

ORDINANCE NO. 234-18

AN ORDINANCE TO AMEND AND REENACT SECTION 5-0701 AND TO REPEAL AND REENACT SECTION 5-0702 OF THE REVISED ORDINANCES OF 2000 OF THE CITY OF MAPLETON RELATING TO THE INTERNATIONAL RESIDENTIAL CODE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MAPLETON, NORTH DAKOTA:

SECTION 1. Section 5-0701 of the Revised Ordinances of 2000 of the City of Mapleton is hereby amended and reenacted to read as follows:

5-0701. ADOPTION OF INTERNATIONAL RESIDENTIAL CODE. There is hereby adopted by reference by the City Council, for the purpose of prescribing regulations governing standards, relative to housing in the City of Mapleton, that certain code known as the International Residential Code, recommended and compiled by the International Code Council, being particularly the ~~2009~~ 2015 edition thereof, as the same are now established in said code, a copy of which is on file in the office of the Building Administrator for the City of Mapleton, with the exception of the sections hereinafter set forth affecting local conditions of the City of Mapleton, which sections shall be substituted for and in lieu of like sections or paragraphs in said International Residential Code; the City Council of said City of Mapleton, by this section hereby approves and adopts such rules and regulations, so modified, for the use and application within the city limits of Mapleton, North Dakota, as well as for any area within the extraterritorial zoning jurisdiction of the City. Provided, that any amendments of the ~~2009~~ 2015 edition of the Code may be adopted by the City by resolution.

SECTION 2. Section 5-0702 of the Revised Ordinances of 2000 of the City of Mapleton is hereby repealed and reenacted to read as follows:

5-0702. AMENDMENT TO INTERNATIONAL RESIDENTIAL CODE. The International Residential Code, as adopted in Section 5-0701 is hereby changed and amended as follows:

SECTION R101.1 is hereby amended to read as follows:

R101.1 Title. These regulations shall be known as the *Residential Code for One- and Two-family Dwellings* of ~~[NAME OF JURISDICTION]~~ the City of Mapleton, and shall be cited as such and will be referred to herein as “this code.”

SECTION R104.8 is hereby amended to read as follows:

R104.1 General. The *building official*, member of the board of appeals or employee charged with the enforcement of this code. While acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be ~~civily or criminally~~ rendered liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties. Any suit instituted against an officer or employee

because of an act or omission performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be afforded all the protection provided by the city's insurance pool and immunities and defenses provided by other applicable state and federal laws and shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The *building official* or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

This code shall not be construed to relieve from or lessen the responsibility of any person owning, operating, or controlling any building or structure for any damages to persons or property caused by defects, nor shall the code enforcement agency or the city be held as assuming any such liability by reason of the inspection authorized by this code or any permits or certificates issued under this code.

SECTION R104.8.1 is hereby deleted in its entirety.

SECTION R104.10.1 is hereby deleted in its entirety.

SECTION R105.2 is hereby amended to read as follows:

R105.2 Work exempt from permit. Exemptions . . .

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses, and similar uses, provided the floor area is not greater than 120 square feet (11 m²).
2. Fences not over ~~7 8.5~~ feet (~~2134~~ 2591 mm) high.
3. Retaining walls that are not . . .
7. ~~Prefabricated~~ Swimming pools that are less than 24 inches (610 mm) deep. . . .
10. Decks not exceeding ~~200~~ 120 square feet (~~18.58~~ m²) in area, that are not more than ~~30~~ 7 inches (~~762 mm~~) above *grade* at any point, are not attached to a dwelling and do not serve the exit door required by Section R311.4.

SECTION R105.3.1 is hereby deleted in its entirety.

SECTION R106.1.4 is hereby deleted in its entirety.

SECTION R108.3 is hereby amended to read as follows:

R108.3 Building permit valuations. Building *permit* valuation shall include total value of the work for which a *permit* is being issued, such as electrical, gas, mechanical, plumbing *equipment* and other permanent systems, including materials and labor. If, in the opinion of the building official, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed

estimates to meet the approval of the building official. Final building permit valuation shall be set by the building official.

SECTION R201.3 is hereby amended to read as follows:

Section R201.3 Terms defined in other codes. Where terms are not defined in this code such terms shall have meanings ascribed to them as in other code publications of the International Code Council. Wherever the term “International Plumbing Code” and/or “International Private Sewage Disposal Code” is used in the International Residential Code, it shall mean the North Dakota State Plumbing Code. Wherever the term ‘ICC Electrical Code’ is used in the International Residential Code, it shall mean the National Electrical Code together with the North Dakota State Wiring Standards. Wherever reference is made to flood plain requirements, it shall mean the Mapleton Flood Damage Prevention Ordinance together with the Mapleton Flood Proofing Code.

