

**CHAPTER 1309**  
**DEPARTMENT OF LABOR AND INDUSTRY**  
**INTERNATIONAL RESIDENTIAL CODE**

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**1309.0010 ADOPTION OF INTERNATIONAL RESIDENTIAL CODE (IRC) BY REFERENCE.**

Subpart 1. **Generally.** The 2006 edition of the International Residential Code (IRC) as promulgated by the International Code Council (ICC), Falls Church, Virginia, is incorporated by reference and made part of the Minnesota State Building Code except as qualified by the applicable provisions in Minnesota Rules, chapter 1300, and as amended in this chapter. The IRC is not subject to frequent change and a copy of the IRC, with amendments for use in Minnesota, is available in the office of the commissioner of labor and industry. Portions of this chapter reproduce text and tables from the IRC. The IRC is copyright 2006 by the ICC. All rights reserved.

Subp. 2. **Mandatory chapters.** The 2006 IRC Chapters 2 through 10 and 43 must be administered by any municipality that has adopted the code, except as qualified by the applicable provisions in Minnesota Rules, chapter 1300, and as amended by this chapter.

Subp. 3. **Replacement chapters.** The following 2006 IRC chapters are being deleted and replaced with the provisions listed below:

A. Chapter 1 of the 2006 IRC and any references to code administration in this code are deleted and replaced with Minnesota Rules, chapter 1300, Minnesota Administration Code.

B. Chapter 11 of the 2006 IRC and any references to energy in this code are deleted and replaced with Minnesota Statutes, section 326B.115.

C. Chapters 12 through 24 of the 2006 IRC and any references to mechanical matters in this code are deleted and replaced with Minnesota Rules, chapter 1346, Minnesota Mechanical Code.

D. Chapters 25 through 32 of the 2006 IRC and any references to plumbing in this code are deleted and replaced with Minnesota Rules, chapter 4715, Minnesota Plumbing Code.

E. Chapters 33 through 42 of the 2006 IRC and references to electrical matters in this code, other than Section R313 Smoke Alarms, are deleted and replaced with Minnesota Rules, chapter 1315, Minnesota Electrical Code.

Subp. 4. **Seismic or earthquake provisions.** Any seismic or earthquake provisions and any references to them are deleted and are not included in this code.

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Subp. 5. **Flood hazard or floodproofing provisions.** Any flood hazard or floodproofing provisions in the IRC, and any reference to those provisions, are deleted in their entirety. Requirements for floodproofing are located in chapter 1335, floodproofing regulations.

Subp. 6. **Elevator and platform lift provisions.** Any elevator and platform lift provisions in the IRC and any reference to those provisions are deleted in their entirety. Requirements for elevators or platform lifts are located in chapter 1307, elevators and related devices.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0020 REFERENCES TO OTHER ICC CODES.**

Subpart 1. **Generally.** References to other codes and standards promulgated by the ICC in the 2006 IRC are modified in subparts 2 to 11.

Subp. 2. **Building code.** References to the International Building Code in this code mean the Minnesota Building Code, adopted pursuant to Minnesota Rules, chapter 1305, and Minnesota Statutes, section 326B.106, subdivision 1.

Subp. 3. **Residential code.** References to the IRC in this code mean the Minnesota Residential Code, adopted under Minnesota Rules, chapter 1309, and Minnesota Statutes, section 326B.106, subdivision 1.

Subp. 4. **Electrical code.** References to the ICC Electrical Code in this code mean the Minnesota Electrical Code, Minnesota Rules, chapter 1315, adopted under Minnesota Statutes, section 326B.35.

Subp. 5. **Fuel gas code.** References to the International Fuel Gas Code in this code mean the Minnesota Mechanical Code, Minnesota Rules, chapter 1346, adopted under Minnesota Statutes, section 326B.106, subdivision 1.

Subp. 6. **Mechanical code.** References to the International Mechanical Code in this code mean the Minnesota Mechanical Code, Minnesota Rules, chapter 1346, adopted under Minnesota Statutes, section 326B.106, subdivision 1.

Subp. 7. **Plumbing code.** References to the International Plumbing code in this code mean the Minnesota Plumbing Code, Minnesota Rules, chapter 4715, adopted under Minnesota Statutes, section 326B.106, subdivisions 1 and 2.

Subp. 8. **Private sewage disposal code.** References to the International Private Sewage Disposal Code in this code mean the Minnesota Pollution Control Agency's minimum standards and criteria for individual sewage treatment systems in Minnesota Rules, chapter 7080, adopted under Minnesota Statutes, chapters 103F, 103G, 115, and 116.

Subp. 9. **Energy conservation code.** References to the International Energy Conservation Code in this code mean the Minnesota Energy Code, adopted under Minnesota Statutes, section 326B.115.

Subp. 10. **Property maintenance code.** References to the International Property Maintenance Code in this code do not apply.

Subp. 11. **Accessibility code.** References to accessibility in this code mean the Minnesota Accessibility Code, Minnesota Rules, chapter 1341.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 5 s 32; art 13 s 4*

**1309.0030 ADMINISTRATIVE PROCEDURE CRITERIA.**

Procedures relating to the administration and enforcement of this code under Minnesota Statutes, section 16B.57, are contained in Minnesota Rules, chapter 1300, Minnesota Administration Code. Minnesota Rules, chapter 1300, governs the application of this code.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0040 VIOLATION.**

A violation of this code is a misdemeanor under Minnesota Statutes, section 326B.082.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0100 CHAPTER 1, ADMINISTRATION.**

Subpart 1. **IRC chapter 1.** IRC chapter 1 is deleted and replaced with the following:

CHAPTER 1  
ADMINISTRATION

This code shall be administered according to Minnesota Rules, chapter 1300.

Subp. 2. **Existing buildings and structures.** Additions, alterations, or repairs to existing buildings and structures meeting the scope of the International Residential Code shall be exempt from Minnesota Rules, chapter 1311, Minnesota Conservation Code for Existing Buildings.

Additions, alterations, or repairs to existing one- and two-family dwellings including townhouses may be made without requiring the existing building or structure to comply with all the requirements of this code provided that any addition or alteration conforms to this code. Repairs to existing buildings or structures may be made that are nonstructural and do not adversely affect any structural member or required fire-resistive element with the same methods and materials of which the building or structure is constructed.

**Exception:** The installation or replacement of glass shall be as required for new installations in accordance with IRC Section R308.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0201 SECTION R201, GENERAL.**

IRC Section R201.4 is amended to read as follows:

**R201.4 Terms not defined.** Where terms are not defined through the methods authorized by this chapter, the Merriam-Webster Collegiate Dictionary, available at [www.m-w.com](http://www.m-w.com), shall be considered as providing ordinarily accepted meanings. The dictionary is incorporated by reference, is subject to frequent change, and is available through the Minitex interlibrary loan system.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0202 SECTION R202, DEFINITIONS.**

Subpart 1. **Modifications.** IRC Section R202 is amended by modifying the following definitions:

**DWELLING.**

**SINGLE-FAMILY.** Any building that contains one dwelling unit used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or occupied for living purposes.

