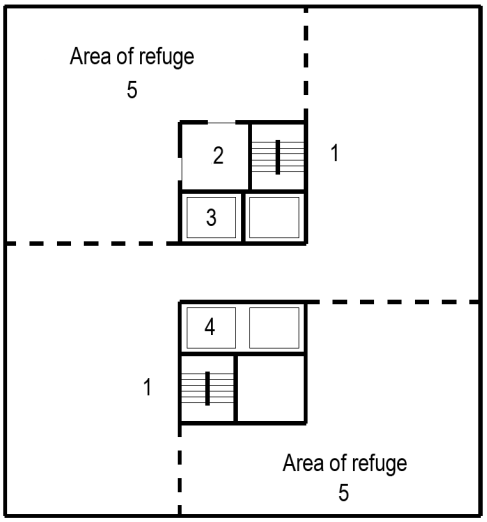


Figure 14
Typical floor plan, Measure L

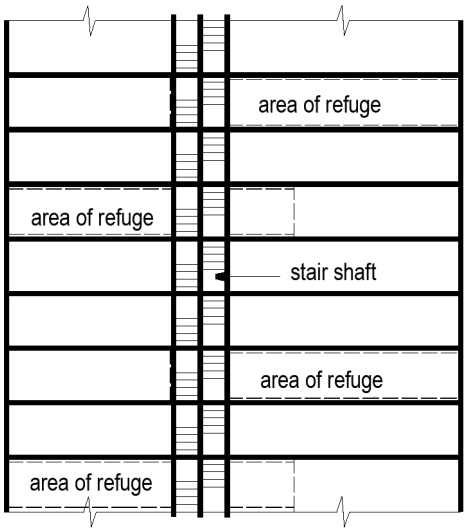


Figure 15
Typical cross section showing areas of refuge on intermediate floors

Measure L satisfies 3.2.6.2.(7) provision (5) as described in Section 1 for buildings of Group A, C, D, E or F major occupancy classification.

No limit on height.

1. Stair shaft and shaft containing an elevator for firefighters protected by area of refuge or vestibule (3L(11)).*
   Door to outdoors in each stair shaft held open during a fire emergency (3L(14)).
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that storey (3L(15)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3L(15)).

2. Two areas of refuge are pressurized during a fire emergency (see Figure 14 for area of refuge every fifth storey), except that in buildings of Group C major occupancy more than 75 m high, the areas of refuge are located on each storey (3L(10)).

3. No special protection against smoke for elevator shafts or vertical service spaces other than a shaft containing an elevator for firefighters.

4. Shaft containing an elevator for firefighters terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3L(13)).
   Shaft containing an elevator for firefighters is provided with vent to outdoors at bottom during a fire emergency (3L(16))
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3L(18)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure M Building with Balconies

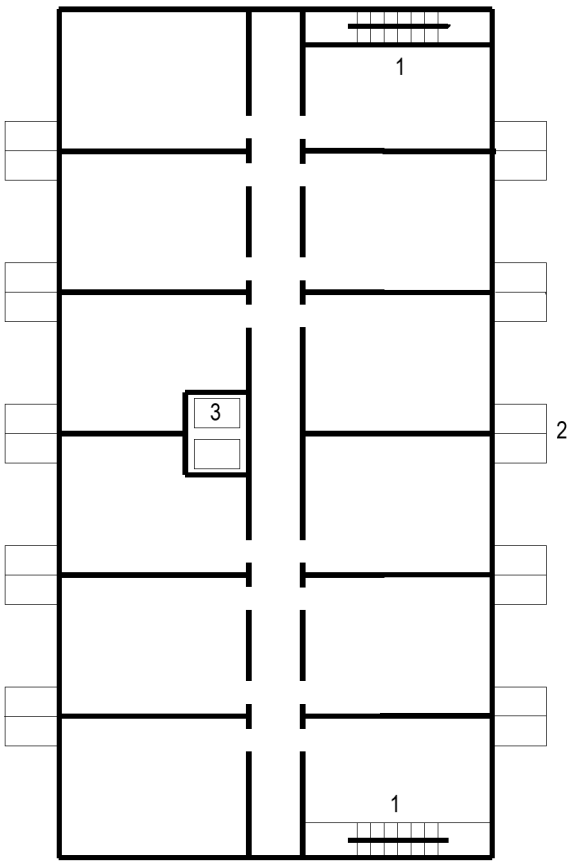


Figure 16
Typical floor plan, Measure M

Measure M satisfies 3.2.6.2.(7) provision (7) as described in Section 1 for existing buildings of Group C major occupancy classification.

1. Door to outdoors in each stair shaft held open during a fire emergency (3M(2)).*
   Stair shaft serving floors below the lowest exit level is separate from stair shaft serving floors above that level (3M(3)).
   Stair shaft serving floors below the lowest exit level is pressurized during a fire emergency (3M(3)).

2. Each suite is provided with a balcony (3.2.6.2.(6) provision (7) as described in Section 1).

3. Elevator shaft terminates not lower than the first floor below the lowest exit storey or has elevator vestibules in every storey below the lowest exit storey (3M(4)).
   Air moving fans are stopped during a fire emergency in a system that serves more than two storeys (3M(5)).

* First number indicates Section number. Letter indicates Measure. Last number indicates number of Sentence in that Measure.

Measure N Connected Buildings

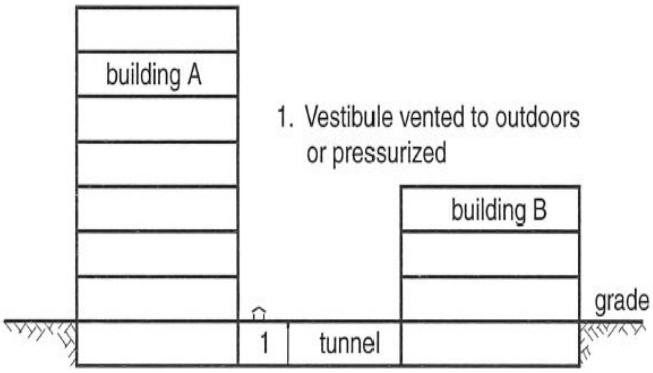


Figure 17
Section through buildings linked by underground tunnel

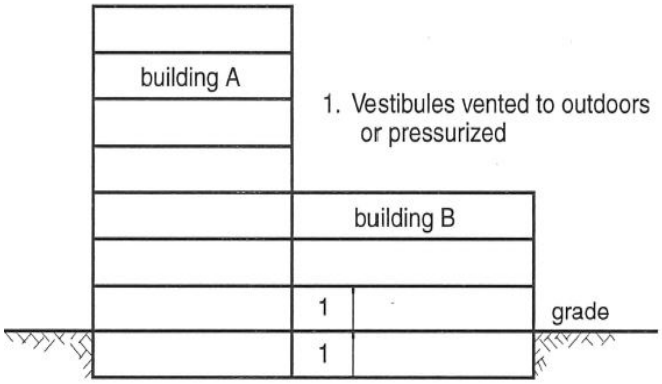


Figure 18
Section through buildings joined at firewall

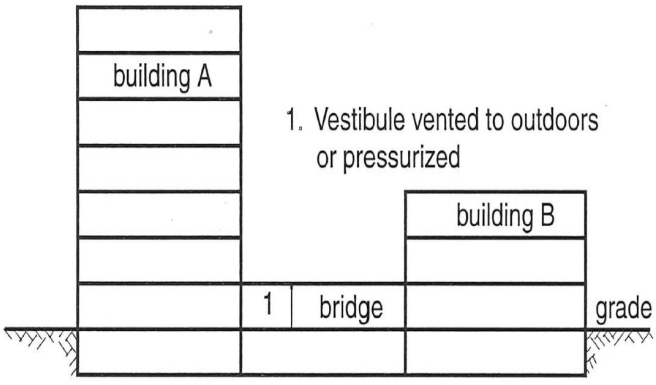


Figure 19
Section through buildings connected by a bridge

Measure N satisfies Article 3.2.6.3. of Division B for existing connected buildings.

Section 3 Measures for Life Safety in Existing High Buildings

Measure A Fully Sprinklered Buildings

General

The steps described in this Measure amount to an adequate smoke control measure, satisfying the requirements for existing sprinklered buildings. Reliance is placed on the full sprinkler installation to limit fire spread and consequently, the generation of smoke.

Some additional protection of exit stairs is afforded by the provision of an opening to the outdoors at the foot of the stair shaft. In cold weather, when stack action is likely to be most significant, this measure may give a general increase in air pressure in the stair shaft, thus restricting entry of smoke.

In this Measure is included the requirement that elevator shafts and service shafts should not be continuous from above to below grade, except when vestibules are provided at elevator doors in below grade storeys.

Where Measure A is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk downstairs to the street floor or to a safe intermediate floor area. Occupants of other floors may remain where they are until advised to evacuate by the person operating the central alarm and control facility.

Measure A

(1) The requirements for existing sprinklered buildings may be met by incorporating the requirements in Sentences (2) to (8).

(2) A stairway serving storeys above the lowest exit level has a vent or door to the outdoors at or near the bottom of the stair shaft, as described in Sentence (4).

(3) A stairway serving floors below the lowest exit level
(a) has a vent or door to the outdoors at or near the top of the stair shaft that has an openable area of not less than 0.1 m^2 for each storey served by the stairway, less 0.01 m^2 for each weatherstripped door and 0.02 m^2 for each non-weatherstripped door opening into the stair shaft,
(b) is enclosed in a shaft that
  (i) does not pass through the floor above the lowest exit level and is separate from a shaft that contains a stairway serving upper storeys, or is enclosed in a shaft that
  (ii) contains a stairway serving upper storeys, but is separated from that stairway at the lowest exit level by a fire separation having a fire-resistance rating not less than that required for the shaft enclosure, and
(c) is provided with equipment capable of maintaining a flow of air introduced at or near the bottom of the stair shaft, at a rate equal to 0.47 m^3/s for each storey served by the stairway.

(4) A stair shaft required to be vented to the outdoors by Sentence (2) or by other provisions in this Supplementary Standard is provided with a vent or door that
(a) has an openable area of 0.05 m^2 for every door between the stair shaft and a floor area, but not less than 1.8 m^2,
(b) opens directly to the outdoors or into a vestibule or exit corridor that has a similar opening to the outdoors, and
(c) has a door or closure that
  (i) is openable manually, and
  (ii) can remain in this open position during a fire emergency.

(5) Any elevator shaft that passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, unless there is a vestibule between the shaft and each floor area below grade as described in Sentence (3) of Measure D.

(6) A vertical service space, other than an elevator shaft, that passes through the floor above the lowest exit storey, should be provided with a tight-fitting noncombustible seal or fire stop at the floor level of the storey immediately below the lowest exit storey, except where the vertical service space is vented to the outdoors at the top as described in Sentence (10) of Measure F.

(7) A supply of air required by Sentence (3) is carried in ducts as described in Sentence (13) of Measure F.

(8) The central control facility required by Article 3.2.6.7. of Division B is provided with additional controls capable of
(a) opening closures to vents in shafts that may be required by Sentence (6),
(b) stopping air handling systems as required by provisions for existing sprinklered buildings, and
(c) initiating the mechanical air supply to stair shafts as may be required in Sentence (3).

Measures B and C Open Corridor Access to Stairs and Elevators

General

Measures B and C can be applied to a building where habitable floor areas are approached along access ways open to the outdoors.

Each corridor that provides access to stairs or elevators is permanently open to the outside as shown in Figures 2 and 20. The situation is illustrated by the pressure characteristic diagram shown in Figure 21. Air flow through openings that may exist in floors is likely to be more pronounced than with other smoke control methods because of the reduction in the influence of vertical shafts, so it is desirable that openings through the floor-ceiling assembly be minimized. This should not, however, present an immediate smoke problem except on the floor directly above the floor where a fire occurs.

Measure C is the same as Measure B, except that no steps are taken to limit smoke movement into upper storeys through vertical service spaces or shafts in Measure C.

Where shafts enclosing plumbing and electrical services penetrate floor spaces and a decision has been made to use Measure B for control of smoke movement, these shafts should be sealed at least at every fifth storey at a horizontal fire separation and at the floor immediately below the lowest exit storey or have vents to the outside at the top. In the latter case there is still some possibility that smoke may pass into the uppermost floor because the air pressures in these floor areas are in the same range as the outside pressures. It is therefore important that any leakage areas in the enclosing walls between floor areas and shaft be kept to a minimum.

In order to avoid creation of pressures that may interfere with the opening of doors to stair shafts and elevator shafts, it is recommended that the building heating system be so designed that temperatures in heated stair shafts and elevator shafts be not more than 12°C above outside air temperature.

Where Measure B is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk down stairs to a safe floor area. In buildings more than 36 m high, occupants of other floors may remain until advised to evacuate by the person operating the central alarm and control facility.

Where Measure C is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that occupants of all floors will walk down stairs to the street floor or to a safe intermediate floor area.

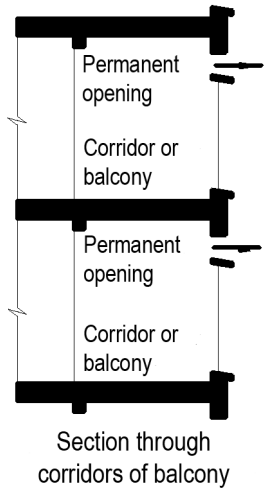


Figure 20 Illustration of Measures B and C designs

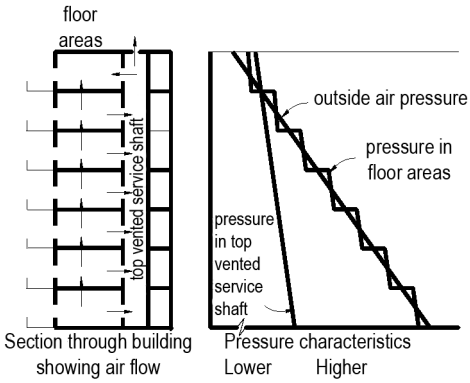


Figure 21 Pressure characteristics in a Measure B design

Measure B (including restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit smoke movement in existing buildings may be met by incorporating the requirements in Sentences (2) to (9).

(2) All public corridors leading to the required exit stairs and elevators for firefighters from every floor area on a floor above the lowest exit storey are provided with permanent openings to the outdoors that

(a) are distributed along the length of the corridor,
(b) have the top of the opening not more than 250 mm below the ceiling of the corridor, and
(c) have an aggregate open area that is not less than 10 percent of the floor area of the corridor or 1 m^2, whichever is greater.

(3) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(4) Any elevator shaft that passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, unless there is a vestibule between the elevator door or doors and each floor area below grade as described in Sentence (3) of Measure D.

(5) A vertical service space, other than an elevator shaft, within a heated floor area is provided with
(a) tight-fitting noncombustible fire stops located at the level of the floor immediately below the lowest exit storey and at the level of certain other floors that are fire separations provided the space between fire stops is not more than five storeys, or
(b) a vent to the outdoors as described in Sentence (10) of Measure F.

(6) Except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(7) Supply, return and exhaust ducts more than 0.013 m^2 in cross-sectional area at the point of entry to a vertical service space in an air handling system that is required to shut down by the provisions of Sentence (6) are provided with dampers that will close when the air moving fans are stopped.

(8) Where a supply of air is required by the provisions of Sentence (3), it is carried in ducts as described in Sentence (13) of Measure F.

(9) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) stopping the air handling systems and closing dampers as required by Sentences (6) and (7),
(b) opening closures to vents in vertical service spaces where required by Sentence (5), and
(c) initiating the air supply to stair shafts as may be required by Sentence (3).

Measure C (no restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit smoke movement in existing buildings may be met by incorporating the requirements of Sentences (2) to (7).

(2) The public corridors leading to the required exit stairs and elevators for firefighters from every floor area on a floor above the storey on which egress directly to the outdoors occurs are provided with permanent openings to the outdoors that
(a) are distributed along the length of the corridor,
(b) have the top of the opening not more than 250 mm below the ceiling of the corridor, and
(c) have an aggregate open area that is not less than 10 percent of the floor area of the corridor or 1 m^2, whichever is greater.

(3) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(4) Any elevator shaft that contains an elevator for firefighters and passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, unless there is a vestibule between the elevator door or doors and each floor area below grade as described in Sentence (3) of Measure D.

(5) Except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(6) Where a supply of air is required by Sentence (3), it is carried in ducts described in Sentence (13) of Measure F.

(7) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) stopping the air handling systems as required by Sentence (5), and
(b) initiating the air supply to stair shafts as may be required by Sentence (3).

Measures D and E Protected Vestibule Access to Stair shafts and Elevator Shafts

General

In Measures D and E, movement of smoke through stair shafts and elevator shafts is limited by the provision of vestibules that are either open to the outdoors during a fire emergency or have outdoor air injected into them. Stair shafts are further protected by opening a door to the outdoors at the bottom of the shaft. Where vestibules are protected by the injection of outdoor air, the elevator shaft is provided with a large opening to the outdoors at the bottom.

Where provisions to limit the movement of smoke in existing buildings requires the movement of smoke into floor areas to be limited, service shafts are either sealed at intervals or provided with an opening to the outdoors at the top of the shaft as described in Measure B. A typical plan of a building in which this method of smoke control is appropriate is shown in Figure 4.

Measure E is the same as Measure D, except that no measures are taken to limit movement of smoke into upper storeys in Measure E.

Where a vestibule has a vent or opening to the outdoors that is much larger than the leakage area around doors between the vestibule and other parts of the building, the air pressure in the vestibule will be approximately equal to the outdoor pressure at the same level. This is illustrated in Figure 7. In cold weather in storeys below the neutral pressure plane, air pressure in the vestibule will be substantially higher than that in the floor area. Air will tend to flow from the vestibule into the floor area. In upper storeys the air pressure in the vestibules will be less than that in the floor area, and air will flow from the floor area to the vestibule. The vent or opening at the foot of the stair shaft referred to above has the effect of increasing pressure in the shaft, so that it approaches outdoor air pressure at ground level (see Figure 22). On upper storeys the pressure in the stair shaft will be higher than that in the vestibules, and smoke that may enter the vestibules will not pass into the stair shaft.

In warm weather when outdoor air may be as warm or warmer than that inside a building, the stack effect is likely to be minimal. In these circumstances, the major problem is expansion of the hot gases on the fire floor. This will tend to force air around doors into the vestibule. The large vent opening, however, will create a situation where the greater proportion of the air entering the vestibule will pass to the outdoors and a much smaller quantity may enter the shafts. The effect of wind is variable and difficult to predict. In warm weather the effect may be to protect vestibules on one side of the building and to allow smoke to enter those on the other side.

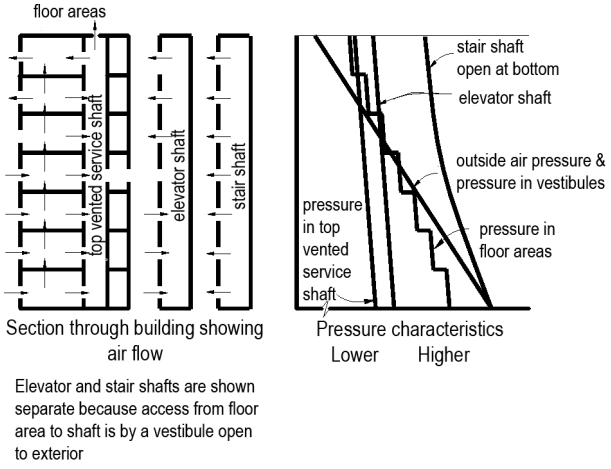


Figure 22
Pressure characteristics in a Measure D building with vented shafts

Where air is injected into vestibules, the pressure characteristics in cold weather are likely to be as shown in Figure 23. The rates of air injection should be sufficient to keep the pressures in the vestibules a little higher than the pressure in the shaft. This limits the possibility of movement of smoke into the vestibules from the floor areas. In cold weather vents at the bottom of the stair shafts and elevator shafts provide additional protection.

Service shafts that will not be used in a fire emergency are provided with vents at the top to the outdoors where Measure D (but not Measure E) requires that movement of smoke into upper floors be limited. However, some smoke may pass from top vented service shafts into the top floor or floors, because air pressures at the top of the shafts and in the floor area of the top storey are approximately equal.

Stack action and the operation of smoke control measures may provide pressures that will interfere with the normal operation of certain doors. Where a vestibule is vented to the outdoors, this may apply to any door between a vestibule and an elevator shaft that is farther above or below the mid-height of a building than the height given by Graph 8 in Appendix A of this Supplementary Standard and to any door between a vestibule and a stair shaft that is farther above grade than the height given by Graph 8. Where a vestibule is pressurized, this may apply to any door between a vestibule and a floor space that is farther above grade than the height shown in Graph 8.

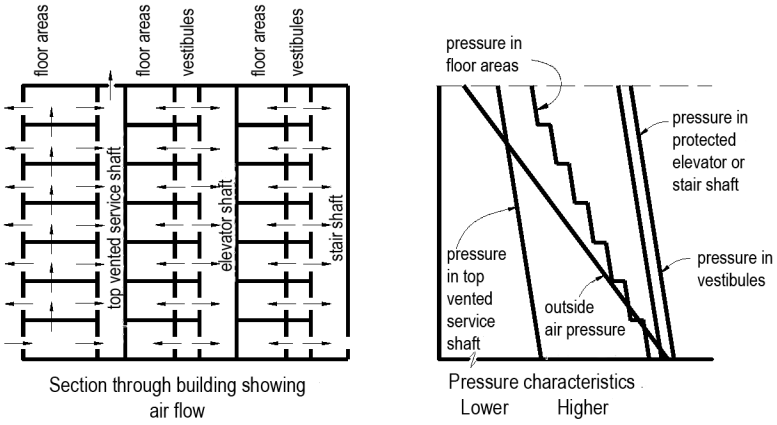


Figure 23
Pressure characteristics in a Measure D building having air injected into vestibules

As an alternative to the provision of a mechanical air supply for a vestibule to an elevator shaft, as described in Sentence (5) of Measure D, the mechanical air supply can be introduced directly into the shaft as described in Sentence (4) of Measure F provided there are no open vents to the elevator shaft as described in Sentence (9) of Measure D.

Where a mechanical air supply is required by Sentence (5) of Measure D and Sentence (4) of Measure E, it may be desirable to heat the air supply and to provide two air intakes in separate locations on the building face as discussed in the general provisions to Measures F and G.

Where Measure D is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk down stairs to the street floor or to a safe intermediate floor area. Occupants of other floors may remain until advised to evacuate by the person operating the central alarm and control facility.

Where Measure E is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that occupants of all floors will walk down stairs to the street floor or to a safe intermediate floor area.

Measure D (including restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements of Sentences (2) to (17).

(2) Between each floor area and each stair shaft or elevator shaft that contains an elevator for firefighters, a vestibule is provided as described in Sentence (3).

(3) Where a vestibule is required by Sentence (2) or by other provisions of this document
(a) a fire separation is provided between a public corridor and the vestibule that has a fire-resistance rating of not less than 45 min,
(b) a fire separation is provided between a floor area, other than the corridor described in Clause (a), and the vestibule that has a fire-resistance rating not less than that required for an exit in Article 3.4.4.1. of Division B,
(c) a fire separation is provided between a stair or elevator enclosure and the vestibule that has a fire-resistance rating not less than that required for an exit in Article 3.4.4.1. of Division B, and
(d) a door in the fire separation described in Clauses (a), (b) or (c) (except for an elevator door) is provided with a self-closing device as required by Article 3.1.8.13. of Division B, and opens in the direction of travel from the floor area to the exit stairway.

(4) On each floor any vestibule that has a door to an exit stair may also have a door to an elevator for firefighters, but two exit stairs may not open onto the same vestibule.

(5) Each vestibule described in Sentence (2) that provides access to a stair shaft or an elevator shaft
(a) has a vent opening to the outdoors that has an opening area not less than 0.1 m^2 for each door that opens onto the vestibule, but not less than 0.4 m^2, or
(b) has equipment capable of providing for a vestibule to a stair shaft or an elevator shaft a mechanical air supply not less than that obtained from Graph 3 in Appendix A of this Supplementary Standard.

(6) The vent to each vestibule referred to in Clause (5)(a) may be provided with a closure that is openable manually, and in a building that is more than 36 m high, it can be opened from the central control facility as provided in Sentence (17).

(7) A stairway serving storeys above the lowest exit level is vented to the outdoors at the bottom of the stair shaft as described in Sentence (4) of Measure A.

(8) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(9) Each elevator shaft protected by a vestibule having a mechanical air supply as described in Clause (5)(b) has a vent at or near the bottom of the shaft, opening directly to the outdoors or into a vestibule or corridor that has a similar opening to the outdoors, having an openable area not less than 0.02 m^2 for every door into the shaft, other than doors at street floor level.

(10) The vent at the bottom of an elevator shaft referred to in Sentence (9) may be provided with a closure which is openable manually and is designed to remain open during a fire emergency.

(11) A vertical service space other than an elevator shaft is provided with
(a) a tight-fitting noncombustible fire stop at the level of the floor immediately below the lowest exit storey, and at the level of certain other floors that are fire separations, provided the space between fire stops is not more than five storeys, or
(b) a vent to the outdoors as described in Sentence (10) of Measure F.

(12) Except as provided in Sentence (13), an elevator shaft other than a shaft that contains an elevator for firefighters is protected against entry of smoke by a vestibule as described in Sentence (5).

(13) The provisions in Sentence (12) are waived for an elevator shaft that serves floor areas below the lowest exit storey and does not penetrate the floor immediately above that storey.

(14) Except for air moving fans supplying vestibules as provided in Clause (5)(b), and except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(15) In an air handling system that is required to shut down by the provisions of Sentence (14), supply, return and exhaust ducts more than 130 cm^2 in cross-sectional area at the point of entry to a vertical service space are provided at that point with dampers that will close when air moving fans are stopped.

(16) Where a supply of air is required by the provisions of Sentences (5) and (8), it is carried in ducts described in Sentence (13) of Measure F.

(17) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of

(a) opening closures to vents to the outdoors in vestibules on all floors as required by Sentence (6), and in elevator shafts as required by Sentence (9),
(b) stopping air handling systems and closing dampers in ducts as required by Sentences (14) and (15),
(c) initiating the mechanical air supply to vestibules required by Clause (5)(b), and
(d) opening closures to vents in vertical service spaces where required by Sentence (11).

Measure E (no restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (13).

(2) Between each floor area and each stair shaft or each elevator shaft that contains an elevator for firefighters, a vestibule is provided as described in Sentence (3) of Measure D.

(3) On each floor any vestibule that has a door to an exit stair shaft may also have a door to an elevator for firefighters, but two exit stairs may not open onto the same vestibule.

(4) Each vestibule described in Sentence (2) that provides access to a stair shaft or an elevator shaft

(a) has a vent opening to the outdoors that has an openable area of not less than 0.1 m^2 for each door that opens onto the vestibule but not less than 0.4 m^2, or
(b) has equipment capable of providing for a vestibule to a stair shaft or an elevator shaft a mechanical air supply not less than that obtained from Graph 3 in Appendix A of this Supplementary Standard.

(5) The vent to each vestibule referred to in Clause (4)(a) is provided with a closure that is openable manually, and in a building that is more than 36 m high can be opened from the central control facility as provided in Sentence (13).

(6) A stairway serving storeys above the lowest exit level is vented to the outdoors at the bottom of the stair shaft as described in Sentence (4) of Measure A.

(7) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(8) Each elevator shaft protected by a vestibule having a mechanical air supply as described in Clause (4)(b) has a vent at or near the bottom of the shaft opening directly to the outdoors, or into a vestibule or corridor that has a similar opening to the outdoors, having an openable area not less than 0.02 m^2 for every door into the shaft other than doors at street floor level.

(9) The vent at the bottom of an elevator shaft referred to in Sentence (8) may be provided with a closure that is openable manually and is designed to remain open during a fire emergency.

(10) Any elevator shaft that contains an elevator for firefighters and passes through the floor above the lowest exit storey does not penetrate the floor of the storey immediately below the lowest exit storey except where there is a vestibule between the elevator door or doors and each floor area below grade as described in Sentence (3) of Measure D.

(11) Except for air moving fans supplying vestibules as provided in Clause (4)(b), and except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(12) Where a supply of air is required by the provisions of Sentences (4) and (7), it is carried in ducts described in Sentence (13) of Measure F.

(13) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) opening closures to vents to the outdoors in vestibules on all floors as required in Sentence (5),
(b) stopping air handling systems as required by Sentence (11), and
(c) initiating the mechanical air supply to vestibules as required by Clause (4)(b).

Measures F and G Pressurized Stair Shafts and Elevator Shafts

General

Measures F and G are suitable for use in buildings that have central cores containing elevator shafts and stair shafts and in buildings that have a spine corridor. The objective is to inject sufficient air from outdoors to provide air pressures in stair shafts and in one or more protected elevator shafts that will be at least equal to the outdoor air pressure at ground level. Protected elevator shafts may, in addition, be provided with vestibules on each floor in order to reduce the effect of the large leakage areas around elevator doors, which may otherwise require injection of excessive quantities of air in order to achieve the desired pressurization. An opening to the outdoors at the bottom of each stair shaft is required in conjunction with air injection in order to maintain the desired pressure conditions, though some doors on upper floors may be held open for a time, and to provide for dilution of smoke that may enter the stair shaft. A typical plan of a building where this method of smoke control is appropriate is shown in Figure 6.

Measure G is the same as Measure F, except that no provisions are made in Measure G to limit movement of smoke into upper floors by way of service shafts and unprotected elevator shafts.

Where smoke control measures in existing buildings requires that movement of smoke into floor areas be limited, service shafts, other than elevator shafts, are either sealed at intervals or vented to the outdoors at the top, as described in the general provisions of Measures B and C. This system is, however, likely to be more efficient than that achieved by Measure D, because injection of air into some shafts has the effect of increasing the air pressure in all floor areas. This is illustrated in Figure 24, where the pressure in the floor area of the top storey is greater than that at the top of the vented shaft.

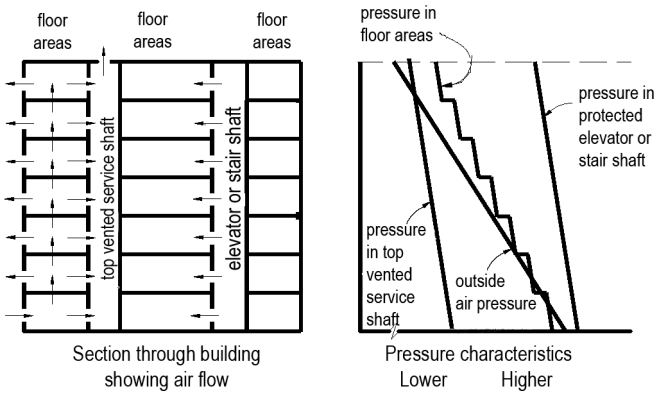


Figure 24
Pressure characteristics in a Measure F building

Treads and landings in a stair shaft present an obstacle to free flow of air. Where air is injected only at the top of a stair shaft, there is likely to be a pressure gradient between the top and the bottom of the stair shaft. This may produce pressure differences of sufficient magnitude to interfere with the opening of doors into the stair shaft in the upper part of the building. This is discussed more fully in Appendix B of this Supplementary Standard.

Stack action and the operation of smoke control measures may produce pressures across certain doors that will interfere with their normal operation. These pressures may affect any door between a floor space and a stair shaft or an elevator vestibule that is farther above grade than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

In order to avoid excessive pressures across doors when outdoor temperatures are appreciably above the January design temperatures, it is recommended that the air flow into elevator shafts in buildings employing Measures F or G be reduced, but not to less than that obtained by the factor F4 = 5.59 according to the proportion of the air flow referred to in Sentence (4) of Measure F and Sentence (4) of Measure G. The flow reduction factors are shown in Graph 6 in Appendix A of this Supplementary Standard.

The limits are such that no modulation is required for a building whose maximum height is not more than the value in Column 2 of Table 5, provided the January design temperature is not less than the corresponding value in Column 1.

Table 5
Maximum Height of Building Not Requiring Airflow Modulation

Minimum January Design Temperature, °C	Maximum Height of Building, m
-7	94
-18	70
-29	55
-40	46
Column 1	2

Heating of the air supply referred to in Sentences (2) and (4) of Measure F or Sentences (2) and (4) of Measure G may be necessary, since to maintain the efficiency of the smoke control measures the temperature of the incoming air should be not less than the mean of indoor and outdoor temperatures at the time. To avoid damage to water systems, the temperature of air entering critical locations should be not less than 0°C. To maintain tolerable conditions for occupants, the temperature of air entering occupied spaces should be not less than 10°C.

Where a mechanical air supply is specified in Sentences (2) and (4) of Measure F or Sentences (2) and (4) of Measure G, the air should be drawn from at least two remote locations, each on a different face of the building. Each air intake should be provided with a damper that will close on a signal from a smoke detector in the duct following 30 s exposure to smoke or other products of combustion. The damper should have a manual override to reopen it when the smoke condition that caused it to close has cleared.

Where Measure F is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk down stairs to the street floor or to a safe intermediate floor area. Occupants of other floors may remain until advised to evacuate by the person operating the central alarm and control facility.

Where Measure G is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that occupants of all floors will walk down stairs to the street floor.

Measure F (including restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (14).

(2) A stair shaft serving storeys above the lowest exit level has
(a) a vent or door to the outdoors at or near the lowest exit level of the stair shaft, as described in Sentence (4) of Measure A, except that the vent or door will open when the air supply referred to in Clause (b) is initiated, and
(b) equipment capable of providing to the shaft a mechanical air supply of not less than 4.72 m^3/s plus 0.094 m^3/s for every door opening into the stair shaft.

(3) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(4) An elevator shaft that contains an elevator for firefighters is provided with equipment capable of maintaining a flow of air to the shaft that is not less than that obtained from Graph 4 in Appendix A of this Supplementary Standard.

(5) Where an elevator shaft referred to in Sentence (4) is provided with a vestibule on every floor, the vestibule enclosure conforms to Sentence (3) of Measure D.

(6) Any elevator shaft that contains an elevator for firefighters and passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, except where each floor area below the lowest exit storey is provided with a vent to the outdoors that
(a) has a net area of not less than 0.2 m^2 for every 1 000 m^2 of floor area,
(b) will remain open during a fire emergency, and
(c) may be incorporated in the conventional exhaust duct system serving storeys below grade.

(7) A vertical service space, other than an elevator shaft, is provided with
(a) a tight-fitting fire stop at the level of the floor immediately below the lowest exit storey and at the level of certain other floors that are fire separations provided the space between fire stops is not more than five storeys, or
(b) a vent to the outdoors as described in Sentence (10).

(8) Except as provided in Sentence (9), an elevator shaft, other than a shaft that contains an elevator for firefighters, is pressurized as described in Sentence (4).

(9) The provisions of Sentence (8) are waived for an elevator shaft that serves floor areas below the lowest exit storey and does not penetrate the floor immediately above that storey.

(10) Where a vent to the outdoors is required by Sentence (7) or other provisions of this document, the vent
(a) if it is a vertical service space in a building in which other shafts are not mechanically pressurized, has an openable area that is not less than that obtained from Graph 1 in Appendix A of this Supplementary Standard, or if it is in a building in which other shafts are mechanically pressurized, has an openable area that is not less than that obtained from Graph 2 in Appendix A of this Supplementary Standard,
(b) if it is in a shaft serving floor areas above the lowest exit storey, is located at or near the top of the shaft where the top of the shaft is above the mid-height of the building, or at or near the foot of the shaft at or near the exit level where the top of the shaft is below the mid-height of the building,
(c) if it is in a shaft serving floor areas below the lowest exit storey, is located at or near the top of the shaft, and
(d) if it is provided with a closure, is openable both manually and on a signal from a smoke detector located at or near the top of the shaft and by a control device located at the central alarm and control facility referred to in Article 3.2.6.7. of Division B.

(11) Except for air moving fans supplying stairs and elevators as provided in Sentences (2) to (4) and, except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans in an air handling system that serves more than two storeys are capable of being stopped as provided in Sentence (14).

(12) In an air handling system that is required to shut down by the provisions of Sentence (11), supply, return and exhaust ducts more than 130 cm^2 in cross-sectional area at the point of entry into a vertical service space are provided with dampers that will close when air moving fans are stopped.

(13) Where a supply of air is required by the provisions of Sentences (2), (3) or (4) or by other provisions of this document, the duct system is installed in a service space conforming to Section 3.6. of Division B or is otherwise protected against the effect of fire from the point of fresh air intake to the shaft or to the storey that contains the protected floor area, vestibule or area of refuge that is required to be so protected.

(14) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) stopping air handling systems and closing dampers in ducts required in Sentences (11) to (13),
(b) initiating the mechanical air supply to stair shafts and elevator shafts required in Sentences (2) to (4), and
(c) opening closures to vents in vertical spaces where required in Sentence (7).

Measure G (no restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (9).

(2) A stair shaft serving storeys above the lowest exit level has
(a) a vent or door to the outdoors at or near the lowest exit level of the stair shaft described in Sentence (4) of Measure A, except that the vent or door will open when the air supply referred to in Clause (b) is initiated, and
(b) equipment capable of providing to the stair shaft a mechanical air supply of not less than 4.72 m^3/s, plus 0.094 m^3/s for every door opening into the stair shaft.

(3) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(4) An elevator shaft that contains an elevator for firefighters is provided with equipment capable of maintaining a flow of air to the shaft that is not less than that obtained from Graph 4 in Appendix A of this Supplementary Standard.

(5) Where an elevator shaft referred to in Sentence (4) is provided with a vestibule on every floor, the vestibule enclosure is as described in Sentence (3) of Measure D.

(6) Any elevator shaft that contains an elevator for firefighters and passes through the floor above the lowest exit storey should not penetrate the floor of the storey immediately below the lowest exit storey, except where each floor area below the lowest exit storey is provided with a vent to the outdoors that
(a) has a net area of at least 0.2 m^2 for every 1 000 m^2 of floor area,
(b) will remain open during a fire emergency, and
(c) may be incorporated in the conventional exhaust duct system serving storeys below grade.

(7) Except for air moving fans supplying stair shafts and elevator shafts as provided in Sentences (2) to (4) and, except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans in an air handling system that serves more than two storeys are capable of being stopped as provided in Sentence (9).

(8) Where a supply of air is required by Sentences (2) to (4), it is carried in ducts as described in Sentence (13) of Measure F.

(9) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) stopping air handling systems as required by Sentence (7), and
(b) initiating the mechanical air supply to stair shafts and elevator shafts as required by Sentences (2) to (4).

Measure H Fully Pressurized Buildings

General

Measure H is appropriate for buildings having central cores that contain stair shafts and elevator shafts and windows that are not normally opened, as shown in Figure 8. The air pressure in the whole building is increased so that at grade level it is at least equal to outdoor air pressure. When a vent to the outdoors is provided on the fire floor by a window in an exterior wall, by an opening into a smoke shaft as described in Section 1 or by the building mechanical exhaust system if the building is sprinklered, the pressure in the floor area is reduced substantially, as is shown in Figure 25. Air will then flow from the shafts and other floor areas into the fire floor. The combination of building pressurization and venting of the fire floor provides that smoke will not pass into other floor areas or shafts other than the smoke shaft.

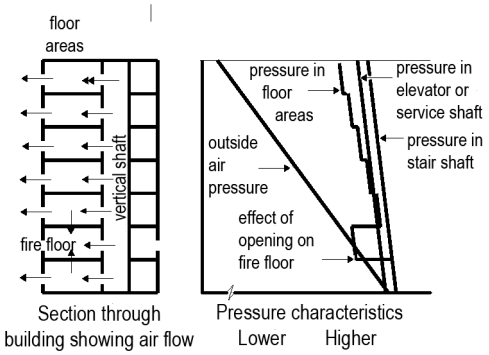


Figure 25
Pressure characteristics in a Measure H building

It is important that air be uniformly distributed throughout the building. This may be achieved by supplying the air through the conventional duct system or through vertical shafts. A minimum proportion of the air is required to be injected directly into stair shafts. This is designed to reduce the possibility, particularly in warm weather, that a substantial drop in pressure will occur in these shafts when a door to the outdoors at grade is opened, with the consequent danger that smoke will enter the shafts.

Where venting is by smoke shafts, the air supply to the floor on which fire occurs should be cut off by closing the dampers on that floor in order not to overload the smoke shaft.

The total air flow for building pressurization is modulated relative to outdoor air temperature. This is intended, in part, to limit the potential pressure drop in stair shafts and elevator shafts referred to above and, in part, to avoid excessive pressures across doors to stair shafts and elevator shafts that would interfere with their normal use.

This requirement for modulation of air flows applies generally to higher buildings. The conditions described in Sentence (3) of Measure H are such that no modulation is required where the January design temperature and the building height are as shown in Table 1.

In Toronto, for example, where the January design temperature is -18°C, no modulation of air flow would be required for a building not more than 70 m high.

This measure is not appropriate for a building where windows may normally be held open. The air flow requirements in Graph 5 in Appendix A of this Supplementary Standard are based on an assumed air leakage through the external walls that is appropriate to modern air-conditioned buildings having reasonably tight-fitting non-openable windows. If the leakage area is other than that noted above, the air flow requirement must be adjusted proportionately, as described in the notes to Graph 5.

Stack action and the operation of smoke control measures may produce pressures across certain doors that will interfere with their normal operation. This may apply to any door between a floor space and stair shaft or an elevator shaft that is farther above grade than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

Where a mechanical air supply is required by Sentence (2) of Measure H, it may be desirable to heat the air supply and to provide two air intakes in separate locations on the building face, as discussed in the general provisions to Measures F and G.

Where a floor area is subdivided by walls, provision should be made for a free air passage from any part of the floor area to the vent or vents required by Sentence (6) of Measure H. Such provisions for venting need not apply to public corridors or washrooms that normally have a minimum of combustibles.

There should be no problem where vents are on outside walls, and each room or space can be vented directly to the outdoors. Where a smoke shaft is used, however, a fire may occur in a space adjacent to a stair shaft or elevator shaft which is separated by partitions from the smoke shaft vent. The solution may be to vent each space to the smoke shaft through the ceiling plenum or to provide suitable openings in the partitions. Where each room or space opens on to a corridor leading to stair shafts and elevator shafts, location of the smoke shaft vent in the corridor will be effective in limiting movement of smoke to other floors, but may also present problems to the firefighter, who may have to approach the fire through a smoke-filled corridor.

Where Measure H is adopted, and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk down stairs to the street floor or to a safe intermediate floor area. Occupants of other floors may remain until advised to evacuate by the person operating the central alarm and control facility.

Measure H

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (9).

(2) The building air handling system is designed and installed so that
(a) supply fans are capable of maintaining an air flow into the building not less than that obtained from Graph 5 in Appendix A of this Supplementary Standard when the outdoor air temperature is equal to the January design temperature on a 2.5 percent basis, and
(b) a portion of the air flow referred to in Clause (a) is directed into each stair shaft in a quantity equal to 0.094 m^3/s for every weatherstripped door into the stair shaft and 0.142 m^3/s for every non-weatherstripped door into the stair shaft.

(3) Exit stairs shall discharge to the outdoors through a vestibule described in Sentence (3) of Measure D and be provided with a mechanical air supply of not less than 0.094 m^3/s per weatherstripped door and 0.189 m^3/s per non-weatherstripped door in the vestibule, except that the vestibule may be a corridor, lobby or other space.

(4) When smoke control measures are initiated by the controls referred to in Sentence (9)
(a) all main return and exhaust fans are stopped,
(b) supply fans provide the air flow into the stair shafts described in Clause (2)(b), and
(c) supply fans maintain an air flow into the building controlled in relation to outdoor air temperature, so that the total air flow into the building is substantially equal to the proportion of the air flow referred to in Clause (2)(a) shown in Graph 6 in Appendix A of this Supplementary Standard, but not less than the air flow obtained when the factor F6 equals 0.0025.

(5) All openings in external walls and roofs, including vents to vertical service spaces other than those referred to in Sentence (7), have closures that will close as provided in Sentence (9).

(6) All return and exhaust ducts more than 130 cm^2 in cross-sectional area at the point of entry to a vertical service space are provided with dampers that will close on the floor on which fire occurs as required by Sentence (9), other than those covered by Sentence (7).

(7) In order to achieve a reduction in air pressure on the floor on which fire occurs relative to that on other floors, means of venting each floor space to the outdoors are provided as described in Section 1.

(8) Where a supply of air is required by Sentence (2), it is carried in ducts as described in Sentence (13) of Measure F.

(9) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls capable of

(a) stopping main return and exhaust fans and maintaining the air flow in the supply systems as provided in Sentence (2),
(b) closing the closures and dampers required in Sentences (5) and (6), and
(c) opening closures to the vent openings on the fire floor as provided in Sentence (7).

Measures I and J Partially Pressurized Buildings

General

Measures I and J are very similar to Measure H, except that they may be applied to buildings where windows may be open during normal use. They are thus particularly suitable for controlling smoke movement in residential buildings. Plans of typical buildings where Measures I and J are appropriate are shown in Figures 9 and 10. The central core, which includes exit stair shafts, elevator shafts and public corridors, is separated from the remainder of the floor areas. It is important that the leakage area of walls around the core be less than that of the exterior walls of the building.

Measure J is the same as Measure I, except that no provision is made in Measure J to limit smoke movement into upper floors by way of vertical shafts and ducts that are outside the core.

Air is injected into the core so that the air pressure in the core at the ground floor is equal to exterior air pressure at the same level. Provision of a vent to the outdoors in the fire suite will cause air to flow from adjacent parts of the building into the fire suite. This is the only method, apart from Measure B, that enables smoke to be confined to the fire suite.

Where movement of smoke from floor to floor outside the central core is to be limited as in Measure I (but not J), all vertical service shafts, other than elevator shafts, penetrating floor areas must be sealed at intervals or vented to the outdoors at the top, as discussed in the general requirements of Measure D.

The air flow requirements in Graph 5 in Appendix A of this Supplementary Standard are based on the air leakage characteristics of typical corridor walls and doors. If the leakage areas exceed those given in the notes to Graph 5, the air flow should be increased in direct proportion.

Stack action and the operation of smoke control measures may produce pressures across certain doors that will interfere with their normal operation. This may apply to any door between a suite and a corridor that swings into the corridor and is farther above grade than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

Within a suite that is subdivided by partitions, the space that includes the vent to the outdoors described in Sentence (4) of Measure I should be in the same space as the door to the public corridor or linked to it by a leakage area of not less than 0.05 m^2.

Where a mechanical air supply is required by Sentence (2) of Measure I and Sentence (2) of Measure J, it may be desirable to heat the air supply and to provide two air intakes in separate locations on the building face as discussed in the general provisions to Measures F and G.

Where Measure I is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that the occupants of the fire floor will walk down stairs to the street floor or to a safe intermediate floor area. Occupants of other floors may remain until advised to evacuate by the person operating the central alarm and control facility.

Where Measure J is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that a fire alarm will sound on all floors simultaneously, and that occupants of all floors will walk down stairs to the street floor or to a safe intermediate floor area.

Measure I (including restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (10).

(2) The building air handling system is designed and installed so that supply fans are capable of maintaining an air flow into the space that includes all required exit stair shafts, all shafts containing elevators for firefighters and public corridors, not less than that obtained from Graph 5 in Appendix A of this Supplementary Standard, when the outdoor air temperature is equal to the January design temperature on a 2.5 percent basis.

(3) Any vent at the top of a vertical service shaft within the central core and all other openings penetrating the space that includes the stair shafts, elevator shafts and public corridors are provided at the point of penetration with closures that will close in the event of a fire, as provided in Sentence (10).

(4) Means of venting each fire compartment to the outdoors are provided by
(a) an opening in an exterior wall, such as an openable window or panel, having an openable area of not less than 0.4 m^2,
(b) an opening into a smoke shaft, as described in Section 1, operated by a smoke detector, or
(c) an exhaust system, such as a kitchen or washroom exhaust, that has an air flow to the outdoors of not less than 0.189 m^3/s per fire compartment served, provided the exhaust system is designed to function as a smoke shaft and meets the relevant requirements of Section 1.

(5) Where a closure is provided in an opening referred to in Clauses (4)(a) or (b) it will open
(a) by operation of a fusible link, or
(b) on a signal from a smoke detector in the room or suite.

(6) A vertical service space that is outside the pressurized space referred to in Sentence (2) is provided with
(a) a tight-fitting noncombustible seal or fire stop
  (i) at the level of the floor immediately below the storey in which egress directly to the outdoors occurs, and
  (ii) at the level of certain other floors that are fire separations, provided the space between fire stops is not more than five storeys, or
(b) a vent to the outdoors as described in Sentence (10) of Measure F.

(7) Except as otherwise provided in Sentences (2) and (4), and except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(8) In an air handling system that is required to shut down by Sentence (7), supply, return and exhaust ducts more than 0.013 m^2 in cross-sectional area at the point of entry to a vertical service space are provided with dampers that close when the air moving fans are stopped.

(9) Where a supply of air is required by Sentence (4), it is carried in ducts as described in Sentence (13) of Measure F.

(10) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) stopping return and exhaust fans, closing dampers in ducts and maintaining the air flow in the supply system to the space that includes stair shafts, elevator shafts and corridors as provided in Sentences (2) and (7),
(b) causing dampers and closures in the enclosing walls of the space that includes stair shafts, elevator shafts and corridors to close as required by Sentence (3),
(c) opening closures to vents in vertical service spaces where required by Sentence (6),
(d) opening closures in vents referred to in Sentence (4), individually or in groups limited to one floor at a time, and
(e) initiating the air flow in the exhaust system from any floor, where required by Clause (4)(c).

Measure J (no restriction on the movement of smoke from floor to floor)

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements in Sentences (2) to (6).

(2) The building air handling system is designed and installed so that supply fans are capable of maintaining an air flow into the space that includes all required exit stair shafts, all shafts containing elevators for firefighters and public corridors, not less than that obtained from Graph 5 in Appendix A of this Supplementary Standard, when the outdoor air temperature is equal to the January design temperature on a 2.5 percent basis.

(3) Any vent at the top of a vertical service shaft within the central core, and all other openings penetrating the space that includes the stair shafts, elevator shafts and public corridors, are provided at the point of penetration with closures that will close in the event of fire, as provided in Sentence (4).

(4) Except as otherwise provided in Sentence (2), and except for exhaust fans from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(5) Where a supply of air is required by Sentence (2), it is carried in ducts as described in Sentence (13) in Measure F.

(6) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of

(a) stopping return and exhaust fans and maintaining the air flow in the supply system to the space that includes stair shafts, elevator shafts and corridors as provided in Sentence (2), and
(b) causing dampers and closures in the enclosing walls of the space that includes stair shafts, elevator shafts and corridors to close as required by Sentence (3).

Measure K Vertically Divided Buildings

General

In Measure K a degree of protection for occupants is achieved by providing either a spatial separation or a fire separation between two parts of the building as shown in Figures 11 and 12. Under these conditions, except as subsequently noted, air pressures on either side of the division will be symmetrical and smoke should not pass from one side to the other. Smoke from fire in one part of the building may be expected to pass into the stair shafts, elevator shafts and floor areas on the fire side, while the equivalent spaces on the other side will remain smoke free. Vestibules and bridges are provided as means of access to refuge areas for occupants of floor areas in the part of the building that is exposed to fire and smoke.

Vestibules or bridges are either vented to the outdoors or pressurized mechanically in order to prevent their acting as paths for the transmission of smoke. In vented vestibules below the neutral pressure plane of the building, air will normally flow from the vestibules to the floor areas and no smoke should enter the vestibules. In vestibules above the neutral pressure plane, air will flow from the floor area to the vestibule and thence to the outdoors.

If a window breaks in the fire area, the pressure in the fire area will be the same as that in the vestibule and no smoke transfer should occur. Where vestibules are mechanically pressurized, the air flow will always be from the vestibule to the floor areas on either side, thus limiting the possibility of smoke entering the vestibule.

Provision of an opening to the outdoors at the foot of a stair shaft will increase the air pressure in the shaft in winter and thus reduce the probability of entry of smoke from a floor on which a fire occurs.

Where a dividing wall is used to separate the two parts of a building (Figure 12), breakage of a window in a fire compartment below the neutral pressure plane can be undesirable. The pressure in the fire compartment will increase to a level approximately the same as exterior pressure, and this may cause substantial smoke flow through the dividing wall from the fire side to the other side of the building. This consideration does not apply to a spatial separation as shown in Figure 11. Provisions have been included to allow windows below the mid-height of a building on the side away from a fire to be opened manually in order to bring the pressure in that space to the exterior pressure and to eliminate the pressure difference across the dividing wall.

While the most efficient solution to the problem of moving occupants to a place of safety is to have bridges or connecting vestibules at each floor level, the requirements in Measure K are that such bridges or vestibules should be at intervals of not more than five storeys, and in the case of residential buildings more than 75 m high, the bridges or vestibules should be on each storey. The approaches to the bridges or vestibules are by stairs and corridors whose width is controlled by Sentences (6) and (7) of Measure K. These provisions combine to enable all occupants to reach a place of safety in about three minutes.

Stack action and the operation of smoke control measures may produce pressures across certain doors that will interfere with their normal operation. This may apply where a building has vestibules vented to the outdoors

(a) at any door that swings into a vestibule from a floor space farther below the mid-height of the building than the distance shown in Graph 8 in Appendix A of this Supplementary Standard,
(b) at any door that swings out of a vestibule from a floor space that is farther above the mid-height of the building than the distance shown in Graph 8 in Appendix A of this Supplementary Standard,
(c) at any door between a floor space and an elevator shaft that is farther above or below the mid-height of the building than the distance shown in Graph 8 in Appendix A of this Supplementary Standard,
(d) at any door between a floor space and a stair shaft that is farther above grade than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

In a building that has vestibules that are pressurized, pressures that may interfere with the normal operation of doors may occur with any door between a vestibule and a floor space where the rate of air injection exceeds 0.165 m^3 /s for each weatherstripped door, or 0.33 m^3/s for each door that is not weatherstripped, and any door between a floor space and an elevator shaft that is farther above or below the mid-height of the building than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

Where a mechanical air supply is required by Sentence (11) of Measure K, it may be desirable to heat the air supply and to provide two air intakes in separate locations on the building face as discussed in the general provisions to Measures F and G.

Where Measure K is adopted and a fire is detected by an automatic device or a manual pull station is actuated in a smoke control region of the building, it is intended that a fire alarm will sound on all floors in that smoke control region, and that the occupants on all floors will move through the dividing vestibules or bridges to the other smoke control region.

Measure K

(1) The requirements of measures to limit the movement of smoke in existing buildings may be met by incorporating the requirements of Sentences (2) to (17).

(2) The building is designed as
(a) a structure divided into two smoke control regions by a continuous vertical fire separation that has a fire-resistance rating not less than that required for a floor in Subsection 3.2.2. of Division B, or
(b) two or more smoke control regions separated by spatial separations that conform to the provisions of Subsection 3.2.3. of Division B.

(3) Bridges or vestibules are provided at intervals of not more than five storeys to permit movement of occupants from one smoke control region to the other, except that in the case of residential buildings more than 75 m high, the bridges or vestibules are located on each storey.

(4) In each smoke control region referred to in Sentence (2), there is not less than one exit stair shaft and one elevator in a shaft that meets the requirements of Article 3.2.6.5. of Division B and that is not common to both smoke control regions.

(5) The floor area on either side of a bridge or vestibule is of sufficient size to accommodate its own normal population, plus the occupants of the one to five storeys of the adjacent smoke control region who may have to enter the floor area during a fire emergency, assuming 0.5 m^2 per ambulatory person and 1.5 m^2 per non-ambulatory person.

(6) The width of each bridge or vestibule and each connecting corridor and door on the same storey is sufficient to provide not less than 3.67 mm of width for each person who may have to use these passages to reach the floor area referred to in Sentence (5) from the adjacent smoke control region.

(7) The width of each stair or ramp that provides access to a floor having a bridge or vestibule from intervening floors is sufficient to provide not less than 5.5 mm of width for each person who may have to use the stair to reach the bridge or vestibule referred to in Sentence (6).

(8) Between each bridge or vestibule and public corridor is a fire separation that has a 45 min fire-resistance rating.

(9) Between each bridge or vestibule and a floor area other than the public corridor referred to in Sentence (8), is a fire separation that has a fire-resistance rating as required for exits in Subsection 3.4.4. of Division B

(10) Each door opening into a bridge or vestibule conforms to Articles 3.4.6.10. and 3.4.6.11. of Division B and is suitably identified as an access to an area of refuge.

(11) Each bridge or vestibule is provided with
(a) a vent opening to the outdoors that has an open area not less than 1 m^2 and that may be provided with a closure that is openable manually, or
(b) a mechanical air supply not less than that obtained from Graph 7 in Appendix A of this Supplementary Standard that will be initiated as provided in Sentence (17).

(12) Where the building is divided into two smoke control regions by a fire separation as described in Clause (2)(a), each floor area below the mid-height of each smoke control region is provided with a vent opening to the outdoors that has an open area of not less than 1.5 m^2 and that is normally closed but can be opened manually.

(13) Each stair shaft is vented to the outdoors as described in Sentence (4) of Measure A.

(14) Except as provided in Sentence (11), and except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(15) Floor areas below the lowest exit storey are divided by a fire separation that has a fire-resistance rating not less than that required in Clause (2)(a) and is in a location corresponding to the fire or spatial separations required for upper storeys. Doorways protected by pressurized vestibules are provided in the separations as described in Clause (11)(b).

(16) Where a supply of air is required by Sentences (11) and (15), it is carried in ducts as described in Sentence (13) of Measure F.

(17) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of
(a) closing doors in fire separations required by Sentences (8), (9) and (15) between floor areas and vestibules,
(b) initiating the mechanical air supply to the vestibules where required by Clause (11)(b) and Sentence (15), and
(c) stopping air handling systems where required by Sentence (14).

Measure L Areas of Refuge (smoke free areas)

General

Measure L is intended to provide refuge areas which occupants may enter during a fire. It may be used for buildings that have many openings between floors so that it is impracticable to confine smoke to one floor level.

This measure is basically the same as described in Measure D, except that larger quantities of air must be injected into each area of refuge than into a comparable vestibule in order to maintain tolerable conditions for the occupants. A typical floor plan is shown in Figure 13. The area of refuge may include normally occupied space in the building, and because fire may occur in one of these spaces, provision is made for alternative groups of areas of refuge.

Except in the case of Group C buildings more than 75 m high, areas of refuge may be provided on every fifth floor if the access routes are made wide enough to allow all occupants to reach the area of refuge within three minutes (see Figure 14). Stair shafts and elevators for firefighters must be protected on intermediate floors by vestibules or by pressurization of the shafts.

Stack action and the operation of smoke control measures may produce pressures across certain doors that will interfere with their normal operation. This may apply to any door between an area of refuge and a floor space that is farther above grade than the height shown in Graph 8 in Appendix A of this Supplementary Standard.

Between every area of refuge and the floor space the building should have a vent fitted with a self-closing damper that will permit air to move from the area of refuge to the floor space but not vice-versa. It should have an openable area not less than 6 cm^2 for every 0.005 m^3/s of air injected into the area of refuge in excess of that specified in Measure D for a pressurized vestibule.

Where Measure L is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that an alarm will sound on all floors simultaneously, and that occupants of all floors will move to areas of refuge distributed throughout the building and await instructions over the voice communication system.

Where a mechanical air supply is required by Sentence (9) of Measure L, it may be desirable to heat the air supply and to provide two air intakes in separate locations on the building face, as discussed in the general provisions to Measures F and G.

Measure L

(1) The requirements of measures to limit the movement of smoke in existing buildings (except measures to limit the movement from storeys below the lowest exit level into upper storeys) may be met by incorporating the requirements of Sentences (2) to (20).

(2) Two independent groups of areas of refuge are distributed through the building so that there is an area of refuge in each group at least at every fifth storey, and each group is linked by a common exit stair to the exterior at grade.

(3) On any floor area any area of refuge that has a door to an exit stair may also have a door to an elevator for firefighters, but two exit stairs may not open on to the same area of refuge if no other vertical shaft is common to the two independent systems described in Sentence (2).

(4) Each group of areas of refuge referred to in Sentence (2) can accommodate all the occupants of above grade storeys at the rate of 0.5 m^2 of floor area per ambulatory person or 1.5 m^2 per non-ambulatory person.

(5) The width of corridors and doors leading to an area of refuge on the same storey is sufficient to provide 3.67 mm of width for each person who may have to use these passages to reach the area of refuge.

(6) The width of stairs or ramps leading to an area of refuge from intervening floors is sufficient to provide 5.5 mm of width for each person who may have to use the stairs or ramps to reach the area of refuge.

(7) Between each area of refuge and a public corridor is a fire separation that has a 45 min fire-resistance rating.

(8) Between each area of refuge and a floor area other than the public corridor referred to in Sentence (7), is a fire separation that has a fire-resistance rating as required for exits in Subsection 3.4.4. of Division B

(9) Each door opening into an area of refuge conforms to the provisions for doors in Article 3.4.6.10. of Division B and is suitably identified as an access to an area of refuge.

(10) Each area of refuge is provided with a mechanical air supply not less than that required for a vestibule providing access to a stair shaft or an elevator shaft in Clause (5)(b) of Measure D, and obtained from Graph 3 in Appendix A of this Supplementary Standard, or not less than 0.002 m^3/s for each occupant of the area of refuge during a fire emergency, whichever is greater.

(11) Any door in an exit stair shaft or in a shaft that contains an elevator for firefighters that does not open directly into an area of refuge is provided with a pressurized vestibule as described in Sentence (5) of Measure D, except where the stair shaft or elevator shaft is pressurized as described in Sentences (2) and (4) of Measure F.

(12) Except as provided in Sentence (11), an elevator shaft that contains an elevator for firefighters is provided with a pressurized vestibule as described in Sentences (2), (3) and (5) of Measure D or is pressurized as described in Sentence (4) of Measure F.

(13) Any elevator shaft that contains an elevator for firefighters or opens into an area of refuge and passes through the floor above the lowest exit storey does not penetrate the floor of the storey immediately below the lowest exit storey, except where there is a vestibule between the elevator door or doors and each floor area below grade as described in Sentence (3) of Measure D.

(14) A stair shaft serving storeys above the lowest exit level is vented to the outdoors at or near the bottom of the stair shaft as described in Sentence (4) of Measure A.

(15) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(16) Each elevator shaft protected by a vestibule or area of refuge having a mechanical air supply as described in Sentences (9) and (10) has a vent at or near the bottom of the shaft opening directly to the outdoors or into a vestibule or corridor that has a similar opening to the outdoors having an openable area not less than 0.023 m^2 for every door into the shaft, other than doors at street floor level.

(17) The vent at the bottom of an elevator shaft referred to in Sentence (16) may be provided with a closure which is openable manually and is designed to remain open during a fire emergency.

(18) Except for air moving fans serving areas of refuge and vestibules as provided in Sentences (10) to (12), and except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(19) Where a supply of air is required by Sentences (10), (11), (12) and (15), it is carried in ducts as described in Sentence (14) of Measure F.

(20) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of

(a) closing doors in fire separations required by Sentences (7) and (8) between floor areas and areas of refuge or vestibules,
(b) stopping air handling systems as required by Sentence (18),
(c) opening closures in vents to the outdoors in elevator shafts that may be required by Sentence (12), and
(d) initiating the mechanical air supply to the areas of refuge, vestibules and shafts as may be required by Sentences (10), (11), (12) and (15).

Measure M Residential Buildings with Balconies

General

In residential buildings the greater part of the requirements for control of smoke movement are waived where each suite has direct access to a balcony. The protective features are limited to stopping air handling systems, providing an opening to the outdoors at the foot of stair shafts serving upper floors and protection of stair shafts in storeys below grade. A typical arrangement is shown in Figure 16.

Where Measure M is adopted and a fire is detected by an automatic device or a manual pull station is actuated, it is intended that occupants on the fire floor will evacuate if possible, and that occupants of other floors may remain in their suites to await instructions.

Measure M

(1) The requirements specific to existing unsprinklered residential buildings may be met by incorporating the requirements of Sentences (2) to (7).

(2) A stair shaft serving storeys above the lowest exit level has a vent or door to the outdoors at or near the bottom of the stair shaft, as described in Sentence (4) of Measure A.

(3) A stairway serving storeys below the lowest exit level is protected as described in Sentence (3) of Measure A.

(4) Any elevator shaft that passes through the floor above the lowest exit storey does not penetrate the floor of the storey immediately below the lowest exit storey, except where there is a vestibule between the elevator door or doors and each floor area below grade as described in Sentence (3) of Measure D.

(5) Except for exhaust from kitchens, washrooms and bathrooms in dwelling units, air moving fans are stopped during a fire emergency in an air handling system that serves more than two storeys.

(6) Where a supply of air is required by Sentence (3), it is carried in ducts as described in Sentence (13) of Measure F.

(7) The central alarm and control facility required by Article 3.2.6.7. of Division B is provided with additional controls that are capable of

(a) stopping air handling systems as required by requirements specific to existing unsprinklered residential buildings, and

(b) initiating the mechanical air supply to stair shafts as may be required by Clause (3)(c).

Measure N Connected Buildings

General

The measures described here are intended to prevent movement of smoke from one building to another. They are of particular significance where two buildings of unequal height are joined together. The techniques suggested are the provision of a large opening to the outdoors in a connecting vestibule so that smoke entering through leakage areas around doors will be vented to the outdoors, or pressurization to maintain a higher pressure in the vestibule than in adjacent spaces as illustrated in Figures 17 to 19.

The requirements for protection of openings are described in terms appropriate to a doorway. Any other openings should be avoided if possible. Where they occur, they should be protected by the provision of an air lock that gives the same standard of protection as the vestibule described in Sentence (3).

Measure N

(1) The requirement of Sentence 3.2.6.3. of Division B that limits movement of smoke from one building to another may be met by incorporating in the link between the buildings the requirements in Sentences (2) and (3).

(2) Between one building and the other is a firewall as described in Subsection 3.1.10. of Division B.

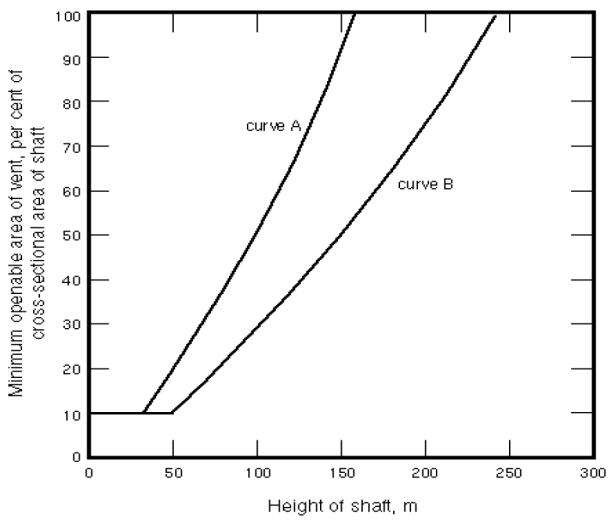
(3) Any opening in the firewall is protected against passage of smoke by a vestibule described in Sentence (3) of Measure D and has

(a) a vent to the outdoors that has a net area of $10(0.023d + 0.00045a)$ m^2, where d is the number of doors having a perimeter not more than 6 m that open into the vestibule, or if the perimeter of doors exceeds 6 m, the value of d is increased in direct proportion to the increase in the perimeter, and a is the area in square metres of enclosing walls, floors and ceilings whose outer face is in contact with the outside air, except that where the outer face of a wall is in contact with the ground or fill, it is assumed that there is no leakage through that portion, and the value of a is assumed to be zero, or

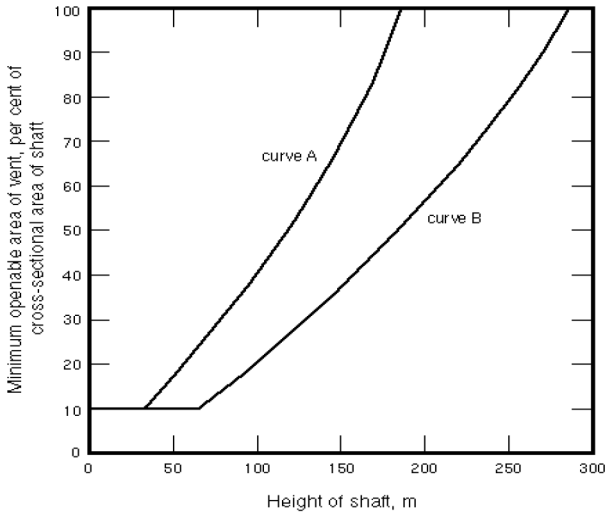
(b) equipment capable of maintaining a supply of air into the vestibule sufficient to ensure that the air pressure in the vestibule when the doors are closed is higher by at least 12 Pa than that in adjacent floor areas when the outdoor temperature is equal to the January design temperature on a 2.5 percent basis.

Appendix A to SB-4

Graphs for Applying Smoke Control Measures



Graph 1
Vent to a vertical service space where no other shaft in the building is pressurized



Graph 2
Vent to a vertical service space where other shafts in the building are pressurized

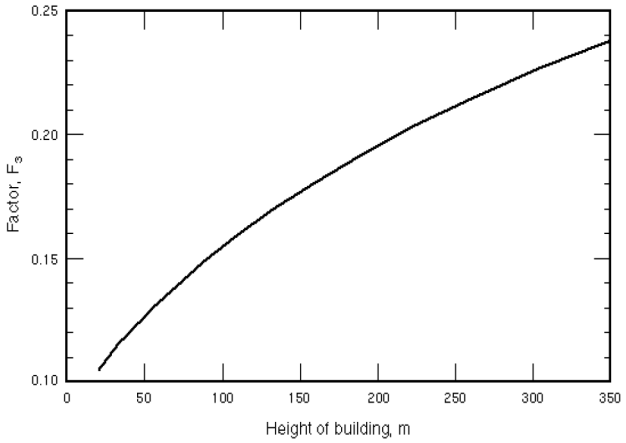
Notes to Graphs 1 and 2:

(1) Curve A applies to a vertical service space that is enclosed by unplastered unit masonry or by plaster and steel stud construction with all openings in the shaft sealed to the degree required by Articles 3.1.9.2. to 3.1.9.4. of Division B.

(2) Curve B applies to a vertical service space that is enclosed by monolithic concrete or by plastered unit masonry with all openings in the shaft sealed tightly to minimize air leakage.

(3) A shaft having a vent that is 100 percent of the cross-sectional area of the shaft is acceptable for buildings up to 1.5 times the height shown by the appropriate curve in Graphs 1 and 2.

(4) The total leakage area, based on measurements arrived at in typical high buildings, is assumed to be 0.025 m^2 for every 10 m^2 of shaft wall area in the case of Curve A and 0.015 m^2 for every 10 m^2 of shaft wall area in the case of Curve B.



Graph 3
Factor for mechanical air supply to a vestibule

Notes to Graph 3:

(1) The air supply to each vestibule in cubic metres per second equals

$$F_3d + 0.071e + 0.094s$$

where

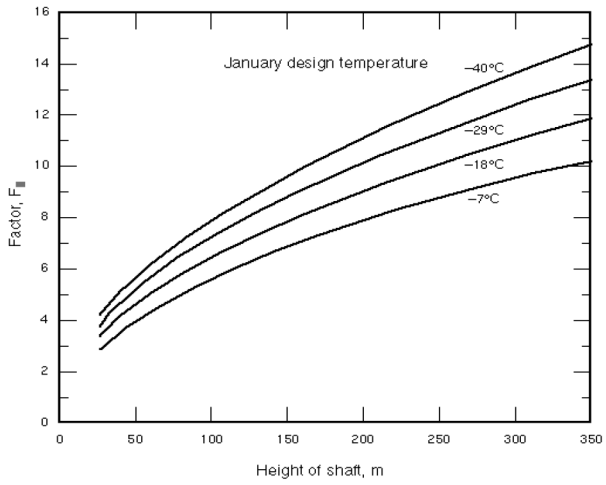
F_3 is a factor obtained from Graph 3,
d = the number of doors having a perimeter not more than 6 m between each vestibule and a floor area,
e = the number of doors having a perimeter not more than 6 m between each vestibule and an elevator shaft, and
s = the number of doors having a perimeter not more than 6 m between each vestibule and a stair shaft. The quantity "$F_3d + 0.071e + 0.094s$" represents the total leakage from the vestibule.

(2) If the perimeter of a door exceeds 6 m, the value of d, e or s must be increased in direct proportion to the increase in the perimeter.

(3) A double leaf door is counted as two doors in this formula.

(4) A door provided with tight-fitting weatherstripping is counted as one half of a door.

(5) The height of the building is the number of metres between the roof and the floor level of the lowest basement floor.



Graph 4
Factor for air supply to an elevator shaft

Notes to Graph 4:

(1) The air supply to each elevator shaft in cubic metres per second equals

$$F_4(0.023d_4 + 0.0014a_4)$$

where

F_4 is the factor obtained from Graph 4
d_4 = total number of doors having a perimeter not more than 6 m that open into the elevator shaft, and
a_4 = area of enclosing walls of the shaft in square metres. The expression "$0.023d_4 + 0.0014a_4$" represents the total leakage area in the walls of the shaft.

