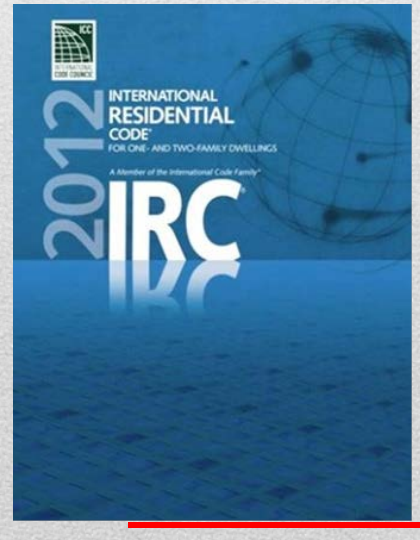
Are You Ready For The 2012 IRC?

MINNESOTA RULES, CHAPTER 1309



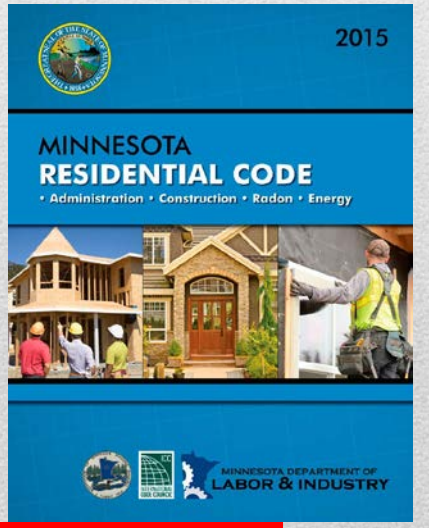
Presented by

Richard Lockrem

Minnesota Department of Labor and Industry

Construction Codes and Licensing Division

MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY
CONSTRUCTION CODES AND LICENSING



DLI INFORMATION and RESOURCES

Visit http://www.dli.mn.gov/ccld/codes15.asp

The all-new 2015 Minnesota state building codes

Minnesota is adopting a new set of updated construction codes that will go into effect Jan. 24, 2015, and Feb. 14, 2015. The code book fact sheets below describe each of these codes, where to obtain them and when they go into effect. **The codes are anticipated to be available in the fall of 2014.** To better understand these new changes and how they may impact you and your building projects, we've listed numerous training options and opportunities throughout the year.

In addition, under Helpful Resources and Frequently Asked Questions, we will address many of your questions and add explanatory materials about specific subjects you may find useful. If you have an idea for a FAQ or other helpful information, please forward your suggestion to rich.lockrem@state.mn.us.

WHERE TO PURCHASE OR VIEW ONLINE FOR FREE

In the fall of 2014, the Minnesota Residential Code will be available for free online viewing or can be purchased in soft-cover format from the following locations (English and Spanish versions).

DLI INFORMATION and RESOURCES

Visit http://www.dli.mn.gov/ccld/codes15.asp

Code book fact sheets *(PDFs)*

- 2015 Minnesota Building Code Administration
- 2015 Minnesota Provisions to the State Building Code
- 2015 Minnesota Building Code
- 2015 Minnesota Elevator and Related Devices Code
- 2015 Minnesota Residential Code
- 2015 Minnesota Conservation Code for Existing Buildings
- 2015 Minnesota Energy Code
- 2015 Minnesota Accessibility Code
- 2015 Minnesota Mechanical and Fuel Gas Codes

DLI INFORMATION and RESOURCES

Visit http://www.dli.mn.gov/ccld/codes15.asp

View
or buy code books(available fall 2014)

2015 Minnesota Building Code Administration	View code	Purchase code book
2015 Minnesota Provisions to the State Building Code	View code	Purchase code book
2015 Minnesota Building Code	View code	Purchase code book
2015 Minnesota Elevator and Related Devices Code	View code	Purchase code book
2015 Minnesota Residential Code	View code	Purchase code book
2015 Minnesota Conservation Code for Existing Buildings	View code	Purchase code book
2015 Minnesota Energy Code	View code	Purchase code book
2015 Minnesota Accessibility Code	View code	Purchase code book
2015 Minnesota Mechanical and Fuel Gas Codes	View code	Purchase code book

Education and training

View the 2014-2015 education and training plan.

DLI INFORMATION and RESOURCES

Visit http://www.dli.mn.gov/ccld/codes15.asp

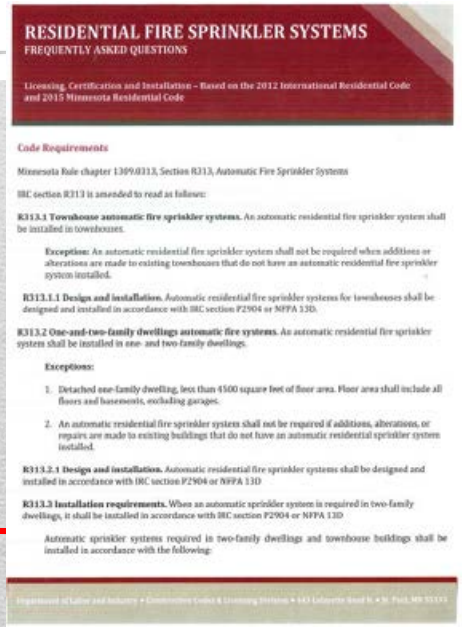
Helpful resources

Residential Fire Sprinkler Fact Sheet

Residential Fire Sprinkler Requirements

Frequently asked questions

Residential Fire Sprinkler Systems



RESIDENTIAL FIRE SPRINKLER SYSTEMS

FREQUENTLY ASKED QUESTIONS

Licensing, Certification and Installation – Based on the 2012 International Residential Code and 2015 Minnesota Residential Code

Code Requirements

Minnesota Rule chapter 1309.0313, Section R313, Automatic Fire Sprinkler Systems

IRC section R313 is amended to read as follows:

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in townhouses.

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

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

R313.2 One-and-two-family dwellings automatic fire systems. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.

Exceptions:

1. Detached one-family dwelling, less than 4500 square feet of floor area. Floor area shall include all floors and basements, excluding garages.
2. An automatic residential fire sprinkler system shall not be required if additions, alterations, or repairs are made to existing buildings that do not have an automatic residential sprinkler system installed.

R313.2.1 Design and installation. Automatic residential fire sprinkler systems shall be designed and installed in accordance with IRC section P2904 or NFPA 13D

R313.3 Installation requirements. When an automatic sprinkler system is required in two-family dwellings, it shall be installed in accordance with IRC section P2904 or NFPA 13D

Automatic sprinkler systems required in two-family dwellings and townhouse buildings shall be installed in accordance with the following:

DLI INFORMATION and RESOURCES

New construction code info online

October 28, 2014 UPDATE

Check out our webpage dedicated to providing you the latest information about the new codes. There you will find fact sheets about each code, updates about effective dates, training opportunities, helpful resources about residential fire sprinklers and links to online code access.

Code adoption

We have completed work on most of the codes slated for adoption in 2015. Those not complete are the International Building Code, Commercial Energy Code, and the State Fire Code.

We plan to publish the Building Code and Commercial Energy Code for public comment in the State Register sometime in November. After the prescribed 30-day comment period for each, we will know whether there will be a public hearing and have a better idea when the codes may go into effect, the earliest being mid-February 2015. We anticipate receiving a draft rule and SONAR about the Minnesota Fire Code from the State Fire Marshal's Office in early November 2014. Then, DLI will perform its final compatibility and legal reviews. The Fire Code will likely be published for public comment in December or January. An effective date is unknown, yet it could range from sometime in March to May 2015, depending whether there is a public hearing.

Effective dates: Jan. 24 and Feb. 14, 2015

Jan. 24, 2015, is the effective date for the Minnesota Residential Code, Minnesota Conservation Code, Minnesota Accessibility Code, Minnesota Mechanical and Fuel Gas Code, Minnesota Elevator Code amendments and Building Code Administration.

Feb. 14, 2015, is the effective date for the Residential Energy Code and update to chapter 1303 which includes the Radon Code.

Minnesota "I" Codes

ICC has partnered with AMBO and DLI to produce Minnesota-specific versions of the new Minnesota Codes. Check our new codes fact sheets for each and where to order.

Also, ICC is offering a 10 percent discount for AMBO members.

Availability

The Minnesota Conservation Code for Existing Buildings and the Minnesota Accessibility Code are now available from ICC and Minnesota's Bookstore. The Minnesota Residential Code and Minnesota Mechanical and Fuel Gas Code should be available in late November 2014.

Training and education

Our fall seminar series are in full swing. Check out our new codes website for all current educational opportunities.