TABLE R301.2.1 is hereby amended to read as follows:

GROUND SNOW LOAD	WIND SPEED				SEISMIC DESIGN CATEGORY ^f	SUBJECT TO DAMAGE FROM		
	Speed ^d (mph)	Topographic effects ^k	Special wing region ^l	Wind- borne debris zone ^m		Weathering ^a	Frost line depth ^b	Termite ^c
50 psf	115	no	no	no	Zone A	Severe	4.5 feet	none

WINTER DESIGN TEMP ^e	ICE BARRIER UNDERLAYMENT REQUIRED	Flood HAZARDS ^g	AIR FREEZING INDEX ^h	MEAN ANNUAL TEMP ^j
-18	YES	1978	4000	41.5

SECTION R301.2.4 is hereby deleted in its entirety.

(Remainder of page intentionally left blank)

TABLE R302.1(1) is hereby amended to read as follows:

**TABLE 302.1(1)
EXTERIOR WALLS**

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls ^c	Fire-resistance rated	1 hour - tested in accordance with ASTM E 119 or UL 263 with exposure from both sides	< 5 <u>3</u> feet
	Not fire-resistance rated	0 hours	≥ 5 <u>3</u> feet
Projections	Not allowed	N/A	< 2 feet
	Fire-resistance rated	1 hour on the underside ^{a b}	≥ 2 feet to < 5 <u>3</u> feet
	Not fire-resistance rated	0 hours	5 <u>3</u> feet
Openings	Not allowed	N/A	< 3 feet
	25% Maximum of Wall Area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section 304.2	< 3 feet
		None Required	3 feet

For SI: 1 foot = 304.8 mm.

N/A = Not Applicable.

a. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave if fireblocking is provided from the all top plate to the underside of the roof sheathing.

b. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave provided that gable vent openings are not installed.

c. A common 2-hour fire-resistance-rated wall assembly is permitted for two or more family dwellings where the common wall is on a property line provided such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. Electrical installations shall be installed in accordance with national Electrical Code together with the North Dakota State Wiring Standards. Penetrations of electrical outlet boxes shall be in accordance with Section 302.4

SECTION R302.2 is hereby amended to read as follows:

R302.2 Townhouses. Common walls separating *townhouses* . . .

1. . . .

2. Where a fire sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly or two 1-hour-fire-resistance wall assemblies tested in accordance with ASTM E 119 or UL 263

SECTION R302.5.1 is hereby amended to read as follows:

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb- core steel doors not less than 13/8 inches (35 mm) thick, ~~or 20-minute fire-rated doors, equipped with a self-closing device.~~

SECTION R303.4 is hereby deleted in its entirety.

SECTION R307.1 is hereby amended to read as follows:

Section R307.1 Space required. Fixtures shall be spaced in accordance with ~~Figure R307.1, and in accordance with the requirements of Section P2705.1~~ the North Dakota State Plumbing code and per Figure R30701, with the exception of the clearance in front of water closets and bidets which shall be 24 inches.

SECTION R309.3 is hereby deleted in its entirety.

SECTION R310.2.2 is hereby amended to read as follows:

R310.2.2 Window sill height. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches (1118 mm) above the floor; where the sill height is below grade, it shall be provided with a window well in accordance with Section R310.2.3. Sill height shall be measured from the finished floor to the bottom of the clear opening.

Exception: Below grade emergency escape and rescue windows may have a maximum sill height of 48 inches.

SECTION R310.2.3.1 is hereby amended to read as follows:

R310.2.3.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position, ~~or shall be equipped with a permanently-attached platform at least 30 inches by 16 inches. The maximum distance between the top of the window well and a platform shall be 42 inches and shall not impede the operation of the window.~~ Ladders or steps required by this section shall not be required to comply with Sections R311.7 and R311.8. Ladders or rungs shall have an inside width of not less than 12 inches (305 mm), shall project not less than 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

Exception: Terraced window wells with a maximum of 24 inches per vertical rise and minimum 12 inches per horizontal projection on each level shall also be allowed.

SECTION R311.3 is hereby amended to read as follows:

R311.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall be not less than the door served. Every landing shall have a dimension of not less than 36 inches (914 mm) measured in the direction of travel. The slope at exterior landings shall not exceed 1/4 unit vertical in 12 units horizontal (2 percent).

Exceptions:

1. Exterior balconies less than 60 square feet (5.6 m²) and only accessible from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.
2. A landing is not required on the outside of exterior doors other than the required egress door, where a stairway with a total rise of less than 30 inches (762 mm) is located on the exterior side of the door, provided the door does not swing over the stairway.

SECTION R311.3.1 is hereby amended to read as follows:

R311.3.1 Floor elevations at the required egress doors. Landings or finished floors at the required egress door shall not be more than 1 1/2 inches (38 mm) lower than the top of the threshold.

Exception: The landing or floor on the exterior side shall not be more than ~~7 3/4~~ 8 inches (~~196 mm~~) below the top of the threshold provided the door does not swing over the landing or floor.

Where exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

SECTION R311.3.2 is hereby amended to read as follows:

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than ~~7 3/4~~ 8 inches (~~196 mm~~) below the top of the threshold.

Exception: A ~~top~~ landing is not required where a stairway ~~of not more than two risers~~ with a total rise of not less than 30 inches (762 mm) is located on the exterior side of the door, provided that the door does not swing over the stairway.