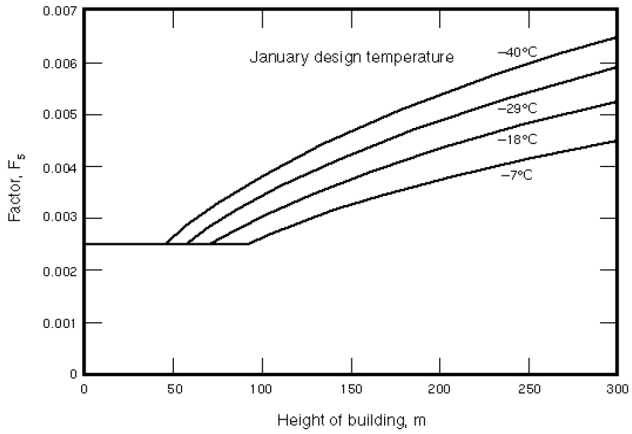
(2) If the perimeter of a door exceeds 6 m, the value of d_4 must be increased in direct proportion to the increase in the perimeter.

(3) A double leaf door is counted as two doors in this formula.

(4) A door provided with tight-fitting weatherstripping is counted as one half of a door.

(5) If the enclosing walls of the shaft are of monolithic concrete or of unit masonry plastered on one side, the value of a_4 may be halved.

(6) If an elevator shaft is provided with vestibules on each floor, the enclosing walls considered in this formula may be taken as including those of the vestibules if it leads to an economy in air supply requirements. In this case d_4 above refers to doors between the vestibules and the floor areas and doors between the elevator shaft and the vestibules do not enter into the calculation.



Graph 5
Factor for air supply for building pressurization

Notes to Graph 5:

(1) If Measure H is used, the air supply delivered to the whole building in cubic metres per second equals

$$F_5 \times a_5$$

where

F_5 is a factor obtained from Graph 5, and
a_5 = area of all exterior wall surfaces of the building in square metres measured between ground level and underside of the roof. (Where the outer face of a wall is in direct contact with the ground or fill, it is assumed that there is no leakage through that portion, and the value of a_5 is assumed to be zero.)

(2) Graph 5 is based on an air leakage rate of 0.003 m^3/s per square metre of exterior wall at a pressure difference of 75 kPa, based on the measured leakage rate in high buildings having fixed windows and curtain wall panels.

(3) This is equivalent to a leakage area in exterior walls of 0.045 m^2 per 100 m^2 of wall area. If the leakage area in a building differs significantly from this, the air supply should be adjusted in direct proportion.

(4) The height of building is measured between the underside of the roof and the floor level of the lowest basement floor.

(5) If Measure I or J is used, the air supply delivered to the space that includes stair shafts, elevator shafts and corridors in cubic metres per second equals

$$F_5(a_6 + 51d_6)$$

where

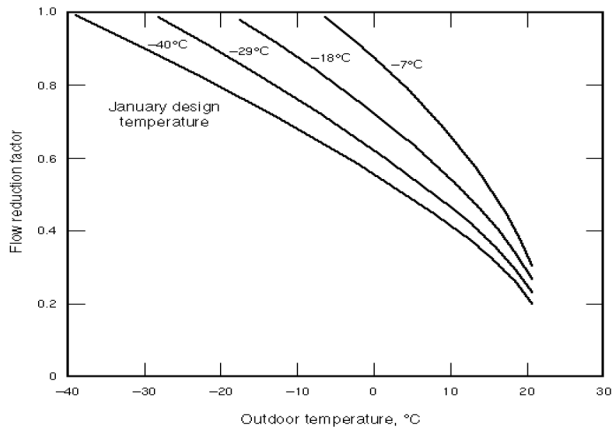
F_5 is a factor obtained from Graph 5 that is not less than 0.0025,
a_6 = area in square metres of the walls enclosing the space that includes stair shafts, elevator shafts and associated corridors on all floors, and
d_6 = total number of doors having a perimeter not more than 6 m in the wall area described in a_6.

(6) If the enclosing walls described above are of monolithic concrete or of unit masonry plastered on one side, the value of a_6 may be halved.

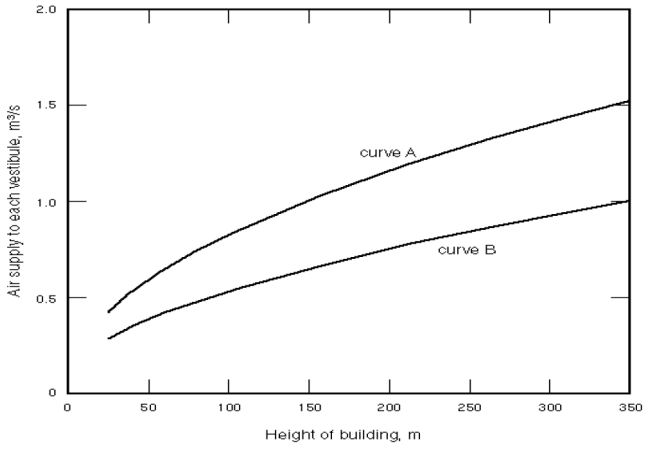
(7) If the perimeter of a door exceeds 6 m, the value of d6 must be increased in direct proportion to the increase in the perimeter.

(8) A double leaf door is counted as two doors in this formula.

(9) A door provided with tight-fitting weatherstripping is counted as a one half of a door.



Graph 6
Flow reduction factors



Graph 7
Air supply to vestibule in a vertically divided building

Notes to Graph 7:

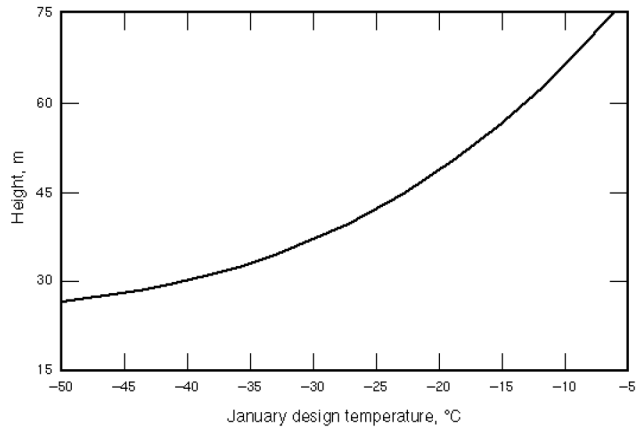
(1) Curve A shows the air supply to each vestibule in cubic metres per second for a vestibule that has four doors (or two double doors), each door having a perimeter of not more than 6 m, between the vestibule and the floor areas on either side of the building.

(2) Curve B shows the air supply to each vestibule in cubic metres per second for a vestibule that has two single doors, each door having a perimeter of not more than 6 m, between the vestibule and the floor areas on either side of the building.

(3) If the perimeter of a door exceeds 6 m, the air supply must be increased in direct proportion to the increase in the perimeter.

(4) If the doors are provided with tight-fitting weatherstripping, the air supply may be halved.

(5) The height of building is the distance between the roof and the floor level of the lowest basement floor.



Graph 8
Height of the shaft relative to grade, or the neutral pressure plane
at which pressure across a door may exceed 95 Pa

Appendix B to SB-4

Assumptions Used in Developing Fire Safety Measures

The objectives of the measures for fire safety in high buildings are

(a) to provide for the safety of the occupants of a building, either by maintaining the tenability of the occupied floor spaces during the period of a fire emergency or by making it possible for occupants to move to a place of safety,
(b) to maintain tenable conditions in which occupants may remain in exit stairs leading from floor spaces to the outdoors, and
(c) to maintain tenable conditions in elevators that can be used to transport firefighters and their equipment from the street floor to the floor immediately below the fire floor.

It is assumed that the firefighters will use one of the protected stair shafts referred to in (b) to walk up to the fire floor from the floor below.

The first of these objectives may be met by the evacuation of all occupants to the outdoors in from seven to ten minutes, by the movement of occupants to safe areas within the building in from three to five minutes (as in Measures C, E, G, J, K, L and M) or by maintaining the tenability of all floor areas except those on the fire floor and the floor above the fire floor (as in Measures A, B, D, F, H and I).

The requirements in the Building Code covering widths of exits and travel distances to exits make it possible for occupants of a floor on which a fire occurs to leave that floor within one or two minutes provided their escape route is not cut off by the fire.

The objectives of the measures are to maintain certain spaces substantially smoke free for a significant period of time during a fire emergency, and hence some criterion of tenability is called for. The criterion for long term tenability is that a space shall not include more than one percent by volume of the contaminated atmosphere from the fire region. The criterion of tenability is based on visibility and carbon monoxide concentration.

Mechanisms of Smoke Movement in Buildings

Movement of a smoky atmosphere within a building is not significantly different from that of a normal atmosphere at the same temperature. The principal constituent of both atmospheres is nitrogen. The fact that the concentrations of other component gases will differ and that a smoky atmosphere will contain particulate matter will not influence its overall density to an extent that will significantly affect its movement. The mechanisms to be discussed do, therefore, relate to the movement of a smoky atmosphere as well as a normal atmosphere.

Air Circulating Systems

An obvious mechanism for the dispersal of smoke within a building is the recirculating air handling system. Assuming that the system has been competently designed, the approximate extent of the recirculation under any particular circumstances is known, and hence the build-up in any area of contamination can be predicted.

Effect of Wind

Exterior winds create pressure differentials within buildings, which lead to internal air movement, principally horizontal. Some upward movement also results, however, from the non-uniformity of the wind profile up the side of a building. In addition, if one side of the building is facing the wind, only that face will be subjected to a positive pressure, the remainder being subjected to negative pressure.

Expansion

Another smoke movement mechanism, which is of considerable significance during the early stages of any fire that is not well vented to the outdoors, is the expansion process associated with heating. The leakage characteristics of virtually any building are such that the rate of temperature rise occurring in the fire region cannot create pressure differentials greater than about 250 Pa (gauge). Instead, the volume of the atmosphere increases linearly with absolute temperature. During the development of a fire in a compartment, absolute temperature may be expected to triple, and the volume of gas will increase by approximately the same factor. At least two-thirds of the original atmosphere in the fire region will, therefore, be displaced by this mechanism.

Generation of gases as a result of combustion has also been considered. The volume created by this phenomenon cannot, however, exceed 20 percent of the original volume, and is not likely to be significant compared to expansion due to temperature rise.

Stack Effect

Whenever a temperature differential exists between the interior and exterior of an enclosure, a phenomenon known as stack or chimney effect prevails. Figure B-1 illustrates the case where the interior temperature is higher than the exterior, and there is an inflow of cold air at low levels and a corresponding outflow at high levels.

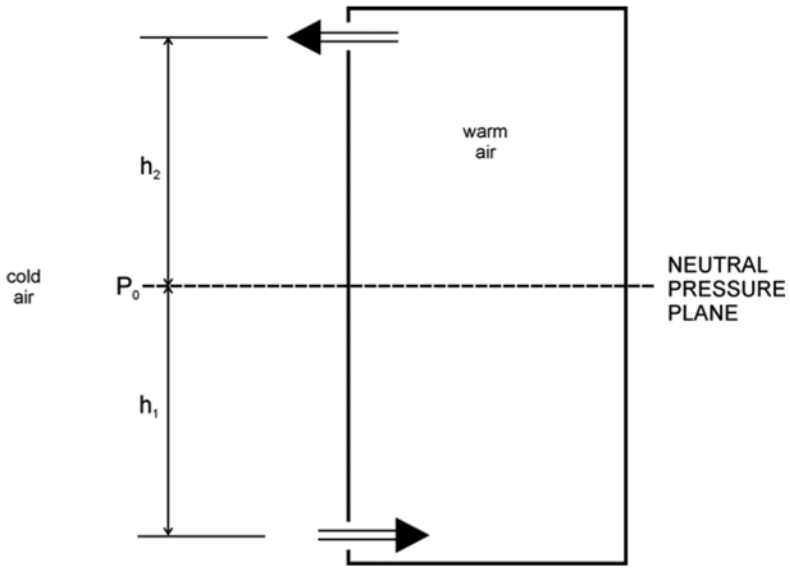


Figure B-1
Stack action

This effect can result from building heating and from temperature differentials created by the fire itself and is particularly important in Canadian buildings because of the cold winter conditions. The pressure differentials generated by stack effect can be calculated by considering the densities of the internal and external atmospheres.

Figure B-1 represents a simplified model in which air flows in at a low level and out at a high level, while there is an intermediate level where there is no pressure differential between interior and exterior. This level is referred to as "the neutral pressure plane". Taking the pressure at the neutral plane as P0, the pressures at the lower or upper openings can be derived, for they are associated with the weights of the columns of gas above them.

The resulting expression for the pressure difference across the lower opening is

$$\delta p = h_1 \, g\rho_\theta \, \theta/T_0$$

where

δp = pressure difference,
h_1 is defined in Figure B-1,
T_0 = absolute outdoor temperature,
θ = difference between indoor and outdoor temperature,
ρ_θ = density of indoor air, and
g = acceleration due to gravity.

Substituting $H = (h_1 + h_2)$ will give the total of the pressure head (the sum of the pressure differentials across the upper and lower openings) generated by stack effect.

Importance of Mechanisms Responsible for Smoke Movement

Expansion due to heating of the atmosphere in a fire compartment is largely a transient phenomenon occurring at the development stage of a fire. Two-thirds of the atmosphere of the fire region is likely to be displaced and, if the region were not vented to the exterior, there could be a significant movement of smoke laden atmosphere to other parts of the building. Dispersed evenly throughout the building, and taking into account leakage to outdoors, this displaced atmosphere could render untenable a space equal to about 50 times that of the fire region.

Pressures Due to Stack Effect

In discussing the steady state conditions responsible for smoke movement, total pressure heads generated may be compared. These pressure heads are tabulated in Table B-1 together with the flow rates that they will create beneath a typical door having a free space of 900 mm x 12.5 m beneath it. In Columns 2 and 3, the total head given by stack action resulting from a fire in a single storey is also given by stack action associated with building heating during cold weather in a building three to four storeys high.

Table B-1
Magnitudes of Pressures Developed by Thermal and Wind Effects Magnitudes

Pressure Head, Pa	Height of Heated Compartment, m		Wind Speed, km/h	Flow Beneath Door with 900 x 12.5 mm Gap, m^3/s
	800°C above ambient (i.e., on fire)	50°C above ambient		
25	2.9	10.3	23	0.045
50	5.8	20.6	33	0.064
125	14.5	51.6	52	0.1
250	29.1	103.3	73	0.142
500	58.2	206.4	104	0.201
Column 1	2	3	4	5

Assuming that a building is compartmented, fire other than one in a shaft should be confined to a single storey. The total pressure head generated by the fire is thus not likely to exceed about 25 Pa. As buildings are generally heated in their entirety, stack effect associated with building heating can give a total head significantly more than 25 Pa if the building is more than about four storeys high. Thus combating stack action associated with building heating in high buildings is likely to pose more of a problem than combating stack action directly associated with a fire. In high buildings emphasis should be placed on the building heating rather than the fire stack action problem.

Effect of Wind

Column 4 of Table B-1 indicates that pressures resulting from winds can be substantial. As mentioned earlier, the greater part of the resulting airflow is horizontal. This does not create as great a hazard as vertical movement via the shafts in a building. An upward flow does exist, however, and its effect is virtually identical to that of stack action associated with building heating. Combating the latter will, therefore, take account of the more hazardous influence of winds.

Contribution of Air Handling Systems

The effect of recirculating air handling systems is not shown in Table B-1, but it is substantial and hence it must be considered when smoke control techniques are being devised for buildings including such systems.

Significance of Smoke Movement Mechanisms

Given the considerations just discussed, the most significant smoke movement mechanisms to be combated are
(1) operating recirculating air-handling systems,
(2) the expansion process occurring during the initial stages of a fire, and
(3) stack action associated with building heating.

Techniques for Avoiding Widespread Smoke Contamination

Techniques for avoiding widespread smoke contamination in a high building can be divided into the following categories:

(1) Avoidance of any significant fire. The first approach in this category is to exclude or limit combustible materials from a building. Calculations of air movement due to stack effect have indicated that the destruction by fire of very small quantities of combustible material can produce enough smoke to produce untenable conditions in upper floors and vertical shafts of a high building. Limits on the use of smoke producing materials are thus unlikely to be adequate as a sole means of smoke control. Automatic extinguishment of a fire can also be considered as an approach to limiting smoke generation provided the quantity of combustibles destroyed is held within strict limits.

(2) Compartmentation. Where a floor area is divided into a number of fire compartments, the potential size of a fire will be limited to the contents of one compartment. In addition there will be, in some circumstances, dilution of smoke moving from the fire compartment to other floors.

Where the fire occurs below the neutral plane, in cold weather the path of smoke travel may be along a corridor to stair shafts and elevator shafts. In this case the smoke in the corridor will be diluted by clean air coming from other compartments. In an ideal situation (uniform compartments, no expansion and no wind), dilution of the smoke laden air will be in proportion to the number of compartments. Breaking of a window in the fire compartment will, however, increase the pressure in that space and will reduce the effect of dilution.

Where smoke travel occurs through a vertical shaft from a compartment involved in fire to higher compartments, the level of contamination will not be related to the number of units on one floor, but will likely be restricted to units on other floors that are adjacent to the vertical shaft.

The result of compartmentation is, therefore, likely to be beneficial, but does not eliminate the need for smoke control measures.

(3) Location of shafts outside the building envelope. The vertical transfer of smoke to the upper storeys of a building from fire on a lower storey occurs largely by the vertical shafts in the building rather than through the floors, about 95 percent or more in the case of a typical 20-storey building. Separation of the shafts from the building would thus largely solve the problem. This approach constitutes one of the suggested methods of smoke control.

(4) Dilution. Dilution by a factor of about 100 of the smoke gases issuing from a fire region will provide a tenable atmosphere. This feature could form the basis of a smoke control method, air being injected into the building at appropriate rates at those locations where smoke is being discharged from the fire region into adjacent parts of the building.

When cold weather conditions are considered, however, dilution alone is not likely to be very practical. In general, it would be better if the injection of air were directed to modifying the pressure pattern within a building in order to limit any undesirable movement of smoke.

Dilution as a means of reducing smoke contamination should, nevertheless, be considered as an important secondary factor governing a designer's choice of smoke control method. Its importance is in dispersing contamination that might develop as a result of delay in implementing smoke control measures, or of other occurrences such as the opening of a number of doors that might interfere with the operation of a smoke control measure. The amount of air required to dilute a contaminated atmosphere to a tenable level can be calculated approximately. If no mixing were to occur between the contaminated and the clean air, and the contaminated air were to move out ahead of the clean air, one volume of the clean air injected into a compartment would produce a smoke free atmosphere. In practice, however, some mixing does occur.

If perfect mixing is assumed in a compartment that has reached a level of contamination equivalent to that of the fire compartment, and no more smoke is entering, the amount of clean air needed to create the one percent tenable atmosphere discussed would be five times the volume of the compartment. If, however, we are considering a compartment isolated from the fire compartment by a fire separation and self-closing doors, it is more reasonable to assume that the level of contamination likely to occur is about one-fifth of that in the fire compartment. In these circumstances, injection of three volumes of clean air would be sufficient to produce a tenable atmosphere. If clean air is injected at the rate of one volume every two minutes, the atmosphere in the compartment would be satisfactory in about six minutes.

These figures are based on the expression

$$c = c_0 e^{at}$$

where

c_0 = initial concentration of contaminant,
c = final concentration of contaminant,
a = rate of diluent air flow in number of air changes per minute,
t = time in minutes between occurrence of initial and final concentration, and
e = 2.718.

Based on this calculation, assuming perfect mixing of the contaminated air and the diluent air,

c/c_0 = 0.368 after injection of one volume of clean air,
0.135 after injection of two volumes of clean air,
0.050 after injection of three volumes of clean air,
0.018 after injection of four volumes of clean air, and
0.007 after injection of five volumes of clean air.

(5) Adjustment of pressure differential distribution. This category of smoke control technique involves modification of the pressure pattern within the building. The pressure distribution within a building is illustrated by the pressure characteristic diagrams in Figure B-2. The graphs represent, in an exaggerated manner, the pressure differences between floor areas, shafts and exterior at the same height above ground. The pressure difference shown amounts to little more than 500 Pa, whereas the total pressures involved are about 100 kPa. The graphs do relate pressure to heights, and thus cannot be used to determine pressure difference between one floor and another at a different height. Given any set of characteristics as in Figure B-2, the important feature is that, during cold weather, air flow from one region to another at the same level will be towards the region that is at a lower pressure. In the typical building whose characteristics are illustrated, smoke generated at a low level will flow into shafts, up through the shafts and out into floor spaces at the higher levels.

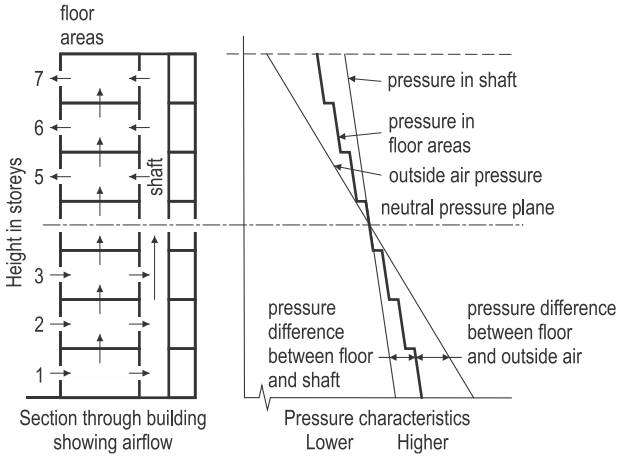


Figure B-2
Pressure characteristics of a typical building

Shafts provide the major paths for the spread of smoke within a building, so one should note the effect of venting on their characteristics. Figure B-3 shows the characteristics of a simple heated shaft under three different venting arrangements, the second and third (Figures B-3(b) and B-3(c)) having obvious advantages in controlling smoke movement in buildings.

In Figure B-3(b) the shaft is vented to the outdoors at the top, and smoke entering the shaft at any level would not leave it until it reached the top opening. If a corresponding condition were established within a building, the shaft would, therefore, not constitute a path for the transmission of smoke from low level to high level floor spaces. In Figure B-3(c) the shaft is vented to the outdoors at the bottom, fresh air enters the shaft at the lowest level and leaves it through any leakage area at any other level in the shaft. Such a condition for a shaft in a building would be most valuable, for as well as being eliminated as a path for smoke dispersal, the shaft also has a clear atmosphere. These conditions, however, may not be sustained long as the atmosphere in the shaft will cool as a result of the influx of cold air, and the characteristic will approach that of the exterior atmosphere. Injection of warm air into the shaft is necessary to maintain these conditions over a prolonged period.

Where a smoke control method is concerned with changing the pressure pattern within a building, many of the measures involved are based on the preceding concept of changing the pressure characteristic of a shaft. Since shafts are the principal paths by which smoke disperses throughout a building, the aim will be either to decrease or to increase shaft pressures substantially. Both measures will eliminate vertical smoke transfer by the shaft between floor spaces. Top venting the shaft as in Figure B-3(b) or use of mechanical exhaust to approach these pressure characteristics will, however, also result in the entry of smoke into the shaft, while pressurizing the shaft, such as by mechanical injection, will maintain a tenable atmosphere in the shaft.

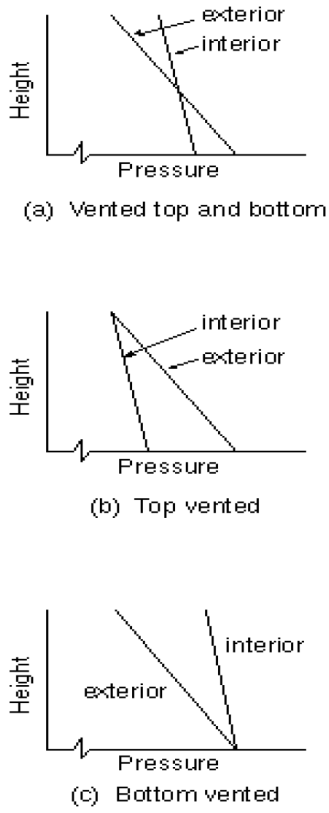


Figure B-3
Shaft characteristics

(6) Smoke shafts. A smoke shaft differs from a vented service shaft in that an opening is provided into the shaft from the fire floor in addition to the opening to the outside at the top of the shaft.

Until windows in outer walls are broken, a smoke shaft alone can be an effective means of limiting movement of smoke into other floors and shafts. In cold weather, the shaft air is warmer than the outdoor air and the shaft will begin to function as a vent as soon as the dampers are opened. During warm weather there will be some delay, as the smoke shaft cannot function as a vent until hot air has entered the shaft as a result of initial expansion in the fire region. The pressure conditions that prevail during cold weather are shown in Figure B-4. The air pressure on the fire floor, having an opening into the smoke shaft, is below that in adjacent unvented shafts and adjacent floor areas. Air flow will be from the adjacent floor areas and shafts into the fire floor, and from the fire floor into the smoke shaft. If, however, a window is broken on a fire floor at a lower level, the air pressure in the fire region will be increased to approximately that of outdoor air at the same level. Smoke may then flow into stair shafts and elevator shafts and adjacent floor areas. During warm weather, breaking of a window will allow venting of smoke to the outdoors for a fire on any floor, except when wind is blowing towards the open window. In this event, breaking of the window will cause the action of the smoke shaft to be overwhelmed. The smoke shaft, therefore, is not fully effective as a sole method of smoke control in a floor area with windows, but can be used in conjunction with building pressurization as part of a smoke control method. The size of a smoke shaft is related to conditions to be established in the event of a fire at a lower level of the building and is dependent on the leakage characteristics of the building. Any increase in the air leakage through the walls of the building and the shafts requires a corresponding increase in the size of the smoke shaft. In Figure B-4 the idealized smoke shaft pressure characteristic is indicated by a dotted line and assumes no pressure losses inside the shaft. As the smoke shaft is open to the outside at the top, pressure at the top level of the smoke shaft is equal to that of outside air.

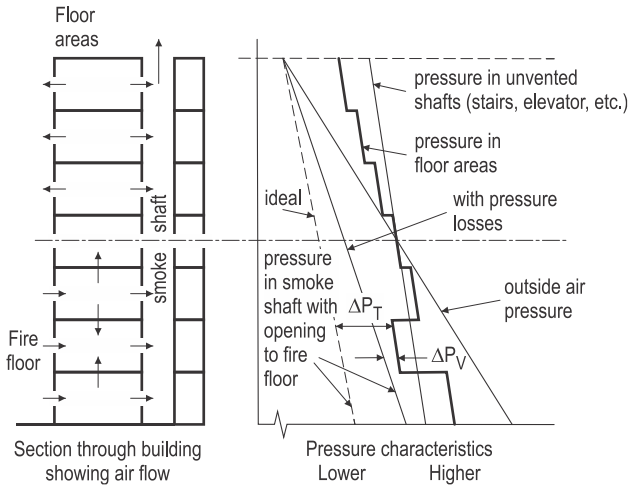


Figure B-4
Pressure differences produced by a smoke shaft

Assuming an air temperature inside a smoke shaft equal to that of the building, as may occur in the case of a small fire, the slope of the smoke shaft pressure characteristic is the same as those of the vented shafts. In Figure B-4 the total pressure (DPT) acting across the vent opening at the bottom is represented by the horizontal distance between floor space and smoke shaft pressure characteristics. The value of DPT is about one half of the total pressure head generated by stack action over the height of the building. The values of DPT are plotted against building height for various outside temperatures in Figure B-5. The movement of air through the smoke shaft causes a decrease in building pressures, which results in the shifting of the floor space pressure characteristic to the left in the pressure diagram. This results in a lower effective value of DPT. The values of DPT have been adjusted to take this factor into account. So far it has been assumed that no pressure losses occur inside the smoke shaft. Friction, momentum and dynamic pressure losses can, however, occur inside the smoke shaft, as a result of air flow through the open vent of the fire floor, as well as through leakage openings in the walls of the smoke shaft. The smoke shaft pressure characteristic including pressure losses is also shown in Figure B-4 as a solid line. The actual pressure difference across the open smoke vent DPv is less than DPT, the difference between the two values representing the pressure losses inside the smoke shaft. The flow requirement to achieve the desired venting action depends on the pressure differences across the fire floor enclosure caused by stack action, and on the air tightness of the various interior and exterior separations of the building. The flow rates shown in Figure B-6 were calculated initially for a 20-storey building having a floor plan measuring 36 m by 36 m, with assumed leakage through walls and floors consistent with the results of air movement measurement obtained in several multi-storey buildings. Extrapolation was made for buildings of various heights, floor areas and outside temperatures using the following relationships:

(1) QV is proportional to FA,
(2) QV is proportional to $H^{1/2}$, and
(3) QV is proportional to

$$\frac{(Ti - To)^{1/2}}{To}$$

where

QV is the required flow rate through the floor vent of the smoke shaft, FA is the flow area of a typical floor,
H is the height of building,
Ti is the indoor absolute temperature, and
To is the outdoor absolute temperature.

A number of other considerations may have to be taken into account in applying measures for control of smoke movement.

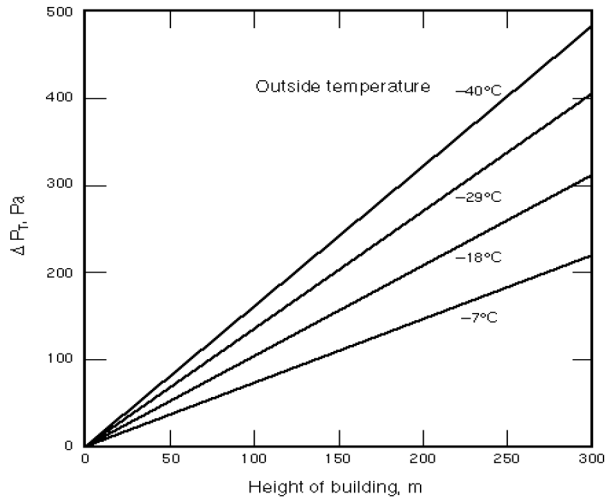


Figure B-5
Available total pressure versus building height

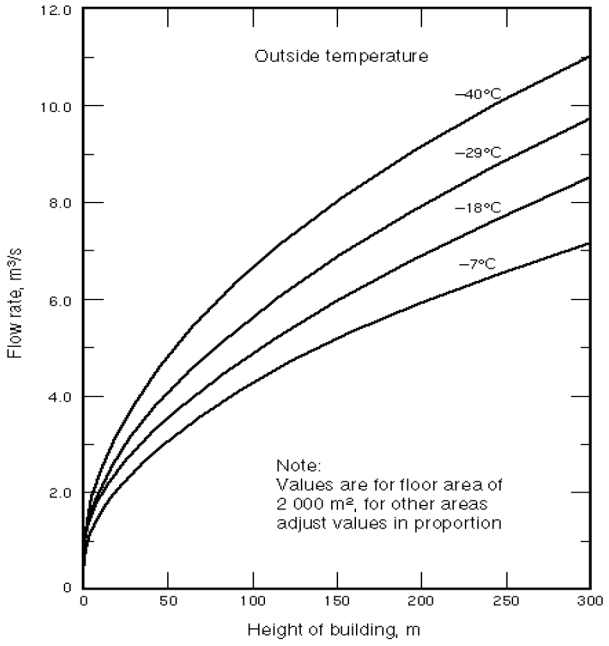


Figure B-6
Required venting capacity of smoke shaft

(7) Make-up air. In the case of smoke control systems that depend on a supply of make-up air from outside the building for pressurization or dilution, the air intakes should be located so that there is little possibility of smoke or other products of combustion being drawn into the air handling system. The source of the smoke could be a fire in the building. The smoke could reach the air intakes as a result of siting the intakes close to the discharge from a smoke shaft or as a result of wind patterns directing smoke that has been vented out through the building envelope towards the intakes. Other sources of smoke are vents from fuel fired equipment, including furnaces and emergency electricity generators, and fire in an adjacent part of a building separated from the building under consideration by fire separations and vestibules, as would occur in the use of Measure K. Air intakes located near ground level should be sited so that exhausts from emergency and other vehicles are not likely to be drawn into the air handling system.

Breaking of Windows on the Fire Floor

Where the room in which a fire occurs has windows, they will probably be broken at a fairly early stage. This will result in a change of pressure in the fire region to substantially that of outdoor air pressure at that level. In Figure B-2, for a fire at a low level in the building during cold weather, breaking of windows will greatly increase the pressure in the region involved. As a result more smoke may be expected to pass into adjacent floors and vertical shafts. This has been taken into consideration in the measures described in Section 3.

Pressures Across Doors

Problems may occur where air pressures across typical hinged doors and sliding elevator doors interfere with their normal use. This may occur when the pressure across a door exceeds 100 Pa. Pressure differences of this magnitude may occur in cold weather where a door communicates with a space that is substantially at outdoor air pressure. This commonly occurs at the entrance doors to high buildings during normal use. The problem is resolved in this case by use of revolving doors or by special hinges which permit the door to rotate about the centre until a sufficient opening is formed to relieve the pressure on the door. It may also occur when windows on a fire floor are broken or where vestibules vented to the outdoors are employed, as in Measure D in Section 3. Situations where such problems may arise are indicated in the explanatory notes to each smoke control measure.

Explosions in Smoke Shafts

An explosion may occur in a smoke shaft during a fire. The maximum over-pressure predicted on the basis of a British report would probably not exceed about 16.5°C. This has been considered, and because it is a somewhat remote possibility, no special precautions are recommended.

Pressure Drop in Stairs

Recent studies have shown that air supply requirements for stairwells with an open door at grade level can cause a substantial pressure drop due to friction. If the air is injected only at the top of particular designs of stairwell in a high building, a non-uniform pressure distribution over the height of the stair shaft may occur. This may produce an undesirably high pressure differential across stairwell doors at high levels. This problem may be avoided by injection of the air at several levels rather than only at the top.

Warm Weather Conditions

The smoke control techniques have been developed to function under cold weather conditions; their performance under warm weather conditions has, however, been carefully considered. Undesirable pressures may be created across certain doors, and certain spaces such as a stair shaft may be contaminated when the door to the outdoors is open. Where air injection is used, modulation of the supply with exterior temperature can be a solution to the problem, although such action reduces the effect of the air supply in diluting transient smoke contamination. Where no interior-exterior temperature differential exists, building heating does not cause stack action and its influence as a smoke movement mechanism disappears. Assuming air handling systems to be shut down, expansion becomes a major factor in spreading smoke throughout a building. Under these conditions the influence of a simple vent opening in an external wall can be readily assessed. Flow through all openings in the walls around the fire region will be roughly in proportion to their area. If the area of the vent to the exterior is ten times the area of the openings communicating to the remainder of the building, only about ten percent of the displaced smoke laden atmosphere will pass into other parts of the building.

During cold weather, expansion may be responsible for a slight overall increase in pressure of about 25 Pa in the fire region for about 20 minutes.

Appendix C to SB-4

Check of a Smoke Control System

The efficiency of a smoke control system may be checked by measuring pressure differences and the directions of air flow around doors and through separating walls of compartments. A pressure meter can be used to measure pressure differences on either side of a door or partition. Where this is impracticable, a punk stick held near a crack will give an indication of the direction of air flow. Measurements of air flow may be taken on the intake side of supply fans or in supply ducts to determine whether the specified air flow is being provided.

In general, air flow should be from the spaces which may be occupied during a fire emergency (e.g., stair shafts) toward the space in which the fire is assumed to have occurred. For each method of smoke control, measurements may be taken at certain critical locations to check the overall efficiency of the system.

In buildings designed by Measure B, C, D or E, where protection is obtained by venting corridors or vestibules to the outdoors, inspection of the building to determine whether the requirements have been met should be sufficient. In buildings incorporating Measure B, C, D, E, F or G, service shafts may be vented to the outdoors at the top. In this case a check may be made of the wall between the shaft and the uppermost occupied floor areas, to ensure that the direction of flow is from each floor area into the shaft, when the vent to the outside is open and the outdoor air temperature is significantly less than that indoors. In a building incorporating Measure D or E, where mechanically pressurized vestibules are used, and in a building incorporating Measure L, a check may be made to ensure that the pressure in each vestibule or area of refuge is greater than that in the adjacent floor areas at each floor level.

In a building incorporating Measure F or G, the efficiency of a protected elevator shaft can be checked by using a meter to measure pressure differences between the shaft and the outdoors at grade, before and after actuation of the air injection system. The difference between the two readings gives the mechanical pressurization of the shaft, which should be at least equal to one half of the calculated pressure difference caused by stack action over the height of a building for the January design temperature and the design flow rate specified in Sentence (4) of Measure F or Sentence (4) of Measure G. Where the air flow is modulated, the mechanical pressurization should vary between 50 Pa when the outdoor temperature is equal to that indoors, and one half of the pressure difference noted above when the outdoor temperature is equal to the January design temperature. Flow rates into the elevator shaft may be checked against that specified in Sentence (4) of Measure F and Sentence (4) of Measure G. Stair shafts may be checked with the air injection system operating and the door or vent to the outdoors open. Flow rate through the shaft should be equal to that required by Sentence (2) of Measure F and Sentence (2) of Measure G. Top vented service shafts may be checked as described for a building incorporating Measure B, C, D or E.

In a building incorporating Measure H, the efficiency of the system may be checked by measuring pressure differences between floor areas at grade and outdoors before and after actuation of the air injection system. The magnitude of the mechanical pressurization is obtained as described above in the case of elevator shafts in a building incorporating Measure F or G and should be equal to half the pressure difference caused by stack action over the height of the building for the January design temperature and the design flow rate specified in Sentence (2) of Measure H. The effect of modulating air flow for different temperature conditions is also as described for elevator shafts. Flow rates into the building may be checked against those required in Sentence (2) of Measure H. A check may be made on each floor individually, with the air injection system operating and the damper to the smoke shaft or panel to the outdoors open. Under these circumstances, air flow should be from the stair shafts, elevator shafts and service shafts into the floor area that has a damper or panel open.

In a building incorporating Measure I or J, pressure differences should be measured between the central core at grade and a suite that has a number of windows open to the outdoors before and after actuation of the air injection system. The magnitude of mechanical pressurization is obtained as described above in the case of elevator shafts in a building incorporating Measure F or G and should be equal to one half of the pressure difference caused by stack action over the height of the building for the January design temperature and design flow rate specified in Sentence (2) of Measure I. The effect of modulating air flow for different temperature conditions is also as described for elevator shafts. Flow rates into the central core may be checked against those required in Sentence (2) of Measure I.

In a building incorporating Measure K, inspection should indicate whether or not there is a continuous separation between two parts of the building, extending from the roof through storeys below grade. Where pressurized vestibules are used, a check may be made to ensure that the direction of air flow is from each vestibule into adjacent floor areas at each level. The check should also be made on a low level floor with the floor space vents referred to in Sentence (12) of Measure K, or other windows in the two halves of the building open on that floor. This represents the condition when the fire has broken windows in one half of the building and the compensating vent in the other half of the building has been opened manually.

In a building incorporating Measure L, the method of checking is the same as in a building incorporating Measure D or E, except that flow rates into areas of refuge should be measured to ensure that they meet the requirements of Sentence (9) of Measure L.

Doors to stair shafts, elevator shafts and vestibules that are indicated in the notes relating to each measure as being in locations subject to pressure differences that may interfere with normal opening should be checked when the outdoor temperature is near the January design temperature, with the air injection system operating and a number of windows open to the outdoors on each floor in turn.

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MMAH Supplementary Standard SB-5

Reserved

January 1, 2024

MMAH Supplementary Standard SB-6

Percolation Time and Soil Descriptions

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-6 comes into force on the 1st day of January 2025.

SB-6 Percolation Time and Soil Descriptions

ESTIMATION OF PERCOLATION TIME

(a) The purpose of this Section and the associated Tables and Charts is to provide assistance to those who must decide on the percolation time(s) to be used in design. Suggested relationships between percolation time, coefficient of permeability and soils of various types are given. IT MUST BE EMPHASIZED THAT, PARTICULARLY FOR FINE GRAINED SOILS, THERE IS NO CONSISTENT RELATIONSHIP DUE TO THE MANY FACTORS INVOLVED. The following guidance is presented for the soil types outlined in the Unified Soil Classification System (Table 1). In order to assess a particular soil.
  (i) Table 2 and Table 3 - Approximate relationship of soil types to permeability and percolation time.
  (ii) Charts 1 to 14 - Typical grain size distribution curves for soil types in the Unified Soil Classification System.

(b) In Table 2 and Table 3, a range of values of "K" and of "T" are given for various soil descriptions. The principal modifiers which will influence selection of a "T" value within the range given are:
  (i) The structure - "massive" fine-grained soils have high values of "T".
  (ii) The density - For a given soil higher density produces a higher value of "T".
  (iii) The percentage of clay - the higher the percentage the higher the value of "T".
  (iv) The mineralogy of the clay portion - The more it "swells" the higher the value of "T".
  (v) The plasticity of the soil - The higher the plasticity index the higher the value of "T".
  (vi) Liquid Limit - the higher the liquid limit the higher the value of "T".
  (vii) Organic content - The presence of fine organic particles, detectable by colouration and odour, can significantly reduce the permeability and raise the value of "T".

Table 1
Unified Soil Classification

Coarse - Grained Soils		Fine - Grained Soils	
Group Symbols	Typical Names	Group Symbols	Typical Names
GW	Well-graded gravels, gravel-sand mixtures, little or no fines	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
GM	Silty gravels, gravel-sand-silt mixtures	OL	Organic silts and organic silty clays of low plasticity
GC	Clayey gravels, gravel-sand-clay mixtures	MH	Inorganic silts, micoceous or diatomaceous fine sandy or silty soils, elastic silts
SW	Well-graded sands, gravelly sands, little or no fines	CH	Inorganic clays of high plasticity, fat clays
SP	Poorly-graded sands, gravelly sands, little or no fines	OH	Organic clays of medium to high plasticity, organic silts
SM	Silty sands, sand-silt mixtures		
SC	Clayey sands, sand-clay mixtures	PT (highly organic soils)	Peat and other highly organic soils
Column 1	2	3	4

Table 2
Approximate Relationship of Coarse Grained Soil Types to Permeability and Percolation Time

Soil Type (Unified Soil Classification) / Coarse Grained More than 50% Larger than #200		Coefficient of Permeability, K - cm/sec	Percolation Time, T - mins/cm	Comment
G.W. -	Well graded gravels, gravel-sand mixtures, little or no fines.	10^{-1}	<1	very permeable unacceptable
G.P. -	Poorly graded gravels, gravel-sand mixtures, little or no fines.	10^{-1}	<1	very permeable unacceptable
G.M. -	Silty gravels, gravel-sand-silt mixtures.	10^{-2} - 10^{-4}	4 - 12	Permeable to medium permeable depending on amount of silt.
G.C. -	Clayey gravels, gravel-sand-clay mixtures.	10^{-4} - 10^{-6}	12 - 50	Important to estimate amount of silt and clay
S.W. -	Well graded sands, gravelly sands little or no fines.	10^{-1} - 10^{-4}	2 - 12	medium permeability
S.P. -	Poorly graded sands, gravelly sand, little or no fines.	10^{-1} - 10^{-3}	2 - 8	medium permeability
S.M. -	Silty sands, sand-silt mixtures.	10^{-3} - 10^{-5}	8 - 20	medium to low permeability
S.C. -	Clayey sands, sand-clay mixtures.	10^{-4} - 10^{-6}	12 - 50	medium to low permeability depending on amount of clay
Column 1		2	3	4

Table 3
Approximate Relationship of Coarse Grained Soil Types to Permeability and Percolation Time

Soil Type (Unified Soil Classification) / Fine Grained More than 50% Passing #200		Coefficient of Permeability, K - cm/sec	Percolation Time, T - mins/cm	Comment
M.L. -	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, clayey silts with slight plasticity	10^{-5} - 10^{-6}	20 - 50	medium to low permeability
C.L. -	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	10^{-6} and less	over 50	unacceptable
O.L. -	Organic silts, organic silty clays of low plasticity; liquid limit less than 50	10^{-5} and less	20 - over 50	acceptable depends on clay content
M.H. -	Inorganic silts, micareaous or diatomageous fine sandy or silty soils, elastic silts	10^{-6} and less	over 50	unacceptable
C.H. -	Inorganic clays of medium to high plasticity, organic silts	10^{-7} and less	over 50	unacceptable
O.H. -	Organic clays of medium to high plasticity organic silt; liquid limit over 50	10^{-6} and less	over 50	unacceptable
Column 1		2	3	4

SELECTION OF "T" TIME FROM THE ABOVE TABULATION

A range of "T" times for each soil type is shown above. Select from within this range by determining if the soil is within the low, middle or high part of the range considering the soil identifiers and soil characteristics. Consider structure, density, colour, prevalence or organics, the clay content and mineralogy, the plasticity index and liquid limit and the functioning of existing systems in similar soils in the area.

Notes:

The following Ministry of the Environment Reports provide further information on the relationship between grain size, coefficient of permeability and percolation time.

1. "Study on the Feasibility of Correlating Percolation Time with Laboratory Permeability" - 1975 - Research Report No. S56 by H. T. Chan, PhD., P.Eng.

2. "Study of Conventional Tile Fields in Fine-Grained Soils" - 1979 Research Report 74 by H. T. Chan, PhD., P.Eng.

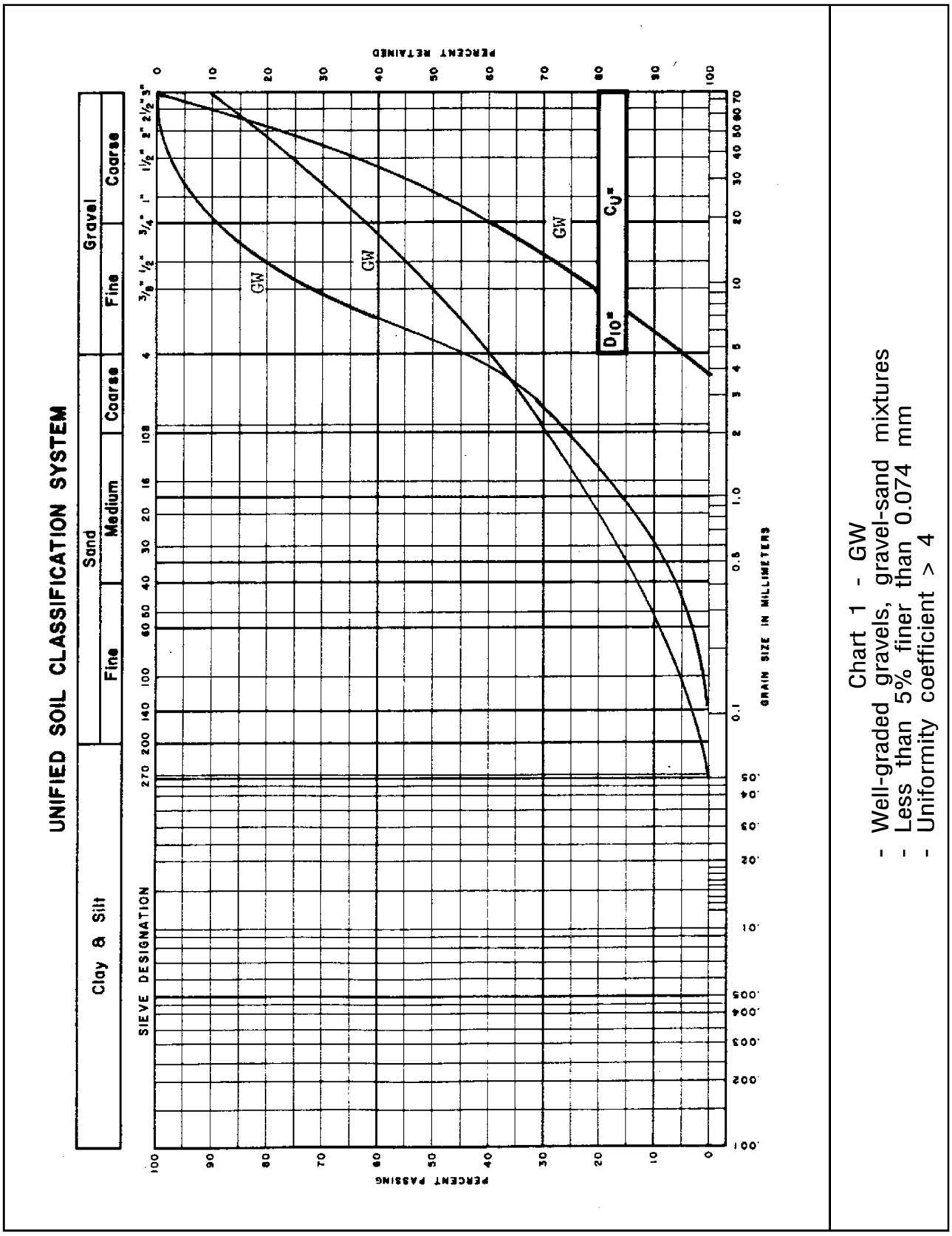


Chart 1 - GW
- Well-graded gravels, gravel-sand mixtures
- Less than 5% finer than 0.074 mm
- Uniformity coefficient > 4

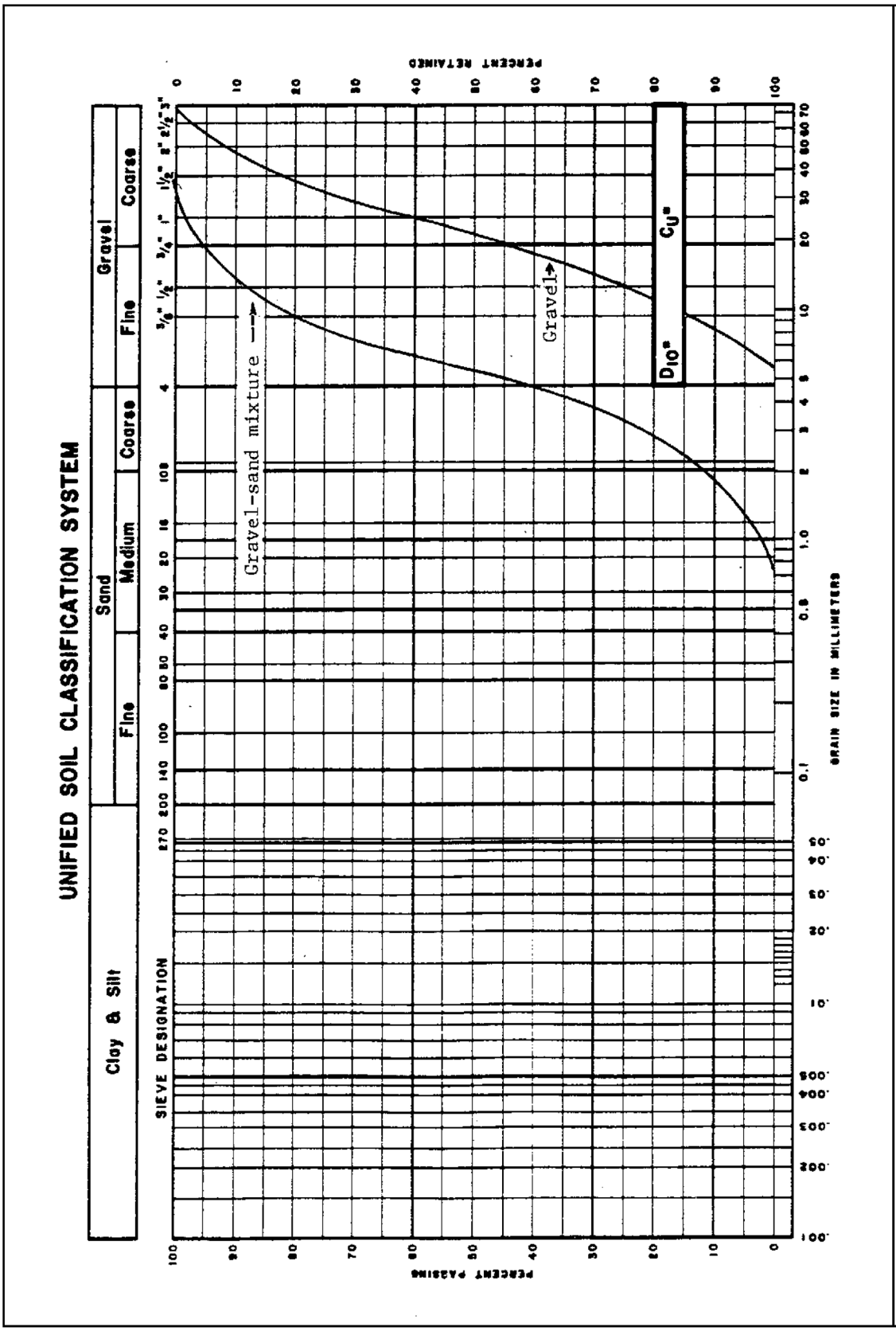


Chart 2 - GP
- Poorly-graded gravels, gravel-sand mixtures
- Less than 5% finer than 0.074 mm
- Uniformity coefficient less than 4

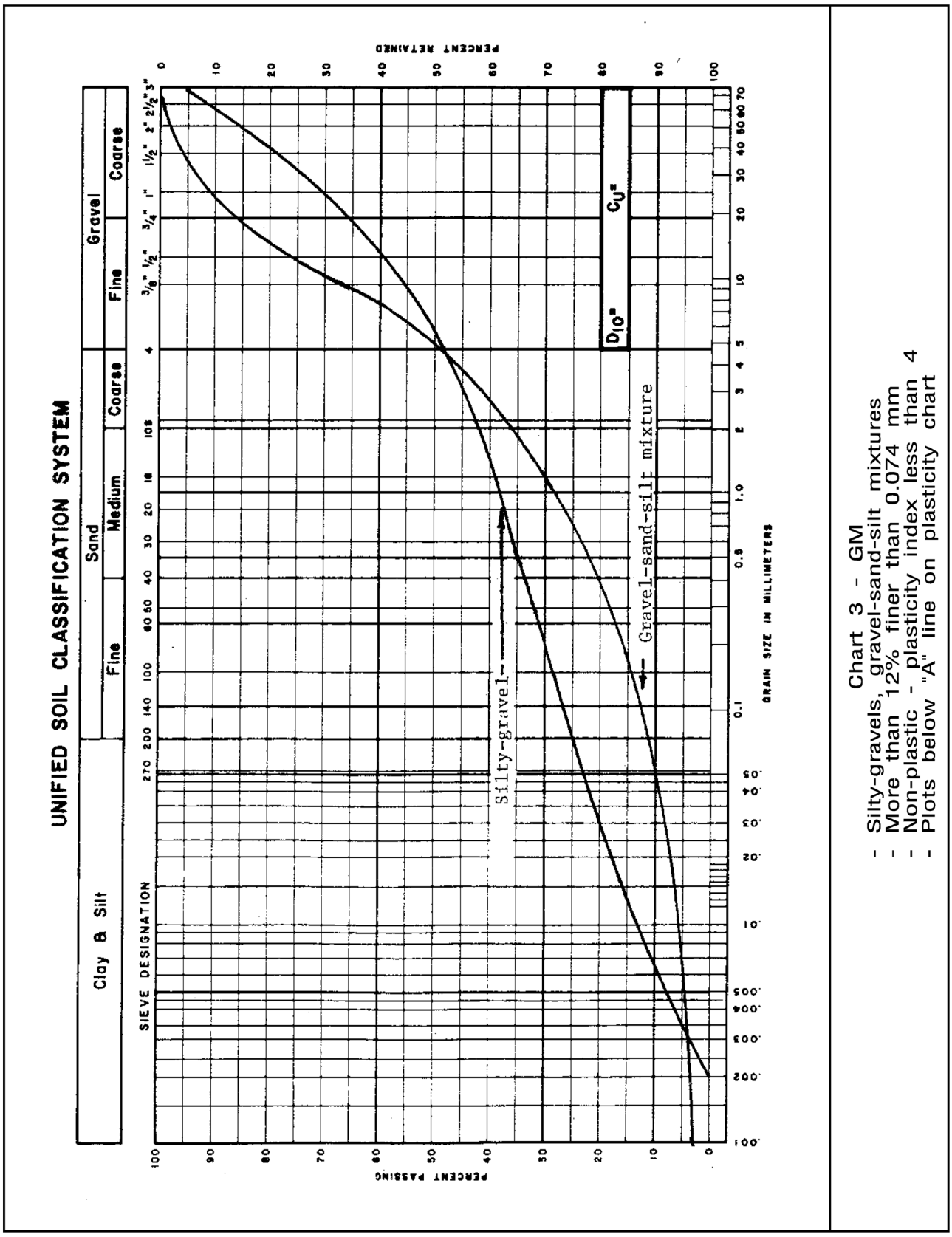


Chart 3 - GM
- Silty-gravels, gravel-sand-silt mixtures
- More than 12% finer than 0.074 mm
- Non-plastic - plasticity index less than 4
- Plots below "A" line on plasticity chart

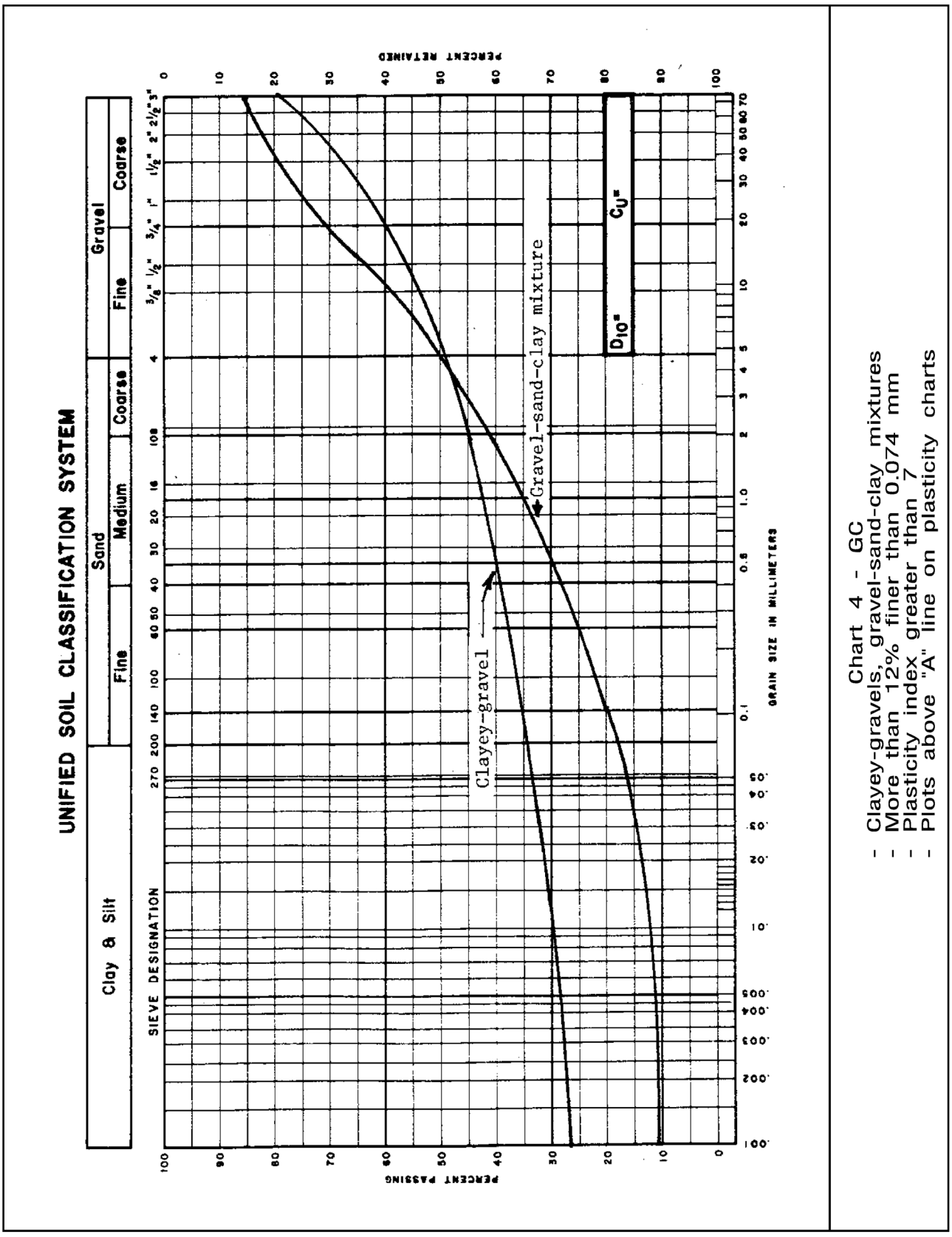


Chart 4 - GC

- Clayey-gravels, gravel-sand-clay mixtures
- More than 12% finer than 0.074 mm
- Plasticity index greater than 7
- Plots above "A" line on plasticity charts

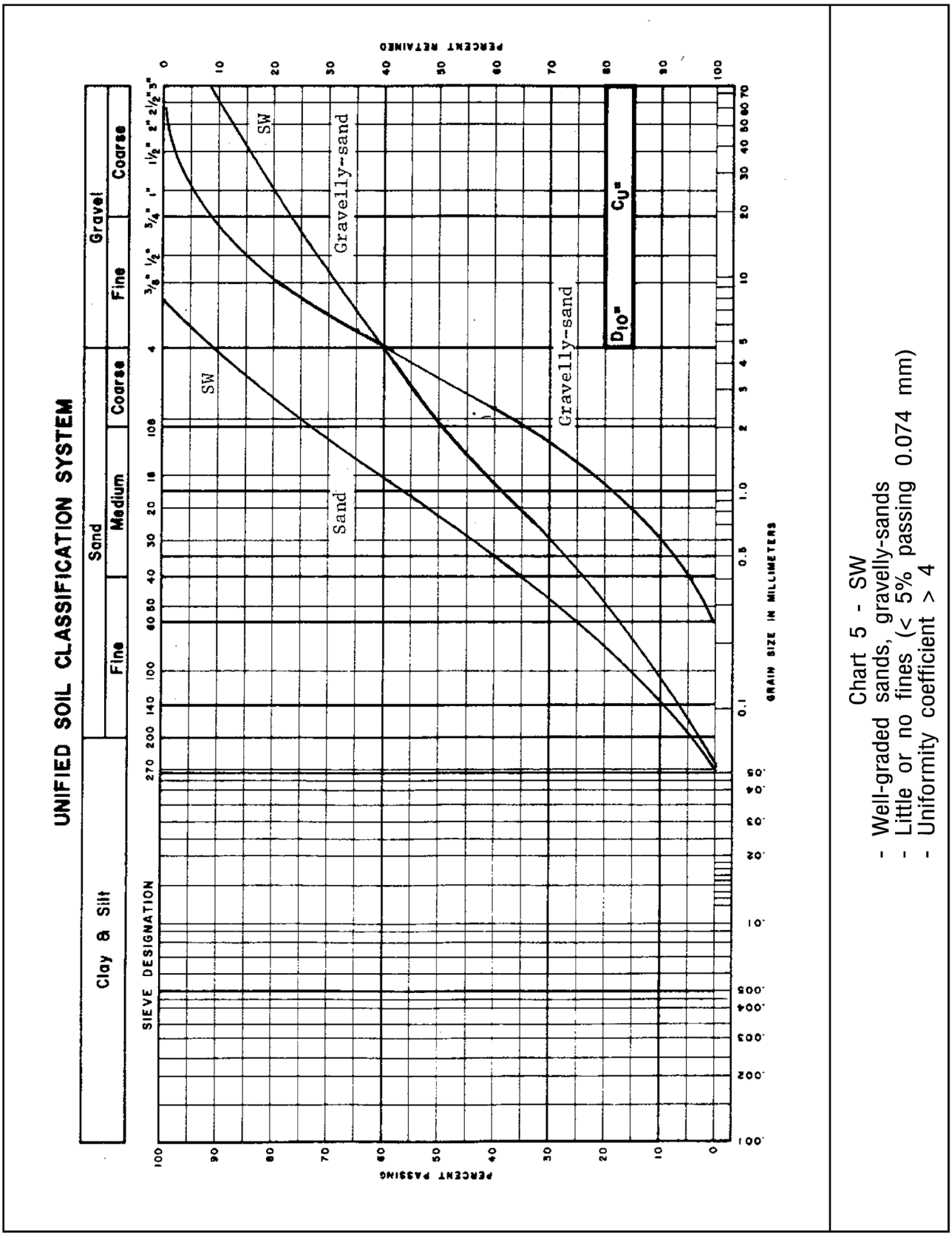


Chart 5 - SW
- Well-graded sands, gravelly-sands
- Little or no fines (< 5% passing 0.074 mm)
- Uniformity coefficient > 4

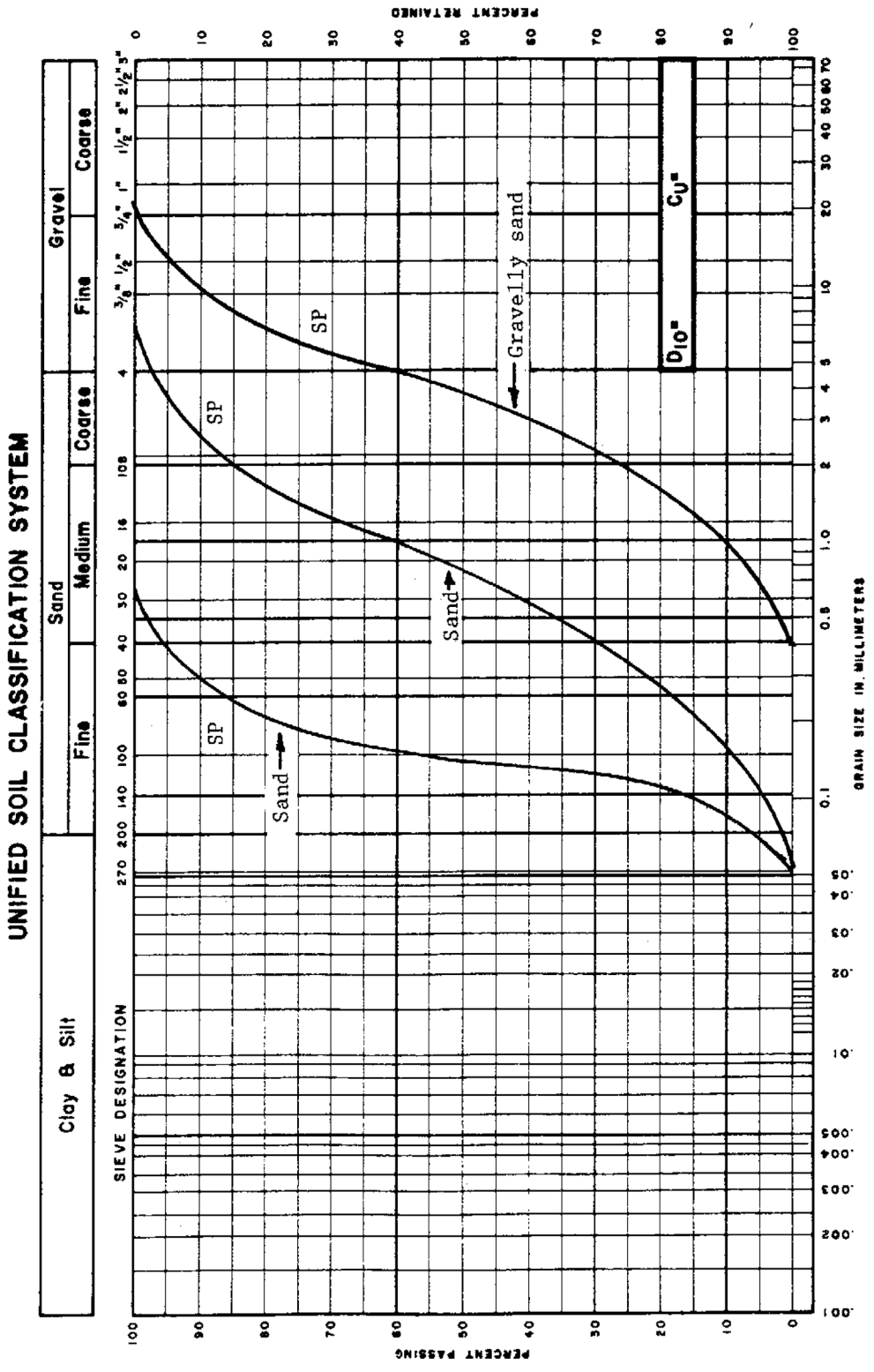


Chart 6 - SP
- Poorly-graded sands & gravelly-sands
- Little or no fines (< 5% passing 0.074 mm)
- Uniformity coefficient < 6

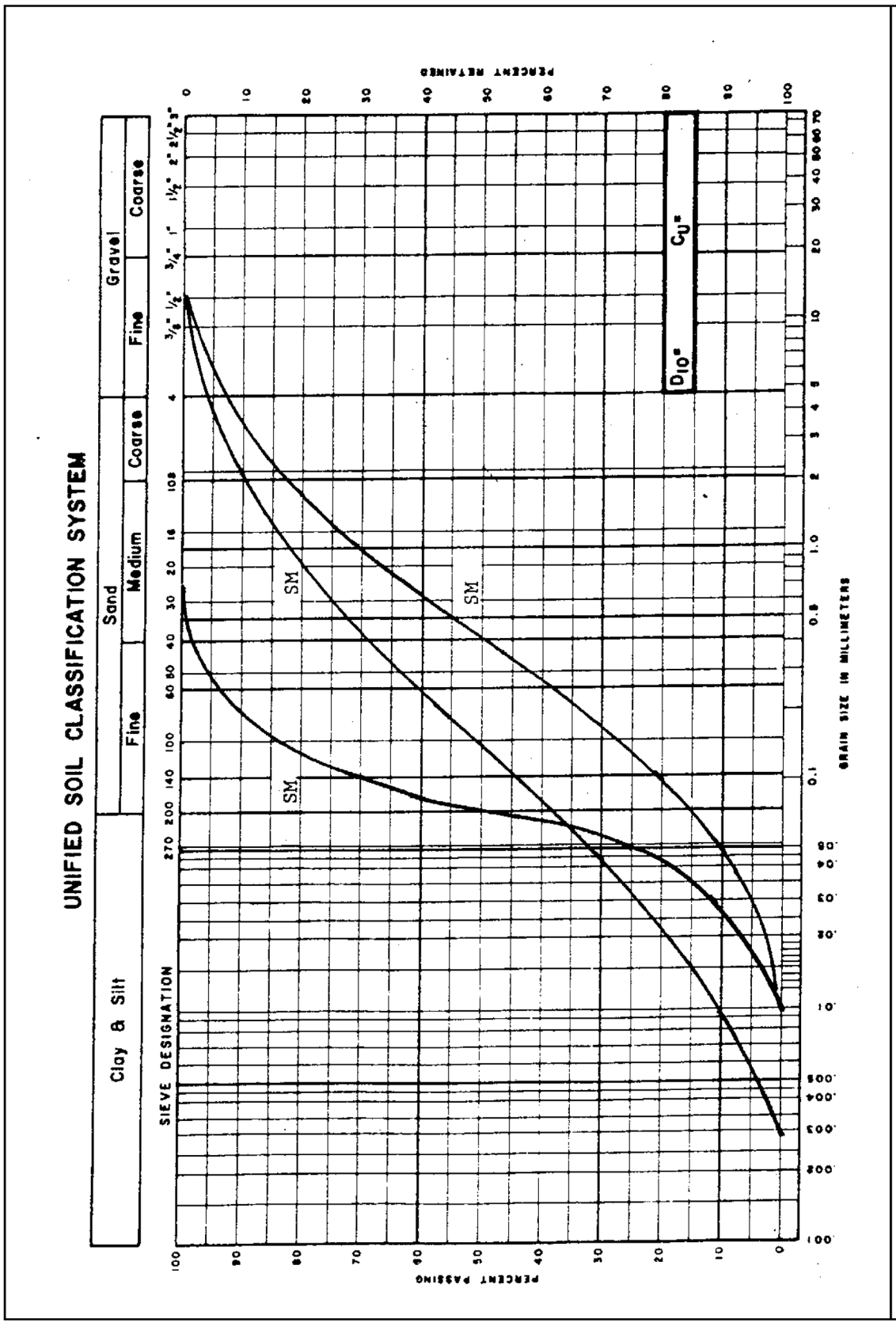


Chart 7 - SM
- Silty sands, sand-silt mixtures
- More than 12% finer than 0.074 mm
- Plasticity Index (Ip) less than 4
- Plots below "A" line on plasticity chart