**TWO-FAMILY.** Any building that contains two separate dwelling units with separation either horizontal or vertical on one lot that is used, intended, or designed

to be built, used, rented, leased, let or hired out to be occupied, or occupied for living purposes.

**TOWNHOUSE.** A single-family dwelling unit constructed in a group of two or more attached units in which each unit extends from the foundation to the roof and having open space on at least two sides of each unit. Each single-family dwelling unit shall be considered to be a separate building. Separate building service utilities shall be provided to each single-family dwelling unit when required by other chapters of the State Building Code.

Subp. 2. **Additional definitions.** IRC Section R202 is amended by adding the following definitions:

**CONNECTOR.** A device for fastening together two or more pieces, members, or parts, including anchors, fasteners, and wall ties.

**CRAWL SPACE.** Areas or rooms with less than 7 feet (2134 mm) ceiling height measured to the finished floor or grade below.

**DAMPPROOFING.** Treatment of a surface or structure located below grade to resist the passage of water in liquid form, in the absence of hydrostatic pressure.

**FASTENER.** A device for holding together two or more pieces, parts, or members.

**FLASHING.** Approved corrosion-resistive material provided in such a manner as to deflect and resist entry of water into the construction assembly.

**KICK-OUT FLASHING.** Flashing used to divert water where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding.

#### **OCCUPANCY CLASSIFICATIONS**

**IRC-1** - Single-family dwelling

**IRC-2** - Two-family dwellings

**IRC-3** - Townhouses

**IRC-4** - Accessory structures:

- a. Garages;
- b. Storage sheds; and
- c. Similar structures.

**PAN FLASHING.** A type of corrosion-resistive flashing that is integrated into the building envelope at the base of a window or door rough opening that diverts incidental water to the exterior surface of a weather-resistive barrier.

**STAIR.** A change in elevation, consisting of one or more risers.

**STORY ABOVE GRADE PLANE.** Any story having its finished floor surface entirely above grade plane, except a basement, shall be considered as a story above grade where the finished surface of the floor above the basement is:

1. more than 6 feet (1829 mm) above grade plane;
2. more than 6 feet (1829 mm) above the finished ground level for more than 50 percent of the total building perimeter; or
3. more than 12 feet (3658 mm) above the finished ground level at any point.

**WATERPROOFING.** Treatment of a surface or structure located below grade to resist the passage of water in liquid form, under hydrostatic pressure and bridges nonstructural cracks.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

#### **1309.0300 SECTION R300, CLASSIFICATION.**

IRC Chapter 3 is amended by adding a new section to read as follows:

**R300.1 Occupancy classification.** Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups in accordance with Table R300.1.

Table R300.1  
Occupancy Classifications

IRC-1	Dwelling, single-family
IRC-2	Dwelling, two-family
IRC-3	Townhouse
IRC-4	Accessory structures

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0301 SECTION R301, DESIGN CRITERIA.**

Subpart 1. **IRC Section R301.1.4.** IRC Section R301.1 is amended by adding a section to read as follows:

**R301.1.4 Automatic sprinkler systems (general).** All IRC-2 and IRC-3 buildings shall be provided with an automatic sprinkler system.

**Exception:**

IRC-2 and IRC-3 buildings less than or equal to 9,250 square feet of floor area. Floor area shall include all floors, basements, and garages.

**R301.1.4.1 State licensed facilities.** IRC-1, IRC-2, and IRC-3 buildings containing facilities licensed by the state of Minnesota shall be provided with a fire suppression system as required by the applicable licensing provisions or this section, whichever is more restrictive.

**R301.1.4.2 Installation requirements.** Where an automatic sprinkler system is required in an IRC-2 and IRC-3 building, it shall be installed in accordance with NFPA 13D-2002 edition and the following:

Attached garages are required to have automatic sprinklers with a minimum of one dry head, located within five lineal feet of each door installed in the common wall separating the dwelling unit and the attached garage.

Attached covered patios, covered decks, covered porches, and similar structures are required to have automatic sprinklers with a minimum of one dry head for every 20 lineal feet of common wall between the dwelling unit and the covered patios, covered decks, covered porches, and similar structures.

**Exception:**

Attached roofs of covered patios, covered decks, covered porches, and similar structures that do not exceed 40 square feet of floor area.

For the purposes of this section, fire-resistance-rated floor, wall, or ceiling assemblies separating dwelling units of IRC-2 and IRC-3 buildings shall not constitute separate buildings.

Subp. 2. **Table R301.2(1).** IRC Table R301.2(1) is amended to read as follows:

TABLE R301.2(1)  
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

SUBJECT TO DAMAGE FROM				
ROOF SNOW LOAD <sup>d</sup>	WIND SPEED <sup>c</sup> (mph)	WEATHERING <sup>a</sup>	FROST LINE DEPTH <sup>b</sup>	FLOOD HAZARDS
$p_f = 0.7 \times p_g$	90	Severe	See M.R. part 1303.1600	See M.R. chapter 1335

For SI: 1 pound per square foot = 0.0479 kN/m.0<sup>2</sup>, 1 mile per hour = 1.609 km/h

- a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirement of this code. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216, or C 652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.1(1)
- c. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- d. The ground snow loads to be used in determining the design snow loads for buildings and other structures are given in Minnesota Rules, chapter 1303.

Subp. 3. **Figure R301.2(5)**. IRC Figure R301.2(5), Ground Snow Loads, Pg, for the United States (lb/ft<sup>2</sup>), is deleted in its entirety.

Subp. 4. **Table R301.5**. IRC Table R301.5 is amended to read as follows:

TABLE R301.5  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS  
(in pounds per square foot)

Use	Live Load
Attics with limited storage <sup>b,g,h</sup>	20
Attics without storage <sup>b</sup>	10
Decks <sup>e</sup>	40
Exterior balconies	60
Fire escapes	40
Guardrails and handrails <sup>d</sup>	200 <sup>i</sup>
Guardrails in-fill components <sup>f</sup>	50 <sup>i</sup>
Passenger vehicle garages <sup>a</sup>	50 <sup>a</sup>
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 <sup>c</sup>

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm<sup>2</sup>, 1 pound = 4.45 N.