SECTION R311.7.5.1 is hereby amended to read as follows:

Section R311.7.5.1 Risers. The riser height shall be not more than ~~7 3/4~~ 8 inches (~~196 mm~~). The riser shall . . .

SECTION R311.7.5.2 is hereby amended to read as follows:

Section R311.7.5.2 Treads. The tread depth shall be not less than ~~±0 8~~ inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exception: Where a landing is not provided or required by Section R311.3, R311.3.2 or R311.7.6, the top tread of a stair serving exterior doors other than the required exit door, and in-swinging doors opening into an attached garage, shall be permitted to exceed the smallest tread by more than 3/8 inch (9.5 mm). Such a tread shall be at least 18 inches (457 mm) measured in the direction of travel.

SECTION R311.7.5.2.1 is hereby amended to read as follows:

R311.7.5.2.1 Winder treads. Winder treads shall have a minimum tread depth of ~~±0 9~~ inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a read depth of . . .

SECTION R311.7.6 is hereby amended to read as follows:

Section R311.7.6 Landings for stairways. There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of the flight served. Landings of shapes other than square or rectangular shall be permitted provided that the depth at the walk line and the total area is not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches (914 mm).

Exception:

1. A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs.
2. A landing is not required at the top of an exterior flight of stairs with a total rise of less than 30 inches, provided the door does not swing over the stairway.

SECTION R312.1.1 is hereby amended to read as follows:

R312.1.1 Where Required. *Guards* shall be located along open-sided walking surfaces, ~~including~~ stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below. ~~at any point within 36 inches (914 mm) horizontally to the edge of the open side.~~ Insect screening shall not be considered as a *guard*.

SECTION R313.1 is hereby amended to read as follows:

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in townhouses where the townhouses are located on a private street or private fire department access road that is required to greater than 150 feet in length as required by Section 503 of the International Fire Code.

SECTION R313.1.1 is hereby amended to read as follows:

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with ~~Section P2904 or NFPA 13D, NFPA 13R or NFPA 13.~~

SECTION R313.2 is hereby deleted in its entirety.

SECTION R313.2.1 is hereby deleted in its entirety.

SECTION R314.3 is hereby amended to read as follows:

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
5. In dwelling units where the ceiling height of a room open to the hallway serving the bedrooms exceeds that of the hallway by 24 inches (610 mm) or more, smoke alarms shall be installed in the hallway and the adjacent room.

SECTION R322 is hereby deleted in its entirety.

SECTION R326 is hereby deleted in its entirety.

SECTION R401.1 is hereby amended to read as follows:

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas ~~as established by Table R301.2(1)~~ shall meet the provisions of Section R322 the Mapleton Flood Proofing Code (Section 5-04) and any other applicable requirements of the City of Mapleton. Wood foundations shall be designed and installed in accordance with AWC PWF.

Exception: The provisions of this chapter shall be permitted . . .

SECTION R401.3 is hereby amended to read as follows:

R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other *approved* point of collection that does not create a hazard. *Lots* shall be graded to drain surface water away from foundation walls. ~~The grade shall fall a minimum of 6 inches (152mm) within the first 10 feet (3048mm).~~

~~Exception: Where lot lines, walls, slopes or other physical barriers prohibit 6 inches (152mm) of fall within 10 feet (3048mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building.~~

SECTION R403.1.4.1 is hereby amended to read as follows:

Section R403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extended below the frost line . . .

Exceptions:

1. Protection of freestanding *accessory structures* ~~with an area of 600 square feet (56 m²) or less of light framed construction and an eave height of 10 feet (3048 mm) or less~~ shall not be required.
2. Protection of freestanding *accessory structures* with an area of 400 square feet (37 m²) or less, of other than light-framed construction, ~~with an eave height of 10 feet (3048 mm) or less~~ shall not be required.
3. Decks ~~not supported by a dwelling~~ need not be provided with footings that extend below the frost line.

Footings shall not bear on frozen soil unless the frozen condition is permanent.

SECTION R404.1.3.2 is hereby amended to read as follows:

R404.1.3.2 Reinforcement for foundation walls. Concrete foundation walls shall be laterally supported at the top and bottom. Horizontal reinforcement shall be provided in accordance with Table R404.1.2(1). Vertical reinforcement shall be provided in accordance with Table R404.1.2(2), R404.1.2(3), R404.1.2(4), R404.1.2(5), R404.1.2(6), R404.1.2(7), ~~or R404.1.2(8), or Table R404.1.2(10) and Figure R404.1.2(1) or Table R404.1.2(11) and Figure R404.1.2(2).~~ Vertical reinforcement for flat *basement* walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.2(9). For *basement* walls supporting above grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.2(2) through R404.1.2(8) or by Section R608.6 for the above-grade wall. In buildings assigned to Seismic Design Category D₀, D₁ or D₂, concrete foundation walls shall also comply with Section R404.1.4.2.

