NAVIGATING THE NIGHTMARE OF HEARTH SYSTEM INSPECTIONS

HIABC Conference & AGM
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Energy
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Columbia

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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.



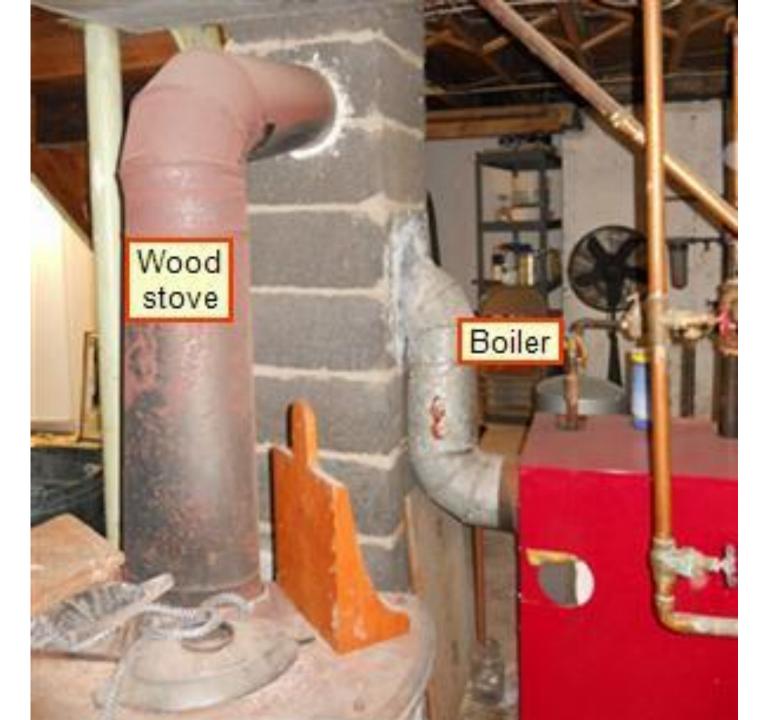
9.21.1.2. CHIMNEY OR FLUE PIPE WALLS

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



9.21.1.2. CHIMNEY OR FLUE PIPE WALLS

3) A chimney flue that serves a solid-fuelburning appliance shall not be connected to an oil-burning appliance unless the solidfuel-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.



9.21.3.1. 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.





9.21.3.2. JOINTS IN CHIMNEY LINERS

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







9.21.3.8 SPACES BETWEEN LINERS AND SURROUNDING MASONRY

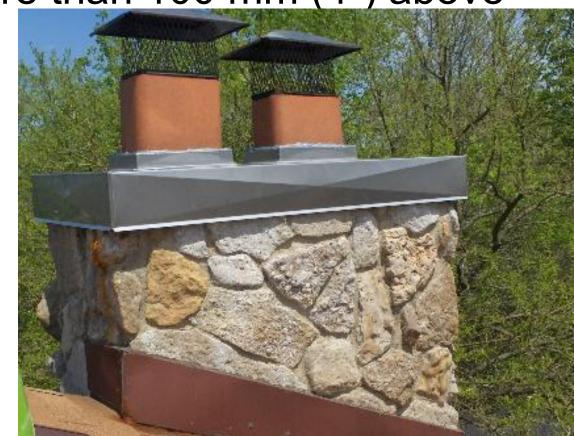
- 1) A space not less than 10 mm wide shall be left between a chimney liner and surrounding masonry.
- 2) The space required in Sentence (1) shall not be filled with mortar.



9.21.3.10. EXTENSION OF CHIMNEY LINERS

1) Chimney liners shall extend from a point not less than 200 mm (8") below the lowest flue pipe connection to a point not less than 50 mm (2") or more than 100 mm (4") above

the chimney cap.