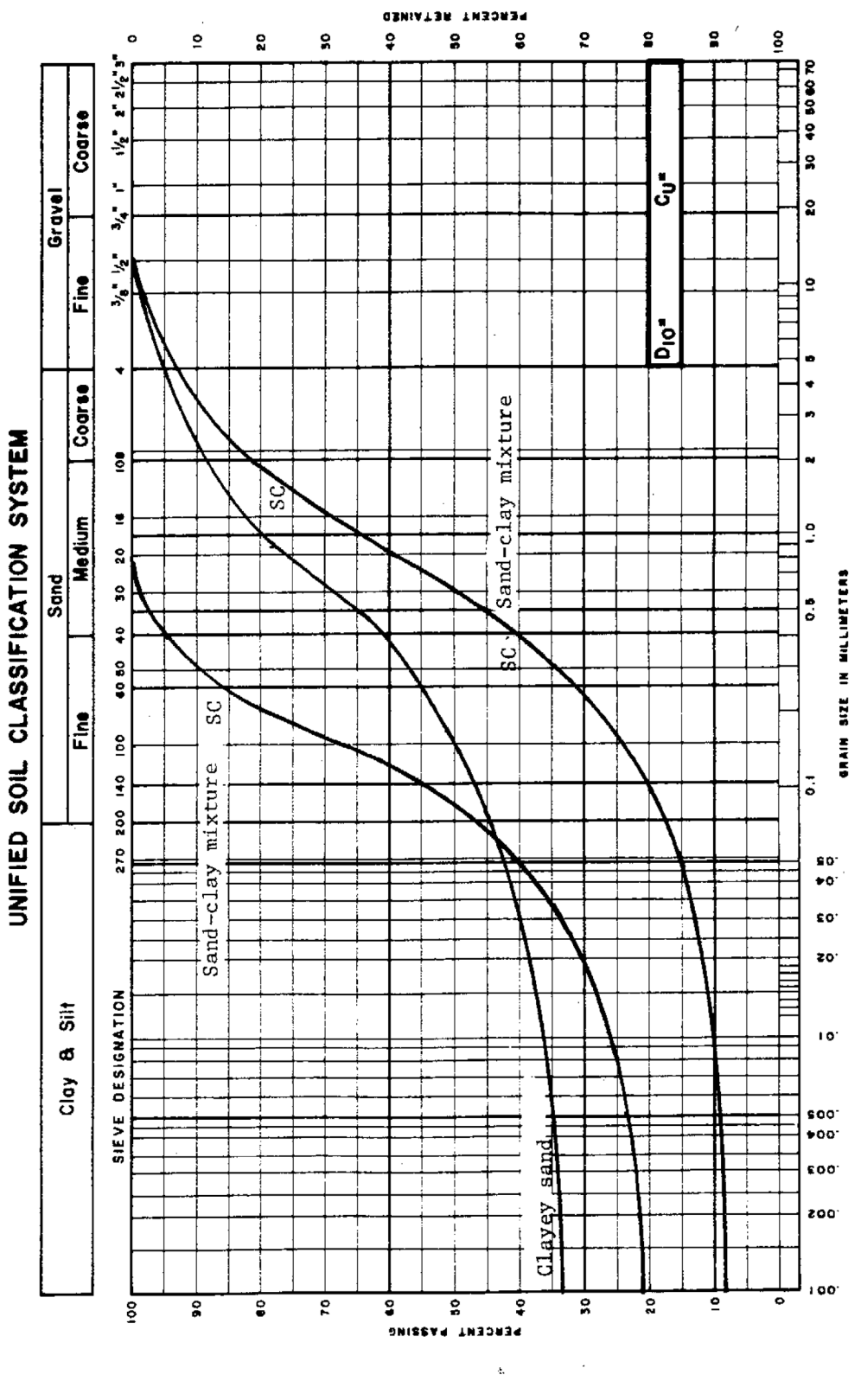


Chart 8 - SC

- Clayey sands, sand-clay mixtures
- More than 12% finer than 0.074 mm
- Plasticity index greater than 7
- Plots above "A" line on plasticity chart

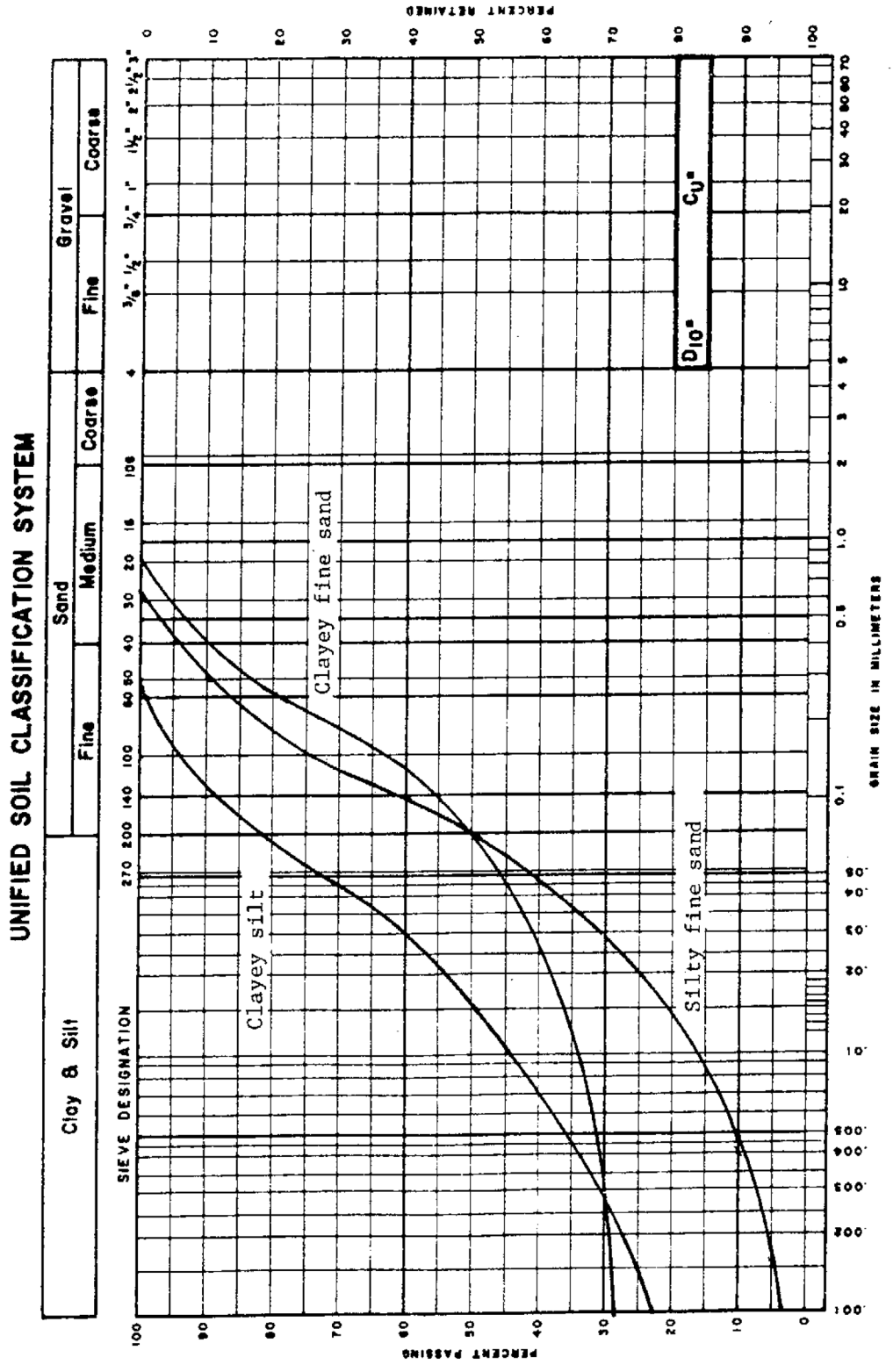


Chart 9 - ML

- Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity WI less than 50

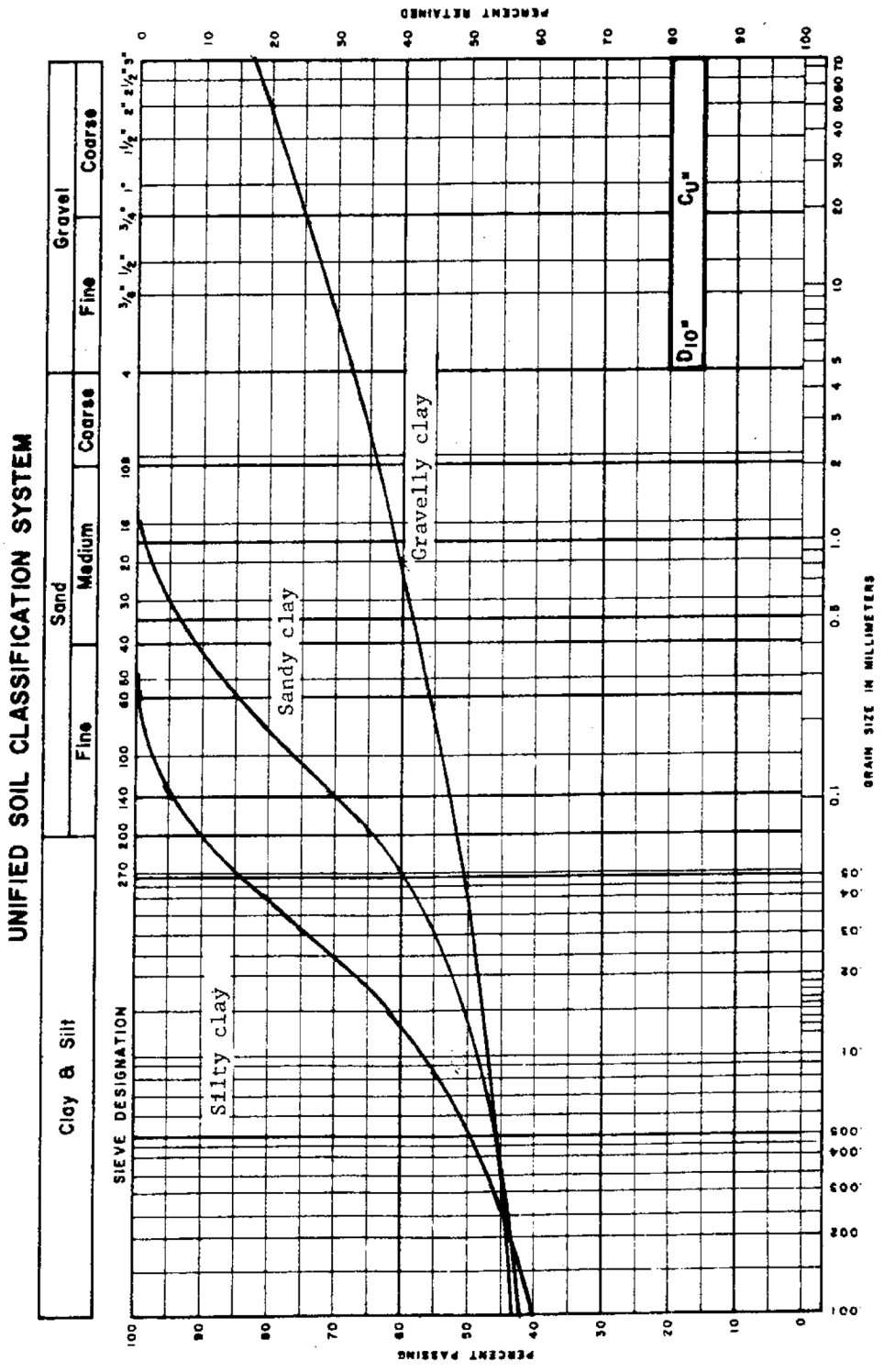


Chart 10 - CL

- Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
  WI less than 50

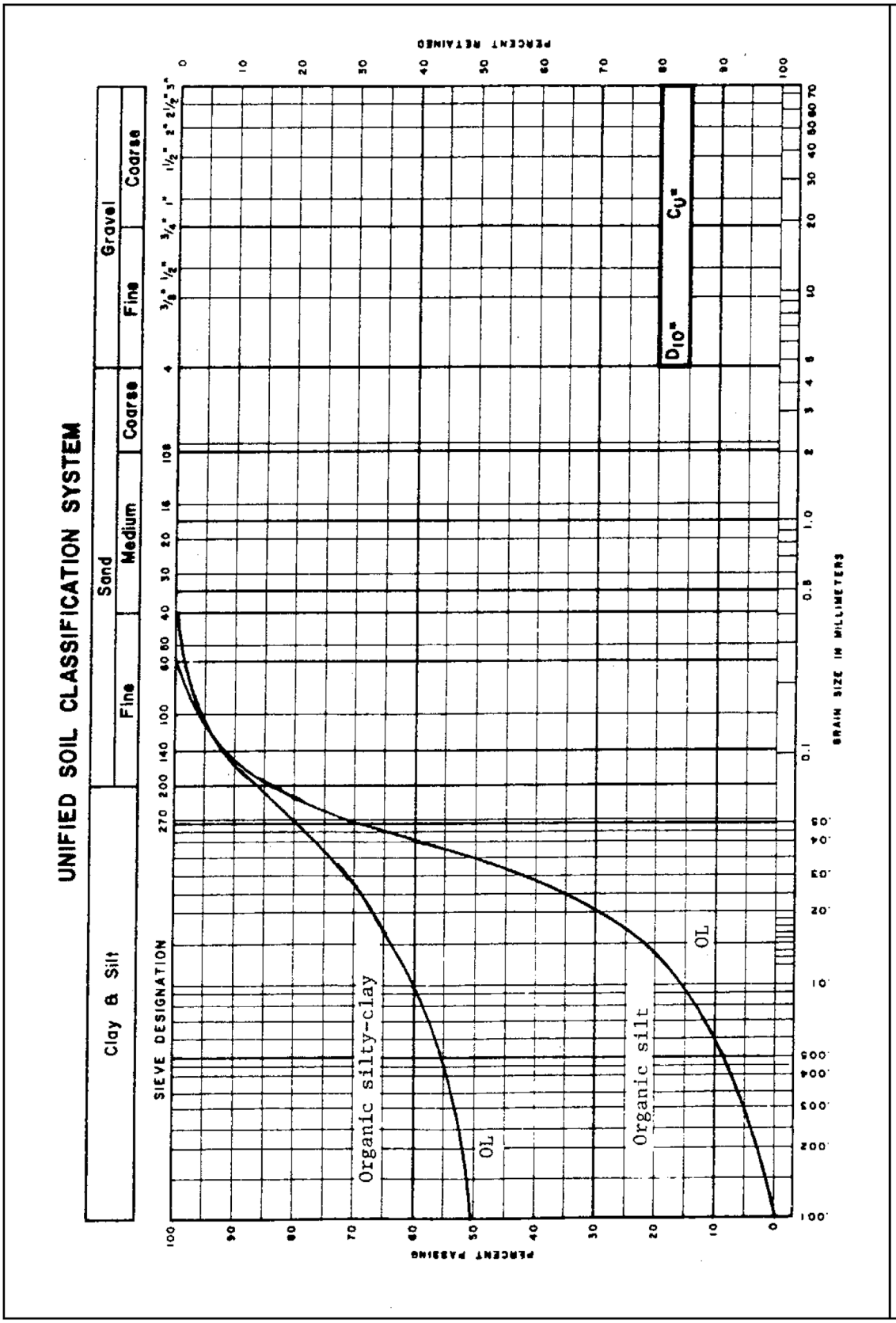


Chart 11 - OL

- Organic silts, organic silty-clays of low plasticity
  Liquid limit WI less than 50

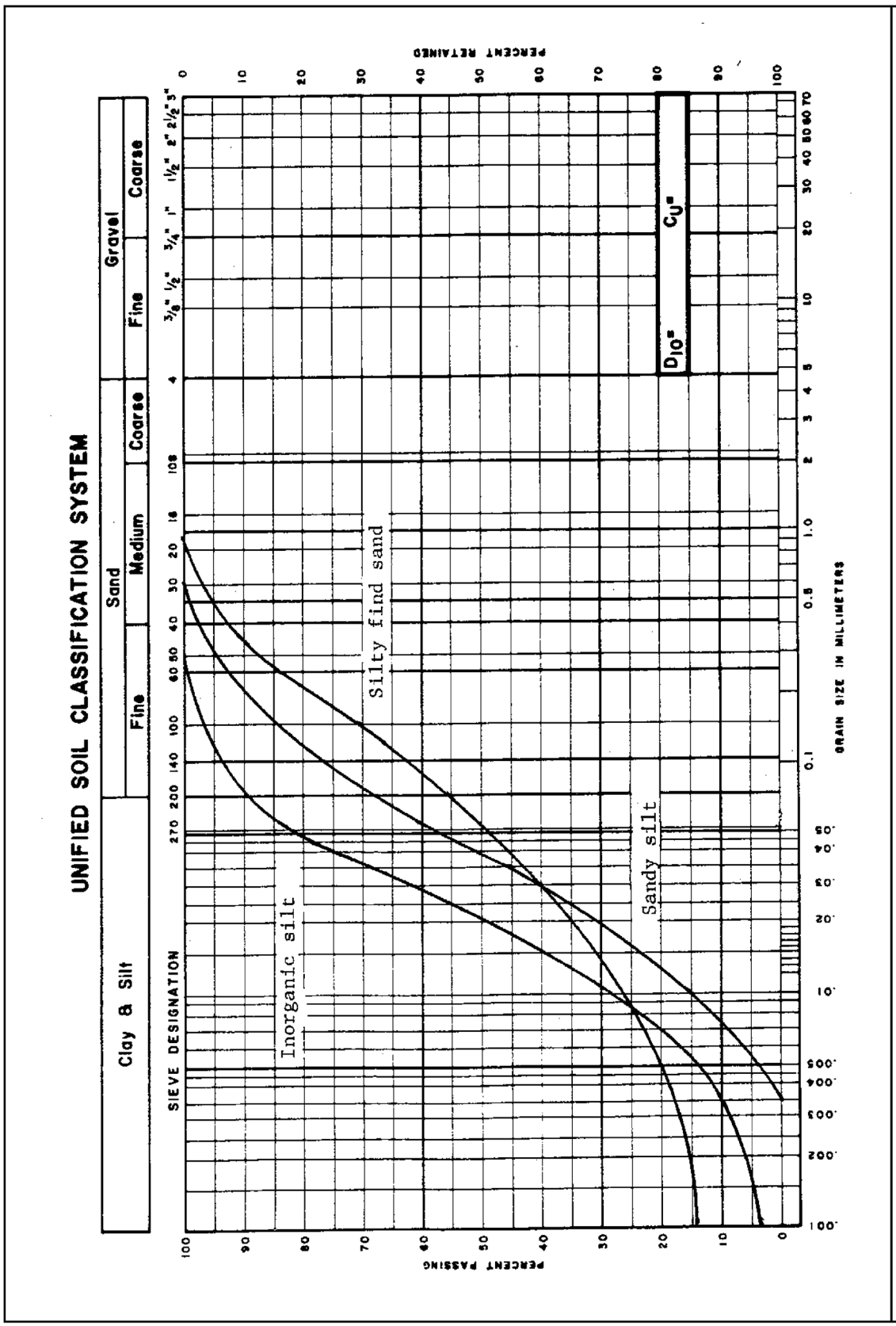


Chart 12 - MH

- Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
  Liquid limit over 50

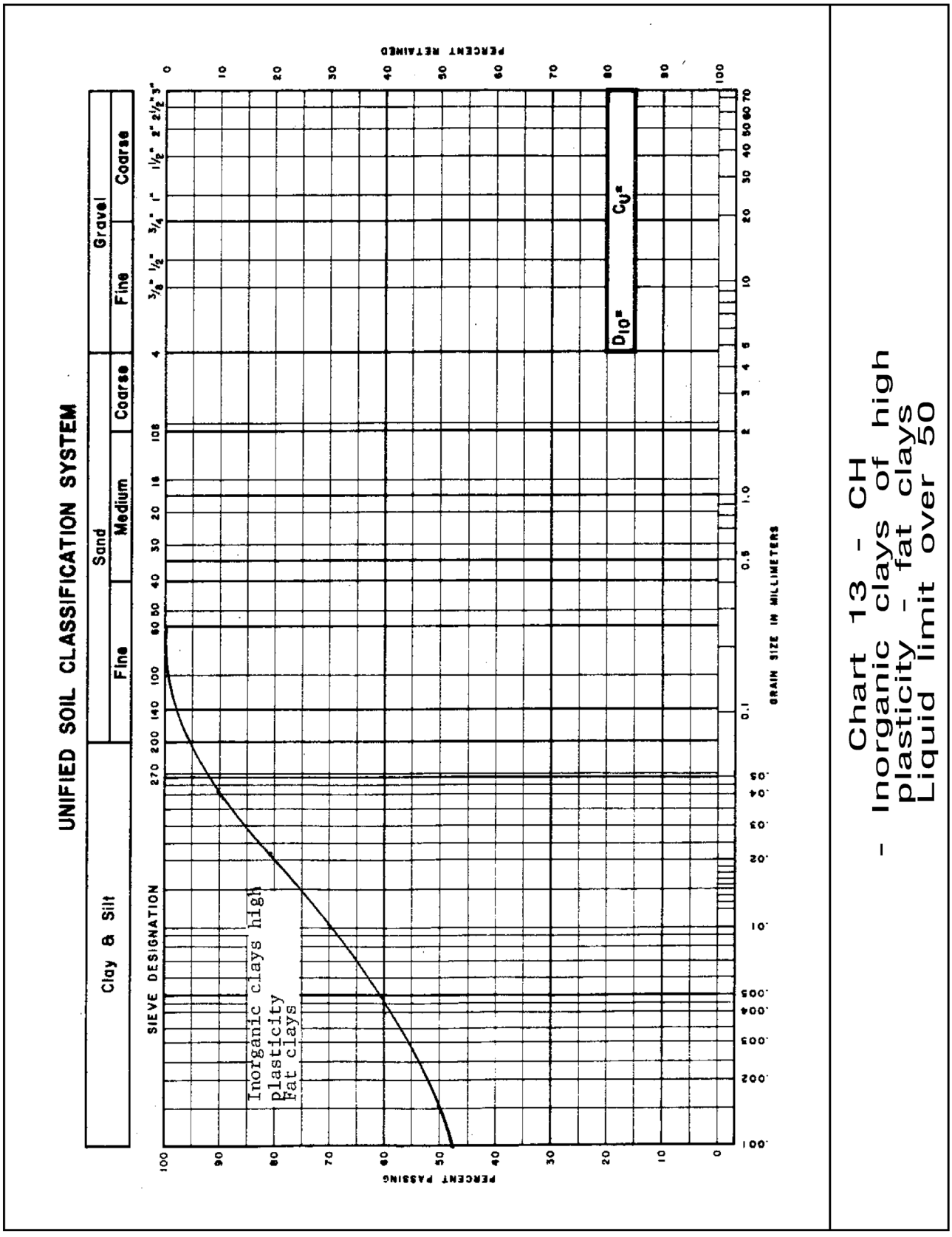


Chart 13 - CH
- Inorganic clays of high plasticity - fat clays
Liquid limit over 50

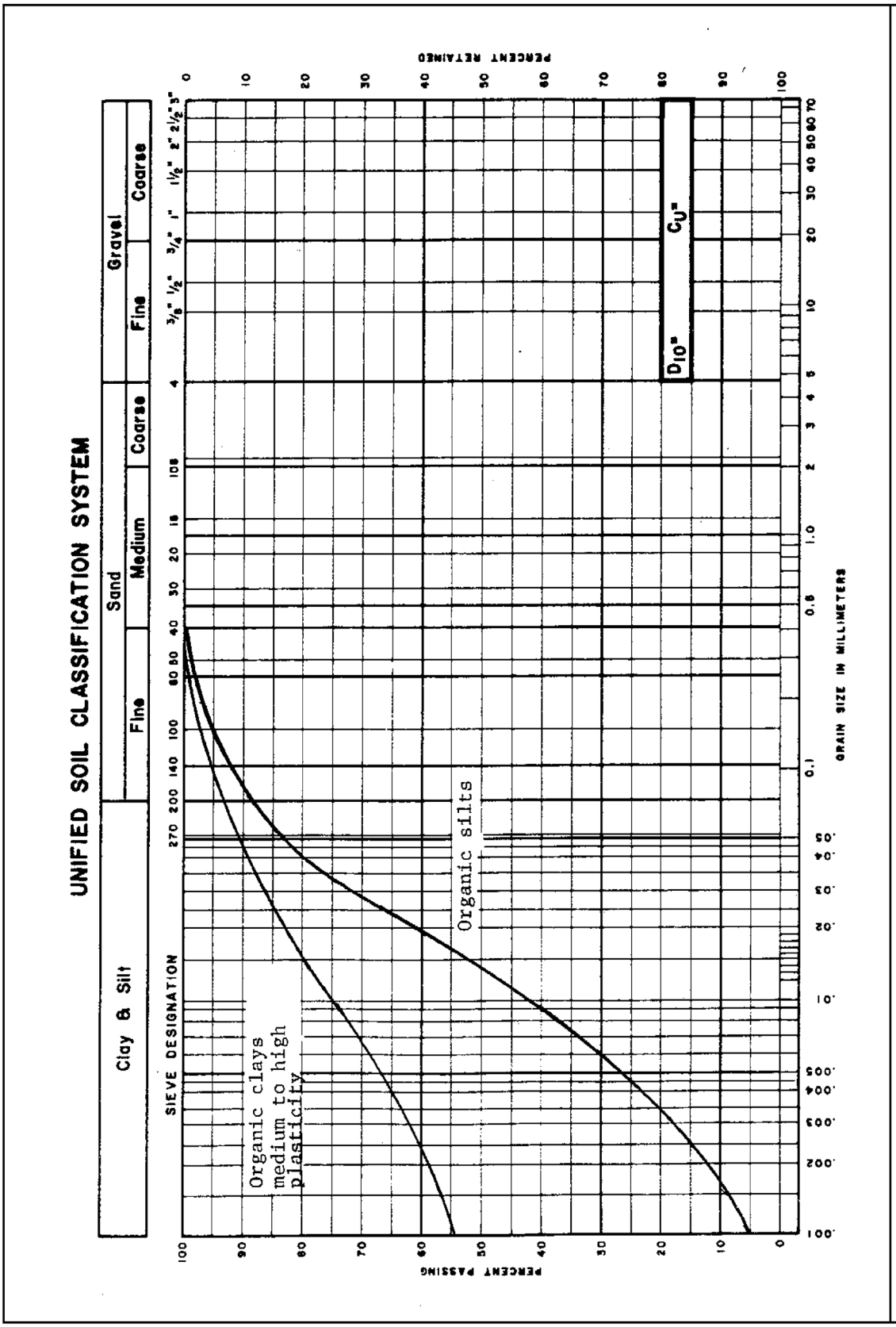


Chart 14 - OH

- Organic clays - medium to high plasticity
  Organic silts
  Liquid limit over 50

MMAH Supplementary Standard SB-7

Guards for Housing and Small Buildings

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-7 comes into force on the 1st day of January 2025.

SB-7 Guards for Housing and Small Buildings

Section 1 General

1.1. Introduction

1.1.1. Scope (See Appendix A.)

(1) This Supplementary Standard includes details for the construction of wood guards.

(2) Guards located on the exterior of a building, where they may be subject to deterioration, shall be constructed in accordance with Section 2 of this Supplementary Standard. (See Appendix A.)

(3) Guards located inside a building shall be constructed in conformance with Section 2 or Section 3 of this Supplementary Standard.

1.2. Design of Guards

1.2.1. Cantilever Action (See Appendix A.)

(1) The construction details for guards in this Supplementary Standard are based on the assumption that the guard acts as a cantilever in resisting lateral loads.

1.2.2. Classification (See Appendix A.)

(1) The structural systems of guards described in this Supplementary Standard are grouped into the following classifications:
(a) Post and Rail Systems, and
(b) Cantilevered Picket Systems.

Section 2 Exterior Guards

2.1. Materials

2.1.1. Lumber Grades (See Appendix A)

(1) The minimum grade of softwood dimension lumber for posts, rails and joists shall be Northern Species, No. 2.

(2) The minimum grade of softwood dimension lumber for pickets shall be Northern Species, No. 2 Picket grade.

(3) Wood for pickets shall be free of loose knots.

2.1.2. Lumber Dimensions

(1) Except as permitted in Sentence (2), the minimum sizes of loadbearing elements of wood guards shall conform to Table 2.1.2.

Table 2.1.2.
Minimum Size of Loadbearing Elements

Guard Element	Minimum Size, mm (in)
Post	89 x 89 (4" x 4" nominal)
Top Rail	38 x 89 (2" x 4" nominal)
Bottom Rail	38 x 89 (2" x 4" nominal)
Picket / Baluster	32 x 32 ($1^{9}/_{32}$" x $1^{9}/_{32}$")
Column 1	2

(2) Where a bottom rail is bevelled, the minimum sizes shown in Table 2.1.2. may be reduced to allow for a bevel, as detailed in Figure 2.1.2.

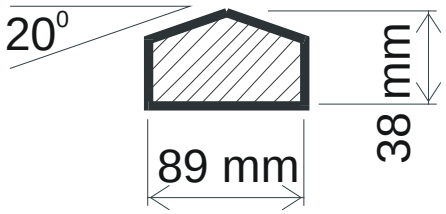


Figure 2.1.2.
Bevel Detail

2.1.3. Floor Construction (See Appendix A.)

(1) The minimum dimensions of wood floor joists and wood decking shall conform to Table 2.1.3.

(2) Except as provided in Details EA-1 to ED-5, wood decking shall be fastened to each floor joist with nailing conforming to Table 2.1.3.

Table 2.1.3.
Minimum Size of Floor Elements

Floor Element	Minimum size, mm (in)
Dimension Lumber Decking	25 x 140 (5/4" x 6" nominal), when each plank is fastened with 2 - 63 mm (2½") nails
	38 x 89 (2" x 4" nominal), when each plank is fastened with 2 - 76 mm (3") nails
Dimension Lumber Joists	38 x 184 (2" x 8" nominal)
Column 1	2

2.1.4. Connectors (See Appendix A.)

(1) Nails, screws, lag bolts and machine bolts shall not cause splitting of wood elements.

(2) Fasteners shall be resistant to corrosion.

(3) All nails shall be common spiral.

(See also A-2.1.4. in Appendix A for glued joints.)

2.1.5. Decay-Resistant Lumber (See Appendix A.)

(1) Lumber for guard systems and floor systems shall be
(a) a species resistant to decay,
(b) preservative treated to prevent decay, or
(c) pressure-treated.

(2) All cut ends of preservative treated lumber shall be treated to prevent decay.

2.2. Structural Details

2.2.1. Post and Rail System

(1) An exterior guard constructed as a Post and Rail System shall conform to the applicable connection details listed in Table 2.2.1.

2.2.2. Cantilevered Picket System

(1) An exterior guard constructed as a Cantilevered Picket System shall conform to the applicable connection details listed in Table 2.2.2.

Table 2.2.1.
Exterior Post and Rail System Connection Details

Connection Detail	Detail Number	Description
Top Rail to Post and / or Bottom Rail to Post	EA-1	Top rail nailed to post
	EA-2	Top/bottom rail skew nailed to post with 76 mm (3") nails
	EA-3	Top/bottom rail skew nailed to post with 63 mm ($2^1/_2$") nails
	EA-4	Top/bottom rail face nailed or screwed to post
	EA-5	Top/bottom rail fastened to post with framing anchors
Post to Floor	EB-1	Post nailed to rim joist
	EB-2	Post screwed to rim joist
	EB-3	Post bolted to floor joist with 8 mm ($^5/_{16}$") machine bolts
	EB-4	Post bolted to floor joist with 9.5 mm ($^3/_8$") machine bolts
	EB-5	Post bolted to 2 floor joists
	EB-6	Post fastened to floor, where guard is parallel to floor joists
Infill Picket	EC-1	Picket nailed to endcap; endcap screwed to rail
	EC-2	Picket nailed to rail
	EC-3	Picket screwed to rail
	EC-4	Picket screwed to top rail and rim joist
Column 1	2	3

Table 2.2.2.
Exterior Cantilevered Picket System Connection Details

Connection Detail	Detail Number	Description
Cantilevered Picket (Douglas Fir-Larch, Spruce-Pine-Fir, Hem-Fir Species)	ED-1	Picket screwed to rim joist
	ED-2	Picket screwed to rim joist, where guard is parallel to floor joists
Cantilevered Picket (Northern Species)	ED-3	Picket screwed to rim joist and deck
	ED-4	Picket screwed to rim joist and deck, where guard is parallel to floor joists
Cantilevered Picket (Douglas Fir-Larch, Spruce-Pine-Fir, Hem-Fir Species, Northern Species)	ED-5	Corner
Column 1	2	3

Section 3 Interior Guards

3.1. Materials

3.1.1. Lumber and Wood Products

(1) Lumber species used for a primary loadbearing element in a guard shall be a species listed in the Table 3.1.2.

(2) Except as provided in Sentence (4), the minimum grade of softwood dimension lumber for posts, rails and joists shall be Northern Species, No. 2.

(3) Except as provided in Sentence (4), the minimum grade of softwood dimension lumber for cantilevered pickets shall be Northern Species, No. 2 Picket grade.

(4) White pine and hemlock lumber used for posts, rails and non-cantilevered pickets shall be clear straight grain material.

(5) Oak, maple and yellow poplar lumber used for posts, rails and pickets shall be clear straight grain material.

3.1.2. Lumber Dimensions

(1) The minimum sizes of loadbearing elements of wood guards shall conform to Table 3.1.2.

3.1.3. Floor Construction

(1) The minimum dimensions of wood floor joists and wood subflooring shall conform to Table 3.1.3. (See A-2.1.3. in Appendix A.)

3.1.4. Connectors

(1) Nails, screws, lag bolts and machine bolts shall not cause splitting of the wood elements. (See A-2.1.4. in Appendix A.) (See also A-2.1.4. in Appendix A for glued joints.)

3.2. Structural Details

3.2.1. Post and Rail System

(1) An interior guard constructed as a Post and Rail System shall conform to the applicable connection details listed in Table 3.2.1.

3.2.2. Cantilevered Picket System

(1) An interior guard constructed as a Cantilevered Picket System shall conform to the applicable connection details listed in Table 3.2.2.

3.2.3. Guards for Stairs

(1) An interior guard for a stair shall conform to the appropriate connection details listed in Table 3.2.3.

Table 3.1.2.
Minimum Size of Loadbearing Elements

Guard Element	Species	Minimum Size, mm (in)	Detail Number(1)
Post	Oak, Maple	70 x 70 (2 3/4" x 2 3/4") Base, 45 (1 3/4") Turned Diameter	IB-1, IG-1, IG-2, IG-3
	Hemlock, White Pine, Yellow Poplar	82 x 82 (3 1/4" x 3 1/4") Base, 50 (2") Turned Diameter	IB-1, IG-1, IG-2, IG-3
Post in a Volute	Oak, Maple	70 x 70 (2 3/4" x 2 3/4") Base, 50 (2") Turned Diameter	IG-4
Top Rail	Oak, Maple	41 x 67 (1 5/8" x 2 5/8")	IA-1, IF-1
Bottom Rail	Oak, Maple	41 x 67 (1 5/8" x 2 5/8")	
		19 x 67 (3/4" x 2 5/8"), if continuously supported	
Infill Picket	Oak, Maple	20 (3/4") Diameter	IC-1, IC-2
	Yellow Poplar	22 (7/8") Diameter	
	White Pine, Hemlock	24 (31/32") Diameter	
Picket in a Volute	Oak, Maple	32 x 32 (1 9/32" x 1 9/32") Base, 20 (3/4") Turned Diameter	IG-4
	Yellow Poplar	45 x 45 (1 3/4" x 1 3/4") Base, 22 (7/8") Turned Diameter	IG-5, IG-6
	White Pine, Hemlock	45 x 45 (1 3/4" x 1 3/4") Base, 24 (31/32") Turned Diameter	
Cantilevered Picket	Northern Species, Douglas Fir-Larch, Spruce-Pine-Fir, Hem-Fir, Hardwood	32 x 32 (1 9/32" x 1 9/32")	IE-1, IH-1
Column 1	2	3	4

Notes to Table 3.1.2.:
1. This column lists details that incorporate the guard elements specified in this Table.

Table 3.1.3.
Minimum Size of Floor Elements

Floor Element	Minimum size, mm (in)
Subfloor	15.5 (5/8") plywood or equivalent
Dimension Lumber Joists	38 x 184 (2" x 8" nominal)
Column 1	2

Table 3.2.1.
Interior Post and Rail System Connection Details

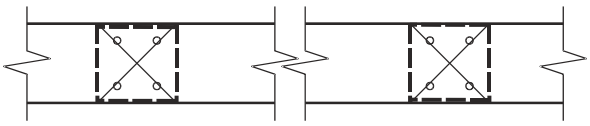
Connection Detail	Detail Number	Description
Top and/or Bottom Rail to Post	IA-1	Rail glued and screwed to post
Post to Floor	IB-1	Notched post glued and bolted to rim joist
Infill Picket	IC-1	Picket set into rails
	IC-2	Picket dowelled into rails
Stud Wall	ID-1	Wood stud and gypsum board
Column 1	2	3

Table 3.2.2.
Interior Cantilevered Picket System Connection Details

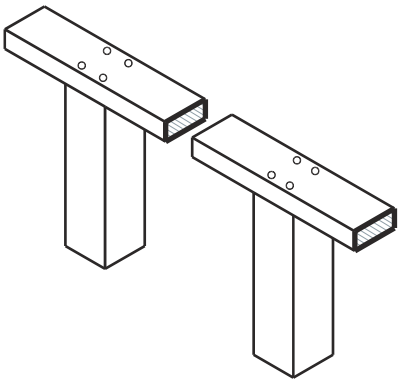
Connection Detail	Detail Number	Description
Picket to Floor	IE-1	Picket screwed to rim joist
Column 1	2	3

Table 3.2.3.
Interior Stair Guard Connection Details

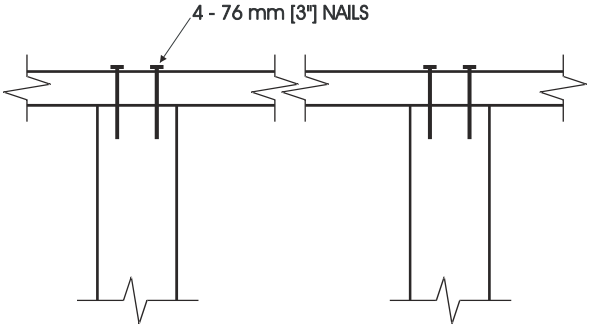
Connection Detail	Detail Number	Description
Rail to Post	IF-1	Top or bottom rail glued and screwed to post
Post to Floor and/or Picket Volute to Floor	IG-1	Notched post glued and screwed to stringer and riser
	IG-2	Post glued and screwed to stringer
	IG-3	Post glued and screwed to stringer and stud wall
	IG-4	Post and picket volute, oak or maple
	IG-5	Picket volute, 260 mm ($10^1/_4$") wide
	IG-6	Picket volute, 240 mm ($9^1/_2$") wide
Infill Picket	Detail IC-1 or IC-2 in Table 3.2.1., modified to suit a sloping installation, may be used.	
Cantilevered Picket	IH-1	Picket screwed to stair stringer
Column 1	2	3



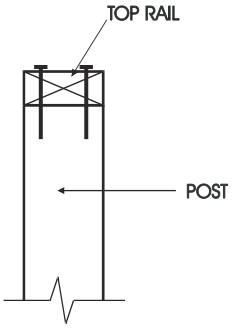
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

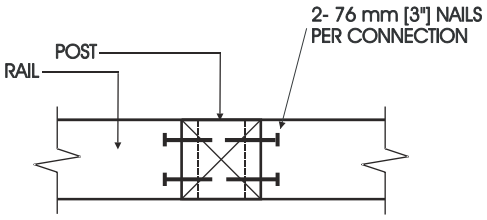
Detail EA-1

Exterior Connection: Top Rail Nailed to Post

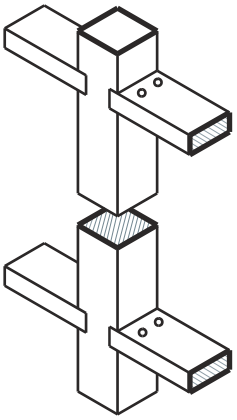
Notes:

1. The top rail must be continuous. Use Detail EA-5 at the end spans, where continuity ends.

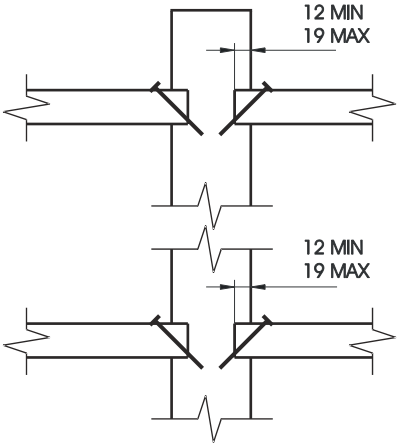
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.52 (5'-0")
Northern Species	1.52 (5'-0")
Column 1	2



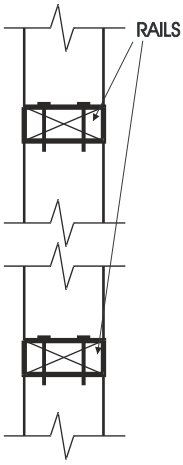
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

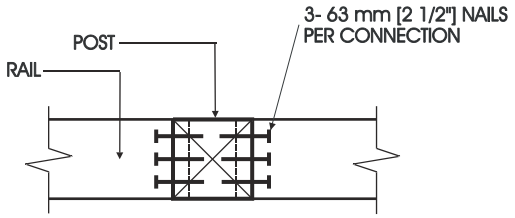
Detail EA-2

Exterior Connection: Top/Bottom Rail Skew Nailed to Post - 76 mm (3") Nails

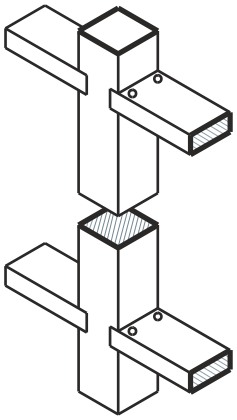
Notes:

1. The maximum span is more often governed by post spacing.
2. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
3. The bottom rail may be bevelled as detailed in Figure 2.1.2.
4. Dimensions shown are in mm unless otherwise specified.

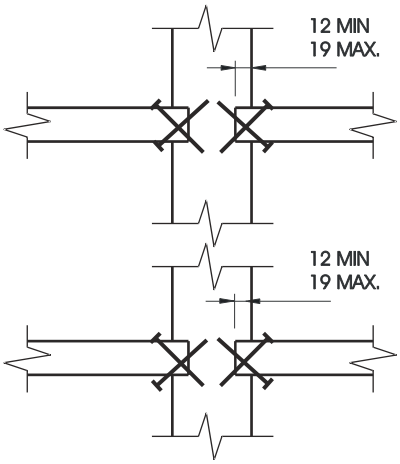
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



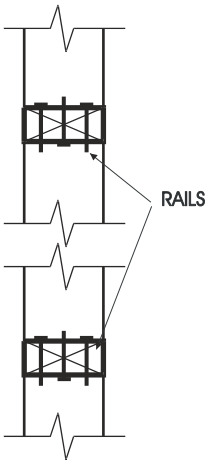
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

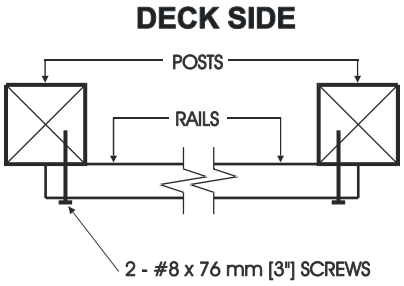
Detail EA-3

Exterior Connection: Top/Bottom Rail Skew Nailed to Post - 63 mm (2½") Nails

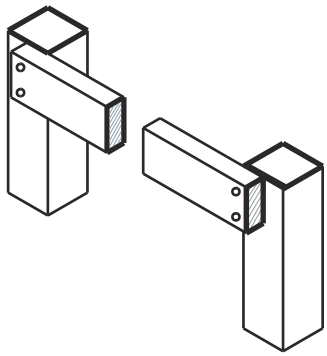
Notes:

1. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
2. The bottom rail may be bevelled as detailed in Figure 2.1.2.
3. Dimensions shown are in mm unless otherwise specified.

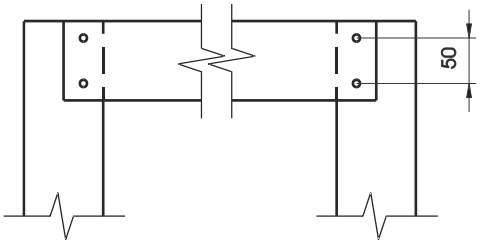
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



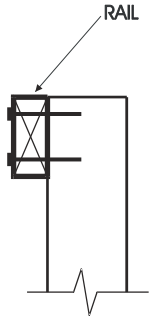
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

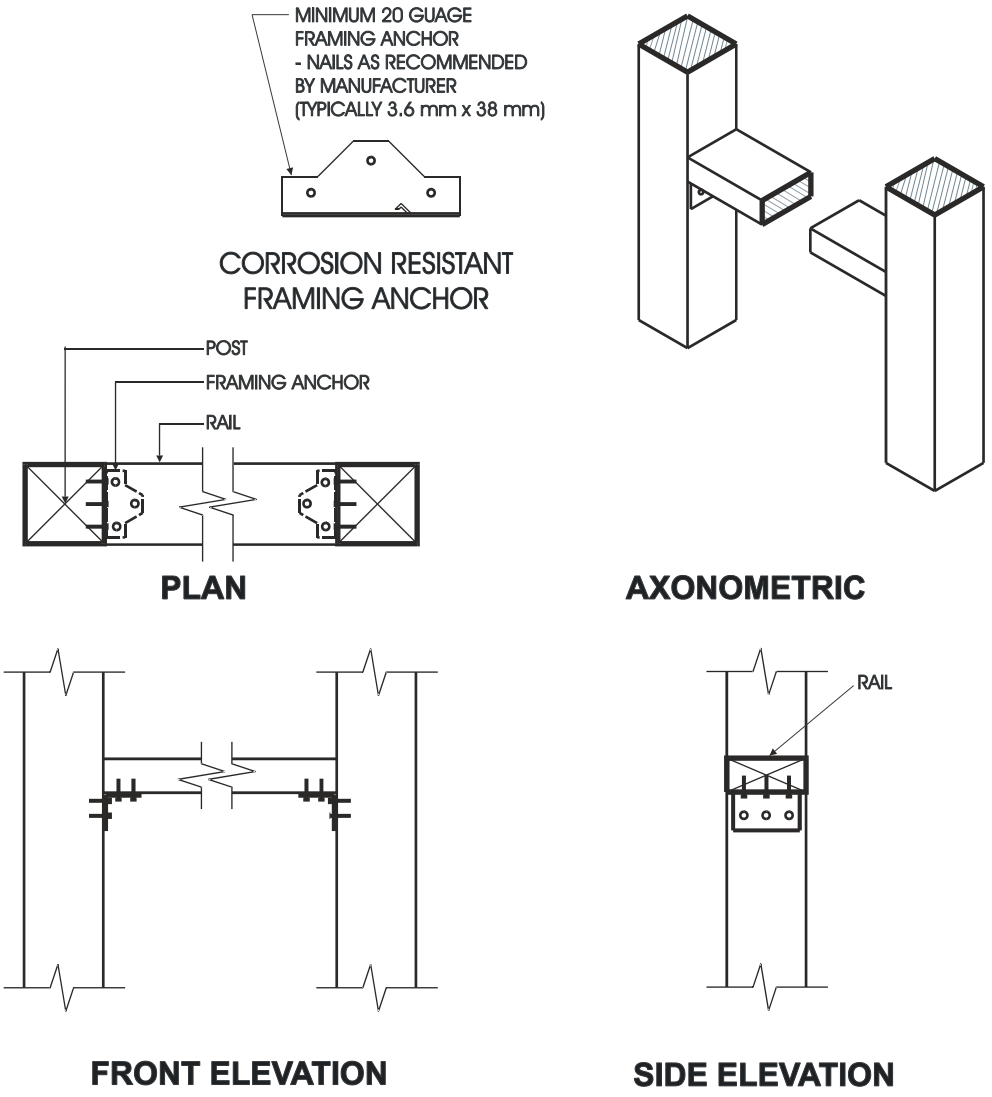
Detail EA-4

Exterior Connection: Top/Bottom Rail Face Nailed or Screwed to Post

Notes:

1. If the rails are located on the deck side of the posts, 76 mm (3") nails may be used in place of the screws.
2. Where the top rail is continuous, the top rail may be fastened to each post with 3 - #8 x 76 mm (3") screws.
3. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.77 (5'-10")
Northern Species	1.41 (4'-8")
Column 1	2



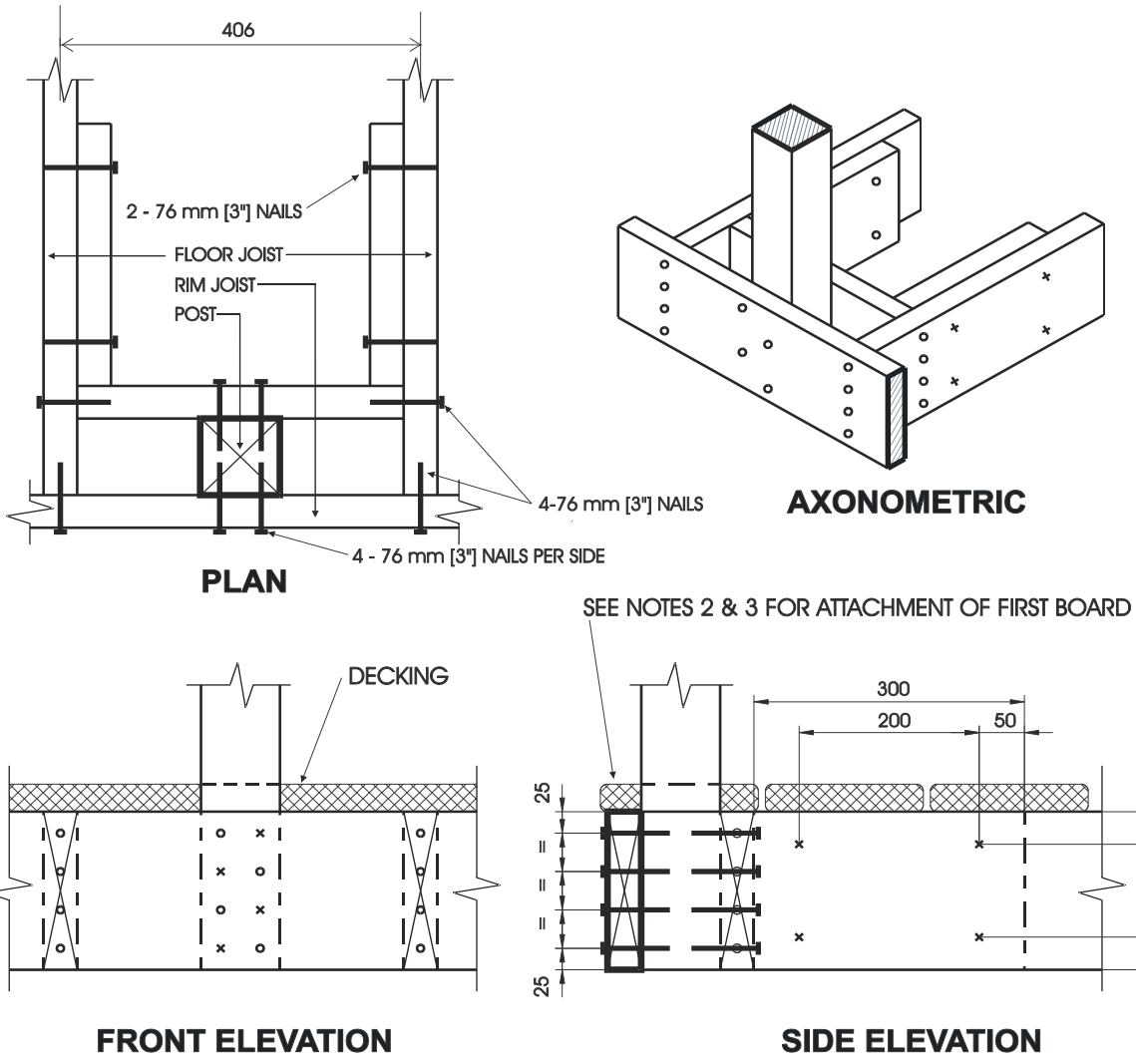
Detail EA-5

Exterior Connection: Top/Bottom Rail Fastened to Post with Framing Anchors

Notes:

1. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
2. The bottom rail may be bevelled as detailed in Figure 2.1.2.
3. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



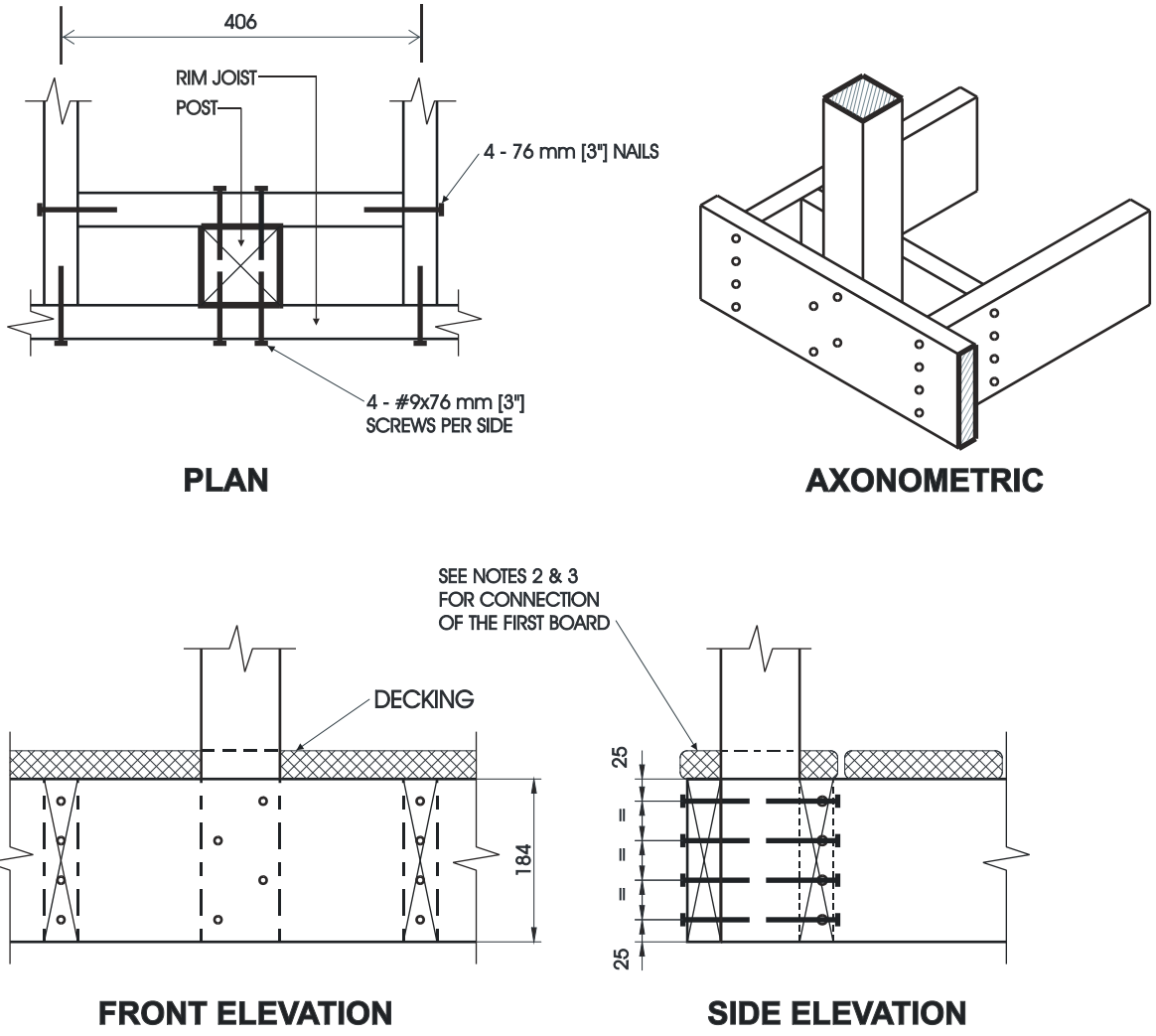
Detail EB-1

Exterior Connection: Post Nailed to Rim Joist

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. Fasten 25 mm x 140 mm ($^5/_4$" x 6" nominal) outer deck board to rim joist with 63 mm ($2^1/_2$") nails at 300 mm (12").
3. Fasten 25 mm x 140 mm ($^5/_4$" x 6" nominal) outer deck board to floor joist with 1 - 63 mm ($2^1/_2$") nail at each joist.
4. The post may be positioned anywhere between the joists.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.22 (4'-0")
Northern Species	1.20 (3'-11")
Column 1	2



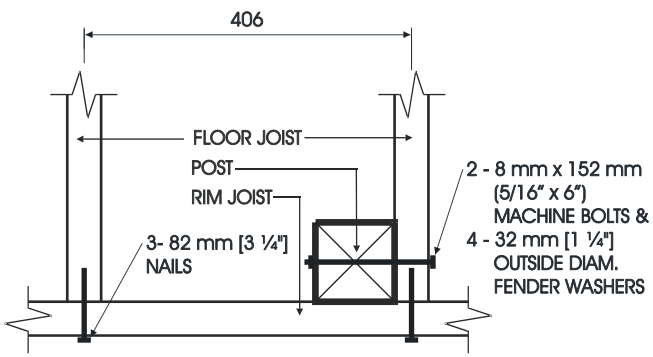
Detail EB-2

Exterior Connection: Post Screwed to Rim Joist

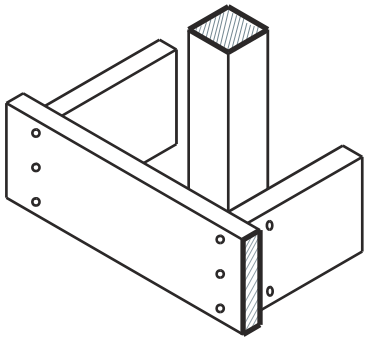
Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to rim joist with 63 mm (2 1/2") nails at 300 mm (12").
3. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to floor joist with 1 - 63 mm (2 1/2") nail at each joist.
4. The post may be positioned anywhere between the joists.
5. #9 screws may be replaced by #8 screws if the maximum spacing between posts is not more than 1.20 m (3'-11").
6. Dimensions shown are in mm unless otherwise specified.

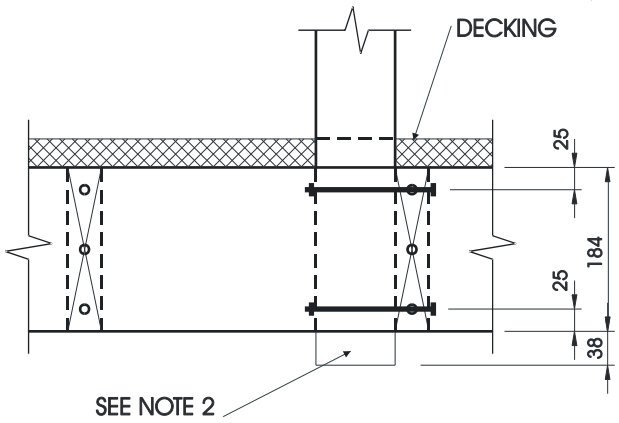
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.56 (5'-1")
Northern Species	1.20 (3'-11")
Column 1	2



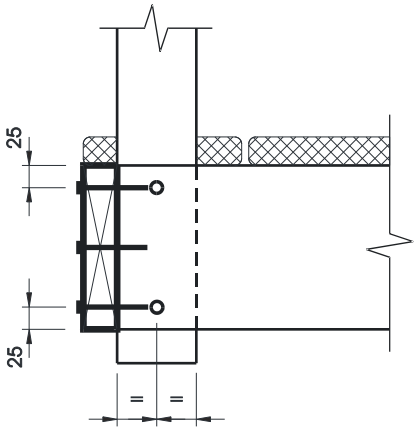
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

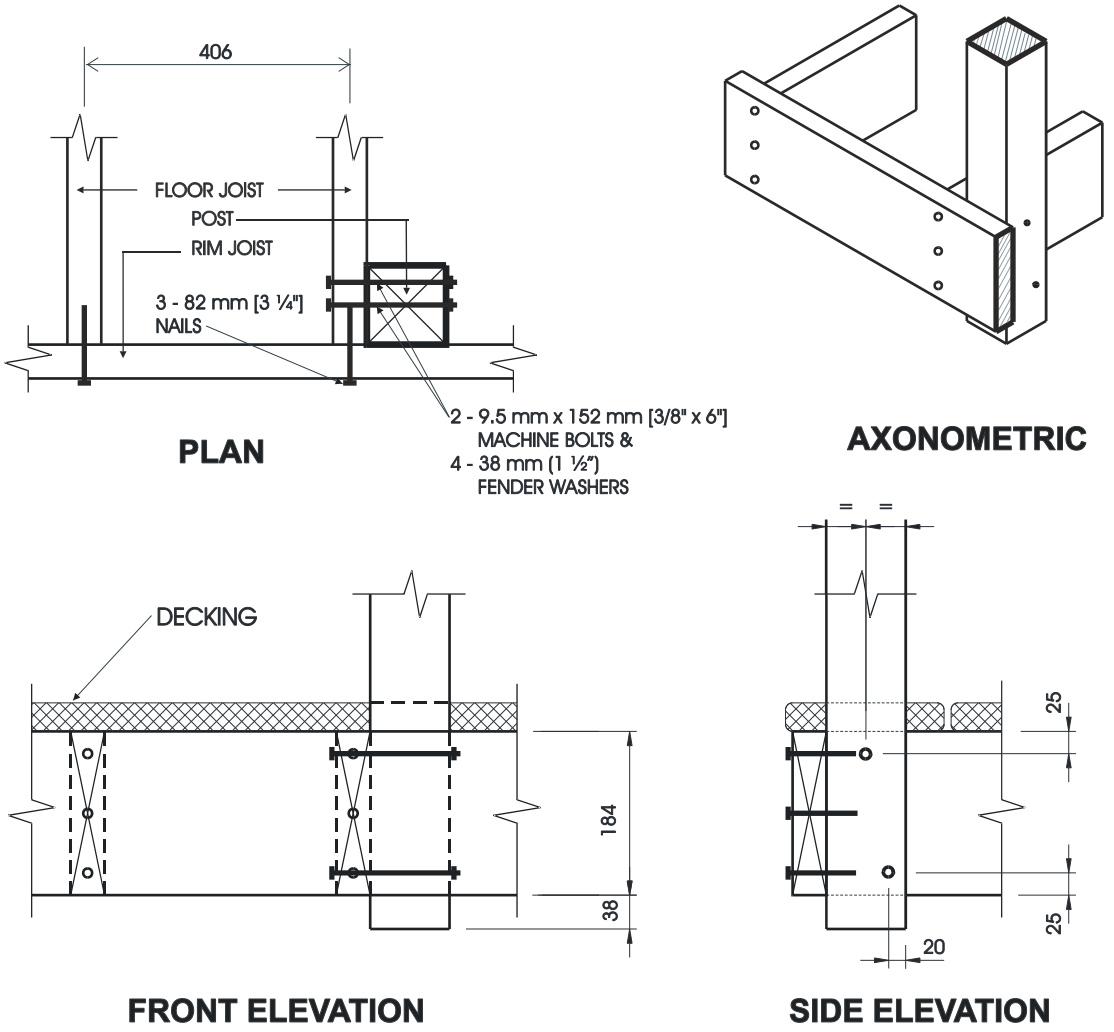
Detail EB-3

Exterior Connection: Post Bolted to Floor Joist - 8 mm (5/16") Bolts

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm ($1^1/_2$") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c.
4. Where floor joists are spaced at 610 mm (24") o.c., decking shall have a minimum thickness of 38 mm ($1^1/_2$") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.29 (4'-3")
Northern Species	1.20 (3'-11")
Column 1	2



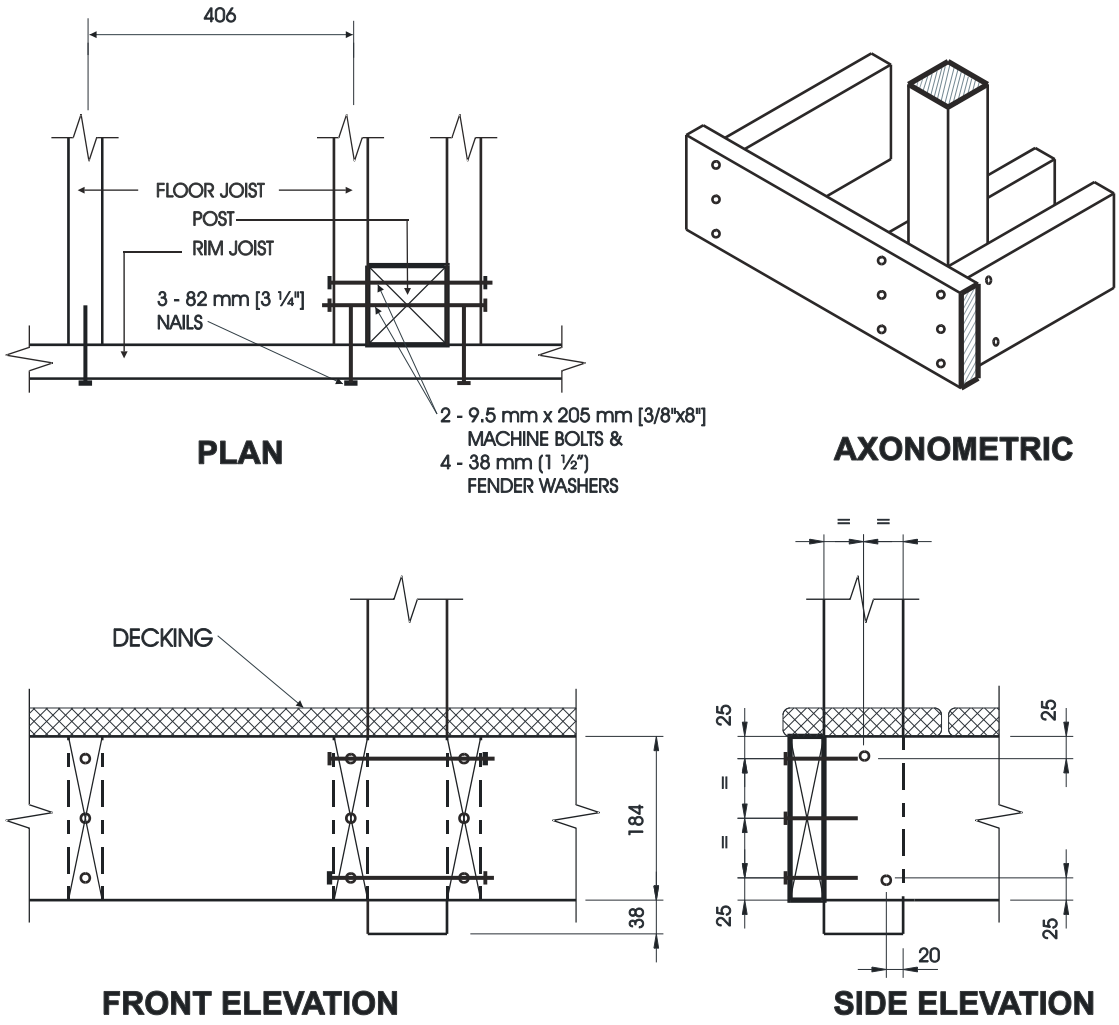
Detail EB-4

Exterior Connection: Post Bolted to Floor Joist - 9.5 mm (3/8") Bolts

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm ($1^1/_2$") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c.
4. Where floor joists are spaced at 610 mm (24") o.c., decking shall have a minimum thickness of 38 mm ($1^1/_2$") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.49 (4'-11")
Northern Species	1.20 (3'-11")
Column 1	2



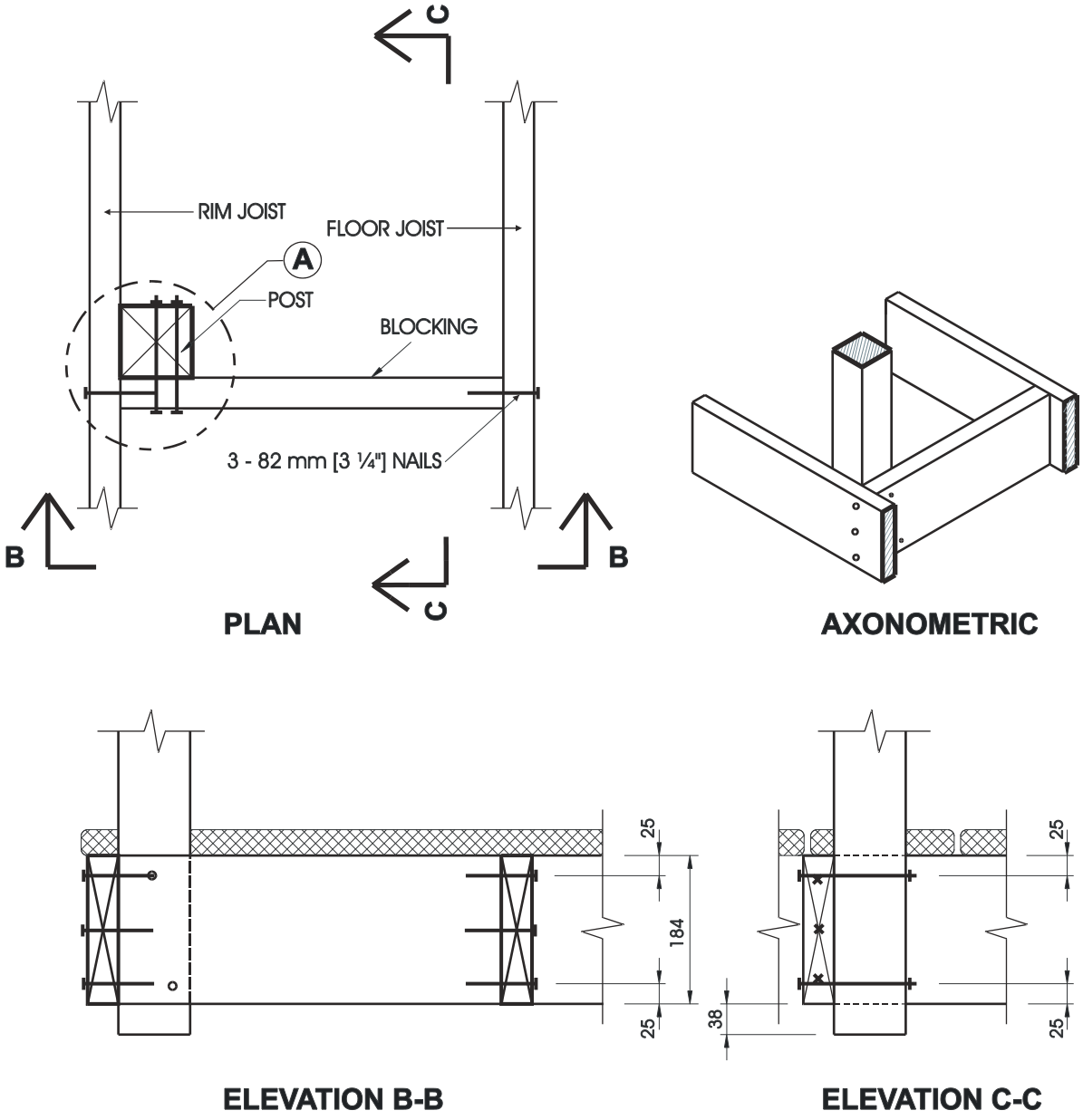
Detail EB-5

Exterior Connection: Post Bolted to 2 Floor Joists

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm ($1^1/_2$") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c..
4. Where floor joists are spaced at 610 mm (24") o.c. decking shall have a minimum thickness of 38 mm ($1^1/_2$") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.14 (7'-0")
Northern Species	1.20 (3'-11")
Column 1	2

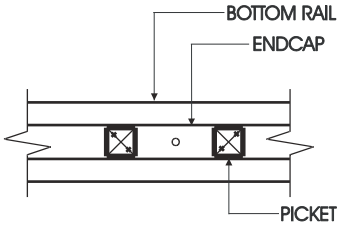


Detail EB-6

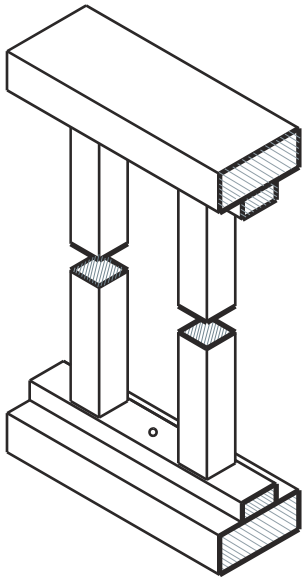
Exterior Connection: Post Fastened to Floor, Guard Parallel to Floor Joists

Notes:

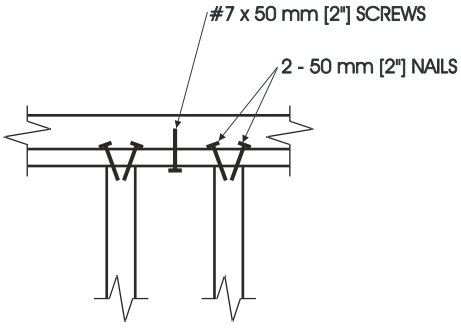
1. Use any of the connection details shown on Details EB-1 to EB-5 at location “A”. Connection Detail EB-4 is shown in this detail, as an example.
2. Maximum spacing between posts is determined from connection detail used at location “A”.
3. Decking is omitted from the plan view and the axonometric view for clarity.
4. Blocking shall be not less than 38 mm x 184 mm (2" x 8" nominal).
5. Dimensions shown are in mm unless otherwise specified.



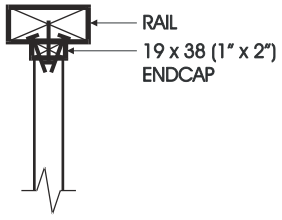
PLAN
BOTTOM RAIL



AXONOMETRIC



FRONT ELEVATION



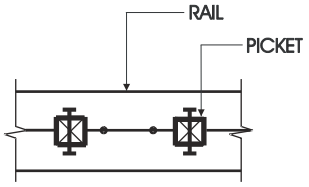
SIDE ELEVATION

Detail EC-1

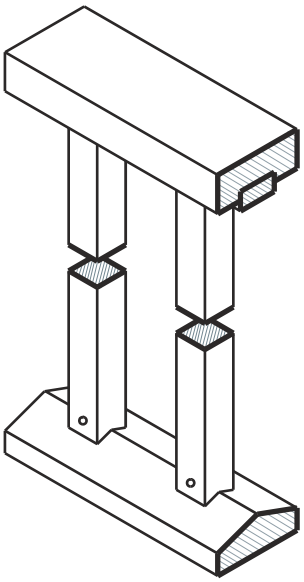
Exterior Connection: Infill Picket Nailed to Endcap - Endcap Screwed to Rail

Notes:

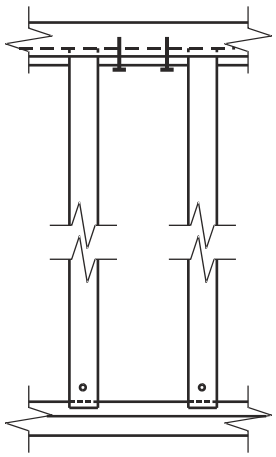
1. Fasten each end of each picket to endcaps with 2 - 50 mm (2") nails.
2. Fasten endcaps to rails with #7 x 50 mm (2") screws at 300 mm (12") o.c.
3. See Table 2.1.2. for minimum sizes of pickets.