CODE UPDATE 11-13-2014

1305 - The Department published the Dual Notice for MR 1305 on Monday, November 10, 2014. The comment period for this rule ends Friday, December 12, 2014. A tentative hearing for this rule is scheduled for January 20, 2015.

1323 - The Dual Notice for MR 1323 will be published in the State Register on November 17, 2014. The comment period for that rule will end December 17, 2014. A tentative hearing for that rule is scheduled for January 6, 2015.

1346 - The Notice of Adoption for MR 1346 will be published in the State Register on November 17, 2014. That rule will become effective January 24, 2015 with most of the other rules.

1309 - The Department is also working on an expedited rulemaking to correct an oversight in MR 1309 regarding stairway width. That rulemaking will be mailed to affected parties and published on the Department's website on November 24, 2014.

7511 - The State Fire Marshal Division returned a rule draft to DLI for final review on November 10, 2014. They are still working on the SONAR for this rule.

ICC PRINTING UPDATE 11-13-2014

ICC will be publishing model code documents with Minnesota amendments.

1300 is complete and ready for each of the published documents.

1300/1303/1309/1322 – 2015 Minnesota Residential Code. Is complete and printed for purchase on **December 5, 2014**, and online accessible soon thereafter.

1300/1303/1305/1307 – 2015 Minnesota Building Code. The Department should be getting ICC first proof for 1305 (up to Chapter 7) November 20, 2014.

1311 - Is complete and printed for purchase and online accessible.

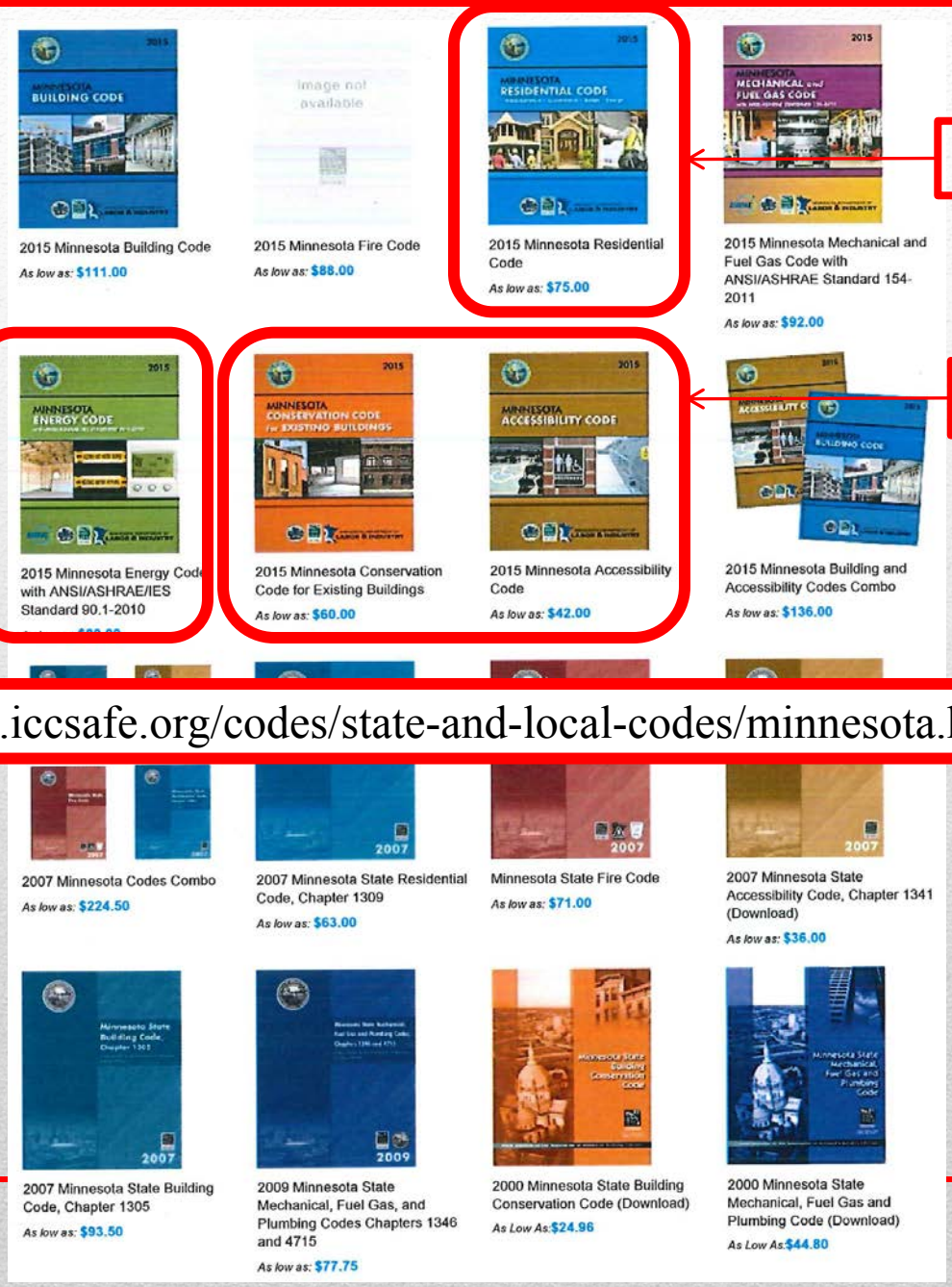
1323 - The Department received the first proof from ICC December 1, 2014.

1341 - Is complete and printed for purchase and online accessible.

1346 - The Department sent revisions to ICC and requested a blue line final November 17, 2014.

7511 – The Department is not ready to send the manuscript to ICC. The State Fire Marshal Division returned a rule draft to DLI for final review on November 10, 2014. They are still working on the SONAR for this rule.