9.21.4.3. **FOOTINGS**

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



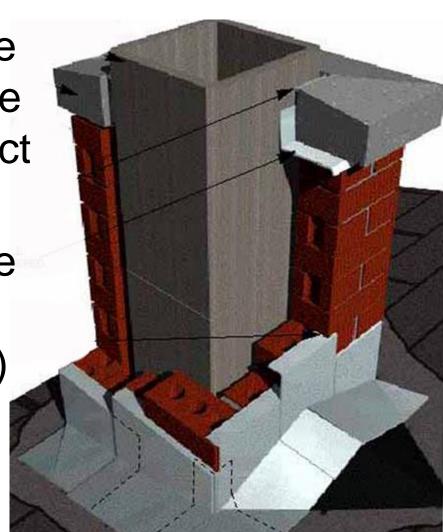


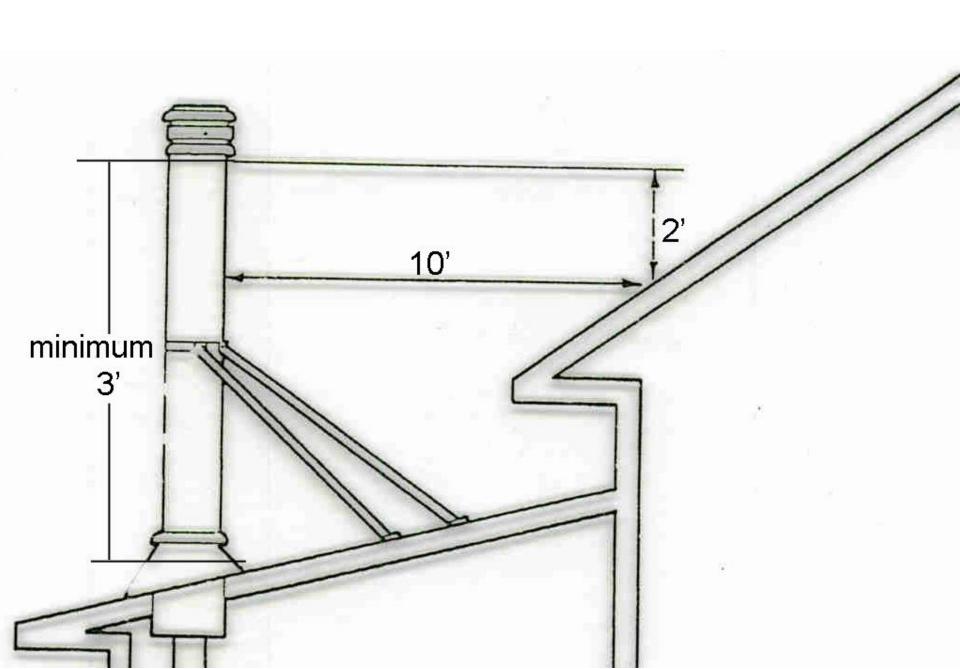


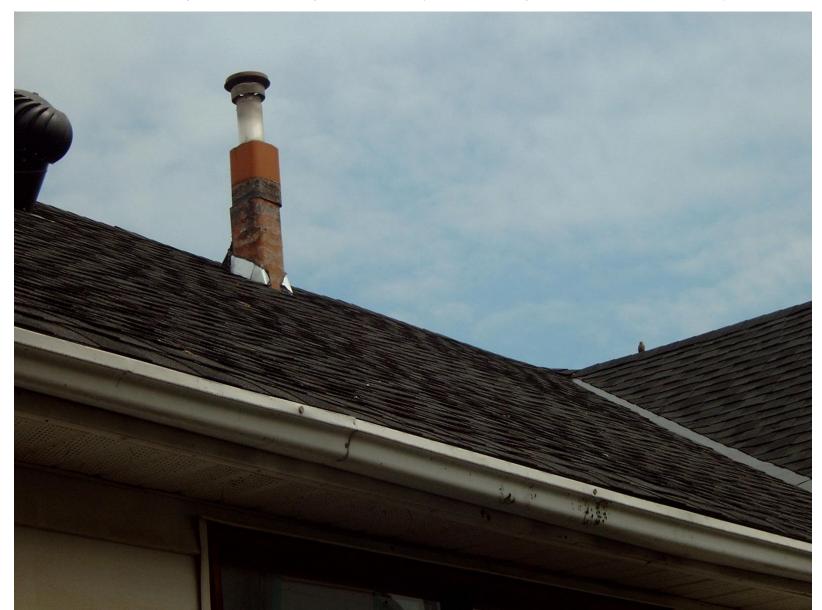
1) A chimney flue shall extend not less than

a) 900 mm (3') above the highest point at which the chimney comes in contact with the roof, and

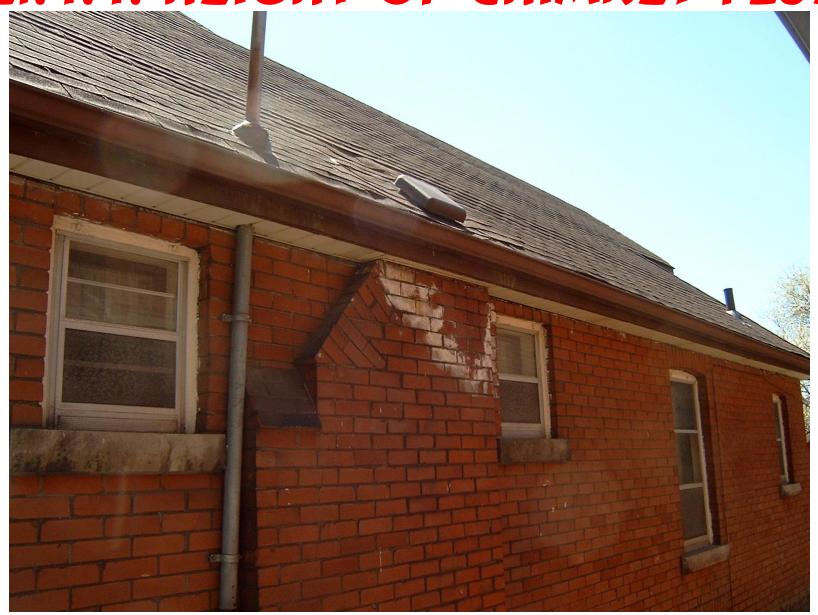
b) 600 mm (2') above the highest roof surface or structure within 3 m (10') of the chimney.