Table R404.1.2(10) is hereby adopted as follows:

Table R404.1.2(10)

Foundation Wall Reinforcing

Active Pressure = 45pcf

Minimum Reinforcement for Concrete		
Foundation Walls		
Wall Height (h) feet	Wall Thickness (t) inches	Vertical Reinforcing
8	8	#4 @ 24" o.c. #5 @ 40" o.c.
	10	#4 @ 30" o.c. #5 @ 50" o.c.
9	8	#4 @ 18" o.c. #5 @ 28" o.c.
	10	#4 @ 24" o.c. #5 @ 36" o.c.
10	10	#4 @ 16" o.c. #5 @ 26" o.c.

Notes:

1. Chart is based on an active soil pressure of 45 pounds per cubic foot (pcf).
2. Reinforcing steel shall be ASTM A615 Fy – 60,000 pounds per square inch (psi).
3. The vertical reinforcing bars are to be located on the inside face.
4. Minimum concrete strength $F_c^1 = 3,000$ pounds per square inch (psi).
5. Backfill shall not be placed until first floor framing and sheathing is installed and fastened or adequately braced and the concrete floor slab is in place or the wall is adequately braced.

(Remainder of page intentionally left blank.)

TABLE R404.1.2(11) is added as follows:

Table R404.1.2(11)

Foundation Wall Reinforcing

Active Pressure = 65 pcf

Minimum Reinforcement for Concrete		
Foundation Walls		
Wall Height (h) Feet	Wall Thickness (t) inches	Vertical Reinforcing
8	8	#4 @ 18" o.c. #5 @ 26" o.c. #6 @ 40" o.c.
	10	#4 @ 24" o.c. #5 @ 36" o.c. #6 @ 52" o.c.
9	8	#4 @ 12" o.c. #5 @ 18" o.c. #6 @ 26" o.c.
	10	#4 @ 16" o.c. #5 @ 24" o.c. #6 @ 36" o.c.
10	10	#4 @ 12" o.c. #5 @ 18" o.c. #6 @ 24" o.c.

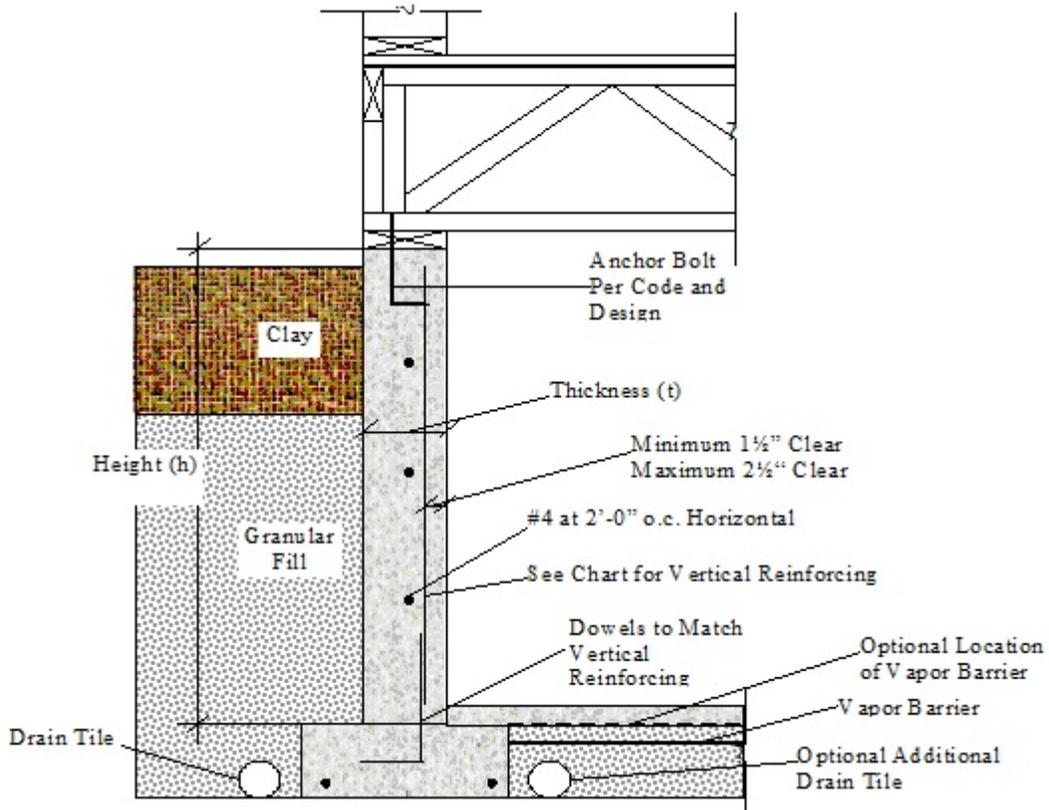
Notes:

1. Chart is based on an active soil pressure of 65 pounds per cubic foot (pcf).
2. Reinforcing steel shall be ASTM A615 Fy – 60,000 pounds per square inch (psi).
3. The vertical reinforcing bars are to be located on the inside face.
4. Minimum concrete strength $F_c^1 = 3,000$ pounds per square inch (psi).

5. Backfill shall not be placed until first floor framing and sheathing is installed and fastened or adequately braced and the concrete floor slab is in place or the wall is adequately braced.