- a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.
- b. Attics without storage are those where the maximum clear height between joist and rafter is less than 42 inches, or where there are not two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater,

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located within the plane of the truss. For attics without storage, this live load need not be assumed to act concurrently with any other live load requirements.

c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of four square inches, whichever produces the greater stresses.

d. A single concentrated load applied in any direction at any point along the top.

e. See Section R502.2.1 for decks attached to exterior walls.

f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to one square foot. This load need not be assumed to act concurrently with any other live load requirement.

g. For attics with limited storage and constructed with trusses, this live load need be applied only to those portions of the bottom chord where there are two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high or greater by 2 feet wide or greater, located within the plane of the truss. The rectangle shall fit between the top of the bottom chord and the bottom of any other truss member, provided that each of the following criteria is met:

1. The attic area is accessible by a pull-down stairway or framed opening in accordance with Section R807.1;
2. The truss has a bottom chord pitch less than 2:12; and
3. Required insulation depth is less than the bottom chord member depth.

The bottom chords of trusses meeting the above criteria for limited storage shall be designed for the greater of the actual imposed dead load or ten pounds per square foot, uniformly distributed over the entire span.

h. Attic spaces served by a fixed stair shall be designed to support the minimum live load specified for sleeping rooms.

i. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

### 1309.0302 SECTION R302, EXTERIOR WALL LOCATION.

IRC Section R302.1 is amended to read as follows:

**R302.1 Exterior walls.** Construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table 302.1. These provisions shall not apply to walls, projections, openings, or penetrations in walls that are perpendicular to the line used to determine the fire separation distance. Projections beyond the exterior shall not extend more than 12 inches (305 mm) into areas where openings are prohibited.

#### **Exceptions:**

1. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have eave projections not exceeding 4 inches (103 mm).
2. Foundation vents installed in compliance with this code are permitted.

TABLE R302.1  
EXTERIOR WALLS

EXTERIOR WALL ELEMENT	MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
<b>Walls</b>		
(Fire-resistance rated)	1 hour with exposure from both sides	0 feet
(Not fire-resistance rated)	0 hours	5 feet
<b>Projections</b>		
(Fire-resistance rated)	1 hour on the underside <sup>a</sup>	4 feet
(Not fire-resistance rated)	0 hours	5 feet
<b>Openings</b>		
Not allowed	N/A	<3 feet
25 % Maximum of Wall Area	0 hours	3 feet
Unlimited	0 hours	5 feet
<b>Penetrations</b>		
All	Comply with Section R317.3	<5 feet
	None required	5 feet

N/A= Not Applicable

<sup>a</sup> 1 hour on the underside equates to one layer of 5/8" type X gypsum sheathing. Openings are not allowed.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0305 SECTION R305, CEILING HEIGHT.**

IRC Section R305.1 is amended to read as follows:

**R305.1 Minimum height.** Habitable rooms, hallways, corridors, bathrooms, toilet rooms, and basements shall have a ceiling height of not less than 7 feet (2134 mm). The required height shall be measured from the finish floor to the lowest projection from the ceiling. Areas or rooms with ceiling heights less than 7 feet (2134 mm) are considered crawl spaces.

**Exceptions:**

1. Beams and girders spaced not less than 4 feet (1219 mm) on center may project not more than 6 inches (152 mm) below the required ceiling height.
2. Not more than 50 percent of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet (2134 mm) in height with no portion of the required floor area less than 5 feet (1524 mm) in height.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; L 2007 c 140 art 4 s 61; art 13 s 4*



**1309.0309 SECTION R309, GARAGES AND CARPORTS.**

Subpart 1. **IRC Section R309.3.** IRC Section R309.3 is amended to read as follows:

**R309.3 Floor surface.** Garage floor surfaces may be concrete, asphalt, sand, gravel, crushed rock, or natural earth.

Subp. 2. **IRC Section R309.4.** IRC Section R309.4 is amended to read as follows:

**R309.4 Carports.** Carports shall be open on at least two sides. Carport floor surfaces may be concrete, asphalt, sand, gravel, crushed rock, or natural earth. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.

Subp. 3. **IRC Section R309.6.** IRC Section R309.6 is amended to read as follows:

**R309.6 Automatic garage door opening systems.** All automatic garage door opening systems that are installed, serviced, or repaired for garages serving residential buildings must comply with the provisions of Minnesota Statutes, sections 325F.82 and 325F.83.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0310 SECTION R310, EMERGENCY ESCAPE AND RESCUE OPENINGS.**

IRC Section R310.1 is amended to read as follows:

**R310.1.5 Replacement windows.** Replacement windows installed in buildings meeting the scope of the International Residential Code shall be exempt from the requirements of Sections R310.1, R310.1.1, R310.1.2, and R310.1.3 if the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for a greater window opening area than the existing window;

2. The rooms or areas are not used for any Minnesota state licensed purpose requiring an egress window; and

3. The window is not required to be replaced pursuant to a locally adopted rental housing or rental licensing code.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0311 SECTION R311, MEANS OF EGRESS.**

**R311.4.3 Landings at doors.** Except as provided in this section, there shall be a floor or landing on each side of each exterior door. The width of the landing shall not be less than the door served. The landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.

**R311.4.3.1 Landings at the exterior exit door required by Section R311.4.1.**

1. The floor or landing at the exit door required by Section R311.4.1 shall not be more than 1.5 inches (38 mm) below the top of the threshold, regardless of door swing.

2. The exterior landing shall be up to 7-3/4 inches (196 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the exterior landing.

**R311.4.3.2 Landings or floors at exterior doors other than those required by Section R311.4.1.**

1. The exterior landing or floors shall be permitted to be no greater than 7-3/4 inches (196 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the exterior landing.

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2. Landings in this subsection are not required for the exterior side of a door when a stairway that is less than 30 inches (762 mm) in height is located on the exterior side of the door. The stairway height shall be measured vertically from the interior floor surface to the finished grade.

3. An exterior landing is not required at a doorway when only a storm or screen door is installed which does not swing over the exterior landing.

**Statutory Authority:** *MS s 14.388; 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; 33 SR 807; L 2007 c 140 art 4 s 61; art 13 s 4*

1309.0312 [Repealed, 32 SR 12]

## 1309.0313 SMOKE ALARMS.

IRC Section R313.2.1 is amended as follows:

**R313.2.1 Alterations, repairs, or additions.** When alterations, repairs, or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings, and the smoke alarms shall be interconnected and hardwired.

**Exceptions:**

1. Interconnection and hardwiring of smoke alarms in existing areas shall not be required to be hardwired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure.
2. Work on the exterior surfaces of dwellings, such as the replacement of roofing or siding are exempt from the requirements of this section.
3. Permits involving alterations or repairs to plumbing, electrical, and mechanical are exempt from the requirements of this section.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

## 1309.0314 SECTION R314, FOAM PLASTIC.

IRC Section R314.5.11 is amended to read as follows:

**R314.5.11 Sill plate and headers.** Foam plastic shall be permitted to be spray-applied to a sill plate and header (rim joist) without thermal barrier subject to all of the following:

1. The maximum thickness of the foam plastic shall not exceed 5-1/2 inches (139.5 mm).
2. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke developed index of 450 or less when tested in accordance with ASTM E 84.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

1309.0315 [Repealed, 32 SR 12]

1309.0316 [Repealed, 32 SR 12]

## 1309.0317 SECTION R317, DWELLING UNIT SEPARATION.

Subpart 1. **IRC Section R317.1.** IRC Section R317.1 is amended to read as follows:

**R317.1 Two-family dwellings.** Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies having not less than 1-hour fire-resistance rating when tested in accordance with ASTM E 119. Fire-resistance-rated floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend to the underside of the roof sheathing.