DLI INFORMATION and RESOURCES



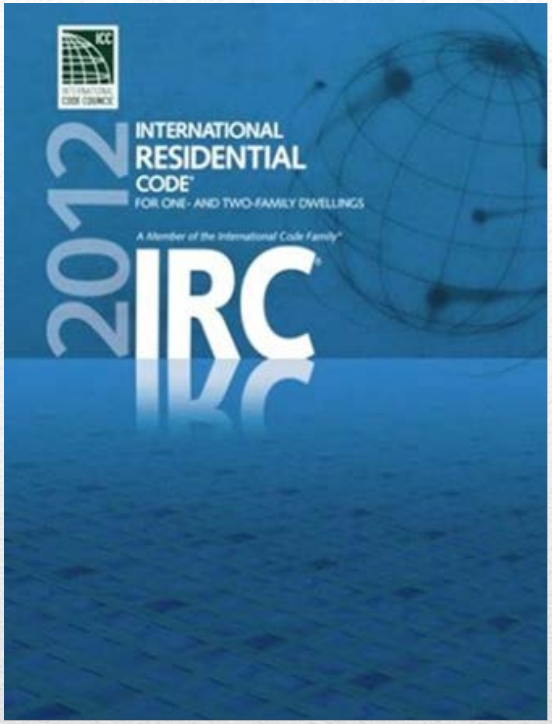
AVAILABLE 12/5/14

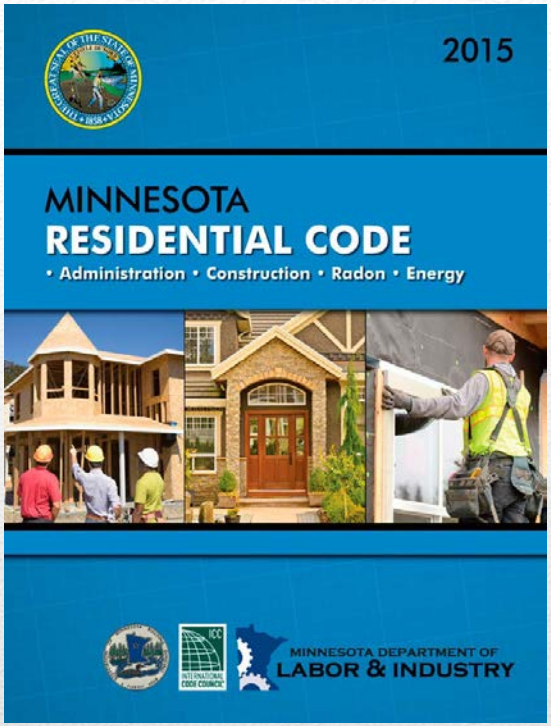
AVAILABLE 12/5/14

AVAILABLE NOW

http://shop.iccsafe.org/codes/state-and-local-codes/minnesota.html

ABOUT MATERIALS/DISCLAIMER





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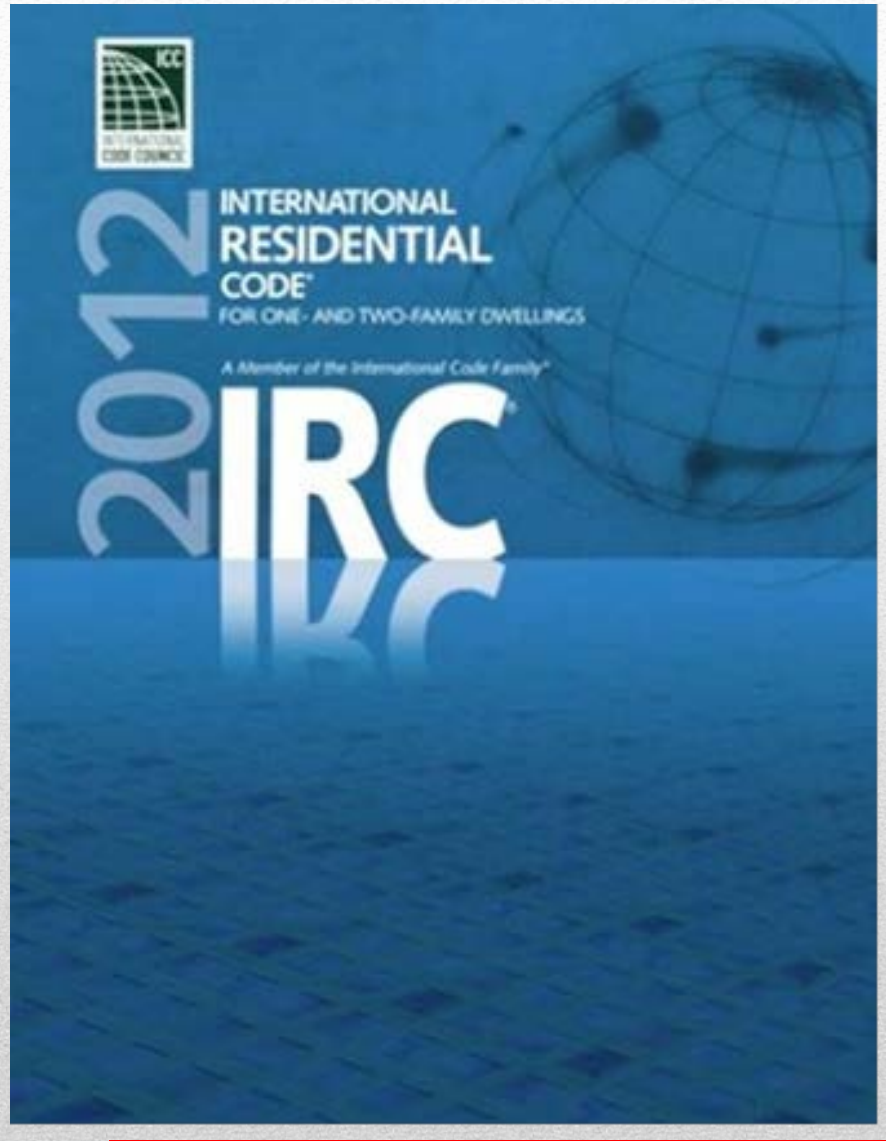
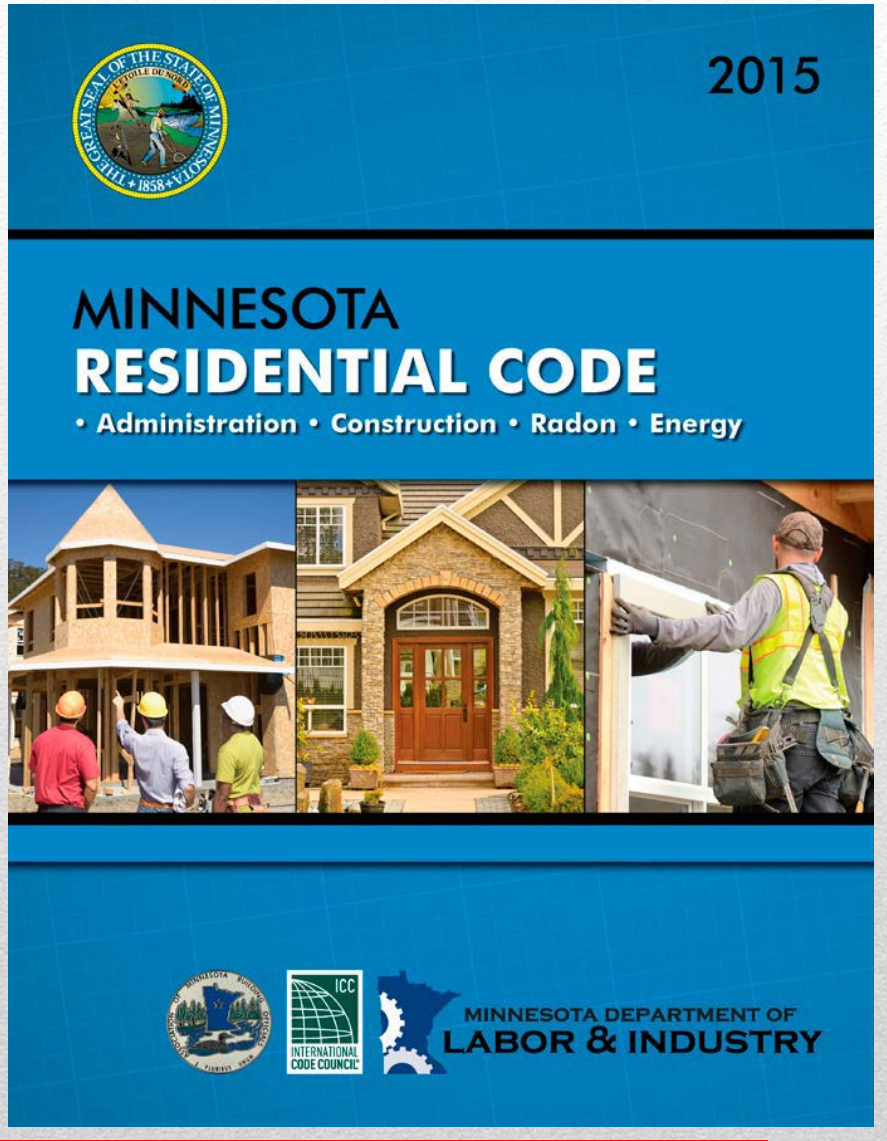
The text used in this program does not necessarily represent actual code language. Some text may be summarized, highlighted or generalize the code section. Additional provisions or exceptions may be included in the actual code section. Cites to the code sections are given for the purpose of verifying the complete provisions of the section.

2012 INTERNATIONAL RESIDENTIAL CODE





OBJECTIVE

The Department of Labor and Industry, Construction Codes and Licensing Division recognizes that numerous educational offerings in recent years focused on the 2012 International Residential Code (IRC) model code document.

The objective and focus of this program is to concentrate on the Minnesota amendments to the 2012 IRC. Discussion will delve into background information and outcomes during the adoption process.

The intent is to prepare the model code user the necessary information to effectively use the 2012 IRC in Minnesota.

The Department plans to offer more in depth IRC programs in the near future to focus on items requiring additional explanation.

2012 INTERNATIONAL RESIDENTIAL CODE

1309 INTERNATIONAL RESIDENTIAL CODE COMMITTEE

Committee Chair: Richard Lockrem
Co-chair: Herman Hauglid

Committee Group:

AMBO - Association of MN Building Officials,
BAM - Builders Association of Minnesota,
BATC - Builders Association of the Twin Cities,
Minnesota Concrete Masonry Association,
Minnesota Lath & Plaster Association,
League of Minnesota Cities,
AIA - American Institute of Architects,
MSFCA - Minnesota State Fire Chiefs Assoc.,
Air-Tamarack Inc.

2012 INTERNATIONAL RESIDENTIAL CODE

1309 INTERNATIONAL RESIDENTIAL CODE COMMITTEE

Interested Parties:

Uponor, Inc.,
NSFA - National Fire Sprinkler Association,
FMAM - Fire Marshal Association of Minnesota,
Littfin Truss,
Andersen Corporation,
Capitol Access,
MMHA - Minnesota Manufactured Home Association,
Dynamic Homes,
West Materials Inc.,
Viking Sprinkler.

2012 INTERNATIONAL RESIDENTIAL CODE

1309 INTERNATIONAL RESIDENTIAL CODE COMMITTEE

Committee Meetings:
9 meetings at about four hours per meeting

Code Change Proposals:
Reviewed at total of 143. Many were withdrawn by the author and may be pursued on the national level.