Figures R404.1.2(1) is hereby adopted as follows:

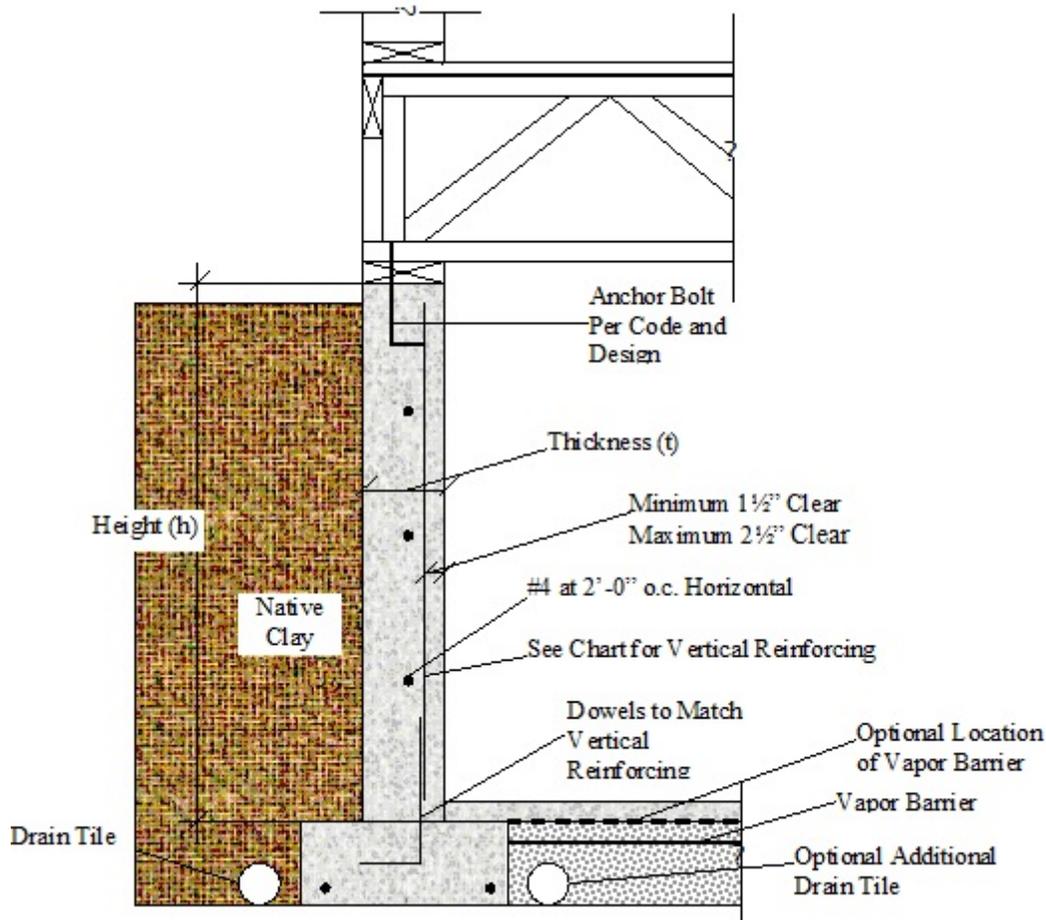
FIGURE R404.1.2(1)



(Remainder of page intentionally left blank)

FIGURE 404.1.2(2) is hereby adopted as follows:

FIGURE R404.1.2(2)



SECTION R405.2.3 is hereby amended to read as follows:

Section R405.2.3 Drainage system. In other than Group I soils, a sump shall be provided to drain the porous layer and footings. The sump shall be not less than ~~24~~ 18 inches (~~610 mm~~) in diameter or ~~20~~ 16 inches square (~~0.0129m²~~), shall extend not less than 24 inches (610 mm) below the bottom of the *basement* floor and shall be capable of positive gravity or mechanical drainage to remove any accumulated water. The drainage system shall discharge into an *approved* sewer system or to daylight.

SECTION R507.8.1 is hereby deleted in its entirety.

SECTION R602.7.2 is hereby amended to read as follows:

R602.7.2 Rim board headers. Rim board header size, material and span shall be in accordance with Table R602.7(1). Rim board headers shall be constructed in accordance with Figure R602.7.2 and shall be supported at each end by full-height studs. ~~The number of full-height studs at each end shall be not less than the number of studs displaced by half of the header span based on the maximum stud spacing in accordance with Table R602.3(5).~~ Rim board headers supporting concentrated loads shall be designed in accordance with accepted engineering practice.

SECTION R602.7.5 is hereby amended to read as follows:

R602.7.5 Supports for headers. Headers shall be supported on each end with one or more jack studs or with approved framing anchors in accordance with Table R602.7(1) or R602.7(2). The full-height stud adjacent to each end of the header shall be end nailed to each end of the header with four-16d nails (3.5 inches × 0.135 inches). ~~The minimum number of full-height studs at each end of a header shall be in accordance with Table R602.7.5.~~

TABLE R602.7.5 is hereby deleted in its entirety.

SECTION R602.10 is hereby amended to read as follows:

R602.10 Braced wall lines. For the purpose of determining the amount and location of bracing required in each story level of a building, *braced wall lines* shall be designated as straight lines in the building plan placed in accordance with this section.