**Exceptions:**

1. A fire resistance rating of 1/2-hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.
2. Wall assemblies need not extend through attic spaces when the ceiling is protected by not less than 5/8-inch (15.9 mm) type X gypsum board and an attic draft-stop constructed as specified in Section R502.12.1 is provided above and along the wall assembly separating the dwellings. The structural framing supporting the ceiling shall also be protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent.

**R317.1.1 Supporting construction.** When floor assemblies are required to be fire-resistance-rated by Section R317.1, the supporting construction of such assemblies shall have an equal or greater fire-resistive rating.

Subp. 2. **IRC Section 317.2.** IRC Section 317.2 is amended to read as follows:

**R317.2 Townhouses.** Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.

**Exceptions:**

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. Penetrations of electrical outlet boxes shall be in accordance with Section R317.3.

**R317.2.1 Continuity.** The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, roof deck, or roof slab and shall extend the full length of the wall including wall extensions through and separating attached accessory structures. Separation shall extend through enclosed soffits, overhangs, and similar projections.

Subp. 3. **IRC Section R317.4.** IRC Section R317 is amended by adding a new section to read as follows:

**R317.4 Sound transmission.** Wall and floor-ceiling assemblies separating dwelling units, including those separating adjacent townhouse units, shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies.

**R317.4.1 Airborne sound.** Airborne sound insulation for wall and floor-ceiling assemblies shall meet a Sound Transmission Class (STC) rating of 45 when tested in accordance with ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating, or exhaust ducts shall be sealed, lined, insulated, or otherwise treated to maintain the required ratings. Dwelling unit entrance doors, which share a common space, shall be tight fitting to the frame and sill.

**R317.4.2 Structural-borne sound.** Floor/ceiling assemblies between dwelling units or between a dwelling unit and a public or service area within a structure shall have an Impact Insulation Class (IIC) rating of not less than 45 when tested in accordance with ASTM E 492.

**R317.4.3 Referenced standards.**

**R317.4.3.1** ASTM E 90-04 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements R317.4.1.

**R317.4.3.2** ASTM E 492-04 (1996)e Specification for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine R317.4.2.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0318 SECTION R318, MOISTURE VAPOR RETARDERS.**

IRC Section R318.1 is amended to read as follows:

**R318.1 Vapor retarders.** In all above grade framed walls, floors, and roof/ceilings comprising elements of the building thermal envelope, a vapor retarder shall be installed on the warm side of the insulation. Vapor retarders installed under a concrete floor slab shall comply with section R506.2.3.

**Exception:** In construction where moisture or freezing will not damage the materials.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0322** [Repealed, 32 SR 12]

**1309.0403 SECTION R403, FOOTINGS.**

Subpart 1. **IRC Section R403.1.4.1.** IRC Section R403.1.4.1 is amended to read as follows:

**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. Constructing in accordance with ASCE 32;
4. Erected on solid rock; or
5. Constructing in accordance with Minnesota Rules, chapter 1303.

**Exception:** Decks not supported by a dwelling need not be provided with footings that extend below the frost line.

Subp. 2. **IRC Section R403.1.6.** IRC Section R403.1.6 is amended to read as follows:

**R403.1.6 Foundation anchorage.** When braced wall panels are supported directly on continuous foundations, the wall wood sill plate or cold-formed steel bottom track shall be anchored to the foundation in accordance with this section.

The wood sole plate at exterior walls on monolithic slabs and wood sill plate shall be anchored to the foundation with anchor bolts spaced a maximum of 6 feet (1829 mm) on center. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Bolts shall be at least 1/2 inch (12.7 mm) in diameter and shall extend a minimum of 7 inches (178 mm) into masonry or concrete. Interior bearing wall sole plates on monolithic slab foundations shall be positively anchored with approved fasteners. A nut and washer shall be tightened on each bolt to the plate. Sills and sole plates shall be protected against decay and termites where required by Sections R322 and R323. Cold-formed steel framing systems shall be fastened to the wood sill plates or anchored directly to the foundation as required in Section R505.3.1 or R603.1.1. When vertical reinforcing is required by other sections of this code, the foundation anchor bolts shall align with the reinforcing. All anchor bolts installed in masonry shall be grouted in place with at least 1 inch (25 mm) of grout between the bolt and the masonry.

**Exceptions:**

1. Foundation anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter (12.7 mm) anchor bolts. When vertical reinforcing is required by other sections of this code, the foundation anchor straps shall align with the reinforcing.
2. Walls 24 inches (609.6 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor

bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels according to Figure R602.10.5 at corners.

3. Walls 12 inches (304.8 mm) total length or shorter connecting offset braced wall panels shall be permitted to be connected to the foundation without anchor bolts. The wall shall be attached to adjacent braced wall panels according to Figure R602.10.5 at corners.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0404 SECTION R404, FOUNDATION AND RETAINING WALLS.**

Subpart 1. **Section R404.1.** IRC Section R404.1, Items 4 and 5, are amended to read as follows:

4. Floor shall be blocked perpendicular to the floor joists. Blocking shall be full depth within three joist spaces of the foundation wall.

5. Where foundation walls support unbalanced load on opposite sides of the building, such as a daylight basement, the rim board shall be attached to the sill with a 20 gage metal angle clip at 24 inches on center, with five 8d nails per leg, or an approved connector supplying 230 pounds per linear foot capacity.

Subp. 2. **Table R404.1(2).** IRC Table R404.1(2) is amended to read as follows:

TABLE R404.1(2)

MAXIMUM ANCHOR BOLT SPACING FOR SUPPORTED FOUNDATION WALL

Max. Wall Height	Max. Unbalanced Backfill Height	Soil Classes	Soil Load (pcf/ft)	Top of Wall Reaction (plf) <sup>b</sup>	1/2" diameter Anchor Bolt Spacing (inches) <sup>a</sup>
8'-0"	7'-4"	GW, GP, SW, & SP	30	250	72
		GM, GC, SM-SC, & ML	45	370	72
		SC, MH, ML-CL, & I-CL	60	490	48
9'-0"	8'-4"	GW, GP, SW, & SP	30	320	72
		GM, GC, SM-SC, & ML	45	480	48
		SC, MH, ML-CL, & I-CL	60	640	40

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

<sup>a</sup> Sill plate shall be 2 x 6 minimum. Anchor bolt shall be minimum 0.5" diameter cast-in-place with 7" embed. Anchor bolt shall have a 2" diameter by 0.125" thick washer tightened and countersunk 0.25" into the top of the sill plate.