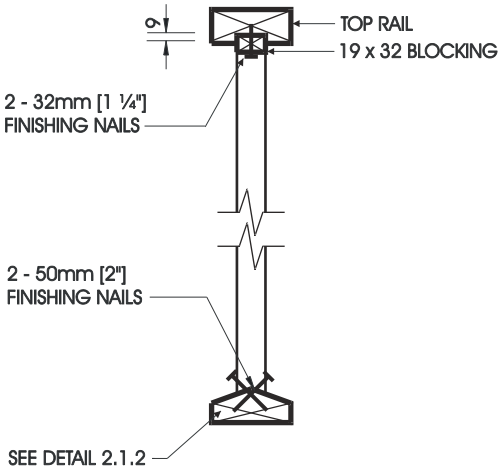
PLAN
BOTTOM RAIL



AXONOMETRIC



FRONT ELEVATION



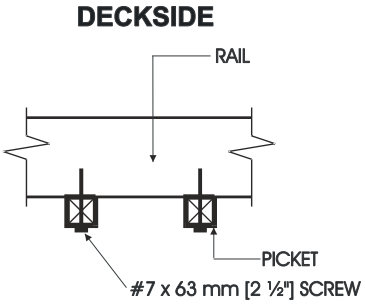
SIDE ELEVATION

Detail EC-2

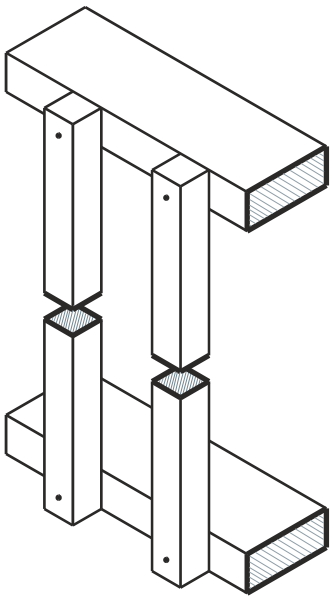
Exterior Connection: Infill Picket Nailed to Rail

Notes:

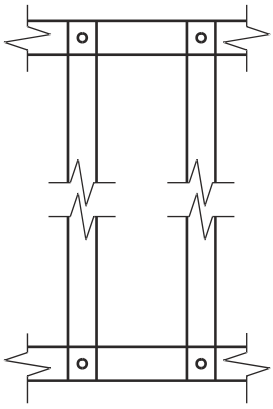
1. See Table 2.1.2. for minimum sizes of pickets.
2. Dimensions shown are in mm unless otherwise specified.



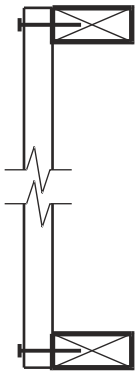
PLAN



AXONOMETRIC



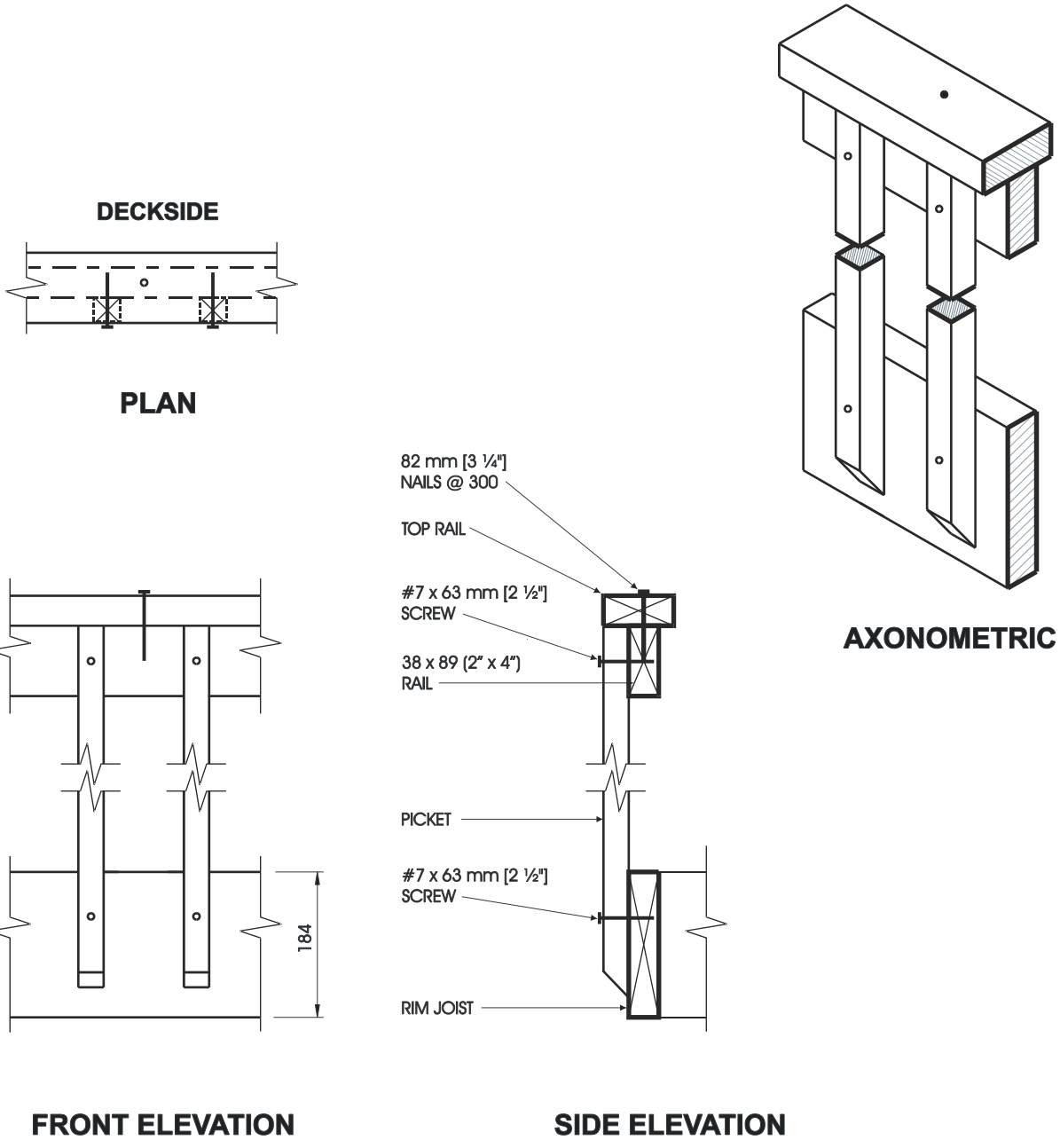
FRONT ELEVATION



SIDE ELEVATION

Detail EC-3

Exterior Connection: Infill Picket Screwed to Rail

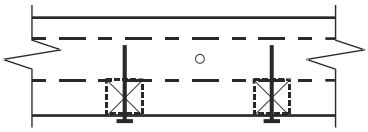


Detail EC-4

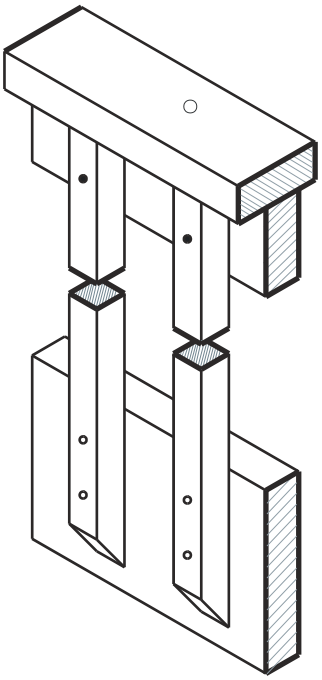
Exterior Connection: Infill Picket Screwed to Top Rail and Rim Joist

Note:

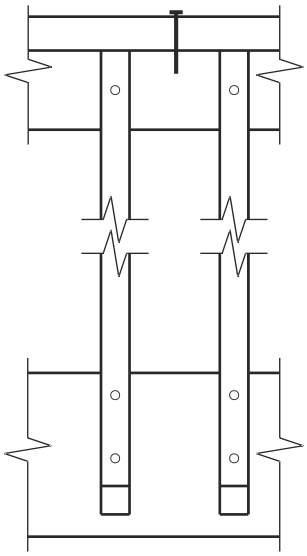
1. Dimensions shown are in mm unless otherwise specified.



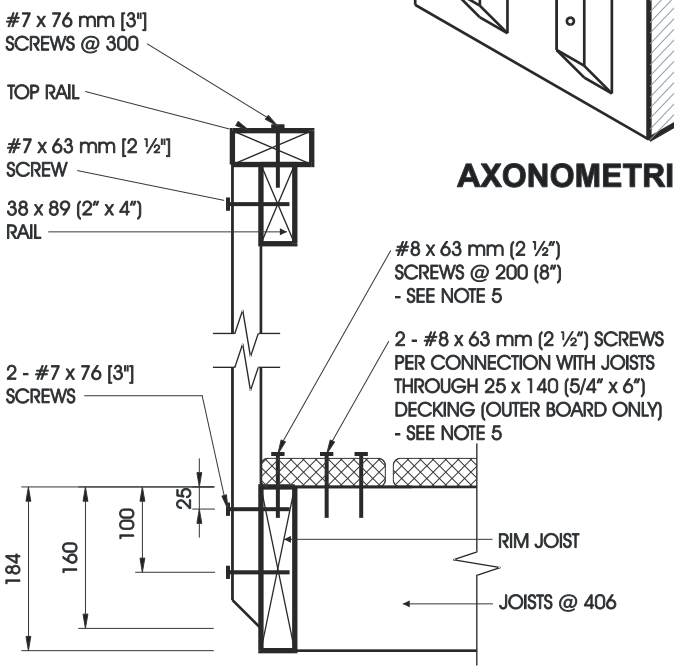
PLAN



AXONOMETRIC



FRONT ELEVATION



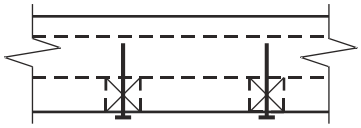
SIDE ELEVATION

Detail ED-1

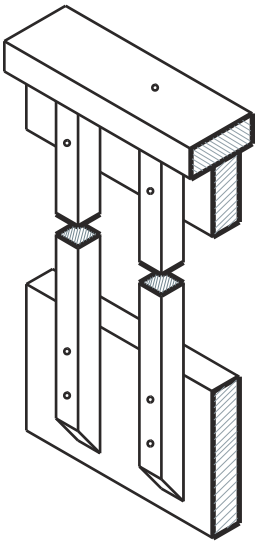
Exterior Connection: Cantilevered Picket Screwed to Rim Joist

Notes:

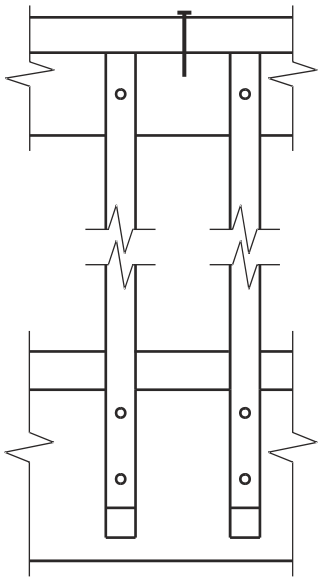
1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Douglas Fir-Larch, Spruce-Pine-Fir, or Hem-Fir Species.
3. Fasten rim joist to each floor joist with 3 - 82 mm ($3^{1}/_{4}$") nails.
4. Dimensions shown are in mm unless otherwise specified.
5. The outer deck board shall not be less than 140 mm (6" nominal) wide. Where 38 mm (2" nominal) thick boards are used, the length of the wood screws shall be not less than 76 mm (3").



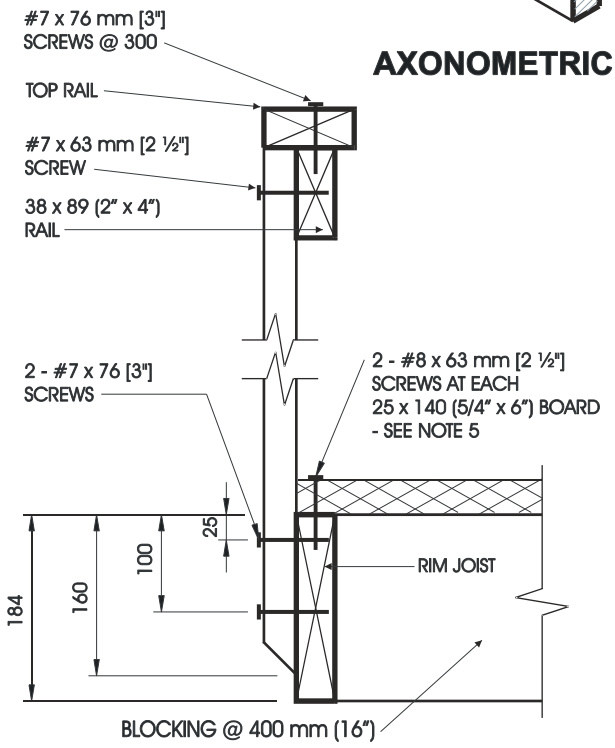
PLAN



AXONOMETRIC



FRONT ELEVATION



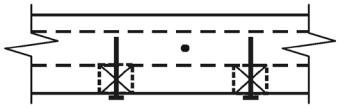
SIDE ELEVATION

Detail ED-2

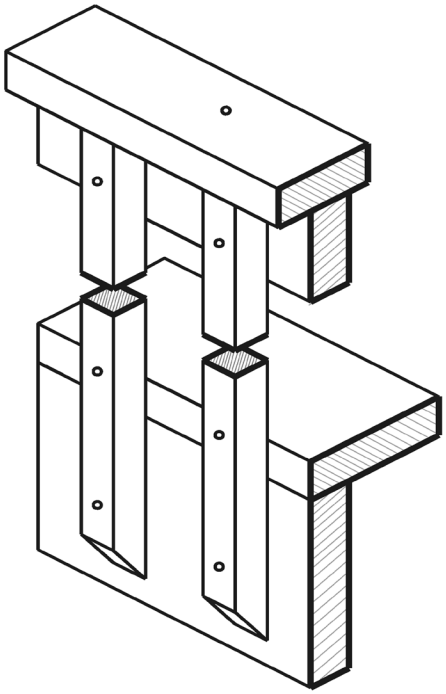
Exterior Connection: Cantilevered Picket Screwed to Rim Joist,
Guard Parallel to Floor Joists

Notes:

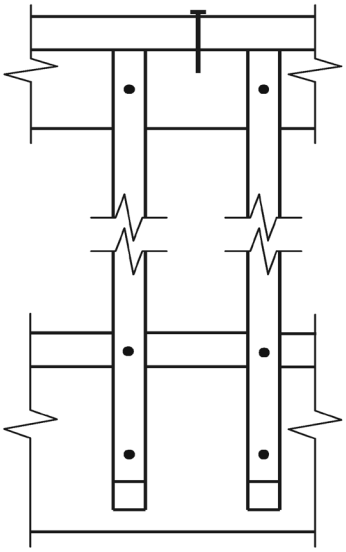
1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Douglas Fir-Larch, Spruce-Pine-Fir, or Hem-Fir Species.
3. Fasten rim joist to blocking with 3 - 82 mm (3¼") nails.
4. Dimensions shown are in mm unless otherwise specified.
5. Where 38 mm (2" nominal) thick boards are used, the length of the wood screws shall be not less than 76 mm (3").



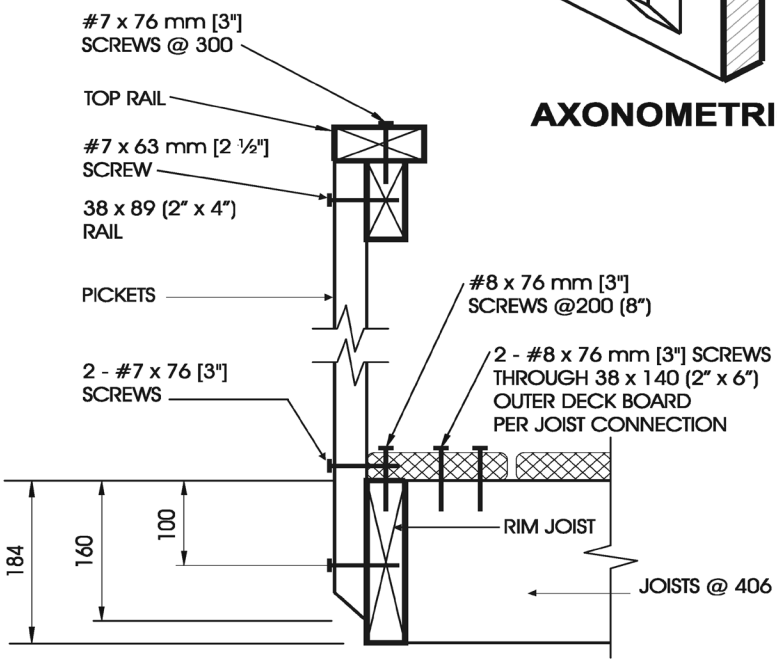
PLAN



AXONOMETRIC



FRONT ELEVATION



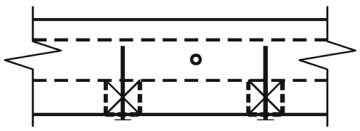
SIDE ELEVATION

Detail ED-3

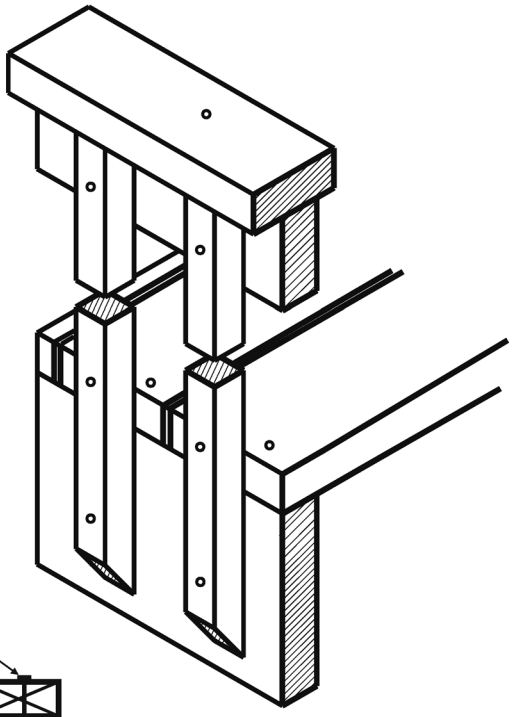
Exterior Connection: Cantilevered Picket Screwed to Rim Joist and Deck

Notes:

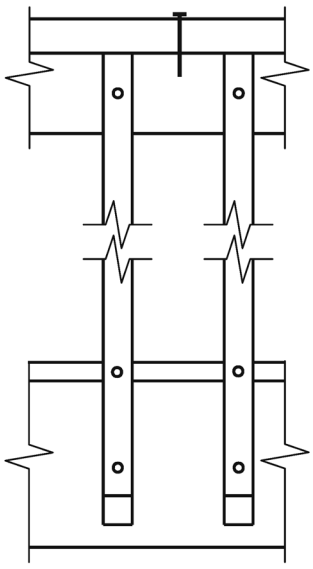
1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Northern Species.
3. Fasten rim joist to each floor joist with 3- 82 mm ($3^1/_4$") nails.
4. Dimensions shown are in mm unless otherwise specified.



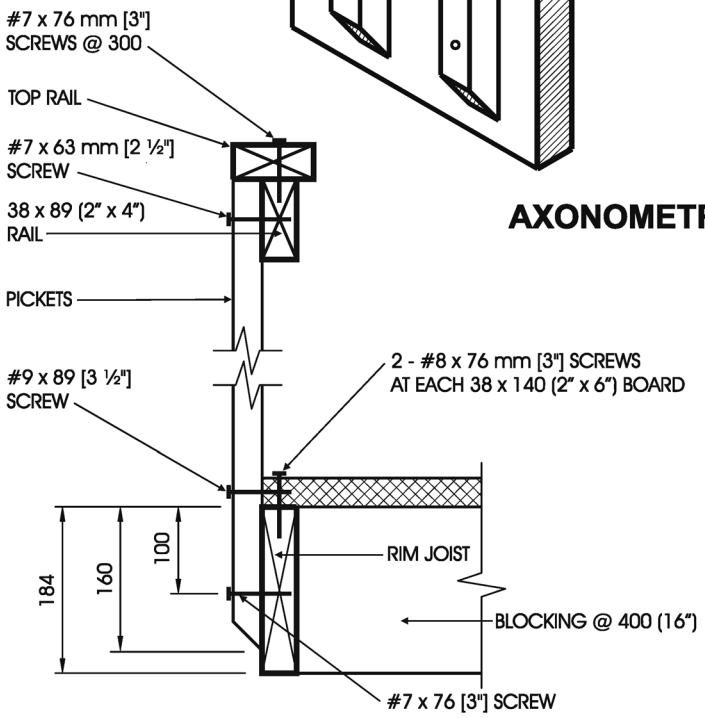
PLAN



AXONOMETRIC



FRONT ELEVATION



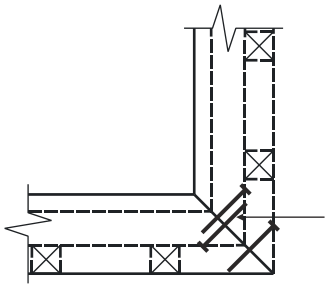
SIDE ELEVATION

Detail ED-4

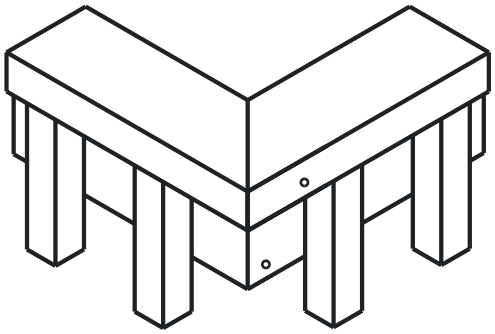
Exterior Connection: Cantilevered Picket Screwed to Rim Joist and Deck, Guard Parallel to Floor Joists

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Northern Species.
3. Fasten rim joist to blocking with 3 - 82 mm ($3^1/_4$") nails.
4. Dimensions shown are in mm unless otherwise specified.

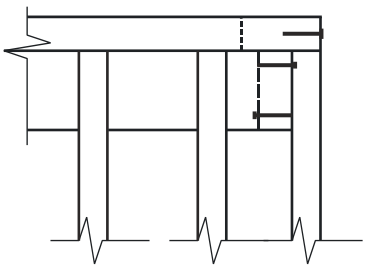


PLAN TOP RAIL

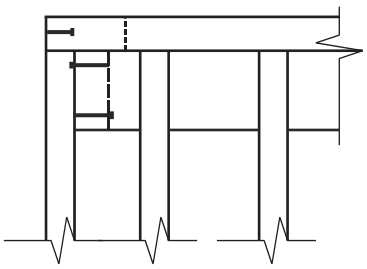


AXONOMETRIC

ONE FASTENER IN HORIZONTALLY ORIENTATED PORTION OF TOP RAIL
AND TWO IN VERTICALLY ORIENTATED PORTION.



FRONT TOP RAIL



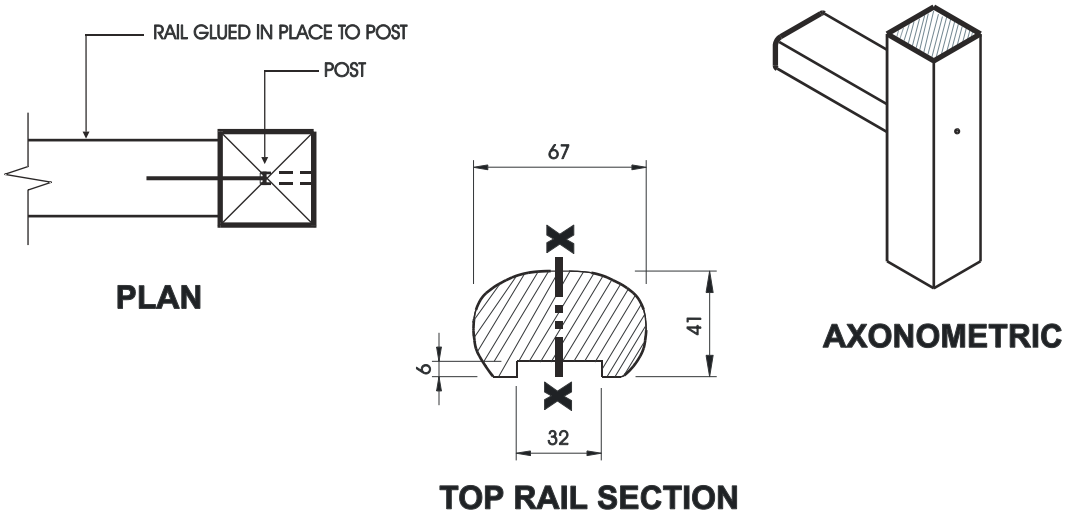
SIDE TOP RAIL

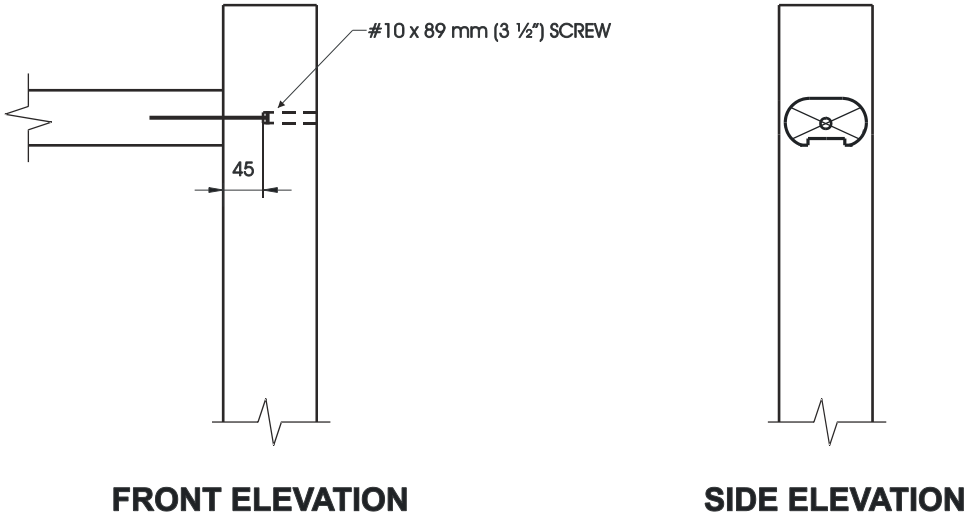
Detail ED-5

Exterior Connection: Corner Joint

Notes:

1. Screws fastening pickets are omitted for clarity.
2. Provide a minimum of 10 pickets beyond the return if end restraint of the guard is provided by this return detail only.





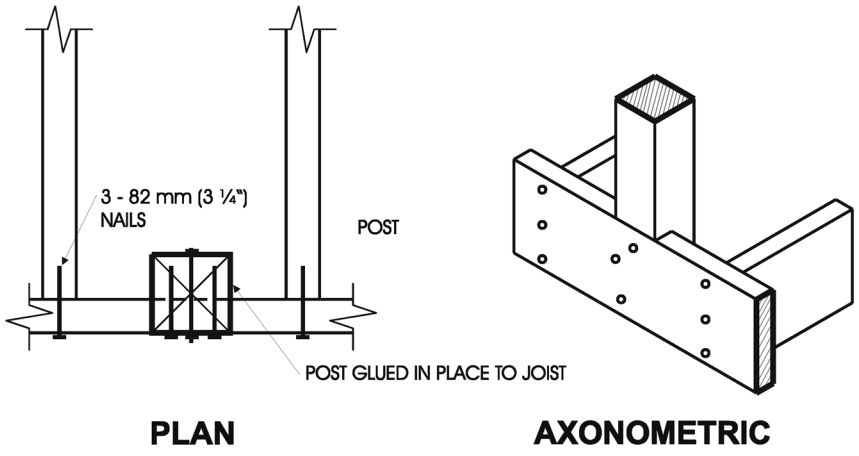
Detail IA-1

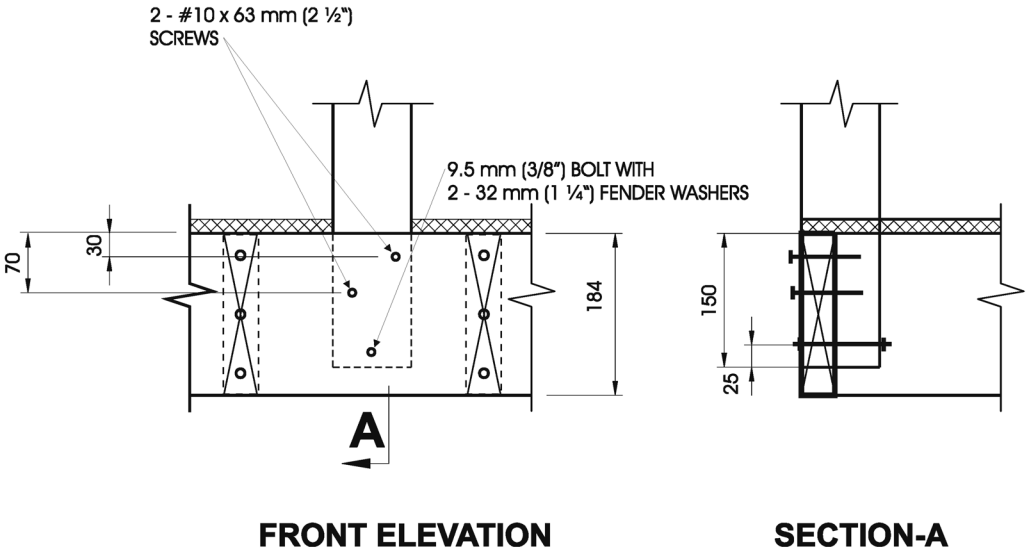
Interior Connection: Rail Glued and Screwed to Post

Notes:

1. Other top rail systems may be used provided the section modulus is not less than 24,000 mm^3, measured about the x-x axis.
2. Pickets omitted on drawing for clarity.
3. Connection details for fastening of pickets to rails are shown on Details IC-1 and IC-2.
4. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Oak, Maple	3.30 (10'-10")
Column 1	2





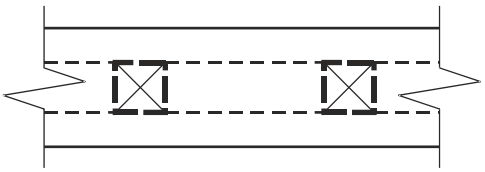
Detail IB-1

Interior Connection: Notched Post Glued and Bolted to Rim Joist

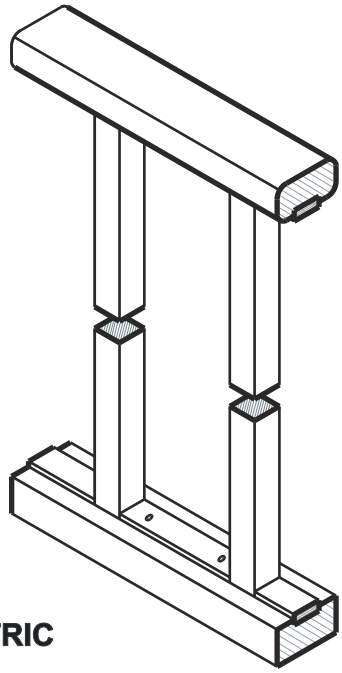
Notes:

1. Minimum dimension of post is 82 mm x 82 mm ($3^1/_4$" x $3^1/_4$").
2. Notch post 38 mm x 152 mm ($1^1/_2$" x 6") at rim joist.
3. Dimensions shown are in mm unless otherwise specified.

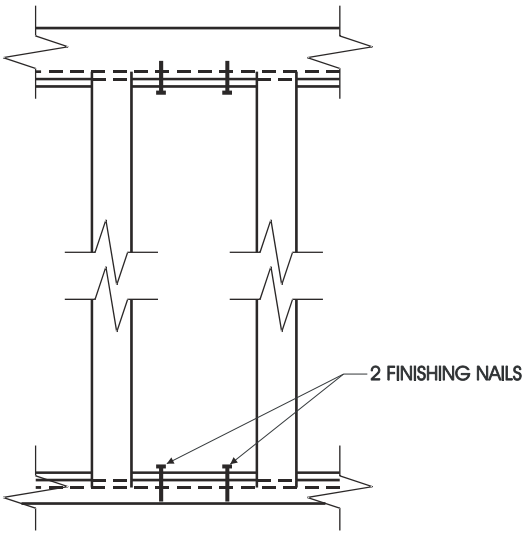
MAXIMUM SPACING BETWEEN POSTS	
Post Species	Maximum Span, m (ft-in)
Oak, Maple, Yellow Poplar, Hemlock, White Pine	3.30 (10'-10")
Column 1	2



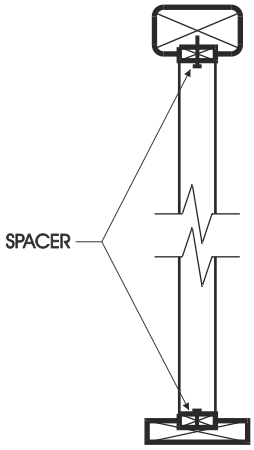
PLAN



AXONOMETRIC



FRONT ELEVATION



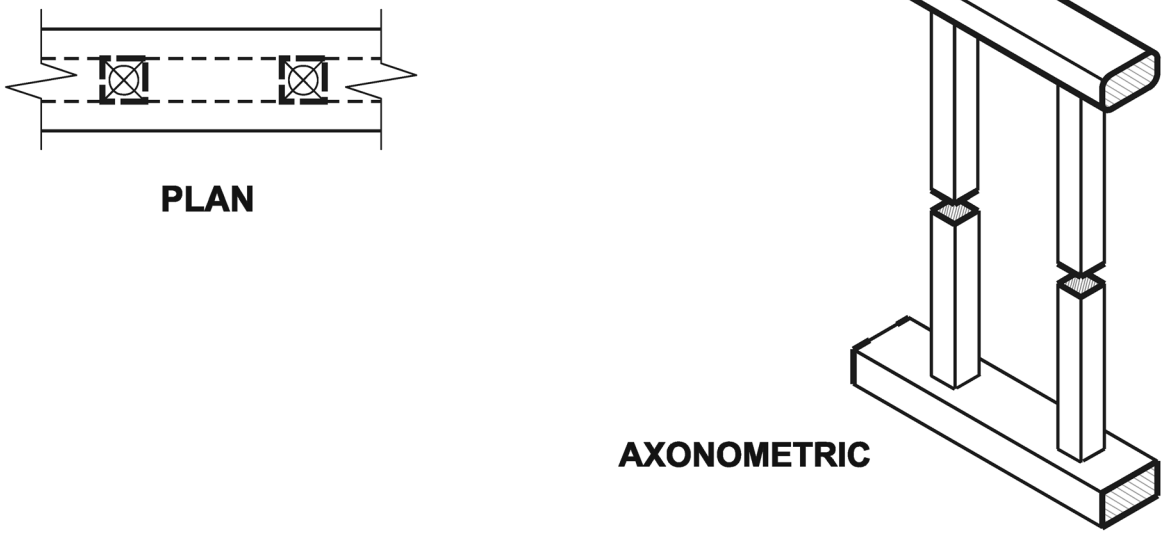
SIDE ELEVATION

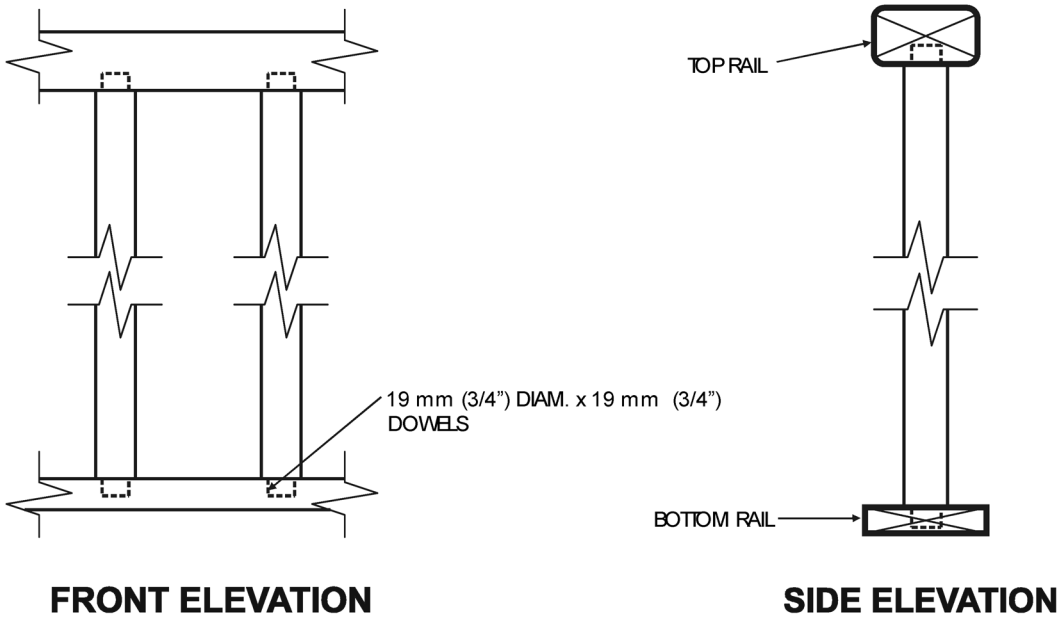
Detail IC-1

Interior Connection: Infill Picket Set into Rails

Notes:

1. See Table 3.1.2. for minimum sizes of pickets.
2. For top and bottom rail provide 6 mm (1/4") deep rabbet.



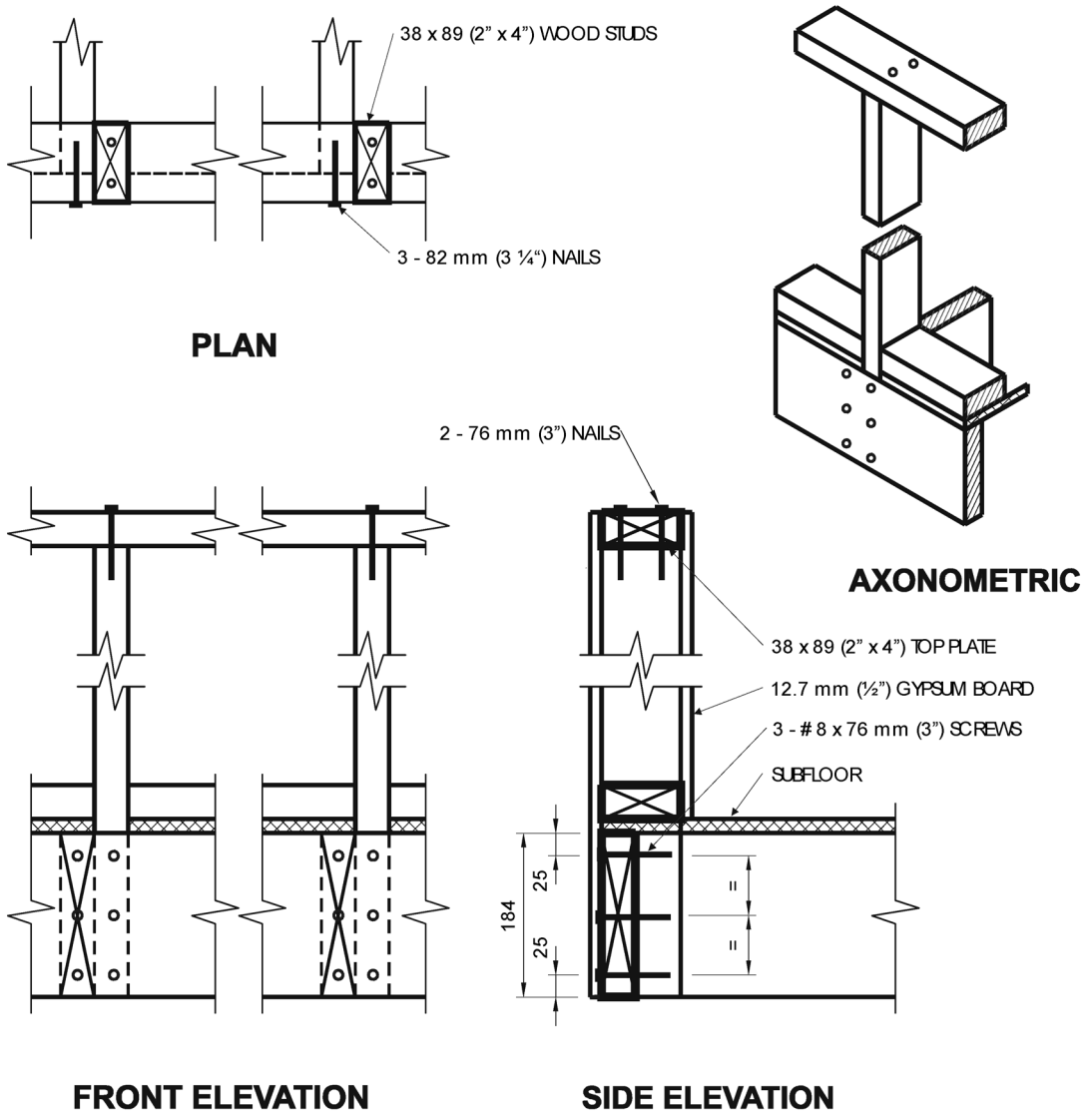


Detail IC-2

Interior Connection: Infill Picket Dowelled into Rails

Notes:

1. See Table 3.1.2 for minimum sizes of pickets.
2. Pickets dowelled 19 mm (3/4") deep into rails with 19 mm (3/4") diameter dowels.



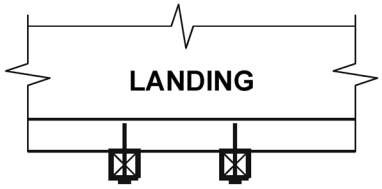
Detail ID-1

Interior Connection: Wood Stud and Gypsum Board Guard

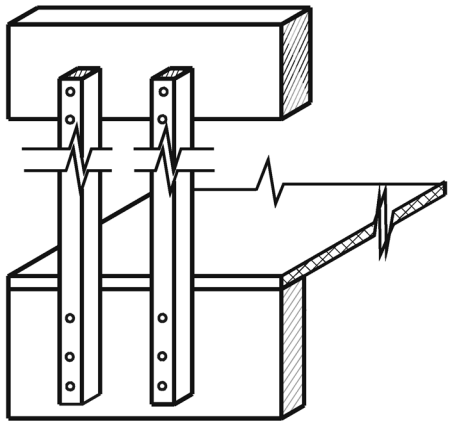
Notes:

1. Fasten plywood subfloor to joists with 50 mm (2") nails at 150 mm (6") oc along edges and at 300 mm (12") oc along intermediate supports.
2. Gypsum board omitted on plan, front elevation, and axonometric for clarity.
3. Dimensions shown are in mm unless otherwise specified.
4. Provide a suitable post, return, or solid support at each end of the guard.

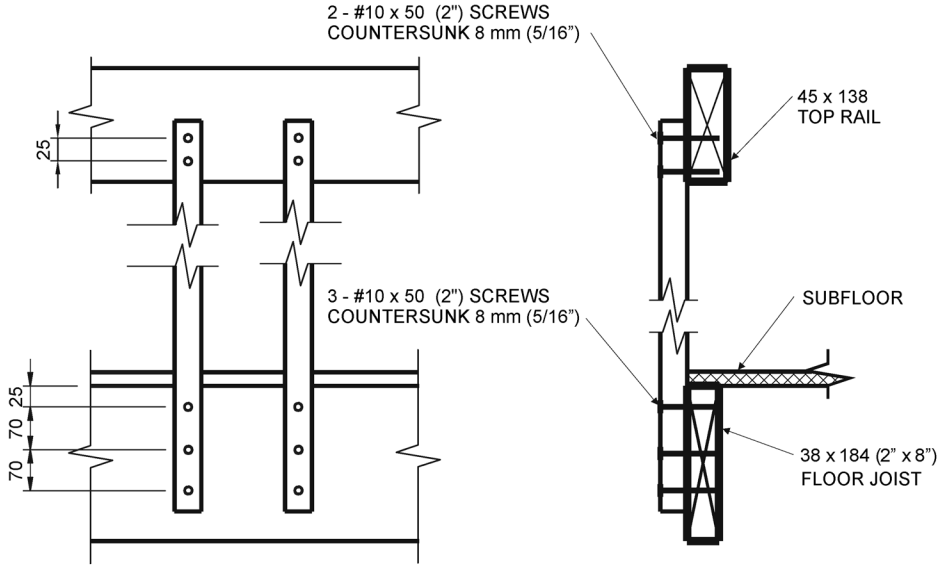
MAXIMUM SPACING BETWEEN WOOD STUDS	
Stud Species	Maximum Spacing, mm (in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, Northern Species	406 (16")
Column 1	2



PLAN



AXONOMETRIC



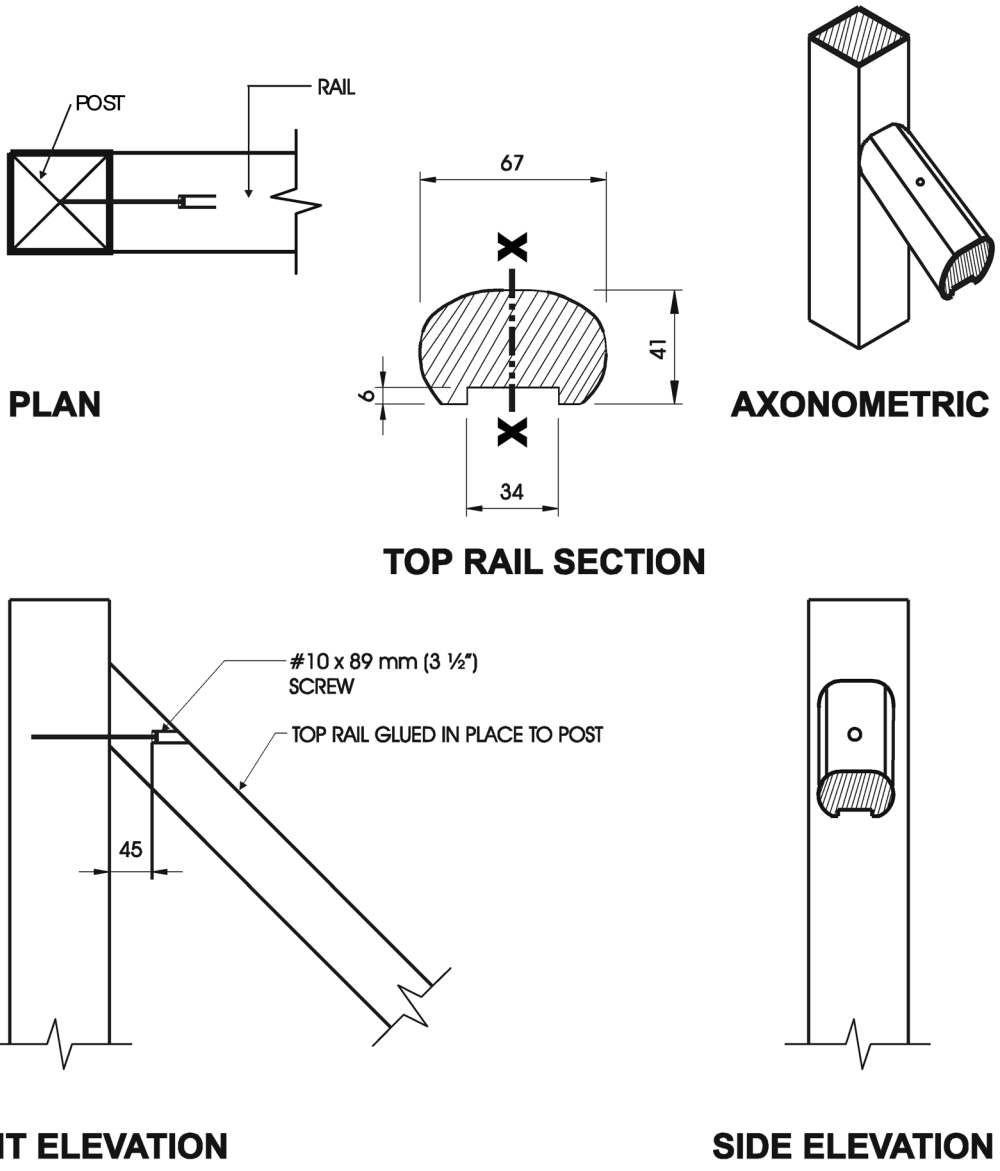
FRONT ELEVATION SIDE ELEVATION

Detail IE-1

Interior Connection: Cantilevered Picket Screwed to Rim Joist

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. See Table 3.1.2. for minimum sizes of pickets.
3. Dimensions shown are in mm unless otherwise specified.
4. Rim joist and top rail of oak or maple.



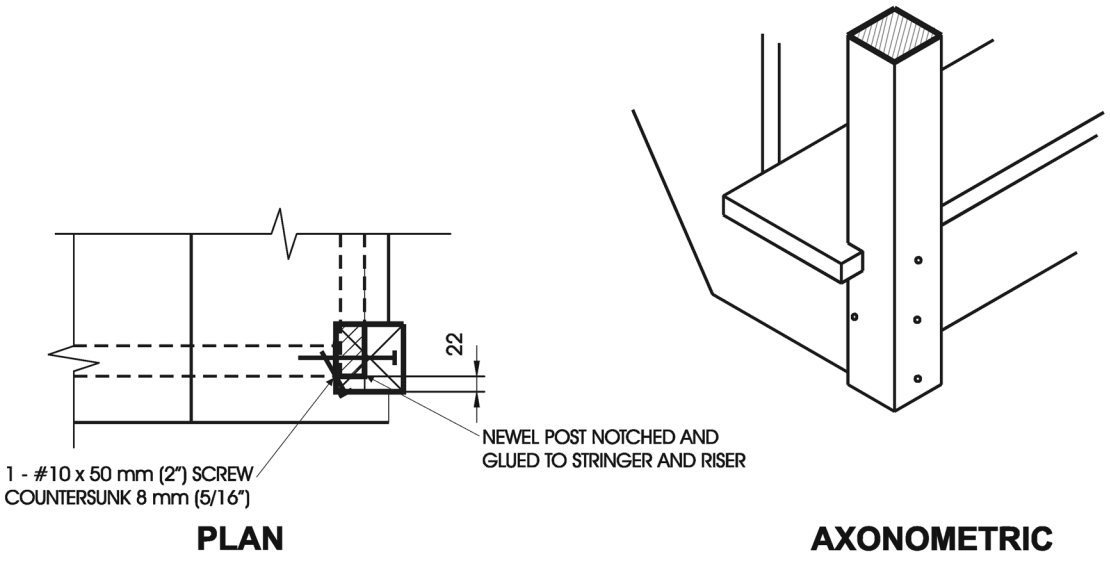
Detail IF-1

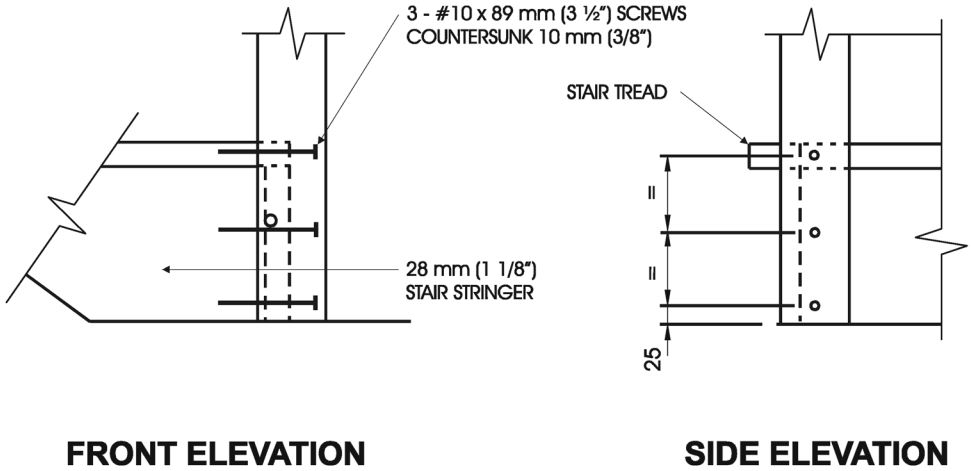
Interior Stair Guard Connection: Top/Bottom Rail Glued and Screwed to Post

Notes:

1. Maximum permitted span is based on a slope between 35° and 45° from the horizontal.
2. Minimum section modulus of top rail shall be 24,000 mm^3, measured about the x-x axis.
3. Pickets omitted on drawing, for clarity.
4. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.

MAXIMUM SPAN OF RAIL, MEASURED ALONG THE SLOPE	
Rail Species	Maximum Span, m (ft-in)
Oak, Maple	4.30 (14'-1")
Column 1	2





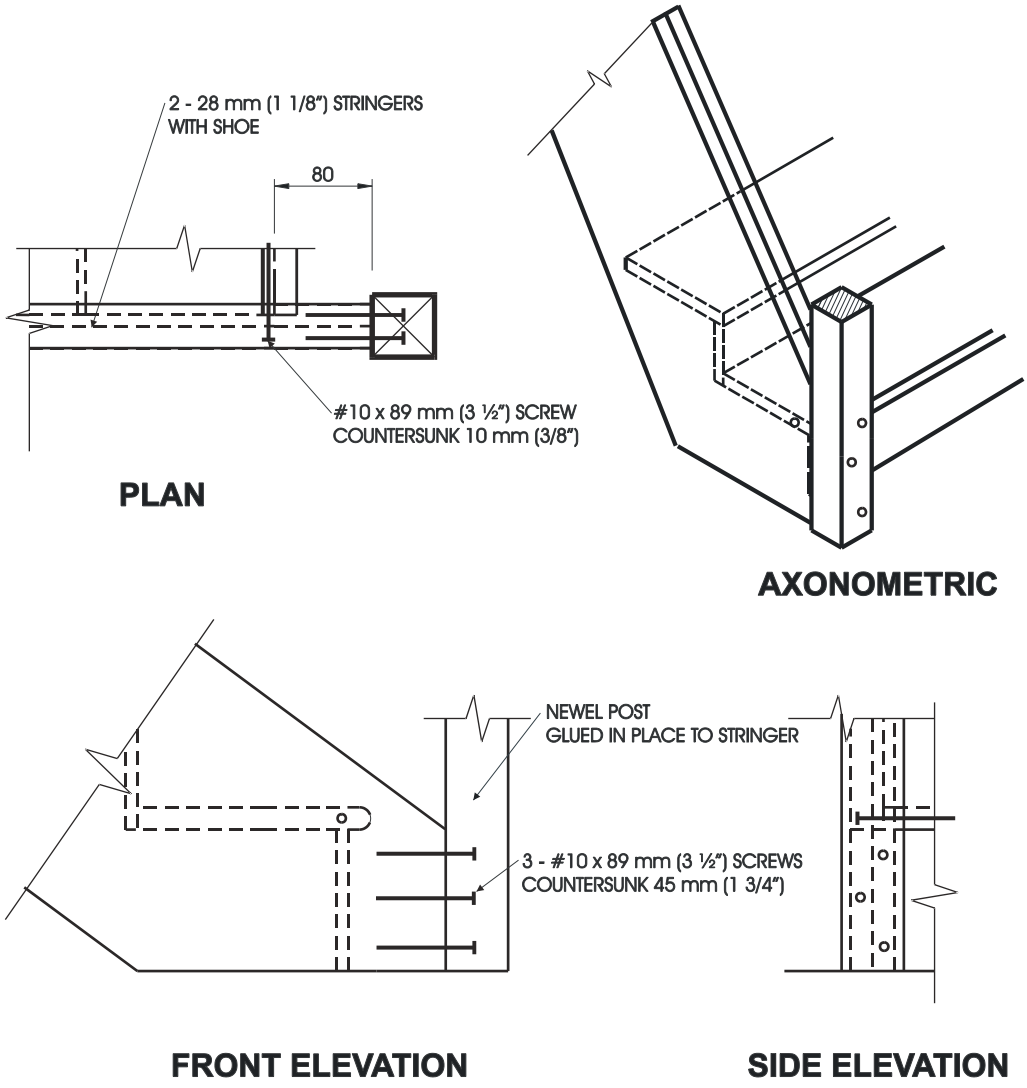
Detail IG-1

Interior Stair Guard Connection: Notched Post Glued & Screwed to Stringer & Riser

Notes:

1. Stringer shall be oak or maple.
2. Notch post 38 mm x 60 mm ($1\frac{1}{2}$" x $2\frac{3}{8}$") to fit over stair stringer.
3. Only the first riser and tread are shown, for clarity.
4. Minimum thickness of riser shall be 12 mm ($\frac{1}{2}$").
5. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
6. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Post Species	Maximum Span, m (ft-in)
Oak, Maple, Yellow Poplar, Hemlock, White Pine	3.30 (10'-10")
Column 1	2



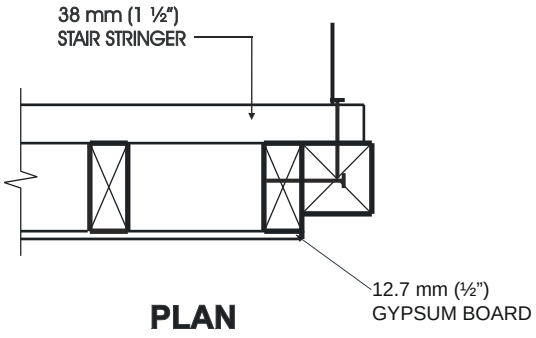
Detail IG-2

Interior Stair Guard Connection: Post Glued and Screwed to Stringer

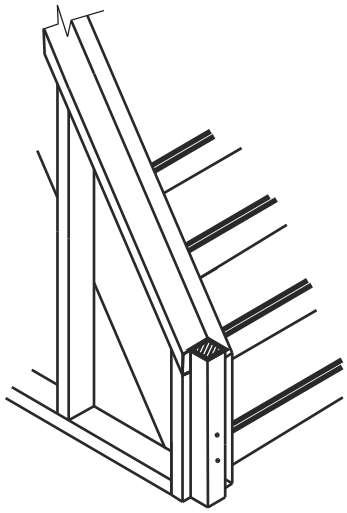
Notes:

1. Stringer shall be oak or maple.
2. Only the first riser and tread are shown, for clarity.
3. Minimum thickness of riser shall be 12 mm ($^1/_2$").
4. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
5. Dimensions shown are in mm unless otherwise specified.

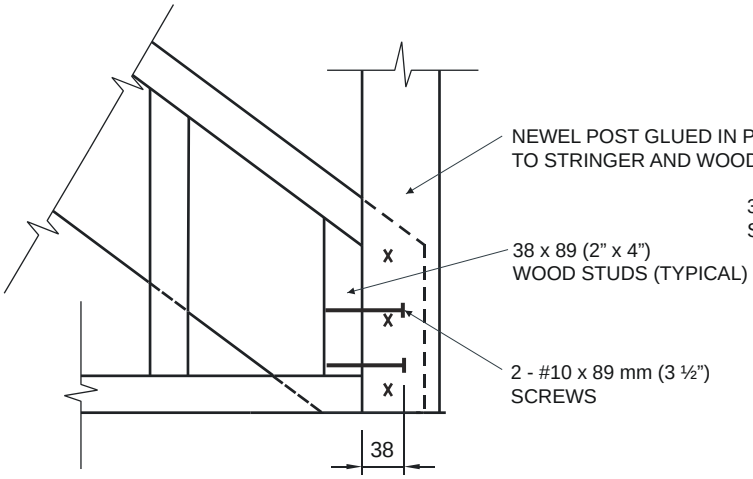
MAXIMUM SPACING BETWEEN POSTS	
Post Species	Maximum Span, m (ft-in)
Oak, Maple, Yellow Poplar, Hemlock, White Pine	3.30 (10'-10")
Column 1	2



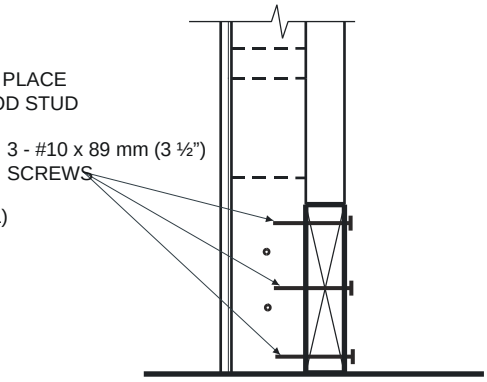
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

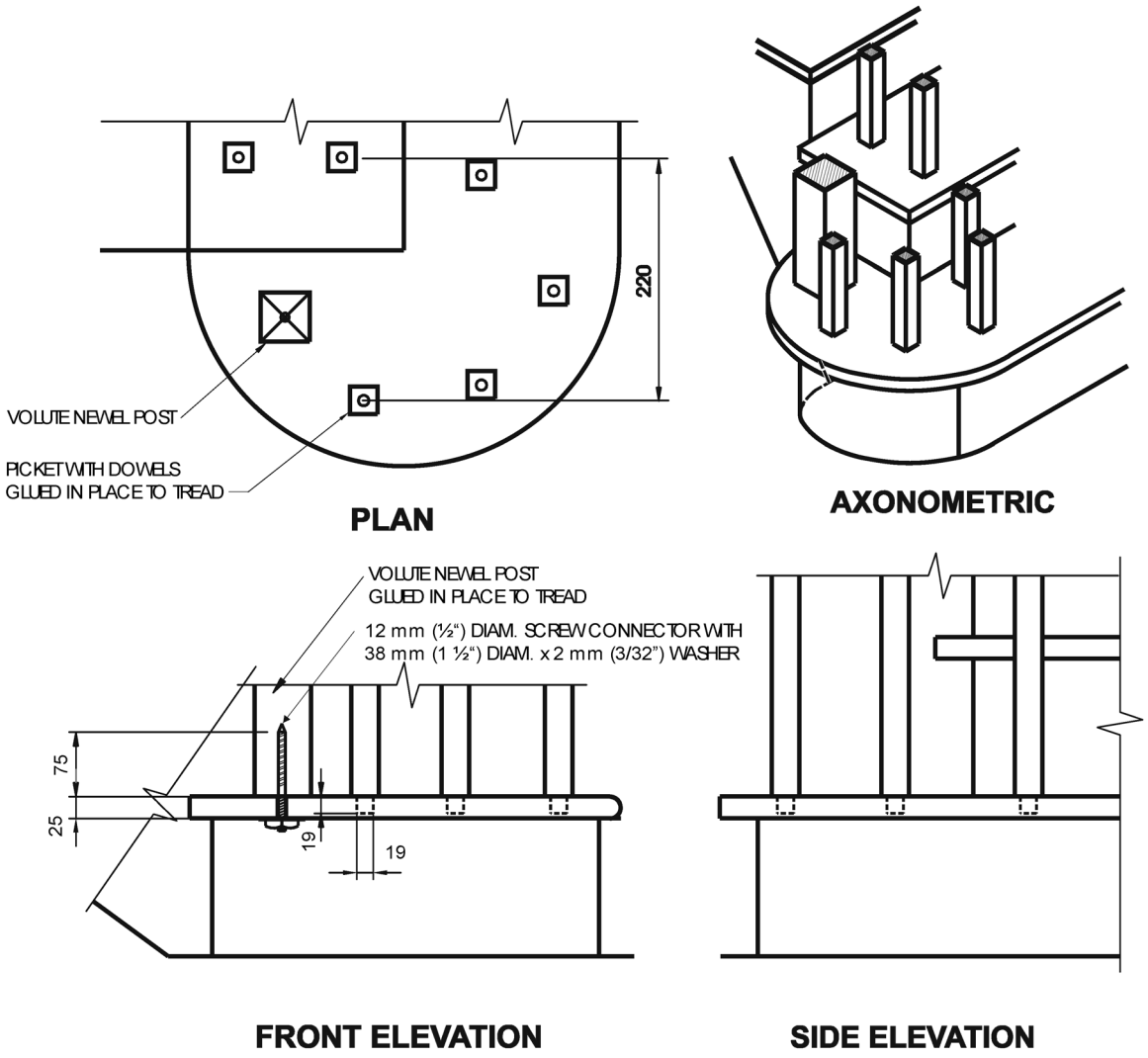
Detail IG-3

Interior Stair Guard Connection: Post Glued and Screwed to Stringer and Stud Wall

Notes:

1. Minimum thickness of riser shall be 12 mm (½").
2. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
3. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Post Species	Maximum Span, m (ft-in)
Oak, Maple, Yellow Poplar, Hemlock, White Pine	3.30 (10'-10")
Column 1	2



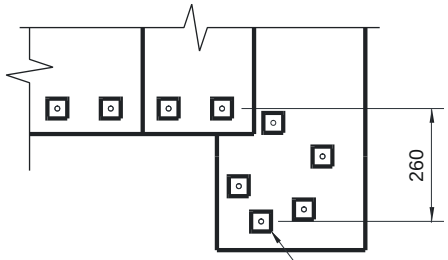
Detail IG-4

Interior Stair Guard Connection: Oak or Maple Post and Picket Volute

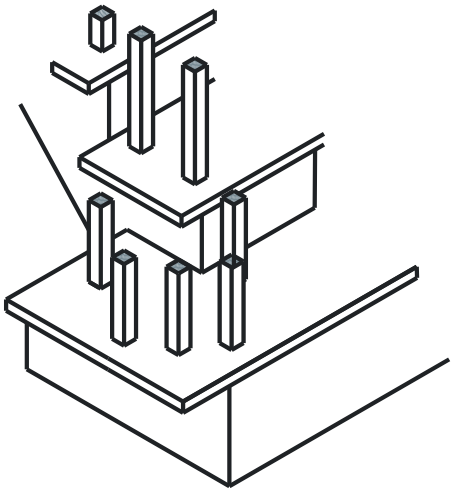
Notes:

1. Maximum permitted span is measured from the centre of the volute to a post or other solid support.
2. Other top rail systems may be used provided that the section modulus is not less than 24,000 mm^3, measured about the vertical axis.
3. Newel post and pickets in the volute shall be oak or maple. See Table 3.1.2. for minimum sizes of pickets.
4. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
5. Dimensions shown are in mm unless otherwise specified.

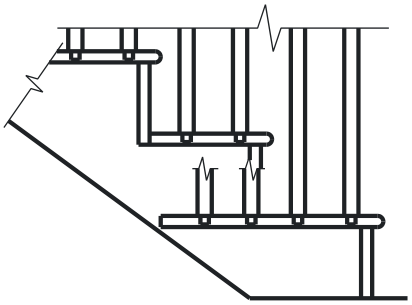
MAXIMUM SPAN OF RAIL, MEASURED ALONG THE SLOPE	
Post and Picket Species	Maximum Span, m (ft-in)
Oak, Maple	4.30 (14'-1")
Column 1	2



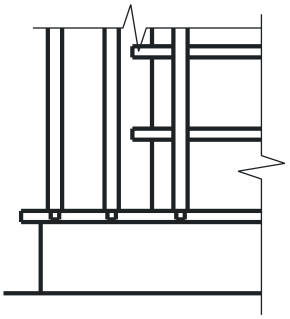
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

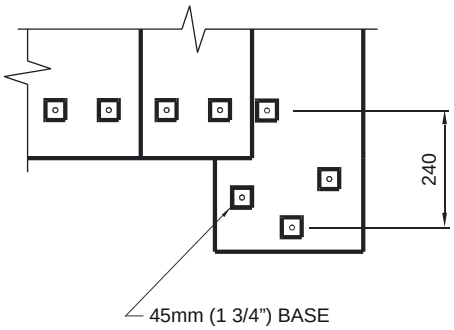
Detail IG-5

Interior Stair Guard Connection: Picket Volute, 260 mm ($10^1/_4$") Wide

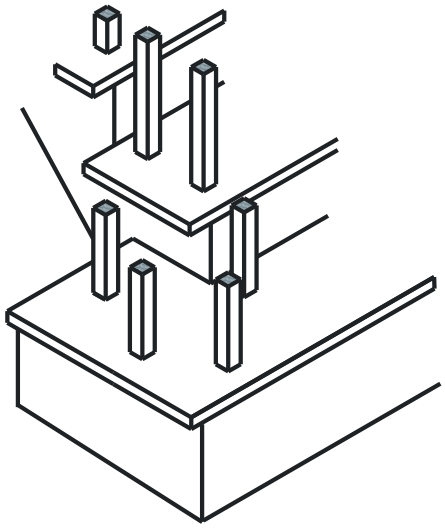
Notes:

1. Maximum permitted span is measured from the centre of the volute to a post or other solid support.
2. Other top rail systems may be used provided that the section modulus is not less than 24,000 mm^3, measured about the vertical axis.
3. See Table 3.1.2. for minimum sizes of pickets.
4. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
5. Dimensions shown are in mm unless otherwise specified.

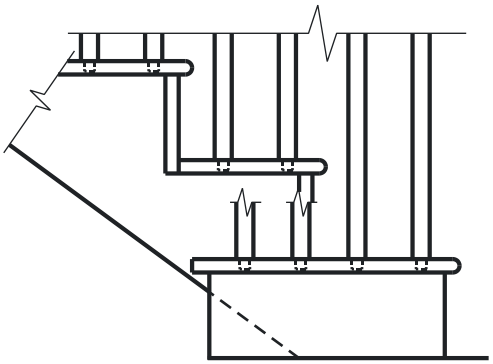
MAXIMUM SPAN OF RAIL	
Picket Species	Maximum Span, m (ft-in)
Yellow Poplar, Hemlock, White Pine	1.80 (5'-11")
Column 1	2



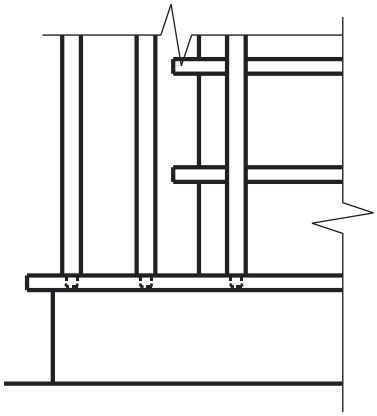
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

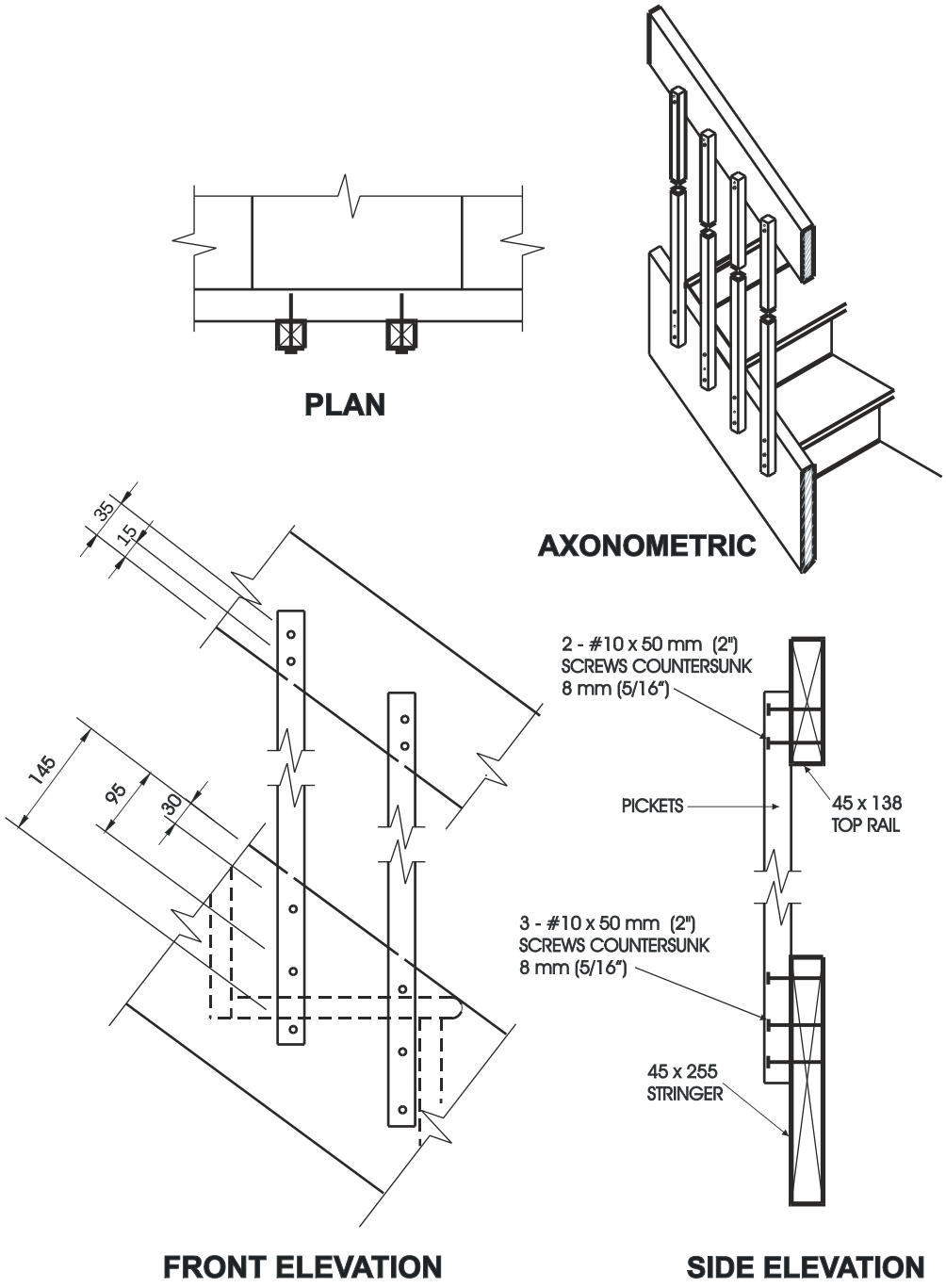
Detail IG-6

Interior Stair Guard Connection: Picket Volute, 240 mm ($9^1/_2$") Wide

Notes:

1. Maximum permitted span is measured from the centre of the volute to a post or other solid support.
2. Other top rail systems may be used provided that the section modulus is not less than 24,000 mm^3, measured about the vertical axis.
3. See Table 3.1.2. for minimum sizes of pickets.
4. Detail IC-1 or Detail IC-2, modified to suit a sloping application may be used for picket to rail connections.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL	
Species	Maximum Span, m (ft-in)
Yellow Poplar, Hemlock, White Pine	1.80 (5'-11")
Column 1	2



Detail IH-1

Interior Stair Guard Connection: Cantilevered Picket Screwed to Stair Stringer

Notes:

1. Stair stringer shall be oak or maple.
2. Provide a suitable post, return, or solid support at each end of the guard.
3. See Table 3.1.2. for minimum sizes of pickets.
4. Dimensions shown are in mm unless otherwise specified.

