<9.20.17. Above-Ground Flat Insulating Concrete Form Walls

9.20.17.1. Thickness of Flat Insulating Concrete Form Walls

1) The thickness of the concrete in flat insulating concrete form walls not in contact with the ground shall be

a) not less than 140 mm, and

b) constant for the entire height of the wall.

9.20.17.2. Reinforcement for Flat Insulating Concrete Form Walls

1) Horizontal reinforcement in above-grade flat insulating concrete form walls shall

a) consist of

i) one 10M bar placed not more than 300 mm from the top of the wall, and

ii) 10M bars at 600 mm o.c., and

b) be placed in the middle third of the wall section.

2) Vertical reinforcement in above-grade flat insulating concrete form walls shall

a) consist of 10M bars at 400 mm o.c., and

b) be placed in the middle third of the wall section.

3) Vertical reinforcement required by Sentence (2) and interrupted by wall openings shall be placed not more than 600 mm from each side of the opening.

9.20.17.3. Openings in Non-Loadbearing Flat Insulating Concrete Form Walls

1) No openings shall occur within 1 200 mm of interior and exterior corners of exterior non-*loadbearing* flat insulating concrete form walls.

2) Portions of walls above openings in non-*loadbearing* flat insulating concrete form walls shall have a minimum depth of concrete of no less than 200 mm across the width of the opening.

3) Openings that are more than 600 mm but not more than 3 000 mm in width in non-*loadbearing* flat insulating concrete form walls shall be reinforced at the top and bottom with one 10M bar.

4) Openings more than 3 000 mm in width in non-*loadbearing* flat insulating concrete form walls shall be reinforced on all four sides with two 10M bars.

5) Reinforcing bars described in Sentences (3) and (4) shall extend 600 mm beyond the edges of the opening.

6) The cumulative width of openings in non-*loadbearing* flat insulating concrete form walls shall not make up more than 70% of the length of any wall.

9.20.17.4. Lintels over Openings in Loadbearing Flat Insulating Concrete Form Walls

1) In *loadbearing* flat insulating concrete form walls, lintels shall be provided over all openings wider than 900 mm.

2) Lintels described in Sentence (1) shall be constructed in accordance with Tables A-17, A-18 or A-19.

3) Lintels described in Sentence (1) over openings wider than 1 200 mm shall be reinforced for shear with 10M stirrups at a maximum spacing of half the distance from the bottom reinforcing bar to the top of the lintel.

9.20.17.5. Framing Supported on Flat Insulating Concrete Form Walls

1) Floor joists supported on the side of flat insulating concrete form walls shall be supported with joist hangers secured to wood ledger boards.

2) The ledger boards referred to in Sentence (1) shall be not less than

a) 38 mm thick, and

b) the depth of the floor joists.

3) Anchor bolts shall be used to secure ledger boards to flat insulating concrete form walls and shall be

a) embedded in the wall to a depth not less than 100 mm, and

b) spaced in accordance with Table 9.20.17.5.

4) Floor joists and *building* frames supported on the top of flat insulating concrete form walls shall be anchored in conformance with Article 9.23.6.1.

Table 9.20.17.5.
Maximum Anchor Bolt Spacing for the Connection of Floor Ledgers to Flat Insulating Concrete Form Walls
Forming Part of Sentence 9.20.17.5.(3)

Maximum Clear Floor Span, m	Maximum Anchor Bolt Spacing, mm	
	Staggered 12.7 mm Diameter Anchor Bolts	Staggered 16 mm Diameter Anchor Bolts
2.44	450	500
3.0	400	450
4.0	300	400
5.0	275	325

9.20.17.6. Anchoring of Roof Framing to the Top of Flat Insulating Concrete Form Walls

1) Roof framing supported on the top of flat insulating concrete form walls shall be fixed to the top plates, which shall be anchored to the wall with anchor bolts

a) not less than 12.7 mm in diameter, and

b) spaced at not more than 1 200 mm o.c.

2) The anchor bolts described in Sentence (1) shall be placed in the centre of the flat insulating concrete form wall and shall be embedded no less than 100 mm into the concrete.

3) Attachment of roof framing to wood top plates shall be in accordance with Table 9.23.3.4.