9.21.4.5. LATERAL STABILITY

2) A chimney need not be laterally braced provided:

- a) no horizontal outside dimension is less than 400 mm (16"), and
- b) the chimney extends not more than 3.6 m (12') above a roof or the masonry wall of which it forms a part.



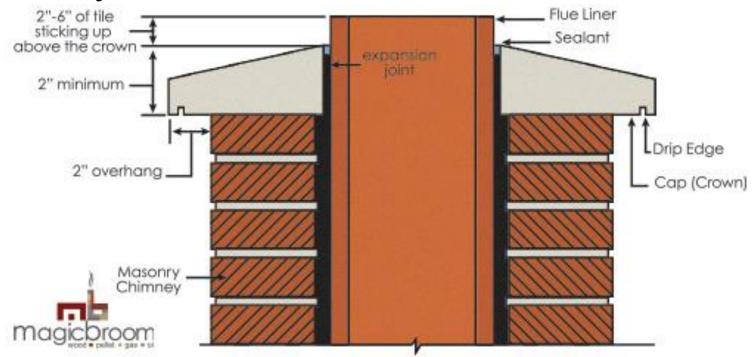
9.21.4.6. CHIMNEY CAPS

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



9.21.4.6. CHIMNEY CAPS

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



9.21.4.6. CHIMNEY CAPS

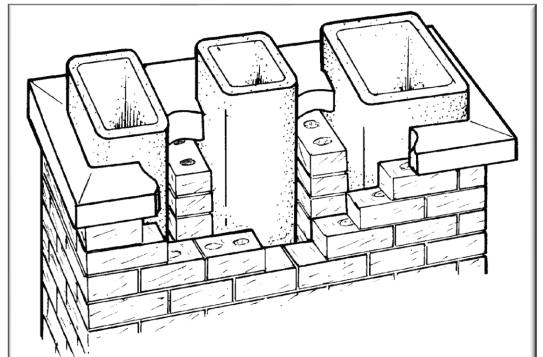
3) Cast-in-place concrete caps shall be separated from the chimney liner by a bond break and be sealed at that location.





9.21.4.9. SEPARATION OF FLUE LINERS

1) Flue liners in the same chimney shall be separated by not less than 75 mm (3") of masonry or concrete exclusive of liners where clay liners are used, or 90 mm (3 ½") of firebrick where firebrick liners are used.



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 (2") for interior chimneys, and
- b) 12 mm (1/2") for exterior chimneys.



9.21.5.I. CLEARANCE FROM COMBUSTIBLE MATERIALS



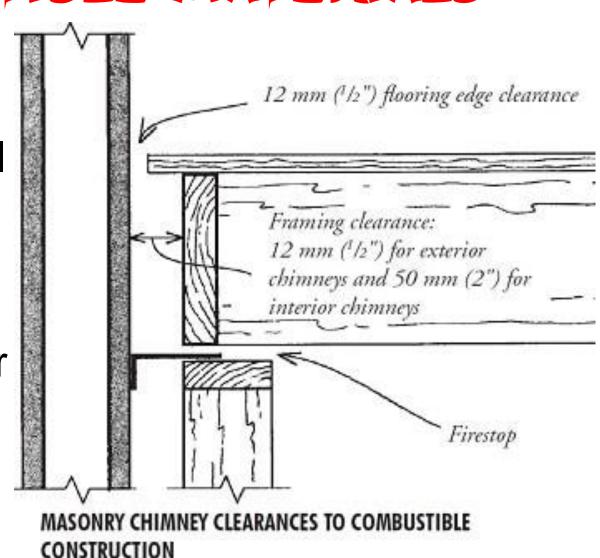
9.21.5.1. CLEARANCE FROM COMBUSTIBLE MATERIALS

2) A clearance of not less than 150 mm (6") shall be provided between a cleanout opening and *combustible* material.