Committee Purpose:
Review the 2012 IRC document requirements.
Review the current 2007 MSBC, IRC amendments for applicability.
Identify issues unique to Minnesota.
Review code requirements to ensure uniform enforcement and clarity.
Review for issues related to Minnesota specific climatic concerns.
Try to address inconsistencies between other code documents.

2012 INTERNATIONAL RESIDENTIAL CODE

ADOPTION AND EFFECTIVE DATE INFORMATION

Important dates:

Notice of Intent to Adopt Rules With a Hearing was Published in the State Register: Oct. 28, 2013

Public Hearing Held: Dec. 12, 2013

DLI Preliminary Response to the Administrative Law Judge Due: Jan. 2, 2014

DLI Final Response to the Administrative Law Judge Due: Jan. 9, 2014

Administrative Law Judge Response Review Complete About: Feb. 7, 2014 the ALJ issued his report on 1309 and found no issues with the proposed rule. The Order Adopting the Rule has been drafted by DLI legal and given to the Commissioner for signature.

2014 Regular Legislative Session Ends: May 16, 2014

Adoption Date: July 28, 2014

Effective Date: January 24, 2015

2012 INTERNATIONAL RESIDENTIAL CODE

MANDATORY AND REPLACEMENT CHAPTERS

Mandatory chapters: The 2012 IRC Chapters **2 through 10**, **44**, **section P2904**, and **Appendix K.**

Replacement chapters:

Chapter **1** of the 2012 IRC and any references to code administration in this code are deleted and replaced with Minnesota Rules, chapter **1300**, Minnesota Administration Code.

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

Chapters **12 through 24** of the 2012 IRC and any references to mechanical matters in this code are deleted and replaced with Minnesota Rules, chapter **1346**, Minnesota Mechanical Code.

Chapters **25 through 33** of the 2012 IRC and any references to plumbing in this code are deleted and replaced with Minnesota Rules, chapter **4715**, Minnesota Plumbing Code.

MR 1309.0010

REPLACEMENT CHAPTERS (CONT)

Replacement chapters:

Chapters **34 through 43** of the 2012 IRC and references to electrical matters in this code, other than section R314 Smoke Alarms, are deleted and replaced with Minnesota Rules, chapter **1315**, Minnesota Electrical Code.

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.

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.

2012 INTERNATIONAL RESIDENTIAL CODE

REFERENCES TO OTHER ICC CODES

Subpart 1. Generally.
References to other codes and standards promulgated by the ICC in the ~~2006~~ **2012** 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.~~ **Minnesota Rules, chapter 1322 and 1323.**

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.

MR 1309.0020

2012 INTERNATIONAL RESIDENTIAL CODE

ADMINISTRATIVE PROCEDURE CRITERIA

1309.0030 ADMINISTRATIVE PROCEDURE CRITERIA.

Procedures relating to the administration and enforcement of this code under Minnesota Statutes, section ~~16B.57~~ 326B.101 , are contained in Minnesota Rules, chapter 1300, Minnesota Administration Code. Minnesota Rules, chapter 1300, governs the application of this code.

DEFINITIONS

New or Revised Definitions by amendment:

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

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.

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

CRAWL SPACE. Areas or rooms with less than ~~7 feet~~ 6 feet 4 inches (1931mm) ceiling height measured to the finished floor or grade below.

DEFINITIONS

Definitions deleted by amendment:

~~**CONNECTOR**~~**:** No longer needed for use in the 2012 IRC.

~~**FASTENER**~~**:** No longer needed for use in the 2012 IRC.

~~**DAMPPROOFING**~~**:** No longer needed, waterproofing required.

~~**PANFLASHING**~~**:** Added to the 2012 IRC.

~~**STAIR**~~**:** Added to the 2012 IRC.

~~**STORY ABOVE GRADE PLANE**~~**:** Using 2012 IRC as written, matches 2012 IBC.

2012 INTERNATIONAL RESIDENTIAL CODE

DESIGN CRITERIA

~~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)~~

Code Text REPEALED:
(See 2012 IRC Section R301.5)

~~Use~~	~~Live Load~~
~~Atties with limited storageb,g,h~~	~~20~~
~~Atties without storageb~~	~~10~~
~~Deckse~~	~~40~~
~~Exterior balconies~~	~~60~~
~~Fire escapes~~	~~40~~
~~Guardrails and handrailsd~~	~~200i~~
~~Guardrails in fill componentsf~~	~~50i~~
~~Passenger vehicle garagesa~~	~~50a~~
~~Rooms other than sleeping rooms~~	~~40~~
~~Sleeping rooms~~	~~30~~
~~Stairs~~	~~40e~~

~~For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm2, 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, 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.~~

MR 1309.0301 Subp. 4 (2006 IRC Table R301.5 Repealed)

2012 INTERNATIONAL RESIDENTIAL CODE

DESIGN CRITERIA

~~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 greatest 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.~~

Code Text REPEALED:
(See 2012 IRC Section R301.5)

~~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.~~

MR 1309.0301 Subp. 4 (2006 IRC Table R301.5 Repealed)

2012 INTERNATIONAL RESIDENTIAL CODE

DESIGN CRITERIA

GROUND SNOW LOAD[f]	WIND DESIGN		SEISMIC DESIGN CATEGORY[l]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP[j]
	Speed[d] (mph)	Topographic effects[k]		Weathering[a]	Frost line depth[b]	Termite[c]					
Pf = 0.7 *pg	90	YES	A	Severe	See MR part 1303.1600	See footnote "c"	See MR chapter 1323	YES	See MR chapter 1335	See Table R403.3(2)	41.16

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)]. 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 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 wind speed map [Figure R301.2(4)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, R905.4.3.1, 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.

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.

k. In accordance with Section R301.2.1.5.

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

MR 1309.0301 Subp. 2 (IRC Table R301.2(1) Amended)

2012 INTERNATIONAL RESIDENTIAL CODE

DESIGN CRITERIA

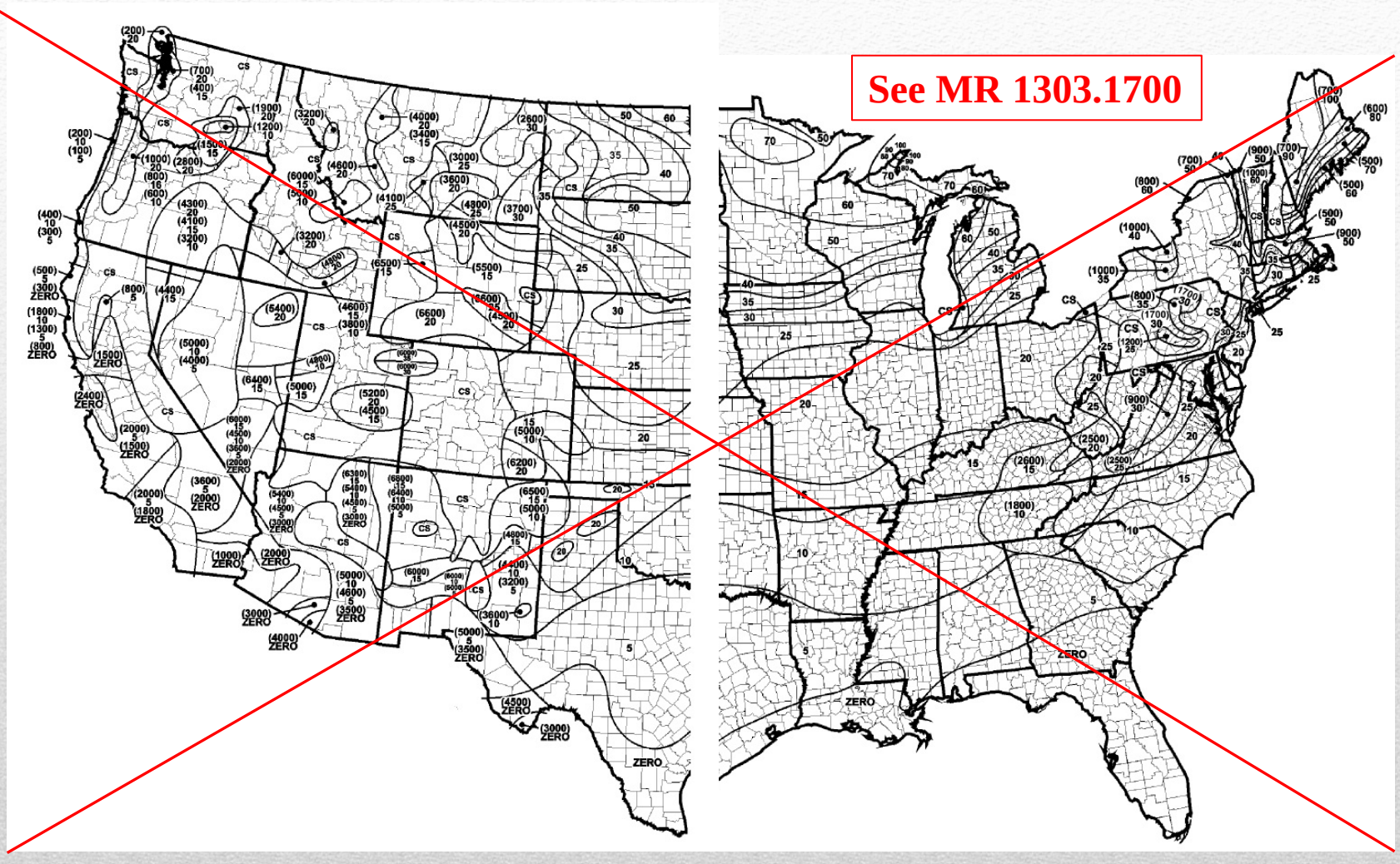


FIGURE R301.2(5) GROUND SNOW LOADS, P_g, FOR THE UNITED STATES (lb/ft^2)