Exception: The wall bracing requirements of Section R602.10 of the 2006 International Residential Code may be used as an alternative to this section.

SECTION R703.7.2 is hereby amended to read as follows:

Section R703.7.2 Plaster. Plastering with portland cement plaster shall be not less than three coats where applied over metal lath or wire lath and shall be not less than two coats where applied over masonry, concrete, pressure-preservative treated wood or decay-resistant wood as specified in Section R317.1 or gypsum backing. If the plaster surface is completely covered by veneer or other facing material or is completely concealed, plaster application need be only two coats, provided the total thickness is as set forth in Table 702.1(1). Approved decorative coatings applied to a concrete or masonry surface shall be installed in accordance with the manufacturer's installation instructions.

SECTION R806.1 is hereby amended to read as follows:

R806.1 Ventilation required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilation openings shall have a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Ventilation openings having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with

corrosion-resistant wire cloth screening, hardware cloth or similar material with openings having a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Openings in roof framing members shall conform to the requirements of Section R802.7. Required ventilation openings shall open directly to the outside air.

Exception: Attic ventilation shall not be required when determined to not be necessary by the building official due to atmospheric or climatic conditions.

SECTION R905.2.5 is hereby amended to read as follows:

R905.2.5 Fasteners. Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12 gage [0.105 inch (3 mm)] shank with a minimum 3/8 inch diameter (9.5 mm) head, complying with ASTM F 1667, of a length to penetrate through the roofing materials and not less than 3/4 inch (19.1 mm) into the roof sheathing or other fasteners as approved by the building official and shingle manufacturer. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing.

SECTION R908 is hereby deleted in its entirety and relocated to the Appendices as Appendix R.

TABLE N1102.1.2 (R402.1.2) is hereby amended to read as follows:

TABLE N1102.1.2 (R402.1.2) INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT ^a										
CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR ^b	GLAZED FENESTRATION SHGC ^{b,c}	CEILING R-VALUE	WOOD FRAMED WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^e WALL R-VALUE	SLAB ^d R-VALUE AND DEPTH	CRAWL SPACE ^c WALL R-VALUE
1	NR	0.75	0.25 ^j	30	13	3/4	13	0	0	0
2	0.40	0.65	0.35	38	13	4/6	13	0	0	0
3	0.35	0.55	0.35	38	20 or 13 + 5 ^h	7/13	19	5/13 ^f	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13 + 5 ^h	8/13	19	10/13	10, 2 ft.	10/13
5 and Marine 4	0.32	0.55	NR	39	20 or 13 + 5 ^h	13/17	30 ^f	15/19	10, 2 ft.	15/19
6	0.32	0.55	NR	19	20 + 5 or 13 + 10^g 20 or 13 + 5 ^{h,i}	15/20	30 ^e	15/19 10/13	10, 4 ft.	15/19
7 and 8	0.32	0.55	NR	49	20 + 5 or 13 + 10^g 20 or 13 + 5 ^{h,i}	19/21	38 ^e	15/19 10/13	10, 4ft	15/19

TABLE N1102.1.4 (R402.1.4) is hereby amended to read as follows:

TABLE N1102.1.4 (R402.1.4) EQUIVALENT U-FACTORS ^a								
CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR ^b	CEILING U-FACTOR	WOOD FRAMED WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT ^c WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.91 ^c	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045 <u>0.057</u> _i	0.060	0.033	0.05 <u>0.059</u>	0.055
7 and 8	0.32	0.55	0.026	0.045 <u>0.057</u>	0.057	0.028	0.05 <u>0.059</u>	0.055

SECTION N1102.1 (R402.4) is hereby amended to read as follows:

N1102.4 (R402.4) Air leakage (Mandatory). *The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections N1102.4.1 through N1102.4.5. Dwelling units of R-2 Occupancies and multiple single family dwellings shall be permitted to comply with IECC C402.5.*

SECTION N1102.4.4.2 (R402.4.1.2) is hereby amended to read as follows:

N1102.4.1.2 (R402.4.1.2) Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding five air changes per hour in Climate Zones 1 and 2, and ~~three air changes per hour in Climate Zones 3 through 8.~~ Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and ...

SECTION N1102.4.1.3 (R402.4.1.3) is hereby added to read as follows:

N1102.4.1.3 (R402.4.1.3) Visual inspection option. Building envelope tightness and insulation shall be considered acceptable when installed in accordance with Table N1102.4.1.1 (R402.4.1.1) – “Air Barrier and Insulation” and has been field verified.

SECTION N1103.3.2 (R403.3.2) is hereby amended to read as follows:

N1103.3.2 (R403.3.2) Sealing (Mandatory). Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or Section M1601.4.1 of this code, as applicable.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams ~~of other than the snap-lock and button-lock types.~~

SECTION N1103.3.5 (R403.3.5) is hereby amended to read as follows:

N1103.3.5 (R403.3.5) Building cavities (Mandatory). Building framing cavities shall not be used as supply ducts ~~or plenums.~~

SECTION N1103.6 (R403.6) is hereby amended to read as follows:

N1103.6 (R403.6) Mechanical Ventilation (Mandatory). The building shall be provided with ventilation that meets the requirements of Section M1507 of this code or the *International Mechanical Code*, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

TABLE N1105.5.2 (1) [R405.5.2 (1)] is hereby amended to read as follows:

TABLE N1105.5.2(1) [R405.5.2(1)] SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS		
BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
...
Air exchange rate	Air leakage rate of 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA + 7.5 \times (Nbr + 1)$ where: CFA = conditioned floor area Nbr = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate ^a . The mechanical ventilation rate ^b shall be in addition to the air leakage rate and shall be as proposed.
...