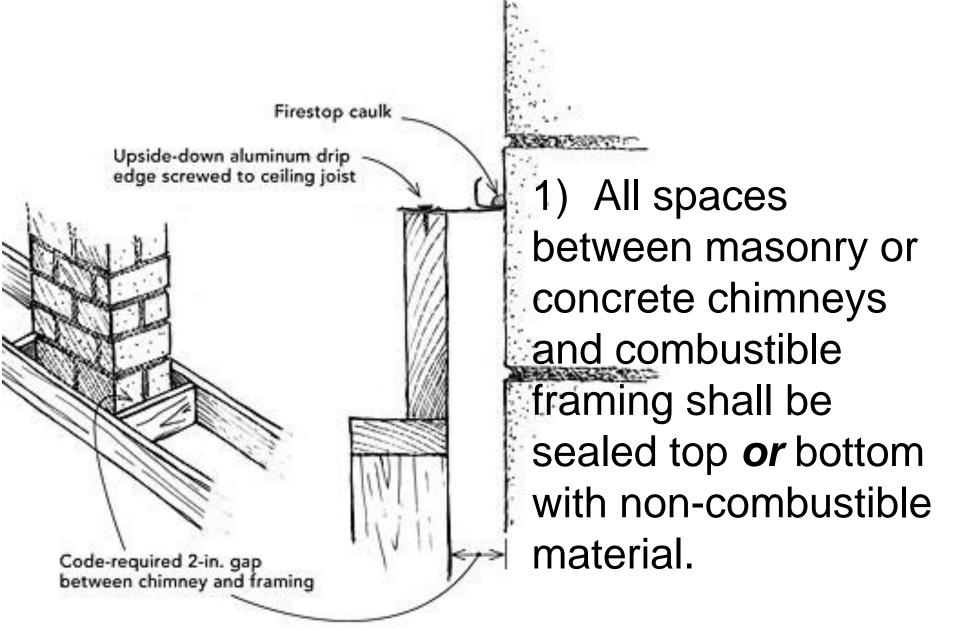


9.21.5.1. CLEARANCE FROM COMBUSTIBLE MATERIALS

3) Combustible flooring and subflooring shall have not less than a 12 mm (1/2") clearance from masonry or concrete chimneys.



9.21.5.2. SEALING OF SPACES



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.



9.22.3.1. 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 (71/2") where a metal liner or a firebrick liner less than 51 mm (2") thick is used.

9.22.3.1. THICKNESS OF WALLS

- 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 (3 1/2") thick, or
- b) hollow masonry units not less than 190 mm ($7 \frac{1}{2}$ ")thick.

9.22.5.1. HEARTH EXTENSION

1) Except as required in Sentence (2), fireplaces shall have a non-combustible hearth extending not less than 400 mm (16") in front of the fireplace opening and not less than 200 mm (8") beyond each side of the fireplace

opening.

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 (4") thick at its supports and, if cantilevered, not less than 50 mm(2") thick at its unsupported edge.



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

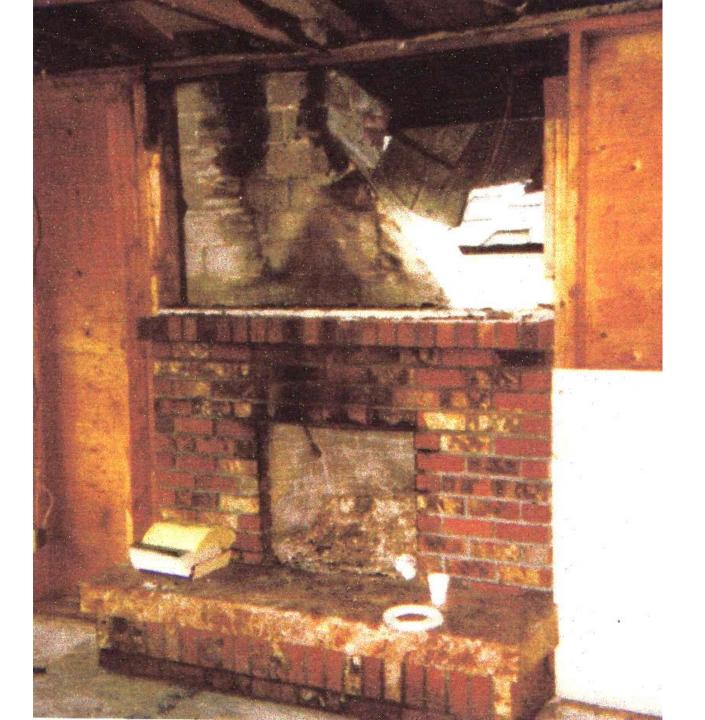




9.22.7. SMOKE CHAMBER

9.22.7.2. Wall Thickness

1) The thickness of masonry walls surrounding the smoke chamber shall be not less than 190 mm (7 $\frac{1}{2}$ ") at the sides, front and back, except that the portions of the back exposed to the outside may be 140 mm (5 $\frac{1}{2}$ ") 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."



9.22.8. FACTORY-BUILT FIREPLACES

A-9.33.10.2.(1) Factory-Built Chimneys

Under the provisions of Article 1.2.1.1. of Division A, certain solid-fuel-burning appliances may be connected to factory-built chimneys other than those specified in Sentence 9.33.10.2.(1) if tests show that the use of such a chimney will provide an equivalent level of safety.

9.33.10.2. FACTORY-BUILT CHIMNEYS

1) Factory-built chimneys serving solid-fuel-burning appliances., and their installation, shall conform to CAN/ULC-S629-M, "650°C Factory-Built Chimneys."



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 (6") of the fireplace opening, except that where the combustible material projects more than 38 mm (1 $\frac{1}{2}$ ") out from the face of the fireplace above the opening, such material shall be not less than 300 mm (12") above the top of the opening.



