**Department of Labor and Industry**

**Proposed Permanent Rules Adopting Changes to the International Residential Code**

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

Subpart 1. **Generally.** The ~~2012~~ 2018 edition of the International Residential Code ("IRC") as promulgated by the International Code Council, Inc. ("ICC"), Washington, D.C., 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. Portions of this publication reproduce excerpts from the ~~2012~~ 2018 IRC, International Code Council, Inc., Washington, D.C., copyright ~~2012~~ 2017, reproduced with permission, all rights reserved. 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.

Subp. 1a. **Deleted appendices.** All of the IRC appendices are deleted except Appendix K and Appendix Q.

Subp. 2. **Mandatory chapters.** The ~~2012~~ 2018 IRC chapters 2 to 10, 44, section P2904 of chapter 29, ~~and~~ Appendix K, and Appendix Q shall be administered by any municipality that has adopted the Minnesota State Building 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 ~~2012~~ 2018 IRC chapters are being deleted and replaced with the provisions ~~listed below~~ in items A to E:

A. Chapter 1 of the ~~2012~~ 2018 IRC ~~and any references to code administration in this code are~~ is deleted and replaced ~~with Minnesota Rules, chapter 1300, Minnesota Building Code Administration~~ as provided in part 1309.0100, subpart 1.

B. Chapter 11 of the ~~2012~~ 2018 IRC and any references to residential or commercial energy in this code are deleted and replaced with Minnesota Rules, chapters 1322 and 1323, Minnesota Energy Code.

C. Chapters 12 to 24 of the ~~2012~~ 2018 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 to 33 of the ~~2012~~ 2018 IRC and any references to plumbing in this code are deleted and replaced with Minnesota Rules, chapter 4714, Minnesota Plumbing Code, except that section P2904 of IRC chapter 29 is not deleted.

E. Chapters 34 to 43 of the ~~2012~~ 2018 IRC and references to electrical matters in this code, other than ~~section~~ sections R314 Smoke Alarms and R315 Carbon Monoxide Alarms, are deleted and replaced with Minnesota Rules, chapter 1315, Minnesota Electrical Code.

Subp. 4. [Repealed, 39 SR 91]

*[For text of subparts 5 and 6, see Minnesota Rules]*

**1309.0020 REFERENCES TO OTHER ICC CODES.**

Subpart 1. **Generally.** References to other codes and standards promulgated by the ICC in the ~~2012~~ 2018 IRC are modified in subparts 2 to 11.

*[For text of subparts 2 to 6, see Minnesota Rules]*

Subp. 7. **Plumbing code.** References to the International Plumbing code in this code mean the Minnesota Plumbing Code, Minnesota Rules, chapter 4714, adopted under Minnesota Statutes, section ~~326B.106, subdivisions 1 and 2~~ 326B.435.

*[For text of subparts 8 to 11, see Minnesota Rules]*

## 1309.0100 CHAPTER 1, ADMINISTRATION.

*[For text of subparts 1 and 2, see Minnesota Rules]*

Subp. 3. **Transient use.** Buildings constructed for transient use and required to be licensed by any Minnesota state agency shall be constructed in accordance with the requirements for Group R occupancies located in Minnesota Rules, chapter 1305.

## 1309.0202 SECTION R202, DEFINITIONS.

*[For text of subpart 1, see Minnesota Rules]*

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

**APPROVED.** "Approved" means approval by the building official, pursuant to the Minnesota State Building Code, by reason of:

a. inspection, investigation, or testing;

b. accepted principles;

c. computer simulations;

d. research reports; or

e. testing performed by either a licensed engineer or by a locally or nationally recognized testing laboratory.

**CODE.** For purposes of this chapter, "the code" or "this code" means the Minnesota Residential Code, Minnesota Rules, chapter 1309.

**CRAWL SPACE.** Areas or rooms with less than 6 feet 4 inches (1931 mm) ceiling height measured to the finished floor or grade below.

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

**FLOOR AREA.** The calculated square footage of the floor within the inside perimeter of the exterior walls of the building under consideration without deduction for hallways, stairways, closets, the thickness of interior walls, columns, or other features.

**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.

**SILL HEIGHT.** The lowest part of the window opening of an operable window measured from the finished floor.

**TRANSIENT.** Occupancy of a dwelling unit or sleeping unit for not more than 30 days.

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

**1309.0301 SECTION R301, DESIGN CRITERIA.**

Subpart 1. [Repealed, 39 SR 91]

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

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

| ROOF SNOW LOAD[f] | WIND DESIGN | | SEISMIC DESIGN CATEGORY[l] |
|---|---|---|---|
| | Speed[d] (mph) | Topographic effects[k] | |
| $p_f = 0.7 * p_g$ | ~~90~~ 115 | YES | A |

| SUBJECT TO DAMAGE FROM | | | WINTER DESIGN TEMP[e] |
|---|---|---|---|
| Weathering[a] | Frost line depth[b] | Termite[c] | |
| Severe | See MR part 1303.1600 | See Footnote "c" | See MR chapter ~~1323~~ 1322 |

| ICE BARRIER UNDERLAYMENT REQUIRED[h] | FLOOD HAZARDS[g] | AIR FREEZING INDEX[i] | MEAN ANNUAL TEMP[j] |
|---|---|---|---|
| Yes | See MR chapter 1335 | See Table R403.3(2) | ~~41.16~~ See Footnote "j" |

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

[a] ~~.~~ Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index, such as "negligible," "moderate," or "severe," for concrete as determined from the Weathering Probability Map ~~[~~Figure ~~R301.2(3)]~~ R301.2(4). 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] ~~.~~ See Minnesota Rules, part 1303.1600 -- Footing Depth for Frost Protection to verify whether the county requires Zone I or Zone II frost protection.

[c] ~~.~~ The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

[d] ~~. The jurisdiction shall fill in this part of the table with the wind speed from the basic~~ See wind speed map ~~[~~Figure ~~R301.2(4)A]~~ R301.2(5)A. Wind exposure category shall be determined on a site-specific basis in accordance with section R301.2.1.4.

[e] ~~.~~ See Minnesota Rules, chapter 1322 ~~- Table R403.5.17~~, Climate Data Design Conditions to verify by city.

[f] ~~.~~ The ground snow loads to be used in determining the design snow loads for buildings and other structures are given in Minnesota Rules, part 1303.1700 - Ground Snow Load to verify by county. The roof snow load is a uniform load on the horizontal projection of the roof.

[g] ~~.~~ See Minnesota Rules, chapter 1335, Flood Proofing Regulations.

[h] ~~.~~ In accordance with sections ~~R905.2.7.1~~ R905.1.2, R905.2.7, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1, and R905.8.3.1, where there has been a history of local damage from the effects of ice damming.

[i] ~~.~~ The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32° F)" at ~~www.ncdc.noaa.gov/oa/fpsf~~ www.ncdc.noaa.gov.sites/default/files/attachments/Air-Freezing-Index-Return-Periods-and-Associated-Probabilities.pdf.