Appendix A

Explanatory Material for SB-7

Appendix A to this Supplementary Standard is included for explanatory purposes only and does not form part of the requirements. The bold-faced reference numbers that introduce each item apply to the requirements in this Supplementary Standard.

A-1.1.1. Scope. A guard constructed in conformance with this Supplementary Standard is deemed to satisfy the requirements of Sentence 9.8.8.8.(2) of Division B.

Guard design in this Supplementary Standard is based on a height of 1 070 mm and a maximum clear spacing of 100 mm between pickets or balusters.

A-1.1.1.(2) Guards located on the exterior of a building are subject to deterioration as a result of hygrothermal, electrochemical or biochemical action.

A-1.2.1. Cantilever Action. Where guards incorporate wood posts that are continuous from the top of the guard to the ground, or where the tops of the posts are attached to a superstructure that is connected to the building, the cantilever assumption in the Supplementary Standards is no longer valid. An example of a continuous post is shown in Figure A-1.2.1.

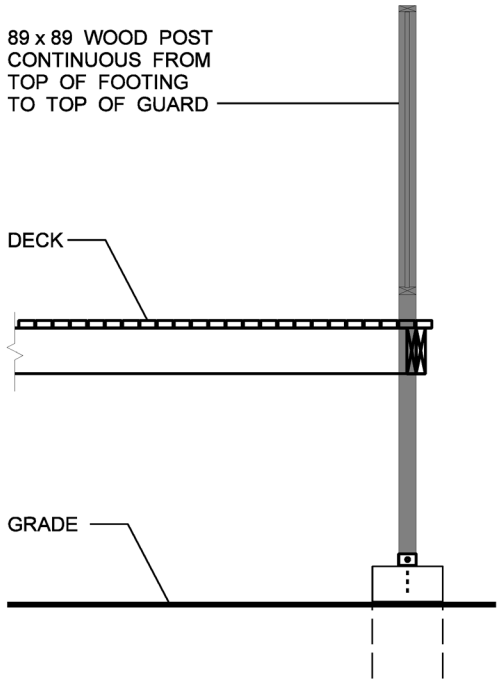


Figure A-1.2.1.
Typical Continuous Post

A-1.2.2. Classification. A Post and Rail System consists of a top rail that transfers horizontal loads to posts. The posts transfer the loads from the rail to the floor system. This system may incorporate a bottom rail that is anchored at each end to the posts. Infill panels or infill pickets are installed between the top rail and the floor or bottom rail. Examples of Post and Rail Systems are shown in Figure A-1.2.2.A.

The term "infill pickets" refers to an assembly of vertically oriented elements that span between the floor or bottom rail and the top rail. For the purpose of this Supplementary Standard, the words "picket" and "baluster" both relate to these individual elements.

The spacing of the posts in a Post and Rail System is detailed in this Supplementary Standard and is dictated by the ability of the posts to accept the design loads. The maximum spanning capacity of the rails is often not realised because it is dictated by the post spacing.

A Cantilevered Picket System consists of a top rail that transfers horizontal loads to pickets. The pickets transfer the loads from the top rail to the floor system. An example of a Cantilevered Picket System is shown in Figure A-1.2.2.B.

A guard classified as a Post and Rail System or a Cantilevered Picket System need not always terminate at a post if:
(a) the top rail is connected adequately to an element capable of accepting the forces applied to it, or
(b) the guard changes direction and the rails are adequately fastened at the return.

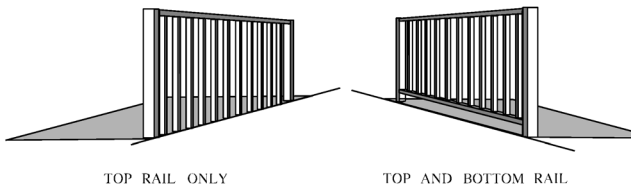


Figure A-1.2.2.A
Typical Post and Rail Systems

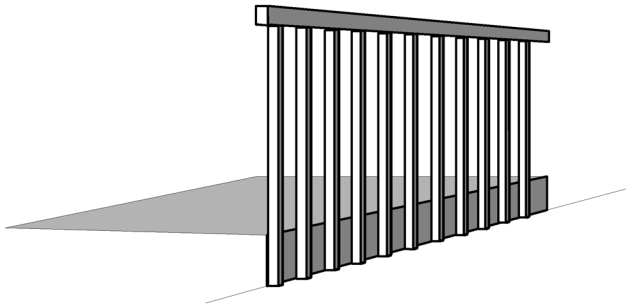


Figure A-1.2.2.B
Cantilevered Picket System

A-2.1.1. Lumber Grades. Whereas Northern Species is specified as the minimum lumber grade, Spruce-Pine-Fir, Douglas Fir-Larch and Hem-Fir may also be used since their structural properties exceed those of Northern Species. Cedar falls within the classification of Northern Species Group.

A-2.1.3. Floor Construction. The lateral loads acting on a guard are transferred from either the posts or the pickets to the floor system. Therefore, the floor system must be sufficiently strong to transfer these loads.

A-2.1.4. Connectors. Pre-drilling of wood elements may be required in order to avoid splitting of structural wood elements. Where a glued joint is required, an adhesive conforming to CSA Standard O112.4-M1977 (Polyvinyl Adhesives for Wood) and CSA Standard O112.8-M1977 (Polyvinyl Adhesives - Cross Linking, for Wood) is acceptable.

A-2.1.5. Decay-Resistant Lumber. Cedar is a species considered resistant to decay.

MMAH Supplementary Standard SB-8

Design, Construction and Installation of Anchorage Systems for Fixed Access Ladders

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-8 comes into force on the 1st day of January 2025.

SB-8 Design, Construction and Installation of Anchorage Systems for Fixed Access Ladders

Design

The design, construction and installation of the anchorage system for a fixed access ladder shall be capable of withstanding the anticipated loads from the ladder.

The following are the minimum criteria to be used in the design:

- The minimum design live load should be two loads of 1.1 kN each concentrated between any two consecutive attachments.
- Other loads, such as concentrated loads, loads due to ice, wind, rigging and impact, and dead loads, must be considered in the design.
- A safety factor of at least 4:1 should be applied in designing components for normal usage, and at least 10:1 for components supporting fall-arrest systems.

Attachment and Anchorage

The attachment method must be rated for the intended structural service and take into consideration the type of wall or member which will support the ladder.

- Expansion anchors should be avoided with masonry walls. Since anchor manufacturers' pull-out ratings are usually given for poured concrete walls, they cannot be reliably attained in masonry walls.
- Through-bolted connections, or equivalent, must be used for masonry walls, and other walls for which there is no anchor manufacturers' pull-out rating. Generally, through-bolted connections should be used wherever practicable.
- Attachment and anchor bolts should have a minimum diameter of 12 mm.
- Maximum spacing of attachment points for a steel ladder with side rails shall be 3 m.
- For different materials or extra loads, this maximum spacing must be adjusted in accordance with recognized design practice.

To provide an improved margin of safety, there should be two means of anchoring the top of the ladder. This may be accomplished by fastening the side rail extension above the top of the access/egress level to the roof.

If a ladder is to be attached to an existing wall, the structural soundness of the wall must be investigated to ensure it is capable of supporting the ladder.

MMAH Supplementary Standard SB-9

Requirements for Soil Gas Control

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-9 comes into force on the 1st day of January 2025.

SB-9 Requirements for Soil Gas Control (See Appendix A)

Section 1 Soil Gas Control in Masonry Walls

1.1. Sealing of Masonry Walls

(1) Masonry walls required to provide a barrier to soil gas ingress shall
(a) include a course of masonry units without voids, or
(b) be sealed with flashing material extending across the full width of the masonry.

(2) The masonry course or flashing described in Sentence (1) shall
(a) be located at the level of the adjoining floor and be sealed to it in accordance with Subsection 3.3., or
(b) in the absence of a floor, be located at the level of the ground cover required by Article 9.18.6.1. of Division B of the Building Code and be sealed to it.

Section 2 Soil Gas Control in Underground Roofs

2.1. Sealing of Underground Roofs

(1) Waterproofing systems for roofs of underground structures shall be sealed to the soil gas barrier in the walls.

Section 3 Soil Gas Control in Floors

3.1. Soil Gas Barriers in Floors

(1) Except as required in this Section, where the floor-on-ground is a concrete slab, the soil gas barrier shall conform to Articles 9.13.2.6., 9.25.3.2. and 9.25.3.3. of Division B of the Building Code and be
(a) installed below the slab, or
(b) applied to the top of the slab, provided a separate floor is installed over the slab.

(2) Where the soil gas barrier is sheet material installed below a slab-on-ground, joints in the barrier shall be lapped not less than 300 mm.

(3) Where the soil gas barrier is installed above a slab-on-ground, joints in the barrier shall be sealed.

(4) Where installed in conjunction with a framed floor-on-ground, the soil gas barrier shall be installed in accordance with Articles 9.13.2.6., 9.25.3.2. and 9.25.3.3. of Division B of the Building Code.

3.2. Sealing of the Perimeter and Penetrations

(1) A floor-on-ground shall be sealed around its perimeter to the inner surfaces of adjacent walls using flexible sealant.

(2) All penetrations of a floor-on-ground by pipes or other objects shall be sealed against soil gas leakage.

(3) All penetrations of a floor-on-ground that are required to drain water from the floor surface shall be sealed in a manner that prevents the upward flow of soil gas without preventing the downward flow of liquid water.

Appendix A to SB-9

A-SB-9 Requirements for Soil Gas Control

Soil Gas Control.

The requirements for Soil Gas Control in Walls, Soil Gas Barriers, and Sealing of the Perimeter and Penetrations, are illustrated in the following drawings. Sealing of penetrations of the slab also applies to hollow metal and masonry columns. Not only the perimeters but also the centres of such columns must be sealed or blocked.

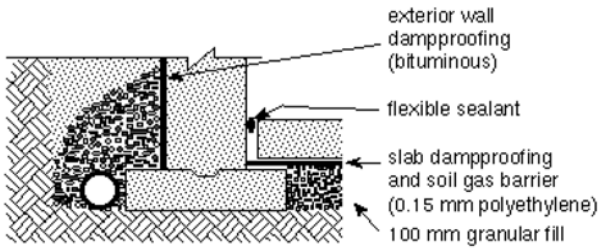


Figure SB-9A
Dampproofing and Soil Gas Control at Foundation Wall/Floor Junctions with Solid Walls

The requirement regarding drainage openings in slabs can be satisfied with any of a number of proprietary devices which prevent soil gas entry through floor drains. Some types of floor drains incorporate a trap which is connected to a nearby tap so that the trap is filled every time the tap is used. This is intended to prevent the entry of sewer gas but would be equally effective against the entry of soil gas.

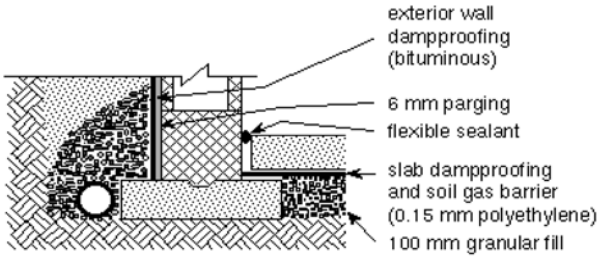


Figure SB-9B
Dampproofing and Soil Gas Control at Foundation Wall/Floor Junctions with Hollow Walls

There are two primary purposes for excluding soil gas:

- Sealing the interface between the soil and the occupied space, so far as is reasonably practicable, and
- Ensuring that the pressure difference across the soil/space interface is positive (i.e., towards the outside) so that inward soil gas flow through any remaining leaks will be prevented.

Effective Depressurization.

To allow effective depressurization of the space between the gas barrier and the ground, the extraction opening (the pipe) should not be blocked and should be arranged such that air can be extracted from the entire space between the gas barrier and the ground. This will ensure that the extraction system can maintain negative pressure underneath the entire floor (or in heated crawl spaces underneath the air barrier). The arrangement and location of the extraction system inlets(s) may have design implications where the footing layout separates part of the space underneath the floor.

Radon Testing and Active Depressurization Systems.

Where radon concentration testing is carried out, it should be done in accordance with HC Pub. 4171, "Guide for Radon Measurements in Residential Dwellings (Homes), 2008", to determine the radon concentration in the building. The sampling should include basement concentration measurements . If the average annual radon concentration determined exceeds 200 Bq/m^3 in the normal occupancy area, measures, such as the conversion of rough-in system to an active subfloor depressurization system, need to be taken to reduce the radon concentration to a level below 200 Bq/m^3 in the normal occupancy area.

Where an active subfloor depressurization system is installed, the following needs to be taken into consideration:

1. provision to provide makeup air in accordance with Article 9.32.3.8. of Division B of the Building Code, and
2. measures to ensure that any resultant decrease in soil temperature will not adversely affect the foundation.

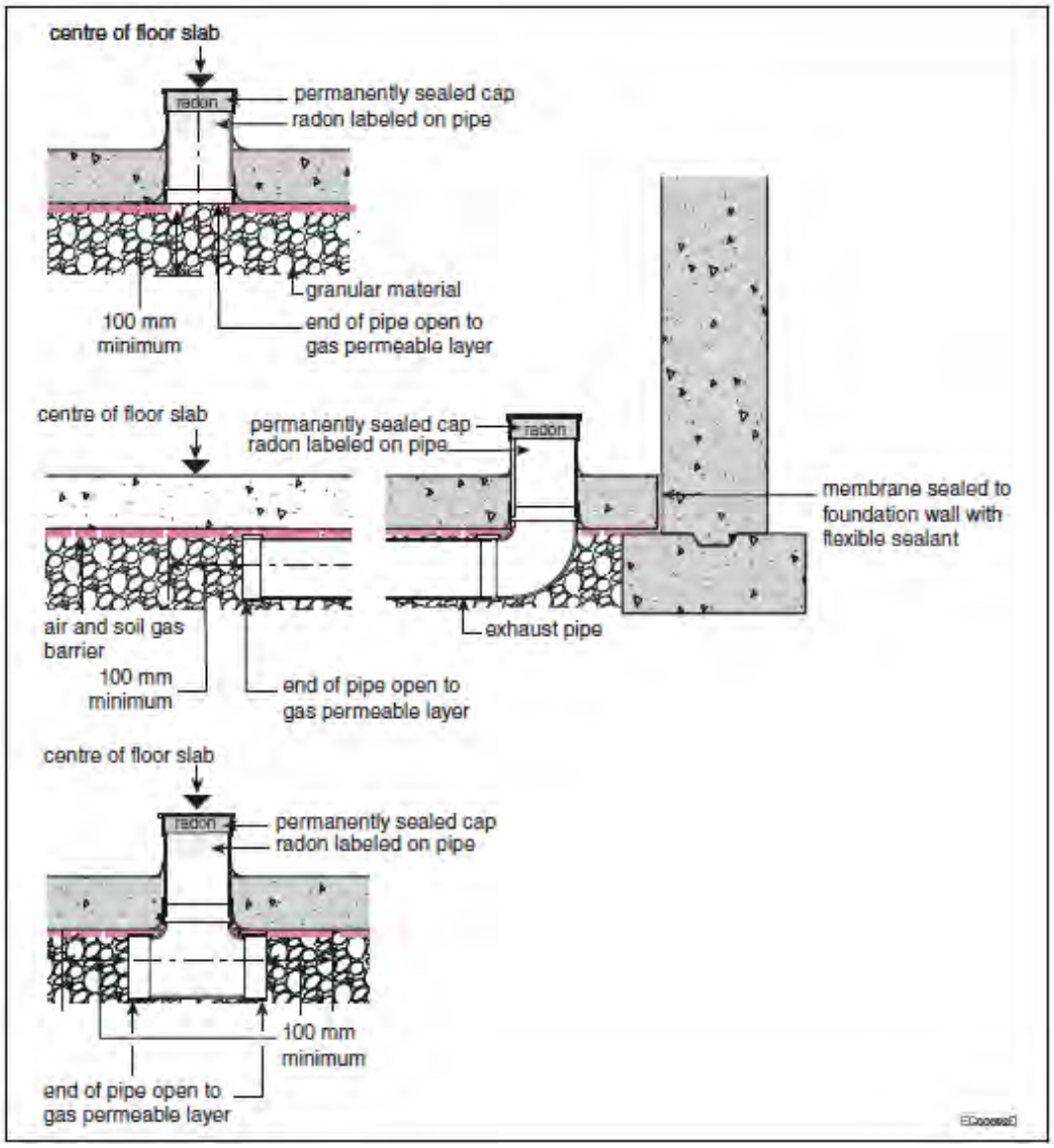


Figure SB-9C
Acceptable Configurations for the Extraction Opening in a Depressurization System

MMA Supplementary Standard SB-10

Energy Efficiency Requirements

December 22, 2016 update

COMMENCEMENT

MMA Supplementary Standard SB-10 comes into force on the 1st day of January, 2025.

EDITORIAL

e1 Editorial correction issued for January 1, 2025.

ACKNOWLEDGEMENT

The Ministry wishes to thank ASHRAE for permission to reproduce material from ANSI/ASHRAE/USGBC/IES Standard 189.1-2009.

NOMENCLATURE

This Supplementary Standard is organized into a hierarchy of Divisions, Chapters, Parts or Sections, Subsections, Articles, Sentences, Clauses and Subclauses.

e1 FOREWORD

This edition of SB-10 is still the same edition released on December 22, 2016 except that the requirements applicable on or before December 31, 2016 have been removed and marked as "Reserved".

This Supplementary Standard contains 5 Divisions as follows:

Division 1 addresses general requirements. This updated Supplementary Standard includes new referenced standards and updated versions of previously referenced standards.

Division 2 is reserved.

Division 3 contains requirements for the design and construction of buildings for which a permit has been applied for after December 31, 2016. In this updated Supplementary Standard, Division 3 has been substantially revised. The existing sample compliance path has been replaced by new compliance paths. The compliance paths are based on contemporary energy codes and standards and contain additional requirements to achieve, on average, a 13 percent improvement over the efficiency level required by Sentence 12.2.1.1.(2) of Division B of O. Reg. 332/12 (2012 Building Code) as it read on December 31, 2024. Division 3 contains a transition provision and revised CO_2e factors in Chapter 1 as well as the following three compliance paths based on:

1. ANSI/ASHRAE/IES Standard 90.1-2013, "Energy Standard for Buildings Except Low-Rise Residential Buildings", and additional requirements introduced through Chapter 2,
2. CCBFC NRCC 56191, "2015 National Energy Code of Canada for Buildings" and additional requirements introduced through Chapter 3, and
3. ANSI/ASHRAE/USGBC/IES Standard 189.1-2014, "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings".

Division 3 also describes limitations on peak electric demand and annual carbon dioxide emissions.

Division 4 is reserved.

Division 5 contains simplified energy efficiency requirements for the construction of certain non-residential buildings within the scope of Part 9 of Division B of the 2012 Building Code for which a permit has been applied for after December 31, 2016. Division 5 was revised consistent with changes made to Division 3 in this updated edition.
The application of the above documents to existing buildings is limited to the requirements of Part 10 and Part 11 of Division B of the Building Code.

SB-10 Energy Efficiency Requirements

Division 1

General

Division 1

General

Section 1.1. General

1.1.1. Application of Supplementary Standard SB-10

1.1.1.1. Application

e1 **(1)** This Supplementary Standard applies to the energy efficiency design and *construction* of *buildings* required to comply with Sentence 12.2.1.2.(2) and Subsections 12.2.2. and 12.2.3. of Division B of the *Building Code*.

(2) The energy efficiency of existing *buildings* shall comply with
(a) Part 10 of Division B of the *Building Code* with respect to change of use, or
(b) Part 11 of Division B of the *Building Code* for renovation.

e1 #### 1.1.1.2. Reserved

e1 #### 1.1.1.3. Energy Efficiency Design

(1) Except as permitted in Sentence (2), the energy efficiency design and *construction* of *buildings* required to comply with Sentence 12.2.1.2.(2) of Division B of the *Building Code* shall comply with Division 3 of this Supplementary Standard.

(2) The energy efficiency of a *building* or part of a *building* may conform to the design requirements of Division 5 of this Supplementary Standard, if the *building* or part of the *building*,
(a) is within the scope of Part 9 of Division B of the *Building Code*,
(b) does not contain a *residential occupancy*,
(c) does not use *electric space heating*, and
(d) is intended for occupancy on a continuing basis during the winter months.

1.1.1.4. Internal Cross-References

(1) If a provision of this Supplementary Standard contains a reference to another provision of this Supplementary Standard but no Division is specified, both provisions are in the same Division of this Supplementary Standard.

Section 1.2. Terms and Abbreviations

1.2.1. Definitions of Words and Phrases

1.2.1.1. Non-Defined Terms

(1) Definitions of words and phrases used in this Supplementary Standard that are not included in the list of definitions in Articles 1.4.1.2. and 1.4.1.3. of Division A of the *Building Code* and are not defined in another provision of the Code shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

1.2.1.2. Defined Terms

(1) Each of the words and terms in italics in this Supplementary Standard has the same meaning as in subsection 1(1) of the *Building Code Act, 1992* or Clause 1.4.1.2.(1) of Division A of the *Building Code*.

(2) In this Supplementary Standard,

Carbon dioxide equivalent (CO_2e) means a measure used to compare the impact of various greenhouse gases based on their global warming potential.

1.2.2. Symbols and Other Abbreviations

1.2.2.1. Symbols and Other Abbreviations

(1) Where used in this Supplementary Standard, a symbol or abbreviation listed in Column 2 of Table 1.4.2.1. of Division A of the *Building Code* has the meaning listed opposite it in Column 3.

(2) The abbreviations listed in Column 2 of Table 1.2.2.1. also apply to this Supplementary Standard and have the meaning listed opposite it in Column 3.

Table 1.2.2.1.
Symbols and Abbreviations
Forming Part of Sentence 1.2.2.1.(2)

Item	Abbreviation	Meaning
1	CO_2e	*carbon dioxide equivalent*
2	GJ	gigajoules
3	kWh	kilowatt-hours
4	LPG	liquified petroleum gas
Column 1	2	3

Section 1.3. Referenced Documents and Organizations

1.3.1. Referenced Documents

1.3.1.1. Effective Date

(1) Except as provided in Table 1.3.1.2. of this Supplementary Standard, the documents referenced in this Supplementary Standard shall include all amendments, revisions and supplements effective to June 26, 2015.

1.3.1.2. Applicable Editions

(1) Unless otherwise specified in this Supplementary Standard, documents referenced in this Standard shall be the editions designated in Column 2 of Table 1.3.1.2. of Division B of the *Building Code*.

(2) Where ANSI/ASHRAE/IES Standard 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings" is referenced in this Supplementary Standard, it shall be the edition designated in Table 1.3.1.2.

e1 **(3)** Where CCBFC NRCC 38730, "Model National Energy Code of Canada for Buildings" or CCBFC NRCC 54435 or 56191 , "National Energy Code of Canada for Buildings" is referenced in this Supplementary Standard, it shall be the edition designated in Table 1.3.1.2.

Table 1.3.1.2.
Referenced Documents
Forming Part of Sentences 1.3.1.2.(1) to (3)

Issuing Agency	Document Number	Title of Document	Supplementary Standard Reference
ANSI/ASHRAE/IES	90.1-2013 (including amendments issued to June 26, 2015)	Energy Standard for Buildings Except Low-Rise Residential Buildings	Division 3 Chapters 1 and 2 of Division 3
ANSI/ASHRAE/ USGBC/IES	189.1-2014	Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings	Division 3 Chapter 1 of Division 3
CSA	CAN/CSA-A440.2-14	Fenestration Energy Performance	and 1.1.1.4.(5) of Chapter 1 and 1.1.1.6 (8) of Chapter 3 of Division 3
CSA	C390-2010	Test Methods, Marking Requirements, and Energy Efficiency Levels for Three-Phase Induction Motors	1.1.1.7.(5) of Chapter 1 of Divisions 3
CCBFC	NRCC 56191 -2015	National Energy Code of Canada for Buildings	Division 1 Chapters 1 and 3 of Division 3
NFRC	NFRC 100-2014	Procedure for Determining Fenestration Product U-factors	1.1.1.4.(5) of Chapter 1 and 1.1.1.6.(8) of Chapter 3 of Division 3
NFRC	NFRC 200-2014	Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence	1.1.1.4.(5) of Chapter 1 and 1.1.1.6.(8) of Chapter 3 of Division 3
Column 1	2	3	4

1.3.2. Abbreviations

1.3.2.1. Abbreviations of Proper Names

(1) Where used in this Supplementary Standard, abbreviations of proper names listed in Column 1 of Table 1.3.2.1. in Division B of the *Building Code* shall have the meaning assigned opposite it in Column 2.

e1 **(2)** For the purpose of this Supplementary Standard,

(a) reserved

(b) 2013 ANSI/ASHRAE/IES 90.1, means ANSI/ASHRAE/IES Standard 90.1-2013, "Energy Standard for Buildings Except Low-Rise Residential Buildings",

(c) 2014 ANSI/ASHRAE/USGBC/IES Standard 189.1 means ANSI/ASHRAE/USGBC/IES Standard 189.1-2014, "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings",

(d) reserved,

(e) reserved, and

(f) 2015 NECB means CCBFC NRCC 56191-2015, "National Energy Code of Canada for Buildings".

e1 Division 2

Reserved

Division 3

e1 Energy Efficiency Design

FOREWORD

Division 3 of this Supplementary Standard contains requirements for the design and construction of buildings for which a permit has been applied for after December 31, 2016. In this updated Supplementary Standard, the existing sample compliance paths in this Division have been replaced by new compliance paths. The compliance paths are based on contemporary energy codes and standards and contain additional requirements to achieve, on average, a 13 percent improvement over the efficiency level required by Sentence 12.2.1.1.(2) of Division B of O. Reg. 332/12 (2012 Building Code) as it read on December 31, 2024. Division 3 contains a transition provision and revised CO_2e factors in Chapter 1 as well as the following three compliance paths based on:

1. ANSI/ASHRAE/IES Standard 90.1-2013, "Energy Standard for Buildings Except Low-Rise Residential Buildings", and additional requirements introduced through Chapter 2,
2. ANSI/ASHRAE/USGBC/IES Standard 189.1-2014, "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings", and
3. CCBFC NRCC 56191, "2015 National Energy Code of Canada for Buildings" and additional requirements introduced through Chapter 3.

Division 3 also describes limitations on peak electric demand and annual carbon dioxide emissions.

Division 3 outlines the modifications made to these documents which are generally enhancements to the building envelope, mechanical equipment, lighting and heat recovery provisions of 2013 ANSI/ASHRAE/IES 90.1 and the 2015 NECB. These modifications can be found in Chapters 2 and 3, respectively. Certain buildings and parts of buildings are exempted from the energy efficiency provisions in this Division.

Compliance with this Division does not necessarily ensure that the actual annual energy consumption or actual annual energy cost of a building is less than or equal to the theoretical values arrived at using the building energy cost budget method of 2013 ANSI/ASHRAE/IES 90.1 or performance method of the 2015 NECB. Factors such as weather, workmanship, depreciation of the thermal resistance of building materials, occupant/user lifestyle, building operation and maintenance impact on the actual energy consumption of a building, while simulation assumption and software used may affect the theoretical calculations.

Summary of the Contents of Division 3

Chapter 1: General

This Chapter contains the application, energy efficiency design requirements and exemptions to SB-10. It also contains climatic zones applicable to Ontario locations.

Chapter 2: Additional Requirements to 2013 ANSI/ASHRAE/IES 90.1. This Chapter contains additions and/or substitutions to 2013 ANSI/ASHRAE/IES 90.1.

Chapter 3: Additional Requirements to the 2015 NECB. This Chapter contains additions and/or substitutions to the 2015 NECB.

Recommended Resource Material: ANSI/ASHRAE/IES Standard 90.1-2013 User's Manual.

Division 3

Chapter 1

General

Section 1.1. General

e1 ### 1.1.1. Reserved

1.1.2. Energy Efficiency Design, Carbon Dioxide Equivalents and Peak Electric Demand

1.1.2.1. Energy Efficiency Design

(1) Except as provided in Sentence (2) and Article 1.2.1.1., the energy efficiency of all *buildings* shall be designed to achieve the energy efficiency levels attained by conforming to
(a) 2013 ANSI/ASHRAE/IES 90.1 and Chapter 2,
(b) 2015 NECB and Chapter 3, or
(c) Section 7 "Energy Efficiency" of 2014 ANSI/ASHRAE/USGBC/IES 189.1, excluding Sections 7.2.b, 7.4.7.3, 7.4.8 and 7.5.

(2) Energy efficiency requirements do not apply to *buildings* or parts of *buildings* described in Article 1.2.1.1.

1.1.2.2. Carbon Dioxide Equivalents

(1) The annual CO_2e emission level from a *building* shall be determined in accordance with good engineering practice using the CO_2e emission factors listed in Table 1.1.2.2.

(2) The annual CO_2e emission level from a *building* required to comply with Clause 1.1.2.1.(1) (a), shall not exceed the level achieved by complying with Sections 5 to 10 of 2013 ANSI/ASHRAE/IES 90.1 and Chapter 2.

(3) The annual CO_2e emission level from a *building* required to comply with Clause 1.1.2.1.(1) (b), shall not exceed the level achieved by complying with Sections 1 to 7 of the 2015 NECB and Chapter 3.

(4) The annual CO_2e emission level from a *building* required to comply with Clause 1.1.2.1.(1) (c), shall not exceed the level achieved by complying with Sections 7.1, 7.2.a, 7.3 and 7.4 of 2014 ANSI/ASHRAE/USGBC/IES Standard 189.1.

(5) Where the energy efficiency compliance of a *building* is achieved using the Energy Cost Budget Method of 2013 ANSI/ASHRAE/IES 90.1 and Chapter 2, or Building Energy Performance Compliance Path of the 2015 NECB and Chapter 3:

(a) the annual design CO_2e emission level from the *building* shall be calculated, and

(b) the annual design CO_2e emission level of the proposed building shall not exceed the annual CO_2e emission level of the corresponding baseline or reference building using the CO_2e emission factors listed in Table 1.1.2.2.

Table 1.1.2.2.
CO_2e Emission Factors
Forming Part of Sentences 1.1.2.2.(1) and (5)

Building Energy Source	Emission Factor
Stationary Sources	
Electricity (average for 2014)	0.050 $kgCO_2e$ / kWh
Natural Gas	1.899 $kgCO_2e$ / m^3
Propane	1.548 $kgCO_2e$ / L
Heating Oil	2.755 $kgCO_2e$ / L
Column 1	2

Notes to Table 1.1.2.2.:

1. Factors are expressed in units of CO_2 equivalent (CO_2e) so as to encompass the global warming effects of all relevant greenhouse gases (CO_2, CH_4, and N_2O).
2. Non-CO_2 emission components are technology dependent and vary by application; the above factors assume the most common and likely applications.
3. Electricity emission factor is an average consumption intensity factor for the year 2014; electricity factors are subject to change on an annual basis depending on the mix of generation in a particular year. Use the latest available published data.
4. Factors are expressed in their native units (e.g. kWh, m^3, or litre) and conversion to other common units (e.g. $kgCO_2e$ / GJ) is possible through calculation; a suggested list of unit conversions is available from the National Energy Board.
5. The table is not comprehensive or exhaustive and not necessarily representative of every energy source that may be encountered in a project; other factors may be used on a case-by-case basis with appropriate methodological justification.
6. Emission factors are sourced from Environment and Climate Change Canada's 2016 National Inventory Report (NIR) unless otherwise noted and values have been rounded; further information on emission factors can be found in Annex 6 of Part 2 of the 2016 NIR which can be downloaded.

1.1.2.3. Peak Electric Demand

(1) The peak electric demand of a *building* required to comply with Clause 1.1.2.1.(1) (a), shall not exceed the level achieved by complying with Sections 5 to 10 of 2013 ANSI/ASHRAE/IES 90.1 and Chapter 2.

(2) The peak electric demand of a *building* required to comply with Clause 1.1.2.1.(1) (b), shall not exceed the level achieved by complying with Sections 1 to 7 of the 2015 NECB and Chapter 3.

(3) The peak electric demand of a *building* required to comply with Clause 1.1.2.1.(1) (c), shall not exceed the level achieved by complying with Sections 7.1 to 7.4.7.5 of 2014 ANSI/ASHRAE/USGBC/IES Standard 189.1.

(4) Except as provided in Sentence (5), where the energy efficiency compliance of a *building* is achieved by using the Energy Cost Budget Method of 2013 ANSI/ASHRAE/IES 90.1 and Chapter 2, or the Building Energy Performance Compliance Path of the 2015 NECB and Chapter 3:

(a) the peak electric demand of a *building* shall be calculated, and
(b) the peak electric demand of the proposed building shall not exceed the peak electric demand of the corresponding budget or reference building.

(5) A *building* is deemed to comply with Sentences (1) to (4), if the *building* design meets the applicable prescriptive requirements set in Article 1.1.2.1. for the energy efficiency of

(a) the cooling equipment, fan power limitations for cooling and ventilation systems, and interior lighting power density, if the *building's* peak electric demand occurs in summer, or
(b) the space and water heating equipment, fans, pumps and interior lighting power density, if the *building's* peak electric demand occurs in winter.

1.1.3. Chapter 2

1.1.3.1. Chapter 2

(1) Chapter 2 contains additional requirements and changes to 2013 ANSI/ASHRAE/IES 90.1 and applies where compliance with energy efficiency requirements is achieved in accordance with Clause 1.1.2.1.(1)(a).

1.1.4. Chapter 3

1.1.4.1. Chapter 3

(1) Chapter 3 contains additional requirements and changes to the 2015 NECB and applies where compliance with energy efficiency requirements is achieved in accordance with Clause 1.1.2.1.(1)(b).

Section 1.2. Application

1.2.1. Application of Articles 1.1.2.1. to 1.1.2.3.

1.2.1.1. Exceptions

(1) The requirements of Articles 1.1.2.1. to 1.1.2.3. of this Chapter do not apply to
(a) a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code*,
(b) construction trailers, tents and *air-supported structures*,
(c) a *building* or part of a *building* where the environmental condition within the *building* is governed by the process, operation of the *building* or permanent openings to the outdoors or to unconditioned environments,
(d) a *building* or part of a *building* where it can be shown that meeting the requirements of Article 1.1.2.1. does not conserve any energy,
(e) equipment or processes that use energy for manufacturing, industrial and commercial purposes, and
(f) *occupancies* listed in Table 1.2.1.1.

Table 1.2.1.1.
Occupancies Exempt from Compliance with Articles 1.1.2.1 to 1.1.2.3.
Forming Part of Sentence 1.2.1.1.(1)

GROUP A, DIVISION 4	GROUP F, DIVISION 1	GROUP F, DIVISION 2	GROUP F, DIVISION 3
Amusement Park Structures (not elsewhere classified) Bleachers Grandstands Reviewing Stands Stadia	Bulk Plants for Flammable Liquids Bulk Storage Warehouses for Hazardous Substances Cereal Mills Chemical Manufacturing or Processing Plants Distilleries Dry Cleaning Plants Feed Mills Flour Mills Grain Elevators Lacquer Factories Paint, Varnish and Pyroxylin Product Factories Rubber Processing Plants Spray Painting Operations Waste Paper Processing Plants	Dry Cleaning Establishments not using flammable or explosive solvents or cleaners Electrical Substations Helicopter Landing Areas on Roofs Laundries, except self-service Planing Mills Printing Plants Repair Garages Woodworking Factories	Creameries Power Plants Open-air Parking Garages Pumping Stations
GROUP C Part 9 Buildings(1) Camps for Housing Workers (Part 3 and 9 Buildings) Recreational Camps			
Column 1	2	3	4

Notes to Table 1.2.1.1.:

(1) Part 9 *buildings* are exempt from compliance with Articles 1.1.2.1. to 1.1.2.3. where the energy efficiency design conforms to Division 5 of this Supplementary Standard.

(2) The list is not intended to be exhaustive and other exemptions may be made in accordance with Article 1.2.1.1.

(2) The following *buildings* or parts of *buildings* need not to comply with *building* envelope requirements:
(a) any *building* space which uses energy for space conditioning at a rate less than 12 W/m² under peak conditions,
(b) warehouses and storage rooms where the design indoor temperature does not exceed 10°C,
(c) except conditioned spaces of *buildings* exposed to unheated *storage garages* and unheated storage rooms, unheated *storage garages* and unheated storage rooms, and
(d) where part of a single enclosed space is heated.

e1 **(3)** Where specifically noted in this Supplementary Standard or documents referenced in Sentence 12.2.1.2.(2) of Division B of the *Building Code*, certain other *buildings* or elements of *buildings* shall be exempt.

Section 1.3. Climatic Zones

1.3.1. Climatic Zone Numbers

1.3.1.1. Determination of Climatic Zone Numbers

e1 **(1)** Except as permitted in Sentence (2), the climatic zone number of a location shall be determined in accordance with Table 1.3.1.1. based on the corresponding heating degree-days (HDD) for locations found in Table 2 of MMAH Supplementary Standard SB-1, "Climatic and Seismic Data".

e1 **(2)** For locations not listed in Table 2 of MMAH Supplementary Standard SB-1, "Climatic and Seismic Data", the heating degree-days and climatic data of the climatologically closest location is permitted to be used.

Table 1.3.1.1.
Climatic Zone Numbers for Ontario
Forming Part of Sentence 1.3.1.1.(1)
(This Table is to be used in conjunction with Tables SB 5.5-5 to SB 5.5-7)

Climatic Zone Number	Thermal Criteria
Zone 5	HDD18 < 4000°C
Zone 6	4000°C ≤ HDD18 < 5000°C
Zone 7	HDD18 ≥ 5000°C
Column 1	2

Chapter 2

Additional Requirements to 2013 ANSI/ASHRAE/IES 90.1

Section 1.1. Changes and Additional Requirements

1.1.1. Changes and Additional Requirements

1.1.1.1. Application of Chapter 2

(1) Where compliance with energy efficiency requirements is achieved in accordance with Clause 1.1.2.1.(1)(a) of Chapter 1, energy efficiency of the *building* is required to conform to this Chapter.

1.1.1.2. **Section 4 "Administration and Compliance" of** 2013 ANSI/ASHRAE/IES 90.1

(1) Sections 4.2.1.1 to 4.2.1.3 of 2013 ANSI/ASHRAE/IES 90.1 are replaced with the following:

4.2.1.1 New Buildings. New buildings and additions to existing buildings shall comply with provisions of either Sections 5 to 10 or Section 11.

4.2.1.2 Reserved.

4.2.1.3 Existing Buildings. Change of use of existing buildings shall conform to Part 10 of Division B of the Building Code and renovation of existing buildings shall conform to Part 11 of Division B of the Building Code.

1.1.1.3. Climatic Zones

(1) Climatic zone numbers shall be determined in accordance with Section 1.3. of Chapter 1.

1.1.1.4. **Section 5 "Building Envelope" of** 2013 ANSI/ASHRAE/IES 90.1

(1) Section 5.4.3.1.A shall be added to Section 5.4.3 "Air Leakage" of 2013 ANSI/ASHRAE/IES 90.1.

5.4.3.1.A Air Barrier Materials, Assemblies and Systems

(1) The air barrier materials, assemblies and systems that are in conformance with Part 5 of Division B of the Building Code shall be deemed to be in compliance with Section 5.4.3.1.3 and Section 5.4.3.2.

(2) Sections 5.5.1 and 5.5.2 shall be replaced with Sections 5.5.1.(1) through 5.5.1.(7) and Sections 5.5.3.5.1, 5.5.3.5.2, 5.5.3.7, and 5.5.3.8 shall be added to Section 5.5 of 2013 ANSI/ASHRAE/IES 90.1.

5.5.1 Exterior Building Envelope

(1) Where electric space heating is used, the building envelope shall comply with the requirements of Table SB 5.5-7 of this Supplementary Standard, regardless of its climatic location.

(2) For the purpose of Sentence (1), any reference to Tables 5.5-5 through 5.5-7 of 2013 ANSI/ASHRAE/IES 90.1 shall be deemed to be a reference to Tables SB 5.5-5–2017 to SB 5.5-7–2017 of this Supplementary Standard.

(3) Tables SB 5.5-5–2017 to SB 5.5-7–2017 shall supersede the requirements of Tables 5.5-5 to 5.5-7 of 2013 ANSI/ASHRAE/IES 90.1

(4) Tables 5.5-1 to 5.5-8 of 2013 ANSI/ASHRAE/IES 90.1 shall not be used.

(5) For a conditioned space, the exterior building envelope shall comply with either the "nonresidential" or "residential" requirements in Tables SB 5.5-5–2017 through SB 5.5-7–2017 of this Supplementary Standard for the appropriate climate.

(6) If a building contains any semiheated space or unconditioned space, then the semi-exterior building envelope shall comply with the requirements for semiheated space in Tables SB 5.5-5–2017 through SB 5.5-7–2017 of this Supplementary Standard for the appropriate climate.

(7) Notwithstanding the requirements of Tables SB 5.5-5–2017 to SB 5.5-7–2017, exposed frame floors, between the framing members, need not be insulated to more than
   (a) RSI of 6.69 (R38) where the framing depth is more than 254 mm (10 in.), and
   (b) RSI of 5.28 (R30) where the framing depth is 254 mm (10 in.) or less, and

5.5.2. Reserved

5.5.3.5.1 Slabs. Insulation continuity shall be maintained in the design of slab edge insulation systems. Continuity shall be maintained from the wall insulation through the slab/wall/footing intersection to the body of the slab edge insulation. Several representative configurations are illustrated in Figure 5-1.

5.5.3.5.2 Where insulative continuity is impossible because of structural constraints, a minimum overlapping of insulation is acceptable. The insulation must overlap by a distance equal to (or greater than) four times the minimum insulation separation, as shown in Figure 5-2.

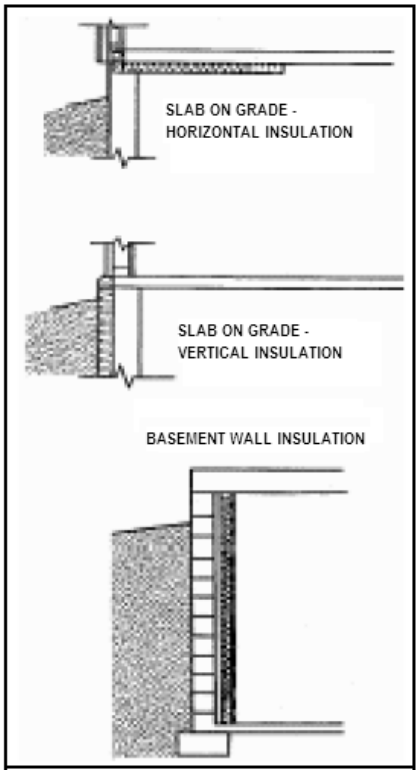


Figure 5-1
Continuity of Insulation on or Below Grade

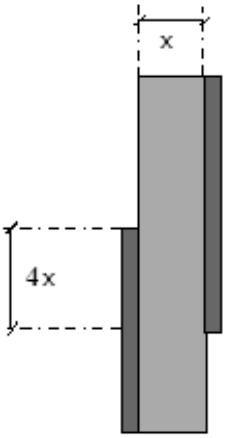


Figure 5-2
Minimum Permissible Insulation Overlap

5.5.3.7 For the purposes of Section 5, the effects of thermal bridging are waived for:

(a) intermediate structural connections of continuous steel shelf angles (or similar structural element) used to support the building facade provided there is a thermal break between the remaining contact surface of the supporting element and the building structure. This provision is intended to substantially reduce thermal bridging effects caused by the continuous bearing between structural elements supporting building facade and the building frame (ie. steel shelf angle attached to perimeter floor slab to support brick veneer), or

(b) structural connections of load bearing elements where a thermal break cannot be achieved.

5.5.3.8 In addition to the exceptions permitted above, the effects of thermal bridging are also waived for:

(a) exposed structural projections of buildings where the total cross-sectional area of the exposed element does not exceed 2% of the exterior building envelope area and the cross-sectional area of the exposed structural element is measured where it penetrates the insulation component of the building envelope, (For example, if the total cross-sectional area of cantilevered concrete balconies and other projections penetrating the insulation component of the building envelope does not exceed 2% of the exterior building envelope area, their thermal bridging effects need not be taken into account)

(b) ties in masonry construction,

(c) flashing, and

(d) top exposed portion of foundation walls provided the exposure does not exceed 200 mm measured from the top of the foundation wall to the top of exterior wall insulation which meets the minimum insulation RSI-Value for wall below grade stipulated in the appropriate Tables. (See Figure 5-3)

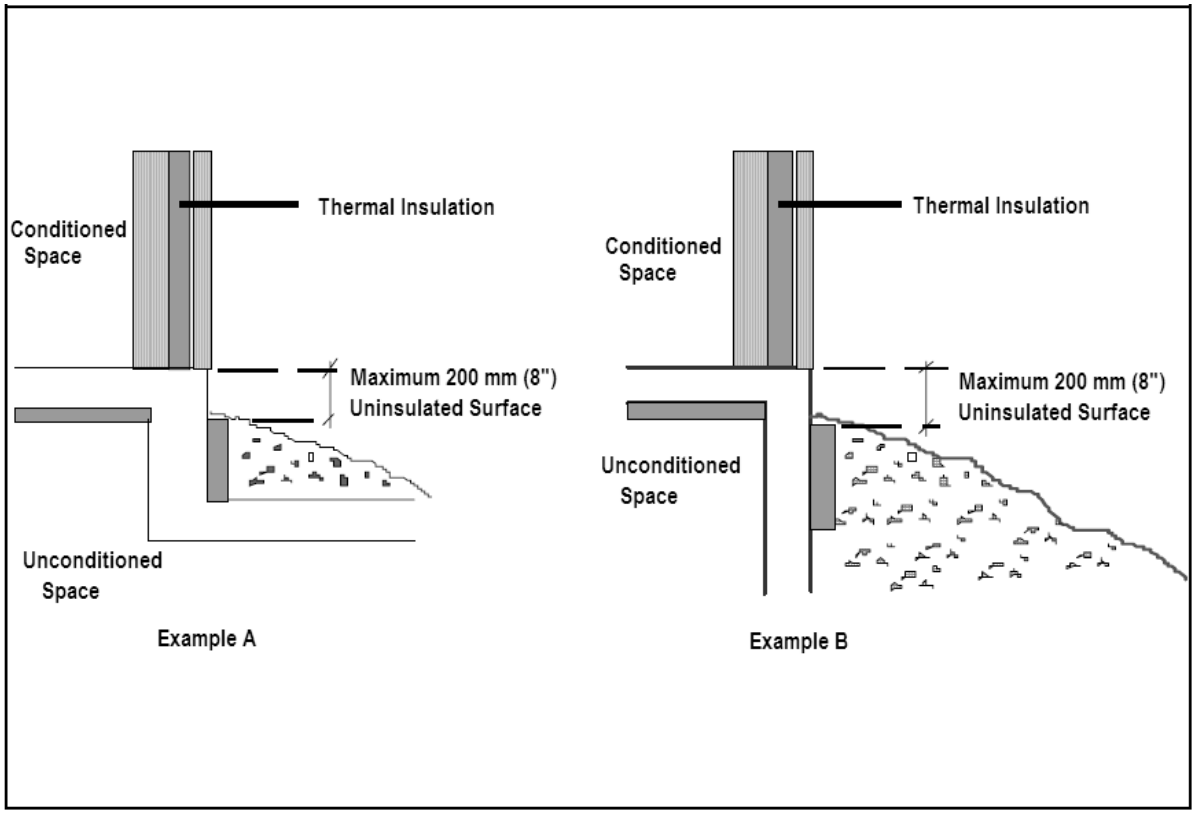


Figure 5-3
Maximum Uninsulated Surface of Foundation Wall

(3) Section 5.5.4.5 of 2013 ANSI/ASHRAE/IES 90.1 shall only be applicable where the main entrance is located on the south orientation and the south oriented wall area is larger than west oriented wall area, and where the south oriented wall area is larger than east oriented wall area. (See Appendix A.)

(4) The *building* envelope trade-off option in Section 5.6 of 2013 ANSI/ASHRAE/IES 90.1 shall not apply unless the procedure incorporates the modifications made to 2013 ANSI/ASHRAE/IES 90.1 through this Chapter.

(5) Section 5.8.2.4.A shall be added to Section 5.8.2.4 "Air Leakage" of 2013 ANSI/ASHRAE/IES 90.1.

5.8.2.4.A Alternative Standards to determine Thermal Characteristics of Fenestrations

(1) Notwithstanding Sections 5.8.2.3 and 5.8.2.4, thermal characteristics of fenestrations are permitted to be determined in conformance with;

(a) CAN/CSA-A440.2, "Fenestration Energy Performance", or

(b) NFRC 100, "Procedure for Determining Fenestration Product U-factors" and NFRC 200, "Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence".

TABLE SB 5.5-5–2017 (See Appendix A.)
(Supersedes Table 5.5-5 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 5 (A, B, C) (SI)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value
Roofs						
Insulation Entirely Above Deck	U-0.164	6.2 ci	U-0.164	6.2 ci	U-0.322	3.0 ci
Metal Building [a]	U-0.189	4.4 + 1.9 Ls	U-0.189	4.4 + 1.9 Ls	U-0.419	1.8 + 3.3
Attic and Other	U-0.107	10.6	U-0.107	10.6	U-0.174	6.7
Walls, Above Grade						
Mass	U-0.307	3.0 ci	U-0.273	3.3 ci	U-0.514	1.8 ci
Metal Building	U-0.256	2.3 + 3.3 ci	U-0.256	2.3 + 3.3 ci	U-0.480	2.3 + 1.1 ci
Steel Framed	U-0.281	2.3 + 2.1 ci	U-0.281	2.3 + 2.1 ci	U-0.429	2.3 + 1.1 ci
Wood Framed and Other	U-0.261	2.3 + 1.8 ci	U-0.261	2.3 + 1.8 ci	U-0.455	2.3 + 0.2 ci
Wall, Below Grade						
Below Grade Wall	C-0.380	2.6 ci	C-0.380	2.6 ci	C-0.676	1.3 ci
Floors						
Mass	U-0.291	2.9 ci	U-0.261	3.3 ci	U-0.547	1.3 ci
Steel Joist	U-0.194	6.7	U-0.194	6.7	U-0.266	4.4
Wood Framed and Other	U-0.169	6.7	U-0.169	6.7	U-0.261	3.7
Slab-On-Grade Floors						
Unheated	F-0.810	2.6 for 1200 mm	F-0.794	2.6 for 1200 mm	F-1.263	NR
Heated	F-1.072	1.8 full slab	F-1.072	1.8 full slab	F-1.402	1.8 for 1200 mm
Opaque Doors						
Swinging	U-2.56		U-2.56		U-3.58	
Nonswinging	U-2.56		U-2.56		U-7.41	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-1.64	0.40	1.10	U-1.64	0.40	1.10	U-2.30	NR	NR
Metal framing: fixed	U-2.15			U-2.15			U-3.17		
Metal framing: operable	U-2.56			U-2.56			U-3.58		
Metal framing: entrance door	U-3.94			U-3.48			U-3.94		
Skylight, 0% - 3% of Roof									
All types	U-2.56	0.40	NR	U-2.56	0.40	NR	U-5.01	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.
[a] When using the RSI-value compliance method for metal building roofs, a thermal spacer block is required.

TABLE SB 5.5-6–2017 (See Appendix A.)
(Supersedes Table 5.5-6 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 6 (A, B) (SI)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value
Roofs						
Insulation Entirely Above Deck	U-0.164	6.2 ci	U-0.164	6.2 ci	U-0.322	3.0 ci
Metal Building [a]	U-0.158	4.4 + 1.9 + 1.9 Ls	U-0.148	4.4 + 1.9 + 1.9 Ls	U-0.307	3.3 + 1.9 Ls
Attic and Other	U-0.107	10.6	U-0.107	10.6	U-0.174	6.7
Walls, Above Grade						
Mass	U-0.273	3.3 ci	U-0.261	3.5 ci	U-0.514	1.8 ci
Metal Building	U-0.256	2.3 + 3.3 ci	U-0.256	2.3 + 3.3 ci	U-0.480	2.3 + 1.1 ci
Steel Framed	U-0.250	2.3 + 2.6 ci	U-0.250	2.3 + 2.6 ci	U-0.429	2.3 + 1.1 ci
Wood Framed and Other	U-0.261	2.3 + 1.8 ci	U-0.261	2.3 + 1.8 ci	U-0.455	2.3 + 0.2 ci
Wall, Below Grade						
Below Grade Wall	C-0.284	3.5 ci	C-0.284	3.5 ci	C-0.676	1.3 ci
Floors						
Mass	U-0.261	3.3 ci	U-0.261	3.3 ci	U-0.445	1.7 ci
Steel Joist	U-0.164	6.7 + 0.7 ci	U-0.164	6.7 + 0.7 ci	U-0.266	4.4
Wood Framed and Other	U-0.138	6.7 + 0.5 ci	U-0.138	6.7 + 0.5 ci	U-0.261	3.7
Slab-On-Grade Floors						
Unheated	F-0.794	2.6 for 1200 mm	F-0.676	1.8 full slab	F-1.263	NR
Heated	F-1.072	1.8 full slab	F-1.045	1.8 full slab	F-1.340	2.6 for 1200 mm
Opaque Doors						
Swinging	U-2.56		U-2.56		U-3.58	
Nonswinging	U-2.56		U-2.56		U-2.56	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-1.64	.40	1.10	U-1.64	0.40	1.10	U-2.30	NR	NR
Metal framing: fixed	U-2.15			U-2.15			U-2.61		
Metal framing: operable	U-2.56			U-2.56			U-3.02		
Metal framing: entrance door	U-3.94			U-3.48			U-3.94		
Skylight, 0% - 3% of Roof									
All types	U-2.56	0.40	NR	U-2.56	0.40	NR	U-4.34	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.

[a] When using the RSI-value compliance method for metal building roofs, a thermal spacer block is required.

TABLE SB 5.5-7–2017 (See Appendix A.)
(Supersedes Table 5.5-7 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 7 (SI)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value	Max. U-Value	Min. RSI-Value
Roofs						
Insulation Entirely Above Deck	U-0.143	7.0 ci	U-0.143	7.0 ci	U-0.199	4.9 ci
Metal Building [a]	U-0.148	4.4 + 1.9 + 1.9 Ls	U-0.148	4.4 + 1.9 + 1.9 Ls	U-0.189	4.4 + 1.9 Ls
Attic and Other	U-0.087	12.5	U-0.087	12.5	U-0.138	8.6
Walls, Above Grade						
Mass	U-0.261	3.5 ci	U-0.261	3.5 ci	U-0.419	2.1 ci
Metal Building	U-0.225	2.3 + 3.3 ci	U-0.225	2.3 + 3.3 ci	U-0.368	2.3 + 1.7 ci
Steel Framed	U-0.250	2.3 + 2.6 ci	U-0.215	2.3 + 3.5 ci	U-0.327	2.3 + 1.8 ci
Wood Framed and Other	U-0.261	2.3 + 1.8 ci	U-0.261	2.3 + 1.8 ci	U-0.327	2.3 + 1.1 ci
Wall, Below Grade						
Below Grade Wall	C-0.284	3.5 ci	C-0.284	3.5 ci	C-0.676	1.3 ci
Floors						
Mass	U-0.215	4.1 ci	U-0.215	4.1 ci	U-0.378	2.1 ci
Steel Joist	U-0.164	6.7 + 0.7 ci	U-0.164	6.7 + 0.7 ci	U-0.266	4.4
Wood Framed and Other	U-0.138	6.7 + 0.5 ci	U-0.138	6.7 + 0.5 ci	U-0.261	3.7
Slab-On-Grade Floors						
Unheated	F-0.794	2.6 for 1200 mm	F-0.676	1.8 full slab	F-1.263	NR
Heated	F-1.045	1.8 full slab	F-1.045	1.8 full slab	F-1.340	2.6 for 1200 mm
Opaque Doors						
Swinging	U-2.56		U-2.56		U-3.58	
Nonswinging	U-2.56		U-2.56		U-2.56	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-1.64	0.45	1.10	U-1.64	0.45	1.10	U-1.64	NR	NR
Metal framing: fixed	U-1.94			U-1.94			U-1.94		
Metal framing: operable	U-2.04			U-2.04			U-2.25		
Metal framing: entrance door	U-3.94			U-3.48			U-3.94		
Skylight, 0% - 3% of Roof									
All types	U-2.56	NR	NR	U-2.56	NR	NR	U-4.34	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.
[a] When using the RSI-value compliance method for metal building roofs, a thermal spacer block is required.

TABLE SB 5.5-5–2017 (See Appendix A.)
(Supersedes Table 5.5-5 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 5 (A, B, C) (I-P)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value
Roofs						
Insulation Entirely Above Deck	U-0.029	R-35 ci	U-0.029	R-35 ci	U-0.057	R-17 ci
Metal Building [a]	U-0.033	R-25 + R-11 Ls	U-0.033	R-25 + R-11 Ls	U-0.074	R-10 + R-19
Attic and Other	U-0.019	R-60	U-0.019	R-60	U-0.031	R-38
Walls, Above Grade						
Mass	U-0.054	R-17 ci	U-0.048	R-19 ci	U-0.091	R-10 ci
Metal Building	U-0.045	R-13 + R-19 ci	U-0.045	R-13 + R-19 ci	U-0.085	R-13 + R-6.3 ci
Steel Framed	U-0.050	R-13 + R-12 ci	U-0.050	R-13 + R-12 ci	U-0.076	R-13 + R-6.3 ci
Wood Framed and Other	U-0.046	R-13 + R-10 ci	U-0.046	R-13 + R-10 ci	U-0.080	R-13 + R-1 ci
Wall, Below Grade						
Below Grade Wall	C-0.067	R-15 ci	C-0.067	R-15 ci	C-0.119	R-7.4 ci
Floors						
Mass	U-0.051	R-16.4 ci	U-0.046	R-18.7 ci	U-0.096	R-7.4 ci
Steel Joist	U-0.034	R-38	U-0.034	R-38	U-0.047	R-25
Wood Framed and Other	U-0.030	R-38	U-0.030	R-38	U-0.046	R-21
Slab-On-Grade Floors						
Unheated	F-0.468	R-15 for 48 in.	F-0.459	R-15 for 48 in.	F-0.730	NR
Heated	F-0.619	R-10 full slab	F-0.619	R-10 full slab	F-0.810	R-10 for 48 in.
Opaque Doors						
Swinging	U-0.45		U-0.45		U-0.63	
Nonswinging	U-0.45		U-0.45		U-1.31	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-0.29	0.40	1.10	U-0.29	0.40	1.10	U-0.41	NR	NR
Metal framing: fixed	U-0.38			U-0.38			U-0.56		
Metal framing: operable	U-0.45			U-0.45			U-0.63		
Metal framing: entrance door	U-0.69			U-0.61			U-0.69		
Skylight, 0% - 3% of Roof									
All types	U-0.45	0.40	NR	U-0.45	0.40	NR	U-0.88	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.

[a] When using the R-value compliance method for metal building roofs, a thermal spacer block is required.

TABLE SB 5.5-6–2017 (See Appendix A.)
(Supersedes Table 5.5-6 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 6 (A, B) (I-P)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value
Roofs						
Insulation Entirely Above Deck	U-0.029	R-35 ci	U-0.029	R-35 ci	U-0.057	R-17 ci
Metal Building [a]	U-0.028	R-25 + R-11 + R-11 Ls	U-0.026	R-25 + R-11 + R-11 Ls	U-0.054	R-19 + R-11 Ls
Attic and Other	U-0.019	R-60	U-0.019	R-60	U-0.031	R-38
Walls, Above Grade						
Mass	U-0.048	R-19 ci	U-0.046	R-20 ci	U-0.091	R-10 ci
Metal Building	U-0.045	R-13 + R-19 ci	U-0.045	R-13 + R-19 ci	U-0.085	R-13 + R-6.5 ci
Steel Framed	U-0.044	R-13 + R-15 ci	U-0.044	R-13 + R-15 ci	U-0.076	R-13 + R-6 ci
Wood Framed and Other	U-0.046	R-13 + R-10 ci	U-0.046	R-13 + R-10 ci	U-0.080	R-13 + R-1 ci
Wall, Below Grade						
Below Grade Wall	C-0.050	R-20 ci	C-0.050	R-20 ci	C-0.119	R-7.5 ci
Floors						
Mass	U-0.046	R-18.7 ci	U-0.046	R-18.7 ci	U-0.078	R-9.7 ci
Steel Joist	U-0.029	R-38 + R-4 ci	U-0.029	R-38 + R-4 ci	U-0.047	R-25
Wood Framed and Other	U-0.024	R-38 + R-3 ci	U-0.024	R-38 + R-3 ci	U-0.046	R-21
Slab-On-Grade Floors						
Unheated	F-0.459	R-15 for 48 in.	F-0.391	R-10 full slab	F-0.730	NR
Heated	F-0.619	R-10 full slab	F-0.604	R-10 full slab	F-0.774	R-15 for 48 in.
Opaque Doors						
Swinging	U-0.45		U-0.45		U-0.63	
Nonswinging	U-0.45		U-0.45		U-0.45	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-0.29	0.40	1.10	U-0.29	0.40	1.10	U-0.41	NR	NR
Metal framing: fixed	U-0.38			U-0.38			U-0.46		
Metal framing: operable	U-0.45			U-0.45			U-0.53		
Metal framing: entrance door	U-0.69			U-0.61			U-0.69		
Skylight, 0% - 3% of Roof									
All types	U-0.45	0.40	NR	U-0.45	0.40	NR	U-0.77	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.
[a] When using the R-value compliance method for metal building roofs, a thermal spacer block is required.

TABLE SB 5.5-7–2017 (See Appendix A.)
(Supersedes Table 5.5-7 in 2013 ANSI/ASHRAE/IES 90.1)
Building Envelope Requirements for Climate Zone 7 (I-P)

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly	Insulation	Assembly	Insulation	Assembly	Insulation
	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value	Max. U-Value	Min. R-Value
Roofs						
Insulation Entirely Above Deck	U-0.025	R-40 ci	U-0.025	R-40 ci	U-0.035	R-28 ci
Metal Building [a]	U-0.026	R-25 + R-11 + R-11 Ls	U-0.026	R-25 + R-11 + R-11 Ls	U-0.033	R-25 + R-11 Ls
Attic and Other	U-0.015	R-71	U-0.015	R-71	U-0.024	R-49
Walls, Above Grade						
Mass	U-0.046	R-20 ci	U-0.046	R-20 ci	U-0.074	R-12 ci
Metal Building	U-0.040	R-13 + R-19 ci	U-0.040	R-13 + R-19 ci	U-0.065	R-13 + R-9.8 ci
Steel Framed	U-0.044	R-13 + R-15 ci	U-0.038	R-13 + R-20 ci	U-0.058	R-13 + R-10 ci
Wood Framed and Other	U-0.046	R-13 + R-10 ci	U-0.046	R-13 + R-10 ci	U-0.058	R-13 + R-6 ci
Wall, Below Grade						
Below Grade Wall	C-0.050	R-20 ci	C-0.050	R-20.0 ci	C-0.119	R-7.5 ci
Floors						
Mass	U-0.038	R-23.4 ci	U-0.038	R-23.4 ci	U-0.067	R-12 ci
Steel Joist	U-0.029	R-38 + R-4 ci	U-0.029	R-38 + R-4 ci	U-0.047	R-25
Wood Framed and Other	U-0.024	R-38 + R-3 ci	U-0.024	R-38 + R-3 ci	U-0.046	R-21
Slab-On-Grade Floors						
Unheated	F-0.459	R-15 for 48 in.	F-0.391	R-10 full slab	F-0.730	NR
Heated	F-0.604	R-10 full slab	F-0.604	R-10 full slab	F-0.774	R-15 for 48 in.
Opaque Doors						
Swinging	U-0.45		U-0.45		U-0.63	
Nonswinging	U-0.45		U-0.45		U-0.45	

Fenestration	Assembly	Assembly		Assembly	Assembly		Assembly	Assembly	
	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC	Max. U-Value	Max. SHGC	Min. VT/SHGC
Vertical Fenestration, 0% - 40% of Wall									
Nonmetal framing: all	U-0.29	0.45	1.10	U-0.29	0.45	1.10	U-0.29	NR	NR
Metal framing: fixed	U-0.34			U-0.34			U-0.34		
Metal framing: operable	U-0.36			U-0.36			U-0.40		
Metal framing: entrance door	U-0.69			U-0.61			U-0.69		
Skylight, 0% - 3% of Roof									
All types	U-0.45	NR	NR	U-0.45	NR	NR	U-0.77	NR	NR

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = no (insulation) requirement.

[a] When using the R-value compliance method for metal building roofs, a thermal spacer block is required.

1.1.1.5. Heating Ventilation and Air-Conditioning

(1) Where *electric space heating* is used, the *building* envelope shall comply with the requirements of Table SB 5.5-7–2017 of this Supplementary Standard, regardless of its climatic zone.

(2) Section 6.4.1.A shall be added to Section 6 "Heating Ventilation and Air Conditioning Equipment" of 2013 ANSI/ASHRAE/IES 90.1.

6.4.1.A. Testing Procedures for Minimum Equipment Efficiency

(1) Equipment efficiencies that are tested in accordance with the test procedures listed in the 2015 NECB or in an applicable Ontario Regulation, shall be deemed to be in compliance with the test procedures given in Tables 6.8.1-1 to 6.8.1-13.

(3) Fan systems shall have fan power limitations 10% below limitations specified in Table 6.5.3.1-1 of 2013 ANSI/ASHRAE/IES-90.1.

(4) Energy recovery systems required in 6.5.6.1 of 2013 ANSI/ASHRAE/IES-90.1 shall have at least 55% energy recovery effectiveness.

1.1.1.6. HVAC and Service Water Heating Equipment – Minimum Equipment Efficiency

(1) The minimum equipment efficiency of a gas-fired boiler shall comply with the value required in Table SB 6.8.1–2017.

(2) The minimum equipment efficiency of a gas-fired storage water heater shall comply with the value required in Table SB 6.8.1–2017.

Table SB 6.8.1–2017
Minimum Equipment Efficiency for Gas Boilers and Gas Water Heaters
Forming Part of Sentences 1.1.1.6.(1) and (2)

Equipment	Size Category, kW (Btu/h)	Performance Required
Gas boilers, hot water	< 88 (< 300,000)	90% AFUE
	≥ 88 and < 733 (≥ 300,000 and < 2,500,000)	90% E_t
Gas water heaters	≤ 22 (≤ 75,000)	0.7 - 0.0005V (V in litres) EF (0.7 - 0.00189V, V in U.S. gal)
Column 1	2	3

1.1.1.7. Service Water Heating Equipment

(1) Section 7.4.2.A shall be added to Section 7 "Service Water Heating Equipment " of 2013 ANSI/ASHRAE/IES 90.1.

7.4.2.A Testing Procedures for Minimum Equipment Efficiency

(1) Equipment efficiencies that are tested in accordance with the test procedures listed in the 2015 NECB or in an applicable Ontario Regulation, shall be deemed to be in compliance with the test procedures given in Table 7.8.

(2) Section 7.4.5.2 of Section 7 "Service Water Heating Equipment" of 2013 ANSI/ASHRAE/IES 90.1 shall be substituted with the following Article:

7.4.5.2 Pool Covers. Heated exterior public pools and public spas shall be equipped with pool covers.

Exception. Pools deriving over 60% of their energy for heating (computed over an annual operating season) from site-recovered or site-solar energy.

1.1.1.8. Power, Lighting and Other Equipment

(1) Automatic receptacle controls required in Section 8.4.2 of 2013 ANSI/ASHRAE/IES 90.1 shall not apply to private and open offices.

(2) Section 8.4.3.3 shall be added to Section 8.4.3. "Electric Energy monitoring" of 2013 ANSI/ASHRAE/IES 90.1.

8.4.3.3 The building shall be deemed to comply with Sections 8.4.3.1 and 8.4.3.2 if the building is designed and constructed to facilitate future installation of means to measure and monitor energy use of the building parts and systems described in Section 8.4.3.1. (See Appendix A.)

(3) Section 9.4.1.2.(b) of 2013 ANSI/ASHRAE/IES 90.1 shall be substituted with the following:

9.4.1.2.(b) Lighting shall be controlled by one or more devices that automatically reduce lighting power by a minimum of 30% when there is no activity detected within a lighting zone for no more than 20 minutes. Lighting zone for this requirement shall be no larger than 334 m^2 (3600 ft^2).

(4) Uncovered parking areas are exempt from the requirements of Section 9.4.1.4.(c) of 2013 ANSI/ASHRAE/IES 90.1.

1.1.1.9. Lighting Power Allowance and Controls

(1) The calculation of interior lighting power allowance shall be based on the lighting power densities given in Table SB 9.5.1–2017 or Table SB 9.6.1–2017 of this Chapter.

(2) Except as provided in Sentence (4), for the purpose of Sentence (1), any reference to Table 9.5.1 and the lighting power densities contained in Table 9.6.1 of 2013 ANSI/ASHRAE/IES-90.1 shall be deemed to be a reference to Table SB 9.5.1–2017 and the lighting power densities listed in Table SB 9.6.1–2017 of this Chapter respectively.

(3) Lighting power densities listed in Table SB 9.5.1–2017 and Table SB 9.6.1–2017 of this Chapter shall supersede the lighting power densities listed in Table 9.5.1 and Table 9.6.1 of 2013 ANSI/ASHRAE/IES-90.1 respectively.

(4) Minimum lighting control requirements in Table 9.6.1 of 2013 ANSI/ASHRAE/IES-90.1 shall apply.

Table SB 9.5.1–2017
Lighting Power Densities Using the Building Area Method(1)
Forming Part of Sentences 1.1.1.9.(1) to (3)

Building Area Type	Lighting Power Density, W/m² (W/ft²)
Automotive Facility	7.6 (0.71)
Convention Centre	8.2 (0.76)
Courthouse	9.7 (0.90)
Dining	
Bar Lounge / Leisure	9.7 (0.90)
Cafeteria / Fast Food	8.5 (0.79)
Family	8.4 (0.78)
Dormitory	6.6 (0.61)
Exercise Centre	7.0 (0.65)
Fire Station	5.7 (0.53)
Gymnasium	7.3 (0.68)
Health-Care Clinic	8.8 (0.82)
Hospital	11.3 (1.05)
Hotel	8.1 (0.75)
Library	8.4 (0.78)
Manufacturing Facility	9.7 (0.90)
Motel	8.1 (0.75)
Motion Picture Theatre	8.9 (0.83)
Multi-Unit Residential Building	7.3 (0.68)
Museum	11.4 (1.06)
Office	8.5 (0.79)
Storage Garage	1.6 (0.15)
Penitentiary	8.1 (0.75)
Performing Arts Theatre	12.7 (1.18)
Police Station	8.6 (0.80)
Post Office	7.2 (0.67)
Religious Building	10.1 (0.94)
Retail	11.4 (1.06)
School / University	8.7 (0.81)
Sports Arena	9.4 (0.87)
Town Hall	8.6 (0.80)
Transportation	6.6 (0.61)
Warehouse	5.2 (0.48)
Workshop	9.7 (0.90)
Column 1	2

Notes to Table SB 9.5.1–2017:

(1) Terms shall have the same meanings as they have in 2013 ANSI/ASHRAE/IES-90.1.