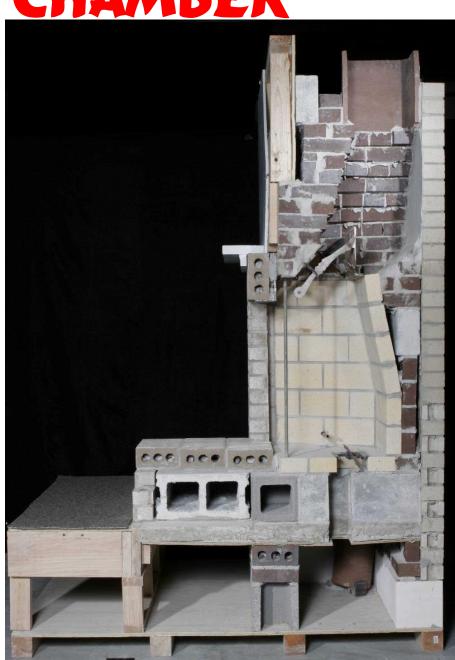




9.22.4. FIRE CHAMBER

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 (12").

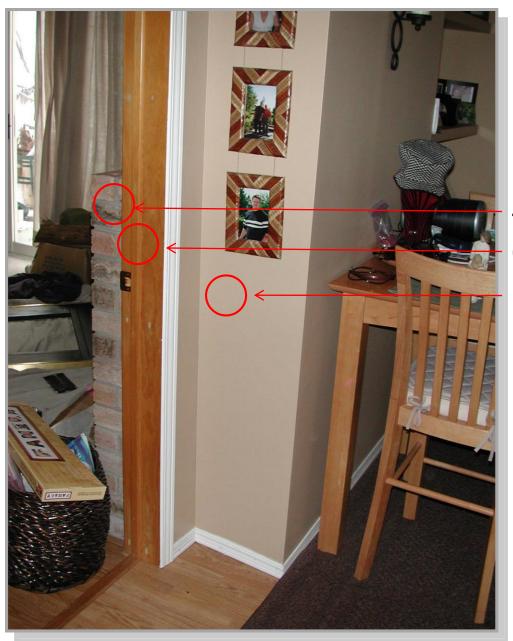


9.22.9.3. CLEARANCE TO COMBUSTIBLE FRAMING

1) Not less than a 100 mm (4") clearance shall be provided between the back and sides of a fireplace and combustible framing, except that a 50 mm (2") clearance is permitted where the fireplace is located in an exterior wall.

9.22.9.3. CLEARANCE TO COMBUSTIBLE FRAMING

2) Not less than a 50 mm (2") clearance shall be provided between the back and sides of the smoke chamber of a fireplace and combustible framing, except that a 25 mm (1") clearance is permitted where the fireplace is located in an exterior wall.



4" face brick
6" door frame
14" wall depth

Actual depth: 24"



9.22.4.1.

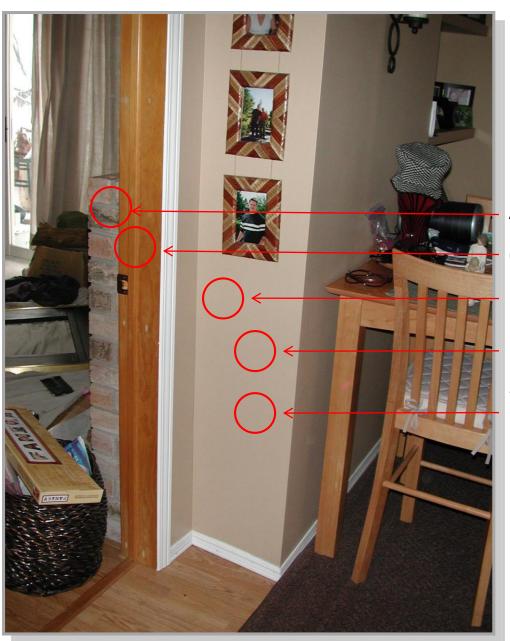
Fire Chamber Dimensions

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

4" face brick 6" door frame 14" wall depth

Actual depth: 24"

16" min firebox



9.22.3.1.1) =Thickness of Walls

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 (7 ½") where a metal liner or a firebrick liner less than 51 mm (2") thick is used.

4" face brick

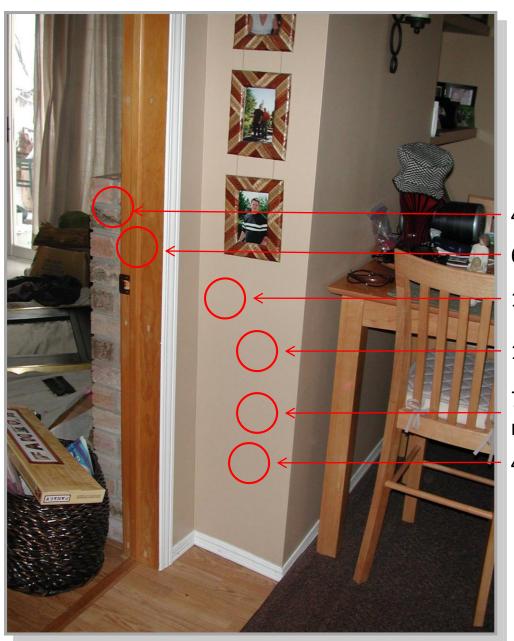
6" door frame

14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness



9.22.9.3. Clearance to Combustible Framing

Not less than a 100 mm clearance shall be provided between the back and sides of a fireplace and combustible framing