9.20.17.7. Protection from Precipitation and Damage

1) Above-ground flat insulating concrete form walls shall be protected from precipitation and damage in conformance with Section 9.27.>

Section 9.21. Masonry and Concrete Chimneys and Flues

9.21.1. General

9.21.1.1. Application

1) This Section applies to

a) rectangular <*masonry or concrete chimneys*> not more than 12 m in height serving fireplaces or serving *appliances* having a combined total rated heat output of 120 kW or less, and

b) *flue pipes* <connected to such *chimneys*>.

2) *Chimneys*, other than those described in Sentence (1), *gas vents* and *flue pipes* serving gas-, oil- or solid-fuel-burning *appliances* and their associated equipment, <including *stoves*, *ranges* and *space heaters*, covered by the standards referenced in Sentences 9.33.5.2.(1) and 9.33.5.3.(1),> shall conform to Subsection 9.33.10.

3) *Chimneys* and *flue pipes* other than those described in Sentences (1) and (2) shall conform to Section 6.3.

9.21.1.2. Chimney or Flue Pipe Walls

1) The walls of any *chimney* or *flue pipe* shall be constructed so as to be smoke- and flame-tight.

9.21.2. Chimney Flues

9.21.2.1. Chimney Flue Limitations

1) A *chimney flue* that serves a fireplace or incinerator shall not serve any other *appliance*.

<2) A *chimney flue* that serves a solid-fuel-burning *appliance* shall not be connected to a natural-gas- or propane-fired *appliance*.

3) A *chimney flue* that serves a solid-fuel-burning *appliance* shall not be connected to an oil-burning *appliance* unless the solid-fuel-burning *appliance* is certified for such installation and the installation of both *appliances* meets the requirements of the relevant standards referenced in Article 9.33.5.2.>

9.21.2.2. Connections of More Than One Appliance

1) Except as required by Article 9.21.2.1., where two or more fuel-burning *appliances* are connected to the same *chimney flue*, <the connections shall be made as described in Sentences (2) to (4) and an adequate draft shall be provided for the connected *appliances* in conformance with the requirements of applicable regulations or standards referenced in Subsection 9.33.10.>

2) Where 2 or more fuel-burning *appliances* are connected to the same *chimney flue*, the *appliances* shall be located on the same *storey*.

3) The connection referred to in Sentence (2) for a solid-fuel-burning *appliance* shall be made below connections for *appliances* burning other fuels.

<4) The connection referred to in Sentence (2) for a liquid-fuel-burning *appliance* shall be made below any connections for *appliances* burning natural gas or propane.>

9.21.2.3. Inclined Chimney Flues

1) *Chimney flues* shall not be inclined more than 45° to the vertical.

9.21.2.4. Size of Chimney Flues

1) Except for *chimneys* serving fireplaces, the size of a *chimney flue* shall conform to the requirements of the *appliance* installation standards referenced in Sentences 9.33.5.2.(1) and 9.33.5.3.(1).

2) Where a *chimney flue* serves only one *appliance*, the *flue* area shall be at least equal to that of the *flue pipe* connected to it.

9.21.2.5. Fireplace Chimneys

1) The size of a *chimney flue* serving a masonry fireplace shall conform to Table 9.21.2.5.A. or Table 9.21.2.5.B.

Table 9.21.2.5.A
Diameter of Round Flues for Fireplace Chimneys
Forming Part of Sentence 9.21.2.5.(1)

Fireplace Opening, m²	Chimney Height, m							
	3.0 to 4.5		> 4.5 to 5.9		> 5.9 to 8.9		> 8.9 to 12	
	Flue Diameter, mm							
	min.	max.	min.	max.	min.	max.	min.	max.
up to 0.150	110	170	100	160	90	150	90	150
0.151 to 0.250	150	210	130	190	130	190	120	180
0.251 to 0.350	180	240	160	220	150	210	140	200
0.351 to 0.500	220	280	200	260	190	250	170	230
0.501 to 0.650	260	320	230	290	220	280	200	260
0.651 to 0.800	290	350	260	320	240	300	220	280
0.801 to 1.00	330	390	290	350	270	330	250	310
1.01 to 1.20	360	420	320	380	300	360	270	330
1.21 to 1.40	390	450	350	410	330	390	300	360
1.41 to 1.60	420	480	380	440	350	410	320	380
1.61 to 1.80	—	—	400	460	370	430	340	400
1.81 to 2.00	—	—	—	—	400	460	360	420
2.01 to 2.20	—	—	—	—	—	—	380	440

Table 9.21.2.5.B
Rectangular Flue Sizes for Fireplace Chimneys
Forming Part of Sentence 9.21.2.5.(1)