Table SB 9.6.1–2017
Lighting Power Densities Using the Space-by-Space Method(1)
Forming Part of Sentences 1.1.1.9.(1) to (3)

Common Space Types	Lighting Power Density, W/m² (W/ft²)
Atrium	
< 6 m in height	1.06 per m in height (0.03 per ft in height)
≥ 6 m and ≤ 12 m in height	1.06 per m in height (0.03 per ft in height)
> 12 m in height	4.31 + 0.71 per m in height (0.40 + 0.02 per ft in height)
Audience / Seating Area-Permanent	
For Auditorium	6.8 (0.63)
For Convention Centre	8.8 (0.82)
For Gymnasium	7.0 (0.65)
For Motion Picture Theatre	12.3 (1.14)
For Penitentiary	3.0 (0.28)
For Performing Arts Theatre	21.8 (2.03)
For Religious Buildings	16.5 (1.53)
For Sports Arena	4.6 (0.43)
Other	4.6 (0.43)
Banking Activity Area and Offices	9.3 (0.86)
Classroom / Lecture / Training	
For Penitentiary	14.4 (1.34)
Other	10.3 (0.96)
Computer / Server Room	14.3 (1.33)
Conference / Meeting / Multi-Purpose	11.5 (1.07)
Confinement Cell	8.7 (0.81)
Copy / Print Room	6.0 (0.56)
Corridor / Transition Area	
For space designed to ANSI/IES RP- 28(2) (and used primarily by residents)	9.9 (0.92)
For Hospital	9.9 (0.92)
For Manufacturing Facility	3.1 (0.29)
Other	7.1 (0.66)
Courtroom	15.0 (1.39)
Dining Area	
For Bar Lounge / Leisure Dining	10.0 (0.93)
For Cafeteria / Fast Food Dining	6.8 (0.63)
For Family Dining	7.6 (0.71)
For space designed to ANSI/IES RP-28(2) (and used primarily by residents)	21.5 (2.00)
For Penitentiary	10.3 (0.96)
Other	6.8 (0.63)
Column 1	2

Table SB 9.6.1–2017 **(Cont'd)**
Lighting Power Densities Using the Space-by-Space Method
Forming Part of Sentences 1.1.1.9.(1) to (3)

Building-Specific Space Types	Lighting Power Density, W/m^2 (W/ft^2)
Dressing / Fitting Room For Performing Arts Theatre	6.6 (0.61)
Electrical / Mechanical Room	4.6 (0.43)
Emergency Vehicle Garage	4.4 (0.41)
Food Preparation Area	11.4 (1.06)
Guest Room	8.3 (0.77)
Laboratory	
For Classrooms	12.9 (1.20)
Other	15.6 (1.45)
Laundry / Washing Area	4.6 (0.43)
Loading Dock, Interior	6.2 (0.58)
Lobby	
For space designed to ANSI/IES RP-28(2) (and used primarily by residents)	21.8 (2.03)
For Elevator	7.3 (0.68)
For Hotel	11.4 (1.06)
For Motion Picture Theatre	4.8 (0.45)
For Performing Arts Theatre	18.3 (1.70)
Other	10.8 (1.00)
Locker Room	5.2 (0.48)
Lounge / Break Room	
For Healthcare Facility	8.4 (0.78)
Other	6.7 (0.62)
Office	
Enclosed	10.0 (0.93)
Open Plan	8.7 (0.81)
Storage Garage, Interior	1.5 (0.14)
Pharmacy Area	14.4 (1.34)
Sales Area	13.1 (1.22)
Seating Area, General	4.6 (0.43)
Stairway	6.2 (0.58)
Storage Room ≥ 5 m^2 and < 100 m^2	6.8 (0.63)
Storage Room < 5 m^2	10.4 (0.97)
Vehicular Maintenance Area	6.0 (0.56)
Washroom	
For care occupancy designed to ANSI/IES RP-28(2) (and used primarily by residents)	13.1 (1.22)
Other	9.1 (0.85)
Workshop	12.3 (1.14)
Column 1	2

Table SB 9.6.1–2017 **(Cont'd)**
Lighting Power Densities Using the Space-by-Space Method
Forming Part of Sentences 1.1.1.9.(1) to (3)

Building-Specific Space Types	Lighting Power Density, W/m² (W/ft²)
Care occupancy designed to ANSI/IES RP-28(2)	
For Chapel (used primarily by residents)	11.4 (1.06)
For Recreation Room (used primarily by residents)	19.4 (1.80)
Convention Centre	
Exhibit Space	9.5 (0.88)
Dormitory	
Living Quarters	5.8 (0.54)
Fire Station	
Sleeping Quarters	2.2 (0.20)
Gymnasium / Fitness Centre	
Exercise Area	5.4 (0.50)
Playing Area	8.8 (0.82)
Healthcare Facility	
Exam / Treatment Room	18.1 (1.68)
Medical Supply Room	5.8 (0.54)
Nursery	10.8 (1.00)
Nurses' Station	8.7 (0.81)
Operating Room	23.4 (2.17)
Patient Room	6.7 (0.62)
Physical Therapy	9.0 (0.84)
Imaging Room	11.4 (1.06)
Recovery	11.1 (1.03)
Library	
Reading Area	8.8 (0.82)
Stacks	12.9 (1.20)
Manufacturing Facility	
Detailed Manufacturing Area	10.0 (0.93)
Equipment Room	7.0 (0.65)
Extra High Bay (> 15 m floor to ceiling height)	11.3 (1.05)
High Bay (7.5 m to 15 m floor to ceiling height)	8.1 (0.75)
Low Bay (< 7.5 m floor to ceiling height)	10.3 (0.96)
Column 1	2

Table SB 9.6.1–2017 **(Cont'd)**
Lighting Power Densities Using the Space-by-Space Method
Forming Part of Sentences 1.1.1.9.(1) to (3)

Building-Specific Space Types	Lighting Power Density, W/m² (W/ft²)
Museum	
General Exhibition	11.3 (1.05)
Restoration	9.2 (0.85)
Post Office	7.3 (0.68)
Sorting Area	
Religious Building	
Fellowship Hall	5.9 (0.55)
Worship / Pulpit / Choir	16.5 (1.53)
Retail Facilities	
Dressing / Fitting Room	5.4 (0.50)
Mall Concourse	9.7 (0.90)
Sports Arena – Playing Area	
Class IV Facility	12.2 (1.13)
Class III Facility	18.3 (1.70)
Class II Facility	21.1 (1.96)
Class I Facility	26.6 (2.47)
Transportation Facility	
Baggage / Carousel Area	4.8 (0.45)
Airport Concourse	3.3 (0.31)
Terminal Ticket Counter	6.7 (0.62)
Warehouse	
Small, Hand-Carried Items	7.4 (0.69)
Medium To Bulky, Palletized Items	3.8 (0.35)
Column 1	2

Notes to Table SB 9.6.1–2017:
(1) Terms shall have the same meanings as they have in 2013 ANSI/ASHRAE/IES-90.1.
(2) BSR/IES RP-28-16, "Lighting and the Visual Environment for Seniors and the Low Vision Population".

(5) The calculation of exterior lighting power allowance shall be based on Table SB 9.4.2-2–2017 of this Chapter.

(6) Lighting power allowances listed in Table SB 9.4.2-2–2017 of this Chapter shall supersede the lighting power allowances listed in Table 9.4.2-2 of 2013 ANSI/ASHRAE/IES 90.1.

TABLE SB 9.4.2-2–2017
(Supersedes Table 9.4.2-2 in 2013 ANSI/ASHRAE/IES 90.1)
Individual Lighting Power Allowances for Building Exteriors
Forming Part of Sentences 1.1.1.9.(5) and (6)

	Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance (base allowance may be used in tradable or non-tradable surfaces)					
	No allowance	350 W	400 W	500 W	900 W
Tradable Surfaces (LPDs for uncovered parking areas, building grounds, building entrances, exits and loading docks, canopies and overhangs, and outdoor sales areas may be traded.)					
Uncovered Parking Areas					
Parking areas and drives	No allowance	0.32 W/m^2 (0.03 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.65 W/m^2 (0.06 W/ft^2)	0.86 W/m^2 (0.08 W/ft^2)
Building Grounds					
Walkways less than 3 m (10 ft) wide	No allowance	1.6 W/m (0.50 W/ft)	1.6 W/m (0.50 W/ft)	2.0 W/m (0.60 W/ft)	2.3 W/m (0.70 W/ft)
Walkways 3 m (10 ft) wide or greater	No allowance	1.1 W/m^2 (0.10 W/ft^2)	1.1 W/m^2 (0.10 W/ft^2)	1.2 W/m^2 (0.11 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)
Plaza areas	No allowance	1.1 W/m^2 (0.10 W/ft^2)	1.1 W/m^2 (0.10 W/ft^2)	1.2 W/m^2 (0.11 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)
Stairways	No allowance	6.5 W/m^2 (0.60 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)
Pedestrian Tunnels	No allowance	1.3 W/m^2 (0.12 W/ft^2)	1.3 W/m^2 (0.12 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)	2.3 W/m^2 (0.21 W/ft^2)
Landscaping	No allowance	0.32 W/m^2 (0.03 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)
Building Entrances, Exits, and Loading Docks					
Pedestrian and vehicular entrances and exits	No allowance	46 W/m (14 W/ft) of door width	46 W/m (14 W/ft) of door width	69 W/m (21 W/ft) of door width	69 W/m (21 W/ft) of door width
Entry canopies	No allowance	2.1 W/m^2 (0.20 W/ft^2)	2.7 W/m^2 (0.25 W/ft^2)	4.3 W/m^2 (0.40 W/ft^2)	4.3 W/m^2 (0.40 W/ft^2)
Loading docks	No allowance	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)
Sales Canopies					
Free standing and attached	No allowance	4.3 W/m^2 (0.40 W/ft^2)	4.3 W/m^2 (0.4 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)
Outdoor Sales					
Open areas (including vehicle sales lots)	No allowance	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)
Street frontage for vehicle sales lots in addition to “open area” allowance	No allowance	No allowance	23 W/m (7 W/ft)	23 W/m (7 W/ft)	69 W/m (21 W/ft)
Column 1	2	3	4	5	6

TABLE SB 9.4.2-2–2017 **(Cont'd)**
(Supersedes Table 9.4.2-2 in 2013 ANSI/ASHRAE/IES 90.1)
Individual Lighting Power Allowances for Building Exteriors
Forming Part of Sentences 1.1.1.9.(5) and (6)

	Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance (base allowance may be used in tradable or non-tradable surfaces)					
	No allowance	350 W	400 W	500 W	900 W
Nontradable Surfaces (LPD calculations for the following applications can be used only for the specific application and cannot be traded between surfaces or with other exterior lighting. The following allowances are in addition to any allowance otherwise permitted in the "Tradable Surfaces" section of this table.)					
Building façades (façade lighting)	No allowance	No allowance	1.1 W/m^2 (0.10 W/ft^2) for each illuminated wall or surface or 8.2 W/m (2.5 W/ft) for each illuminated wall or surface length	1.6 W/m^2 (0.15 W/ft^2) for each illuminated wall or surface or 12.3 W/m (3.75 W/ft) for each illuminated wall or surface length	2.2 W/m^2 (0.20 W/ft^2) for each illuminated wall or surface or 16.4 W/m (5.0 W/ft) for each illuminated wall or surface length
Automated teller machines (ATM) and night depositories	No allowance	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location
Entrances and gatehouse inspection stations at guarded facilities	No allowance	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area
Loading areas for law enforcement, fire, ambulance, and other emergency service vehicles	No allowance	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area
Drive-through windows/doors	No allowance	200 W per drive-through	200 W per drive-through	200 W per drive-through	200 W per drive-through
Parking near 24-hour retail entrances	No allowance	400 W per drive-through	400 W per drive-through	400 W per drive-through	400 W per drive-through
Roadway/parking entry, trail head, and toilet facility, or other locations approved by the authority having jurisdiction.	A single luminaire of 60 W or less may be installed for each roadway/parking entry, trail head, and toilet facility, or other locations approved by the authority having jurisdiction	No allowance	No allowance	No allowance	No allowance
Column 1	2	3	4	5	6

1.1.1.10. Other Equipment

(1) Section 10.4.1.A shall be added to Section 10 "Other Equipment" of 2013 ANSI/ASHRAE/IES 90.1.

10.4.1.A Electric Motors

(1) Notwithstanding Section 10.4.1, where the minimum efficiency requirements of an electric motor is covered under an applicable Ontario Energy Efficiency Regulation, it shall meet the requirements of the Ontario Regulation and shall be deemed to be in compliance with Section 10.4.1.

(2) Section 10.4.5.3 shall be added to Section 10.4.5 "Whole Building Energy Monitoring" of 2013 ANSI/ASHRAE/IES 90.1.

10.4.5.3 The building shall be deemed to comply with Sections 10.4.5.1 and 10.4.5.2, if the building is designed and constructed to facilitate future installation of means to measure and monitor energy use by each energy type described in Section 10.4.5.1. (See Appendix A.)

1.1.1.11. Energy Cost Method

(1) Section 11.4.1.1.(a.) of 2013 ANSI/ASHRAE/IES 90.1 shall be substituted with the following:

a. hour by hour and a minimum of 8760 hours per year.

(2) Section 11.5.2.(d.) of 2013 ANSI/ASHRAE/IES 90.1 shall be substituted with the following:

d. For the purpose of annual energy use simulation, except as provided in (d1.), the peak outdoor air ventilation rates for the proposed and budget building shall be the same and set to the minimum rates required by the applicable ventilation standard based on the proposed building design. Heat recovery shall be modelled for the budget building design in accordance with Section 6.5.6.1.

d1. Except where it may be required by Section 6 of 2013 ANSI/ASHRAE/IES 90.1, demand controlled and dedicated ventilation strategies need not be modeled in the budget building.

(3) Notwithstanding Section 11.5.2.(h.), the budget building fan power may be modeled in accordance with the requirements of G3.1.2.10 of Appendix G, 2013 ANSI/ASHRAE/IES 90.1.

(4) Notwithstanding footnotes "e" and "f" of Table 11.5.3.A, the budget building water pumps may be modeled in accordance with the requirements of G3.1.3.5 and G3.1.3.10 of Appendix G, 2013 ANSI/ASHRAE/IES 90.1.

(5) Energy saving credits may be taken for automatic lighting controls that are provided in addition to those required in Section 9.4.1 of 2013 ANSI/ASHRAE/IES 90.1.

(6) Section 11.4.3.2.A.(1) below shall be added to Section 11.4.3 " Renewable, Recovered and Purchased Energy Rates" of 2013 ANSI/ASHRAE/IES 90.1.

11.4.3.2.A Rates for Energy Supplied Back to the Grid System.

(1) Where energy generated by an on-site renewable energy source is supplied back to the grid system, for the purpose of Section 11, Energy Cost Budget Method, the rates for the energy supplied back to the grid system shall be assumed to be equal to the rates paid for the same type of purchased energy from the grid system.

Chapter 3

Additional Requirements to the 2015 NECB

Section 1.1. Changes and Additional Requirements

1.1.1. Changes and Additional Requirements to the 2015 NECB

1.1.1.1. Application of Chapter 3

(1) Where compliance with energy efficiency requirements is achieved in accordance with Clause 1.1.2.1.(1)(b) of Chapter 1, energy efficiency of the *building* is required to conform to the 2015 NECB and this Chapter.

(2) Notwithstanding Sentence 1.1.1.3.(1) of the 2015 NECB, where the requirements of the *Building Code* or the requirements of this Division are in conflict with the requirements of the 2015 NECB, the requirements of the *Building Code* and the requirements of this Division shall govern.

(3) In the 2015 NECB, references made to the CCBFC NRCC 53301, "National Building Code of Canada" or CCBFC NRCC 53302, "National Plumbing Code of Canada" are deemed to be references to corresponding provisions of the *Building Code*.

1.1.1.2. **Division A, Part 1 "Compliance" of the 2015 NECB**

(1) Notwithstanding the provisions Sentence 1.1.1.1.(1) of Part 1 of Division A of the 2015 NECB and except as provided in Division 1 and Chapter 1 of Division 3 of this Supplementary Standard, except for *residential occupancies* that are within the scope of Part 9 of Division B of the *Building Code*, and except for farm buildings, the 2015 NECB shall apply to all *buildings*.

1.1.1.3. **Division A, Part 2 "Objectives" and Part 3 "Functional Statements" of the 2015 NECB**

(1) In addition to objectives and functional statements set out in Parts 2 and 3 of Division A of the 2015 NECB, the objectives and functional statements set out in the *Building Code* and attributed to Sentence 12.2.1.2.(2) of Division B of the *Building Code* shall also be the objectives and functional statements of the 2015 NECB.

1.1.1.4. **Division B, "Acceptable Solutions" of the 2015 NECB**

(1) Except as provided in this Chapter, the energy efficiency of a *building* shall conform to all requirements of Division B "Acceptable Solutions" of the 2015 NECB and this Chapter.

1.1.1.5. **Division C, "Administrative Provisions" of the 2015 NECB**

(1) Division C "Administrative Provisions" of the 2015 NECB shall be substituted with the administrative provisions of the *Building Code Act, 1992* and the administrative provisions of Division C of the *Building Code*.

1.1.1.6. Enhancements to Division B, Part 3 "Building Envelope" of the 2015 NECB

(1) Where *electric space heating* is used in a *building* located in Zone 5, 6, 7A, or 7B, the *building* envelope requirements of Zone 7B of the 2015 NECB shall apply regardless of climatic zone.

(2) Table 3.2.2.2. in Division B of the 2015 NECB shall be substituted with the following:

Table SB 3.2.2.2.
(Supersedes Table 3.2.2.2. in the 2015 NECB)
Overall Thermal Transmittance of Above-Ground Opaque Building Assemblies
Forming Part of Sentences 3.2.2.2.(1) and (2)

Above-Ground *Opaque Building Assembly*	Heating Degree-Days of *Building* Location,(1) in Celsius Degree-Days			
	Zone 5(2) 3000 to 3999	Zone 6(2) 4000 to 4999	Zone 7A and 7B(2) 5000 to 6999	Zone 8(2) ≥ 7000
	Maximum *Overall Thermal Transmittance*, in W/(m²·K)			
Walls	0.278	0.247	0.210	0.183
Roofs	0.156	0.156	0.138	0.121
Floors	0.183	0.183	0.162	0.142

Notes to Table SB 3.2.2.2.:
(1) See Sentence 1.1.4.1.(1).
(2) See Appendix A.

(3) Table 3.2.2.3. in Division B of the 2015 NECB shall be substituted with the following:

Table SB 3.2.2.3.
(Supersedes Table 3.2.2.3. in the 2015 NECB)
Overall Thermal Transmittance of Fenestration
Forming Part of Sentences 3.2.2.3.(2) to (4)

Component	Heating Degree-Days of *Building* Location,(1) in Celsius Degree-Days			
	Zone 5(2) 3000 to 3999	Zone 6(2) 4000 to 4999	Zone 7A and 7B(2) 5000 to 6999	Zone 8(2) ≥ 7000
	Maximum *Overall Thermal Transmittance*, in W/(m²·K)			
All Fenestration	1.9	1.9	1.9	1.4

Notes to Table SB 3.2.2.3.:
(1) See Sentence 1.1.4.1.(1).
(2) See A-Table 3.2.2.2. in Appendix A.

(4) Sentence (5) shall be added to Article 3.2.2.3. of Division B of the 2015 NECB.

3.2.2.3. Thermal Characteristics of Fenestration

(5) The maximum solar heat gain coefficient of fenestration shall comply with Table 3.2.2.3.A.

Table 3.2.2.3.A.
Maximum Solar Heat Gain Coefficients
Forming Part of Sentence 3.2.2.3.(4)

Climatic Zone	Zone 5		Zone 6		Zone 7A and 7B		Zone 8	
Occupancy	Residential	Others	Residential	Others	Residential	Others	Residential	Others
Vertical Fenestration, SHGC	0.40	0.40	0.40	0.40	0.45	0.45	NR	NR
Skylights, SHGC	0.40	0.40	0.40	0.40	NR	NR	NR	NR
Column 1	2	3	4	5	6	7	8	9

Notes to Table 3.2.2.3.A.:
NR = No requirement

(5) Table 3.2.2.4. in Division B of the 2015 NECB shall be substituted with the following:

Table SB 3.2.2.4.
(Supersedes Table 3.2.2.4. in the 2015 NECB)
Overall Thermal Transmittance of Doors
Forming Part of Sentences 3.2.2.4.(1) and (2)

Component	Heating Degree-Days of *Building* Location,(1) in Celsius Degree-Days			
	Zone 5(2) 3000 to 3999	Zone 6(2) 4000 to 4999	Zone 7A and 7B(2) 5000 to 6999	Zone 8(2) ≥ 7000
	Maximum *Overall Thermal Transmittance*, in W/(m²·K)			
All Doors	1.9	1.9	1.9	1.4

Notes to Table SB 3.2.2.4.:
(1) See Sentence 1.1.4.1.(1).
(2) See A-Table 3.2.2.2. in Appendix A.

(6) Notwithstanding Sentence 3.3.1.2.(2) of Division B of the 2015 NECB, where Section 3.3. Trade-Off Path of the 2015 NECB is used and where the vertical total fenestration and door area to gross wall area ratio (FDWR) of the proposed building is less than the maximum FDWR permitted in Sentence 3.2.1.4.(1) of Division B of the 2015 NECB, the FDWR of the reference building shall be equal to the proposed building.

(7) Notwithstanding of Sentence 3.3.1.2.(2) of Division B of the 2015 NECB, where Section 3.3. Trade-Off Path of the 2015 NECB is used and where the total skylight area to gross roof area ratio of the proposed building is less than the maximum ratio permitted in Sentence 3.2.1.4.(2) of Division B of the 2015 NECB, the total skylight area to gross roof area ratio of the reference building shall be equal to the proposed building.

(8) Thermal characteristics of fenestration are permitted to be determined in conformance with;
(a) CAN/CSA-A440.2, “Fenestration Energy Performance”, or
(b) NFRC 100, “Procedure for Determining Fenestration Product U-factors” and NFRC 200, “Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence”.

1.1.1.7. Enhancements to Division B, Part 4 “Lighting” of the 2015 NECB

(1) The calculation of interior lighting power allowance shall be based on the lighting power densities given in Table SB 4.2.1.5. –2017 or Table SB 4.2.1.6.–2017 of this Chapter.

(2) Except as provided in Sentence (4), for the purpose of Sentence (1), any reference to Table 4.2.1.5. and the lighting power densities contained in Table 4.2.1.6. of Division B of the 2015 NECB, shall be deemed to be a reference to Table SB 4.2.1.5.–2017 and lighting power densities in Table SB 4.2.1.6.–2017 of this Chapter.

(3) Lighting power densities listed in Table SB 4.2.1.5.–2017 and Table SB 4.2.1.6.–2017 of this Chapter shall supersede the lighting power densities listed in Table 4.2.1.5. and Table 4.2.1.6. of Division B of the 2015 NECB.

(4) Minimum lighting control requirements in Table 4.2.1.6. of the 2015 NECB shall apply.

(5) The calculation of exterior lighting power allowance shall be based on Table SB 4.2.3.1.-B–2017, Table SB 4.2.3.1.-C–2017 and Table SB 4.2.3.1.-D–2017 of this Chapter.

(6) Lighting power allowances listed in Table SB 4.2.3.1.-B–2017, Table SB 4.2.3.1.-C–2017 and Table SB 4.2.3.1.-D–2017 of this Chapter shall supersede the lighting power allowances listed in Table 4.2.3.1.-B, Table 4.2.3.1.-C and Table 4.2.3.1.-D of the 2015 NECB, respectively.

Table SB 4.2.1.5.–2017
Lighting Power Density by Building Type for Use with the Building Area Method
Forming Part of Sentences 4.2.1.5.(1), (4) and (5)

Building Area Type	Lighting Power Density, W/m^2 (W/ft^2)
Automotive Facility	7.6 (0.71)
Convention Centre	8.2 (0.76)
Courthouse	9.7 (0.90)
Dining	
Bar Lounge / Leisure	9.7 (0.90)
Cafeteria / Fast Food	8.5 (0.79)
Family	8.4 (0.78)
Dormitory	6.6 (0.61)
Exercise Centre	7.0 (0.65)
Fire Station	5.7 (0.53)
Gymnasium	7.3 (0.68)
Health-Care Clinic	8.8 (0.82)
Hospital	11.3 (1.05)
Hotel	8.1 (0.75)
Library	8.4 (0.78)
Manufacturing Facility	9.7 (0.90)
Motel	8.1 (0.75)
Motion Picture Theatre	8.9 (0.83)
Multi-Unit Residential Building	7.3 (0.68)
Museum	11.4 (1.06)
Office	8.5 (0.79)
Storage Garage	1.6 (0.15)
Penitentiary	8.1 (0.75)
Performing Arts Theatre	12.7 (1.18)
Police Station	8.6 (0.80)
Post Office	7.2 (0.67)
Religious Building	10.1 (0.94)
Retail	11.4 (1.06)
School / University	8.7 (0.81)
Sports Arena	9.4 (0.87)
Town Hall	8.6 (0.80)
Transportation	6.6 (0.61)
Warehouse	5.2 (0.48)
Workshop	9.7 (0.90)
Column 1	2

Table SB 4.2.1.6.–2017[1]
Lighting Power Density Using the Space-by-Space Method
Forming Part of Sentence 4.2.1.6.(1)

Common Space Types	Lighting Power Density, W/m^2 (W/ft^2)
Atrium	
< 6 m in height	1.06 per m in height (0.03 per ft in height)
≥ 6 m and ≤ 12 m in height	1.06 per m in height (0.03 per ft in height)
> 12 m in height	4.31 + 0.71 per m in height (0.40 + 0.02 per ft in height)
Audience / Seating Area-Permanent	
For Auditorium	6.8 (0.63)
For Convention Centre	8.8 (0.82)
For Gymnasium	7.0 (0.65)
For Motion Picture Theatre	12.3 (1.14)
For Penitentiary	3.0 (0.28)
For Performing Arts Theatre	21.8 (2.03)
For Religious Buildings	16.5 (1.53)
For Sports Arena	4.6 (0.43)
Other	4.6 (0.43)
Banking Activity Area and Offices	9.3 (0.86)
Classroom / Lecture / Training	
For Penitentiary	14.4 (1.34)
Other	10.3 (0.96)
Computer / Server Room	14.3 (1.33)
Conference / Meeting/Multi-Purpose	11.5 (1.07)
Confinement Cell	8.7 (0.81)
Copy / Print Room	6.0 (0.56)
Corridor / Transition Area	
For space designed to ANSI/IES RP- 28[2] (and used primarily by residents)	9.9 (0.92)
For Hospital	9.9 (0.92)
For Manufacturing Facility	3.1 (0.29)
Other	7.1 (0.66)
Courtroom	15.0 (1.39)
Dining Area	
For Bar Lounge / Leisure Dining	10.0 (0.93)
For Cafeteria / Fast Food Dining	6.8 (0.63)
For Family Dining	7.6 (0.71)
For space designed to ANSI/IES RP-28[2] (and used primarily by residents)	21.5 (2.00)
For Penitentiary	10.3 (0.96)
Other	6.8 (0.63)
Column 1	2

Table SB 4.2.1.6.–2017 **(Cont'd)**
Lighting Power Density Using the Space-by-Space Method
Forming Part of Sentence 4.2.1.6.(1)

Building-Specific Space Types	Lighting Power Density, W/m^2 (W/ft^2)
Dressing / Fitting Room For Performing Arts Theatre	6.6 (0.61)
Electrical / Mechanical Room	4.6 (0.43)
Emergency Vehicle Garage	4.4 (0.41)
Food Preparation Area	11.4 (1.06)
Guest Room	8.3 (0.77)
Laboratory	
For Classrooms	12.9 (1.20)
Other	15.6 (1.45)
Laundry / Washing Area	4.6 (0.43)
Loading Dock, Interior	6.2 (0.58)
Lobby	
For space designed to ANSI/IES RP-28(2) (and used primarily by residents)	21.8 (2.03)
For Elevator	7.3 (0.68)
For Hotel	11.4 (1.06)
For Motion Picture Theatre	4.8 (0.45)
For Performing Arts Theatre	18.3 (1.70)
Other	10.8 (1.00)
Locker Room	5.2 (0.48)
Lounge / Break Room	
For Healthcare Facility	8.4 (0.78)
Other	6.7 (0.62)
Office	
Enclosed	10.0 (0.93)
Open Plan	8.7 (0.81)
Storage Garage, Interior	1.5 (0.14)
Pharmacy Area	14.4 (1.34)
Sales Area	13.1 (1.22)
Seating Area, General	4.6 (0.43)
Stairway	6.2 (0.58)
Storage Room ≥ 5 m^2 and < 100 m^2	6.8 (0.63)
Storage Room < 5 m^2	10.4 (0.97)
Vehicular Maintenance Area	6.0 (0.56)
Washroom	
For care occupancy designed to ANSI/IES RP-28(2) (and used primarily by residents)	13.1 (1.22)
Other	9.1 (0.85)
Workshop	12.3 (1.14)
Column 1	2

Table SB 4.2.1.6.–2017 **(Cont'd)**
Lighting Power Density Using the Space-by-Space Method
Forming Part of Sentence 4.2.1.6.(1)

Building-Specific Space Types	Lighting Power Density, W/m^2 (W/ft^2)
Care occupancy designed to ANSI/IES RP-28(2)	
For Chapel (used primarily by residents)	11.4 (1.06)
For Recreation Room (used primarily by residents)	19.4 (1.80)
Convention Centre	
Exhibit Space	9.5 (0.88)
Dormitory	
Living Quarters	5.8 (0.54)
Fire Station	
Sleeping Quarters	2.2 (0.20)
Gymnasium / Fitness Centre	
Exercise Area	5.4 (0.50)
Playing Area	8.8 (0.82)
Healthcare Facility	
Exam / Treatment Room	18.1 (1.68)
Medical Supply Room	5.8 (0.54)
Nursery	10.8 (1.00)
Nurses' Station	8.7 (0.81)
Operating Room	23.4 (2.17)
Patient Room	6.7 (0.62)
Physical Therapy	9.0 (0.84)
Imaging Room	11.4 (1.06)
Recovery	11.1 (1.03)
Library	
Reading Area	8.8 (0.82)
Stacks	12.9 (1.20)
Manufacturing Facility	
Detailed Manufacturing Area	10.0 (0.93)
Equipment Room	7.0 (0.65)
Extra High Bay (> 15 m floor to ceiling height)	11.3 (1.05)
High Bay (7.5 m to 15 m floor to ceiling height)	8.1 (0.75)
Low Bay (< 7.5 m floor to ceiling height)	10.3 (0.96)
Column 1	2

Table SB 4.2.1.6.–2017 **(Cont'd)**
Lighting Power Density Using the Space-by-Space Method
Forming Part of Sentence 4.2.1.6.(1)

Building-Specific Space Types	Lighting Power Density, W/m^2 (W/ft^2)
Museum	
General Exhibition	11.3 (1.05)
Restoration	9.2 (0.85)
Post Office	7.3 (0.68)
Sorting Area	
Religious Building	
Fellowship Hall	5.9 (0.55)
Worship / Pulpit / Choir	16.5 (1.53)
Retail Facilities	
Dressing / Fitting Room	5.4 (0.50)
Mall Concourse	9.7 (0.90)
Sports Arena – Playing Area	
Class IV Facility	12.2 (1.13)
Class III Facility	18.3 (1.70)
Class II Facility	21.1 (1.96)
Class I Facility	26.6 (2.47)
Transportation Facility	
Baggage / Carousel Area	4.8 (0.45)
Airport Concourse	3.3 (0.31)
Terminal Ticket Counter	6.7 (0.62)
Warehouse	
Small, Hand-Carried Items	7.4 (0.69)
Medium To Bulky, Palletized Items	3.8 (0.35)
Column 1	2

Notes to Table SB 4.2.1.6.–2017:
(1) Terms shall have the same meanings as they have in 2015 NECB or Chapter (2).
(2) BSR/IES RP-28-16, "Lighting and the Visual Environment for Seniors and the Low Vision Population".

TABLE SB 4.2.3.1.-B–2017
(Supersedes Table 4.2.3.1.-B in the 2015 NECB)
Basic Site Allowances for Exterior Lighting
Forming Part of Sentences 4.2.3.1.(2) and (3)

Basic Site Allowance According to Lighting Zone				
Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
No allowance	350 W	400 W	500 W	900 W
Column 1	2	3	4	5

TABLE SB 4.2.3.1.-C–2017
(Supersedes Table 4.2.3.1.-C in the 2015 NECB)
Lighting Power Allowances for Specific Building Exterior Applications
Forming Part of Sentences 4.2.3.1.(3) and (4)

Exterior Application	Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
Building façades (façade lighting)	No allowance	No allowance	1.1 W/m^2 (0.10 W/ft^2) for each illuminated wall or surface or 8.2 W/m (2.5 W/ft) for each illuminated wall or surface length	1.6 W/m^2 (0.15 W/ft^2) for each illuminated wall or surface or 12.3 W/m (3.75 W/ft) for each illuminated wall or surface length	2.2 W/m^2 (0.20 W/ft^2) for each illuminated wall or surface or 16.4 W/m (5.0 W/ft) for each illuminated wall or surface length
Automated teller machines (ATM) and night depositories	No allowance	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location	135 W per location plus 45 W per additional ATM per location
Entrances and gatehouse inspection stations at guarded facilities	No allowance	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area	5.4 W/m^2 (0.50 W/ft^2) of covered and uncovered area
Loading areas for law enforcement, fire, ambulance, and other emergency service vehicles	No allowance	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area	3.8 W/m^2 (0.35 W/ft^2) of covered and uncovered area
Drive-up windows/doors	No allowance	200 W per drive-through	200 W per drive-through	200 W per drive-through	200 W per drive-through
Parking near 24-hour retail entrances	No allowance	400 W per drive-through	400 W per drive-through	400 W per drive-through	400 W per drive-through
Roadway/parking entry, trail head, and toilet facility, or other locations approved by the authority having jurisdiction.	A single luminaire of 60 W or less may be installed for each roadway/parking entry, trail head, and toilet facility, or other locations approved by the authority having jurisdiction	No allowance	No allowance	No allowance	No allowance
Column 1	2	3	4	5	6

TABLE SB 4.2.3.1.-D–2017
(Supersedes Table 4.2.3.1.-D in the 2015 NECB)
Lighting Power Allowances for General Building Exterior Applications
Forming Part of Sentence 4.2.3.1.(4)

Exterior Application	Lighting Power Allowances According to Lighting Zone				
	Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
Uncovered Parking Areas					
Parking areas and drives	No allowance	0.32 W/m^2 (0.03 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.65 W/m^2 (0.06 W/ft^2)	0.86 W/m^2 (0.08 W/ft^2)
Building Grounds					
Walkways less than 3 m (10 ft) wide	No allowance	1.6 W/m (0.50 W/ft)	1.6 W/m (0.50 W/ft)	2.0 W/m (0.60 W/ft)	2.3 W/m (0.70 W/ft)
Walkways 3 m (10 ft) wide or greater	No allowance	1.1 W/m^2 (0.10 W/ft^2)	1.1 W/m^2 (0.10 W/ft^2)	1.2 W/m^2 (0.11 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)
Plaza areas	No allowance	1.1 W/m^2 (0.10 W/ft^2)	1.1 W/m^2 (0.10 W/ft^2)	1.2 W/m^2 (0.11 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)
Stairways	No allowance	6.5 W/m^2 (0.60 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)
Pedestrian Tunnels	No allowance	1.3 W/m^2 (0.12 W/ft^2)	1.3 W/m^2 (0.12 W/ft^2)	1.5 W/m^2 (0.14 W/ft^2)	2.3 W/m^2 (0.21 W/ft^2)
Landscaping	No allowance	0.32 W/m^2 (0.03 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)	0.43 W/m^2 (0.04 W/ft^2)
Building Entrances, Exits, and Loading Docks					
Pedestrian and vehicular entrances and exits	No allowance	46 W/m (14 W/ft) of door width	46 W/m (14 W/ft) of door width	69 W/m (21 W/ft) of door width	69 W/m (21 W/ft) of door width
Entry canopies	No allowance	2.1 W/m^2 (0.20 W/ft^2)	2.7 W/m^2 (0.25 W/ft^2)	4.3 W/m^2 (0.40 W/ft^2)	4.3 W/m^2 (0.40 W/ft^2)
Loading docks	No allowance	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)	5.4 W/m^2 (0.50 W/ft^2)
Sales Canopies					
Free standing and attached	No allowance	4.3 W/m^2 (0.40 W/ft^2)	4.3 W/m^2 (0.4 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	7.5 W/m^2 (0.70 W/ft^2)
Outdoor Sales					
Open areas (including vehicle sales lots)	No allowance	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)	6.5 W/m^2 (0.60 W/ft^2)
Street frontage for vehicle sales lots in addition to “open area” allowance	No allowance	No allowance	23 W/m (7 W/ft)	23 W/m (7 W/ft)	69 W/m (21 W/ft)
Column 1	2	3	4	5	6

1.1.1.8. Enhancements to Division B, Part 5 "Heating, Ventilating and Air-Conditioning Systems" of the 2015 NECB

(1) Article 5.2.10.1. in Division B of the 2015 NECB shall be replaced with the following:

5.2.10.1. Heat-Recovery Systems

(1) Except as provided in Sentences (3) and (4), each exhaust air system shall have an energy recovery system when the system's supply airflow rate exceeds the value listed in Tables SB 5.2.10.1.A–2017 and SB 5.2.10.1.B–2017, based on the operation, climate zone and percentage of outdoor airflow rate at design conditions.

(2) Heat recovered in accordance with Sentence (1) shall be used in *building* systems.

(3) The systems need not comply with Sentence (1), where the system
(a) is a specialized exhaust system, such as one that is used to exhaust smoke, grease-laden vapours, or toxic, flammable, paint, or corrosive fumes or dust,
(b) serves spaces that are not cooled and are heated to less than 16ºC,
(c) is designed in such a way that the largest source of air exhausted at a single location at the building exterior is less than 75% of the design outdoor airflow rate.

(4) Dwelling units shall be equipped with heat recovery systems in accordance with Article 5.2.10.4. of the 2015 NECB.

Table SB 5.2.10.1.A–2017
Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Less than 8000 Hours per Year
Forming Part of Sentence 5.2.10.1.(1)

Climate Zone	Percent of Outdoor Air at Full Design Airflow Rate							
	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
	Design Supply Fan Airflow Rate (L/s)							
5	≥ 12271	≥ 7551	≥ 2596	≥ 2124	≥ 1652	≥ 944	≥ 472	≥ 0
6	≥ 12271	≥ 7551	≥ 2596	≥ 2124	≥ 1652	≥ 944	≥ 472	≥ 0
7A & 7B	≥ 2124	≥ 1888	≥ 1180	≥ 472	≥ 0	≥ 0	≥ 0	≥ 0
8	≥ 2124	≥ 1888	≥ 1180	≥ 472	≥ 0	≥ 0	≥ 0	≥ 0
Col. 1	2	3	4	5	6	7	8	9

Table SB 5.2.10.1.B–2017
Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Greater than or Equal to 8000 Hours per Year
Forming Part of Sentence 5.2.10.1.(1)

Climate Zone	Percent of Outdoor Air at Full Design Airflow Rate							
	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
	Design Supply Fan Airflow Rate (L/s)							
All Zones	> 0	> 0	> 0	> 0	> 0	> 0	> 0	> 0
Col. 1	2	3	4	5	6	7	8	9

(5) Energy recovery systems required by Sentence (1) shall have at least 55% energy recovery effectiveness determined as a change in enthalpy of the outdoor air supply equal to 55% of the difference between the outdoor air and return air enthalpies at design conditions.

(6) At airflow rates not less than the system design capacity, the energy recovery effectiveness of an energy recovery apparatus referred to in Sentence (1) shall be determined in conformance with
(a) the test method described in ANSI/AHRI 1060-2009, "Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation",
(b) the test method described in CSA C439-09 "Standard Laboratory Methods of Test for Rating the performance of Heat/Energy-Recovery Ventilators", or
(c) the test method described in ASHRAE 84-2008, "Method of Testing Air-to-Air Heat/Energy Exchangers".

(7) Provisions shall be made to bypass or control the energy recovery system to permit air economizer operation as required by Article 5.2.2.8.

(2) Sentence 5.2.11.5.(3) and its reference in Sentence 5.2.11.5.(1) in Division B of the 2015 NECB shall be deleted.

(3) In addition to Table 5.2.12.1. in the 2015 NECB, the minimum equipment efficiency of a gas-fired boiler shall comply with the value required in Table SB 5.2.12.1.A–2017.

Table SB 5.2.12.1.A–2017
Minimum Equipment Efficiency for Gas Boilers
Forming Part of Sentence 5.2.12.1.(1)

Equipment	Heating Capacity, kW (Btu/h)	Performance Required
Gas boilers, hot water	< 88 (< 300,000)	90% AFUE
	≥ 88 and < 733 (≥ 300,000 and < 2,500,000)	90% E_t
Column 1	2	3

1.1.1.9. Enhancements to Division B, Part 6 "Service Water Systems" of the 2015 NECB

(1) In addition to Table 6.2.2.1. in the 2015 NECB, a gas-fired storage water heater with an input capacity of 22 kW or less shall comply with Table SB 6.2.2.1.A–2017.

(2) Except where 25% of the annual service water heating requirement is provided by site-recovered energy and except for water heaters installed in individual *dwelling units*, where a service hot water system has a total installed gas water heating input capacity of 293 kW or greater, the gas service water heating equipment shall have a minimum thermal efficiency (E_t) of 90%.

Table SB 6.2.2.1.A –2017
Minimum Equipment Efficiency for Gas Water Heaters
Forming Part of Sentence 6.2.2.1.(1)

Component	Input, kW (Btu/h)	Performance Requirement
Gas water heaters	≤ 22 (≤ 75,000)	0.7-0.00189V (V in U.S.gallons) EF 0.7-0.0005V (V in litres) EF
Column 1	2	3

1.1.1.10. Enhancements to Division B, Part 7 "Electrical Power Systems and Motors" of the 2015 NECB (See Appendix A.)

(1) Article 7.2.1.1. of Division B of the 2015 NECB shall be replaced with the following:

7.2.1.1. Facilitation of Monitoring

(1) Except as provided in Sentence (3), the building shall be designed and constructed to facilitate future installation of means to measure and monitor the electrical consumption of each of the following separately:
(a) total electrical energy,
(b) HVAC systems,
(c) interior lighting,
(d) exterior lighting, and
(e) receptacle circuits.

(2) Except as provided in Sentence (3), the electrical distribution systems of buildings with tenants or dwelling units shall be designed and constructed to facilitate future installation of means to measure and monitor the electrical consumption of the total building and of each individual tenant or dwelling unit, excluding shared systems.

(3) The following buildings and electrical energy end-uses need not meet the requirements of Sentence (1):
(a) buildings with a floor area of less than 2320 m^2,
(b) individual tenant spaces with floor areas of less than 930 m^2,
(c) residential building with less than 930 m^2 of common area, and
(d) critical circuit and Equipment branches in health care facilities.

(2) Sentence (2) shall be added to Article 7.2.4.1. of Division B of the 2015 NECB.

7.2.4.1. Efficiency

(2) Notwithstanding Sentence (1), where the minimum efficiency requirements of an electric motor is covered under an applicable Ontario Energy Efficiency Regulation, it shall meet the requirements of the Ontario Regulation and shall be deemed to be in compliance with the requirements of Sentence (1).

1.1.1.11. Whole Building Energy Monitoring (See Appendix A.)

(1) The *building* shall be designed and constructed to facilitate future installation of means to measure and monitor energy consumption of the following types of energy supplied by an energy provider or a plant that is not within the *building*:
(a) natural gas,
(b) fuel oil,
(c) propane,
(d) steam,
(e) chilled water, and
(f) hot water.

1.1.1.12. Enhancements to Division B, Part 8 "Building Energy Performance Compliance Path" of the 2015 NECB

(1) Sentences (9) and (10) shall be added to Article 8.4.4.3. of Division B of the 2015 NECB.

8.4.4.3. Building Envelope Components

(9) Where the vertical total fenestration and door area to gross wall area ratio (FDWR) of the proposed building is less than the maximum FDWR permitted in Sentence 3.2.1.4.(1), the FDWR of the reference building shall be equal to the proposed building.

(10) Where the total skylight area to gross roof area ratio of the proposed building is less than the maximum ratio permitted in Sentence 3.2.1.4.(2), the total skylight area to gross roof area ratio of the reference building shall be equal to the proposed building.

e1 Division 4

Reserved

Division 5

Buildings of Non-Residential Occupancy Within the Scope of Part 9

Division 5

Buildings of Non-Residential Occupancy Within the Scope of Part 9

Section 1.1. Buildings of Non-Residential Occupancy

1.1.1. Buildings of Non-Residential Occupancy

1.1.1.1. Application

e1 **(1)** Reserved.

e1 **(2)** Reserved.

(3) Except as provided in Sentences (2) and (3), this Division applies to the energy efficiency of *buildings* or parts of *buildings* where the *building* or part of the *building*
(a) is within the scope of Part 9 of Division B of the *Building Code*,
(b) does not contain a *residential occupancy*,
(c) does not use *electric space heating*, and
(d) is intended for occupancy on a continuing basis during the winter months.

(4) Where the ratio of the gross area of fenestration to the gross area of exterior wall measured from grade to the top of the most upper ceiling exceeds 40%, or the ratio of the gross skylight areas to gross ceiling area exceeds 3%, the *building* envelope shall comply with Article 1.1.2.1. of Chapter 1 of Division 3.

(5) *Buildings* are exempt from compliance with this Division where they meet the exemptions described in Article 1.2.1.1. of Chapter 1 of Division 3.

1.1.1.2. Building Envelope Requirements

(1) Except as permitted in Sentence (2), the exterior *building* envelope shall comply with the requirements of Table 1.1.1.2.

(2) Except for doors, the opaque surfaces shall comply with
(a) minimum RSI value of the added insulation in framing cavities and continuous insulation required in Table 1.1.1.2., or
(b) maximum overall thermal transmittance U-value for the entire assembly required in Table 1.1.1.2., where U-value is provided.

(3) Where the top of a *foundation* wall is less than 1 200 mm above the adjoining ground level, those portions of the *foundation* wall that are above ground may be insulated to the level required for the below grade portion of the *foundation* wall.

(4) The ratio of visible transmittance to solar heat gain coefficient (VT/SHGC) for vertical fenestration assemblies shall be 1.10 or greater.

Table 1.1.1.2.
Building Envelope Requirements Based on Degree-Day Zones(1) (SI)
Forming Part of Sentences 1.1.1.2.(1) and (2)

Opaque Elements	Zone 1 Less Than 5000 Degree-Days		Zone 2 5000 or More Degree-Days	
	Assembly Max. U-Value(1)	Insulation Min. RSI-Value	Assembly Max. U-Value(1)	Insulation Min. RSI-Value
Roofs				
Without Attic Space - Insulation Above Deck	U-0.164	6.2 ci	U-0.143	7.0 ci
With Attic Space and Other	U-0.107	10.6	U-0.087	12.5
Walls, Above Grade				
All Types	U-0.250	2.3 + 2.6 ci	U-0.250	2.3 + 2.6 ci
Wall, Below Grade				
All Types	C-0.284(2)	3.5 ci	C-0.284(2)	3.5 ci
Exposed Floors				
Mass	U-0.261	3.3 ci	U-0.215	4.1 ci
Lightweight Framing	U-0.164	6.7(3) + 0.7 ci	U-0.164	6.7(3) + 0.7 ci
Slab-On-Grade Floors				
Unheated		2.6 for 1200 mm		2.6 for 1200 mm
Heated		1.8 full slab		1.8 full slab
Opaque Doors	U-2.56		U-2.56	
Fenestration	Assembly Max. U-Value(1)	Assembly Max. SHGC	Assembly Max. U-Value(1)	Assembly Max. SHGC
Vertical Fenestration, 0% - 40% of Wall				
All Types Except Entrance Doors	U-2.15	SHGC-0.40	U-1.94	SHGC-0.45
Entrance Doors	U-3.94	SHGC-0.40	U-3.94	SHGC-0.45
Skylight, 0% - 3% of Roof				
All Types	U-2.56	SHGC-0.40	U-2.56	NR
Column 1	2	3	4	5

Notes to Table 1.1.1.2.:
The following definitions apply: ci = continuous insulation
(1) The overall thermal transmittance value of the entire assembly, includes air films.
(2) C-Value is overall thermal conductance of the assembly but it does not include soil or air films.
(3) Where the floor framing depth is 254 mm or less, the insulation between the framing members is permitted to meet a minimum RSI-Value of 5.28.

Table 1.1.1.2.
Building Envelope Requirements Based on Degree-Day Zones(1) (I-P)
Forming Part of Sentences 1.1.1.2.(1) and (2)

Opaque Elements	Zone 1 Less Than 5000 Degree-Days		Zone 2 5000 or More Degree-Days	
	Assembly Max. U-Value(1)	Insulation Min. R-Value	Assembly Max. U-Value(1)	Insulation Min. R-Value
Roofs				
Without Attic Space - Insulation Above Deck	U-0.029	R-35 ci	U-0.025	R-40 ci
With Attic Space and Other	U-0.019	R-60	U-0.015	R-71
Walls, Above Grade				
All Types	U-0.044	R-13 + R-15 ci	U-0.044	R-13 + R-15 ci
Wall, Below Grade				
All Types	C-0.050(2)	R-20 ci	C-0.050(2)	R-20 ci
Exposed Floors				
Mass	U-0.046	R-18.7 ci	U-0.038	R-23.4 ci
Lightweight Framing	U-0.029	R-38(3) + R-4 ci	U-0.029	R-38(3) + R-4 ci
Slab-On-Grade Floors				
Unheated		R-15 for 48 in.		R-15 for 48 in.
Heated		R-10 full slab		R-10 full slab
Opaque Doors	U-0.45		U-0.45	
Fenestration	Assembly Max. U-Value(1)	Assembly Max. SHGC	Assembly Max. U-Value(1)	Assembly Max. SHGC
Vertical Fenestration, 0% - 40% of Wall				
All Types Except Entrance Doors	U-0.38	SHGC-0.40	U-0.34	SHGC-0.45
Entrance Doors	U-0.69	SHGC-0.40	U-0.69	SHGC-0.45
Skylight, 0% - 3% of Roof				
All Types	U-0.45	SHGC-0.40	U-0.45	NR
Column 1	2	3	4	5

Notes to Table 1.1.1.2.:
The following definitions apply: ci = continuous insulation
(1) The overall thermal transmittance value of the entire assembly, includes air films.
(2) C-Value is overall thermal conductance of the assembly but it does not include soil or air films.
(3) Where the floor framing depth is 10 inches or less, the insulation between the framing members is permitted to meet a minimum R-Value of R-30.

1.1.1.3. Air Infiltration

(1) Where a *building* component or assembly separates interior conditioned space from exterior space, interior space from ground or environmentally dissimilar interior spaces, the component or assembly shall contain an air *barrier system* conforming to the applicable requirements of Part 5 or Section 9.25. of Division B of the *Building Code*.

1.1.1.4. Heating, Ventilating and Air-Conditioning

(1) A heating, ventilating and *air-conditioning* system that serves more than one heating, ventilating and *air-conditioning* zone shall conform to Article 1.1.2.1. of Chapter 1 of Division 3 of this Supplementary Standard.

(2) Sentences (3) to (11) and Article 1.1.1.5. apply to a heating, ventilating and *air-conditioning* system that serves a single heating, ventilating and *air-conditioning* zone.

(3) The minimum efficiency of heating, ventilating and *air-conditioning* equipment shall conform to the requirements of Sentence 1.1.2.1.(1) of Chapter 1 of Division 3 of this Supplementary Standard.

(4) An *air-conditioning* system with a cooling capacity of 15.8 kW (54,000 Btu/h) or more shall have an economizer,
(a) controlled by appropriate high limit shut-off control, and
(b) equipped with either barometric or powered relief sized to prevent excess pressurization of the *building*.

(5) Outdoor air dampers for economizer use shall be provided with blade and jamb seals.

(6) Except where the largest exhaust at a single point is less than 75% of the outdoor air, a heat recovery ventilator with a recovery effectiveness of 55% or more at the outside winter design temperature shall be provided where the quantity of the outdoor air supplied to the air duct distribution system
(a) is more than 1400 L/s (3000 cfm), or
(b) operates 8000 hours per year or more.

(7) Where a heat recovery ventilator is installed, the system shall have provisions to bypass or control the heat recovery ventilator to permit operation of the air economizer.

(8) A heating, ventilating and *air-conditioning* system shall be controlled by a manual changeover or dual setpoint thermostat.

(9) Except for a system requiring continuous operation, a heating, ventilating and *air-conditioning* system that has a cooling or heating capacity greater than 4.4 kW (15,000 Btu/h) and a supply fan motor rated for more than 0.5 kW shall be provided with a time clock that,
(a) is capable of starting and stopping the system under different schedules for seven different day-types per week,
(b) is capable of retaining programming and time setting during a loss of power for a period of 10 hours or more,
(c) includes an accessible manual override that allows temporary operation of the system for up to two hours,
(d) is capable of temperature setback down to 13°C (55°F) during off-hours, and
(e) is capable of temperature setup to 32°C (90°F) during off-hours.

(10) Where separate heating and cooling equipment serves the same temperature zone, thermostats shall be interlocked to prevent simultaneous heating and cooling.

(11) A heating, ventilating and *air-conditioning* system with a design supply air capacity greater than 5000 L/s (10,600 cfm) shall have optimum start controls.

1.1.1.5. Ducts, Plenums and Piping

(1) A duct or a plenum that is not protected by an insulated exterior wall or that is exposed to an unheated space shall be
(a) sealed in accordance with SMACNA, "HVAC Duct Construction Standards - Metal and Flexible", to minimize air leakage, and
(b) insulated to provide a thermal resistance of not less than RSI 1.4 (R8).

(2) A supply or *exhaust duct* or *plenum* that is located in a *conditioned space* shall be sealed in accordance with SMACNA, "HVAC Duct Construction Standards - Metal and Flexible", to minimize air leakage.

(3) Except for piping within prefabricated equipment, piping used for steam, hot water heating or cooling shall be insulated in accordance with Table 1.1.1.5.

(4) Insulation exposed to weather shall be protected by a covering such as aluminum, sheet metal, painted canvas or plastic.

(5) An *exhaust duct* with a design capacity of more than 140 L/s (300 cfm) on a heating, ventilating and *air-conditioning* system that does not operate continuously shall be equipped with a gravity or motorized damper that will automatically shut when the system is not in operation.

(6) An air duct distribution system shall be balanced in the following sequence:
1. Minimize throttling losses.
2. If the fan is rated for more than 0.75 kW, adjust the fan speed to meet design flow conditions.

(7) A hydronic system shall be proportionately balanced to minimize throttling losses.

Table 1.1.1.5.
Minimum Thickness of Pipe Insulation(1)
Forming Part of Sentences 1.1.1.5.(3) and 1.1.1.6.(2)

Use of Pipe		Nominal Pipe Size Not More than 40 mm	Nominal Pipe Size More than 40 mm
		Minimum Pipe Insulation Thickness, mm	Minimum Pipe Insulation Thickness, mm
Steam		64	76
Hot water heating		38	51
Domestic hot water	40ºC to 60ºC	25	38
	61ºC and higher	38	51
Cooling		13	25
Column 1		2	3

Notes to Table 1.1.1.5.:
(1) Insulation material shall have a thermal conductivity of not more than 0.042 W/(m•°C).

1.1.1.6. Service Water Heating

(1) The minimum efficiency of water heating equipment used solely for heating *potable* water and hot water storage tanks shall conform to the requirements of Sentence 1.1.2.1.(1) of Chapter 1 of Division 3 of this Supplementary Standard.

(2) Domestic hot water heating piping shall be insulated in accordance with Table 1.1.1.5. if it is,
(a) recirculating system piping,
(b) located within the first 2.5 m (8 ft) of outlet piping in a constant temperature non-recirculating storage system,
(c) an inlet pipe located between the storage tank and a heat trap in a non-recirculating storage system, or
(d) a pipe that is externally heated by methods such as a heat trace or impedance heating.

(3) A hot water storage tank shall be provided with a temperature control to permit adjustment of the water storage temperature.

(4) An automatic time switch or other control that can be set to switch off the usage temperature maintenance system during extended periods when hot water is not required shall be installed in a domestic hot water system that is designed to maintain usage temperatures in hot water pipes such as recirculating hot water systems or heat trace.

(5) If a recirculating pump is used to maintain storage tank water temperature, the pump shall be equipped with a control to limit its operation to a period from the start of the heating cycle to a maximum of five minutes after the end of the heating cycle.

(6) In a washroom located in a public facility, a device shall be provided to control the maximum temperature of water delivered from a lavatory faucets to not more than 43°C (110°F).

(7) A vertical pipe riser that serves a storage water heater or a storage tank shall have heat traps on both the inlet and outlet piping as close as practical to the tank if,
(a) the riser is in a non-recirculating system, and
(b) the storage water heater or the storage tank does not have integral heat traps.

(8) A system that provides both space heating and domestic water heating shall conform to the minimum efficiency values required by Clause 1.1.2.1.(1)(c) of Chapter 1 of Division 3 of this Supplementary Standard.

1.1.1.7. Lighting

(1) Except as provided in Sentence (2), Articles 1.1.1.8. to 1.1.1.11. apply to,
(a) interior spaces of a *building*,
(b) exterior *building* features, including facades, illuminated roofs, architectural features, entrances, *exits*, loading docks and illuminated canopies, and
(c) exterior *building* ground lighting provided through the *building's* electrical service.

(2) Articles 1.1.1.8. to 1.1.1.11. do not apply to emergency lighting that is automatically turned off during the normal use of the *building*.

(3) Except as provided in Sentence (4), luminaires designed for use with one or three linear fluorescent lamps greater than 30 W each shall use two-lamp tandem-wired ballasts in place of single-lamp ballasts when two or more luminaires are in the same space and on the same control device.

(4) The tandem wiring required by Sentence (3) is not required for,
(a) recessed luminaires located more than 3 m apart, measured centre to centre,
(b) surface mounted or pendant luminaires that are not continuous,
(c) luminaires that use single-lamp high-frequency electronic ballasts,
(d) luminaires that use three-lamp high-frequency electronic or three-lamp electromagnetic ballasts, and
(e) luminaires on emergency circuits.

1.1.1.8. Interior Lighting

(1) The interior lighting power allowance for a *building* is the sum of the lighting power allowances, in watts, of all *building* area types and shall include all permanently installed general, task and furniture lighting systems and luminaires.

(2) The interior lighting power allowance shall be determined by multiplying the lighting power density given in Table 1.1.1.8. by the gross lighted areas of the *building* area type.

(3) The installed interior lighting power shall not exceed the interior lighting power allowance.

(4) Except as provided in Sentence (5), the installed interior lighting power shall include all power used by luminaires, including lamps, ballasts, current regulators and control devices.

(5) The following lighting equipment and applications shall not be considered when determining the installed interior lighting power or the interior lighting power allowance:
(a) lighting that is integral to equipment or instrumentation and is installed by its manufacturer,
(b) lighting specifically designed for use only during medical or dental procedures and lighting integral to medical equipment,
(c) lighting that is integral to both open and glass-enclosed refrigerator and freezer cases,
(d) lighting that is integral to food warming and food preparation equipment,
(e) lighting for plant growth or maintenance,
(f) lighting in spaces specifically designed for use by persons with low or no vision,
(g) lighting in retail display windows if the display area is enclosed by ceiling-height partitions,
(h) lighting in interior spaces that have been specifically designated as a *heritage building*,
(i) lighting that is an integral part of advertising or directional signage,
(j) *exit* signs,
(k) lighting that is displayed for sale, and
(l) educational lighting demonstration systems.

(6) Trade-offs among *building* area types are permitted provided that the total installed interior lighting power does not exceed the interior lighting power allowance.

Table 1.1.1.8.
Interior Lighting Power Densities
Forming Part of Sentence 1.1.1.8.(2)

Building Area Type	Lighting Power Density, W/m^2 (W/ft^2)
Automotive Facility	7.6 (0.71)
Fast Food	8.5 (0.79)
Fire Station	5.7 (0.53)
Health Care Offices - Clinic	8.8 (0.82)
Manufacturing Facility	9.7 (0.90)
Office	8.5 (0.79)
Police Station (without detention quarters)	8.6 (0.80)
Post Office	7.2 (0.67)
Retail	11.4 (1.06)
Storage Garage	1.6 (0.15)
Warehouse	5.2 (0.48)
Workshop	9.7 (0.90)
Column 1	2

1.1.1.9. Interior Lighting Controls

(1) Except as provided in Sentence (2), there shall be one or more manual lighting controls in each space that controls all of the lighting in the space.

(2) Sentence (1) does not apply to,
(a) lighting intended for 24-hour operation,
(b) emergency lighting, or
(c) lighting for spaces where an automatic shut-off would endanger safety or security.

(3) Each control device required in Sentence (1) shall be readily accessible and located so that the occupants can see the controlled lighting when operating the control device.

(4) For the purpose of Sentence (1), remote location of the control device shall be permitted for reasons of safety or security when the control device is clearly labelled to identify the controlled lighting.

(5) Each space excluding corridors, storage rooms, restrooms, and parking garages shall have a manual control device that allows the occupant to reduce lighting power by a minimum of 50% and to turn the lighting off.

(6) A total lighting load not exceeding 0.2 W/m^2 multiplied by the gross lighted area of the *building* shall be permitted to operate at all times.

(7) Except as provided by Sentences (2) and (6), all lighting shall be automatically controlled to turn off when the *building* is either unoccupied or scheduled to be unoccupied.

(8) The automatic control device required in Sentence (7) shall operate on,
(a) a scheduled basis using a time-of-day operated control device that turns lighting off at specific programmed times, or
(b) a signal from another control or alarm system that indicates the area is unoccupied.

(9) Where the automatic control device conforms to Clause (8), an independent program schedule shall be provided for each floor, and the program shall account for weekends and holiday.

(10) Automatic daylight sensing controls shall be used to control general lighting where the total lighting input power is 150 W or greater and where skylights or roof monitors are installed, in the following spaces:
(a) dining areas in fast food *buildings*,
(b) apparatus rooms in fire station buildings,
(c) retail spaces, and
(d) office spaces

(11) Except in retail spaces, automatic daylight sensing controls shall be used to control general lighting in a space where the total lighting input power is 150 W or greater and the total area of exterior vertical fenestration in the space is 11 m^2 or greater.

(12) The automatic daylight sensing controls required in Sentences (10) and (11) shall reduce lighting in response to available daylight using continuous dimming or with at least two intermediate control points between fully on and fully off.

(13) Lighting in corridors, post office sorting areas, warehouse storage areas, and parking garages shall be controlled by occupancy sensors that reduce the lighting power by a minimum of 50% when no activity is detected for not longer than 20 minutes.

(14) The control device required in Sentence (13) shall not control an area more than 330 m^2.

(15) Lighting in the following spaces shall be controlled by occupancy sensors that automatically turn off the lighting when no activity is detected for not longer than 20 minutes:
(a) enclosed office areas less than 23 m^2 (250 ft^2),
(b) classrooms,
(c) training rooms,
(d) conference rooms,
(e) meeting rooms,
(f) breakrooms,
(g) non-warehouse storage areas,
(h) dressing / fitting rooms, and
(i) restrooms

(16) Control devices separate from those used for general lighting shall control the following:
(a) display lighting,
(b) accent lighting,
(c) case lighting,
(d) task lighting,
(e) non-visual lighting, and
(f) demonstration lighting.

1.1.1.10. Exterior Lighting

(1) Except as provided in Sentence (2), this Article applies to exterior areas conforming to Sentence 1.1.1.7.(1).

(2) If the lighting is equipped with a control device independent of the control of other lighting, Sentence (1) does not apply to,
(a) specialized signal, directional, and marker lighting associated with transportation,
(b) advertising signage or directional signage,
(c) lighting integral to equipment or instrumentation and installed by its manufacturer,
(d) temporary lighting,
(e) lighting for industrial production, material handling, transportation sites, and associated storage areas, and
(f) lighting used to highlight features of public monuments and *heritage buildings*.

(3) The exterior lighting power allowance for the exterior areas appurtenant to a *building* shall be determined by multiplying the lighting power density given in Table 1.1.1.10. by the areas or lengths of lighted exterior spaces.

(4) The total exterior lighting power allowance for the exterior areas appurtenant to a *building* is the sum of the individual power allowances including the base allowance determined from Sentence (3).

(5) The installed exterior lighting power excluding façade lighting shall not exceed the exterior lighting power allowance calculated in Sentence (4).

(6) The installed exterior lighting power of façade lighting shall not exceed 1.1 W/m^2 multiplied by the façade area.

(7) All exterior *building* grounds luminaires that operate at greater than 100 watts shall contain lamps having a minimum efficacy of 60 lm/W unless the luminaire is controlled by a motion sensor.

Table 1.1.1.10.
Exterior Lighting Power Densities
Forming Part of Sentence 1.1.1.10.(3)

Exterior Area	Maximum Exterior Lighting Power Allowance
Base Allowance	400 W
Special Feature Areas, Walkways, Plazas	1.1 W/m^2 (0.10 W/ft^2)
Landscape	0.43 W/m^2 (0.04 W/ft^2)
Pedestrian and Vehicular Entrances and Exits	46 W/linear m of door width (14 W/linear ft of door width)
Stairs and Ramps	7.5 W/m^2 (0.70 W/ft^2)
Parking Lots and Drives	0.43 W/m^2 (0.04 W/ft^2)
All Other Areas not Listed	2.2 W/m^2 (0.20 W/ft^2)
Column 1	2

1.1.1.11. Exterior Lighting Controls

(1) Except as provided in Sentence (2), control devices shall be installed that:
(a) automatically turn off the exterior lighting when sufficient daylight is available,
(b) automatically turn off *building* façade and landscape lighting during non-business hours, and
(c) automatically reduce the connected lighting power for exterior lighting excluding *building* façade and landscape lighting, by at least 30% during non-business hours or alternatively, during any period when no activity is detected for not longer than 15 minutes.

(2) Sentence (1) does not apply to,
(a) lighting for covered vehicle entrances or *exits* from a *building*, or
(b) parking structures where required for safety, security, or eye adaptation.

1.1.1.12. Electric Motors

(1) Electric motors shall conform to the efficiency levels required in Chapter 2 of Division 3.

Appendix A

Division 2

e1 Reserved.

Division 3

Chapter 1

e1 Reserved.

Chapter 2

A-1.1.1.8.(2) and A-1.1.1.10.(2) Metering and Energy Use Monitoring Devices.

The mandating of meters and/or monitoring devices in buildings is governed by the Green Energy Act. For the purposes of complying with the Building Code, buildings are required to be designed in a manner that facilitates the future installation of these devices, to measure energy consumption of building systems and the building as described in this Supplementary Standard. Metering and monitoring devices must be installed in buildings where required by the Green Energy Act.

Chapter 3

A-1.1.1.10. and A-1.1.1.11. Metering and Energy Use Monitoring Devices.

The mandating of meters and/or monitoring devices in buildings is governed by the Green Energy Act. For the purposes of complying with the Building Code, buildings are required to be designed in a manner that facilitates the future installation of these devices, to measure energy consumption of building systems and the building as described in this Supplementary Standard. Metering and monitoring devices must be installed in buildings where required by the Green Energy Act.

Division 5

e1 Reserved.

MMAH Supplementary Standard SB-11

Construction of Farm Buildings

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-11 comes into force on the 1st day of January 2025.

SB-11 Construction of Farm Buildings

Section 1 General

1.1. Scope

1.1.1. Application

(1) This Section applies to farm buildings of low human occupancy.

1.1.2. Construction Requirements

(1) The construction of farm buildings of low human occupancy shall, subject to Article 2.1.3.5. in Division B of the Building Code, conform to the requirements of Part 9 of Division B of the Building Code except as provided in this Section.

1.2. Lumber

1.2.1. Lumber Requirements

(1) Except as permitted by Article 1.2.2., lumber shall conform to appropriate requirements in Subsection 9.3.2. of Division B of the Building Code.

1.2.2. Ungraded Lumber

(1) Ungraded lumber may be used for wood posts, joists, rafters, lintels, beams and wall studs in a farm building of low human occupancy of not more than one storey in building height.

(2) Ungraded lumber means lumber that has not been grade-stamped to indicate its grade, as determined by the NLGA "Standard Grading Rules for Canadian Lumber (Interpretation Included)", but that meets the following visual attributes:

(a) it is rough sawn to full nominal size,
(b) it has no evidence of decay,
(c) it has no tight knots that exceed 25 percent of the cross section and that are spaced closer than 150 mm on centres,
(d) it has no loose knots or holes that exceed 25 percent of the cross section and that are spaced closer than 600 mm on centres,
(e) it has the slope of grain not exceeding 1 (vertical) in 4 (horizontal), and
(f) it is free of excessive warp.

1.3. Structural Requirements

1.3.1. Structural Design

(1) Except as provided in Articles 1.3.2. to 1.3.4., wood posts, joists, rafters, lintels, beams and wall studs shall be designed in conformance with Section 9.4. of Division B of the Building Code.

1.3.2. Posts

(1) In a farm building of low human occupancy, the size of wood posts shall conform to Tables 1.3.2.A. to 1.3.2.J. for the loads shown in the Tables.

1.3.3. Spans

(1) In a farm building of low human occupancy, the spans of wood joists, rafters, lintels and beams shall conform to the spans shown in Tables 1.3.3.K. to 1.3.3.T. for the loads shown in the Tables.

1.3.4. Stud Size and Spacing

(1) In a farm building of low human occupancy, the size and spacing of wood studs shall conform to Tables 1.3.4.U. to 1.3.4.W. for the loads shown in the Tables.