<sup>b</sup> Minimum load to be used for sizing of accepted anchors or fasteners if bolts are not used.

Subp. 3. **Table R404.1(3).** IRC Table R404.1(3) is deleted in its entirety.

Subp. 4. **Section R404.1.1.** IRC Section R404.1.1 is amended to read as follows:

**R404.1.1 Masonry foundation walls.** Concrete masonry and clay masonry foundation walls shall be constructed as set forth in Table R404.1.1(1), R404.1.1(2), R404.1.1(3), or R404.1.1(4) and shall also comply with the provisions of Section R404 and the applicable provisions of Sections R606, R607, and R608. Rubble stone masonry foundation walls shall be constructed in accordance with Sections R404.1.8 and R607.2.2. Cantilevered masonry foundation walls shall be constructed as set forth in Table R404.1.1(6), R404.1.1(7), or R404.1.1(8). Cantilevered means: foundation walls that do not have permanent lateral support at the top.

Subp. 5. **Section R404.1.2.** IRC Section R404.1.2 is amended to read as follows:

**R404.1.2 Concrete foundation walls.** Concrete foundation walls shall be constructed as set forth in Table R404.1.1(5) and shall also comply with the provisions of Section R404 and the applicable provisions of Section R404.2. Cantilevered concrete foundation walls shall be constructed as set forth in Table R404.1.1(6), R404.1.1(7), or R404.1.1(8). Cantilevered means: foundation walls that do not have permanent lateral support at the top.

Subp. 6. **Table R404.1.1(6).** IRC Section R404 is amended by adding a new table as follows:

TABLE R404.1.1(6)  
CANTILEVERED CONCRETE AND MASONRY FOUNDATION WALLS

Maximum Wall Height <sup>f</sup> (feet)	Maximum Unbalanced Backfill Height <sup>e</sup> (feet)	Minimum Vertical Reinforcement Size and Spacing for 8-Inch Nominal Wall Thickness <sup>a,b,c,e,f,i,k</sup>		
		Soil Classes <sup>d</sup>		
		GW, GP, SW, and SP	GM, GC, SM, SM-SC, and ML	SC, MH, ML-CL, and inorganic CL
4	3	None required	None required	None required
	4	None required	None required	No. 4 @ 72 in. o.c.
5	3	None required	None required	None required
	4	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>h</sup>	No. 4 @ 40 in. o.c. <sup>g</sup>
	5	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>h</sup>	No. 4 @ 40 in. o.c. <sup>g</sup>

- a. Mortar shall be Type M or S and masonry shall be laid in running bond. Minimum unit compressive strength is 1,900 psi.
- b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches.
- c. Vertical reinforcement shall be Grade 60 minimum. The distance from the face of the soil side of the wall to the center of vertical reinforcement shall be no greater than 2.5 inches.
- d. Soil classes are in accordance with the Unified Soil Classification System. Refer to Table R405.1.
- e. Interior concrete floor slab-on-grade shall be placed tight to the wall. The exterior grade level shall be 6 inches minimum below the top of wall. Maximum height from top of slab-on-grade to bottom of floor joists is 10 feet, 0 inches. Unbalanced backfill height is the difference in height of the exterior finish ground levels and the top of the interior concrete slab-on-grade.
- f. Minimum footing size of 20 inches by 8 inches shall be placed on soil with a bearing capacity of 2,000 psf. Minimum concrete compressive strength of footing shall be 3,000 psi.
- g. Provide propped cantilever wall: top of footing shall be 16 inches below the bottom of the concrete floor slab minimum.
- h. Provide #5 Grade 60 dowels, 1 foot, 6 inches long, to connect footing to wall. Embed dowel 5 inches into footing. Place dowels in center of wall thickness spaced at 32 inches

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o.c. maximum. No dowels are required where length of the foundation wall between perpendicular walls is two times the foundation wall height or less.

i. This table is applicable where the length of the foundation wall between perpendicular walls is 35 feet or less, or where the length of the foundation laterally supported on only one end by a perpendicular wall is 17 feet or less.

j. Maximum wall height is measured from top of the foundation wall to the bottom of the interior concrete slab-on-grade.

k. Install foundation anchorage per Section R403.1.6.

Subp. 7. **Table R404.1.1(7)**. IRC Section R404 is amended by adding a new table as follows:

TABLE R404.1.1(7)  
CANTILEVERED CONCRETE AND MASONRY FOUNDATION WALLS

Maximum Wall Height <sup>j</sup> (feet)	Maximum Unbalanced Backfill Height <sup>e</sup> (feet)	Minimum Vertical Reinforcement Size and Spacing for 10-Inch Nominal Wall Thickness <sup>a,b,c,e,f,i,k</sup>		
		Soil Classes <sup>d</sup>		
		GW, GP, SW, and SP	GM, GC, SM, SM-SC, and ML	SC, MH, ML-CL, and inorganic CL
4	3	None required	None required	None required
	4	None required	None required	None required
5	3	None required	None required	None required
	4	None required	No. 4 @ 72 in. o.c.	No. 4 @ 64 in. o.c. <sup>g</sup>
	5	No. 4 @ 72 in. o.c.	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>g</sup>
6	3	None required	No. 4 @ 72 in. o.c.	No. 4 @ 72 in. o.c.
	4	No. 4 @ 72 in. o.c.	No. 4 @ 72 in. o.c.	No. 4 @ 64 in. o.c. <sup>h</sup>
	5	No. 4 @ 64 in. o.c. <sup>h</sup>	No. 4 @ 40 in. o.c. <sup>g,h</sup>	No. 5 @ 48 in. o.c. <sup>g,h</sup>
	6	No. 4 @ 64 in. o.c. <sup>h</sup>	No. 4 @ 40 in. o.c. <sup>g,h</sup>	No. 5 @ 48 in. o.c. <sup>g,h</sup>

a. Mortar shall be Type M or S and masonry shall be laid in running bond. Minimum unit compressive strength is 1,900 psi.

b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches.

c. Vertical reinforcement shall be Grade 60 minimum. The distance from the face of the soil side of the wall to the center of vertical reinforcement shall be no greater than 2.5 inches.

d. Soil classes are in accordance with the Unified Soil Classification System. Refer to Table R405.1.