MR 1309.0301 Subp. 3 (IRC Table R301.2(5) Deleted)

2012 INTERNATIONAL RESIDENTIAL CODE

RESIDENTIAL FIRE SPRINKLERS

1309.0301 SECTION R301, DESIGN CRITERIA

Code Text REPEALED:
(See 2012 IRC Section R313)

Subpart 1. **IRC Section R301.1.4.** IRC Section R301.1 is amended by adding a section

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.

MR 1309.0301 Subp. 1 (Repealed)

FIRE RESISTANT CONSTRUCTION

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 ~~Chapters 34 through 43~~ Minnesota Rules, chapter 1315. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

FIRE RESISTANT CONSTRUCTION

R302.2.1 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. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE RESISTANT CONSTRUCTION

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.

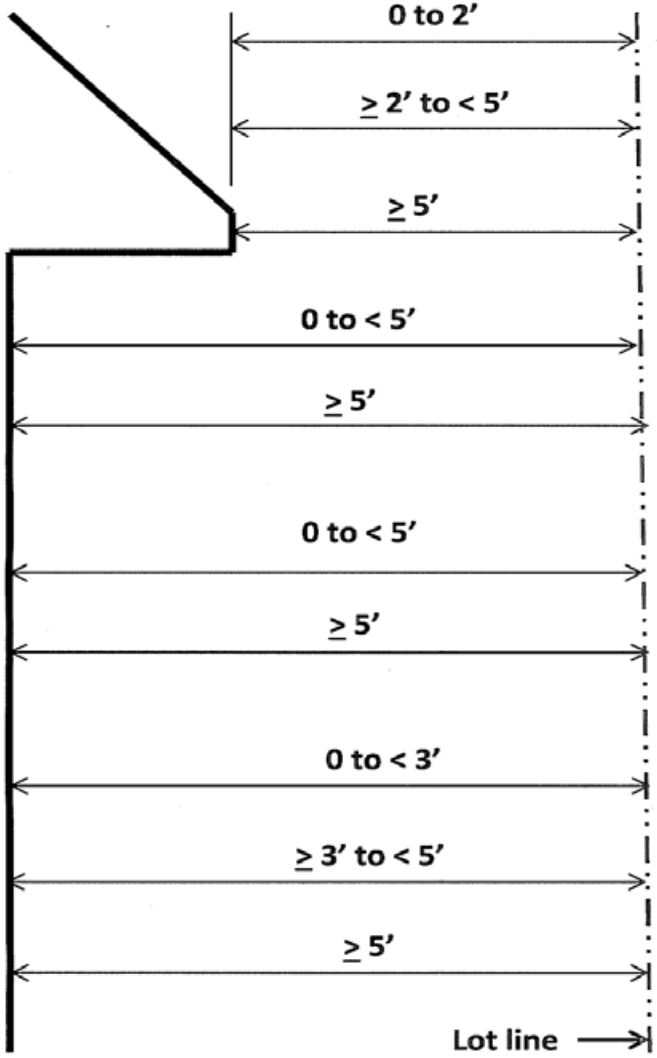
N/A = Not Applicable.

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

MR 1309.0302 Subp. 1

2012 INTERNATIONAL RESIDENTIAL CODE

TABLE R302.1(1) EXTERIOR WALLS



No projections permitted

Fire resistance rated: One-hour fire-resistance rating required on the underside (5/8"gyp. sheathing on the underside = one-hour & no openings permitted)

Not fire resistance rated:
No fire resistance rating required

Projections

Fire resistance rated: All penetrations shall comply with IRC Section R302.4

Not fire resistance rated: No fire resistance restrictions required for all penetrations

Penetrations

Fire resistance rated: one - hour fire resistance required and tested in accordance with ASTM E 119 or UL 263 with exposure from both sides

Not fire resistance rated:
No fire resistance rated restrictions required

Walls

Not allowed: no openings permitted

Not fire resistance rated:
No fire resistance rated restrictions required (25% maximum of wall area)

Not fire resistance rated:
No fire resistance rated restrictions required (unlimited opening area)

Openings

Note: See all IRC Section R302.1 exceptions including foundation vents, detached accessory garages within 2'-0" of lot line, dwellings and accessory structures on the same lot, structures exempted from permits.

2012 IRC Table R302.1(1) – Exterior Walls

RLockrem 3/22/2012

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE RESISTANT CONSTRUCTION

TABLE R302.1(1) 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.

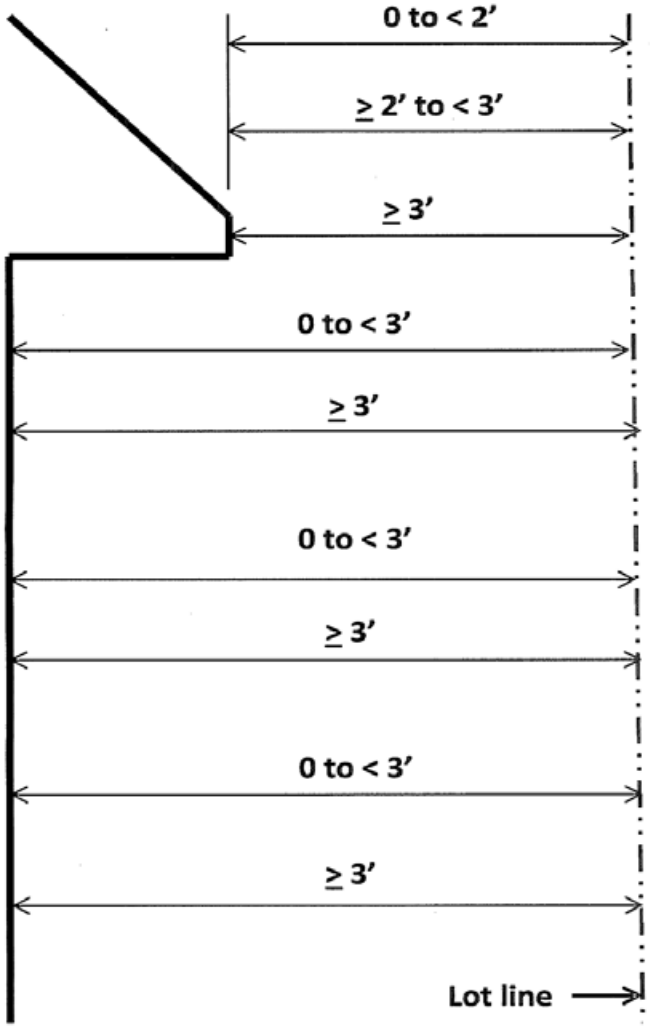
N/A = Not Applicable.

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

MR 1309.0302 Subp. 1

2012 INTERNATIONAL RESIDENTIAL CODE

TABLE R302.1(1) EXTERIOR WALLS – DWELLINGS W/SPRINKLERS



Projections

No projections permitted

Fire resistance rated: One-hour fire-resistance rating required on the underside (5/8"gyp. sheathing on the underside = one-hour & no openings permitted)

Not fire resistance rated:
No fire resistance rating required

Penetrations

Fire resistance rated: All penetrations shall comply with IRC Section R302.4

Not fire resistance rated: No fire resistance restrictions required for all penetrations

Walls

Fire resistance rated: one - hour fire resistance required and tested in accordance with ASTM E 119 or UL 263 with exposure from the outside

Not fire resistance rated:
No fire resistance rated restrictions required

Openings

Not allowed: no openings permitted

Not fire resistance rated:
No fire resistance rated restrictions required (unlimited opening area)

Note: See all IRC Section R302.1 exceptions including foundation vents, detached accessory garages within 2'-0" of lot line, dwellings and accessory structures on the same lot, structures exempted from permits.