Fireplace Opening, m²	Chimney Height, m							
	3.0 to 4.5		> 4.5 to 5.9		> 5.9 to 8.9		> 8.9 to 12	
	Flue Size, mm							
	min.	max.	min.	max.	min.	max.	min.	max.
up to 0.150	200 x 200	200 x 200	100 x 200	100 x 200	100 x 200	100 x 200	100 x 200	100 x 200
0.151 to 0.250	200 x 200	200 x 200	200 x 200	200 x 200	200 x 200	200 x 200	200 x 200	200 x 200
0.251 to 0.350	200 x 300	200 x 300	200 x 200	200 x 300	200 x 200	200 x 200	200 x 200	200 x 200
0.351 to 0.500	300 x 300)	300 x 300	200 x 300	200 x 300	200 x 300	200 x 300	200 x 200	200 x 300
0.501 to 0.650	300 x 300	300 x 400	300 x 300	300 x 300	300 x 300	300 x 300	200 x 300	200 x 300
0.651 to 0.800	300 x 400	300 x 400	300 x 300	300 x 400	300 x 300	300 x 300	300 x 300	300 x 300
0.801 to 1.00	400 x 400	400 x 400	300 x 400	300 x 400	300 x 400	300 x 400	300 x 300	300 x 300
1.01 to 1.20	400 x 400	400 x 400	400 x 400	400 x 400	300 x 400	300 x 400	300 x 400	300 x 400
1.21 to 1.40	—	—	400 x 400	400 x 400	400 x 400	400 x 400	300 x 400	300 x 400
1.41 to 1.60	—	—	—	—	400 x 400	400 x 400	400 x 400)	400 x 400
1.61 to 1.80	—	—	—	—	—	—	400 x 400	400 x 400
1.81 to 2.00	—	—	—	—	—	—	400 x 400	400 x 400

9.21.2.6. Oval Chimney Flues

1) The width of an oval *chimney flue* shall be not less than two-thirds its breadth.

9.21.3. Chimney Lining

9.21.3.1. Lining Materials

1) Every *masonry or concrete chimney* shall have a lining of clay, concrete, firebrick or metal.

9.21.3.2. Joints in Chimney Liners

1) Joints of *chimney liners* shall be sealed to provide a barrier to the passage of *flue* gases and condensate into the cavity between the liner and the surrounding masonry.

2) Joints of clay, concrete or firebrick *chimney liners* shall be struck flush to provide a straight, smooth, aligned *chimney flue*.

9.21.3.3. Clay Liners

1) Clay liners shall conform to CAN/CSA-A324-M, "Clay Flue Liners."

2) Liners referred to in Sentence (1) shall be not less than 15.9 mm thick and shall be capable of resisting, without softening or cracking, a temperature of 1 100°C.

9.21.3.4. Firebrick Liners

1) Firebrick liners shall conform to ASTM C 27, "Classification of Fireclay and High-Alumina Refractory Brick."

2) Firebrick liners shall be laid with high temperature cement mortar conforming to CAN/CGSB-10.3, "Air Setting Refractory Mortar."

9.21.3.5. Concrete Liners

1) Concrete *flue* liners shall conform to Clause 4.2.6.4. of CAN/CSA-A405-M, "Design and Construction of Masonry Chimneys and Fireplaces."

9.21.3.6. Metal Liners

1) Metal liners shall be constructed of not less than 0.3 mm thick stainless steel.

2) Metal liners referred to in Sentence (1) shall only be used in *chimneys* serving gas- or oil-burning *appliances*. (See Appendix A.)

9.21.3.7. Installation of Chimney Liners

1) *Chimney liners* shall be installed when the surrounding masonry or concrete is placed.

9.21.3.8. Spaces between Liners and Surrounding Masonry

1) A space not less than 10 mm wide shall be left between a *chimney liner* and surrounding masonry.

2) The space required in Sentence (1) shall not be filled with mortar.

9.21.3.9. Mortar for Chimney Liners

1) *Chimney liners* used in *chimneys* for solid-fuel-burning *appliances* shall be laid in a full bed of

a) high temperature cement mortar conforming to CAN/CGSB-10.3, "Air Setting Refractory Mortar," or

b) mortar consisting of 1 part Portland cement to 3 parts sand by volume.

2) *Chimney liners* used in *chimneys* for oil- or gas-burning *appliances* shall be laid in a full bed of mortar consisting of 1 part Portland cement to 3 parts sand by volume.