- e. Interior concrete slab-on-grade shall be placed tight to the wall. The exterior grade level shall be 6 inches minimum below the top of wall. Maximum height from top of slab-on-grade to bottom of floor joists is 10 feet, 0 inches. Unbalanced backfill height is the difference in height of the exterior finish ground levels and the top of the interior concrete slab-on-grade.
- f. Minimum footing size of 20 inches by 8 inches shall be placed on soil with a bearing capacity of 2,000 psf. Minimum concrete compressive strength of footing shall be 3,000 psi.
- g. Provide propped cantilever wall: top of footing shall be 16 inches below the bottom of the concrete floor slab minimum.
- h. Provide #5 Grade 60 dowels, 1 foot, 6 inches long, to connect footing to wall. Embed dowel 5 inches into footing. Place dowels in center of wall thickness spaced at 32 inches o.c. maximum. No dowels are required where length of the foundation wall between perpendicular walls is two times the foundation wall height or less.
- i. This table is applicable where the length of the foundation wall between perpendicular walls is 35 feet or less, or where the length of the foundation laterally supported on only one end by a perpendicular wall is 17 feet or less.
- j. Maximum wall height is measured from top of the foundation wall to the bottom of the interior concrete slab-on-grade.
- k. Install foundation anchorage per Section R403.1.6.

Subp. 8. **Table R404.1.1(8)**. IRC Section R404 is amended by adding a new table as follows:

TABLE R404.1.1(8)

CANTILEVERED CONCRETE AND MASONRY FOUNDATION WALLS

Maximum Wall Height <sup>j</sup> (feet)	Maximum Unbalanced Backfill Height <sup>e</sup> (feet)	Minimum Vertical Reinforcement Size and Spacing for 12-Inch Nominal Wall Thickness <sup>a,b,c,e,f,i,k</sup>		
		Soil Classes <sup>d</sup>		
		GW, GP, SW, and SP	GM, GC, SM, SM-SC, and ML	SC, MH, ML-CL, and inorganic CL
4	3	None required	None required	None required
	4	None required	None required	None required
5	3	None required	None required	None required
	4	None required	None required	No. 4 @ 72 in. o.c.
	5	No. 4 @ 72 in. o.c.	No. 4 @ 72 in. o.c.	No. 4 @ 72 in. o.c.
6	3	None required	None required	None required
	4	None required	None required	No. 4 @ 72 in. o.c.
	5	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>h</sup>	No. 4 @ 40 in. o.c. <sup>g</sup>



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	6	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>g</sup>	No. 4 @ 32 in. o.c. <sup>g,h</sup>
<hr/>				
	7	3	None required	None required
		4	None required	No. 4 @ 72 in. o.c.
		5	No. 4 @ 72 in. o.c.	No. 4 @ 56 in. o.c. <sup>h</sup> No. 4 @ 40 in. o.c. <sup>g</sup>
		6	No. 4 @ 48 in. o.c. <sup>h</sup>	No. 5 @ 48 in. o.c. <sup>g,h</sup> No. 6 @ 48 in. o.c. <sup>g,h</sup>
		7	No. 4 @ 48 in. o.c. <sup>h</sup>	No. 5 @ 40 in. o.c. <sup>g,h</sup> No. 6 @ 48 in. o.c. <sup>g,h</sup>

- a. Mortar shall be Type M or S and masonry shall be laid in running bond. Minimum unit compressive strength is 1,900 psi.
- b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches.
- c. Vertical reinforcement shall be Grade 60 minimum. The distance from the face of the soil side of the wall to the center of vertical reinforcement shall be no greater than 3 inches.
- d. Soil classes are in accordance with the Unified Soil Classification System. Refer to Table R405.1.
- e. Interior concrete slab-on-grade shall be placed tight to the wall. The exterior grade level shall be 6 inches minimum below the top of wall. Maximum height from top of slab-on-grade to bottom of floor joists is 10 feet, 0 inches. Unbalanced backfill height is the difference in height of the exterior finish ground levels and the top of the interior concrete slab-on-grade.
- f. Minimum footing size of 20 inches by 8 inches shall be placed on soil with a bearing capacity of 2,000 psf. Minimum concrete compressive strength of footing shall be 3,000 psi.
- g. Provide propped cantilever wall: top of footing shall be 16 inches below the bottom of the concrete floor slab minimum.
- h. Provide #5 Grade 60 dowels, 1 foot, 6 inches long, to connect footing to wall. Embed dowel 5 inches into footing. Place dowels in center of wall thickness spaced at 32 inches o.c. maximum. No dowels are required where length of the foundation wall between perpendicular walls is two times the foundation wall height or less.
- i. This table is applicable where the length of the foundation wall between perpendicular walls is 35 feet or less, or where the length of the foundation laterally supported on only one end by a perpendicular wall is 17 feet or less.
- j. Maximum wall height is measured from top of the foundation wall to the bottom of the interior concrete slab-on-grade.
- k. Install foundation anchorage per Section R403.1.6.

Subp. 9. **IRC Section R404.1.3.** IRC Section R404.1.3 is amended by adding the following exception to condition 2:

**Exception:** Cantilevered concrete and masonry foundation walls constructed in accordance with Table R404.1.1(6), R404.1.1(7), or R404.1.1(8).

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0406 SECTION R406, FOUNDATION WATERPROOFING AND DAMPPROOFING.**

Subpart 1. **IRC Section R406.1.** IRC Section R406.1 is amended to read as follows:

**R406.1 Concrete and masonry foundation dampproofing.** Except where required by Section R406.2 to be waterproofed, foundation walls that retain earth and enclose interior spaces and floors below grade shall be dampproofed at a minimum from the top of the footing to the finished grade. Masonry walls shall be parged with not less than 3/8-inch (9.5 mm) portland cement parging applied to the exterior of the wall. The parging shall be dampproofed in accordance with one of the following:

1. Bituminous coating.
2. 3 pounds per square yard (1.63 kg/m<sup>2</sup>) of acrylic modified cement.
3. 1/8-inch (3.2 mm) coat of surface-bonding cement complying with ASTM C 887.
4. Any material permitted for waterproofing in Section R406.2.
5. Other approved methods or materials.

**Exception:** Parging of unit masonry walls is not required where a material is approved for direct application to the masonry.

Concrete walls shall be dampproofed by applying any one of the above listed damp-proofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

Subpart 2. **IRC Section R406.2.** IRC Section R406.2 is amended to read as follows:

**R406.2 Concrete and masonry foundation waterproofing.**

In all soils groups other than Group 1 soils in accordance with Table R405.1, exterior foundation walls that retain earth and enclose interior spaces and floors below grade shall be waterproofed at a minimum from the top of the footing to the finished grade. Walls shall be waterproofed in accordance with one of the following:

1. 2-ply hot-mopped felts.
2. 55 pound (25 kg) roll roofing.
3. 6 mil (0.15 mm) polyvinyl chloride.
4. 6 mil (0.15 mm) polyethylene.
5. 40-mil (1 mm) polymer-modified asphalt.
6. 60-mil (1.5 mm) flexible polymer cement.
7. 1/8-inch cement based, fiber reinforced, waterproof coating.
8. 60-mil (1.5 mm) solvent free liquid applied synthetic rubber.