[j] ~~.~~ The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Average Mean Temperature Index" at ~~http://www.esrl.noaa.gov/psd/data/usclimate/tmp.state.19712000.climo~~ www.ncdc.noaa.gov.sites/default/files/attachments/Air-Freezing-Index-Return-Periods-and-Associated-Probabilities.pdf.

[k] ~~.~~ In accordance with section R301.2.1.5.

[l] ~~.~~ Assigned to allow the application of the least restrictive topographic provisions of the code.

Subp. 3. **IRC Figure ~~R301.2(5)~~ R301.2(6).** Figure ~~R301.2(5)~~ R301.2(6), Ground Snow Loads, Pg, for the United States (lb/ft$^2$), is deleted in its entirety.

Subp. 4. [Repealed, 39 SR 91]

## 1309.0302 SECTION R302, FIRE-RESISTANT CONSTRUCTION.

Subpart 1. **IRC ~~section R302.2, Townhouses~~ Tables R302.1(1) and R302.1(2).** ~~Section R302.2 is~~ Table R302.1(1) and Table R302.1(2) are amended to read as follows:

~~**R302.2 Townhouses.** Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of section R302.1 for exterior walls.~~

~~**Exception:** A common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with Minnesota Rules, chapter 1315. Penetrations of electrical outlet boxes shall be in accordance with section R302.4.~~

~~**R302.2.1 Continuity.** The fire-resistance-rated wall assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, roof deck, or roof slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures. The separation shall extend through enclosed soffits, overhangs, and similar projections.~~

**R302.2.2 Parapets.** Parapets constructed in accordance with section R302.2.3 shall be constructed for townhouses as an extension of exterior walls or common walls in accordance with the following:

1. where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof surfaces; or

2. where roof surfaces adjacent to the wall or walls are at different elevations, and the higher roof is not more than 30 inches (762 mm) above the lower roof, the parapet shall extend not less than 30 inches (762 mm) above the lower roof surface.

**Exception:** A parapet is not required in the two cases above when the roof is covered with a minimum class C roof covering, and the roof decking or sheathing is of noncombustible materials or approved fire-retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) type X gypsum board is installed directly beneath the roof decking or sheathing, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a minimum distance of 4 feet (1219 mm) on each side of the wall or walls and there are no openings or penetrations in the roof within 4 feet (1219 mm) of the common walls.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than 30 inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher roof deck shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides.

**TABLE R302.1(1) EXTERIOR WALLS**

| EXTERIOR WALL ELEMENT | MINIMUM FIRE-RESISTANCE RATING | MINIMUM FIRE SEPARATION DISTANCE |
|---|---|---|
| **Walls** | | |
| Fire-resistance-rated | 1-hour - tested in accordance with ASTM E 119 or UL 263 with exposure from both sides | < 5 feet |
| Not fire-resistance-rated | 0 hours | ≥ 5 feet |
| **Projections** | | |
| Fire-resistance-rated | 1-hour on the underside[a] | ≥ 2 feet to < 5 feet |
| Not fire-resistance-rated | 0 hours | ≥ 5 feet |
| **Openings in walls** | | |
| Not allowed | N/A | < 3 feet |
| 25% Maximum of Wall Area | 0 hours | 3 feet |
| Unlimited | 0 hours | 5 feet |
| **Penetrations** | | |
| All | Comply with section R302.4 | < 5 feet |
| | None required | 5 feet |

For SI: 1 foot = 304.8 mm

N/A = Not Applicable

[a] 1-hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed.

**TABLE R302.1(2) EXTERIOR WALLS - DWELLINGS WITH FIRE SPRINKLERS**

| EXTERIOR WALL ELEMENT | MINIMUM FIRE-RESISTANCE RATING | MINIMUM FIRE SEPARATION DISTANCE |
|---|---|---|
| **Walls** | | |

| | | |
|---|---|---|
| Fire-resistance-rated | 1-hour - tested in accordance with ASTM E 119 or UL 263 with exposure from the outside | 0 feet |
| Not fire-resistance-rated | 0 hours | 3 feet |
| **Projections** | | |
| Fire-resistance-rated | 1-hour on the underside[a] | 2 feet |
| Not fire-resistance-rated | 0 hours | 3 feet |
| **Openings in walls** | | |
| Not allowed | N/A | < 3 feet |
| Unlimited | 0 hours | 3 feet |
| **Penetrations** | | |
| All | Comply with section R302.4 | < 3 feet |
| | None required | 3 feet |

For SI: 1 foot = 304.8 mm

N/A = Not Applicable

[a] 1-hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed.

**R302.2.3 Parapet construction.** Parapets shall have the same fire-resistance rating as that required for the supporting wall or walls. On any side adjacent to a roof surface, the parapet shall have noncombustible faces for the uppermost 18 inches (457 mm), to include counterflashing and coping materials. Where the roof slopes toward a parapet at slopes greater than 2 units vertical in 12 units horizontal (16.7 percent slope), the parapet shall extend to the same height as any portion of the roof within a distance of 3 feet (914 mm), but in no case shall the height be less than 30 inches (762 mm).

~~**R302.2.4 Structural independence.** Each individual townhouse shall be structurally independent.~~

~~**Exceptions:**~~

~~1. Foundations supporting exterior walls or common walls.~~

~~2. Structural roof and wall sheathing from each unit may fasten to the common wall framing.~~

~~3. Nonstructural wall and roof coverings.~~

~~4. Flashing at termination of roof covering over common wall.~~

~~5. Townhouses separated by a common 1-hour fire-resistance-rated wall as provided in section R302.2.~~

~~**R302.2.5 Sound transmission.** Townhouses constructed in accordance with section R302.2 shall comply with the sound transmission requirements of Appendix K.~~

**TABLE R302.1(1)**

**EXTERIOR WALLS**

| EXTERIOR WALL ELEMENT | | MINIMUM FIRE-RESISTANCE RATING | MINIMUM FIRE SEPARATION DISTANCE |
|---|---|---|---|
| **Walls** | Fire-resistance rated | 1 hour - tested in accordance with ASTM E 119, UL 263, or section 703.3 of the International Building Code with exposure from both sides | 0 feet |
| | Not fire-resistance rated | 0 hours | ≥ 5 feet |
| **Projections** | Not allowed | NA | < 2 feet |
| | Fire-resistance rated | 1 hour on the underside, or heavy timber, or | ≥ 2 feet to < 5 feet |

| | | | |
|---|---|---|---|
| | | fire-retardant-treated wood[a,b,c] | |
| | Not fire-resistance rated | 0 hours | ≥ 5 feet |
| **Openings in walls** | Not allowed | NA | < 3 feet |
| | 25% Maximum of Wall Area | 0 hours | 3 feet |
| | Unlimited | 0 hours | 5 feet |
| **Penetrations** | All | Comply with section R302.4 | < 3 feet |
| | | None required | 3 feet |

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

[a] The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

[b] The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

[c] One hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed.