9.21.3.10. Extension of Chimney Liners

1) *Chimney liners* shall extend from a point not less than 200 mm below the lowest *flue pipe* connection to a point not less than 50 mm or more than 100 mm above the *chimney* cap.

9.21.4. Masonry and Concrete Chimney Construction

9.21.4.1. Unit Masonry

1) Unit masonry shall conform to Section 9.20.

9.21.4.2. Concrete

1) Concrete shall conform to Section 9.3.

9.21.4.3. Footings

1) Footings for *masonry chimneys* and *concrete chimneys* shall conform to Section 9.15.

9.21.4.4. Height of Chimney Flues

1) A *chimney flue* shall extend not less than

a) 900 mm above the highest point at which the *chimney* comes in contact with the roof, and

b) 600 mm above the highest roof surface or structure within 3 m of the *chimney*.

(See Appendix A.)

9.21.4.5. Lateral Stability

1) Except as provided in Sentence (2), *chimneys* shall be braced in accordance with <Subsection 4.3.2.> to provide lateral stability under wind loads.

2) A *chimney* need not be laterally braced provided

a) no horizontal outside dimension is less than 400 mm, and

b) the *chimney* extends not more than 3.6 m above a roof or the masonry wall of which it forms a part.

(See Appendix A.)

9.21.4.6. Chimney Caps

1) The top of a *chimney* shall have a waterproof cap of reinforced concrete, masonry or metal.

2) The cap required in Sentence (1) shall slope from the lining and be provided with a drip not less than 25 mm from the *chimney* wall.

3) Cast-in-place concrete caps shall be separated from the *chimney liner* by a bond break and be sealed at that location.

4) Jointed precast concrete or masonry *chimney* caps shall have flashing installed beneath the cap extending from the liner to the drip edge.

9.21.4.7. Cleanout

1) A cleanout opening with a metal frame and a tight-fitting metal door shall be installed near the base of the *chimney flue*.

9.21.4.8. Wall Thickness

1) The walls of a masonry *chimney* shall be built of solid units not less than 75 mm thick.

9.21.4.9. Separation of Flue Liners

1) *Flue* liners in the same *chimney* shall be separated by not less than 75 mm of masonry or concrete exclusive of liners where clay liners are used, or 90 mm of firebrick where firebrick liners are used.

2) *Flue* liners referred to in Sentence (1) shall be installed to prevent significant lateral movement.

9.21.4.10. Flashing

1) Junctions with adjacent materials shall be adequately flashed to shed water.

9.21.5. Clearance from Combustible Construction

9.21.5.1. Clearance from Combustible Materials

1) The clearance between *masonry or concrete chimneys* and *combustible* framing shall be not less than

a) 50 mm for interior *chimneys*, and

b) 12 mm for exterior *chimneys*.

(See Appendix A.)

2) A clearance of not less than 150 mm shall be provided between a cleanout opening and *combustible* material.

3) *Combustible* flooring and subflooring shall have not less than a 12 mm clearance from *masonry or concrete chimneys*.

9.21.5.2. Sealing of Spaces

1) All spaces between *masonry or concrete chimneys* and *combustible* framing shall be sealed top or bottom with *noncombustible* material.

9.21.5.3. Support of Joists or Beams

1) Joists or beams may be supported on masonry walls which enclose *chimney flues* provided the *combustible* members are separated from the *flue* by not less than 290 mm of solid masonry.

Section 9.22. Fireplaces

9.22.1. General

9.22.1.1. Application

1) Except when otherwise specifically stated herein, this Section applies to masonry fireplaces constructed on-site.

9.22.1.2. Masonry and Concrete

1) Except as otherwise stated in this Section, unit masonry shall conform to Section 9.20. and concrete to Section 9.3.

2) Masonry above openings shall be supported by steel lintels conforming to Sentence 9.20.5.2.(2), reinforced concrete or a masonry arch.

9.22.1.3. Footings

1) Footings for masonry and concrete fireplaces shall conform to Section 9.15.

9.22.1.4. Combustion Air

1) Where a supply of combustion air is provided directly to the fire chamber of a fireplace, including a factory-built fireplace, the installation shall comply with the "Outdoor Air Supply" requirements provided in CAN/CSA-A405-M, "Design and Construction of Masonry Chimneys and Fireplaces."

9.22.2. Fireplace Liners

9.22.2.1. Brick or Steel Liners

1) Except where a fireplace is equipped with a steel liner, every fireplace shall have a firebrick liner.