Table 1.3.2.A.
Post Sizes for Diaphragm-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Spruce-Pine-Fir, No. 1, Dressed (Post and Timber Grades)														
		For Wind Loading q10 ≤ 0.30 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B
	3.6	A	A	A	A	A	A	A	B	B	B	B	B	B	C	C
	4.2	B	B	B	B	B	B	B	B	C	C	B	C	C	C	C
	4.8	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C
	6.0	C	C	C	C	C	C	C	C	D	D	C	D	D	—	—
12.1	≤3.0	A	A	A	A	A	A	A	A	B	B	A	B	B	B	C
	3.6	A	A	A	A	B	A	B	B	B	C	B	B	C	C	C
	4.2	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C
	4.8	B	B	B	C	C	C	C	C	C	C	C	C	D	D	D
	6.0	C	C	C	C	C	C	C	D	D	—	D	D	—	—	—
15.2	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	B	C	C
	3.6	A	A	A	B	B	B	B	B	C	C	B	C	C	C	C
	4.2	B	B	B	B	C	B	C	C	C	C	C	C	C	D	D
	4.8	B	B	C	C	C	C	C	C	C	D	C	C	D	D	—
	6.0	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
18.2	≤3.0	A	A	A	B	B	A	B	B	B	C	B	B	C	C	C
	3.6	A	A	B	B	B	B	B	C	C	C	C	C	C	C	D
	4.2	B	B	B	C	C	C	C	C	C	C	C	C	D	D	D
	4.8	B	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 89 mm x 140 mm B = 140 mm x 140 mm C = 140 mm x 184 mm D = 184 mm x 184 mm

Notes to Table 1.3.2.A.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.B.
Post Sizes for Diaphragm-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Spruce-Pine-Fir, No. 1, Dressed (Post and Timber Grades)														
		For Wind Loading q10 ≤ 0.45 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	A	A	B	A	B	B	B	B
	3.6	A	A	A	A	A	A	B	B	B	B	B	B	C	C	C
	4.2	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C
	4.8	B	B	B	C	C	C	C	C	C	C	C	C	C	D	D
	6.0	C	C	C	C	C	C	D	D	D	D	D	—	—	—	—
12.1	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	B	C	C
	3.6	A	A	A	B	B	B	B	B	C	C	C	C	C	C	C
	4.2	B	B	B	B	C	C	C	C	C	C	C	C	C	C	D
	4.8	B	C	C	C	C	C	C	C	C	C	C	D	D	D	—
	6.0	C	C	C	C	D	D	D	D	—	—	—	—	—	—	—
15.2	≤3.0	A	A	A	A	B	A	B	B	B	C	B	B	C	C	C
	3.6	A	A	B	B	B	B	B	C	C	C	C	C	C	C	D
	4.2	B	B	B	C	C	C	C	C	C	C	C	C	D	D	D
	4.8	B	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
18.2	≤3.0	A	A	A	B	B	B	B	B	C	C	B	C	C	C	C
	3.6	A	B	B	B	C	B	C	C	C	C	C	C	C	D	D
	4.2	B	B	C	C	C	C	C	C	C	D	C	D	D	D	—
	4.8	C	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	6.0	C	C	D	D	—	D	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 89 mm x 140 mm B = 140 mm x 140 mm C = 140 mm x 184 mm D = 184 mm x 184 mm

Notes to Table 1.3.2.B.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.C.
Post Sizes for Knee-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Spruce-Pine-Fir, No. 1, Dressed (Post and Timber Grades)														
		For Wind Loading q10 ≤ 0.30 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	A	B	B	A	B	B	B	C
	3.6	A	A	A	A	B	A	B	B	B	C	B	C	C	C	C
	4.2	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C
	4.8	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D
	6.0	C	C	C	C	C	C	D	D	D	—	D	—	—	—	—
12.1	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	C	C	C
	3.6	A	A	B	B	B	B	B	C	C	C	C	C	C	C	C
	4.2	B	B	B	C	C	C	C	C	C	C	C	C	C	D	D
	4.8	C	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
15.2	≤3.0	A	A	A	B	B	A	B	B	C	C	B	C	C	C	C
	3.6	A	B	B	B	C	B	C	C	C	C	C	C	C	C	D
	4.2	B	B	C	C	C	C	C	C	C	D	C	C	D	D	—
	4.8	C	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	6.0	C	C	D	D	—	D	—	—	—	—	—	—	—	—	—
18.2	≤3.0	A	A	B	B	B	B	B	C	C	C	B	C	C	C	D
	3.6	B	B	B	C	C	C	C	C	C	C	C	C	C	D	D
	4.2	B	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.8	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
	6.0	C	D	D	—	—	—	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 89 mm x 140 mm B = 140 mm x 140 mm C = 140 mm x 184 mm D = 184 mm x 184 mm

Notes to Table 1.3.2.C.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.D.
Post Sizes for Knee-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Spruce-Pine-Fir, No. 1, Dressed (Post and Timber Grades)														
		For Wind Loading q10 ≤ 0.45 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	B	C	C
	3.6	A	A	A	B	B	B	B	B	C	C	C	C	C	C	C
	4.2	B	B	B	B	C	C	C	C	C	C	C	C	C	C	D
	4.8	C	C	C	C	C	C	C	C	C	D	C	D	D	D	—
	6.0	C	C	C	C	D	D	D	—	—	—	—	—	—	—	—
12.1	≤3.0	A	A	A	A	B	A	B	B	B	C	B	B	C	C	C
	3.6	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C
	4.2	B	B	C	C	C	C	C	C	C	C	C	C	D	D	D
	4.8	C	C	C	C	C	C	C	D	D	D	D	D	—	—	—
	6.0	C	C	D	D	D	D	—	—	—	—	—	—	—	—	—
15.2	≤3.0	A	A	B	B	B	B	B	B	C	C	B	C	C	C	C
	3.6	A	B	B	C	C	C	C	C	C	C	C	C	C	D	D
	4.2	B	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.8	C	C	C	C	C	C	D	D	D	—	D	—	—	—	—
	6.0	C	D	D	—	—	—	—	—	—	—	—	—	—	—	—
18.2	≤3.0	A	A	B	B	B	B	B	C	C	C	C	C	C	C	D
	3.6	B	B	C	C	C	C	C	C	C	D	C	C	D	D	—
	4.2	C	C	C	C	C	C	C	D	D	D	D	D	—	—	—
	4.8	C	C	C	D	D	C	D	—	—	—	D	—	—	—	—
	6.0	D	D	—	—	—	—	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 89 mm x 140 mm B = 140 mm x 140 mm C = 140 mm x 184 mm D = 184 mm x 184 mm

Notes to Table 1.3.2.D.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.E.
Post Sizes for Diaphragm-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Ungraded Lumber, Full-Dimensioned														
		For Wind Loading q10 ≤ 0.30 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	A	B	B	A	B	B	C	C
	3.6	A	A	A	A	B	A	B	B	B	C	B	C	C	C	C
	4.2	B	B	B	B	B	B	B	C	C	C	C	C	C	C	D
	4.8	B	B	B	B	C	C	C	C	C	C	C	C	C	D	D
	6.0	C	C	C	C	C	C	C	D	D	D	D	D	—	—	—
12.1	≤3.0	A	A	A	A	B	A	B	B	B	C	B	B	C	C	C
	3.6	A	A	B	B	B	B	B	C	C	C	C	C	C	C	D
	4.2	B	B	B	B	C	B	C	C	C	C	C	C	D	D	D
	4.8	B	B	C	C	C	C	C	C	C	D	C	D	D	D	—
	6.0	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
15.2	≤3.0	A	A	A	B	B	B	B	C	C	C	B	C	C	D	D
	3.6	A	B	B	B	C	B	C	C	C	C	C	C	D	D	D
	4.2	B	B	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.8	B	C	C	C	C	C	C	D	D	D	D	D	—	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
18.2	≤3.0	A	A	B	B	C	B	B	C	C	D	C	C	D	D	—
	3.6	A	B	B	C	C	C	C	C	D	D	C	D	D	—	—
	4.2	B	C	C	C	C	C	C	D	D	D	C	D	—	—	—
	4.8	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
	6.0	C	C	D	D	—	D	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 101.6 mm x 152.4 mm B = 152.4 mm x 152.4 mm C = 152.4 mm x 203.2 mm D = 203.2 mm x 203.2 mm

Notes to Table 1.3.2.E:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.F.
Post Sizes for Diaphragm-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Ungraded Lumber, Full-Dimensioned														
		For Wind Loading q10 ≤ 0.45 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	C	C	C
	3.6	A	A	A	B	B	B	B	B	C	C	C	C	C	C	C
	4.2	B	B	B	B	C	C	C	C	C	C	C	C	C	D	D
	4.8	B	B	C	C	C	C	C	C	C	D	C	D	D	D	—
	6.0	C	C	C	C	C	D	D	D	—	—	—	—	—	—	—
12.1	≤3.0	A	A	A	B	B	B	B	B	C	C	B	C	C	C	C
	3.6	A	A	B	B	B	B	C	C	C	C	C	C	C	D	D
	4.2	B	B	B	C	C	C	C	C	C	D	C	D	D	D	—
	4.8	B	C	C	C	C	C	C	D	D	D	D	D	—	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
15.2	≤3.0	A	A	B	B	B	B	B	C	C	C	C	C	C	D	D
	3.6	A	B	B	C	C	C	C	C	C	D	C	C	D	D	—
	4.2	B	C	C	C	C	C	C	C	D	D	D	D	D	—	—
	4.8	C	C	C	C	C	C	D	D	D	—	D	—	—	—	—
	6.0	C	C	D	D	—	D	—	—	—	—	—	—	—	—	—
18.2	≤3.0	A	B	B	B	C	B	C	C	C	D	C	C	D	D	—
	3.6	B	B	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.2	B	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	4.8	C	C	C	C	D	D	D	D	—	—	—	—	—	—	—
	6.0	C	D	D	—	—	—	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 101.6 mm x 152.4 mm B = 152.4 mm x 152.4 mm C = 152.4 mm x 203.2 mm D = 203.2 mm x 203.2 mm

Notes to Table 1.3.2.F:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.G.
Post Sizes for Knee-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Ungraded Lumber, Full-Dimensioned														
		For Wind Loading q10 ≤ 0.30 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	A	A	A	B	B	B	B	B	C	C	C
	3.6	A	A	A	B	B	B	B	B	C	C	B	C	C	C	C
	4.2	B	B	B	B	C	B	C	C	C	C	C	C	C	D	D
	4.8	C	C	C	C	C	C	C	C	C	D	C	C	D	D	—
	6	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
12.1	≤3.0	A	A	A	B	B	A	B	B	C	C	B	C	C	C	D
	3.6	A	B	B	B	C	B	C	C	C	C	C	C	C	D	D
	4.2	B	B	C	C	C	C	C	C	C	D	C	C	D	D	—
	4.8	C	C	C	C	C	C	C	D	D	D	D	D	—	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
15.2	≤3.0	A	A	B	B	B	B	B	C	C	C	C	C	C	D	D
	3.6	A	B	B	C	C	C	C	C	C	D	C	C	D	D	—
	4.2	B	C	C	C	C	C	C	D	D	D	C	D	—	—	—
	4.8	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
	6.0	C	D	D	D	—	D	—	—	—	—	—	—	—	—	—
18.2	≤3.0	A	B	B	C	C	B	C	C	C	D	C	C	D	D	—
	3.6	B	B	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.2	C	C	C	C	D	C	C	D	—	—	D	D	—	—	—
	4.8	C	C	C	D	D	C	D	—	—	—	D	—	—	—	—
	6.0	C	D	—	—	—	—	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 101.6 mm x 152.4 mm B = 152.4 mm x 152.4 mm C = 152.4 mm x 203.2 mm D = 203.2 mm x 203.2 mm

Notes to Table 1.3.2.G.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.H.
Post Sizes for Knee-Braced Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.2.(1)

Building Width, m	Wall Height, m	Ungraded Lumber, Full-Dimensioned														
		For Wind Loading q10 ≤ 0.45 kPa														
		Post Spacing, 2.4 m					Post Spacing, 3.6 m					Post Spacing, 4.8 m				
		Roof Load, kPa					Roof Load, kPa					Roof Load, kPa				
		1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
9.14	≤3.0	A	A	A	A	B	A	B	B	B	C	B	C	C	C	C
	3.6	A	A	B	B	B	B	C	C	C	C	C	C	C	C	D
	4.2	B	B	B	C	C	C	C	C	C	C	C	C	D	D	D
	4.8	C	C	C	C	C	C	C	C	D	D	D	D	D	—	—
	6.0	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
12.1	≤3.0	A	A	B	B	B	B	B	C	C	C	C	C	C	C	D
	3.6	A	B	B	C	C	C	C	C	C	C	C	C	D	D	D
	4.2	B	C	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.8	C	C	C	C	C	C	D	D	D	—	D	—	—	—	—
	6.0	C	D	D	D	—	—	—	—	—	—	—	—	—	—	—
15.2	≤3.0	A	B	B	B	C	B	C	C	C	C	C	C	D	D	D
	3.6	B	B	C	C	C	C	C	C	D	D	C	D	D	—	—
	4.2	C	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	4.8	C	C	C	D	D	D	D	—	—	—	—	—	—	—	—
	6.0	D	D	D	—	—	—	—	—	—	—	—	—	—	—	—
18.2	≤3.0	A	B	B	C	C	C	C	C	D	D	C	D	D	—	—
	3.6	B	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	4.2	C	C	C	C	C	C	C	D	D	—	D	D	—	—	—
	4.8	C	C	C	C	D	C	D	D	—	—	D	—	—	—	—
	6.0	C	C	D	D	D	D	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Legend - Post Sizes:

A = 101.6 mm x 152.4 mm B = 152.4 mm x 152.4 mm C = 152.4 mm x 203.2 mm D = 203.2 mm x 203.2 mm

Notes to Table 1.3.2.H.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) Posts shall be oriented with the long dimension parallel to the building width.
(3) Bracing systems shall be specified by a competent designer.
(4) Posts shall be situated on footings and shall be anchored to prevent wind uplift.
(5) Posts shall be constrained against lateral movement at ground level and at the footing. Concrete floor, splash-rail and uplift anchor help to meet this condition.
(6) Post designs are based on partial fixity condition due to embedment in soil.
(7) Footing excavations should be backfilled with parent material unless otherwise specified by a competent designer.

Table 1.3.2.I.
Post Sizes for Farm Buildings of Low Human Occupancy (With Second Storey Loading)
Forming Part of Sentence 1.3.2.(1)

Sidewall Height, m	Total Roof Load, kPa	Spruce-Pine-Fir, No. 1, Dressed (Post and Timber Grades)																Second Storey Plate, kN/m
		Wind load: q10 ≤ 0.30 kPa								Wind load: q10 ≤ 0.45 kPa								
		2.4 m o.c.				3.6 m o.c.				2.4 m o.c.				3.6 m o.c.				
		Building Width, m				Building Width, m				Building Width, m				Building Width, m				
		9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	
3.0	1.9	A	A	A	A	A	A	B	B	A	A	A	A	A	B	B	B	14.6
	2.4	A	A	A	A	A	B	B	B	A	A	A	B	B	B	B	B	
	2.8	A	A	A	B	A	B	B	C	A	A	B	B	B	B	B	C	
	3.3	A	A	B	B	B	B	B	C	A	A	B	B	B	B	C	C	
3.6	1.9	A	A	A	B	A	B	B	C	A	A	B	B	B	B	C	C	14.6
	2.4	A	A	B	B	B	B	C	C	A	B	B	B	B	C	C	C	
	2.8	A	B	B	B	B	B	C	C	A	B	B	B	B	C	C	C	
	3.3	A	B	B	C	B	C	C	C	B	B	B	C	C	C	C	C	
3.0	1.9	A	A	A	A	A	A	B	B	A	A	A	A	A	A	B	B	7.3
	2.4	A	A	A	B	A	A	B	B	A	A	A	B	A	B	B	B	
	2.8	A	A	A	B	A	B	B	B	A	A	A	B	B	B	B	C	
	3.3	A	A	B	B	B	B	B	C	A	A	B	B	B	B	C	C	
3.6	1.9	A	A	A	B	A	B	B	B	A	A	B	B	B	B	C	C	7.3
	2.4	A	A	B	B	B	B	C	C	A	B	B	B	B	B	C	C	
	2.8	A	A	B	B	B	B	C	C	A	B	B	B	B	C	C	C	
	3.3	A	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	
3.0	1.9	A	A	A	A	A	A	A	B	A	A	A	A	A	A	B	B	3.6
	2.4	A	A	A	A	A	A	B	B	A	A	A	A	A	B	B	B	
	2.8	A	A	A	B	A	B	B	B	A	A	A	B	B	B	B	C	
	3.3	A	A	A	B	A	B	B	C	A	A	B	B	B	B	B	C	
3.6	1.9	A	A	A	B	A	B	B	B	A	A	A	B	B	B	B	C	3.6
	2.4	A	A	B	B	B	B	B	C	A	A	B	B	B	B	C	C	
	2.8	A	A	B	B	B	B	C	C	A	B	B	B	B	C	C	C	
	3.3	A	B	B	B	B	C	C	C	A	B	B	C	B	C	C	C	
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Legend - Post Sizes:

A = 89 mm x 140 mm B = 140 mm x 140 mm C = 140 mm x 184 mm

Notes to Table 1.3.2.I.:

(1) Designs are based on load combinations of total roof load, wind load and stored product acting at the same time on a closed building.
(2) All notes following Table 1.3.2.A. apply, with the following conditions/exceptions:
- 14.6 kN/m loading: Full 4.8 m sidewall hay/straw storage space above. It is supported by beams spaced at 3.6 m o.c. The outside plate carries a 1.8 m floor width. If the loading is greater, refer to a qualified person for design.
- 7.3 kN/m loading: Full 2.4 m sidewall hay/straw storage space above or a gambrel roof structure > 9.14 m in total width. Floor support beams as above.
- 3.6 kN/m loading: Small gambrel roof structure or storage space for light storage. Floor support beams as above.

Table 1.3 2.J.
Round Posts
Forming Part of Sentence 1.3.2.(1)

Ungraded Lumber Full-dimension Size, mm	Equivalent Diameter Full Size, mm
50.8 x 101.6	101.6
50.8 x 152.4	127.0
50.8 x 203.2	152.4
50.8 x 254.0	177.8
50.8 x 304.8	203.2
76.2 x 304.8	228.6
76.2 x 355.6	254.0
101.6 x 152.4	158.8
101.6 x 304.8	203.2
101.6 x 355.6	279.4
127.0 x 203.2	209.6
127.0 x 254.0	241.3
152.4 x 152.4	190.5
152.4 x 203.2	222.3
152.4 x 254.0	260.4
203.2 x 203.2	247.7
203.2 x 254.0	285.8
203.2 x 304.8	317.5
254.0 x 304.8	342.9
254.0 x 355.6	381.0
Column 1	2

Notes to Table 1.3.2.J.:

(1) When selecting round, ungraded lumber, ensure that the material is of good quality.
(2) Any timber that is in contact with ground shall be chemically treated to resist growth of fungus and decay.
(3) Equivalent diameter indicated in this Table refers to the smallest diameter of a tapering pole.
(4) Used hydro or telephone poles may be used if they are of good quality and are chemically treated to prevent decay.
(5) Indicated equivalent diameter will provide bending, shear and deflection resisting capabilities equal to or better than the rectangular section that it replaces.

Table 1.3.3.K.
Common Rafter Sizes for Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.3.(1)

Rafter Span, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)														
	Rafter Spacing														
	305 mm					406 mm					610 mm				
	Live Load, kPa					Live Load, kPa					Live Load, kPa				
	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
2.4	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B
3.0	B	B	B	B	B	B	B	B	B	C	B	B	C	C	D
3.6	B	B	C	C	C	B	C	C	C	C	C	C	D	D	D
4.2	B	C	C	C	C	C	C	C	D	D	C	D	D	E	E
4.8	C	C	D	D	D	C	D	D	E	E	D	E	E	—	—
5.4	C	D	D	D	E	D	D	E	E	—	E	E	—	—	—
6.0	D	D	D	E	—	D	E	E	—	—	E	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Legend - Rafter Sizes:

A = 38 mm x 89 mm C = 38 mm x 184 mm B = 38 mm x 140 mm D = 38 mm x 235 mm E = 38 mm x 286 mm

Notes to Table 1.3.3.K.:

(1) The rafter span is the unsupported length of the rafter from plate to plate or from plate to ridge. A dead load of 0.24 kPa is incorporated to allow for weight of the roof sheathing and rafter.

Table 1.3.3.L.
Common Rafter Sizes for Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.3.(1)

Rafter Span, m	Ungraded Lumber, Full-Dimension														
	Rafter Spacing														
	305 mm					406 mm					610 mm				
	Live Load, kPa					Live Load, kPa					Live Load, kPa				
	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3	1.4	1.9	2.4	2.8	3.3
2.4	A	A	B	B	B	B	B	B	B	C	B	B	C	C	D
3.0	B	B	B	C	C	B	C	C	C	D	C	C	D	D	E
3.6	B	C	C	D	D	C	C	D	D	E	D	D	E	F	F
4.2	C	C	D	D	E	D	D	E	E	F	E	F	F	F	G
4.8	C	D	E	E	F	D	E	F	F	F	F	F	F	G	I
5.4	D	E	F	F	F	E	F	F	F	G	F	G	H	I	—
6.0	E	F	F	F	G	F	F	G	G	I	F	H	I	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Legend - Rafter Sizes:

A = 50.8 mm x 101.6 mm
B = 50.8 mm x 152.4 mm
C = 50.8 mm x 203.2 mm
D = 50.8 mm x 254.0 mm
E = 50.8 mm x 304.8 mm
F = 76.2 mm x 304.8 mm
G = 76.2 mm x 355.6 mm
H = 101.6 mm x 304.8 mm
I = 101.6 mm x 355.6 mm

Notes to Table 1.3.3.L.:

(1) The rafter span is the unsupported length of the rafter from plate to plate or from plate to ridge. A dead load of 0.24 kPa is incorporated to allow for weight of the roof sheathing and rafter.

Table 1.3.3.M.
Floor Joists for Farm Buildings of Low Human Occupancy - Intermittent Loads(1)
Forming Part of Sentence 1.3.3.(1)

Joist Span, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)																	
	Joist Spacing																	
	305 mm						406 mm						610 mm					
	Live Load, kPa						Live Load, kPa						Live Load, kPa					
	1.9	2.8	3.8	4.8	6.7	8.6	1.9	2.8	3.8	4.8	6.7	8.6	1.9	2.8	3.8	4.8	6.7	8.6
2.4	A	B	B	B	B	C	B	B	B	B	C	C	B	B	B	C	D	D
3.0	B	B	B	C	C	D	B	B	C	C	D	D	B	C	C	D	E	—
3.6	B	C	C	C	D	D	C	C	C	D	E	E	C	D	D	E	—	—
4.2	C	C	D	D	E	E	C	D	D	E	—	—	D	d	E	—	—	—
4.8	C	D	D	E	—	—	D	D	E	E	—	—	D	E	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Legend - Joist Sizes:
A = 38 mm x 89 mm B = 38 mm x 140 mm C = 38 mm x 184 mm D = 38 mm x 235 mm E = 38 mm x 286 mm

Notes to Table 1.3.3.M.:
(1) Loads are applied to the floor intermittently. (When loads are applied for extended periods of time, use Table 1.3.3.N.).
(2) A dead load of 0.48 kPa is incorporated to allow for the dead weight of the floor system.

Table 1.3.3.N.
Floor Joists for Farm Buildings of Low Human Occupancy - Continuous Loads(1)
Forming Part of Sentence 1.3.3.(1)

Joist Span, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)																	
	Joist Spacing																	
	305 mm						406 mm						610 mm					
	Live Load, kPa						Live Load, kPa						Live Load, kPa					
	1.9	2.8	3.8	4.8	6.7	8.6	1.9	2.8	3.8	4.8	6.7	8.6	1.9	2.8	3.8	4.8	6.7	8.6
2.4	A	B	B	B	C	C	B	B	B	C	D	E	B	C	C	D	—	—
3.0	B	B	C	C	D	E	B	C	C	D	E	—	C	D	D	E	—	—
3.6	B	C	D	D	E	—	C	D	D	E	—	—	D	E	—	—	—	—
4.2	C	D	D	E	—	—	D	E	E	—	—	—	E	—	—	—	—	—
4.8	D	D	E	—	—	—	D	E	—	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Legend - Joist Sizes:
A = 38 mm x 89 mm B = 38 mm x 140 mm C = 38 mm x 184 mm D = 38 mm x 235 mm E = 38 mm x 286 mm

Notes to Table 1.3.3.N.:
(1) For use of floors that support hay, straw, grain or other continuous loads.
(2) A dead load of 0.48 kPa is incorporated to allow for the dead weight of the floor system.

Table 1.3.3.O.
Built-up Wood Beam Sizes for Farm Buildings of Low Human Occupancy - Intermittent Loads(1)
Forming Part of Sentence 1.3.3.(1)

Beam Span, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)										
	Total Load on Beam, kN/m										
	5.84	8.76	11.67	14.59	17.51	20.43	23.35	26.27	29.19	32.11	35.03
1.8	A	A	A	B	B	D	D	G	G	J	L
2.4	A	A	B	D	E	H	J	L	—	—	—
3.0	A	C	E	H	J	K	—	—	—	—	—
3.6	C	H	J	L	—	—	—	—	—	—	—
4.2	E	J	L	—	—	—	—	—	—	—	—
4.8	I	L	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10	11	12

Legend - Beam Sizes:

A = 3 - 38 mm x 184 mm
B = 4 - 38 mm x 184 mm
C = 3 - 38 mm x 235 mm
D = 5 - 38 mm x 184 mm
E = 3 - 38 mm x 286 mm
F = 4 - 38 mm x 235 mm
G = 6 - 38 mm x 184 mm
H = 5 - 38 mm x 235 mm
I = 4 - 38 mm x 286 mm
J = 6 - 38 mm x 235 mm
K = 5 - 38 mm x 286 mm
L = 6 - 38 mm x 286 mm

Notes to Table 1.3.3.O.:

(1) Loads are applied to the beam intermittently.
(2) A dead load of 0.584 kN/m is assumed for all beams.
(3) Floors systems supporting heavy loads over larger spans will require the use of steel beams or other specialized materials.

Table 1.3.3.P.
Built-up Wood Beam Sizes for Farm Buildings of Low Human Occupancy - Continuous Loads(1)
Forming Part of Sentence 1.3.3.(1)

Beam Span, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)						
	Total Load on Beam, kN/m						
	5.84	8.76	11.67	14.59	17.51	20.43	23.35
1.8	A	A	B	D	G	J	L
2.4	A	C	E	J	L	—	—
3.0	D	H	J	L	—	—	—
3.6	H	K	—	—	—	—	—
4.2	K	—	—	—	—	—	—
4.8	L	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8

Legend - Beam Sizes:

A = 3 - 38 mm x 184 mm
B = 4 - 38 mm x 184 mm
C = 3 - 38 mm x 235 mm
D = 5 - 38 mm x 184 mm
E = 3 - 38 mm x 286 mm
F = 4 - 38 mm x 235 mm
G = 6 - 38 mm x 184 mm
H = 5 - 38 mm x 235 mm
I = 4 - 38 mm x 286 mm
J = 6 - 38 mm x 235 mm
K = 5 - 38 mm x 286 mm
L = 6 - 38 mm x 286 mm

Notes to Table 1.3.3.P.:

(1) For use of floors that support hay, straw, grain or other continuous loads.
(2) A dead load of 0.48 kPa is assumed for all beams.
(3) Floor systems supporting heavy loads over larger spans will require use of steel beams or other specialized materials.

Table 1.3.3.Q.
Ungraded Lumber, Full-Dimension Roof Beam Sizes for Farm Buildings of Low Human Occupancy(1)
Forming Part of Sentence 1.3.3.(1)

Beam Span, m	Total Load on Built-up Wood Beam, kN/m							
	5.84	8.76	11.67	14.59	17.51	20.43	23.35	26.27
1.8	A	A	B	C	D	F	G	H
2.4	B	D	E	H	I	J	—	—
3.0	D	G	I	—	—	—	—	—
3.6	G	J	—	—	—	—	—	—
4.2	J	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9

Legend - Built-up Wood Beam Sizes:

A = 3 - 50.8 mm x 203.2 mm
B = 4 - 50.8 mm x 203.2 mm
C = 3 - 50.8 mm x 254.0 mm
D = 5 - 50.8 mm x 203.2 mm
E = 6 - 50.8 mm x 203.2 mm
F = 4 - 50.8 mm x 254.0 mm
G = 5 - 50.8 mm x 254.0 mm
H = 4 - 50.8 mm x 304.8 mm
I = 5 - 50.8 mm x 304.8 mm
J = 6 - 50.8 mm x 304.8 mm

Notes to Table 1.3.3.Q.:

(1) Ungraded lumber, full-dimension, built-up wood beam.
(2) A dead load of 0.584 kN/m is assumed.
(3) Beams are sized for roof load only.

Table 1.3.3.R.
Ungraded Lumber, Full-Dimension Roof Beam Sizes for Farm Buildings of Low Human Occupancy(1)
Forming Part of Sentence 1.3.3.(1)

Beam Span, m	Total Load on Sawn Beam, kN/m							
	5.84	8.76	11.67	14.59	17.51	20.43	23.35	26.27
1.8	A	A	B	C	D	E	F	G
2.4	A	B	D	D	F	G	—	—
3.0	C	D	E	F	—	—	—	—
3.6	D	F	G	—	—	—	—	—
4.2	E	G	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9

Legend - Sawn Beam Sizes:

A = 127.0 mm x 203.2 mm
B = 127.0 mm x 254.0 mm
C = 152.4 mm x 254.0 mm
D = 203.2 mm x 254.0 mm
E = 203.2 mm x 304.8 mm
F = 254.0 mm x 304.8 mm
G = 254.0 mm x 355.6 mm

Notes to Table 1.3.3.R.:

(1) Ungraded lumber, full-dimension, sawn wood beam.
(2) A dead load of 0.584 kN/m is assumed.
(3) Beams are sized for roof load only.

Table 1.3.3.S.
Roof Plate-Beams and Lintels for Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.3.(1)

Building Width, m	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)								
	Total Roof Load, kPa, with Post Spacing at 2.4 m								
	A	B	C	D	E	F	G	H	I
7.3	1.67	2.77	3.68	2.49	4.11	5.50	3.35	5.55	7.42
8.5	1.43	2.34	3.16	2.15	3.54	4.74	2.87	4.74	6.36
9.7	1.24	2.05	2.77	1.86	3.11	4.11	2.53	4.16	5.55
10.9	—	1.81	2.44	1.67	2.72	3.68	2.25	3.68	4.93
12.1	—	1.62	2.20	1.48	2.49	3.30	2.01	3.30	4.45
13.4	—	1.48	2.01	1.34	2.25	3.01	1.81	3.01	4.02
14.6	—	1.38	1.81	1.24	2.05	2.72	1.67	2.77	3.68
15.8	—	1.24	1.67	—	1.91	2.53	1.53	2.53	3.40
17.0	—	—	1.58	—	1.77	2.34	1.43	2.39	3.16
18.2	—	—	1.48	—	1.62	2.20	1.34	2.20	2.96
Building Width, m	Total Roof Load, kPa, with Post Spacing at 3.0 m								
	A	B	C	D	E	F	G	H	I
7.3	—	1.72	2.29	1.53	2.58	3.44	2.10	3.44	4.64
8.5	—	1.48	1.96	1.34	2.20	2.96	1.77	2.96	3.97
9.7	—	1.29	1.72	—	1.91	2.58	1.58	2.58	3.44
10.9	—	—	1.53	—	1.72	2.29	1.38	2.29	3.06
12.1	—	—	1.38	—	1.53	2.05	1.24	2.05	2.77
13.4	—	—	1.24	—	1.38	1.86	—	1.86	2.53
14.6	—	—	—	—	1.29	1.72	—	1.72	2.29
15.8	—	—	—	—	—	1.58	—	1.58	2.10
17.0	—	—	—	—	—	1.48	—	1.48	1.96
18.2	—	—	—	—	—	1.38	—	1.38	1.81
Building Width, m	Total Roof Load, kPa, with Post Spacing at 3.6 m								
	A	B	C	D	E	F	G	H	I
7.3	—	1.38	1.81	1.24	2.05	2.72	1.67	2.77	3.68
8.5	—	—	1.58	—	1.77	2.34	1.43	2.39	3.16
9.7	—	—	1.38	—	1.53	2.05	1.24	2.05	2.77
10.9	—	—	1.19	—	1.38	1.81	—	1.81	2.44
12.1	—	—	—	—	1.24	1.62	—	1.67	2.20
13.4	—	—	—	—	—	1.48	—	1.48	2.01
14.6	—	—	—	—	—	1.38	—	1.38	1.81
15.8	—	—	—	—	—	1.24	—	1.29	1.67
17.0	—	—	—	—	—	—	—	—	1.58
18.2	—	—	—	—	—	—	—	—	1.48
Column 1	2	3	4	5	6	7	8	9	10

Legend - Roof Plate-Beam and Lintel Sizes:

A = 2 - 38 mm x 184 mm
B = 3 - 38 mm x 184 mm
C = 4 - 38 mm x 184 mm
D = 2 - 38 mm x 235 mm
E = 3 - 38 mm x 235 mm
F = 4 - 38 mm x 235 mm
G = 2 - 38 mm x 286 mm
H = 3 - 38 mm x 286 mm
I = 4 - 38 mm x 286 mm

Notes to Table 1.3.3.S.:

(1) Trusses are at 1.2 m on centres.
(2) Plate-beam/lintel loading can be very significant.
(3) Specifications for anchorage at supporting posts must be specified by a competent designer.

Table 1.3.3.T.
Roof Plate-Beams and Lintels for Farm Buildings of Low Human Occupancy
Forming Part of Sentence 1.3.3.(1)

Building Width, m	Ungraded Lumber-Full Dimension								
	Total Roof Load, kPa, with Post Spacing at 2.4 m								
	A	B	C	D	E	F	G	H	I
7.3	—	1.72	2.29	1.48	2.44	3.25	1.91	3.20	4.26
8.5	—	1.43	1.96	1.24	2.10	2.77	1.67	2.72	3.68
9.7	—	1.29	1.72	—	1.81	2.44	1.43	2.39	3.20
10.9	—	—	1.53	—	1.62	2.15	1.29	2.15	2.87
12.1	—	—	1.34	—	1.48	1.96	—	1.91	2.58
13.4	—	—	1.24	—	1.34	1.77	—	1.72	2.34
14.6	—	—	—	—	1.19	1.62	—	1.58	2.15
15.8	—	—	—	—	—	1.48	—	1.48	1.96
17.0	—	—	—	—	—	1.38	—	1.38	1.81
18.2	—	—	—	—	—	1.29	—	1.29	1.72
Building Width, m	Total Roof Load, kPa, with Post Spacing at 3.0 m								
	A	B	C	D	E	F	G	H	I
7.3	—	—	1.43	—	1.53	2.05	1.19	2.01	2.68
8.5	—	—	1.19	—	1.29	1.72	—	1.72	2.29
9.7	—	—	—	—	—	1.53	—	1.48	2.01
10.9	—	—	—	—	—	1.34	—	1.34	1.77
12.1	—	—	—	—	—	1.19	—	—	1.58
13.4	—	—	—	—	—	—	—	—	1.43
14.6	—	—	—	—	—	—	—	—	1.34
15.8	—	—	—	—	—	—	—	—	1.24
17.0	—	—	—	—	—	—	—	—	—
18.2	—	—	—	—	—	—	—	—	—
Building Width, m	Total Roof Load, kPa, with Post Spacing at 3.6 m								
	A	B	C	D	E	F	G	H	I
7.3	—	—	—	—	1.19	1.62	—	1.58	2.15
8.5	—	—	—	—	—	1.38	—	1.38	1.81
9.7	—	—	—	—	—	1.19	—	—	1.58
10.9	—	—	—	—	—	—	—	—	1.43
12.1	—	—	—	—	—	—	—	—	1.29
13.4	—	—	—	—	—	—	—	—	—
14.6	—	—	—	—	—	—	—	—	—
15.8	—	—	—	—	—	—	—	—	—
17.0	—	—	—	—	—	—	—	—	—
18.2	—	—	—	—	—	—	—	—	—
Column 1	2	3	4	5	6	7	8	9	10

Legend - Roof Plate-Beam and Lintel Sizes:

A = 2 - 50.8 mm x 203.2 mm
B = 3 - 50.8 mm x 203.2 mm
C = 4 - 50.8 mm x 203.2 mm
D = 2 - 50.8 mm x 254.0 mm
E = 3 - 50.8 mm x 254.0 mm
F = 4 - 50.8 mm x 254.0 mm
G = 2 - 50.8 mm x 304.8 mm
H = 3 - 50.8 mm x 304.8 mm
I = 4 - 50.8 mm x 304.8 mm

Notes to Table 1.3.3.T.:

(1) Trusses are at 1.2 m on centres.
(2) Plate-beam/lintel loading can be very significant.
(3) Specifications for anchorage at supporting posts must be specified by a competent designer.

Table 1.3.4.U.
Stud Sizes for Farm Buildings of Low Human Occupancy (Single Storey)
Forming Part of Sentence 1.3.4.(1)

Sidewall Height, m	Total Roof Load, kPa	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)															
		Wind Load: q10 ≤ 0.30 kPa								Wind Load: q10 ≤ 0.45 kPa							
		406 mm o.c.				610 mm o.c.				406 mm o.c.				610 mm o.c.			
		Building Width, m				Building Width, m				Building Width, m				Building Width, m			
		9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3
3.0	1.9	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	B
	2.4	A	A	A	A	A	A	B	B	A	A	A	A	A	A	B	B
	2.8	A	A	A	A	A	A	B	B	A	A	A	A	A	B	B	B
	3.3	A	A	A	B	A	B	B	B	A	A	A	B	A	B	B	B
3.6	1.9	A	A	A	B	A	B	B	B	A	A	A	B	B	B	B	B
	2.4	A	A	B	B	B	B	B	B	A	A	B	B	B	B	B	B
	2.8	A	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B
	3.3	A	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B
4.2	1.9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	2.8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	3.3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4.8	1.9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C
	2.8	B	B	B	B	B	B	B	C	B	B	B	B	B	B	C	C
	3.3	B	B	B	B	B	B	C	C	B	B	B	B	B	B	C	C
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Legend - Stud Sizes:

A = 38 mm x 89 mm
B = 38 mm x 140 mm
C = 38 mm x 184 mm or double 38 mm x 140 mm under the trusses, with an intermediate 38 mm x 140 mm stud at 610 mm.

Notes to Table 1.3.4.U.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) It is assumed that the double top plate is rigid enough to cause load sharing amongst all studs regardless of the spacing 406 mm or 610 mm.
(3) Solid bridging shall be used on all walls as follows:
≤ 3.0 m: 1 row at mid-height.
3.6 m - 4.2 m: 2 rows at third-points.
4.8 m: 3 rows at quarter-points.
(4) Wind bracing shall not impose additional bending forces onto the stud.

Table 1.3.4.V.
Stud Sizes for Farm Buildings of Low Human Occupancy (With Second Storey Loading)
Forming Part of Sentence 1.3.4.(1)

Sidewall Height, m	Total Roof Load, kPa	Spruce-Pine-Fir, No. 1 and No. 2 (Dressed Lumber)																Second Storey Plate, kN/m
		Wind Load: q10 ≤ 0.30 kPa								Wind Load: q10 ≤ 0.45 kPa								
		406 mm o.c.				610 mm o.c.				406 mm o.c.				610 mm o.c.				
		Building Width, m				Building Width, m				Building Width, m				Building Width, m				
		9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	
3.0	1.9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14.6
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	2.8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	3.3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
3.6	1.9	B	B	B	B	B	B	B	C	B	B	B	B	B	B	C	C	14.6
	2.4	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	
	2.8	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C	
	3.3	B	B	B	B	B	C	C	C	B	B	B	B	C	C	C	C	
3.0	1.9	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	7.3
	2.4	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	2.8	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	3.3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
3.6	1.9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	7.3
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	2.8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	3.3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	
3.0	1.9	A	A	A	A	A	B	B	B	A	A	A	A	B	B	B	B	3.6
	2.4	A	A	A	B	B	B	B	B	A	A	A	B	B	B	B	B	
	2.8	A	A	B	B	B	B	B	B	A	A	B	B	B	B	B	B	
	3.3	A	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	
3.6	1.9	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	3.6
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	2.8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	3.3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Legend - Stud Sizes:

A = 38 mm x 89 mm
B = 38 mm x 140 mm
C = 38 mm x 184 mm or double 38 mm x 140 mm

Notes to Table 1.3.4.V.:

(1) Design is based on load combinations of total roof load, wind load and stored product acting at the same time on a closed building.
(2) All notes following Table 1.3.4.U. apply, with the following conditions/exceptions:
- 14.6 kN/m loading: Full 4.8 m sidewall hay/straw storage space above. It is supported by beams spaced at 3.6 m o.c. The outside plate carries a 1.8 m floor width. If the loading is greater, refer to a qualified person for design.
- 7.3 kN/m loading: Full 2.4 m sidewall hay/straw storage space above or a gambrel roof structure >9.14 m in total width. Floor support beams as above.
- 3.6 kN/m loading: Small gambrel roof structure or storage space for light storage. Floor support beams as above.

Table 1.3.4.W.
Stud Sizes for Farm Buildings of Low Human Occupancy (Single Storey)
Forming Part of Sentence 1.3.4.(1)

Sidewall Height, m	Total Roof Load, kPa	Ungraded Lumber, Full-Dimensioned															
		Wind Load: q10 ≤ 0.30 kPa								Wind Load: q10 ≤ 0.45 kPa							
		406 mm o.c.				610 mm o.c.				406 mm o.c.				610 mm o.c.			
		Building Width, m				Building Width, m				Building Width, m				Building Width, m			
		9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3	9.14	12.2	15.2	18.3
3.0	1.9	A	A	A	A	A	A	A	B	A	A	A	A	A	A	B	B
	2.4	A	A	A	A	A	A	B	B	A	A	A	A	A	B	B	B
	2.8	A	A	A	A	A	B	B	B	A	A	A	B	B	B	B	B
	3.3	A	A	A	B	A	B	B	B	A	A	A	B	A	B	B	B
3.6	1.9	A	A	A	B	A	B	B	B	A	A	A	B	B	B	B	B
	2.4	A	A	B	B	B	B	B	B	A	A	B	B	B	B	B	B
	2.8	A	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B
	3.3	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C
4.2	1.9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	2.4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C
	2.8	B	B	B	B	B	B	B	C	B	B	B	B	B	B	C	C
	3.3	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C
4.8	1.9	B	B	B	B	B	B	B	C	B	B	B	B	B	B	C	C
	2.4	B	B	B	B	B	B	C	C	B	B	B	B	B	C	C	C
	2.8	B	B	B	B	B	B	C	C	B	B	B	C	C	C	C	C
	3.3	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Legend - Stud Sizes:

A = 50.8 mm x 101.6 mm
B = 50.8 mm x 152.4 mm
C = 50.8 mm x 203.2 mm or double 50.8 mm x 152.4 mm under the trusses, with an intermediate 50.8 mm x 152.4 mm stud at 610 mm

Notes to Table 1.3.4.W.:

(1) Designs are based on load combinations of total roof load and wind load acting at the same time on a closed building.
(2) It is assumed that the double top plate is rigid enough to cause load sharing amongst all studs regardless of the spacing 406 mm or 610 mm.
(3) Solid bridging shall be used on all walls as follows:
    ≤ 3.0 m: 1 row at mid-height.
    3.6 m to 4.2 m: 2 rows at third-points.
    4.8 m: 3 rows at quarter-points.
(4) Wind bracing shall not impose additional bending forces onto the stud.

MMAH Supplementary Standard SB-12

Energy Efficiency For Housing

July 7, 2016 update

COMMENCEMENT

MMA Supplementary Standard SB-12 comes into force on the 1st day of January, 2025.

EDITORIAL

e1 Editorial correction issued for January 1, 2025.

SB-12 Energy Efficiency for Housing

Chapter 1 General

e1 Chapter 2 Reserved

Chapter 3 Acceptable Solutions for Energy Efficiency Compliance

e1 FOREWORD[1]

This Supplementary Standard includes design options regarding the energy efficiency of a building or part of a building of residential occupancy that is within the scope of Part 9 and is intended for occupancy on a continuing basis during the winter months. Conformance with the options in this Supplementary Standard is one method of demonstrating compliance with the requirements in Sentence 12.2.1.2.(3) of the Building Code. The options in this Supplementary Standard are intended to recognize the needs of consumers and the building industry for predictable prescriptive and flexible performance-based solutions.

The first edition of this Supplementary Standard was published in 2009. The energy efficiency levels achieved in that edition were intended to meet or exceed, on a systematic basis, the EnerGuide 80 level of energy efficiency that would be met by model analogues evaluated against the NRCan "EnerGuide for New Houses: Administrative and Technical Procedures" (2005). The editions published in 2012 and 2013 included certain trade-off options in recognition of the Energy Star program that expanded the number of building component and assembly permutations considered to represent acceptable solutions. The September 2013 also included a new "Chapter 3" with compliance packages that demonstrated how to achieve an additional energy efficiency level increase of 15% over the requirements that took effect on January 1, 2012.

The July 7th, 2016 update of the Supplementary Standard was primarily intended to update the compliance packages set out in Chapter 3. Changes include the identification of credits based on airtightness. Other changes include the recognition of the technical requirements of Energy Star and R2000 programs as design options for meeting the energy efficiency requirements of the Building Code.

This edition of SB-12 is still the same edition released on July 7, 2016 except that the requirements applicable on or before July 7, 2016 have been removed and marked as "Reserved".

Labelling is not required to demonstrate compliance with this Supplementary Standard.

[1] Unless otherwise indicated, all Building Code references in this foreword refer to provisions located in Division B of the Building Code.

SUMMARY OF THE CONTENTS OF SB-12

Chapter 1: General

This Chapter sets out the scope and application of this Supplementary Standard.

e1 Chapter 2: Reserved

e1 Chapter 3: Acceptable Solutions for Achieving Energy Efficiency

This Chapter contains acceptable solutions for achieving energy efficiency compliance with Clause 12.2.1.2.(3)(b) of Division B of the Building Code and applies to construction of buildings. Conformance with one of the prescriptive compliance packages in Subsection 3.1.1., the performance compliance method in Subsection 3.1.2. or Energy Star or R2000 requirements as specified in Subsection 3.1.3. of this Supplementary Standard is intended to achieve, on a systemic basis, an energy efficiency performance level that exceeds the energy efficiency requirements of Sentence 12.2.1.1.(3) of Division B of O. Reg. 332/12 (2012 Building Code) as it read on December 31, 2024, by 15%.

Chapter 1

General

Section 1.1. Scope

1.1.1. Energy Efficiency Compliance

1.1.1.1. Energy Efficiency

(1) This Section is concerned with the energy used by *buildings* as a result of
(a) the design and *construction* of the *building* envelope, and
(b) the design and *construction* or specification of systems and equipment for
  (i) heating, ventilating or *air-conditioning*, and
  (ii) service water heating.

e1 **(2)** Reserved.

(3) Compliance with Chapters 1 and 3 of this Supplementary Standard shall be deemed to meet the energy efficiency requirements in accordance with Sentence 12.2.1.2.(3) of Division B of the *Building Code*.

(4) The energy efficiency of existing *building*s shall comply with
(a) Part 10 of Division B of the *Building Code* with respect to change of use, or
(b) Part 11 of Division B of the *Building Code* for renovation.

1.1.1.2. Reserved

e1 #### 1.1.1.3. Compliance Options

(1) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code* and is intended for occupancy on a continuing basis during the winter months shall comply with
(a) Subsection 3.1.1. (Prescriptive Compliance Packages) of Chapter 3,
(b) Subsection 3.1.2. (Performance Compliance) of Chapter 3, or
(c) Subsection 3.1.3. (Other Acceptable Compliance Methods) of Chapter 3.

(2) Factory-built modular homes manufactured before January 1, 2017 in accordance with the *Building Code* as it read on December 31, 2016 shall be deemed to be in compliance with Sentence (1).

Section 1.2. Application

1.2.1. Application of Supplementary Standard SB-12

1.2.1.1. Energy Efficiency Design

(1) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code* and is intended for occupancy on a continuing basis during the winter months shall comply with this Supplementary Standard in accordance with Subsection 12.2.1. of Division B of the *Building Code*.

Section 1.3. Terms and Abbreviations

1.3.1. Definitions of Words and Phrases

1.3.1.1. Non-Defined Terms

(1) Definitions of words and phrases used in this Supplementary Standard that are not included in the list of definitions in Articles 1.4.1.2. and 1.4.1.3. of Division A of the *Building Code* and are not defined in another provision of the *Building Code* shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

1.3.1.2. Defined Terms

(1) Each of the words and terms in italics in this Supplementary Standard has the same meaning as in subsection 1(1) of the *Building Code Act, 1992* or Sentence 1.4.1.2.(1) of Division A of the *Building Code*.

(2) In this Supplementary Standard,

common space means all spaces required to be *conditioned spaces* in accordance with the requirements of the *Building Code* that are not within a *suite* but does not include crawl spaces and *vertical service spaces*;

effective RSI value means the effective thermal resistance, which is the inverse of the *overall thermal transmittance* of a *building* assembly, in $(m^2 \cdot K)/W$; (See Appendix A.)

fenestration means a *building* envelope assembly that transfers visible light, such as a window, clerestory, skylight, translucent wall panel, glass block assembly, transom, sidelight, sliding or swinging glass door, or glazed insert in a door, and includes the frames and other components of the assembly;

overall coefficient of heat transfer means *overall thermal transmittance* of *fenestration* and, for greater certainty, includes all components of *fenestration*;

overall thermal transmittance means the rate, in $W/(m^2 \cdot K)$, at which heat is transferred through all components of a *building* envelope assembly that is subject to temperature differences and includes interior and exterior air films that are in contact with the assembly, but does not include exterior air films where the assembly is in contact with *soil*.

1.3.2. Symbols and Other Abbreviations

1.3.2.1. Symbols and Other Abbreviations

(1) Where used in this Supplementary Standard, a symbol or abbreviation listed in Column 2 of Table 1.4.2.1. of Division A of the *Building Code* shall have the meaning listed opposite it in Column 3.

(2) The abbreviations listed in Column 2 of Table 1.3.2.1. shall also apply to this Supplementary Standard and shall have the meaning listed opposite it in Column 3.

Table 1.3.2.1.
Abbreviations
Forming Part of Sentence 1.3.2.1.(2)

Item	Abbreviation	Meaning
1	ACH	air changes per hour
2	AFUE	annual fuel utilization efficiency
3	ASHP	air source heat pump
4	ci	continuous insulation (See Appendix A.)
5	EF	energy factor
6	HRV	heat or energy recovery ventilator
7	HSPF	heating seasonal performance factor
8	ICF	insulating concrete form
9	IP	inch-pound - imperial
10	K	Kelvin
11	NLA	normalised leakage area
12	NLR	normalised leakage rate
13	SI	standard international – metric
14	SRE	sensible recovery efficiency
15	TPF	thermal performance factor
16	U-Value	overall thermal transmittance or overall coefficient of heat transfer
Column 1	2	3

Section 1.4. Referenced Documents and Organizations

1.4.1. Referenced Documents

1.4.1.1. Effective Date

(1) Unless otherwise specified in this Supplementary Standard, the documents referenced in this Supplementary Standard shall include all amendments, revisions and supplements effective to October 31, 2011.

1.4.1.2. Applicable Editions

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Column 2 of Table 1.4.1.2.

e1

Table 1.4.1.2.
Referenced Documents
Forming Part of Sentence 1.4.1.2.(1)

Issuing Agency	Document Number	Title of Document	Supplementary Standard Reference
CGSB	CAN/CGSB 149.10-M86	Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method	3.1.1.4.(2)
CSA	CAN/CSA-A440.2-09	Fenestration Energy Performance Evaluation of Windows and Sliding Glass Doors	3.1.1.9.(2)
CSA	B55.1-12	Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units	3.1.1.12.(4)
CSA	B55.2-12	Drain Water Heat Recovery Units	3.1.1.12.(3)
CSA	CAN/CSA-P.9-11	Test Method for Determining the Performance of Combined Space and Water Heating Systems (Combos)	3.1.1.3.(7)
NFRC	NFRC 100-2010	Procedure for Determining Fenestration Product U-factors	3.1.1.9.(2)
NFRC	NFRC 200-2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence	3.1.1.8.(2)
NRCan	NRCan January 2012	Energy Star for New Homes Standard Version 12.6	3.1.3.1.(1)
NRCan	NRCan November 2015	EnerGuide Rating System Technical Procedures Version 15.1	3.1.1.4.(2); 3.1.2.1.
NRCan	NRCan 2012	2012 R-2000 Standard	3.1.3.1.(2)
Column 1	2	3	4

Notes to Table 1.4.1.2.:

(1) NFRC refers to the National Fenestration Rating Council. (See Appendix A.)

1.4.2. Abbreviations

1.4.2.1. Abbreviations of Proper Names

(1) Where used in this Supplementary Standard, abbreviations of proper names listed in Column 1 of Table 1.3.2.1. of Division B of the *Building Code* shall have the meaning assigned opposite it in Column 2.

e1 Chapter 2

Reserved

Chapter 3

e1 Acceptable Solutions for Energy Efficiency Compliance

Section 3.1. Methods for Achieving Energy Efficiency Compliance

3.1.1. Prescriptive Compliance Packages (See Appendix A.)

3.1.1.1. Energy Efficiency

(1) Except as provided in Articles 3.1.1.4. to 3.1.1.11., the *building* shall conform to
(a) Article 3.1.1.2. if the *building* is located in Zone 1 with less than 5000 heating degree days, or
(b) Article 3.1.1.3. if the *building* is located in Zone 2 with 5000 or more heating degree days.

(2) Except as required in Sentence (5), all walls, ceilings, floors, windows and doors that separate heated space from unheated space, the exterior air or the exterior *soil* shall have thermal resistance ratings conforming to this Subsection.

(3) Where specified in compliance packages in Tables 3.1.1.2.A to 3.1.1.2.C and Tables 3.1.1.3.A to 3.1.1.3.C, space heating equipment, domestic water heating equipment and heat or energy recovery ventilators shall be provided and have the efficiency rating conforming to this Subsection. (See Appendix A.)

(4) Except as required in Sentence (5), insulation shall be provided between heated and unheated spaces and between heated spaces and the exterior in accordance with this Chapter.

(5) A *building* envelope assembly that separates a *conditioned space* from an adjoining *storage garage* shall be treated as an assembly separating heated space from exterior, even if the *storage garage* is intended to be heated.

(6) Reflective surfaces of insulating materials shall not be considered in calculating the thermal resistance of *building* assemblies.

(7) Except as provided in Sentences (8) and 3.1.1.11.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is not more than 17%, the *building* shall comply with a compliance package selected from Tables 3.1.1.2.A to 3.1.1.2.C and Tables 3.1.1.3.A to 3.1.1.3.C, and Table 3.1.1.11. (See Appendix A.)

(8) Except as permitted in Sentences 3.1.1.11.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 17% but not more than 22%, the *building* shall comply with a compliance package selected from Tables 3.1.1.2.A to 3.1.1.2.C, Tables 3.1.1.3.A to 3.1.1.3.C and Table 3.1.1.11. and the *overall coefficient of heat transfer* of the *fenestration* shall be upgraded to
(a) 1.6 where 1.8 is required by the selected compliance package or permitted by Article 3.1.1.4.,
(b) 1.4 where 1.6 is required by the selected compliance package or permitted by Article 3.1.1.4.,
(c) 1.2 where 1.4 is required by the selected compliance package or permitted by Article 3.1.1.4., and
(d) 1.0 where 1.2 is required by the selected compliance package or permitted by Article 3.1.1.4.
(See Appendix A.)

(9) Where the ratio of gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 22%, the *building* shall comply with Subsection 3.1.2. (See Appendix A.)

(10) Where a *dwelling unit* has a walkout *basement*, the thermal performance level of the exterior *basement* wall shall be not less than that required for the above grade wall for
(a) the *basement* wall containing the door opening, and
(b) any *basement* wall that has an exposed wall area above the ground level exceeding 50% of that *basement* wall area.

(11) For a *conditioned space*, the exterior *building* envelope or envelope that separates *conditioned space* from unconditioned space shall conform to the applicable values specified in Articles 3.1.1.2. and 3.1.1.3.

(12) Where an enclosed unheated space is separated from a heated space by glazing, the unheated enclosure may be considered to provide a thermal resistance of RSI 0.16.

(13) Where a compliance package in Tables 3.1.1.2.A to 3.1.1.2.C, Tables 3.1.1.3.A to 3.1.1.3.C, or Table 3.1.1.11. specifies a nominal RSI value, *effective RSI value* and U-Value for a component specified in Column 1 of the Table and the component conforms to one of the thermal values, the component need not conform to the other thermal values specified for the component.

(14) Insulation in the rim joist or header area where the floor assembly and wall assembly intersect shall have a thermal value not less than the thermal value of the insulation in the walls above grade.

(15) Where a compliance package in Tables 3.1.1.2.A to 3.1.1.2.C, Tables 3.1.1.3.A to 3.1.1.3.C, or Table 3.1.1.11. specifies an *overall coefficient of heat transfer* and an energy rating value for a *fenestration* component specified in Column 1 of the Table and the component conforms to one of the thermal values, the component need not conform to the other thermal value specified for the component.

(16) Ventilation systems serving *dwelling units* shall have a heat or energy recovery ventilator. (See Appendix A)

(17) Except as provided in Sentence (18), a *building* is permitted to be designed in conformance with any of the compliance packages available for the climate zone that the *building* is located in, if the primary space heating of the *building* is supplied by
(a) a wood burning *appliance*,
(b) an earth energy system, or
(c) an air or water source heat pump that does not use electric resistance as a back-up heat source.

(18) For the purpose of Sentence (17), the requirements in the compliance packages for space heating equipment do not apply.

(19) Heat or energy recovery ventilators specified in compliance packages in Tables 3.1.1.2.A to 3.1.1.2.C and Tables 3.1.1.3.A to 3.1.1.3.C, shall meet
(a) the requirements of Article 9.32.3.12. of Division B of the *Building Code*, and
(b) the minimum SRE required in this Chapter based on a test temperature of 0°C at an air flow rate equal to the principle exhaust flow but need not exceed 30 L/s.

(20) *Building* envelope components that enclose a *common space* and are exposed to exterior or unconditioned space shall conform to this Subsection.

(21) Heating, ventilating, *air-conditioning* and lighting systems serving *common spaces* need not comply with this Subsection but shall comply with the other parts of the *Building Code*.

(22) Drain water heat recovery units shall be installed in accordance with Article 3.1.1.12.

3.1.1.2. Energy Efficiency for Buildings Located in Zone 1

(1) Except as provided in Sentences (2) to (5) and (7), the minimum thermal performance of *building* envelope assemblies and equipment shall conform to Table 3.1.1.2.A.

(2) Except for solid fuel-burning space heating equipment and except as provided in Sentence (5), where the space heating equipment efficiency is 84% or more but less than 92%, the minimum thermal performance of the *building* envelope assemblies and equipment shall conform to Table 3.1.1.2.B.

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope assemblies and equipment shall conform to Table 3.1.1.2.C.

(4) Except as provided in Sentence 3.1.1.1.(17), where the space heating equipment efficiency cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Subsection 3.1.2. of this Supplementary Standard.

(5) Where an ICF wall assembly is installed as an above and below grade wall assembly that has minimum RSI 1.76 (R10) insulation on the interior surface of the concrete and minimum RSI 1.76 (R10) insulation on the exterior surface, the ICF wall is deemed to comply with the thermal values set out for walls in the compliance packages in Table 3.1.1.2.A. (See Appendix A.)

(6) An ICF wall assembly described in Sentence (5) is permitted to be used in lieu of *basement* walls that require insulation value of RSI 3.52 ci (R20) or less. (See Appendix A.)

(7) *Building* designs that utilize combined space heating and domestic water heating systems are permitted to use compliance package A4, provided that
(a) the water heating equipment has a minimum of 0.80 EF, 90% AFUE, or is a condensing type, or
(b) the combination of equipment has a minimum of 0.85 TPF determined in accordance with CAN/CSA-P.9, “Test Method for Determining the Performance of Combined Space and Water Heating Systems (Combos)”.

Table 3.1.1.2.A (SI)
ZONE 1 - **Compliance Packages for Space Heating Equipment with AFUE ≥** 92%
Forming Part of Sentence 3.1.1.2.(1)

Component	Thermal Values[8]	Compliance Package					
		A1	A2	A3	A4	A5	A6
Ceiling with Attic Space	Min. Nominal RSI[1]	10.56	10.56	8.80	10.56	8.80	10.56
	Max. U[2]	0.096	0.096	0.115	0.096	0.115	0.096
	Min. Effective RSI[2]	10.43	10.43	8.67	10.43	8.67	10.43
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46	5.46	5.46	5.46	5.46
	Max. U[2]	0.205	0.205	0.205	0.205	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87	4.87	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	5.46	5.46	6.16	5.46	6.16	5.46
	Max. U[3]	0.190	0.190	0.177	0.190	0.177	0.190
	Min. Effective RSI[3]	5.25	5.25	5.64	5.25	5.64	5.25
Walls Above Grade	Min. Nominal RSI[1]	3.87	3.34 + 0.88 ci	2.46 + 1.32 ci	3.87 + 0.88 ci	3.34 + 0.88 ci	3.87 + 0.88 ci
	Max. U[3]	0.333	0.280	0.305	0.265	0.280	0.265
	Min. Effective RSI[3]	3.00	3.58	3.28	3.77	3.58	3.77
Basement Walls[6]	Min. Nominal RSI[1]	3.52 ci	2.11 + 1.76 ci	3.52 ci	3.52 ci	2.11 + 0.88 ci	3.52 ci
	Max. U[4]	0.269	0.272	0.269	0.269	0.355	0.269
	Min. Effective RSI[4]	3.72	3.67	3.72	3.72	2.81	3.72
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	—	—	—	—	—	—
	Max. U[4]	—	—	—	—	—	—
	Min. Effective RSI[4]	—	—	—	—	—	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
	Max. U[4]	0.510	0.510	0.510	0.510	0.510	0.510
	Min. Effective RSI[4]	1.96	1.96	1.96	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.6	1.6	1.4	1.6	1.6	1.6
	Energy Rating	25	25	29	25	25	25
Skylights	Max. U[5]	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment	Min. AFUE	96%	96%	94%	96%	94%	92%
HRV	Min. SRE	75%	75%	81%	75%	70%	65%
Domestic Water Heater[7]	Min. EF	0.80	0.70	0.67	0.67	0.80	0.80
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.2.A (SI):

(1) The values listed are minimum Nominal RSI-Values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.2.A (IP)
ZONE 1 - **Compliance Packages for Space Heating Equipment with AFUE ≥ 92%**
Forming Part of Sentence 3.1.1.2.(1)

Component	Thermal Values[8]	Compliance Package					
		A1	A2	A3	A4	A5	A6
Ceiling with Attic Space	Min. Nominal R[1]	60	60	50	60	50	60
	Max. U[2]	0.017	0.017	0.020	0.017	0.020	0.017
	Min. Effective R[2]	59.22	59.22	49.23	59.22	49.23	59.22
Ceiling Without Attic Space	Min. Nominal R[1]	31	31	31	31	31	31
	Max. U[2]	0.036	0.036	0.036	0.036	0.036	0.036
	Min. Effective R[2]	27.65	27.65	27.65	27.65	27.65	27.65
Exposed Floor	Min. Nominal R[1]	31	31	35	31	35	31
	Max. U[3]	0.034	0.034	0.031	0.034	0.031	0.034
	Min. Effective R[3]	29.80	29.80	32.02	29.80	32.02	29.80
Walls Above Grade	Min. Nominal R[1]	22	19 + 5 ci	14 + 7.5 ci	22 + 5 ci	19 + 5 ci	22 + 5 ci
	Max. U[3]	0.059	0.049	0.054	0.047	0.049	0.047
	Min. Effective R[3]	17.03	20.32	18.62	21.40	20.32	21.40
Basement Walls[6]	Min. Nominal R[1]	20 ci	12 +10 ci	20 ci	20 ci	12 + 5 ci	20 ci
	Max. U[4]	0.047	0.048	0.047	0.047	0.063	0.047
	Min. Effective R[4]	21.12	20.84	21.12	21.12	15.96	21.12
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	—	—	—	—	—	—
	Max. U[4]	—	—	—	—	—	—
	Min. Effective R[4]	—	—	—	—	—	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
	Max. U[4]	0.090	0.090	0.090	0.090	0.090	0.090
	Min. Effective R[4]	11.13	11.13	11.13	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
Windows and Sliding Glass Doors	Max. U[5]	0.28	0.28	0.25	0.28	0.28	0.28
	Energy Rating	25	25	29	25	25	25
Skylights	Max. U[5]	0.49	0.49	0.49	0.49	0.49	0.49
Space Heating Equipment	Min. AFUE	96%	96%	94%	96%	94%	92%
HRV	Min. SRE	75%	75%	81%	75%	70%	65%
Domestic Water Heater[7]	Min. EF	0.80	0.70	0.67	0.67	0.80	0.80
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.2.A (IP):

(1) The values listed are minimum Nominal R-Values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

Table 3.1.1.2.B (SI)
ZONE 1 - **Compliance Packages for Space Heating Equipment with 84% ≤ AFUE <** 92%
Forming Part of Sentence 3.1.1.2.(2)

Component	Thermal Values[8]	Compliance Package					
		B1	B2	B3	B4	B5	B6
Ceiling with Attic Space	Min. Nominal RSI[1]	8.80	8.80	8.80	10.56 + HH	8.80	10.56
	Max. U[2]	0.115	0.115	0.115	0.095	0.115	0.096
	Min. Effective RSI[2]	8.67	8.67	8.67	10.55	8.67	10.43
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46	5.46	5.46	5.46	5.46
	Max. U[2]	0.205	0.205	0.205	0.205	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87	4.87	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	6.16	6.16	6.16	5.46	6.16	5.46
	Max. U[3]	0.177	0.177	0.177	0.190	0.177	0.190
	Min. Effective RSI[3]	5.64	5.64	5.64	5.25	5.64	5.25
Walls Above Grade	Min. Nominal RSI[1]	3.87 + 0.88 ci	3.87 + 0.88 ci	3.87 + 1.32 ci	3.87 + 1.32 ci	3.34 + 1.76 ci	3.34 + 1.76 ci
	Max. U[3]	0.265	0.265	0.238	0.238	0.224	0.224
	Min. Effective RSI[3]	3.77	3.77	4.21	4.21	4.46	4.46
Basement Walls[6]	Min. Nominal RSI[1]	3.52 ci	2.11 + 1.76 ci	3.52 ci	2.11 + 1.76 ci	3.52 ci	3.52 ci
	Max. U[4]	0.269	0.272	0.269	0.272	0.269	0.269
	Min. Effective RSI[4]	3.72	3.67	3.72	3.67	3.72	3.72
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	—	—	—	—	—	1.76
	Max. U[4]	—	—	—	—	—	0.51
	Min. Effective RSI[4]	—	—	—	—	—	1.96
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
	Max. U[4]	0.51	0.51	0.51	0.51	0.51	0.51
	Min. Effective RSI[4]	1.96	1.96	1.96	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.6	1.4	1.4	1.2	1.4	1.2
	Energy Rating	25	29	29	34	29	34
Skylights	Max. U[5]	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment	Min. AFUE	90%	90%	87%	87%	84%	84%
HRV	Min. SRE	75%	70%	70%	75%	75%	81%
Domestic Water Heater[7]	Min. EF	0.66	0.62	0.66	—	0.66	—
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.2.B (SI):

The following definition applies: HH = 250 mm high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.2.B (IP)
ZONE 1 - **Compliance Packages for Space Heating Equipment with 84% ≤ AFUE < 92%**
Forming Part of Sentence 3.1.1.2.(2)

Component	Thermal Values[8]	Compliance Package					
		B1	B2	B3	B4	B5	B6
Ceiling with Attic Space	Min. Nominal R[1]	50	50	50	60 + HH	50	60
	Max. U[2]	0.020	0.020	0.020	0.016	0.020	0.017
	Min. Effective R[2]	49.23	49.23	49.23	59.90	49.23	59.22
Ceiling Without Attic Space	Min. Nominal R[1]	31	31	31	31	31	31
	Max. U[2]	0.036	0.036	0.036	0.036	0.036	0.036
	Min. Effective R[2]	27.65	27.65	27.65	27.65	27.65	27.65
Exposed Floor	Min. Nominal R[1]	35	35	35	31	35	31
	Max. U[3]	0.031	0.031	0.031	0.034	0.031	0.034
	Min. Effective R[3]	32.02	32.02	32.02	29.80	32.02	29.80
Walls Above Grade	Min. Nominal R[1]	22 + 5 ci	22 + 5 ci	22 + 7.5 ci	22 + 7.5 ci	19 +10 ci	19 +10 ci
	Max. U[3]	0.047	0.047	0.042	0.042	0.040	0.040
	Min. Effective R[3]	21.40	21.40	23.90	23.90	25.32	25.32
Basement Walls[6]	Min. Nominal R[1]	20 ci	12 +10 ci	20 ci	12 +10 ci	20 ci	20 ci
	Max. U[4]	0.047	0.048	0.047	0.048	0.047	0.047
	Min. Effective R[4]	21.12	20.84	21.12	20.84	21.12	21.12
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	—	—	—	—	—	10
	Max. U[4]	—	—	—	—	—	0.090
	Min. Effective R[4]	—	—	—	—	—	11.13
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
	Max. U[4]	0.090	0.090	0.090	0.090	0.090	0.090
	Min. Effective R[4]	11.13	11.13	11.13	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
Windows and Sliding Glass	Max. U[5]	0.28	0.25	0.25	0.21	0.25	0.21
	Energy Rating	25	29	29	34	29	34
Skylights	Max. U[5]	0.49	0.49	0.49	0.49	0.49	0.49
Space Heating Equipment	Min. AFUE	90%	90%	87%	87%	84%	84%
HRV	SRE	75%	70%	70%	75%	75%	81%
Domestic Water Heater[7]	Min. EF	0.66	0.62	0.66	—	0.66	—
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.2.B (IP):

The following definitions apply: HH = 10 inch high heel

Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

Table 3.1.1.2.C (SI)
ZONE 1 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 3.1.1.2.(3)

Component	Thermal Values[8]	Compliance Package			
		C1	C2	C3	C4
Ceiling with Attic Space	Min. Nominal RSI[1]	10.56 + HH	10.56 + HH	8.80	8.80
	Max. U[2]	0.095	0.095	0.115	0.115
	Min. Effective RSI[2]	10.55	10.55	8.67	8.67
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46	5.46	5.46
	Max. U[2]	0.205	0.205	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	5.46	5.46	6.16	6.16
	Max. U[3]	0.190	0.190	0.177	0.177
	Min. Effective RSI[3]	5.25	5.25	5.64	5.64
Walls Above Grade	Min. Nominal RSI[1]	3.34 + 1.76 ci	3.87 + 1.76 ci	3.87 + 1.76 ci	3.87 + 1.32 ci
	Max. U[3]	0.224	0.215	0.215	0.238
	Min. Effective RSI[3]	4.46	4.65	4.65	4.21
Basement Walls[6]	Min. Nominal RSI[1]	3.52 + 1.40 ci	3.52 ci	3.52 ci	3.52 ci
	Max. U[4]	0.250	0.269	0.269	0.269
	Min. Effective RSI[4]	4.00	3.72	3.72	3.72
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	1.32	—	—	—
	Max. U[4]	0.658	—	—	—
	Min. Effective RSI[4]	1.52	—	—	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76
	Max. U[4]	0.510	0.510	0.510	0.510
	Min. Effective RSI[4]	1.96	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.4	1.2	1.2	1.6
	Energy Rating	29	34	34	25
Skylights	Max. U[5]	2.8	2.8	2.8	2.8
Space Heating Equipment	Min.	—	—	—	ASHP: 7.1 HSPF
HRV	Min. SRE	81%	75%	81%	55%
Domestic Water Heater[7]	Min. EF	—	—	—	—
Column 1	2	3	4	5	6

Notes to Table 3.1.1.2.C (SI):

The following definitions apply: HH = 250 mm high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.2.C (IP)
ZONE 1 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 3.1.1.2.(3)

Component	Thermal Values[8]	Compliance Package			
		C1	C2	C3	C4
Ceiling with Attic Space	Min. Nominal R[1]	60 + HH	60 + HH	50	50
	Max. U[2]	0.016	0.016	0.020	0.020
	Min. Effective R[2]	59.90	59.90	49.23	49.23
Ceiling Without Attic Space	Min. Nominal R[1]	31	31	31	31
	Max. U[2]	0.036	0.036	0.036	0.036
	Min. Effective R[2]	27.65	27.65	27.65	27.65
Exposed Floor	Min. Nominal R[1]	31	31	35	35
	Max. U[3]	0.034	0.034	0.031	0.031
	Min. Effective R[3]	29.80	29.80	32.02	32.02
Walls Above Grade	Min. Nominal R[1]	19 + 10 ci	22 + 10 ci	22 + 10 ci	22 + 7.5 ci
	Max. U[3]	0.040	0.038	0.038	0.042
	Min. Effective R[3]	25.32	26.40	26.40	23.90
Basement Walls[6]	Min. Nominal R[1]	20 + 8 ci	20 ci	20 ci	20 ci
	Max. U[4]	0.044	0.047	0.047	0.047
	Min. Effective R[4]	22.71	21.12	21.12	21.12
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	7.5	—	—	—
	Max. U[4]	0.116	—	—	—
	Min. Effective R[4]	8.63	—	—	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10
	Max. U[4]	0.090	0.090	0.090	0.090
	Min. Effective R[4]	11.13	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10
Windows and Sliding Glass Doors	Max. U[5]	0.25	0.21	0.21	0.28
	Energy Rating	29	34	34	25
Skylights	Max. U[5]	0.49	0.49	0.49	0.49
Space Heating Equipment	Min.	—	—	—	ASHP: 7.1 HSPF
HRV	Min. SRE	81%	75%	81%	55%
Domestic Water Heater[7]	Min. EF	—	—	—	—
Column 1	2	3	4	5	6

Notes to Table 3.1.1.2.C (IP):

The following definitions applies: HH = 10 inch high heel

(1) The values listed are minimum Nominal R values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

3.1.1.3. Energy Efficiency for Buildings Located in Zone 2

(1) Except as provided in Sentences (2) to (5) and (7), the minimum thermal performance of *building* envelope and equipment shall conform to Table 3.1.1.3.A.

(2) Except for solid fuel-burning space heating equipment and except as permitted in Sentence (5), where the space heating equipment efficiency is 84% or more but less than 92%, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 3.1.1.3.B.

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 3.1.1.3.C.

(4) Except as permitted in Sentence (5), where the space heating equipment efficiency cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Subsection 3.1.2. of this Supplementary Standard.

(5) Where an ICF wall assembly is installed as an above and below grade wall assembly that has minimum RSI 1.76 (R10) insulation on the interior surface of the concrete and minimum RSI 1.76 (R10) insulation on the exterior surface, the ICF wall is deemed to comply with the thermal values set out for walls in compliance packages A1 and A3 in Table 3.1.1.3.A. (See Appendix A.)

(6) An ICF wall assembly described in Sentence (5) is permitted to be used in lieu of *basement* walls that require insulation value of RSI 3.52 ci (R20) or less. (See Appendix A.)

(7) *Building* designs that utilize combined space heating and domestic water heating systems are permitted to use compliance package A4 or A5, provided that

(a) the water heating equipment has a minimum of 0.80 EF, 90% AFUE, or is a condensing type, or,
(b) the combination of equipment has a minimum of 0.85 TPF determined in accordance with CAN/CSA-P.9, “Test Method for Determining the Performance of Combined Space and Water Heating Systems (Combos)”.