**TABLE R302.1(2)**

**EXTERIOR WALLS - DWELLINGS WITH FIRE SPRINKLERS**

| EXTERIOR WALL ELEMENT | | MINIMUM FIRE-RESISTANCE RATING | MINIMUM FIRE SEPARATION DISTANCE |
|---|---|---|---|
| **Walls** | Fire-resistance rated | 1 hour - tested in accordance with ASTM E 119, UL 263, or section 703.3 of the International | 0 feet |

| | | | |
|---|---|---|---|
| | | Building Code with exposure from the outside | |
| | Not fire-resistance rated | 0 hours | 3 feet[a] |
| **Projections** | Not allowed | NA | < 2 feet |
| | Fire-resistance rated | 1 hour on the underside, or heavy timber, or fire-retardant-treated wood[b,c,d] | 2 feet[a] |
| | Not fire-resistance rated | 0 hours | 3 feet |
| **Openings in walls** | Not allowed | N/A | < 3 feet |
| | Unlimited | 0 hours | 3 feet[a] |
| **Penetrations** | All | Comply with section R302.4 | < 3 feet |
| | | None required | 3feet[a] |

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

[a] For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with section P2904, the fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

[b] The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

[c] The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

[d] One hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed.

Subp. 2. **IRC section ~~R302.3, Two-family dwellings~~ R302.2.3, Continuity.** Section ~~302.3~~ R302.2.3 is amended ~~by adding a subsection to the end of the section~~ to read as follows:

**~~R302.3.2 Sound transmission~~ R302.2.3 Continuity.** ~~Two-family dwellings constructed in accordance with section R302.3 shall comply with the sound transmission requirements of Appendix K.~~ 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. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures. The separation shall extend through enclosed soffits, overhangs, and similar projections.

Subp. 2a. **IRC section R302.2.7.** Section R302.2 is amended by adding a subsection to read as follows:

**R302.2.7 Sound transmission.** Townhouses constructed in accordance with section R302.2 shall comply with the sound transmission requirements of IRC Appendix K.

Subp. 3. **IRC section ~~R302.5.1, Opening protection~~ R302.3, Two-family dwellings.** Section ~~302.5.1~~ R302.3 is amended by adding a subsection to the end of the section to read as follows:

**~~R302.5.1 Opening protection.~~** ~~Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than~~

~~1-3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches (35 mm) thick, or 20-minute fire-rated doors.~~

**R302.3.2 Sound transmission.** Two-family dwellings constructed in accordance with section R302.3 shall comply with the sound transmission requirements of IRC Appendix K.

Subp. 4. **IRC section ~~R302.6~~ R302.5.1, Opening protection.** Section ~~R302.6 and Table R302.6 are~~ R305.5.1 is amended to read as follows:

~~**R302.6 Dwelling/garage fire separation.** The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with section R302.5.~~

~~**TABLE R302.6 DWELLING/GARAGE SEPARATION**~~

| ~~**SEPARATION**~~ | ~~**MATERIAL**~~ |
|---|---|
| ~~From the residence and attics~~ | ~~Not less than 1/2-inch gypsum board or equivalent applied to the garage side. Vertical separation between the garage and the residence attic shall extend to the roof sheathing or rafter blocking.~~ |
| ~~From all habitable rooms above the garage~~ | ~~Not less than 5/8-inch type X gypsum board or equivalent.~~ |
| ~~Structural members supporting floor/ceiling assemblies or garage ceiling used for separation required by this section~~ | ~~Not less than 1/2-inch gypsum board or equivalent applied to the garage side of structural members supporting the floor/ceiling assemblies or garage ceiling. Structural members include, but are not limited to: walls, columns, beams, girders, and trusses.~~ |
| ~~Garages located less than 3 feet from a dwelling unit on the same lot~~ | ~~Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.~~ |

**R302.5.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between

the garage and residence shall be equipped with solid wood doors not less than 1-3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches (35 mm) thick, or 20-minute fire-rated doors.

Subp. 5. **IRC section R302.6.** Section R302.6 and Table R302.6 are amended to read as follows:

**R302.6 Dwelling/garage fire separation.** The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with section R302.5.

**TABLE R302.6[a]**

**DWELLING/GARAGE SEPARATION MATERIAL**

| SEPARATION | MATERIAL |
|---|---|
| From the residence and attics | Not less than 1/2-inch gypsum board or equivalent applied to the garage side. Vertical separation between the garage and the residence attic shall extend to the roof sheathing or rafter blocking. |
| From all habitable rooms above the garage | Not less than 5/8-inch type X gypsum board or equivalent. |
| Structural members supporting floor/ceiling assemblies or garage ceiling used for separation required by this section | Not less than 1/2-inch gypsum board or equivalent applied to the garage side of structural members supporting the floor/ceiling assemblies or garage ceiling. Structural members include, but are not limited to: walls, columns, beams, girders, and trusses. |
| Garages located less than 3 feet from a dwelling unit on the same lot | Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall. |

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

[a] Attachment of gypsum board shall comply with Table R702.3.5.

## 1309.0303 SECTION R303, LIGHT, VENTILATION, AND HEATING.

Section R303.4 is amended to read as follows:

**R303.4 Mechanical ventilation.** Mechanical ventilation of a dwelling unit shall comply with either Minnesota Rules, chapter 1322, or ASHRAE 62.2, as incorporated by reference in Minnesota Rules, chapter 1346.

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

Subpart 1. **IRC section R310.1, Emergency escape and rescue opening required.** Section R310.1 is amended to read as follows:

**R310.1 Emergency escape and rescue opening required.** Basements, habitable attics, and every sleeping room shall have ~~at least~~ not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency egress and rescue ~~openings~~ opening shall be required in each sleeping room, but not be required in adjoining areas of the basement. ~~Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches (1118 mm) measured from the finished floor to the bottom of the clear opening. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with section R310.2.~~ Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

**Exceptions:**

1. ~~Basements~~ Storm shelters and basements used only to house mechanical equipment ~~and~~ not exceeding a total floor area of 200 square feet (18.58 $m^2$).

2. Basements or basement bedrooms when the building is protected with an automatic sprinkler system installed in accordance with IRC section P2904 or NFPA 13D.

3. Basements or basement bedrooms ~~that comply with all of the following conditions:~~

~~A. constructed prior to August 1, 2008;~~

~~B. undergoing an alteration or repair; and~~

~~C.~~ where the entire basement area, ~~when~~ including all portions of the means of egress to the level of exit discharge, and all areas on the level of exit discharge that are open to the means of egress is protected with an automatic sprinkler system in accordance with IRC section P2904 or NFPA 13D.

(Section R310.1.1 remains unchanged.)