SECTION M1301.1.1 is hereby deleted in its entirety.

SECTION M1401.5 is hereby deleted in its entirety.

SECTION M1502.4.2 is hereby amended to read as follows:

M1502.4.2 Duct installation. Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints ~~shall be sealed in accordance with Section M1601.4.1 and shall may~~ be mechanically fastened. Ducts shall not be joined with screws ~~or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct.~~

SECTION M1503.4 is hereby amended to read as follows:

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m³/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate in excess of 400 cfm. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced

SECTION M1506.3 is hereby amended read as follows:

M1506.2 Exhaust openings. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable ~~and non-operable~~ openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake. Openings shall comply with Sections R303.5.2 and R303.6.

SECTION M1601.4.1 is hereby amended to read as follows:

M1601.4.1 Joints, seams and connections. Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed ...

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and

locking-type joints and seams ~~of other than the snap-lock and button-lock types.~~

SECTION M1601.4.10 is hereby deleted in its entirety.

SECTION M1701.2 is hereby deleted in its entirety.

SECTION M1801.1 is hereby amended to read as follows:

M1801.1 Venting required. Fuel-burning *appliances* shall be vented to the outdoors in accordance with their *listing* and *label* and manufacturer's installation instructions ~~except *appliances* listed and labeled for unvented use.~~ Venting systems shall consist of *approved* chimneys or vents, or venting assemblies that are integral parts of *labeled appliances*. Gas fired *appliances* shall be vented in accordance with Chapter 24.

SECTION M2001.4 is hereby deleted in its entirety.

SECTION M2005.1 is hereby amended to read as follows:

M2005.1 General. Water heaters shall be installed in accordance with ~~Chapter 28~~ the North Dakota State Plumbing Code, the manufacturer's instructions and the requirements of this code. Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3. Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oiled-fired water heaters shall comply with UL 732. Thermal solar water heaters shall comply with Chapter 23 and UL 174. Solid fuel-fired water heaters shall comply with UL 2523

SECTION M2101.3 is hereby amended to read as follows:

M2101.3 Protection of potable water. The potable water system shall be protected from backflow in accordance with the provisions listed in ~~Section P2902~~ the North Dakota State Plumbing Code.

SECTION M2101.10 is hereby amended to read as follows:

M2101.10 Tests. ~~New H~~Hydronic piping shall be isolated and tested hydrostatically at a pressure of ~~one and one-half times the maximum system design pressure, but not~~ less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes and not more than 20 minutes.

SECTION M2103.3 is hereby amended to read as follows:

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.

2. Copper tubing shall be joined by brazing complying with ~~Section P3003.6.1~~ the North Dakota State Plumbing Code.
3. Polybutylene pipe and tubing joints ...

SECTION M2201.6 is hereby deleted in its entirety.

SECTION G2404.7 (301.11) is hereby deleted in its entirety.

SECTION G2406.2 (303.3) is hereby amended to read as follows:

G2406.2 (303.3) Prohibited locations. *Appliances* shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

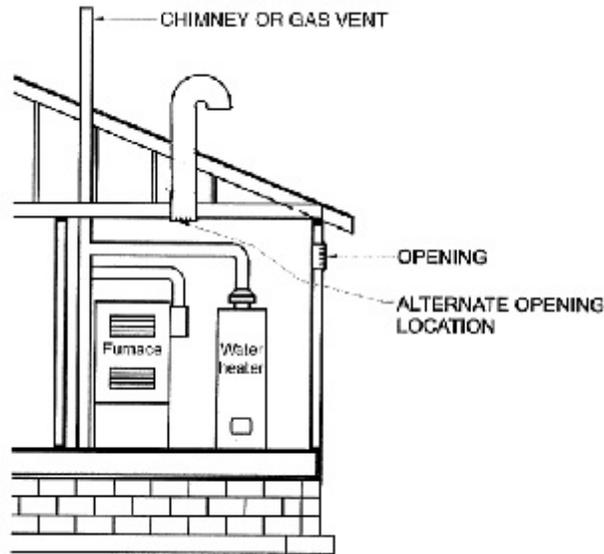
1. The *appliance* is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. *Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances* for installation in vented solid fuel-burning *fireplaces* are installed in rooms that meet the required volume criteria of Section G2407.5.
3. ~~A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section G2445.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section G2407.5.~~
4. ~~A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section G2445.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section G2407.5.~~
5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section G2407.6.

Figure G2407.6.1(1) [304.6.1(1)] is hereby deleted in its entirety.