**Exception:** Organic solvent-based products such as hydrocarbons, chlorinated hydrocarbons, ketones, and esters shall not be used for ICF walls with expanded polystyrene form material. Plastic roofing cements, acrylic coatings, latex coatings, mortars, and pargings are permitted to be used to seal ICF walls. Cold-setting asphalt or hot asphalt shall conform to Type C of ASTM D 449. Hot asphalt shall be applied at a temperature of less than 200 degrees.

All joints in membrane waterproofing shall be lapped and sealed with an adhesive compatible with the membrane.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0506** [Repealed, 32 SR 12]

**1309.0602 SECTION R602, WOOD WALL FRAMING.**

Subpart 1. **Table R602.3.1.** IRC Table R602.3.1 is amended to read as follows:

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TABLE R602.3.1

MAXIMUM ALLOWABLE LENGTH OF WOOD WALL STUDS EXPOSED TO  
WIND SPEEDS OF 90 MPH OR LESS<sup>b,c,d,e,f,g,h,i</sup>

Where conditions are not within the parameters  
of footnotes b, c, d, e, f, g, h, and i,  
design is required.

ROOF SPANS UP TO 22' SUPPORTING A ROOF ONLY

Maximum Wall Height (feet)	Exposure Category <sup>h,i</sup>	On-Center Spacing (inches)			
		24	16	12	8
10	B	2x6	2x4	2x4	2x4
	C	2x6	2x6	2x4	2x4
12	B	2x6	2x6	2x4	2x4
	C	2x6	2x6	2x6	2x4
14	B	2x6	2x6	2x6	2x4
	C	2x6	2x6	2x6	2x6
16	B	2x8	2x6	2x6	2x6
	C	2x8	2x6	2x6	2x6
18	B	2x8	2x8	2x6	2x6
	C	2x8	2x8	2x6	2x6
20	B	2x8	2x8	2x8	2x6
	C	NA <sup>a</sup>	2x8	2x8	2x6
24	B	NA <sup>a</sup>	2x8	2x8	2x8
	C	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8

ROOF SPANS GREATER THAN 22' AND UP TO 26' SUPPORTING A ROOF ONLY

Maximum Wall Height (feet)	Exposure Category <sup>h,i</sup>	On-Center Spacing (inches)			
		24	16	12	8
10	B	2x6	2x6	2x4	2x4
	C	2x6	2x6	2x6	2x4
12	B	2x6	2x6	2x6	2x4
	C	2x8	2x6	2x6	2x6

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14	B	2x6	2x6	2x6	2x6
	C	2x8	2x8	2x6	2x6
16	B	2x8	2x6	2x6	2x6
	C	2x8	2x8	2x6	2x6
18	B	2x8	2x8	2x6	2x6
	C	NA <sup>a</sup>	2x8	2x8	2x6
20	B	NA <sup>a</sup>	2x8	2x8	2x6
	C	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
24	B	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
	C	NA <sup>a</sup>	NA <sup>a</sup>	NA <sup>a</sup>	2x8

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### ROOF SPANS GREATER THAN 26' AND UP TO 30' SUPPORTING A ROOF ONLY

Maximum Wall Height (feet)	Exposure Category <sup>h,i</sup>	On-Center Spacing (inches)			
		24	16	12	8
10	B	2x6	2x6	2x4	2x4
	C	2x6	2x6	2x6	2x4
12	B	2x6	2x6	2x6	2x4
	C	2x8	2x6	2x6	2x6
14	B	2x8	2x6	2x6	2x6
	C	2x8	2x8	2x6	2x6
16	B	2x8	2x6	2x6	2x6
	C	2x8	2x8	2x8	2x6
18	B	2x8	2x8	2x6	2x6
	C	NA <sup>a</sup>	2x8	2x8	2x8
20	B	NA <sup>a</sup>	2x8	2x8	2x6
	C	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
24	B	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
	C	NA <sup>a</sup>	NA <sup>a</sup>	NA <sup>a</sup>	2x8

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# MINNESOTA RULES 2011

ROOF SPANS GREATER THAN 30' AND UP TO 34' SUPPORTING A ROOF ONLY

Maximum Wall Height (feet)	Exposure Category <sup>h,i</sup>	On-Center Spacing (inches)			
		24	16	12	8
10	B	2x6	2x6	2x4	2x4
	C	2x6	2x6	2x6	2x4
12	B	2x6	2x6	2x6	2x4
	C	2x8	2x6	2x6	2x6
14	B	2x8	2x6	2x6	2x6
	C	2x8	2x8	2x6	2x6
16	B	2x8	2x8	2x6	2x6
	C	NA <sup>a</sup>	2x8	2x8	2x6
18	B	2x8	2x8	2x6	2x6
	C	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
20	B	NA <sup>a</sup>	2x8	2x8	2x6
	C	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
24	B	NA <sup>a</sup>	NA <sup>a</sup>	2x8	2x8
	C	NA <sup>a</sup>	NA <sup>a</sup>	NA <sup>a</sup>	2x8

- a. Design required.
- b. Applicability of these tables assumes the following: SPF#2 or better, Ground snow = 60 psf, Roof snow = 42 psf, Component and Cladding Zone 4 - 50 square feet (Exposure B = 14.3 psf, Exposure C = 18.4 psf), eaves not greater than 2.0 feet in dimension.
- c. The exterior of the wall shall be continuously sheathed in accordance with one of the methods (2-8) listed in Section R602.10.3.
- d. Studs shall be continuous full height.
- e. Full depth blocking is required at 10-foot spacing maximum.
- f. Utility, standard, stud, and No. 3 grade lumber of any species are not permitted.
- g. This table is based on a maximum allowable deflection limit of L/120.
- h. Exposure B-Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meets the definition of another type exposure.
- i. Exposure C - Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet extending more than 1,500 feet from the building site in any quadrant. This category includes flat open country, grasslands, and shorelines in hurricane prone regions. Exposure C shall also apply to any building located within Exposure B type terrain where the building is directly adjacent to open areas of Exposure C type terrain in any quadrant for a distance of more than 600 feet.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0613 SECTION R613, EXTERIOR WINDOWS AND GLASS DOORS.**

Subpart 1. **Section R613.1.** IRC Section R613.1 is amended to read as follows:

**R613.1 General.** This section prescribes performance and construction requirements for exterior window systems installed in wall systems. Windows and doors shall be installed in accordance with the manufacturer's installation instructions. Installation instructions shall be provided by the manufacturer for each exterior window or door type.

Subp. 2. **Section R613.2.** IRC Section R613.2 is deleted in its entirety.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0703 SECTION R703, EXTERIOR COVERING.**

Subpart 1. [Repealed, 32 SR 12]

Subp. 2. [Repealed, 32 SR 12]

Subp. 3. **Section R703.6.** IRC Section R703.6 is amended to read as follows:

**R703.6 Exterior plaster.** Installation of these materials shall be in compliance with ASTM C 926-98a and ASTM C 1063-03 and provisions of this code.