9.22.2.2. Firebrick Liners

1) Firebrick liners shall be not less than

a) 50 mm thick for the sides and back, and

b) 25 mm thick for the floor.

2) Firebrick liners shall be laid with high temperature cement mortar conforming to CAN/CGSB-10.3, "Air Setting Refractory Mortar."

3) Joints between a firebrick liner and the adjacent backing masonry shall be offset.

9.22.2.3. Steel Liners

1) Steel liners for fireplaces shall conform to CAN/ULC-S639-M, "Steel Liner Assemblies for Solid-Fuel Burning Masonry Fireplaces," and shall be installed in accordance with the installation instructions in that standard.

9.22.3. Fireplace Walls

9.22.3.1. Thickness of Walls

1) Except as provided in Sentence (2), the thickness of the back and sides of a fireplace, including the thickness of any firebrick liner, shall be not less than 190 mm where a metal liner or a firebrick liner less than 51 mm thick is used.

2) When a steel fireplace liner is used with an air circulating chamber surrounding the firebox, the back and sides of the fireplace shall consist of

a) solid masonry units not less than 90 mm thick, or

b) hollow masonry units not less than 190 mm thick.

9.22.4. Fire Chamber

9.22.4.1. Fire Chamber Dimensions

1) The distance from the back of the fire chamber to the plane of the fireplace opening shall be not less than 300 mm.

9.22.5. Hearth

9.22.5.1. Hearth Extension

1) Except as required in Sentence (2), fireplaces shall have a *noncombustible* hearth extending not less than 400 mm in front of the fireplace opening and not less than 200 mm beyond each side of the fireplace opening.

2) Where the fire chamber floor is elevated more than 150 mm above the hearth, the dimension of the hearth measured perpendicular to the plane of the fireplace opening shall be increased by not less than

a) 50 mm for an elevation above 150 mm and not more than 300 mm, and

b) an additional 25 mm for every 50 mm in elevation above 300 mm.

9.22.5.2. Support of Hearth

1) Except as permitted in Sentence (2), the fire chamber floor and hearth shall be supported on a reinforced concrete slab not less than 100 mm thick at its supports and, if cantilevered, not less than 50 mm thick at its unsupported edge.

2) A hearth for a fireplace with an opening raised not less than 200 mm from a *combustible* floor is permitted to be supported on that floor provided the requirements of Clauses 5.3.6.5. to 5.3.6.7. of CAN/CSA-A405-M, "Design and Construction of Masonry Chimneys and Fireplaces" are followed.

9.22.6. Damper

9.22.6.1. Required Damper and Size

1) The throat of every fireplace shall be equipped with a metal damper sufficiently large to cover the full area of the throat opening.

9.22.7. Smoke Chamber

9.22.7.1. Slope of Smoke Chamber

1) The sides of the smoke chamber connecting a fireplace throat with a *flue* shall not be sloped at an angle greater than 45° to the vertical.

9.22.7.2. Wall Thickness

1) The thickness of masonry walls surrounding the smoke chamber shall be not less than 190 mm at the sides, front and back, except that the portions of the back exposed to the outside may be 140 mm thick.

9.22.8. Factory-Built Fireplaces

9.22.8.1. Conformance to Standard

1) Factory-built fireplaces and their installation shall conform to CAN/ULC-S610-M, "Factory-Built Fireplaces."

9.22.9. Clearance of Combustible Material

9.22.9.1. Clearance to the Fireplace Opening

1) *Combustible* material shall not be placed on or near the face of a fireplace within 150 mm of the fireplace opening, except that where the *combustible* material projects more than 38 mm out from the face of the fireplace above the opening, such material shall be not less than 300 mm above the top of the opening.

9.22.9.2. Metal Exposed to the Interior

1) Metal exposed to the interior of a fireplace such as the damper control mechanism shall have not less than a 50 mm clearance from any *combustible* material on the face of the fireplace where such metal penetrates through the face of the fireplace.

9.22.9.3. Clearance to Combustible Framing

1) Not less than a 100 mm clearance shall be provided between the back and sides of a fireplace and *combustible* framing, except that a 50 mm clearance is permitted where the fireplace is located in an exterior wall.

2) Not less than a 50 mm clearance shall be provided between the back and sides of the smoke chamber of a fireplace and *combustible* framing, except that a 25 mm clearance is permitted where the fireplace is located in an exterior wall.