Figure G2407.6.1(2) [304.6.1(2)] is hereby deleted in its entirety.

(Remainder of page intentionally left blank)

Figure G2407.6.2 (304.6.2) is hereby amended to read as follows:



SECTION G2407.11 (304.11) is hereby amended to read as follows:

G2407.11 (304.11) Combustion air ducts. Combustion air ducts shall comply with all the following:

1. Ducts shall be constructed of galvanized steel complying with Chapter 16 or of a material having equivalent corrosion . . .
5. Ducts shall not ~~be screened where terminating~~ terminate in an attic space.
6. Horizontal upper *combustion air* ducts shall not slope downward . . .

SECTION G2413.5 (402.5) is hereby amended to read as follows:

Section G2413.5 (402.5) Allowable pressure drop. The design pressure loss in any *pipng system* under maximum probable flow conditions, from the *point of delivery* to the inlet connection of the *appliance*, shall be such that the supply pressure at the *appliance* is greater than or equal to the minimum pressure required by the *appliance* but such pressure loss shall not be greater than 0.5 inch water column for gas pipe systems operating at less than 2 psi.

SECTION G2417.4.1 (406.4.1) is hereby amended to read as follows:

Section G2417.4.1 (406.4.1) Test pressure. The test pressure to be used shall be not less than 1½ times the proposed maximum working pressure, but not less than ~~3~~ 25 psig (20 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that

produces a hoop stress in the *piping* greater than 50 percent of the specified minimum yield strength of the pipe.

SECTION G2425.8 (501.8) is hereby amended to read as follows:

G2425.8 (501.8) Appliances not required to be vented. The following *appliances* shall not be required to be vented:

1. Ranges.
2. Built-in domestic cooking units *listed* and marked for optional venting.
3. Hot plates and laundry stoves.
4. *Type 1 clothes dryers* (*Type 1 clothes dryers* shall be exhausted in accordance with the requirements of Section G2439).
5. Refrigerators.
6. Counter *appliances*.
7. ~~Room heaters *listed* for unvented use.~~

Where the *appliances* listed in Items 5 ~~through 7~~ and 6 above are installed so that the aggregate input rating exceeds 20 *Btu* per hour per cubic foot (207 W/m³) of volume of the room or space in which such *appliances* are installed, one or more shall be provided with venting *systems* or other *approved* means for conveying the *vent gases* to the outdoor atmosphere so that the aggregate input rating of the remaining *unvented appliances* does not exceed 20 *Btu* per hour cubic foot (207 W/m³). Where the room or space in which the *appliance* is installed is directly connected to another room or space by a doorway, archway or other opening of comparable size that cannot be closed, the volume of such adjacent room or space shall be permitted to be included in the calculations.

SECTION G2425.12 (501.12) is hereby amended to read as follows:

G2425.12 (501.12) Residential and low-heat appliances flue lining systems. *Flue lining* systems for use with residential-type and low-heat *appliances* shall be limited to the following:

1. Clay *flue lining* complying with the requirements of ASTM C 315 or equivalent when each appliance connected into the masonry chimney has a minimum input rating of greater than 400,000 Btu/h. Clay *flue lining* shall be installed in accordance with Chapter 10.
2. *Listed* chimney lining systems complying with UL 1777.
3. Other *approved* materials that will resist, without cracking, softening or corrosion, *flue gases* and *condensate* at temperatures up to 1,800°F (982°C).
 - a. Aluminum (1100 or 3003 alloy or equivalent) not less than 0.032 inches thick up to 8 inches in diameter.
 - b. Stainless steel (304 or 430 alloy or equivalent) not less than 26 gauge (0.018 inches thick) to 8 inches in diameter or not less than 24 gauge (0.024 inches thick) 8 inches in diameter and larger.

When a metal liner is used other than a listed chimney liner a condensation drip tee shall be installed and supported in an approved manner.

SECTION G2427.5.2 (503.5.3) is hereby amended to read as follows:

G2427.5.2 (503.5.3) Masonry chimneys. Masonry *chimneys* shall be built and installed in accordance with NFPA 211 and shall be lined ~~with approved clay flue lining, a listed chimney lining system, or other approved material that will resist corrosion, erosion, softening or cracking from vent gases at temperatures up to 1,800° F (982° C) as per G2425.12.~~

Exception: Masonry *chimney* flues serving *listed* gas . . .

SECTION G2439.7.2 (614.8.2) is hereby amended to read as follows:

G2439.7.2 (614.8.2) Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct.

SECTION G2442.5 (618.5) is hereby amended to read as follows:

G2442.5 (618.5) Screen. Required outdoor air inlets shall be covered with a screen having ¼ inch (6.4 mm) openings. Required outdoor air inlets serving a nonresidential portion of a building shall be covered with screen having openings larger than ¼ inch but not larger than ½ inch.

SECTION G2445 is hereby deleted in its entirety.

CHAPTERS 25 THROUGH 43 are hereby deleted in their entirety.

SECTION 3. Effective Date. This ordinance shall be in full force and effect from and after the date of its final passage and publication.

Mayor

ATTEST:

City Auditor

Date of First Reading:

Date of Second Reading:

Date of Publication: