

Page 12

Section R202, Definitions. Change the definition of Dwelling to read: Dwelling. Any building that contains one ~~or two dwelling units~~ dwelling unit used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that ~~are~~ is occupied for living purposes.

Page 18

Section R202, Definitions. Add the following definition: Sleeping Room. Any room in the house that is greater than 70 sq. ft., has built-in closet space and typically could be used as a bedroom. This does not include rooms used for cooking, eating, family living or gathering and excludes bathrooms, toilet rooms, halls, storage, utility and workshop space and all unconditioned space.

Page 19

Section R202, Definitions. Change the definition of Townhouse to read: Townhouse. A single-family dwelling unit constructed in a group of ~~three~~ two or more attached units in which each unit extends from foundation to roof and with open space on at least two sides.

Page 24

Add the following information to **Table R301.2(1)**,

GROUND SNOW LOAD	WIND SPEED (mph) ^d	SEISMIC DESIGN CATEGORY ^f	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP ^e	ICE BARRIER UNDERLAYMENT REQUIRED ^h	FLOOD HAZARDS ^g	AIR FREEZING INDEX ⁱ	MEAN ANNUAL TEMP ^j
			Weathering ^a	Frost line depth ^b	Termit ^e					
20 ^k 30 ^l	90	A	Severe	42	M-H	-3°	Yes	1971	1680	51.2°

k. Slopes equal to or greater than 4 in 12.

l. Slopes less than 4 in 12.

Page 46

Table R301.5, Minimum Uniformly Distributed Live Loads. Change the table to read: Sleeping rooms ~~30~~ 40

Page 48

Section R305.1, Minimum height. Add the following paragraph after exception 4: The building official shall have the authority to waive the requirements of this section where pre-existing conditions will not allow the requirements to be met.

Page 49

Section R307.1, Space Required. Change to read as follows: Fixtures shall be spaced as per ~~Figure R307.1.~~ Chapter 49 of the Omaha Plumbing Code.

Page 49

Figure R307.1, Minimum Fixture Clearances. Delete Figure R307.1 Minimum Fixture Clearances, in its entirety.

Page 53

Section R311.4.3, Landings at doors. Change exception 1 to read: 1. Where a stairway of ~~two~~ three or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door provided the door, other than an exterior storm or screen door does not swing over the stairway.

Page 53

Section R311.4.3, Landings at doors. Change exception 2 to read: 2. The exterior landing at an exterior doorway shall not be more than 7 ³/₄ inches (196mm) below the top of the ~~threshold~~ finished floor, provided the door, other than an exterior storm or screen door does not swing over the landing.

Page 53

Section R311.4.3, Landings at doors. Change exception 3 to read: 3. The height of floors at exterior doors other than the exit door required by Section R311.4.1 shall not be more than 7 ³/₄ inches (196 mm) lower than the top of the ~~threshold~~ finished floor.

Page 54

Section R311.5.2, Headroom. Add the following as a second paragraph: The building official shall have the authority to waive the requirements of this section where pre-existing conditions will not allow the requirements to be met.

Page 54

Section, R311.5.3.1, Riser height. Add an exception to this section to read as follows:
Exception: The maximum riser height shall be 8 inches (203 mm) for a period of one year from the adoption date of this code.

Page 54

Section R311.5.3.2, Tread depth. Add an exception to this section to read as follows:
Exception: The minimum tread depth shall be 9 inches (228 mm) for a period of one year from the adoption date of this code.

Section R311.5.3.3, Profile. Change to read as follows: The radius of curvature at the leading edge of the tread shall be no greater than 9/16 inch (14 mm). A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4 inch (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8" (9.5 mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosing shall not exceed 1/2 inch (12.7 mm). Risers shall be vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted, provided that the opening between treads does not permit the passage of a ~~4-inch diameter (102 mm)~~ 6 1/2 inch diameter (165 mm) sphere.

Section R311.5.6.2 Continuity. Add exception 3 to read as follows:

Exceptions: 3. Handrails for stairways shall be permitted to have no more than a 4" break (102 mm) due to wall offsets and other ornamental features.

Section R317.1, Two-family dwellings. Delete exception #1 in its entirety.

Section R317.2, Townhouses. Change the exception to read as follows: Exception: A common 2-hour fire-resistance-rated wall is permitted for townhouses if 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 Chapters 33 through 42.~~ Electrical, cable, and telephone installations are permitted, but shall be installed in raceways and metallic outlet boxes. Penetrations of electrical outlet boxes shall be in accordance with Section R317.3. The fire-resistance rating of the common wall may be reduced to not less than 1-hour provided the building is equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13, the common wall does not contain plumbing or mechanical equipment, ducts or vents, and electrical, cable, and telephone installations are installed in raceways and metallic outlet boxes.

Section R318.1, Moisture control. Add an exception #4 to read as follows: Exception 4. Exterior bathroom walls.

Section R319.1, Location required. Change location #2 to read as follows: ~~All wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.~~ All wood framing members, sills or plates that rest on concrete or masonry exterior walls.

Section R319.1.1, Field treatment. Delete this section in its entirety.

Page 61

Section R319.1.4, Wood columns. Delete both exceptions and replace with: Exception: Interior columns, either exposed or enclosed within the framing cavity, provided such columns are separated from any concrete or masonry by approved wood of natural decay resistance, or approved pressure-preservative treated wood.

Page 61

Section R320.1.2, Field treatment. Delete this section in its entirety.

Page 63

Section R324.2.1, Elevation requirements. Change requirement 1 to read as follows: 1. Buildings and structures shall have the lowest floors elevated to ~~or~~ a level 1 foot minimum above the design flood elevation.

Page 63

Section R324.2.1, Elevation requirements. Change requirement 3 to read as follows: 3. Basement floors that are below grade on all sides shall be elevated to ~~or~~ a level 1 foot minimum above the design flood elevation.

Page 68

Change to read as follows:

R403.1, General. All exterior walls shall be supported on continuous ~~solid or fully grouted masonry or~~ concrete footings, ~~wood foundations,~~ or other approved structural systems which shall be of sufficient design to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character or the soil. Footings shall be supported on undisturbed natural soils or engineered fill.

R403.1.1, Minimum size. Minimum sizes for concrete and masonry footings shall be as set forth in Table R403.1 and Figure R403.1(1). The footing width, W, shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. Spread footings shall be at least ~~6 inches (152 mm)~~ 8 inches (203 mm) thick. Footing projections, P, shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R 401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.3, and Figures R403.1(2) and R403.1(3).

Page 69

Delete **Figure R403.1(1)** in its entirety, and replace it with Figure R403.1(1) MINIMUM FOOTING AND FOUNDATION REQUIREMENTS, as amended.

Page 70

Figure R403.1(2) delete all references to gravel footings and replace with, Footings shall comply with Section R403.

Figure R403.1(3) delete all references to gravel footings and replace with, Footings shall comply with Section R403.

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 specified in Table R301.2(1);
2. ~~Constructing in accordance with Section R403.3;~~
3. 2. Constructing in accordance with ASCE 32; or
4. 3. Erected on solid rock.

Exceptions:

1. Protection of freestanding accessory structures with an area of 750 square feet (70 m²) or less, of light-framed construction, with 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.

Change to read as follows:

R403.2, Footings for wood foundations. Footings for wood foundations shall be in accordance with Figures R403.1(2) and R403.1(3). ~~Gravel shall be washed and well graded. The maximum size stone shall not exceed ¾" (19.1 mm). Gravel shall be free from organic, clayey or silty soils. Sand shall be coarse, not smaller than 1/16 inch (1.6mm) grains and shall be free from organic, clayey or silty soils. Crushed stone shall have a maximum size of ½ inch (12.7 mm).~~

Delete **Section R403.3 Frost protected shallow foundations** in its entirety.

Delete **Table R403.3** in its entirety.

Delete **Figure R403.3(1)** in its entirety.

Delete **Figure R403.3(3)** in its entirety.

Page 77

Delete **Sections R403.3.1, R403.3.1.1, R403.3.1.2, R403.3.2, R403.3.3, and R403.3.4** in their entirety.

Delete **Figure R403.3(4)** in its entirety.

Page 78

Delete **Table R404.1(1)** in its entirety, and replace it with Table R404.1(1) as amended.

Delete conditions 2, 3, 4 and 5 of **Section R404.1** and replace with:

2. Floor joists and blocking shall be connected to the sill plate at the top of the wall by the prescriptive method called out in Figure 404.1.2.
3. The sill plate shall be connected to the top of the foundation wall in accordance with Table R404.1(1) All anchor bolts shall be ASTM A307. The nut on each bolt shall be torqued to a minimum of 35 pound feet.
4. Anchor bolt spacing shall be no greater than the spacing of the rebar specified in Table R404.1.1 plus additional bolts as required by Section R403.1.6.
5. The floor shall be blocked perpendicular to the floor joists as shown in Figure R404.1.2.

Page 79

Delete **Table R404.1(2)** in its entirety, and replace it with Figure R404.1(2) as amended.

Delete **Section R404.1.1** in it's entirety.

Delete **Section R404.1.2** in it's entirety.

Page 80

Add a footnote to **Table R404.1(3)** to read as follows:

- a. For the purposes of this chapter, use the column labeled GW, GP, SW and SP soils.

Page 81

Delete **Table R404.1.1(1)** in its entirety, and replace it with Table R404.1(1)

Page 82

Delete **Table R404.1.1(2)** in its entirety, and replace it with Table R404.1(1)

Page 83

Delete **Table R404.1.1(3)** in its entirety, and replace it with Table R404.1(1)

Delete **Table R404.1.1(4)** in its entirety, and replace it with Table R404.1(1)

Delete **Table R404.1.1(5)** in its entirety, and replace it with Table R404.1(1)

This table is based on a design, which would subject the foundation walls to a soil pressure that would be exerted by soil having an equivalent fluid weight of 35 pounds per cubic foot. In order to use this table the bottom of the foundation wall must be retained by a concrete slab with a minimum thickness of 3 ½” and the top of the wall must be restrained as defined in the footnotes of this table.

TABLE R404.1(1) BASEMENT FOUNDATION WALL DESIGN

1	2	3	4	5	6	
Wall Type	Distance of Wall to Ground Surface	Wall Thickness	Vertical Wall Span	Required Vertical Reinforcing	Required Anchor Bolt Spacing	
Masonry or Concrete	6” or more	8”	8’ 8” or less	#5 @ 40”	5/8” @ 40”	
			8’ 0” or less	#5 @ 48”	5/8” @ 48”	
		10”	8’ 8” or less	#5 @ 48”	5/8” @ 48”	
			8’ 0” or less	#5 @ 56”	5/8” @ 56”	
		12”	8’ 8” or less	#5 @ 56”	5/8” @ 56”	
			8’ 0” or less	#5 @ 64”	5/8” @ 64”	
		16” or more	8”	8’ 8” or less	#5 @ 48”	5/8” @ 48”
				8’ 0” or less	#5 @ 56”	5/8” @ 56”
	10”		8’ 8” or less	#5 @ 64”	5/8” @ 64”	
			8’ 8” or less	#5 @ 64”	5/8” @ 64”	
	24” or more		8” or more	8’ 8” or less	#5 @ 64”	5/8” @ 64”
				8’ 8” or less	None required	5/8” @ 72”

1. This table applies to hollow unit masonry or to solid concrete walls.
2. This table is only applicable where the exterior grade is above the basement slab on one or more sides of the basement. The distance in column (2) is to be measured from the top of the masonry or concrete wall down to the finish grade after final grading.
3. The thicknesses given are nominal. Actual masonry thickness may be 3/8” less than nominal.
4. This table applies only to walls which span vertically between levels at which resistance to inward movement is provided by a minimum 3 ½” thick concrete floor slab at the bottom and an anchoring system as defined in Section R404.1 and Figure R404.1.1 at the top.
5. All reinforcing steel utilized based on this table shall be grade 60 and shall be placed not more than 1 ½” from the inside face of the wall.
6. Masonry walls must comply with Section R609.
7. Walls which do not fall within the limitations of this table, shall be designed by a registered engineer licensed in the State of Nebraska.
8. Anchor bolts shall be 5/8” diameter with a 3/16”x 2” galvanized washer and nut. Bolts shall be imbedded minimum 7” into concrete and 15” into masonry.

Page 103

Change to read as follows:

R502.6.2 Joist framing. Joists framing into the side of a wood girder shall be supported by approved framing anchors ~~or on ledger strips not less than nominal 2 inches by 2 inches (51 mm by 51 mm).~~

Page 121

Section R506.2.2 Base, Delete this section in its entirety.

Page 132

Change to read as follows:

R602.6 Drilling and notching-studs. Drilling and notching of studs shall be in accordance with the following:

1. Notching. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width. All studs in exterior walls or bearing partitions that are notched more than 10 percent shall be doubled.
2. Drilling. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no more than 60 percent of the stud width, the edge of the hole is no more than 5/8 inch (16 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior walls or bearing partitions drilled over 40 percent and up to 60 percent shall also be doubled with no more than two successive doubled studs bored. See Figures R602.6(1) and R602.6(2).

Exception: Use of approved stud shoes is permitted when they are installed in accordance with the manufacturer's recommendations.

Page 224

Section R613.2, Window sills. Delete this section in its entirety.

Page 231

Table R702.3.5, Minimum Thickness and Application of Gypsum Board. Change footnote (d) to read as follows. D. Three-eighths-inch-thick single-ply gypsum board shall not be used on a ceiling where a water-based textured finish is to be applied, or where it will be required to support insulation above a ceiling. On ceiling applications to receive a water-based texture material, either hand or spray applied, the gypsum board shall be applied perpendicular to framing. When applying a water-based texture material, the minimum gypsum board thickness shall be 1/2 inch. ~~increased from 3/8 inch to 1/2 inch for 16 inch on center framing, and from 1/2 inch to 5/8 inch for 24 inch on center framing or 1/2 inch sag resistant gypsum ceiling board shall be used.~~

Page 241

Section R703.7.4.2, Air Space. Change to read as follows: The veneer shall be separated from the sheathing by an air space of a minimum of a nominal ~~1 inch (25 mm)~~ 1/2 inch (13 mm) but not more than 4 1/2 inches (114 mm).

Table R802.11 Required Strength of Truss or Rafter Connections to Resist Wind Uplift Forces

Add footnote G to read as follows:

g. Wind uplift calculations, prepared by a structural engineer, shall be provided at the time of the framing inspection, for all structures built without uplift connections as prescribed by this table.

Add a second paragraph to section R903.4 as follows:

Section R903.4, Roof Drainage. Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof. Where required for roof drainage, scuppers shall be placed level with the roof surface in a wall or parapet. The scupper shall be located as determined by the roof slope and contributing area.

When roofs are sloped to drain over the edge, scuppers or gutters and downspouts, adequately sized, pitched and supported, shall be installed to conduct rain water to ground level. Rainwater shall be discharged at least three feet away from the building foundation in a direction parallel to the adjoining property line when the discharge point is within 20 feet of the adjoining property line.

Exception: Structures with no sub-grade spaces.

Section R905.2.5, Fasteners. Change to read as follows: 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 (10 mm) diameter head, ASTM F 1667, or if approved by the manufacturer, corrosion-resistant staples, minimum 16 gage 15/16 inch crown width, of a length to penetrate through the roofing materials and a minimum of 3/4 inch (19 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19 mm) thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

Table R905.2.8.2, Valley Lining Material. In the Gage column, for Galvanized steel, delete the number 26, and replace it with 28.

Section R905.2.8.4, Sidewall flashing. Change to read as follows: Flashing against a vertical sidewall shall be ~~by the step flashing method.~~ corrosion-resistant metal of minimum 28 gage.

Section R905.3.8, Flashing. Change the first sentence to read as follows: At the juncture of roof vertical surfaces, flashing and counterflashing shall be provided in accordance with this chapter and the manufacturer's installation instructions and, where of metal, shall not be less than ~~0.019 inch (0.5 mm) (No. 26 galvanized sheet gage)~~ 0.018 inches (0.4 mm) (No. 28 galvanized sheet gage) corrosion-resistant metal.

Page 295

Section R905.7.6, Valley flashing. Change the first sentence to read as follows: Roof flashing shall be not less than No. ~~26 gage [0.019 inches (0.5 mm)]~~ 28 gage [(0.018 inches (0.4 mm))] corrosion-resistant sheet metal and shall extend 10 inches (254 mm) from the centerline each way for roofs having slopes less than 12 units vertical in 12 units horizontal (100-percent slope), and 7 inches (178 mm) from the centerline each way for slopes of 12 units vertical in 12 units horizontal and greater.

Page 296

Section R905.8.8, Valley flashing. Change the first section to read as follows: Roof flashing shall not be less than No. ~~26 gage [0.019 inches (0.5 mm)]~~ 28 gage [(0.018 inches (0.4 mm))] corrosion-resistant sheet metal and shall extend at least 11 inches (279 mm) from the centerline each way.

Page 299

Section R907.3, Re-covering versus replacement. Change condition 2 to read as follows: 2. Where the existing roof covering is wood shake, wood shingle, slate, clay, cement or asbestos-cement tile.

Page 299

Section R907.4, Roof Recovering. Delete this section in its entirety.

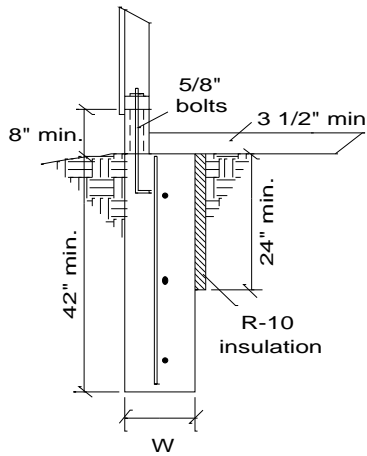
Page 310

Section R1006.2, Exterior air intake. Change to read as follows: The exterior air intake shall be capable of supplying all combustion air from the exterior of the dwelling or from spaces within the dwelling ventilated with outside air such as non-mechanically ventilated crawl or attic spaces. The exterior air intake shall not be located within the garage or basement of the dwelling. ~~nor shall the air intake be located at an elevation higher than the firebox.~~ The exterior air intake shall be covered with a corrosion-resistant screen of 1/4-inch (6 mm) mesh.

Page 311

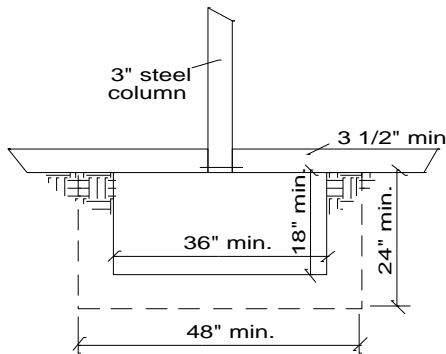
Section N1102.2, Compliance. Add the following exception after this section:

Exception: Single family dwellings, two family dwellings and townhomes with a window to wall ratio greater than 15% must conform to the State of Nebraska energy code.



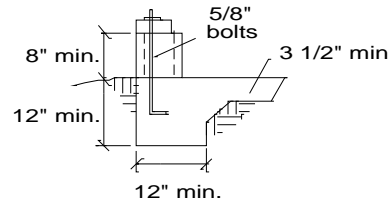
TYPICAL TRENCH FOOTING

12" min. wide, 42" min. deep. Extend foundation min. 8" above grade. Limited to supporting one floor, one roof and no masonry veneer. Vertical #4 bar @ 48" o.c., horizontal #4 bar @ 3 locations. Anchor bolts required as per chart.



TYPICAL COLUMN FOOTING

Min. 36"x 36"x 18" for support of 1 floor and 1 ceiling/roof, and min. 48"x 48"x 24" for support of 2 floors and 1 ceiling/roof. The above column pad is limited to the support of floors and ceiling/roofs with a joist/rafter span of <= 15 ft. and beam/girder span of <= 14 ft. Min. 6"x 6"x 1/4" steel base plate is required.

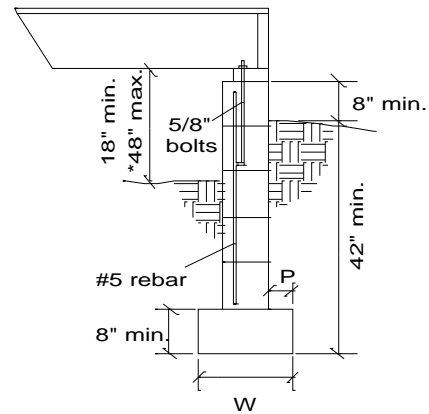


TYPICAL FLOATING FOUNDATION

Floating foundation approved for detached structures no more than 750 sq. ft. Min. 12" deep in the ground, and 12" wide at the base. Extend min. 8" above grade. Anchor bolts required as per chart.

EXCEPTIONS:

1. Detached structures less than 150 sq. ft. do not require foundations.
2. Floating foundations may use max. one course of concrete block as a curb.



TYPICAL SPREAD FOUNDATION

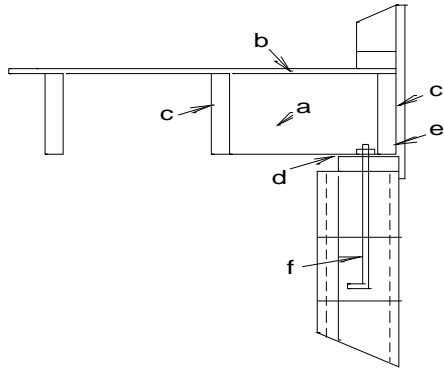
2" nominal thickness treated sill plate. 5/8" bolts, min. 7" into concrete or 15" into masonry. Max. 12" from ends. 16"x 8" min. footing size. 42" min. depth for exterior walls. 8" min. depth for interior walls. Extend the foundation min. 8" above grade.

* Foundations with more than 48" of unsupported clearance shall be designed in accordance with Table R404.1(1), and Figure R404.1(2).

FIGURE R403.1(1) MINIMUM FOOTING AND FOUNDATION REQUIREMENTS (AMENDED)

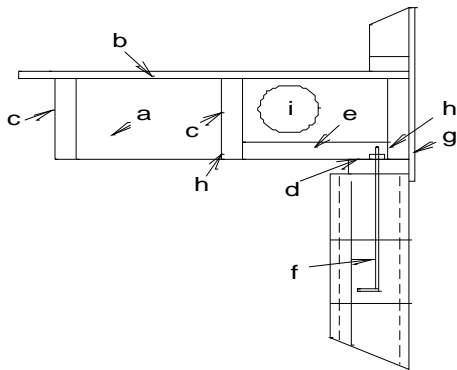
GENERAL NOTES

1. Footings shall comply with Table R403.1, but shall not be less than twice the foundation wall thickness.
2. Anchor bolt spacing 6' o.c. max. or the same as the rebar spacing, whichever is less, and 12" from each end of the sill.
3. Anchor bolts shall be 5/8" diameter, with 3/16"x 2" galvanized washers. Bolts shall be imbedded min. 7" into concrete and 15" into masonry.
4. Foundations shall extend not less than 12" below the top of the floor slab.
5. Footing sizes are based on an assumed soil bearing pressure of 1,500 lbs./sq. ft. Footings on soil with a lower allowable soil pressure shall be designed in accordance with good engineering practice, and a soils engineer's recommendations.



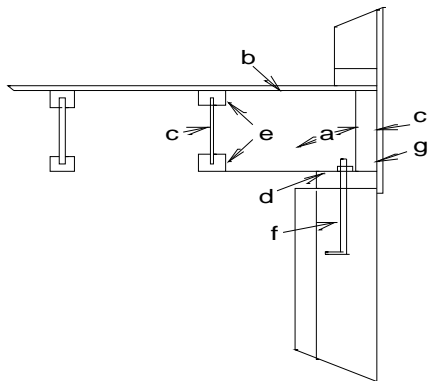
BLOCKING AT END WALL

- a. 2x solid blocking.
- b. 9- 8d nails thru subfloor into solid blocking.
- c. 4- 10d nails into each end of solid blocking.
- d. 6- 10d nails into sill plate.
- e. rim joist w/ 16d nails 12" o.c. into sill plate.
- f. anchor bolts per Table R404.1.1



BLOCKING AT END WALL WITH DUCT

- a. 2x solid blocking.
- b. 9- 8d nails thru subfloor into solid blocking.
- c. 4- 10d nails into each end of solid blocking.
- d. 10- 10d nails thru solid blocking into sill plate.
- e. flat 2"x 10".
- f. anchor bolts per Table R404.1.1.
- g. rim joists w/ 16d nails 12" o.c. into sill plate.
- h. 2- 10d nails into each end of flat 2"x 10".
- i. duct.



BLOCKING AT END WALL WITH "I" JOISTS

- a. 1 1/8" LSL or approved engineered rim and solid blocking material.
* (DIMENSION LUMBER NOT ALLOWED) *
- b. 9- 8d nails thru subfloor into solid blocking.
- c. 4- 10d nails into each end of solid blocking.
- d. 6- 10d nails into sill plate.
- e. 2- 10d nails toenailed into joist.
- f. anchor bolts per Table R404.1.1.
- g. rim joist w/ 16d nails 12" o.c. into sill plate.

FIGURE R404.1(2) FOUNDATION WALL TO FLOOR SYSTEM ATTACHMENT (AMENDED)

1. Where floor joists are perpendicular to the foundation wall they shall be attached to the plate in the same manner shown in the sketch **BLOCKING AT END WALL**.
2. A steel angle clip may be substituted for the 6- 10d nails connecting the joist to the sill plate. If an angle clip is used it must have a minimum load transfer capacity of 370 pounds.
3. Solid blocking must be utilized where floor joists are parallel to the foundation wall. The solid blocking shall be spaced no further apart than 1/2 the maximum anchor bolt spacing allowed in accordance with Table R404.1(1).

Page 323

M1201.2, Applications. ~~In addition to the general administration requirements of chapter 4,~~ The administrative provisions of this chapter shall also apply to the mechanical requirements of Chapters 13 through 24.

Page 325

M1301.1, Scope. The provisions of this chapter shall govern the installation of mechanical systems not specifically covered in other chapters applicable to mechanical systems. Installations of mechanical appliances, equipment and systems not addressed by this code shall comply with the applicable provisions of the International Mechanical Code and the ~~International~~ National Fuel Gas Code (NFPA 54).

M1302.1, Listed and labeled. Appliances regulated by this code shall be listed and labeled for the application in which they are installed and used, ~~unless otherwise approved in accordance with Section R-104.11.~~ The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. Alternative material, design or method of construction shall be approved where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method, or work offered is for the purpose intended at least the equivalent of that prescribed in this code.

Page 329

M1308.3, Foundations and supports. Foundations and supports for outdoor mechanical systems shall be raised at least ~~3 inches (76mm)~~ 2 inches (51mm) above the finished grade, and shall also conform to the manufacturer's installation instructions.

Page 331

M1403.1, Heat pumps. The minimum unobstructed total area of the outside and return air ducts or openings to a heat pump shall be not less than 6 square inches per 1,000 Btu/h (13208 mm²/kW) output rating or as indicated by the conditions of the listing of the heat pump. Electric heat pumps shall conform to UL 1995. INSERT Exception: The total area of the supply air ducts and outdoor and return air ducts shall not be required to be larger than the minimum size required by the heat pump manufacturer's installations instructions.

M1403.2, Foundations and supports. Foundations and supports for outdoor unit of a heat pump shall be raised at least ~~3 inches (76mm)~~ 2 inches (51mm) above the ground to permit free drainage of defrost water, and shall also conform to the manufacturer's installation instructions.

Page 335

M1501.1, Outdoor discharge. Change to read as follows: The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an attic, soffit, ridge vent or crawl space. Exceptions:

1. Whole-house ventilation-type attic fans that discharge into the attic space of dwelling units having private attics shall be permitted.

2. Bathroom exhaust fans may be ducted through an exterior soffit, provided that the exhaust duct discharges through a soffit vent to the exterior.

M1502.2, Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. ~~Exhaust ducts shall terminate not less than 3 feet (914mm) in any direction from openings into buildings.~~ Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination.

M1502.6, Duct length. The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet (7620mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced 2.5 feet (762mm) for each 45-degree (0.8 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.
2. Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be required.
3. The maximum length of an exhaust duct may be increased by use of a boost fan listed for clothes dryer exhaust. The boost fan and clothes dryer must be interlocked to prevent clothes dryer operation if the boost fan is not in operation.

Page 347

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 un-vented 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~~ the National Fuel Gas Code (NFPA 54).

Page 351

M1902.2, Installation: Sauna heaters shall be installed in accordance with the manufacturer's installation instructions, Nebraska Boiler Act, ASME Section 4, and the authority having jurisdiction

M1904.1, Installation: Gaseous hydrogen systems shall be installed in accordance with the applicable requirements of Section M1307.4 and M1903.1 and the ~~International~~ National Fuel Gas Code, (NFPA 54), NFPA 58, the International Fire Code and the International Building Code.

M2001.1, Installation: In addition to the requirements of this code, the installation of boilers shall conform to the Nebraska Boiler Act, ASME Section 4, the authority having jurisdiction and the manufacturer's installation instructions. The manufacturer's rating data, the nameplate and operating instructions of a permanent type shall be attached to the boilers. Boilers shall have all controls set, adjusted and tested by the installer. A complete control diagram together with complete boiler operation instructions shall be furnished by the installer. Solid-and liquid-fuel-burning boilers shall be provided with combustion air as required by Chapter 17.

M2001.2, Clearance: Boilers shall be installed in accordance with their listing and label, Nebraska Boiler Act, and the authority having jurisdiction.

M2001.3, Valves. Every boiler or modular boiler shall have a shutoff valve in the supply and return piping. For multiple boiler or multiple modular boiler installations, each boiler or modular boiler shall have individual shutoff valves in the supply and return piping.

~~**Exception:** Shutoff valves are not required in a system having a single low pressure steam boiler~~

M2002.1, Safety controls. Electrical and mechanical operating and safety controls for boilers shall be listed and labeled for the purpose and condition of their use and operation.

M2002.4, Pressure-relief valve. Boilers shall be equipped with pressure relief valves with minimum rated capacities for the equipment served. Pressure-relief valves shall be set at no greater than the maximum rating of the boiler. Discharge shall be piped to drains by gravity to within ~~18~~ 3 inches (~~457~~ 76mm) of the floor or to an ~~open receptor~~ approved plumbing fixture.

M2002.5, Boiler low water cutoff. All steam and hot water boilers shall be protected with a low-water cutoff controls. The low-water cutoff shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer.

~~**M2004.1, General.** Water heaters used to supply both potable hot water and hot water for space heating shall be installed in accordance with this chapter, Chapter 24, Chapter 28 and the manufacturer's installations instructions.~~

M2005.1, General: Water heaters shall be installed in accordance with the manufacturer's installation instructions, the Omaha Plumbing Code, and the requirements of this code. Water heaters with inputs of 200,000 BTU's and greater must comply with the Nebraska Boiler Act and the authority having jurisdiction. Water heaters installed in an attic shall conform to requirements in Chapter 24. Domestic electric water heaters shall conform to UL 174 or UL1453, and NFPA 70. Commercial electric water heaters shall conform to UL1453 and NFPA 70. Oiled-fired water heaters shall conform to UL 732 and NFPA 31.

M2005.3, Electric water heaters. Electric water heaters shall also be installed in accordance with the applicable provisions of ~~Chapter 33 through 42~~ National Electrical Code (NFPA 70).

M2006.1, General: Pool and spa heaters shall be constructed and installed in accordance with the manufacturer's installation instructions, ASME Section 4, the Nebraska Boiler Act, and the authority having jurisdiction. Oil-

fired pool heaters shall be tested in accordance with UL 726 and NFPA 31. Electric pool and spa heaters shall conform to UL1261, and NFPA 70.

M2006.2, Clearances: In no case shall the clearances interfere with combustion air, draft hood or flue terminal relief, or accessibility for servicing, or as required by the Nebraska Boiler Act, and the authority having jurisdiction.

M2006.3, Pressure and Temperature-limiting devices: Pool heaters shall have temperature limiting controls and pressure relief valves.

Page 355

M2101.1, General: Hydronic piping shall conform to Table M2101.1 as amended by this section. Approved piping, valves, fittings and connections shall be installed in accordance with the installations instructions. Pipe and fittings shall be rated for use at the operating temperature and pressure of the hydronic system. Chlorinated poly (vinyl chloride) (CPVC) pipe, tubing and fittings, Cross-linked polyethylene (PEX) pipe, tubing and fittings, Cross-linked polyethylene/aluminum/ cross-linked polyethylene (PEX-AL-PEX) pipe, tubing and fittings, Polybutylene (PB) pipe, tubing and fittings, Polyethylene (PE) pipe, tubing and fittings and Polypropylene (PP) pipe, tubing and fittings will not be permitted for above ground use in a hydronic heating or cooling system. Used pipe, fittings, valves or other materials shall be free of foreign materials

M2101.2, System drain down. Hydronic piping systems shall be installed to permit draining of the system. When the system drains to the plumbing drainage system, the installation shall conform to the requirements of Chapter 25 through 32 of this code. the Omaha Plumbing Code

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

M2101.4, Pipe penetrations: Opening through concrete or masonry building elements shall be sleeved or protected from contact with building materials.

M2101.10, Tests: Hydronic piping shall be tested hydrostatically at a pressure of not less than 100 pounds per square inch (psi) (690kPa) for a duration of not less than ~~15~~ 30 minutes.

M2103.4 and M2104.3, Termination. (Insert) Final termination of all embedded piping systems are required to terminate to listed and labeled equipment or to a piping manifold. The maximum length from piping system entering the structure to equipment or manifold is 48 inches (1219mm).

Page 357

M2105.1, Testing: The assembled loop system shall be pressure tested with water at 100psi (690kPa) for 30 minutes with no observed leaks before connection (header) trenches are backfilled. ~~Flow rates and pressure drop shall be compared to calculated values. If actual flow rate or pressure drop figures differ from calculated values by more than 10 percent, the problem shall be identified and corrected.~~

Page 359

Delete the text of Chapter 22 in its entirety and insert:

Chapter 22 Fuel Oil Piping and Storage Systems

The design, installation, construction and repair of fuel oil piping and storage systems must comply with the requirements of NFPA 30, 30A, and 31,37, Title 159 (State of Nebraska), Omaha Municipal Code, the International Fire Code and the International Building Code.

Page361

M2301.5, Backflow protection. Connections from the potable water supply to the solar systems shall comply with ~~Section P2902.4.5~~ the Omaha Plumbing Code.