4" face brick

6" door frame

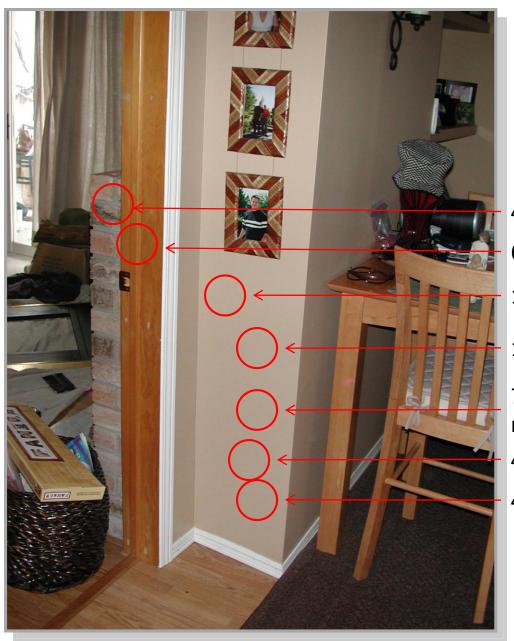
14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness

4" air space



 $2 \times 4 = 3 \frac{1}{2}$ "

Drywall = $\frac{1}{2}$ "

Total = $\frac{4}{2}$ "

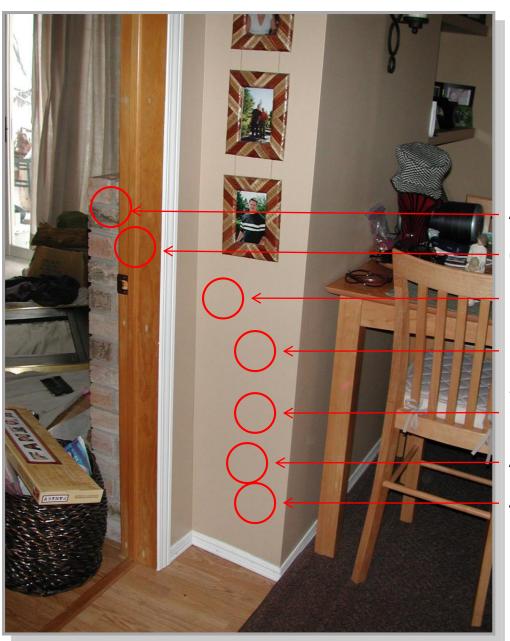
4" face brick 6" door frame 14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wallmasonry thickness4" air space

4" back wall



4" face brick 6" door frame 14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness4" air space4" back wall

Required Depth 31.5"

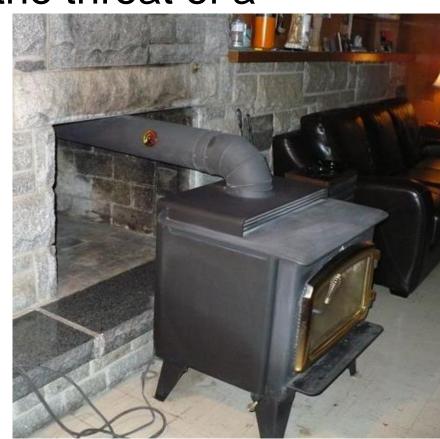
9.22.10.1. Appliance Standard

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."



















CARBON MONOXIDE ALARMS

9.32.4.2 Carbon Monoxide Alarms

- 1) This Article applies to every building that contains a residential occupancy and that also contains
- a) a fuel-burning appliance, or
- b) a storage garage.

CARBON MONOXIDE ALARMS

- 3) Where a room contains a solid-fuel-burning appliance, a CO alarm conforming to CAN/CSA-6.19, "Residential Carbon Monoxide Alarming Devices," shall be mechanically fixed a) at a height recommended by the manufacturer's instructions where those instructions specifically mention solid-fuel-
- b) in the absence of specific instructions related to solid-fuel-burning appliances, on or near the ceiling.

burning appliances, or

Division B - Part 2

- 2.6.1.4. Chimneys, Flues and Flue Pipes
- 1) Every *chimney, flue* and *flue pipe* shall be inspected to identify any dangerous condition
- at intervals not greater than 12 months.
- at the time of addition of any appliance, and
- c) after any *chimney* fire.

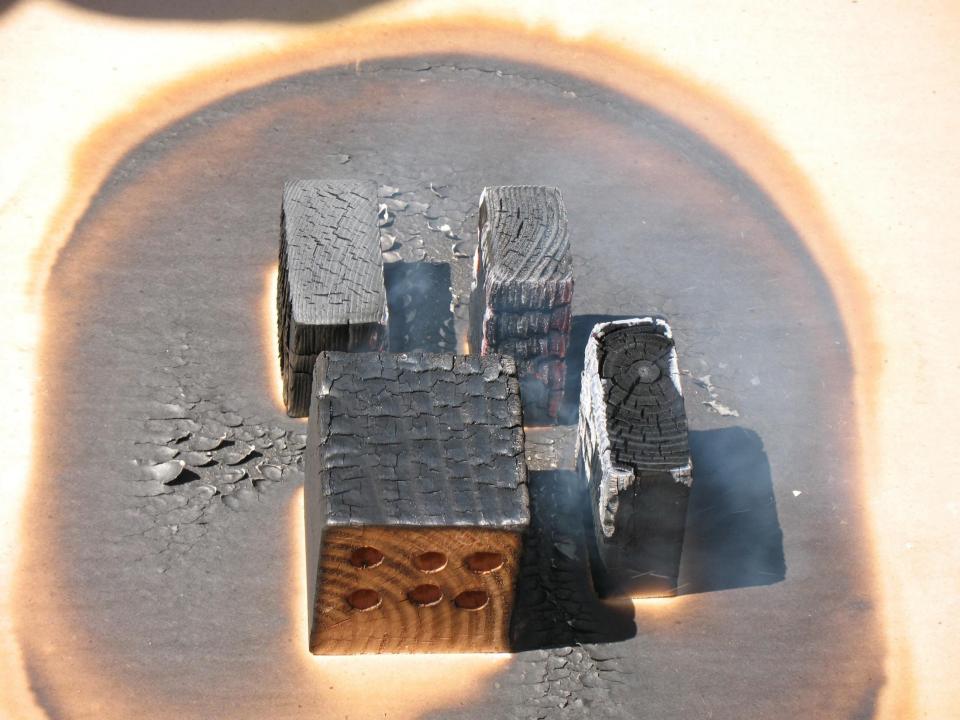
(See Appendix A.)











A-2.6.1.4.(1) External inspection of enclosed chimneys and surrounding construction may require the installation of one or more access openings in the enclosure surrounding the chimney. The presence of scorched or charred adjacent combustible construction will indicate the need for further investigation of the cause of the overheating.

Internal inspection of chimneys can be accomplished by lowering a light from the top, insertion of a light at the bottom or at intermediate locations, together with the use of one or more mirrors.

2.6.1.4 2) Chimneys, flues and flue pipes shall be cleaned as often as necessary to keep them free from dangerous accumulations of combustible deposits.

(See Appendix A.)

A-2.6.1.4.(2) The presence in a chimney of deposits of soot or creosote in excess of 3 mm (1/8") thick will indicate the need for immediate cleaning, possible modification

of burning procedures, and more frequent inspections.



2.6.1.4 3) A chimney, flue, or flue pipe shall be replaced or repaired to eliminate any structural deficiency or decay (See

Appendix A),



2.6.1.4 3)

and all abandoned or unused openings that are not effectively sealed in a manner that would prevent the passage of fire or smoke.



A-2.6.1.4.(3)(a) Structural deficiencies are deviations from required construction, such as the absence of a liner or inadequate design of supports or ties. Instances of decay are cracking, settling, crumbling mortar, distortion, advanced corrosion, separation of sections, or loose or broken supports.

2.6.1.5. Clearances

Required clearances between *chimneys*, flue pipes or appliance and *combustible* construction shall be maintained in conformance with the British Columbia

Building Code.

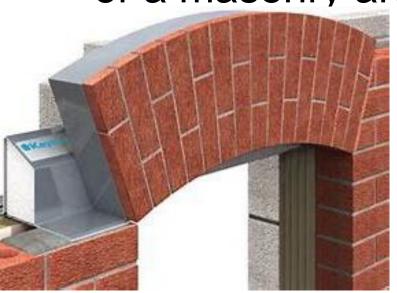


2018 BCBC

Section 9.22. Fireplaces

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

or a masonry arch.



2018 BCBC

- 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."

CAN/CSA-A405-M

5.3.11 Combustion Air Supply

5.3.11.1 General

All fireplaces shall have provision for an adequate supply of combustion air from outside the dwelling.

5.3.11.2

The minimum inside clear diameter of the intake duct shall be 100 mm or equivalent distance.

5.3.11.3

The outlet port shall be positioned as close to the fireplace opening as possible.

5.3.11.4

Except for outlet ports of metal fireplace liners and pre-engineered fireplace systems, outlet ports located in the fire chamber shall be placed at the front of the hearth. Such ports shall be equipped with a noncombustible hood that, when open, points away from the fire, and shall be designed to prevent embers from entering the duct.





9.22.4.1.

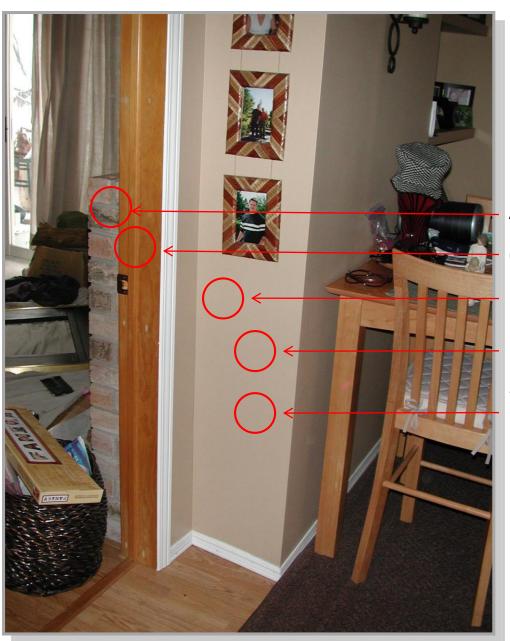
Fire Chamber Dimensions

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

4" face brick 6" door frame 14" wall depth

Actual depth: 24"

16" min firebox



9.22.3.1.1) =Thickness of Walls

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 (7 ½") where a metal liner or a firebrick liner less than 51 mm (2") thick is used.

4" face brick

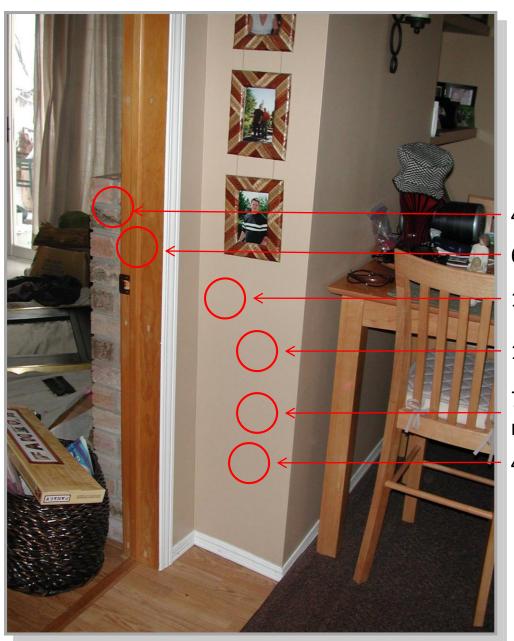
6" door frame

14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness



9.22.9.3. Clearance to Combustible Framing

Not less than a 100 mm clearance shall be provided between the back and sides of a fireplace and combustible framing

4" face brick

6" door frame

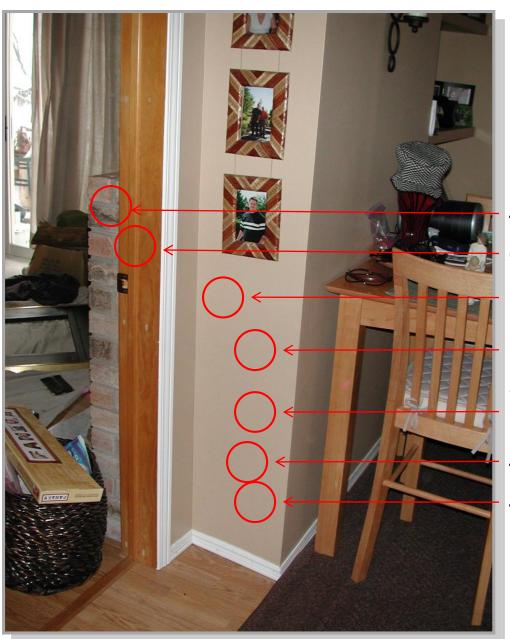
14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness

4" air space

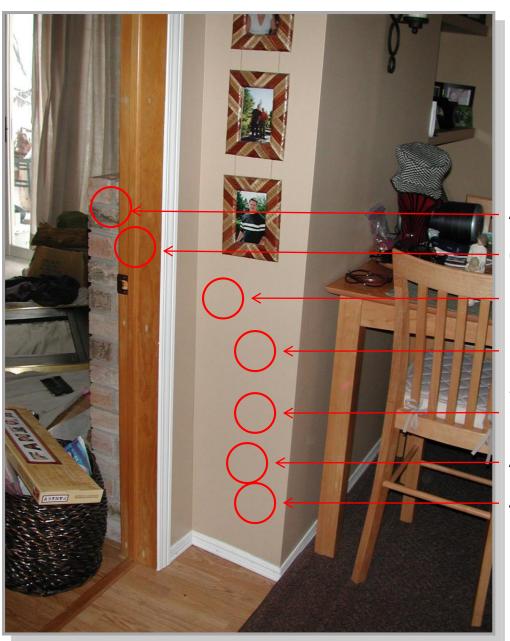


4" face brick
6" door frame
14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness4" air space4" back wall



4" face brick 6" door frame 14" wall depth

Actual depth: 24"

16" min firebox

7.5" rear wall masonry thickness4" air space4" back wall

Required Depth 31.5"