**R703.6.1 Lath.** All lath and lath attachments shall be of corrosion-resistant materials. Expanded metal or woven wire lath shall be attached with 11 gage nails having a 7/16-inch (11.1 mm) head or 16 gage staples, spaced at no more than 6 inches (152 mm) or as otherwise approved. Nails or staples shall penetrate wood framing support members not less than 3/4-inch (19 mm).

**R703.6.2.1 Weep screeds.** A minimum 0.019-inch (No. 26 galvanized sheet gage), corrosion-resistant weep screed or plastic weep screed, with a minimum vertical attachment flange of 3-1/2 inches (89 mm) shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C 1063-03. The weep screed shall be placed a minimum of 4 inches (102 mm) above the earth or 2 inches (51 mm) above paved areas and shall be of a type that will allow trapped water to drain to the exterior of the building. The weather-resistant barrier shall lap the attachment flange. The exterior lath shall cover and terminate on the attachment flange of the weep screed.

**R703.6.1.3 Control joints and expansion joints.** Provisions for the control of expansion shall be determined by the exterior plaster application designer. ASTM C 1063-03 sections 7.11 4 - 7.11 4.4 do not apply.

**R703.6.3 Water-resistive barriers.** Water-resistive barriers shall be installed as required in Section R703.2 and, where applied over wood-based sheathing, shall include two layers of a water-resistive vapor-permeable barrier. Each layer shall meet both of the following requirements:

1. A water resistance not less than that of 60-minute Grade D paper; or a minimum hydrostatic head of 60.9 cm when tested in accordance with hydrostatic pressure test method AATCC 127-1998; or a minimum water transudation time of 60 minutes when tested in accordance with ASTM D-779.
2. A water vapor permeance not less than that of no. 15 felt; or a minimum permeance rating of 8.5 gr/h.ft.<sup>2</sup> in Hg (US perm) ( $4.9 \times 10^{10}$  kg/Pa.s.m<sup>2</sup>) when tested in accordance with Procedure B of ASTM E96.

**Exception:** One layer of water-resistive barrier complying with R703.2 is permitted when a drainage space that allows bulk water to flow freely behind the cladding is provided.

Subp. 3a. **Section R703.7.** IRC Section R703.7 is amended by adding the following sentence to the end of Section R703.7: For structures in 90 mph wind speed region apply Seismic Design Category A limitations and requirements of Exception 1 and Table R703.7(1).

Subp. 4. [Repealed, 32 SR 12]

Subp. 5. [Repealed, 32 SR 12]

Subp. 6. [Repealed, 32 SR 12]

Subp. 7. [Repealed, 32 SR 12]

Subp. 8. [Repealed, 32 SR 12]

Subp. 8a. **Section R703.7.4.2.** IRC Section R703.7.4.2 is amended to read as follows:

**R703.7.4.2 Air space.** The veneer shall be separated from the sheathing by an air space of a minimum of a nominal 1 inch (25 mm) but not more than 4-1/2 inches (114 mm).

**Exception:** One layer of water-resistive barrier complying with Section R703.2 is permitted when a drainage space that allows bulk water to flow freely behind the cladding is provided.

Subp. 8b. **Section R703.7.4.3.** IRC Section R703.7.4.3 is amended to read as follows:

**R703.7.4.3 Mortar or grout fill.** As an alternate to the air space required by Section R703.7.4.2, mortar or grout shall be permitted to fill the air space. When the 1-inch (25.4 mm) space is filled with mortar, a weather-resistant membrane or building paper as described in Section R703.2 or R703.6.3 is required over studs or sheathing. When filling the air space, it is permitted to replace the sheathing and weather-resistant membrane or asphalt-saturated felt paper with a wire mesh and approved paper or an approved paper-backed reinforcement attached directly to the studs.

**R703.7.4.4 Masonry veneer on sheathed substrates.** On sheathed substrates, a corrosion-resistant, self-furring expanded metal lath shall be installed over the weather-resistant membrane or building paper with appropriate fasteners as described in Section R703.6.1. Fasteners shall penetrate wood supports a minimum of one inch.

Subp. 9. **Section R703.8.** IRC Section R703.8 is amended to read as follows:

**R703.8 Flashing.** Approved corrosion-resistant flashing shall be applied shingle-fashion in such a manner as to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. The flashing shall extend to the surface of the exterior wall finish. Approved corrosion-resistant flashing shall be installed at all of the following locations:

1. Exterior window and door openings. Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage.
2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.
3. Under and at the ends of masonry, wood, or metal copings and sills.
4. Continuously above all projecting wood trim.
5. Where exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction.
6. At wall and roof intersections.
7. At built-in gutters.
8. Where exterior material meets in other than a vertical line.
9. Where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding in such a manner as to divert or kick out water away from the assembly.

**R703.8.1 Pan flashing of windows and doors.** A pan flashing shall be provided under all exterior windows and doors. Pan flashing shall be (a) sloped to drain water to the exterior surface of a weather-resistive barrier or flat with sealed back dam and side dams to prevent re-entry of water into the wall cavity or onto interior finishes, and (b) maintain the thermal envelope of the building. Pan flashing made from metal must be thermally isolated from interior surfaces.

**Exceptions:**

1. Windows or doors installed in accordance with the manufacturer's installation instructions which include an alternate flashing method.
2. Windows or doors in detached accessory structures.
3. Skylights, bow or bay windows.
4. Doors required to meet accessibility requirements that would prevent the installation of pan flashing.
5. Repairs or replacement of existing windows and doors.
6. When a method is provided by a registered design professional.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *27 SR 1475; 32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0802 SECTION 802, WOOD ROOF FRAMING.**

IRC Section R802.10.5 is amended to read as follows:

**R802.10.5 Truss to wall connection.** Trusses shall be connected to wall plates by the use of fasteners or connectors having a resistance to uplift of not less than the value listed on the truss design drawings.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0806 SECTION R806, ROOF VENTILATION.**

IRC Section R806.4 is deleted in its entirety.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0903 SECTION R903, WEATHER PROTECTION.**

IRC Section R903.2.2 is amended as follows:

**R903.2.2 Kick-out flashing/diverter.** A kick-out flashing shall be installed where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding, in such a manner as to divert or kick out water away from the assembly.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*

**1309.0905 SECTION R905, REQUIREMENTS FOR ROOF COVERINGS.**

IRC Section R905.2.1 is amended as follows:

**R905.2.1 Sheathing requirements.** Asphalt shingles shall be fastened to solidly sheathed decks or 1 inch thick nominal wood boards.

**Statutory Authority:** *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

**History:** *32 SR 12; L 2007 c 140 art 4 s 61; art 13 s 4*