2012 IRC Table R302.1(2) – Exterior Walls – Dwellings w/Fire Sprinklers

RLockrem 3/22/2012

FIRE RESISTANT CONSTRUCTION

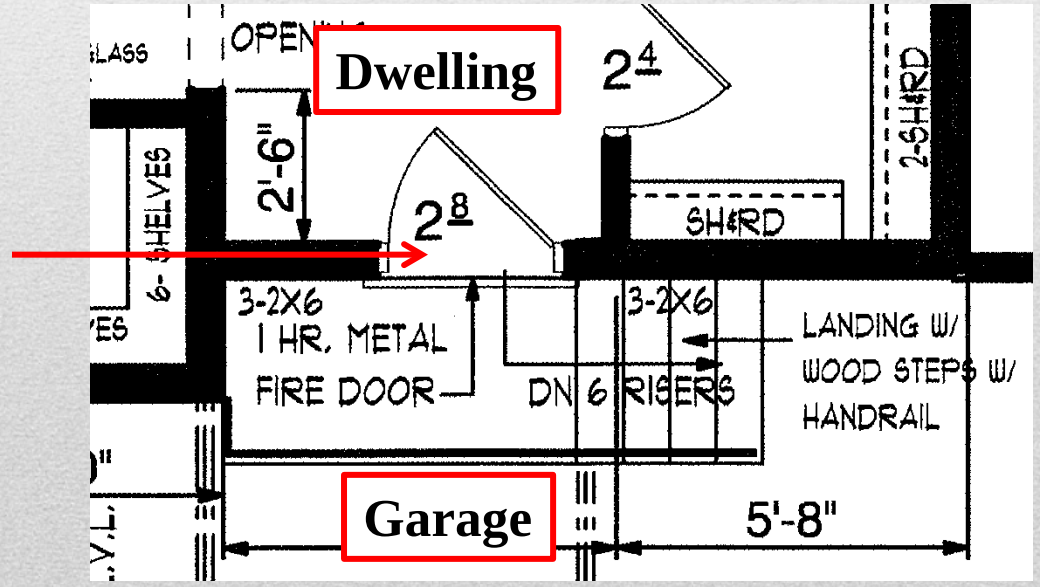
R302.2.5 Sound transmission.
Townhouses constructed in accordance with the sound transmission requirements of Appendix K.

R302.2.5 Sound transmission.
Two-family dwellings constructed in accordance with the sound transmission requirements of Appendix K.

FIRE RESISTANT CONSTRUCTION

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. ~~equipped with a self-closing device~~.

a self-closing device is not required for the door between the dwelling and garage



2012 INTERNATIONAL RESIDENTIAL CODE

FIRE RESISTANT CONSTRUCTION

TABLE R302.6 DWELLING/GARAGE SEPARATION

MR 1309.0302 Subp. 4

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE RESISTANT CONSTRUCTION

TABLE R302.6 DWELLING/GARAGE SEPARATION

The winner is!

MR 1309.0302 Subp. 4

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE RESISTANT CONSTRUCTION

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
~~Structure(s)~~ 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 the 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.

MR 1309.0302 Subp. 4

2012 INTERNATIONAL RESIDENTIAL CODE

CEILING HEIGHT

R305.1 Minimum height, new buildings. Habitable space, hallways, bathrooms, toilet rooms, laundry rooms and portions of basements containing these spaces 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.

Exceptions:

1. For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm). and no portion of the required floor area may have a ceiling height of less than 5 feet (2134 mm).
2. Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2032 mm). at the center of the front clearance area for ~~fixtures as shown in Figure R307.1~~ water closets, bidets, or sinks. The ceiling height above fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 (2032 mm). inches above a minimum area 30 inches (762mm). by 30 inches (762 mm). at the showerhead.

CEILING HEIGHT

R305.1.1 Basements, new buildings. Portions of basements that do not contain habitable space, hallways, bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exception: Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.

CEILING HEIGHT

R305.2 Alterations to existing building basements. Alterations portions of existing basements shall comply with the provisions of this section.

R305.2.1 Minimum ceiling height, existing buildings. Alterations to existing basements or portions thereof shall have a ceiling height of not less than 6 feet 4 inches (1931 mm), including beams, girders, ducts, or other obstructions.

R305.2.1.1 Bathroom plumbing fixture clearance. Bathrooms shall have a minimum ceiling height of 6 feet 4 inches (1931 mm) at the center of the front clearance area for water closets, bidets, or sinks. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 4 inches (1931 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the wall where the showerhead is placed. The ceiling may have slopes or soffits that do not infringe on the height required for the plumbing fixture.

CEILING HEIGHT

R305.2.2 Minimum stairway headroom, existing buildings. Alterations to existing basement stairways shall have a minimum headroom in all parts of the stairway not less than 6 feet 4 inches (1932 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.

Exception: 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).

2012 INTERNATIONAL RESIDENTIAL CODE

TOILET, BATH, AND SHOWER SPACES

R307.1 Space required. Plumbing fixtures shall be ~~spaced~~ in accordance with ~~Figure R307.1,~~ Minnesota Rules, chapter 4715, Minnesota Plumbing Code. ~~and in accordance with the requirements of Section P2705.1.~~

2012 INTERNATIONAL RESIDENTIAL CODE

GARAGES AND CARPORTS

R309.1 Floor surface. Garage floor surfaces may be concrete, asphalt, sand, gravel, crushed rock, or natural earth. ~~shall be of approved noncombustible material.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

R309.2 Carports. Carports shall be open on at least two sides. Carport floor surfaces ~~shall be of approved noncombustible material~~ 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.

~~**Exception:** Asphalt surfaces shall be permitted at ground level in carports.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

MR 1309.0309 Subp. 1 and Subp. 2

GARAGES AND CARPORTS

R309.4 Automatic garage door openers. All ~~Automatic~~ automatic garage door openers opening systems that are installed, serviced, or repaired for garages serving residential buildings shall comply with the provisions of Minnesota Statutes, sections 325F.82 and 325F.83 ~~if provided, shall be listed and labeled in accordance with UL 325~~.

GARAGES AND CARPORTS

R309.5 Fire sprinklers. ~~Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table R302.1(2), Footnote a. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with Section P2904. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft^2. Garage doors shall not be considered obstructions with respect to sprinkler placement~~. Attached garages of two-family dwellings and townhouses shall be protected by fire sprinklers and installed in compliance with section R313.3.

2012 INTERNATIONAL RESIDENTIAL CODE

EMERGENCY ESCAPE AND RESCUE OPENINGS

MR 1309 R310.1.5

2012 INTERNATIONAL RESIDENTIAL CODE

EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue required. Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, emergency egress and rescue openings 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.

MR 1309.0310 , section R310.1

EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue required.(cont)
Exceptions:

1. Basements used only to house mechanical equipment and not exceeding 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. the **entire basement area,** when 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 IEC section P2904 or NFPA 13D.

EMERGENCY ESCAPE AND RESCUE OPENINGS

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. a yard or court that opens to a public way.

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.

2012 INTERNATIONAL RESIDENTIAL CODE

EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1.5 Replacement windows. Replacement windows installed in buildings regulated by International Residential Code shall be exempt from the maximum sill height requirements of Sections 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.

R310.1.5.1 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.

MR 1309.0310, sections R310.1.5 and R310.1.5.1

2012 INTERNATIONAL RESIDENTIAL CODE

EMERGENCY ESCAPE AND RESCUE OPENINGS

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.

The "operating style" mentioned in the amendment language refers to the type of window (i.e. casement, double-hung…) as well as the operating style of the hardware.

MR 1309.0310, sections R310.1.5 and R310.1.5.1

2012 INTERNATIONAL RESIDENTIAL CODE

MEANS OF EGRESS

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than $7^3/_4$ inches (196 mm) below the top of the threshold.

Exception: A landing is not required ~~where a stairway of two or fewer risers~~ if a stairway less than 30 inches (762 mm) in height is located on the exterior side of the door, provided the door does not swing over the stairway. The stairway height shall be measured vertically from the interior floor surface to the finished grade.

MR 1309.0311, Subp. 1, section R311.3.2

2012 INTERNATIONAL RESIDENTIAL CODE

MEANS OF EGRESS

MR 1309.0311, Subp. 2, section R311.7 and section R311.7.1

2012 INTERNATIONAL RESIDENTIAL CODE

MEANS OF EGRESS

R311.7 Stairways.