Table 3.1.1.3.A (SI)
ZONE 2 - **Compliance Packages for Space Heating Equipment with AFUE ≥** 92%
Forming Part of Sentence 3.1.1.3.(1)

Component	Thermal Values[8]	Compliance Package					
		A1	A2	A3	A4	A5	A6
Ceiling with Attic Space	Min. Nominal RSI[1]	10.56	8.80	10.56 + HH	10.56	10.56	8.80
	Max. U[2]	0.096	0.115	0.095	0.096	0.096	0.115
	Min. Effective RSI[2]	10.43	8.67	10.55	10.43	10.43	8.67
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46	5.46	5.46	5.46	5.46
	Max. U[2]	0.205	0.205	0.205	0.205	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87	4.87	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	5.46	6.16	5.46	5.46	5.46	6.16
	Max. U[3]	0.190	0.177	0.190	0.190	0.190	0.177
	Min. Effective RSI[3]	5.25	5.64	5.25	5.25	5.25	5.64
Walls Above Grade	Min. Nominal RSI[1]	3.34 + 0.88 ci	3.34 + 1.76 ci	3.87+ 0.88 ci	3.87 + 1.32 ci	3.34 + 1.76 ci	3.87 + 1.32 ci
	Max. U[3]	0.280	0.224	0.265	0.238	0.224	0.238
	Min. Effective RSI[3]	3.58	4.46	3.77	4.21	4.46	4.21
Basement Walls[6]	Min. Nominal RSI[1]	3.52 ci	3.52 ci	3.52 ci	3.52 ci	3.52 ci	3.52 ci
	Max. U[4]	0.269	0.269	0.269	0.269	0.269	0.269
	Min. Effective RSI[4]	3.72	3.72	3.72	3.72	3.72	3.72
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	—	—	0.88	—	1.76	1.32
	Max. U[4]	—	—	0.926	—	0.51	0.658
	Min. Effective RSI[4]	—	—	1.08	—	1.96	1.52
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
	Max. U[4]	0.510	0.510	0.510	0.510	0.510	0.510
	Min. Effective RSI[4]	1.96	1.96	1.96	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.2	1.6	1.6	1.2	1.4	1.4
	Energy Rating	34	25	25	34	29	29
Skylights	Max. U[5]	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment	Min. AFUE	96%	96%	98%	96%	94%	92%
HRV	Min. SRE	81%	70%	65%	65%	65%	75%
Domestic Water Heater[7]	Min. EF	0.70	0.80	0.80	0.67	0.67	0.70
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.3.A (SI):

The following definition applies: HH = 250 mm high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire basement wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.3.A (IP)
ZONE 2 - **Compliance Packages for Space Heating Equipment with AFUE ≥ 92%**
Forming Part of Sentence 3.1.1.3.(1)

Component	Thermal Values[8]	Compliance Package					
		A1	A2	A3	A4	A5	A6
Ceiling with Attic Space	Min. Nominal R[1]	60	50	60+HH	60	60	50
	Max. U[2]	0.017	0.020	0.016	0.017	0.017	0.020
	Min. Effective R[2]	59.22	49.23	59.90	59.22	59.22	49.23
Ceiling Without Attic Space	Min. Nominal R[1]	31	31	31	31	31	31
	Max. U[2]	0.036	0.036	0.036	0.036	0.036	0.036
	Min. Effective R[2]	27.65	27.65	27.65	27.65	27.65	27.65
Exposed Floor	Min. Nominal R[1]	31	35	31	31	31	35
	Max. U[3]	0.034	0.031	0.034	0.034	0.034	0.031
	Min. Effective R[3]	29.80	32.02	29.80	29.80	29.80	32.02
Walls Above Grade	Min. Nominal R[1]	19 + 5 ci	19 + 10 ci	22 + 5 ci	22 + 7.5 ci	19 + 10 ci	22 + 7.5 ci
	Max. U[3]	0.049	0.040	0.047	0.042	0.040	0.042
	Min. Effective R[3]	20.32	25.32	21.40	23.90	25.32	23.90
Basement Walls[6]	Min. Nominal R[1]	20 ci	20 ci	20 ci	20 ci	20 ci	20 ci
	Max. U[4]	0.047	0.047	0.047	0.047	0.047	0.047
	Min. Effective R[4]	21.12	21.12	21.12	21.12	21.12	21.12
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	—	—	5	—	10	7.5
	Max. U[4]	—	—	0.163	—	0.090	0.116
	Min. Effective R[4]	—	—	6.13	—	11.13	8.63
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
	Max. U[4]	0.090	0.090	0.090	0.090	0.090	0.090
	Min. Effective R[4]	11.13	11.13	11.13	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
Windows and Sliding Glass Doors	Max. U[5]	0.21	0.28	0.28	0.21	0.25	0.25
	Energy Rating	34	25	25	34	29	29
Skylights	Max. U[5]	0.49	0.49	0.49	0.49	0.49	0.49
Space Heating Equipment	Min. AFUE	96%	96%	98%	96%	94%	92%
HRV	Min. SRE	81%	70%	65%	65%	65%	75%
Domestic Water Heater[7]	Min. EF	0.70	0.80	0.80	0.67	0.67	0.70
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.3.A (IP):

The following definition applies: HH = 10 inch high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

Table 3.1.1.3.B (SI)
ZONE 2 - **Compliance Packages for Space Heating Equipment with 84% ≤ AFUE <** 92%
Forming Part of Sentence 3.1.1.3.(2)

Component	Thermal Values[8]	Compliance Package					
		B1	B2	B3	B4	B5	B6
Ceiling with Attic Space	Min. Nominal RSI[1]	8.80	10.56	10.56 + HH	10.56 + HH	8.80	10.56
	Max. U[2]	0.115	0.096	0.095	0.095	0.115	0.096
	Min. Effective RSI[2]	8.67	10.43	10.55	10.55	8.67	10.43
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46	5.46	5.46	5.46	5.46
	Max. U[2]	0.205	0.205	0.205	0.205	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87	4.87	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	6.16	5.46	5.46 + 1.76 ci	5.46	6.16	5.46
	Max. U[3]	0.177	0.190	0.143	0.190	0.177	0.190
	Min. Effective RSI[3]	5.64	5.25	7.01	5.25	5.64	5.25
Walls Above Grade	Min. Nominal RSI[1]	3.87 + 1.32 ci	3.87 + 1.32 ci	3.87 + 1.76 ci	3.87 + 1.76 ci	3.87 + 1.76 ci	3.87 + 1.76 ci
	Max. U[3]	0.238	0.238	0.215	0.215	0.215	0.215
	Min. Effective RSI[3]	4.21	4.21	4.65	4.65	4.65	4.65
Basement Walls[6]	Min. Nominal RSI[1]	3.52 ci	2.11 + 1.76 ci	3.52 + 1.76 ci	3.52 + 1.76 ci	3.52 + 2.11 ci	3.52 + 2.11 ci
	Max. U[4]	0.269	0.272	0.226	0.226	0.213	0.213
	Min. Effective RSI[4]	3.72	3.67	4.43	4.43	4.7	4.7
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	—	0.88	1.76	1.76	0.88	0.88
	Max. U[4]	—	0.926	0.510	0.510	0.926	0.926
	Min. Effective RSI[4]	—	1.08	1.96	1.96	1.08	1.08
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
	Max. U[4]	0.510	0.510	0.510	0.510	0.510	0.510
	Min. Effective RSI[4]	1.96	1.96	1.96	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76	1.76	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.2	1.6	1.4	1.4	1.4	1.2
	Energy Rating	34	25	29	29	29	34
Skylights	Max. U[5]	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment	Min. AFUE	90%	90%	87%	87%	84%	84%
HRV	Min. SRE	75%	81%	70%	75%	81%	81%
Domestic Water Heater[7]	Min. EF	0.66	0.66	0.66	0.62	0.66	—
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.3.B (SI):

The following definition applies: HH = 250 mm high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.3.B (IP)
ZONE 2 - **Compliance Packages for Space Heating Equipment with 84% ≤ AFUE < 92%**
Forming Part of Sentence 3.1.1.3.(2)

Component	Thermal Values[8]	Compliance Package					
		B1	B2	B3	B4	B5	B6
Ceiling with Attic Space	Min. Nominal R[1]	50	60	60 + HH	60 + HH	50	60
	Max. U[2]	0.020	0.017	0.016	0.016	0.020	0.017
	Min. Effective R[2]	49.23	59.22	59.90	59.90	49.23	59.22
Ceiling Without Attic Space	Min. Nominal R[1]	31	31	31	31	31	31
	Max. U[2]	0.036	0.036	0.036	0.036	0.036	0.036
	Min. Effective R[2]	27.65	27.65	27.65	27.65	27.65	27.65
Exposed Floor	Min. Nominal R[1]	35	31	31 + 10 ci	31	35	31
	Max. U[3]	0.031	0.034	0.025	0.034	0.031	0.034
	Min. Effective R[3]	32.02	29.80	39.80	29.80	32.02	29.80
Walls Above Grade	Min. Nominal R[1]	22 + 7.5 ci	22 + 7.5 ci	22 + 10 ci	22 + 10 ci	22 + 10 ci	22 + 10 ci
	Max. U[3]	0.042	0.042	0.038	0.038	0.038	0.038
	Min. Effective R[3]	23.90	23.90	26.40	26.40	26.40	26.40
Basement Walls[6]	Min. Nominal R[1]	20 ci	12 + 10 ci	20 + 10 ci	20 + 10 ci	20 + 12 ci	20 + 12 ci
	Max. U[4]	0.047	0.048	0.040	0.040	0.037	0.037
	Min. Effective R[4]	21.12	20.84	25.15	25.15	26.69	26.69
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	—	5	10	10	5	5
	Max. U[4]	—	0.163	0.090	0.090	0.163	0.163
	Min. Effective R[4]	—	6.13	11.13	11.13	6.13	6.13
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
	Max. U[4]	0.090	0.090	0.090	0.090	0.090	0.090
	Min. Effective R[4]	11.13	11.13	11.13	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10	10	10	10	10
Windows and Sliding Glass Doors	Max. U[5]	0.21	0.28	0.25	0.25	0.25	0.21
	Energy Rating	34	25	29	29	29	34
Skylights	Max. U[5]	0.49	0.49	0.49	0.49	0.49	0.49
Space Heating Equipment	Min. AFUE	90%	90%	87%	87%	84%	84%
HRV	Min. SRE	75%	81%	70%	75%	81%	81%
Domestic Water Heater[7]	Min. EF	0.66	0.66	0.66	0.62	0.66	—
Column 1	2	3	4	5	6	7	8

Notes to Table 3.1.1.3.B (IP):

The following definition applies: HH = 10 inch high heel

(1) The values listed are minimum Nominal R values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

Table 3.1.1.3.C (SI)
ZONE 2 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 3.1.1.3.(3)

Component	Thermal Values[8]	Compliance Package	
		C1	C2
Ceiling with Attic Space	Min. Nominal RSI[1]	10.56 + HH	8.80
	Max. U[2]	0.095	0.115
	Min. Effective RSI[2]	10.55	8.67
Ceiling Without Attic Space	Min. Nominal RSI[1]	5.46	5.46
	Max. U[2]	0.205	0.205
	Min. Effective RSI[2]	4.87	4.87
Exposed Floor	Min. Nominal RSI[1]	5.46 + 1.76 ci	6.16
	Max. U[3]	0.143	0.177
	Min. Effective RSI[3]	7.01	5.64
Walls Above Grade	Min. Nominal RSI[1]	4.22 + 1.76 ci	3.87 + 1.32 ci
	Max. U[3]	0.210	0.238
	Min. Effective RSI[3]	4.76	4.21
Basement Walls[6]	Min. Nominal RSI[1]	3.52 + 2.11 ci	3.52 ci
	Max. U[4]	0.213	0.269
	Min. Effective RSI[4]	4.7	3.72
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal RSI[1]	1.76	—
	Max. U[4]	0.51	—
	Min. Effective RSI[4]	1.96	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76
	Max. U[4]	0.510	0.510
	Min. Effective RSI[4]	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI[1]	1.76	1.76
Windows and Sliding Glass Doors	Max. U[5]	1.2	1.6
	Energy Rating	34	25
Skylights	Max. U[5]	2.8	2.8
Space Heating Equipment	Min.	—	ASHP: 7.1 HSPF
HRV	Min. SRE	81%	70%
Domestic Water Heater[7]	Min. EF	—	—
Column 1	2	3	4

Notes to Table 3.1.1.2.C (SI):

The following definition applies: HH = 250 mm high heel

(1) The values listed are minimum Nominal RSI-values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.3.C (IP)
ZONE 2 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 3.1.1.3.(3)

Component	Thermal Values[8]	Compliance Package	
		C1	C2
Ceiling with Attic Space	Min. Nominal R[1]	60 + HH	50
	Max. U[2]	0.016	0.020
	Min. Effective R[2]	59.90	49.23
Ceiling Without Attic Space	Min. Nominal R[1]	31	31
	Max. U[2]	0.036	0.036
	Min. Effective R[2]	27.65	27.65
Exposed Floor	Min. Nominal R[1]	31 + 10 ci	35
	Max. U[3]	0.025	0.031
	Min. Effective R[3]	39.80	32.02
Walls Above Grade	Min. Nominal R[1]	24 + 10 ci	22 + 7.5 ci
	Max. U[3]	0.037	0.042
	Min. Effective R[3]	27.02	23.90
Basement Walls[6]	Min. Nominal R[1]	20 + 12 ci	20 ci
	Max. U[4]	0.037	0.047
	Min. Effective R[4]	26.69	21.12
Below Grade Slab Entire Surface > 600 mm Below Grade	Min. Nominal R[1]	10.0	—
	Max. U[4]	0.090	—
	Min. Effective R[4]	11.13	—
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10
	Max. U[4]	0.090	0.090
	Min. Effective R[4]	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R[1]	10	10
Windows and Sliding Glass Doors	Max. U[5]	0.21	0.28
	Energy Rating	34	25
Skylights	Max. U[5]	0.49	0.49
Space Heating Equipment	Min.	—	ASHP: 7.1 HSPF
HRV	Min. SRE	81%	70%
Domestic Water Heater[7]	Min. EF	—	—
Column 1	2	3	4

Notes to Table 3.1.1.3.C (IP):

The following definition applies: HH = 10 inch high heel

(1) The values listed are minimum Nominal R values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa
(7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package.
(8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

3.1.1.4. Airtightness (See Appendix A)

(1) Where a *dwelling unit* is designed and *constructed* to be sufficiently airtight such that the air leakage of the whole *dwelling unit* is less than or equal to one of the applicable airtightness targets specified in the same row of Table 3.1.1.4.A, the requirements of Tables 3.1.1.2.A to 3.1.1.2.C, Tables 3.1.1.3.A to 3.1.1.3.C, and Table 3.1.1.11. are permitted to be substituted in accordance with Table 3.1.1.4.B or Table 3.1.1.4.C.

(2) Airtightness targets described in Sentence (1) shall be measured under as operated conditions in accordance with CAN/CGSB 149.10 "Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method" or NRCan, "EnerGuide Rating System Technical Procedures Version 15.1".

(3) For purposes of substitutions described in Sentence (1),
(a) a maximum of one substitution per *dwelling unit* may be made if substitutions are made in accordance with Table 3.1.1.4.B, or
(b) a maximum of two substitutions per *dwelling unit* may be made if substitutions are made in accordance with Table 3.1.1.4.C.

Table 3.1.1.4.A
Airtightness Targets
Forming Part of Sentence 3.1.1.4.(1) and Subsection 3.1.2.

Building Type	Airtightness Targets				
	ACH @ 50Pa	NLA @ 10 Pa		NLR @ 50 Pa	
		cm^2/m^2	$in^2/100\ ft^2$	$L/s/m^2$	cfm/ft^2
Detached	2.5	1.26	1.81	0.93	0.18
Attached	3.0	2.12	3.06	1.32	0.26
Column 1	2	3	4	5	6

Table 3.1.1.4.B (SI)
Permitted Substitutions for Airtight Dwelling Units(2)
Forming Part of Sentences 3.1.1.4.(1) and (3)

Required Compliance	Permitted Substitution Airtightness Complies with Table 3.1.1.4.A(1)
Maximum One Substitution per *Dwelling Unit*	
RSI 3.87 + 1.32 ci	RSI 3.34 + 0.88 ci
RSI 3.87 + 1.76 ci	RSI 3.34 + 1.32 ci
RSI 4.22 + 1.76 ci	RSI 3.87 + 1.32 ci
HRV with 81% SRE	HRV with 70% SRE
HRV with 75% SRE	HRV with 65% SRE
Furnace with 98%, 96% or 94% AFUE	Reduce furnace efficiency by 4% AFUE
Fenestration U-Value = 1.6, 1.4 or 1.2	Increase U-Value by 0.2
Column 1	2

Notes to Table 3.1.1.4.B (SI):
(1) Where nominal RSI values are given, the use of corresponding U-Value or *effective RSI values* are permitted.
(2) Use only Table 3.1.1.4.B or Table 3.1.1.4.C, not both.

Table 3.1.1.4.B (IP)
Permitted Substitutions for Airtight Dwelling Units(2)
Forming Part of Sentence 3.1.1.4.(1)

Required Compliance	Permitted Substitution Airtightness Complies with Table 3.1.1.4.A(1)
Maximum One Substitution per *Dwelling Unit*	
R22 + 7.5 ci	R19 + 5 ci
R22 + 10 ci	R19 + 7.5 ci
R24 + 10 ci	R22 + 7.5 ci
HRV with 81% SRE	HRV with 70% SRE
HRV with 75% SRE	HRV with 65% SRE
Furnace with 98%, 96% or 94% AFUE	Reduce furnace efficiency by 4% AFUE
Fenestration U-Value = 0.28, 0.25 or 0.21	Increase U-Value by 0.04 (downgrade one level)
Column 1	2

Notes to Table 3.1.1.4.B (IP):

(1) Where nominal R values are given, the use of corresponding "U" or "effective R" values are permitted.

(2) Use only Table 3.1.1.4.B or Table 3.1.1.4.C, not both.

Table 3.1.1.4.C (SI)
Permitted Substitutions for Airtight Dwelling Units(3)
Forming Part of Sentences 3.1.1.4.(1) and (3)

Required Compliance	Permitted Substitutions Airtightness Complies with Table 3.1.1.4.A(1)
Maximum Two Substitutions per *Dwelling Unit*(2)	
Above grade continuous wall insulation RSI 1.32 ci or RSI 1.76 ci	Above grade continuous wall insulation RSI 0.88 ci or RSI 1.32 ci respectively
RSI 3.87 or RSI 4.22 insulation between studs in above grade walls with continuous insulation	RSI 3.34 or RSI 3.87 insulation respectively between studs in above grade walls with continuous insulation
Basement wall RSI 3.52 + 2.11 ci, RSI 3.52 +1.76 ci or RSI 3.52 ci	*Basement* wall RSI 2.64 ci or RSI 2.11 + 0.88 ci
Slab located more than 600 mm below grade and entire under slab insultation is RSI 1.76 or RSI 0.88	RSI 0, if slab is unheated RSI 0.88, if slab is heated
RSI 10.56 ceiling insulation with or without 250 mm high heel	RSI 8.80 ceiling insulation
Column 1	2

Notes to Table 3.1.1.4.C (SI):

(1) Where nominal RSI values are given, the use of corresponding U-Value or *effective RSI values* are permitted.

(2) Where the required airtightness is achieved, simultaneous substitution of two components listed in this Table is permitted.

(3) Use only Table 3.1.1.4.B or Table 3.1.1.4.C, not both.

Table 3.1.1.4.C (IP)
Permitted Substitutions for Airtight Dwelling Units(3)
Forming Part of Sentences 3.1.1.4.(1) and (3)

Required Compliance	Permitted Substitutions Airtightness Complies with Table 3.1.1.4.A(1)
Maximum Two Substitutions per *Dwelling Unit*(2)	
Above grade continuous wall insulation R7.5 ci or R10 ci	Above grade continuous wall insulation R5 ci or R7.5 ci respectively
R22 or R24 insulation between studs in above grade walls with continuous insulation	R19 or R22 insulation respectively between studs in above grade walls with continuous insulation
Basement wall R20 + 12 ci, R20 +10 ci or R20 ci	*Basement* wall R15 ci or R12 + 5 ci
Slab located more than 24 inches below grade and entire under slab insultation is R10 or R5	R0 , if the slab is unheated R5 min, if heated
R60 ceiling insulation with or without 10 inch high heel	R50 ceiling insulation
Column 1	2

Notes to Table 3.1.1.4.C (IP):

(1) Where nominal R values are given, the use of corresponding "U" or "effective R" values are permitted.

(2) Where the required airtightness is achieved, simultaneous substitution of two components listed in this Table is permitted.

(3) Use only Table 3.1.1.4.B or Table 3.1.1.4.C, not both.

3.1.1.5. Elements Acting as a Thermal Bridge

(1) Except for a *foundation* wall, the insulated portion of a wall that incorporates wood stud framing elements that have a thermal resistance of less than RSI 0.90 shall be insulated to restrict heat flow through the studs by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 3.1.1.2., 3.1.1.3. and 3.1.1.11.

(2) Except as provided in Sentence (3), the thermal resistance of the insulated portion of a *building* assembly in Articles 3.1.1.2. and 3.1.1.3. that incorporates metal framing elements, such as steel studs and steel joists, that act as thermal bridges to facilitate heat flow through the assembly, shall be 20% greater than the values shown in Tables 3.1.1.2.A, to 3.1.1.2. C and Tables 3.1.1.3.A to 3.1.1.3.C and Table 3.1.1.11., unless it can be shown that the heat flow is not greater than the heat flow through a wood frame assembly of the same thickness.

(3) Sentence (2) does not apply to *building* assemblies incorporating thermal bridges where the thermal bridges are insulated to restrict heat flow through the thermal bridges by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 3.1.1.2., 3.1.1.3. and 3.1.1.11.

3.1.1.6. Log Wall Construction and Post, Beam and Plank Construction

(1) Except as provided in Sentences (2) and (3), log wall construction and post, beam and plank construction shall have a minimum thermal resistance of RSI 2.1 for the total assembly.

(2) The thermal resistance value in Sentence (1) for the total wall assembly may be reduced to not less than RSI 1.61 if,

(a) the thermal resistance of insulation for the exposed roof or ceiling required in selected compliance package is increased by an amount equivalent to the reduction permitted in this Sentence, and

(b) for log walls, the logs have tongue-and-groove or splined joints.

(3) Where milled log walls are installed, the thermal resistance value in Sentence (1) for the total wall assembly does not apply if,
(a) the mean thickness of each log is not less than 150 mm,
(b) the thermal resistance of insulation for the exposed roof or ceiling required in selected compliance package is increased by RSI 0.53, and
(c) the logs have tongue-and-groove or splined joints.

(4) Where a log wall is constructed in accordance with Sentences (1) to (3), the log wall shall be deemed to comply with the requirements in Subsection 9.25.3. of Division B of the *Building Code.*

3.1.1.7. Insulation of Foundation Walls

(1) *Foundation* walls enclosing heated space shall be insulated from the underside of the subfloor to not more than 200 mm above the finished floor level of the *basement*. (See Appendix A.)

(2) The insulation required by Sentence (1) may be provided by a system installed,
(a) on the interior of the *foundation* wall,
(b) on the exterior face of the *foundation* wall, or
(c) partially on the interior and partially on the exterior, provided the thermal performance of the system is equivalent to that permitted in Clauses (a) or (b).

(3) If a *foundation* wall is constructed of hollow masonry units, one or more of the following shall be used to control convection currents in the core spaces,
(a) filling the core spaces,
(b) at least one row of semi-solid blocks at or below *grade*, or
(c) other similar methods.

(4) Masonry walls of hollow units that penetrate the ceiling shall be sealed at or near the ceiling adjacent to the roof space to prevent air within the voids from entering the *attic or roof space* by,
(a) capping with masonry units without voids, or
(b) installation of flashing material extending across the full width of the masonry.

(5) Except as provided in Sentences (6) and (7), where a portion of a *basement* slab or a portion of a *basement* slab edge is the only part of the slab that is at the exterior ground level such as a walk-out *basement*, or within 600 mm of the exterior ground level, those portions shall have perimeter insulation extend not less than 600 mm below the slab level. (See Appendix A.)

(6) Where the entire concrete slab is within 600 mm of the exterior ground level, the entire surface of the slab shall be insulated. (See Appendix A.)

(7) Where a slab contains heating ducts, pipes, tubes or cables, the entire heated surface of the slab that is in contact with the ground shall be insulated.

3.1.1.8. Thermal Resistance Values for Roof Access Hatches and Eaves

(1) Except as provided in Sentence (2), the thermal resistance values for insulation required by Articles 3.1.1.2., 3.1.1.3. and 3.1.1.11. for exposed ceilings with attic spaces are permitted to be reduced
(a) directly above access hatches, and
(b) near eaves to the extent made necessary by the roof slope and required ventilation clearances,

except that the thermal insulation value at the location directly above access hatches and inner surfaces of exterior walls shall be not less than RSI 3.52.

(2) Where 250 mm high heel is required near the eaves, the available space on the inner surface of the wall below the roof venting space shall be fully insulated.

3.1.1.9. Thermal Performance of Windows, Skylights and Sliding Glass Doors

(1) Except as provided in Sentences (3) to (5), windows, skylights and sliding glass doors shall meet
(a) the required *overall coefficient of heat transfer* in Tables 3.1.1.2.A 3.1.1.2.B and 3.1.1.2.C and Tables 3.1.1.3.A, 3.1.1.3.B and 3.1.1.3. C and Table 3.1.1.11., or
(b) the corresponding energy rating in Table 3.1.1.9.

(2) The energy rating and the *overall coefficient of heat transfer* required for windows and sliding glass doors in a *residential occupancy* shall be determined in conformance with
(a) CAN/CSA-A440.2, "Fenestration Energy Performance", or
(b) NFRC 100, "Procedure for Determining Fenestration Product U-factors" and NFRC 200, "Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence".

(3) A *basement* window that incorporates a *loadbearing* structural frame need not meet Sentence (1) provided that it has the following
(a) double glazed with a low-E coating,
(b) inert gas-filled,
(c) have an insulated spacer, and
(d) if the frame is made from metal, the frame shall be thermally broken.

(4) Glass blocks and decorative windows, including side lights, integrated glazing in doors, half-circle windows, leaded windows, transoms and other specialty glazing products, need not comply with Sentence (1) provided that the total area of such decorative glazing in the *building* does not exceed 1.85 m^2.

(5) Windows and sliding glass doors need not meet the *overall coefficient of heat transfer* required by Sentence (1) where the window or sliding glass door necessitates a low solar heat gain coefficient due to its orientation and results in a U-Value greater than that permitted by Sentence (1), provided the overall thermal performance of all windows and sliding glass doors is maintained by improving the performance of other windows or sliding glass doors.

Table 3.1.1.9.
Maximum U-Values and Minimum Energy Ratings (ER) for Windows, Skylights and Sliding Glass Doors
Forming Part of Sentence 3.1.1.9.(1)

Component	Maximum U-Values	Minimum Energy Ratings, (ER)
	U-Value, $W/m^2 \cdot K$ (Btu/h•ft²•°F)	ER
Skylights	2.8 (0.50)	—
Windows and Sliding Glass Doors	2.0 (0.35)	17
	1.8 (0.32)	21
	1.6 (0.28)	25
	1.4 (0.25)	29
	1.2 (0.21)	34
	1.0 (0.18)	38
Column 1	2	3

3.1.1.10. Minimum Thermal Resistance of Doors

(1) Except as provided in Sentence (2) and except for doors in enclosed unheated vestibules and cold cellars, and except for glazed portions of doors, all doors that separate heated space from unheated space shall have a thermal resistance of not less than RSI 0.7 where a storm door is not provided.

(2) One exterior door system, with a single or multiple leaf door, that does not comply with Sentence (1) is permitted for each *dwelling unit*.

(3) All doors that separate heated space from unheated enclosed spaces shall have an insulated core and be installed with weatherstripping.

3.1.1.11. Additions to Existing Buildings

(1) Except as provided in Sentences (2) and (3), an addition to an existing *building* shall comply with
(a) one of the applicable compliance packages in Article 3.1.1.2. or 3.1.1.3. in accordance with this Subsection, or
(b) Sentences 3.1.1.1.(7) to (9), except that the Tables referenced in Sentences 3.1.1.1.(7) and (8) are permitted to be substituted with Table 3.1.1.11.
(See Appendix A.)

(2) For the purpose of Sentences 3.1.1.1.(7) to (9) and Subsection 3.1.2., the addition may be considered independently or in combination with the existing *building,* regardless of the thermal characteristics of the existing *building* envelope. (See Appendix A.)

(3) A one-storey sunroom addition to an existing *building* shall be deemed to be in compliance with Articles 3.1.1.2. and 3.1.1.3. and Subsection 3.1.2., provided that the *overall coefficient of heat transfer* of
(a) doors, windows and walls has a maximum U-Value of
  (i) 1.4 if the *building* does not use *electric space heating*, and
  (ii) 1.2 if the *building* uses *electric space heating*, and
(b) roofs and skylights has a maximum U-Value of 2.6.
(See Appendix A.)

Table 3.1.1.11. (SI)
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 3.1.1.11.(2)

Component	Thermal Values(7)	Compliance Package		
		Zone 1	Zone 2	Electric Space Heating
		Less than 5000 Degree Days	5000 or more Degree Days	Zones 1 and 2
Ceiling with Attic Space	Min. Nominal RSI(1)	10.56	10.56	10.56
	Max. U(2)	0.096	0.096	0.096
	Min. Effective RSI(2)	10.43	10.43	10.43
Ceiling Without Attic Space	Min. Nominal RSI(1)	5.46	5.46	5.46
	Max. U(2)	0.205	0.205	0.205
	Min. Effective RSI(2)	4.87	4.87	4.87
Exposed Floor	Min. Nominal RSI(1)	5.46	5.46	5.46
	Max. U(3)	0.190	0.190	0.190
	Min. Effective RSI(3)	5.25	5.25	5.25
Walls Above Grade	Min. Nominal RSI(1)	3.34 + 0.88 ci	3.87 + 1.32 ci	3.87 + 1.76 ci
	Max. U(3)	0.280	0.238	0.215
	Min. Effective RSI(3)	3.58	4.21	4.65
Basement Walls(6)	Min. Nominal RSI(1)	3.52 ci	3.52 ci	3.52 ci
	Max. U(4)	0.269	0.269	0.269
	Min. Effective RSI(4)	3.72	3.72	3.72
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal RSI(1)	1.76	1.76	1.76
	Max. U(4)	0.510	0.510	0.510
	Min. Effective RSI(4)	1.96	1.96	1.96
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal RSI(1)	1.76	1.76	1.76
Windows and Sliding Glass Doors	Max. U(5)	1.6	1.4	1.4
	Energy Rating	25	29	29
Column 1	2	3	4	5

Notes to Table 3.1.1.11. (SI):

(1) The values listed are minimum Nominal RSI-Values for the thermal insulation component only.
(2) U-Value and *effective RSI value* shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and *effective RSI value* shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and *effective RSI value* shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m²•K).
(6) In the case of *basement* wall assemblies, where RSI 3.52 ci is required RSI 2.11 + 1.76 ci is permitted to be used or vice versa; or where RSI 2.11 + 0.88 ci is required, RSI 2.64 ci is permitted to be used or vice versa.
(7) Nominal and *effective RSI values* are expressed in (m²•K)/W. U-Values are expressed in W/(m²•K).

Table 3.1.1.11. (IP)
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 3.1.1.11.(2)

Component	Thermal Values(7)	Compliance Package		
		Zone 1	Zone 2	Electric Space Heating
		Less than 5000 Degree Days	5000 or more Degree Days	Zones 1 and 2
Ceiling with Attic Space	Min. Nominal R(1)	60	60	60
	Max. U(2)	0.017	0.017	0.017
	Min. Effective R(2)	59.22	59.22	59.22
Ceiling Without Attic Space	Min. Nominal R(1)	31	31	31
	Max. U(2)	0.036	0.036	0.036
	Min. Effective R(2)	27.65	27.65	27.65
Exposed Floor	Min. Nominal R(1)	31	31	31
	Max. U(3)	0.034	0.034	0.034
	Min. Effective R(3)	29.80	29.80	29.80
Walls Above Grade	Min. Nominal R(1)	19 + 5 ci	22 + 7.5 ci	22 + 10 ci
	Max. U(3)	0.049	0.042	0.038
	Min. Effective R(3)	20.32	23.90	26.40
Basement Walls(6)	Min. Nominal R(1)	20 ci	20 ci	20 ci
	Max. U(4)	0.047	0.047	0.047
	Min. Effective R(4)	21.12	21.12	21.12
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R(1)	10	10	10
	Max. U(4)	0.090	0.090	0.090
	Min. Effective R(4)	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R(1)	10	10	10
Windows and Sliding Glass Doors	Max. U(5)	0.28	0.25	0.25
	Energy Rating	25	29	29
Column 1	2	3	4	5

Notes to Table 3.1.1.11. (IP):

(1) The values listed are minimum Nominal R values for the thermal insulation component only.
(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.
(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.
(4) U-Value and effective R value shall include entire *basement* wall or slab assembly components and interior air film.
(5) U-Value is the *overall coefficient of heat transfer* for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).
(6) In the case of *basement* wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa.
(7) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

3.1.1.12. Drain Water Heat Recovery

(1) Except as provided in Sentence (2), a drain water heat recovery unit shall be installed in each *dwelling unit* to receive drain water from all showers or from at least two showers where there are two or more showers in the *dwelling unit*. (See Appendix A.)

(2) Sentence (1) does not to apply to *dwelling units* in which:
(a) there are no showers; or
(b) there are no storeys or crawl spaces beneath any of the showers in the *dwelling unit*.

(3) Drain water heat recovery units shall conform to CSA B55.2, "Drain Water Heat Recovery Units".

(4) The minimum efficiency of a drain water heat recovery unit shall be determined in conformance with CSA B55.1, "Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units".

(5) The efficiency of a drain water heat recovery unit, when tested in accordance with Sentence (4), shall be not less than 42%.

(6) A drain water heat recovery unit shall be installed
(a) in an upright position that does not diverge more than 5 degrees from the vertical,
(b) in a position such that the cold water inlet connection is at the bottom of the unit,
(c) downstream of a water softener where a water softener is installed, and
(d) in a *conditioned space* or on the warm side of the dewpoint of the wall assembly.

3.1.2. Performance Compliance

3.1.2.1. Required Performance Level (See Appendix A.)

(1) The performance level shall be measured based on the simulated annual energy use of the *building*.

(2) For the purpose of this Subsection, reference *building* means a *building* that is identical to the proposed *building*, except that it is designed to meet the requirements and performance level of an applicable compliance package in Subsection 3.1.1. on the basis of
(a) zone location,
(b) energy source, and
(c) equipment efficiency.

(3) The simulated annual energy use of the proposed *building* shall not be greater than the simulated annual energy use of the reference *building*.

(4) The simulated annual energy use of the proposed *building* and the reference *building* shall be calculated in accordance with Table 3.1.2.1.

(5) For the purpose of calculations required in Sentence (4),
(a) the simulation software used shall be a recognized annual energy use simulation software,
(b) the climatic data used shall be the local climatic data,
(c) the equivalent domestic water loads, appliance loads and other plug-in loads shall be assumed for both the proposed *building* and the reference *building*, and
(d) the same software and climatic conditions shall be used for both the proposed *building* and the reference *building*s.

(6) Where the overall thermal performance of the proposed *building* envelope is less than the envelope performance of the compliance package that is compared against it, the reduction in the performance level of the *building* envelope shall not be more than 25%.

(7) The annual energy use simulation of the reference *building* shall be in accordance with Subsection 3.1.1. of this Supplementary Standard, Part 12 and other applicable parts of the *Building Code*.

Table 3.1.2.1.
Specification for the Reference and Proposed Building Design
Forming Part of Sentence 3.1.2.1.(4)

Building Component	Reference Building Design	Proposed Building Design
Building Envelope	Dimensions and orientation: same as proposed design. *Fenestration* to wall ratio: same as proposed up to 22%, (where 17% < ratio ≤ 22%, U-Value is required to be upgraded as per 3.1.1.1.(8)) where the proposed *fenestration* to wall ratio exceeds 22%, the *fenestration* area of the reference *building* shall be reduced proportionally along each exposure until the 22% is met. RSI Values or U-Values and ER values: as per applicable compliance package required in Subsection 3.1.1.	As proposed (See Sentences 3.1.2.1.(5) to (8)).
Construction Type	Above Grade: Wood Frame spacing: 406 mm o.c. for wall studs, 406 mm o.c. for exposed floors joists, roof joists, and roof rafters, and 610 mm o.c. for roof trusses. Below Grade: Concrete with interior insulation.	As proposed.
Air Leakage Rate	Detached dwelling: 3.0 ACH, NLA 2.12 cm^2/m^2, or NLR 1.32 $L/s/m^2$ Attached dwellings: 3.5 ACH, NLA 2.27 cm^2/m^2, or NLR 1.44 $L/s/m^2$ (See Appendix A).	Same as reference, or tested air leakage rate, that is measured in accordance with Sentence 3.1.1.4.(2).
On-site Renewable Energy	None.(1)	As proposed.
Ventilation	HRV operating continuously at principle exhaust flow rate and with SRE as per applicable compliance package required in Subsection 3.1.1.	As proposed.
Drain Water Heat Recovery	Drain water heat recovery units as per Article 3.1.1.12.	As proposed.
Heating System and Service Water Heating	Fuel or energy type: Same as proposed(2) Equipment: Furnace and water tank. Efficiency: As per applicable compliance package required in Subsection 3.1.1. Where it is not specified, as per applicable provincial regulations.	As proposed.
Plumbing	Complies with Part 7 of the *Building Code*.	As proposed but must comply with Part 7 of the *Building Code* or exceed.
Cooling System, if proposed(3)	Energy type: Electric. Equipment: Same as proposed. Efficiency: As per applicable provincial regulations.	As proposed.
Column 1	2	3

Table 3.1.2.1. **(Cont'd)**
Specification for the Reference and Proposed Building Design
Forming Part of Sentence 3.1.2.1.(4)

Building Component	Reference Building Design	Proposed Building Design
Operating Conditions / Default Values	Except as indicated in this Subsection and the *Building Code*, for the purpose of annual energy use simulations, the same operating conditions and default values shall be used for the reference *building* and the proposed *building*.(4)	
All Components, Inputs for assemblies, workmanship, etc.	For both the reference *building* and the proposed *building*, input methodologies shall be the same and consistent with each other, e.g. use • Either user defined or build-up inputs for *building* envelope assemblies, • The same insulation installation quality; and • The same air tightness for the ductwork.	
Internal gains, electrical loads, other components and characteristics that are not described in this Subsection and Subsection 3.1.1.	The same values or systems shall be used for both the reference *building* and the proposed *building*.	
Column 1	2	3

Notes to Table 3.1.2.1.:

(1) Except where principle heating fuel is wood or wood products.

(2) For the purpose of annual energy use simulations, where an air or water source heat pump, or an earth energy system is proposed, the fuel or energy source of the reference *building* system is permitted to be the same as the supplementary (back up) energy source of the proposed heat pump system.

(3) Where cooling is proposed, annual energy use simulations shall include cooling system.

(4) Operating conditions consistent with Section 4.6 of NRCan's EnerGuide Rating System Version 15.1 may be used.

3.1.3. Other Acceptable Compliance Methods

3.1.3.1. Other Acceptable Compliance Methods (See Appendix A.)

(1) A *building* shall be deemed to be in compliance with the requirements of Subsection 3.1.1.

(a) Provided that the same performance level is achieved through the technical requirements of NRCan,"Energy Star for New Homes Standard Version 12.6." or,

(b) The *building* meets the NRCan,"2012 R2000 Standard".

Appendix A

Explanatory Material for SB-12

Chapter 1: General

1.3.2.1.(2) Defined Terms

Effective RSI Value and U-Value Calculations

Effective RSI values and U values are to be calculated in accordance with good practice. Some sample effective R value *calculations* are provided below. *Overall thermal transmittance* (U values) can be calculated by taking the inverse of *the* effective R value (U=1/(e*ffective RSI value*)

Information on the calculation of effective thermal resistance of opaque assemblies can also be found at the following NRCan website http://www.nrcan.gc.ca/energy/efficiency/housing/new-homes/energy-star/14176 . The combined values for the stud and cavity insulation components used below are taken from the same website. Further details can be found under "Tables for Calculating Effective Thermal Resistance of Opaque Assemblies".

Sample effective RSI values:

Ceiling with Attic Space - RSI Nominal 8.80	
Details	Effective RSI
Roof sheathing (above vented air space, therefore excluded from calculation)	0
Vented roof air space	0.03
RSI 6.69 (R38) nominal of blown in cellulose	6.69
Roof truss bottom chord dimensional lumber - 38 mm x 89 mm (2" x 4"), 610 mm (24") on-centre, RSI 2.11 (R12) nominal cavity fill between bottom chords	1.76
Polyethylene vapour retarder (negligible contribution to effective thermal resistance)	0
12.7 mm (1/2”) gypsum board	0.08
Air film interior, ceiling	0.11
Total	8.67

Above Grade Wall - RSI Nominal 3.87 + 0.88 ci (vinyl)	
Details	Effective RSI
Air film exterior	0.03
Exterior Finish* - Siding - vinyl, hollow-backed	0.11
RSI 0.88 (R5) XPS sheathing	0.88
Stud dimensional lumber – 38 mm x 140 mm (2" x 6") 406 mm (16") on-centre RSI 3.87 (R22) nominal cavity fill between studs	2.55
Polyethylene vapour retarder (negligible contribution to effective thermal resistance)	0
12.7 mm (1/2”) gypsum board	0.08
Air film interior	0.12
Total	3.77

* Where exterior finish is brick, brick and air gap values are permitted to be substituted for siding.

Basement Wall* - RSI Nominal 3.52 ci	
Details	Effective RSI
Concrete foundation wall, 200 mm (8”)	0.08
RSI 3.52 (R20) blanket	3.52
Air film interior	0.12
Total	3.72

* Where the basement is finished or drywall installed, drywall and other components that contribute to *effective RSI value* will be added.

Below Grade Slab - RSI Nominal 1.76	
Details	Effective RSI
Air film interior	0.16
Concrete slab, 100 mm (4”)	0.04
RSI 1.76 (R10) XPS sheathing	1.76
Total	1.96

Exposed Floor - RSI Nominal 5.46 (carpet)	
Details	Effective RSI
Air film exterior	0.03
12.7 mm (1/2") gypsum board	0.08
Dimensional lumber joist - 38 mm x 235 mm (2" x 10"), 406 mm (16") on-centre, RSI 5.46 (R31) nominal cavity fill	4.46
Polyethylene vapour retarder (negligible contribution to effective thermal resistance)	0
15.5 mm (5/8") OSB	0.16
Carpet and underpad	0.36
Air film interior	0.16
Total	5.25

Continuous Insulation (ci)

Continuous insulation (ci) is intended to minimize the thermal bridges in an assembly. It is generally uninterrupted across all structural members. Exceptions to this include fasteners and service openings. Insulation may generally be installed on the interior or the exterior, or may be integral to any opaque surface of the *building* envelope. It may generally be made of various material such as board, blanket, sprayed or other types of insulation. Compressions such as blanket fasteners are permitted.

A-Table 1.4.1.2. National Fenestration Rating Council.

Name	Address	Contact
NFRC	National Fenestration Rating Council 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770, USA	ph: 301-589-1776 fax: 301-589-3884 web site: www.nfrc.org
Column 1	2	3

Chapter 2: Reserved.

e1 Chapter 3: Acceptable Solutions for Achieving Energy Efficiency Compliance.

A-3.1.1. Compliance Packages.

Individual components of compliance packages found in Tables 3.1.1.2.A to 3.1.1.2.C and Tables 3.1.1.3.A to 3.1.1.3.C are not permitted to be mixed with similar components of other compliance packages either found within the same Table or similar components of compliance packages found in other Tables.

A-3.1.1.1.(3) Mechanical Equipment.

Compliance package tables referred to in this Sentence contain energy efficiency requirements for some or all mechanical equipment. Where a compliance package includes an energy efficiency level for space heating equipment, domestic water heater or heat or energy recovery ventilator, conformance with the package can only be achieved if the *building* is equipped with the mechanical equipment specified in the compliance package.

A-3.1.1.1.(7), (8) and (9) Fenestration to Wall Ratio.

When the *fenestration* to wall ratio is calculated, all *fenestration* areas and the entire peripheral wall above grade is included. The peripheral wall area includes floor rim board areas and all above grade wall areas. It is essentially the sum of the above grade walls that separate conditioned spaces from unconditioned spaces, and adjacent units. In the case of an attached garage, the walls that are common with the house and the garage are also included in the wall area calculations. For attached homes, the above grade portions of the walls that are common to other conditioned units are also included in the wall area. The *fenestration* area is based on the rough structural opening provided for windows, skylights, sliding glass doors, and for glazed portions in doors. For A–frame structures with steeply inclined roofs that also act as walls, the roof portion that serves as the interior wall area can be considered as the wall area in calculating the *fenestration* to wall ratio.

Where the window performance needs to be upgraded in accordance with Sentence 3.1.1.1.(8), upgrading can be done based on ER values in conjunction with Table 3.1.1.9.

A-3.1.1.1.(16) Heat or Energy Recovery Ventilators.

Heat or energy recovery ventilators are required regardless of the type of heating system and not restricted to forced air heating systems only.

A-3.1.1.2.(5) and (6) ICF Walls.

The use of ICF walls are not limited to the packages identified in these Sentences. Where U value or *effective RSI value* of a ICF wall assembly is the same or better than the U value or *effective RSI value* required for a wall assembly in any of the Tables, the ICF wall can be used in lieu of that assembly.

A-3.1.1.3.(5) and (6) ICF Walls.

The use of ICF walls are not limited to the packages identified in these Sentences. Where U value or *effective RSI value* of a ICF wall assembly is the same or better than the U value or *effective RSI value* required for a wall assembly in any of the Tables, the ICF wall can be used in lieu of that assembly.

A-3.1.1.4. Airtightness.

This provision is a voluntary provision. It only applies if credit for airtightness is claimed. Credit for air tightness allows the designer to substitute the requirements of compliance packages as set out in Table 3.1.1.4.B or 3.1.1.4.C. Neither the air leakage test nor compliance with airtightness targets given in Table 3.1.1.4.A are required, unless credit for airtightness is claimed. Table 3.1.1.4.A provides airtightness targets in three different metrics; ACH, NLA, NLR. Where credit for substitution is claimed, any one of these metrics can be used; the *building* need not meet all targets in different metrics.

A-3.1.1.7.(1) Permitted Basement Insulation Gap.

The provision refers to the gap between basement insulation and the floor level that might be left at the bottom of a foundation wall. Insulation can be extended from the underside of the subfloor to the floor level of the basement, or a gap may be left provided that the gap is not more than 200 mm when measured from floor level to where the insulation is terminated.

A-3.1.1.7.(5) and (6) Slab Insulation.

Except heated slabs and except where specifically required in a compliance package, the entire surface of the slab is only required to be insulated when the entire concrete slab is located completely within 600 mm of the exterior ground level. A typical example would be a slab on ground construction without a basement. If a slab is located partially at the exterior ground level (i.e. a walkout basement) or partially within 600 mm of the exterior surface, then only those sections are required to be insulated with perimeter insulation. The perimeter insulation could be horizontal or vertical. If the entire surface of the slab is insulated, or the perimeter insulation is horizontal, in both cases vertical insulation would not be mandatory.

A-3.1.1.11.(1) Additions to Existing Houses.

In Clause 3.1.1.11.(1)(a), the design and *construction* of an addition to an existing house can conform to the minimum *building* envelope and mechanical equipment requirements where an applicable compliance package is selected from Article 3.1.1.2. or 3.1.1.3.

Alternatively, Clause 3.1.1.11.(1)(b) provides a simpler approach and permits an addition to an existing *building* to comply with the appropriate column in Table 3.1.1.11. since the design and *construction* of an existing *building* is unlikely to be determined and matched against an applicable compliance package from Article 3.1.1.2. or 3.1.1.3. However, the addition is required to comply with Sentences 3.1.1.1.(7) to (10). Glazing upgrade of the addition is required if it falls within the scope of Sentence 3.1.1.1.(8). Table 3.1.1.11. further exempts both an addition and an existing *building* from conforming to minimum efficiency requirements for HRV's, domestic water heaters and space heating equipment required in Article 3.1.1.2. or 3.1.1.3. This would permit existing mechanical equipment to serve the entire *building* provided that it has the necessary capacity.

A-3.1.1.11.(2) Treatment of Additions.

Where the *fenestration* to wall ratio of an addition is calculated or the annual energy use of an addition is modeled for the purpose of demonstrating compliance, calculations can be done for only the addition or the for entire house including the existing part of the house. Regardless, the thermal characteristics of the existing *building*, existing window and wall areas can be used in the *fenestration* ratio calculations. Similarly, in the case of modeling, existing *building* components that have not been altered can be used as they are for the reference house and for the proposed design.

A-3.1.1.11.(3) Sunroom Additions to Existing Houses.

A sunroom addition to an existing house referred in this Sentence applies to a one-storey structure built substantially with wall/roof *fenestration* and glass doors but which sometimes contain unglazed low wall panels that support wall glazing above it. Since the glazing percentage of sunrooms exceeds the limits permitted for compliance packages in Articles 3.1.1.2. and 3.1.1.3. and performance compliance methods may not be possible, these sunrooms are exempt from compliance package requirements, provided that the thermal performance of the glazing is enhanced further than what is required for non-sunroom additions.

The maximum U-Values for doors, sliding glass doors, wall glazing and supporting wall panels for sunroom additions in Clause 3.1.1.11.(3)(a) have been derived from the maximum U-Values for window and sliding glass doors in additions to existing *building*s in Table 3.1.1.11. and then upgraded in accordance with Sentence 3.1.1.1.(8).

The maximum U-Value of 2.6 for roofs and skylights for sunroom additions in Clause 3.1.1.11.(3)(b) has been derived from upgrading the maximum U-Value of 2.8 for skylights in additions to existing *building*s in Table 3.1.1.11. consistent with the methodology used in Sentence 3.1.1.1.(8).

A-3.1.1.12.(1) Shower Drainage Installation.

The term "all showers" includes the case where there is only one shower in a dwelling unit. If there is only one shower, that shower is required to be connected to a drain water heat recovery unit. Where there are two or more showers, drain water from at least two showers are required to be connected to a single drain water heat recovery unit or to two individual drain water heat recovery units.

A-3.1.2.1. Application of Performance Compliance Path.

This Article requires two annual energy use simulations. These simulations compare the simulated annual energy use of the proposed *building* with the simulated annual energy use of an applicable compliance package. The simulated annual energy use of the proposed *building* cannot exceed the simulated annual energy use of an applicable compliance package.

Where a performance compliance path is selected, it is the intent of Sentence 3.1.2.1.(2) that the performance level of the compliance package takes into account the requirements listed in Subsection 3.1.1. that are applicable to that compliance package. Similarly, the annual energy use calculation for a compliance package referenced in Sentence 3.1.2.1.(3) shall take into account the requirements listed in Subsection 3.1.1. that are applicable to that compliance package. In addition to Subsection 3.1.2., the proposed *building* is still required to meet Part 12 and other applicable parts of the Code.

The air leakage rates in Table 3.1.2.1. are not requirements. The Table is not intended to require or suggest that the *building* meet those airtightness targets. They are provided only as default or reference values for the purpose of annual energy simulations, should the builder/owner decide to perform such simulations. They are given in three different metrics; ACH, NLA, NLR. Any of them can be used. They can be used as a default values for both a reference and proposed *building* or, where an air leakage test is conducted and credit for airtightness is claimed, the airtightness values in Table 3.1.2.1. can be used for the reference *building* and the actual leakage rates obtained from the air leakage test can be used as inputs for the proposed *building*.

Annual Energy Use Software: For the purpose of calculating the annual energy use of a proposed design and a design based on a selected compliance package, the following software may be used:

- HOT2000 version 10.51 or later versions
- other software referenced by the EnerGuide Rating System
- Passive house software such as
    - WUFI Passive
    - Passive House Planning Package
- RESNET accredited Home Energy Rating System (HERS) software, such as:
    - ICF International Beacon Residential Version 2-80-3
    - Ekotrope, HERS Module v2.0
    - EnergyGauge® USA Version 5.0
    - REM/Rate v14.6.2

Operating Conditions:

The following operation conditions may be used:
(Courtesy of NRCan- Section 4.6 of NRCan's EnerGuide Rating System Version 15.2)

4.6. Operating conditions

4.6.1. General
The EnerGuide Rating System applies two sets of operating conditions to provide EnerGuide Rating System services: standard operating conditions and household operating conditions.
Standard operating conditions are used as the basis for the calculation of the EnerGuide rating in order to provide an estimate of the home's energy performance independent of occupant behaviour. Houses that reach a zero rating have access to reduced operating conditions for their rating calculations.

Optionally provided by homeowners, household operating conditions are intended to provide customized operating conditions in order to generate an estimated annual energy use based on actual occupancy.
The rated annual energy consumption of a house is based on a number of standard assumptions as specified in **section 4.6.3**.

4.6.2. Standard operating conditions

4.6.2.1. Number of occupants
The EnerGuide rating is calculated assuming an occupant load of two adults and one child at home 50% of the time.

4.6.2.2. Temperature set points for space heating and cooling
The EnerGuide rating is calculated assuming standard thermostat settings (set points) for space heating and cooling as per **Table 2.**

Table 2 - Temperature set points

Area of house	Type of set point	Temperature
Main and upper floors	heating daytime (16 hours)	21°C (70°F)
	heating nighttime (8 hours)	18°C (64°F)
	cooling	25°C (77°F) if air conditioning present
Basement / walkout	heating	19°C (66°F)
	cooling	25°C (77°F) if air conditioning ducted to basement
Heated crawl space	heating	15°C (59°F)

Notes to Table 2:

(1) A constant weighted average of 20 degrees Celsius is used to simulate the effect of the heating setback temperature.

(2) Air conditioning can include heat pump space cooling systems.

(3) If air conditioning is not ducted to the basement, the approved compliance software will allow the basement temperature to vary.

4.6.2.3. Hot water load

The EnerGuide rating is calculated assuming that the occupants collectively use approximately 190 litres (50 U.S. gal) of hot water per day (for showers, clothes washing, dishwashing and faucets) and that the water is heated to 55°C (131°F). Shower temperature is held constant at 41°C (106°F) leading to some variability in the shower hot water load due to variations in regional cold water inlet temperatures. The shower hot water load ranges from 89 L/day (24 U.S. gal/day) in the warmest region to 100 L/day (26 U.S. gal/day) in the coldest. The 97 L/day (26 U.S. gal/day) of hot water usage applied to activities other than showering is constant across all weather locations. In total, the hot water usage will range from 178 L/day (47 U.S. gal/day) to 199 L/day (53 U.S. gal/day).

4.6.2.4. Electrical base loads

The EnerGuide rating is calculated assuming that a standard amount of electricity (electrical base loads) is used as defined in **Table 3** and **Table 4**.

It is always assumed that the house has an electric range and electric clothes dryer. It is also assumed that the clothes dryer exhausts to the outside and operates at a flow rate of 38 L/s (158 cfm), 45 minutes a day, 365 days per year.

Table 3 - Standard electrical base loads

Electrical load	Standard value (kWh/day)
Interior lighting	2.6
Appliances (refer to Table 4)	6.3
Other electrical	9.7
Exterior use (exterior lighting and miscellaneous outdoor use)	0.9
Daily total	19.5
Annual total	25.6 GJ/year
Electrical load	Standard value (kWh/day)

Table 4 - Standard appliance loads

Appliance	Standard value (kWh/yr)
Refrigerator	639
Electric range	565
Clothes washer	148
Dishwasher	260
Clothes dryer	687
Annual total for above 5 appliances	2299
Daily total for above 5 appliances	6.3 kWh/day

Notes to Table 4:

(1) Standard appliance ratings assume four occupants while the EnerGuide Rating System for homes assumes three occupants. Therefore, the loads for clothes washers and clothes dryers have been reduced by 25% to remain consistent with the rating system standard operating conditions.

(2) Freezer and microwave electrical consumptions are included in the "Other electrical" category.

4.6.2.5. Reduced operating conditions for zero-rated homes

For homes with superior energy performance, there is provision for reducing some of the standard operating conditions. These reduced operating conditions are considered to be a variation of the standard operating conditions. To be eligible for these reductions, the builder or homeowner must provide the energy advisor with proof that the required conditions, as specified below, are met and the EnerGuide rating for the house must be zero when modelled with the reduced values.

a) Allowable hot water reductions

Zero-rated homes may reduce their hot water load by the specified amount for each of the conditions they meet in **Table 5**. The four categories may be applied on an individual basis.

Table 5 - Allowable hot water reductions for zero-rated homes

Category	Specification	Approximate reduction L/day (U.S. gal/day)
Low-flow showerheads	7.6 L/min (2.0 U.S. gpm) or less	19 (5.0)
Low-flow bathroom faucets	5.7 L/min (1.5 U.S. gpm) or less	10 (2.6)
Clothes washer	ENERGY STAR certified	18 (4.8)
Dishwasher	ENERGY STAR certified	3 (0.8)
Approximate total potential reduction		50 (13.2)

Notes to Table 5:

(1) Showerhead water reductions are calculated by the approved compliance software based on incoming water temperature, flow rate and a shower length of seven minutes. Therefore, the 19 L/day (5.0 U.S. gal/day) for showerheads and the total potential reduction are approximate numbers.

b) Allowable electrical base loads reductions
Zero-rated homes may reduce their electrical base loads for interior lighting and appliances as detailed in **Table 6**. The "Other electrical" and "Exterior use" categories may not be reduced.

Table 6 - Allowable electrical base loads for zero-rated homes

Category	Conditions	Allowable reduced base load
Interior Lighting	25% to 75% of fixtures with compact fluorescent light bulbs or light emitting diodes	1.6 kWh/day
	> 75% of fixtures with compact fluorescent light bulbs or light emitting diodes	0.6 kWh/day
Appliances	The actual EnerGuide appliance rating must be lower than the following standard values: • Refrigerator: 639 kWh/yr • Electric range: 565 kWh/yr • Dishwasher: 260 kWh/yr • Clothes washer: 197 kWh/yr • Clothes dryer: 916 kWh/yr	Use the actual EnerGuide appliance rating If an appliance is not present, default values must be used

Notes to Table 6:

(1) Gas appliances will not be considered as a reduction to electrical base loads.

A-3.1.3.1. Other Acceptable Compliance Methods.

Compliance with this Supplementary Standard may be achieved using either the prescriptive path or the performance path required by NRCan,"Energy Star for New Homes Standard Version 12.6", provided that the same performance level is achieved through its technical requirements. Compliance with the technical requirements of NRCan, "2012 R-2000 Standard" also achieves compliance with this Supplementary Standard.

Only the technical provisions contained in NRCan, "2012 R-2000 Standard" or NRCan, "Energy Star for New Homes Standard Version 12.6" and other Energy Star documents it references are mandatory under this Supplementary Standard. However, in addition to the technical requirements, the administrative requirements of the Energy Star or R-2000 documents may be used to demonstrate compliance with Sentence 3.1.3.1.(1) by obtaining an Energy Star or R-2000 label for the *building*.

MMAH Supplementary Standard SB-13

Glass in Guards

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SB-13 comes into force on the 1st day of January 2025.

SB-13 Glass in Guards

Introduction

The prescriptive requirements for the design and construction of glass in guards in this Supplementary Standard are intended to reduce the probability of:

(a) breakage of glass panels; and
(b) injury to persons in the vicinity of a building as a result of falling broken glass.

Ontario's Building Code is written in an objective-based format to facilitate and encourage the use of alternative solutions to the prescriptive solutions contained in Division B of the Building Code and the standards referenced by the Code. Therefore, it is expected that the prescriptive-based solutions in this Supplementary Standard will form the benchmark for evaluating alternative solutions, including matrix-based risk assessment solutions. This approach will continue to allow for some flexibility and design choice for architects, engineers, developers, and the construction industry.

This Supplementary Standard is referenced by Sentence 3.1.21.1.(1) of Division B of the Building Code.

Section 1.1. General

1.1.1. Application of Supplementary Standard SB-13

1.1.1.1. Application

(1) Except as provided in Sentence (2), this Supplementary Standard applies to glass used in interior and exterior *guards* in *buildings* described in Sentence 1.3.3.2.(1) of Division A of the *Building Code*.

(2) This Supplementary Standard does not apply to glass used in
(a) *guards* at locations referred to in Sentence 3.3.4.7.(1) of Division B of the *Building Code*, or
(b) walls that act as *guards*.

Section 1.2. Terms and Abbreviations

1.2.1. Definitions of Words and Phrases

1.2.1.1. Non-defined Terms

(1) Definitions of words and phrases used in this Supplementary Standard that are not included in the list of definitions in Articles 1.4.1.2. and 1.4.1.3. of Division A of the *Building Code* and are not defined in another provision of the Code shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

1.2.1.2. Defined Terms

(1) Each of the words and terms in italics in this Supplementary Standard has the same meaning as in Subsection 1(1) of the *Building Code Act, 1992* or Clause 1.4.1.2.(1)(b) of Division A of the *Building Code*.

1.2.2. Symbols and Other Abbreviations

1.2.2.1. Symbols and Other Abbreviations

(1) Where used in this Supplementary Standard, a symbol or abbreviation listed in Column 1 of Table 1.4.2.1. of Division A of the *Building Code* shall have the meaning listed opposite it in Column 2.

Section 1.3. Referenced Documents and Organizations

1.3.1. Referenced Documents

1.3.1.1. Effective Date

(1) Unless otherwise specified in this Supplementary Standard, the documents referenced in this Supplementary Standard shall include all amendments, revisions and supplements effective to July 15, 2019.

1.3.1.2. Applicable Editions

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Column 2 of Table 1.3.1.2.

Table 1.3.1.2.
Referenced Documents
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document	Supplementary Standard Reference
DIN	DIN EN 14179-1:2016	Glass in Building - Heat Soaked Thermally Toughened Soda Lime Silicate Safety Glass – Part 1: Definition and Description	2.1.1.3.(1)
Column 1	2	3	4

Notes to Table 1.3.1.2.:
(1) DIN refers to the "Deutsches Institut für Normung e. V. ". In English, DIN means the German Institute for Standardization. (See Appendix A.)

Section 2.1. Glass

2.1.1. Selection of Glass in a Guard

2.1.1.1. Safety Glass

(1) Glass other than safety glass shall not be used in a *guard*.

(2) Glass in a *guard* shall conform to Table 2.1.1.1.

Table 2.1.1.1.
Selection of Glass in a Guard
Forming Part of Sentence 2.1.1.1.(2)

Location of Glass in a *Guard*	Type of Glass Required
Glass located beyond the edge of a floor or within 50 mm of the edge of a floor	Heat strengthened laminated glass
Glass located more than 50 mm inward from the edge of a floor	Heat strengthened laminated glass
	Heat soaked tempered glass
Glass located more than 150 mm inward from the edge of a floor	Heat strengthened laminated glass
	Heat soaked tempered glass
	Tempered glass not more than 6 mm thick
Column 1	2

2.1.1.2. Laminated Glass

(1) Laminated glass shall be designed, fabricated, and installed so that, in the event of failure of the glass, the glass does not dislodge from the support framing.

2.1.1.3. Heat Soaked Tempered Glass

(1) Heat soaked tempered glass shall conform to DIN EN 14179-1, "Glass in Building - Heat Soaked Thermally Toughened Soda Lime Silicate Safety Glass – Part 1: Definition and Description". (See Appendix A.)

Section 3.1. Structural Design

3.1.1. Design Requirements

3.1.1.1. Structural Design

(1) Glass in a *guard* shall conform to the requirements of Part 4 of Division B of the *Building Code*. (See Appendix A.)

(2) Glass in a *guard* shall not be in direct contact with any metal or similar hard elements forming part of the *guard* or supporting structure.

(3) Sufficient allowances shall be incorporated for glass in a *guard* to permit,
(a) deflection and movement under loads, and
(b) expansion and contraction due to temperature changes.

Appendix A

Explanatory Material for SB-13

Appendix A to this Supplementary Standard is included for explanatory purposes only and does not form part of the requirements. The bold-faced reference numbers that introduce each item apply to the requirements in this Supplementary Standard.

A-Table 1.3.1.2. DIN - Deutsches Institut für Normung e. V. (German Institute for Standardization).

Name	Address	Contact
DIN	DIN Deutsches Institut für Normung e. V. Am DIN-Platz Burggrafenstraße 6 10787 Berlin Germany	Phone: +49 30 2601-0 Fax: +49 30 2601-1231 web site: http://www.din.de
Column 1	2	3

A-2.1.1.3.(1) Heat Soaked Tempered Glass.

Heat soaked tempered glass is glass within which a permanent surface compressive stress has been induced in order to give it greatly increased resistance to mechanical and thermal stress and prescribed fragmentation characteristics and which has a known level of residual risk of spontaneous breakage due to the presence of critical nickel sulphide (NiS) inclusions. DIN EN 14179-1 is a European standard that specifies the heat soak process system together with tolerances, flatness, edgework, fragmentation and physical and mechanical characteristics of monolithic flat heat soaked thermally toughened soda lime silicate safety glass for use in buildings.

A-3.1.1.1.(1) Structural Design.

Part 4 of Division B of the Building Code applies to buildings described in Sentence 1.3.3.2.(1) of Division A of the Building Code. When considering the load combinations on exterior balcony guards, Part 4 requires that the live load should be considered in combination with the wind load. Refer to Table 4.1.3.2.A. of Division B of the Building Code for the relevant load combinations. Case 2, with the full live load coupled with a reduced wind load (via the 0.4 factor) is a plausible scenario. It is also plausible that some fraction of the live load may be present during the design wind event as per the load combination in case 4. Therefore, the live load needs to be considered in combination with the wind load via the load combinations in cases 2 and 4. The wind load, when combined with the live load, should be the outward wind load (i.e.: acting as a suction load on the guard) that is applied in combination with the outward guard load, and, as a separate case, the inward wind load (i.e.: acting as a pressure load on the guard) that is applied in combination with the inward guard load.

MMAH Supplementary Standard SC-1

Code of Conduct for Registered Code Agencies

January 1, 2024

COMMENCEMENT

MMAH Supplementary Standard SC-1 comes into force on the 1st day of January 2025.

SC-1 Code of Conduct for Registered Code Agencies

1. Standards

A registered code agency shall at all times undertake its responsibilities in a professional manner, and in conformance with the provisions of the Building Code Act, 1992, the building code, and all applicable legislation.

Building code provisions which contain requirements pertaining to the conduct of a registered code agency, include:

Division C	Requirements
Sentence 3.4.3.9.(2)	Suspension, Revocation, Refusal to Register or Renew a Registration
Subsection 3.7.2.	When a Registered Code Agency may not be Appointed or Continue to Act Under an Appointment
Sentence 3.7.4.1.(1)	Manner in which a Registered Code Agency shall Perform Functions
Article 3.7.4.3.	Issuance of Certificates by Registered Code Agencies
Article 3.7.4.4.	Issuance of Orders by Registered Code Agencies
Article 3.7.4.5.	Authorized Persons
Article 3.7.4.6.	Prohibition
Article 3.7.4.7.	Information and Records
Sentence 3.7.6.2.(1)	Information to be Provided by a Registered Code Agency to the Director
Article 3.7.6.3.	Information to be Provided by a Registered Code Agency to the Chief Building Official
Subsection 3.7.7.	Referral of Stop Work Order
Column 1	2

2. Application

A registered code agency shall ensure that its officers, directors, employees and other persons engaged to perform functions on behalf of the registered code agency, perform their functions in a manner consistent with the code of conduct.

3. Respect

A registered code agency, while carrying out its functions under an appointment, shall treat persons applying for or holding permits under section 8 of the Building Code Act, as well as persons responsible for design activities, persons engaged in construction, and other persons with whom a registered code agency may come into contact in the course of carrying out its responsibilities, with respect, by being courteous at all times and in all situations.

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act,1992*

For use by Principal Authority	
Application number:	Permit number (if different):
Date received:	Roll number:

Application submitted to: _____
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name		Unit number	Lot/con.
Municipality	Postal code	Plan number/other description	
Project value est. $		Area of work (m^2)	

B. Purpose of application

☐ New construction ☐ Addition to an existing building ☐ Alteration/repair ☐ Demolition ☐ Conditional Permit

Proposed use of building	Current use of building

Description of proposed work

C. Applicant

Applicant is: ☐ Owner or ☐ Authorized agent of owner

Last name	First name	Corporation or partnership	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	☐ Yes	☐ No
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	☐ Yes	☐ No

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of Clauses 1.3.1.3.(5)(a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	☐ Yes	☐ No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	☐ Yes	☐ No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992.*	☐ Yes	☐ No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	☐ Yes	☐ No
iv) The proposed building, construction or demolition will not contravene any applicable law.	☐ Yes	☐ No

I. Declaration of applicant

I _____ declare that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

_____ _____
Date Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing, 777 Bay St., 2nd Floor, Toronto, M5G 2E5, (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name			Unit no.	Lot/con.
Municipality	Postal code	Plan number/other description		

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
Street address			Unit no.	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ( )	Fax number ( )		Cell number ( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

☐ House	☐ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems

Description of designer's work

D. Declaration of Designer

I _____ declare that (choose one as appropriate):

(print name)

☐ I review and take responsibility for the design work on behalf of a firm registered under Subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

☐ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under Subsection 3.2.5. of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

☐ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

_____ _____

Date Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7.(1)(c) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information

Building number, street name			Unit number	Lot/con.
Municipality	Postal code	Plan number/ other description		

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1. of Division C?

☐ Yes (Continue to Section C) ☐ No (Continue to Section E) ☐ Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")

Name			BCIN	
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ( )	Fax ( )		Cell number ( )	

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	Building Code Identification Number (BCIN)

E. Declaration of Applicant:

I _____ declare that:
(print name)

☐ I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

☐ I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

_____ _____

Date Signature of applicant

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Order Not to Cover or Enclose

Pursuant to Subsection 13(1) of the *Building Code Act, 1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Application/Permit Number:

Order issued to (name and address)**:**

1. 3.

2. 4.

The above-referenced building was inspected on or about _____ (date).

You are hereby prohibited from covering or enclosing the parts of the building described below, pending an inspection. Please arrange for an inspection when the part of the building identified below is ready for inspection.

Item	Description of area not to cover or enclose

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with this Order could result in an Order to Uncover and/or a Stop Work Order. [*Building Code Act, 1992* s, 13(6) and/or s. 14]
- Failure to comply with an Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Order to Uncover

Pursuant to Subsection 13(6) of the *Building Code Act, 1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Application/Permit Number:

Order issued to (name and address)**:**

1.

2.

3.

4.

The inspection on or about _____(date) at the above-referenced address found the following contravention(s) of the *Building Code Act, 1992* or the Building Code.

- ☐ The part was covered or enclosed contrary to an Order Not to Cover number _____dated _____;
- ☐ The notice required to be given to the chief building official, registered code agent or inspector, before the part was covered or enclosed under a by-law, resolution or regulation made under clause 7(1)(e) of the *Building Code Act, 1992*, was not given or a notice required under section 10.2 was not received;
- ☐ In cases where a notice required under section 10.2 is received, the period prescribed under subsection 10.2 (2) did not elapse before the part was covered or enclosed;
- ☐ In cases where a notice required by a by-law, resolution or regulation made under clause 7(1)(e) is given,
  - (i) the inspection period prescribed under clause 7(1)(e) did not elapse before the part was covered or enclosed
  - (ii) if an inspection period is not prescribed under clause 7(1)(e) a reasonable period of time after the notice was given did not elapse before the part was covered or enclosed; or
- ☐ The part has been constructed without a permit being issued.

You are hereby ordered to uncover or have uncovered, at your own expense, and make available for inspection the parts of the building described below immediately, or by _____ (date).

Description of area to uncover:

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with this Order could result in a Stop Work Order. [*Building Code Act, 1992* s. 14]
- Failure to comply with an Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Stop Work Order

Pursuant to Subsection 14(1) of the *Building Code Act,1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Application/Permit Number:

Order issued to (name and address):

1.

2.

3.

4.

The inspection on or about _____ (date) at the above-referenced address found the following contravention(s) of the *Building Code Act, 1992* or the Building Code have not been rectified as required by the Order(s) indicated below:

- ☐ Order to Comply number _____, dated _____
- ☐ Order Not to Cover number _____, dated _____
- ☐ Order to Uncover number _____, dated _____

You are hereby ordered to immediately cease construction and/or demolition as specified below:

Item	Details

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone no. _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with this Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]
- When a Stop Work Order is issued, no person shall perform any act in the construction or demolition of the building in respect of which the Order is made other than work necessary to carry out an Order to Comply, the Order Not to Cover, or an Order to Uncover. [*Building Code Act, 1992* s. 14]

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Order Requiring Tests and Samples

Pursuant to Clause 18(1)(f) of the *Building Code Act,1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Application/Permit Number:

Order issued to (name and address)**:**

1. 3.

2. 4.

Description of required tests and samples

The inspection on or about _____ (date) at the above-referenced address found the need for the following tests and samples.

You are hereby ordered at your expense to take and supply to the undersigned the tests and samples described below by _____ (date).

Item	Reference	Test and sample required

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with an Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Order to Comply

Pursuant to Subsection 12(2) of the *Building Code Act, 1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Application/Permit Number:

Order issued to (name and address)**:**

1. 3.

2. 4

The inspection on or about _____ (date) at the above-referenced address found the following contravention(s) of the Building Code or the *Building Code Act, 1992*.

You are hereby ordered to correct the contraventions itemized below immediately, by the dates listed below, or by _____ (date).

Item	Reference	Description and location	Required action and compliance date

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with this Order could result in a Stop Work Order. [*Building Code Act, 1992* s. 14]
- Failure to comply with this Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]
- No construction affected by this Order is to be covered until inspected and approved. [*Building Code Act, 1992* s. 13]

Principal Authority/Registered Code Agency Identification
Name, Address, Telephone No, Building Code Identification Number

Order to Comply

Pursuant to Subsection 15.10.1.(2) of the *Building Code Act, 1992*

Order Number: (optional) _____ **Date Order issued:** _____

Address to which Order applies:

Order issued to (name and address):

1.

2.

3.

4

The inspection on or about _____ (date) at the above-referenced address found the following contravention(s) of the Building Code or the *Building Code Act, 1992*.

You are hereby ordered to correct the contraventions itemized below immediately, by the dates listed below, or by _____ (date).

Item	Reference	Description and location	Required action and compliance date

Order issued by:

Name _____ BCIN _____

Signature _____ Telephone _____

Contact name (optional)_____ Contact tel. number (optional)_____

Note:

- It is illegal to obstruct the visibility of a posted Order. It is also illegal to remove a posted Order unless authorized by an inspector or Registered Code Agency. [*Building Code Act, 1992* s. 20]
- An Order may be appealed to the Superior Court of Justice. [*Building Code Act, 1992* s. 25]. It may also be appealed to the Building Code Commission concerning the sufficiency of compliance with the technical requirements of the Building Code. [*Building Code Act, 1992* s. 24]
- Failure to comply with this Order is an offence which could result in a fine. [*Building Code Act, 1992* s. 36]