~~**R310.1.1 Minimum opening area.** All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 $m^2$).~~

~~**Exception:** Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465 $m^2$).~~

~~**R310.1.2 Minimum opening height.** The minimum net clear opening height shall be 24 inches (610 mm).~~

~~**R310.1.3 Minimum opening width.** The minimum net clear opening width shall be 20 inches (508 mm).~~

~~**R310.1.4 Operational constraints.** Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools, or special knowledge.~~

~~**Exception:** Windows with approved window opening control devices and installed in accordance with ASTM F 2090. The devices shall not require the use of keys or tools to operate.~~

~~**R310.1.5 Replacement windows.** Replacement windows installed in buildings regulated by the International Residential Code shall be exempt from the maximum sill height requirements of section R310.1, including subsections R310.1.1, R310.1.2, and R310.1.3, if 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 the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~

Subp. 2. ~~**R310.1.5.1 Licensed facilities**~~ **IRC section R310.2, Emergency escape rescue openings.** Section R310.2 is amended by adding a subsection to read as follows:

**R310.2.5.1 Licensed facilities.** Windows in rooms used for foster care or day care licensed or registered by the state of Minnesota shall comply with the provisions of section R310.1.5, or all of the following conditions, whichever is more restrictive:

1. Minimum of 20 inches in clear opening width;

2. Minimum of 20 inches in clear opening height;

3. Minimum of 648 square inches (4.5 square feet) clear opening; and

4. Maximum of 48 inches from the floor to the sill height.

Subp. 3. **IRC section R310.6, Alterations or repairs of existing basements.** Section R310.6 is amended and a subsection added to read as follows:

**R310.6 Alterations or repairs of existing basements.** An emergency escape and rescue opening is not required where existing basements undergo alterations or repairs.

**R310.6.1 Sleeping rooms in existing basements.** New sleeping rooms created in an existing basement shall be provided with emergency escape and rescue openings in accordance with section R310.1.

**Exception:** Emergency escape and rescue openings are not required to be provided where the entire basement area, including all portions of the means of egress to the level of exit discharge, and all areas on the level of exit discharge that are open to the means of egress are protected with an automatic sprinkler system in accordance with IRC section P2904 or NFPA 13D.

## 1309.0311 SECTION R311, MEANS OF EGRESS.

*[For text of subparts 1 and 2, see Minnesota Rules]*

Subp. 3. **IRC section R311.7.2, Headroom.** Section R311.7.2 is amended to read as follows:

**R311.7.2 Headroom.** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.

**Exceptions:**

1. Where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be

allowed to project horizontally into the required headroom a maximum of 4-3/4 inches (121 mm).

2. The minimum headroom for existing buildings shall be in accordance with section R305.2.2.

3. The headroom for spiral stairways shall be in accordance with section R311.7.10.1.

## 1309.0312 SECTION R312, GUARDS AND WINDOW FALL PROTECTION.

*[For text of subpart 1, see Minnesota Rules]*

Subp. 2. **IRC section R312.2, Window fall protection.** Section R312.2 is amended to read as follows.

**R312.2 Window fall protection.** Window fall protection shall be provided in accordance with sections R312.2.1 and R312.2.2.

**R312.2.1 Window sills.** In dwelling units, where the lowest part of the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the window opening shall be a minimum of 36 inches (914 mm) above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch diameter (102 mm) sphere where such openings are located within 36 inches (914 mm) of the finished floor.

**Exceptions:**

1. Windows with openings that will not allow a 4-inch diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.

2. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.

3. Windows that are provided with window opening control devices that comply with section R312.2.2.

4. Replacement windows.

~~**R312.2.2 Window opening control devices.** Window opening control devices shall comply with ASTM F 2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by section R310.1.1.~~

(Subsection R312.2.2 remains unchanged.)

**1309.0314 SECTION R314, SMOKE ALARMS.**

Subpart 1. **IRC section ~~R314.3.1~~ R314.2.2, Alterations, repairs, and additions.** Section R314.2.2 is amended to read as follows:

**~~R314.3.1~~ R314.2.2 Alterations, repairs, and additions.** An individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings when:

1. alterations, repairs (including installation or replacement of windows or doors), or additions requiring a building permit occur; or

2. one or more sleeping rooms are added or created in existing dwellings.

**Exceptions:**

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition of an open porch or deck, or chimney repairs.

2. Installation, alteration, or repairs of plumbing, electrical, or mechanical systems.

Subp. 2. **IRC section R314.4, Interconnection.** Section R314.4 is amended by adding an exception to read as follows:

**Exception:** Interconnection of smoke alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure.

Subp. 3. **IRC section R314.6, Power source.** Section R314.6 is amended by modifying the second exception to read as follows:

2. Smoke alarms installed in existing areas shall be permitted to be battery powered provided any alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure.

## 1309.0315 SECTION R315, CARBON MONOXIDE ALARMS.

Subpart 1. ~~**IRC section R315.1, Carbon monoxide alarms**~~ **IRC section R315.2, Where required.** Section R315.2 is amended to read as follows:

~~**R315.1 Carbon monoxide alarms.** For new construction, every one-family dwelling unit, two-family dwelling unit, and each townhouse dwelling unit shall have an approved and operational carbon monoxide alarm installed when one of the following conditions occur:~~

~~1. Fuel-fired appliances are installed; or~~

~~2. Have attached garages.~~

~~**R315.1.1 Installation.** Carbon monoxide alarms shall be installed outside and not more than 10 feet from each separate sleeping area or bedroom. Alarms shall be installed on each level containing sleeping areas or bedrooms.~~

**R315.2 Where required.** Carbon monoxide alarms shall be provided in accordance with Sections R315.2.1 and R315.2.2.

**R315.2.1 New construction.** For new construction, every one-family dwelling unit, each unit in a two-family dwelling unit, and each townhouse dwelling unit shall be provided with an approved and operational carbon monoxide alarm where one or both of the following conditions exist:

1. The dwelling unit contains a fuel-fired appliance.

2. The dwelling unit has an attached garage with an opening that communicates with the dwelling unit.

**R315.2.2 Alterations, repairs, and additions.** An individual dwelling unit shall be equipped with carbon monoxide alarms located as required for new dwellings where:

1. alterations, repairs (including installation or replacement of windows or doors), or additions requiring a building permit occur; or

2. one or more sleeping rooms are added or created in existing dwellings.

**Exceptions:**

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, the addition of an open porch or deck, or chimney repairs.

2. Installation, alteration, or repairs of plumbing, electrical, or mechanical systems.

Subp. 2. **IRC section R315.3, Location.** Section R315.3 is amended to read as follows:

**R315.3 Location.** Carbon monoxide alarms in dwelling units shall be installed outside of and not more than 10 feet (3048 mm) from each separate sleeping area or bedroom. Alarms shall be installed on each level containing sleeping areas or bedrooms. Where

a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.

Subp. 3. **IRC section R315.5, Interconnectivity.** Section R315.5 is amended by modifying the exception to read as follows:

**Exception:** Interconnection of carbon monoxide alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure.

Subp. 4. **IRC section R315.6, Power source.** Section R315.6 is amended by modifying the second exception to read as follows:

2. Carbon monoxide alarms installed in existing areas shall be permitted to be battery powered provided any alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure.

## 1309.0320 SECTION R320, ACCESSIBILITY.

IRC sections R320.1 and R320.1.1 are deleted in their entirety and replaced with the following:

**R320.1 Scope.** Where there are four or more IRC-3 dwelling units or sleeping units in a single structure, the provisions for Group R-3 occupancies located in Minnesota Rules, chapter 1341, Minnesota Accessibility Code, shall apply.

## 1309.0321 SECTION R321, ELEVATORS AND PLATFORM LIFTS.

IRC sections R321.1, R321.2, and R321.3 are deleted and replaced with the following:

**R321.1 Elevators, platform lifts.** For elevator and platform lift requirements, see Minnesota Rules, chapter 1307, Elevators and Related Devices.

## 1309.0326 SECTION R326, SWIMMING POOLS, SPAS, AND HOT TUBS.

IRC section R326 is deleted in its entirety.

## 1309.0402 SECTION R402, MATERIALS.

IRC Table R402.2 is amended to read as follows:

**TABLE R402.2 MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE**

| TYPE OR LOCATION OF CONCRETE CONSTRUCTION | MINIMUM SPECIFIED COMPRESSIVE STRENGTH[a] ~~($f'_c$)~~ ($f'_c$) | | |
|---|---|---|---|
| | Weathering Potential[b] | | |
| | Negligible | Moderate | Severe |
| Footings[g,h] | 5,000 | 5,000 | 5,000 |
| Basement walls, foundations, and other concrete not exposed to the weather | 2,500 | 2,500 | 2,500[c] |
| Basement slabs and interior slabs on grade, except garage floor slabs | 2,500 | 2,500 | 2,500[c] |
| Basement walls, foundation walls, exterior walls, and other vertical concrete work exposed to the weather | 2,500 | 3,000[d] | 3,000[d] |
| Porches, carport slabs, and steps exposed to the weather, and garage floor slabs | 2,500 | 3,000[d, e, f] | 3,500[d, e, f] |

For SI: 1 pound per square inch = 6.895 kPa.

[a] Strength at 28 days psi.

[b] See Table R301.2(1) for weathering potential.

[c] Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.

[d] Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.

[e] See section R402.2 for maximum cementitious materials content.

[f] For garage floors with a steel-troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.

[g] Compressive strength ~~($f'_{cl}$)~~ ($f'_c$) of 2,500 psi, with an approved admixture that provides a water and vapor resistance at least equivalent to 5,000 psi concrete.

[h] Compressive strength ($f'_c$) of 5,000 psi, is not required for post footings for decks or porches, wood foundations, slab-on-grade foundation walls, and footings for floating slabs.

**1309.0403 SECTION R403, FOOTINGS.**

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

**R403.1.4.1 Frost protection.** Footings shall not bear on frozen soil. Foundation walls, piers, and other permanent supports of buildings and structures not otherwise protected from frost shall be protected 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.** Sill plates and walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of braced wall panels at building interiors on monolithic slabs, and all wood sill plates shall be anchored to the foundation with anchor bolts spaced a maximum of 6 feet (1829 mm) on center. Bolts shall be at least 1/2-inch (12.7 mm) in diameter and shall extend a minimum of 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. A nut and washer shall be tightened on each bolt. 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 7 bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a braced wall panel shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by sections R317 and R318. 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~~ be within 8 inches (203 mm) of the vertical 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~~ measured from the inside face of the masonry and the anchor bolt.

**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.

## 1309.0404 SECTION R404, FOUNDATION AND RETAINING WALLS.

Subpart 1. **IRC section R404.1.** Section R404.1 is amended to read as follows:

**R404.1 Concrete and masonry foundation walls.** Concrete foundation walls shall be selected and constructed in accordance with the provisions of section R404.1.2. Masonry foundation walls shall be selected and constructed in accordance with the provisions of section R404.1.1. Concrete and masonry foundation walls shall be laterally supported at the top and bottom. Foundation walls that meet all of the following shall be considered laterally supported:

1. Full basement floor shall be 3.5 inches (89 mm) thick concrete slab poured tight against the bottom of the foundation wall.

2. Floor joists and blocking shall be connected to the sill plate at the top of wall with an approved connector with listed capacity meeting the top of wall reaction in Table R404.1(1). Maximum spacing of floor joists shall be 24 inches on center. Spacing of blocking shall be in accordance with Table R404.1(1).

3. Bolt spacing for the sill plate shall be no greater than the requirements in Table R404.1(1).

4. The floor shall be blocked perpendicular to the floor joists. ~~Blocking shall be full depth within three joist spaces of the foundation wall. Floor sheathing shall be fastened to blocking in accordance with Table R602.3(1).~~ Blocking shall be installed in accordance with footnote "e" of Table R404.1(1).

~~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 lineal foot capacity.~~

**Exception:** Cantilevered concrete and masonry foundation walls supporting unbalanced backfill that do not have permanent lateral support at the top of the foundation shall be constructed according to Table R404.1.1(5), Table R404.1.1(6), or Table R404.1.1(7).

(For subsection R404.1.1, see subpart 9. Subsections R404.1.2 through R404.1.9 and their subsections remain unchanged.)

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

~~TABLE R404.1(1)~~

~~MAXIMUM ANCHOR BOLT AND BLOCKING SPACING FOR SUPPORTED FOUNDATION WALL~~

| ~~Max. Wall Height~~ | ~~Max. Unbalanced Backfill Height~~ | ~~Soil Classes~~ | ~~Soil Load (pcf/ft)~~ | ~~Top of Wall Reaction (plf)[b]~~ | ~~1/2" diameter Anchor Bolt Spacing (inches)[a]~~ | ~~Spacing of Blocking Perpendicular To Floor Joists (inches)~~ |
|---|---|---|---|---|---|---|
| | | ~~GW, GP, SW, & SP~~ | ~~30~~ | ~~250~~ | ~~72~~ | ~~60~~ |

| | | | | | | |
|---|---|---|---|---|---|---|
| ~~**8'-0"**~~ | ~~**7'-4"**~~ | ~~GM, GC, SM-SC, & ML~~ | ~~45~~ | ~~370~~ | ~~72~~ | ~~40~~ |
| | | ~~SC, MH, ML-CL, & I-CL~~ | ~~60~~ | ~~490~~ | ~~48~~ | ~~30~~ |
| | | ~~GW, GP, SW, & SP~~ | ~~30~~ | ~~320~~ | ~~72~~ | ~~48~~ |
| ~~**9'-0"**~~ | ~~**8'-4"**~~ | ~~GM, GC, SM-SC, & ML~~ | ~~45~~ | ~~480~~ | ~~48~~ | ~~32~~ |
| | | ~~SC, MH, ML-CL, & I-CL~~ | ~~60~~ | ~~640~~ | ~~40~~ | ~~24~~ |

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

~~[ab] 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.~~

~~[b] Minimum load to be used for sizing of accepted anchors or fasteners if bolts are not used.~~

TABLE R404.1(1)

MAXIMUM ANCHOR BOLT AND BLOCKING SPACING FOR SUPPORTED FOUNDATION WALL

| Max. Wall Height | Max. Un-balanced Backfill Height | Soil Classes[a] | Soil Load (pcf/ft) | Top of Wall Reaction (plf)[e] | 1/2" diameter Anchor Bolt Spacing (inches)[b,c,d] | Spacing of Blocking Perpendicular To Floor Joists (inches)[f] |
|---|---|---|---|---|---|---|
| | | GW, GP, SW, & SP | 30 | 260 | 72 | 72 |
| 8'-0" | 7'-6" | GM, GC, SM, SM-SC, & ML | 45 | 400 | 72 | 72 |
| | | SC, MH, ML-CL, & I-CL | 60 | 530 | 48 | 48 |
| | | GW, GP, SW, & SP | 30 | 340 | 72 | 72 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9'-0" | 8'-6" | GM, GC, SM, SM-SC, & ML | 45 | 510 | 48 | 48 | |
| | | SC, MH, ML-CL, & I-CL | 60 | 680 | 32 | 32 | |
| | | GW, GP, SW, & SP | 30 | 430 | 64 | 64 | |
| 10'-0" | 9'-6" | GM, GC, SM, SM-SC, & ML | 45 | 640 | 40 | 40 | |
| | | SC, MH, ML-CL, & I-CL | 60 | 860 | 24 | 24 | |

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

[a] Soil classes are in accordance with the Unified Soil Classification System. Refer to table R405.1.

[b] Anchor bolts shall be cast-in-place with a minimum 7-inch embed. Where vertical reinforcing is required by other sections of this code, the anchor bolts shall be within 8 inches of the vertical reinforcing and are to be spaced as required by this table. Anchor bolts installed in masonry shall be grouted in place with not less than 1 inch of grout measured from the inside face of the masonry and the anchor bolt.

[c] The sill plate shall be 2 x 6 minimum. Anchor bolts shall be placed at least 2-1/2 inches from the edge of the sill plate and the edge of the foundation wall.

[d] Anchor bolts shall have a 2 inch by 1/8 inch thick round or square washer tightened and countersunk 1/4 inch into the top of the sill plate. Use of standard and noncountersunk washers is permitted where anchor bolt spacing is half the spacing required by this table.

[e] Minimum load to be used for the sizing of accepted anchors or fasteners if anchor bolts are not used.

[f] Perpendicular blocking shall be 2-by the full depth joists or an approved alternative full depth joist material that is installed in the first three joists spaces adjacent to the foundation wall. The blocking shall be connected to the sill plate with an approved fastener sized in

accordance with Footnote [e]. The floor sheathing shall be nailed to the blocking through the subfloor with a minimum of 8d common (2-1/2 x 0.131) nails at 3 inches on center or an equivalent connector. Blocking shall be installed within 8 inches of an anchor bolt location.

Subp. 3. [Repealed, 39 SR 91]

Subp. 4. [Repealed, 39 SR 91]

Subp. 5. [Repealed, 39 SR 91]

Subp. 6. **IRC Table R404.1.1(5).** Section R404 is amended by adding a new table as follows:

TABLE R404.1.1(5)

CANTILEVERED CONCRETE AND MASONRY FOUNDATION WALLS

| Maximum Wall Height[j] (feet) | Maximum Unbalanced Backfill Height[e] (feet) | Minimum Vertical Reinforcement Size and Spacing for 8-Inch Nominal Wall Thickness[a,b,c,e,f,i,k] | | |
|---|---|---|---|---|
| | | Soil Classes[d] | | |
| | | 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.[h] | No. 4 @ 40 in. o.c.[g] |
| | 5 | No. 4 @ 72 in. o.c. | No. 4 @ 56 in. o.c.[h] | No. 4 @ 40 in. o.c.[g] |

[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 on center 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. **IRC Table R404.1.1(6).** 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[j] (feet) | Maximum Unbalanced Backfill Height[e] (feet) | Minimum Vertical Reinforcement Size and Spacing for 10-Inch Nominal Wall Thickness[a,b,c,e,f,i,k] | | |
|---|---|---|---|---|
| | | Soil Classes[d] | | |
| | | 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.[g] |
| | 5 | No. 4 @ 72 in. o.c. | No. 4 @ 72 in. o.c. | No. 4 @ 56 in. o.c.[g] |
| 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.[h] |
| | 5 | No. 4 @ 64 in. o.c.[h] | No. 4 @ 40 in. o.c.[g,h] | No. 5 @ 48 in. o.c.[g,h] |
| | 6 | No. 4 @ 64 in. o.c.[h] | No. 4 @ 40 in. o.c.[g,h] | No. 5 @ 48 in. o.c.[g,h] |

[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 on center 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. **IRC Table R404.1.1(7).** 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[j] (feet) | Maximum Unbalanced Backfill Height[e] (feet) | Minimum Vertical Reinforcement Size and Spacing for 12-Inch Nominal Wall Thickness[a,b,c,e,f,i,k] | | |
|---|---|---|---|---|
| | | Soil Classes[d] | | |
| | | 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.[h] | No. 4 @ 40 in. o.c.[g] |
| | 6 | No. 4 @ 72 in. o.c. | No. 4 @ 56 in. o.c.[g] | No. 4 @ 32 in. o.c.[g,h] |
| 7 | 3 | None required | None required | None required |
| | 4 | None required | No. 4 @ 72 in. o.c. | No. 4 @ 72 in. o.c. |
| | 5 | No. 4 @ 72 in. o.c. | No. 4 @ 56 in. o.c.[h] | No. 4 @ 40 in. o.c.[g] |
| | 6 | No. 4 @ 48 in. o.c.[h] | No. 5 @ 48 in. o.c.[g,h] | No. 6 @ 48 in. o.c.[g,h] |
| | 7 | No. 4 @ 48 in. o.c.[h] | No. 5 @ 40 in. o.c.[g,h] | No. 6 @ 48 in. o.c.[g,h] |

[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 on center 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~~ R404.1.1.** Section ~~R404.1.3~~ R404.1.1 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(5), R404.1.1(6), or R404.1.1(7).

## 1309.0507 SECTION R507, EXTERIOR DECKS.

Subpart 1. **IRC Table R507.3.1.** Table R507.3.1 is modified to read as follows:

**TABLE R507.3.1**

**MINIMUM FOOTING SIZE FOR DECKS**

| LIVE LOAD[b] (psf) | TRIBUTARY AREA (sq. ft.) | LOAD BEARING VALUE OF SOILS[a, c, d] (psf) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1500[e] | | | 2000[e] | | |
| | | Side of a square footing (inches) | Diameter of a round footing (inches) | Thickness (inches) | Side of a square footing (inches) | Diameter of a round footing (inches) | Thickness (inches) |
| 40 | 20 | 12 | 14 | 6 | 12 | 14 | 6 |
| | 40 | 14 | 16 | 6 | 12 | 14 | 6 |
| | 60 | 17 | 19 | 6 | 15 | 17 | 6 |
| | 80 | 20 | 22 | 7 | 17 | 19 | 6 |
| | 100 | 22 | 25 | 8 | 19 | 21 | 6 |
| | 120 | 24 | 27 | 9 | 21 | 23 | 7 |
| | 140 | 26 | 29 | 10 | 22 | 25 | 8 |
| | 160 | 28 | 31 | 11 | 24 | 27 | 9 |

| LIVE LOAD[b] (psf) | TRIBUTARY AREA (sq. ft.) | LOAD BEARING VALUE OF SOILS[a, c, d] (psf) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2500[e] | | | >3000[e] | | |
| | | Side of a square footing (inches) | Diameter of a round footing (inches) | Thickness (inches) | Side of a square footing (inches) | Diameter of a round footing (inches) | Thickness (inches) |
| 40 | 20 | 12 | 14 | 6 | 12 | 14 | 6 |
| | 40 | 12 | 14 | 6 | 12 | 14 | 6 |
| | 60 | 13 | 15 | 6 | 12 | 14 | 6 |
| | 80 | 15 | 17 | 6 | 14 | 16 | 6 |
| | 100 | 17 | 19 | 6 | 15 | 17 | 6 |
| | 120 | 19 | 21 | 6 | 17 | 19 | 6 |
| | 140 | 20 | 23 | 7 | 18 | 21 | 6 |
| | 160 | 21 | 24 | 8 | 20 | 22 | 7 |

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 $m^2$, 1 pound per square foot = 0.0479 kPa.

[a] Interpolation permitted, extrapolation not permitted.

[b] Live load = 40 psf, dead load = 10 psf.

[c] Assumes minimum square footing to be 12 inches x 12 inches x 6 inches for a 6 x 6 post.

[d] If the support is a brick or CMU pier, the footing shall have a minimum 2-inch projection on all sides.

[e] Area, in square feet, of deck surface supported by post and footings.

Subp. 2. **IRC Table R507.5.** Table R507.5 is amended by modifying footnote "a" to read as follows:

[a] Live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound load applied at the end.

Subp. 3. **IRC Table R507.6.** Table R507.6 is amended by modifying footnotes "b" and "c" to read as follows:

[b] Live load = 40 psf, dead load = 10 psf, L/Δ = 360.

[c] Live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound point load applied to end.

Subp. 4. **IRC Table 507.9.1.3(1).** Table R507.9.1.3(1) is modified to read as follows:

**TABLE R507.9.1.3(1)**

**DECK LEDGER CONNECTION TO BAND JOIST[a]**

**(Deck live load = 40 psf, deck dead load = 10 psf)**

| CONNECTION DETAILS | JOIST SPAN | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6' and less | 6'1" to 8' | 8'1" to 10' | 10'1" to 12' | 12'1" to 14' | 14'1" to 16' | 16'1" to 18' |
| | On-center spacing of fasteners | | | | | | |
| 1/2-inch diameter lag screw with 1/2-inch maximum sheathing[b,c] | 30 | 23 | 18 | 15 | 13 | 11 | 10 |
| 1/2-inch diameter bolt with 1/2-inch maximum sheathing[c] | 36 | 36 | 34 | 29 | 24 | 21 | 19 |
| 1/2-inch diameter bolt with 1-inch maximum sheathing[d] | 36 | 36 | 29 | 24 | 21 | 18 | 16 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

[a] Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.

[b] The tip of the lag screw shall fully extend beyond the inside face of the band joist.

[c] Sheathing shall be wood structural panel or solid sawn lumber.

[d] Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber, or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2-inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

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

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

TABLE R602.3.1

MAXIMUM ALLOWABLE LENGTH OF WOOD WALL STUDS EXPOSED TO

WIND SPEEDS OF ~~90~~ 115 MPH OR LESS[b,c,d,e,f,g,h,i,j]

Where conditions are not within the parameters

of footnotes b, c, d, e, f, g, h, ~~and~~ i, and j,

design is required.

ROOF SPANS UP TO 22' SUPPORTING A ROOF ONLY

| Maximum Wall Height (feet) | Exposure Category[h,i] | 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[a] | 2x8 | 2x8 | 2x6 |
| 24 | B | NA[a] | 2x8 | 2x8 | 2x8 |
| | C | NA[a] | NA[a] | 2x8 | 2x8 |

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

| Maximum Wall Height (feet) | Exposure Category[h,i] | 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 | 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[a] | 2x8 | 2x8 | 2x6 |
| 20 | B | NA[a] | 2x8 | 2x8 | 2x6 |
| | C | NA[a] | NA[a] | 2x8 | 2x8 |
| 24 | B | NA[a] | NA[a] | 2x8 | 2x8 |
| | C | NA[a] | NA[a] | NA[a] | 2x8 |

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

| Maximum Wall Height (feet) | Exposure Category[h,i] | 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[a] | 2x8 | 2x8 | 2x8 |
| 20 | B | NA[a] | 2x8 | 2x8 | 2x6 |
| | C | NA[a] | NA[a] | 2x8 | 2x8 |
| 24 | B | NA[a] | NA[a] | 2x8 | 2x8 |
| | C | NA[a] | NA[a] | NA[a] | 2x8 |

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

| Maximum Wall Height (feet) | Exposure Category[h,i] | 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[a] | 2x8 | 2x8 | 2x6 |
| 18 | B | 2x8 | 2x8 | 2x6 | 2x6 |
| | C | NA[a] | NA[a] | 2x8 | 2x8 |
| 20 | B | NA[a] | 2x8 | 2x8 | 2x6 |
| | C | NA[a] | NA[a] | 2x8 | 2x8 |
| 24 | B | NA[a] | NA[a] | 2x8 | 2x8 |
| | C | NA[a] | NA[a] | NA[a] | 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 materials listed in items ~~32~~ 30 to ~~38~~ 36 in Table R602.3(1), including the prescribed fastening. All wall bracing requirements shall be in accordance with section R602.10.

[d] ~~.~~ Studs shall be continuous full height. Where studs do not extend full height due to a wall opening, full height studs shall be provided on each side of the opening, equal in number to the spacing of the required full height studs multiplied by half the width of the opening, plus one stud. Where multiple openings occur adjacent to one another, framing between openings shall include the total of all full height studs required for both openings combined.

[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] Where the sill plate of the frame wall bears on the supporting foundation and the frame wall is less than 12 feet in height, anchor the sill plate to the supporting foundation wall with 1/2-inch diameter anchor bolts spaced a maximum of 6 feet on center. For frame walls more than 12 feet but not exceeding 24 feet in height, anchor the sill plate to the supporting foundation wall with 1/2-inch diameter anchor bolts spaced a maximum of 3 feet on center.

[i] Where the sill plate of the frame wall bears on the supporting floor framing, it shall be fastened to the rim board through the subfloor using 8d common (3-1/2 by 0.131) nails or equivalent fastening spaced at 6 inches on center.

[j] For frame walls up to 20 feet in height, fasten the studs to the top and sole plates in accordance with Table R602.3(1). For frame walls that are more than 20 feet in height, fasten the studs to the top plate and sole plate using fastening or an approved fastener that is capable of supporting at least 450 pounds.

Subp. 2. [See repealer.]

## 1309.0703 SECTION R703, EXTERIOR COVERING.

Subpart 1. [Repealed, 32 SR 12]

Subp. 2. [Repealed, 32 SR 12]

Subp. 2a. **IRC Section R703.2 Water-resistive barrier.** Section R703.2 is amended to read as follows:

**R703.2 Water-resistive barrier.** One layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt or other approved water-resistive barrier shall be applied over studs or sheathing of all exterior walls. ~~Such felt or material~~ No. 15 asphalt felt shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). ~~The water-resistive barrier shall overlap~~

~~the flashings required in section R703.8 not less than 2 inches (51 mm).~~ Where joints occur ~~in the water-resistive barrier or flashing, the joints~~, felt shall be lapped not less than 6 inches (152 mm). Other approved materials shall be installed in accordance with the water-resistive barrier manufacturer's installation instructions. The No. 15 asphalt felt or other approved water-resistive barrier material shall overlap the flashings required in section R703.4 not less than 2 inches (51 mm). The No. 15 asphalt felt or other approved water-resistive barrier material shall be continuous up to the underside of the rafter or truss top chord and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in section R703.1.

~~**Exception:** Omission of the water-resistive barrier is permitted in the following situations:~~

~~1. In detached accessory buildings.~~

~~2. Under exterior wall finish materials as permitted in Table R703.4.~~

~~3. Under paperbacked stucco lath when the paper backing is an approved water-resistive barrier.~~

Subp. 2b. **IRC Section R703.4 Flashing.** Section R703.4 is amended and a subsection is added to read as follows:

**R703.4 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. Self-adhered membranes used as flashing shall comply with AAMA 711. Fluid-applied membranes used as flashing in exterior walls shall comply with AAMA 714. 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 shall be installed at the head and sides of exterior window and door openings and shall extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage. Flashing at exterior window and door openings shall be installed in accordance with at least one of the following:

(a) the fenestration manufacturer's installation and flashing instructions. When flashing is not addressed in the fenestration manufacturer's instructions, it shall be installed in accordance with the flashing manufacturer's instructions;

(b) in accordance with the flashing design or method of a registered design professional; and

(c) in accordance with other approved methods.

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 water away from the assembly in compliance with section R903.2.1.

10. At the intersection of the foundation and rim joist framing when the exterior wall covering does not lap the foundation insulation.

**R703.4.1 Pan flashing of windows and doors.** Pan flashing shall be installed in accordance with the fenestration manufacturer's installation and flashing instructions. Where flashing instructions or details are not provided, pan flashing shall be installed at the sill of exterior window and door openings. Pan flashing shall be sealed or sloped in such a manner as to direct water to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage.

**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.

Subp. 3. **IRC Section ~~R703.6~~ R703.7.** Section ~~R703.6~~ R703.7 is amended to read as follows:

**~~R703.6~~ R703.7 Exterior plaster.** Installation of these materials shall be in compliance with ASTM C 926 and ASTM C 1063 and provisions of this code.

**~~R703.6.1~~ R703.7.1 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).

**~~R703.6.1.1~~ R703.7.1.1 Control joints and expansion joints.** Provisions for the control of expansion shall be determined by the exterior plaster application designer. ASTM C 1063 sections 7.11.4 - 7.11.4.4 do not apply.

**~~R703.6.2~~ R703.7.2 Plaster.** Plastering with portland cement plaster shall be in accordance with ASTM C926. Cement materials shall be in accordance with one of the following:

1. Masonry cement conforming to ASTM C91 Type M, S, or N.

2. Portland cement conforming to ASTM C150 Type I, II, or III.

3. Blended hydraulic cement conforming to ASTM C595 Type IP, IS (<70), IL, or IT (S < 70).

4. Hydraulic cement conforming to ASTM C1157 Type GU, HE, MS, HS, or MH.

5. Plastic (stucco) cement conforming to ASTM C1328.

Plastering with portland cement plaster shall be not less than three coats when applied over metal lath or wire lath and shall be not less than two coats when applied over masonry, concrete, pressure-preservative treated wood, or decay-resistant wood as specified in section R317.1 or gypsum backing. If the plaster surface is completely covered by veneer or other facing material or is completely concealed, plaster application need be only two coats, provided the total thickness is as set forth in Table R702.1(1).

On wood-frame construction with an on-grade floor slab system, exterior plaster shall be applied to cover, but not extend below, lath, paper, and screed.

**~~R703.6.2.1~~ R703.7.2.1 Weep screeds.** A minimum 0.019-inch (0.5 mm) (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. 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.

**~~R703.6.3~~ R703.7.3 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 of not less than that of 60-minute Grade D paper; or a minimum hydrostatic head of 23-31/32 inches (60.9 cm) when tested in accordance with hydrostatic pressure test method AATCC 127-2008; or a minimum water transudation time of 60 minutes when tested in accordance with ASTM D-779.

2. A water vapor permeance of not less than that of No. 15 felt; or a minimum permeance rating of 8.5 gr/h.ft.$^2$ in Hg (US perm) (4.9 x $10^{10}$kg/Pa.s.m$^2$) 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.

**~~R703.6.4~~ R703.7.4 Application.** Each coat shall be kept in a moist condition for at least 48 hours prior to application of the next coat.

**Exception:** Applications installed in accordance with ASTM C 926. The second coat is permitted to be applied as soon as the first coat has attained sufficient rigidity to receive the second coat.

**~~R703.6.5~~ R703.7.5 Curing.** The finish coat for two-coat cement plaster shall not be applied sooner than seven days after application of the first coat. For three-coat cement plaster, the second coat shall not be applied sooner than 48 hours after application of the first coat, except as required in section ~~R703.6.4~~ R703.7.4. The finish coat for three-coat cement plaster shall not be applied sooner than seven days after application of the second coat.

Subp. 3a. [Repealed, 39 SR 91]

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. [See repealer.]

Subp. 8b. [See repealer.]

Subp. 9. [See repealer.]

## 1309.0807 SECTION R807, ATTIC ACCESS.

IRC Section R807.1 is amended as follows:

**R807.1 Attic access.** Buildings with combustible ceiling or roof construction shall have an attic access opening to attic areas that exceed 30 square feet (2.8 $m^2$) and have a vertical height of 30 inches (762 mm) or greater. The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

The rough-framed opening shall be not less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other readily accessible location. Where located in a wall, the opening shall be not less than 22 inches wide by 30 inches high (59 mm wide by 762 mm high). Where the access is located in a ceiling, minimum unobstructed head-room in the attic space shall be 30 inches (762 mm) at some point above the access measured vertically from the bottom of ceiling framing members. See Minnesota Rules, chapter 1346, the Minnesota Mechanical Code, for access requirements where mechanical equipment is located in attics.

## 1309.0903 SECTION R903, WEATHER PROTECTION.

IRC Section R903.2.1 is amended as follows:

**R903.2.1 Locations.** Flashings shall be installed at wall and roof intersections, wherever there is a change in roof slope or direction and around roof openings. A kick-out flashing shall be installed to divert the water away from where the eave of a sloped roof intersects a vertical sidewall. The kick-out flashing on the roof shall be a minimum of 2-1/2 inches (63.5 mm) long. Where flashing is of metal, the metal shall be corrosion-resistant with a thickness of not less than 0.019 inch (0.5 mm) (No. 26 galvanized sheet).

**R903.2.1.1 Existing buildings and structures.** Kick-out flashings shall be required in accordance with section R903.2.1 when re-siding or simultaneously re-siding and re-roofing existing buildings and structures.

**Exception:** Kick-out flashings are not required when only re-roofing existing buildings and structures.

**REPEALER.** Minnesota Rules, parts 1309.0602, subpart 2; 1309.0612; 1309.0702, subpart 1; and 1309.0703, subparts 8a, 8b, and 9, are repealed.

**EFFECTIVE DATE.** The amendments to chapter 1309 in this rule are effective March 31, 2020, or five business days after publication of the notice of adoption in the State Register, whichever is later.