R311.7.1 Stairways. All stairways serving a dwelling or accessory structure, or any part thereof, shall comply with this section. This shall include exterior stairs from a dwelling or garage to grade and those stairs serving decks, porches, balconies, sun rooms, and similar structures.

Exception:

1. Stairs serving attics or crawl spaces.
2. Stairs that only provide access to plumbing, mechanical, or electrical equipment.

TEXT AS WRITTEN IN THE RULE

NOTE: Only section R311.7 – Stairs, was supposed to be amended by adding scoping language and section R311.7.1 – Width, was to remain as written in the 2012 IRC.

MR 1309.0311, Subp. 2, section R311.7 and section R311.7.1

2012 INTERNATIONAL RESIDENTIAL CODE

MEANS OF EGRESS

WILL BE CORRECTED TO READ :

R311.7.1 Stairways; general.

R311.7.1.1 Stairways serving dwellings or accessory structures. All stairways serving a dwelling or accessory structure, or any part thereof, shall comply with this section. This shall include exterior stairs from a dwelling or garage to grade and those stairs serving decks, porches, balconies, sun rooms, and similar structures.

Exceptions:

1. Stairs serving attics or crawl spaces.
2. Stairs that only provide access to plumbing, mechanical, or electrical equipment.

MR 1309.0311, Subp. 2, section R311.7 and section R311.7.1

2012 INTERNATIONAL RESIDENTIAL CODE

MEANS OF EGRESS

WILL BE CORRECTED TO READ :

R311.7.1.2, Width. Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than $31^1/_2$ inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

Exception: The width of spiral stairways shall be in accordance with Section R311.7.9.1.

NOTES: Only section R311.7 – Stairs, was supposed to be amended by adding scoping language and section R311.7.1 – Width, was to remain as written in the 2012 IRC.

The reference to Section R311.7.9.1 may be shown as R311.7.10.1 in the second printing of the 2012 IRC. ICC issued an errata to correct R311.7.9.1 to R311.7.10.1.

MR 1309.0311, Subp. 2, section R311.7 and section R311.7.1

MEANS OF EGRESS

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.

2012 INTERNATIONAL RESIDENTIAL CODE

GUARDS AND WINDOW FALL PROTECTION

R312.1.1 Where required.

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

MR 1309.0312, Subp. 1, section R312.1.1

2012 INTERNATIONAL RESIDENTIAL CODE

WINDOW FALL PROTECTION

MR 1309.0312, Subp. 2, section R312.2

WINDOW FALL PROTECTION

R312.2 Window fall protection. Window fall protection shall be provided in accordance with Section 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 ~~clear~~ opening ~~of the window~~ shall be a minimum of ~~24 inches (610 mm)~~ 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 ~~24 inches (610 mm)~~ 36 inches (914 mm) of the finished floor.

Exceptions:

WINDOW FALL PROTECTION

Exceptions:

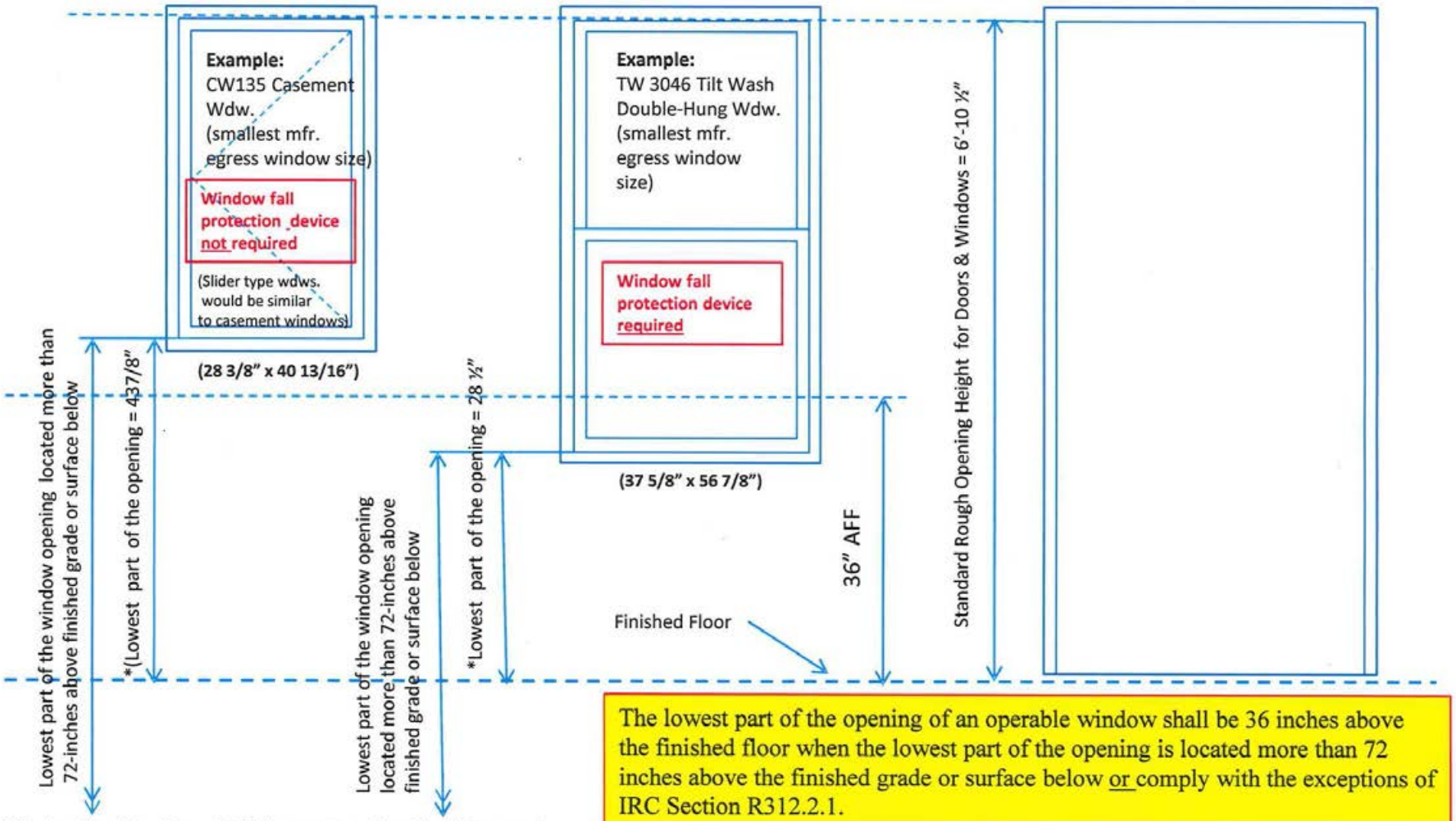
1. Windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.
2. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.
3. Windows that are provided with window opening control devices that comply with Section R312.2.2.
4. Replacement windows.

R312.2.2 Window opening control devices. (not amended)

2012 INTERNATIONAL RESIDENTIAL CODE

Window Fall Protection

This drawing is not drawn to scale



The lowest part of the opening of an operable window shall be 36 inches above the finished floor when the lowest part of the opening is located more than 72 inches above the finished grade or surface below or comply with the exceptions of IRC Section R312.2.1.

Window Number	Top of Subfloor to Top of Inside Sill Stop Inches
*TW3042	32 1/2"
*CW 135	43 7/8"

* From window manufactures product guide

6/11/14 RAL

2012 INTERNATIONAL RESIDENTIAL CODE

AUTOMATIC FIRE SPRINKLER SYSTEMS

MR 1309.0313

2012 INTERNATIONAL RESIDENTIAL CODE

RESIDENTIAL FIRE SPRINKLERS

R313.1 Townhouse automatic fire sprinkler systems.
An automatic residential fire sprinkler system shall be installed in townhouses.

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

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

2012 INTERNATIONAL RESIDENTIAL CODE

RESIDENTIAL FIRE SPRINKLERS

R313.2 One- and two-family dwellings automatic fire systems. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.

Exceptions:

1. Detached one-family dwelling, less than 4500 square feet of floor area. Floor area shall include all floors and basements, excluding garages.
2. An automatic residential fire sprinkler system shall not be required ~~for~~ if additions, ~~or~~ alterations, or repairs are made to existing buildings that ~~are~~ do not have ~~already provided with~~ an automatic residential sprinkler system installed.

R313.2.1 Design and installation. Automatic residential fire sprinkler systems shall be designed and installed in accordance with IRC section P2904 or NFPA 13D.