9.22.9.4. Heat-Circulating Duct Outlets

1) The clearance of *combustible* material above heat-circulating duct outlets from those outlets shall be not less than

a) 300 mm where the *combustible* material projects not less than 38 mm from the face, and

b) 150 mm where the projection is less than 38 mm.

9.22.10. Fireplace Inserts and Hearth-Mounted Stoves

9.22.10.1. Appliance Standard

1) Fireplace inserts and hearth-mounted *stoves* vented through the throat of a fireplace shall conform to ULC-S628, "Fireplace Inserts."

9.22.10.2. Installation

1) The installation of fireplace inserts and hearth-mounted *stoves* vented through the throat of a fireplace shall conform to CAN/CSA-B365, "Installation Code for Solid-Fuel-Burning Appliances and Equipment."

Section 9.23. Wood-Frame Construction

9.23.1. Application

9.23.1.1. Limitations

(See Appendix A.)

<1) This Section applies to constructions where wall, floor and roof planes are generally comprised of lumber frames of small repetitive structural members, or engineered components, and where

a) roof and wall planes are clad, sheathed or braced on at least one side,

b) the small repetitive structural members are spaced not more than 600 mm o.c.,

c) the constructions do not serve as *foundations*,

d) the specified *live load* on supported subfloors and floor framing does not exceed 2.4 kPa, and

e) the span of any structural member does not exceed 12.20 m. (See Appendix A.)>

2) Where the conditions in Sentence (1) are exceeded <for wood constructions>, the design of the framing and fastening shall conform to Subsection 4.3.1.

9.23.2. General

9.23.2.1. Strength and Rigidity

1) All members shall be so framed, anchored, fastened, tied and braced to provide the necessary strength and rigidity.

9.23.2.2. Protection from Decay

1) Ends of wood joists, beams and other members framing into masonry or concrete shall be treated to prevent decay where the bottom of the member is at or below ground level, or a 12 mm air space shall be provided at the end and sides of the member.

2) Air spaces required in Sentence (1) shall not be blocked by insulation, *vapour barriers* or airtight materials.

9.23.2.3. Protection from Dampness

1) Except as permitted in Sentence (2), wood framing members that are not pressure-treated with a wood preservative and that are supported on concrete in contact with the ground or *fill* shall be separated from the concrete by not less than 0.05 mm polyethylene film or Type S roll roofing.

2) Dampproofing material referred to in Sentence (1) is not required where the wood member is at least 150 mm above the ground.

9.23.2.4. Lumber

1) Lumber shall conform to Subsection 9.3.2.

9.23.3. Fasteners

9.23.3.1. Standards for Nails and Screws

1) Unless otherwise indicated, nails specified in this Section shall be common steel wire nails or common spiral nails, conforming to CSA B111, "Wire Nails, Spikes and Staples."

2) Wood screws specified in this Section shall conform to ANSI/ASME B18.6.1, "Wood Screws (Inch Series)." (See Appendix A.)

9.23.3.2. Length of Nails

1) All nails shall be long enough so that not less than half their required length penetrates into the second member.

9.23.3.3. Prevention of Splitting

1) Splitting of wood members shall be minimized by staggering the nails in the direction of the grain and by keeping nails well in from the edges. (See Appendix A.)

9.23.3.4. Nailing of Framing

1) Except as provided in Sentence (2), nailing of framing shall conform to Table 9.23.3.4.

2) Where the bottom wall plate or sole plate of an exterior wall is not nailed to joists or blocking in conformance with Table 9.23.3.4., the exterior wall is permitted to be fastened to the floor framing by

a) having plywood, OSB or waferboard sheathing extend down over floor framing and fastened to the floor framing by nails or staples conforming to Article 9.23.3.5., or

b) tying the wall framing to the floor framing by galvanized-metal strips

i) 50 mm wide,

ii) not less than 0.41 mm thick,

iii) spaced not more than 1.2 m apart, and

iv) fastened at each end with at least two 63 mm nails.

Table 9.23.3.4.
Nailing for Framing
Forming Part of Sentence 9.23.3.4.(1)

Construction Detail	Minimum Length of Nails, mm	Minimum Number or Maximum Spacing of Nails
Floor joist to plate – toe nail	82	2
Wood or metal strapping to underside of floor joists	57	2
Cross bridging to joists	57	2 at each end
Double header or trimmer joists	76	300 mm (o.c.)
Floor joist to stud (balloon construction)	76	2
Ledger strip to wood beam	82	2 per joist
Joist to joist splice (See also Table 9.23.13.8.)	76	2 at each end