All two-family dwellings, all townhouses, and one-family dwellings 4,500 s.f or more

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MR 1309.0313, section R313.2 and R313.2.1

2012 INTERNATIONAL RESIDENTIAL CODE

RESIDENTIAL FIRE SPRINKLERS

R313.4 State-licensed facilities. One- and two-family dwellings and townhouse buildings containing facilities required to be licensed or registered by the state of Minnesota shall be provided with an automatic fire sprinkler system required by the applicable licensing provisions of that agency or according to this part, whichever is more restrictive.

MR 1309.0313, section R313.4

2012 INTERNATIONAL RESIDENTIAL CODE

RESIDENTIAL FIRE SPRINKLERS

R313.3 Installation requirements. When an automatic sprinkler system is required in two-family dwellings, it shall be installed in accordance with IRC section P2904 or NFPA 13D.

Automatic sprinkler systems required in two-family dwellings and townhouse buildings shall be installed in accordance with the following:

1. Attached garages are required to have one dry head sprinkler located within 5 lineal feet of each door installed in the common wall separating the dwelling unit and the attached garage.
2. 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 (6.096 m) of common wall between the dwelling unit and the covered patio, covered deck, covered porch, or similar structures.

Exception: Attached roofs of covered patios, covered decks, covered porches, or similar structures that do not exceed 40 square feet (3,716 m²) of floor area.

MR 1309.0313, section R313.3

Minnesota Construction Codes & Licensing Division

Fire-sprinkler requirements - Detached one-family dwellings[1]

Dwelling element	Included in calculation of 4,500 square footage threshold?[2]	Sprinkler protection required?[5]	NFPA 13D or IRC P2904 Reference[5]
Conditioned (heated) space	Yes	Depends on area (see below)	NFPA 13D 8.6.1-8.6.7 or P2904.1.1
Attic	No	No[3]	NFPA 13D 8.6.5 or P2904.1.1 exception 1
Garage (heated or unheated)	No	No	NFPA 13D 8.6.4 or P2904.1.1 exception 4
Covered porch/deck/patio with no walls except common wall on home	No	No	NFPA 13D 8.6.4 or P2904.1.1 exception 4
Unconditioned porches of any size	Yes	No	NFPA 13D 8.6.4 or P2904.1.1 exception 4
Conditioned porches of any size	Yes	Yes	NFPA 13D 8.6.1 or P2904.1.1
Basement (finished or unfinished)	Yes	Yes	NFPA 13D 8.6.1 or P2904.1.1
Mechanical room	Yes	Yes	NFPA 13D 8.6.1 or P2904.1.1
Crawlspace	No	No[3]	NFPA 13D 8.6.5 or P2904.1.1 exception 1
Closet or pantry of 24 sq ft or more or smallest wall is longer than 3 ft	Yes	Yes[6]	NFPA 13D 8.6.1 or P2904.1.1
Closet or pantry of less than 24 sq ft and smallest wall is less than 3 ft and no laundry or mechanical equipment is present	Yes	No[6]	NFPA 13D 8.6.3 or P2904.1.1 exception 2
Bathroom over 55 sq ft, including tub and shower area	Yes	Yes[4]	NFPA 13D 8.6.1 or P2904.1.1
Bathroom of 55 sq ft or less, including tub and shower area	Yes	No[4]	NFPA 13D 8.6.2 or P2904.1.1 exception 3

[1]Based on the 2012 IRC and MR 1309.0313

[2]Automatic fire sprinklers are required when the single-family dwelling floor area is 4,500 s.f. or more. The floor area includes all floors and basements. [MR1309.0313 except.#1]

[3]See IRC P2904.1.1 except. 1 regarding attics, crawl spaces and normally unoccupied concealed spaces that do not contain fuel-fired appliances do not require fire sprinklers.

[4]See IRC P2904.1.1 except. 3 regarding bathrooms, having < 55 s.f.

[5]Source of sprinkler requirements based on NFPA 13D or IRC Section P2904 and as amended in MR 1309.0313 Section R313.3.

[6]See IRC P2904.1.1 except. 2 regarding clothes closets, linen closets, and pantries having < 24 s.f, no dimension >3 feet, and wall and floor surfaces of gypsum board.

Rev. 8/11/14

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE PROTECTION OF FLOORS

Code Text:

R501.3 Fire protection of floors.

ENGINEERED FLOOR JOIST

ENGINEERED FLOOR TRUSSES

DIMENSION LUMBER FLOOR JOIST

This section was not amended (included as FYI)

FIRE PROTECTION OF FLOORS

Code Text:

R501.3 Fire protection of floors.
Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with a **$^1/_2$-inch** (12.7 mm) **gypsum wallboard membrane**, $^5/_8$-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member.

Exceptions:

1. Floor assemblies located directly **over a space protected** by an **automatic sprinkler** system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a **crawl space not intended** for **storage or fuel-fired appliances**.

FIRE PROTECTION OF FLOORS

Code Text: (cont)

3. Portions of floor assemblies can be **unprotected** when complying with the following:

   3.1. The aggregate area of the unprotected portions shall **not exceed 80 square feet** per story

   3.2. **Fire blocking** in accordance with Section R302.11.1 shall be installed along the **perimeter of the unprotected** portion to separate the unprotected portion from the remainder of the floor assembly.

4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than **2-inch by 10-inch** (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE PROTECTION OF FLOORS

R501.3 Fire protection of floors.
Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with a **$^{1}/_{2}$-inch gypsum wallboard membrane**, **$^{5}/_{8}$-inch wood structural panel membrane**, **or equivalent** on the underside of the floor framing member.

IRC Section R501.3

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE PROTECTION OF FLOORS

ICC EVALUATION SERVICE — Most Widely Accepted and Trusted

ICC-ES Evaluation Report — **ESR-1405**

Reissued November 1, 2013
This report is subject to renewal December 1, 2015.

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 33—Wood I-joists

REPORT HOLDER:

APA—THE ENGINEERED WOOD ASSOCIATION
7011 SOUTH 19TH STREET
TACOMA, WASHINGTON 98466
(253) 565-6600
www.apawood.org
help@apawood.org

EVALUATION SUBJECT:

PERFORMANCE RATED I-JOISTS

ADDITIONAL LISTEES:

ANTHONY EACOM CO.
1195 PEOPLES ROAD
SAULT STE. MARIE, ONTAR
CANADA

GEORGIA-PACIFIC WOOD P
133 PEACHTREE STREET, N
ATLANTA, GEORGIA 30303

INTERNATIONAL BEAMS, IN
418 RUE ST. DIZIER
MONTREAL, QUEBEC H2Y 3
CANADA

NORDIC ENGINEERED WOO
1100 DE LA GAUCHETIERE
MONTREAL, QUEBEC H3B 2
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PACIFIC WOODTECH CORP
POST OFFICE BOX 465
BURLINGTON, WASHINGTO

ROSEBURG FOREST PROD
POST OFFICE BOX 1088
ROSEBURG, OREGON 9747

STARK TRUSS COMPANY, I
6855 CHESTNUT RIDGE RO
BEACH CITY, OHIO 44608

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012 and 2009 *International Building Code®* (IBC)
- 2012 and 2009 *International Residential Code®* (IRC)

Properties evaluated:

- Structural
- Fire resistance

2.0 USES

The prefabricated wood I-joists described in this report are used as floor joists, roof rafters and blocking to support code-required loads. The wood I-joists comply with Section 2303.1.2 of the IBC; and Section R502.1.4 of the IRC, for allowable stress design.

3.0 DESCRIPTION

4.3 Fire Protection of Floors:

The I-joists described in this report, when installed and protected as specified in Figures 4 and 5, are alternatives to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 Exception 4, and have met the requirements for a floor assembly demonstrating equivalent floor performance. The I-joists described in this report, when installed and protected as specified in Figure 6, meet the provisions of 2012 IRC Section R501.3.

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Fire Protection of Wood I-Joist Floors Outlined in New System Report

APA's newest System Report provides several practical systems for design and construction of fire-resistant floor assemblies built with prefabricated wood I-joists that satisfy the requirements of 2012 IRC Section R501.3. *APA System Report SR-405: Fire Protection of Floors Constructed with Prefabricated Wood I-Joists for Compliance with the 2012 International Residential Code* was developed on the basis of the results of fire tests that met the stringent criteria established by the International Code Council Evaluation Service (ICC-ES) Acceptance Criteria for Prefabricated Wood I-Joists, AC14.

The report was developed to inform interested parties of the multiple options for fire-resistant I-joist floor systems where the 2012 IRC Section R501.3 is mandated by the local jurisdiction. "System Report SR-405 can be used by the authority having jurisdiction, designers, specifiers, and builders, in the design, construction, and approval of wood I-joist fire-protective floor systems that are compliant with Section R501.3 requirements," said Dr. Borjen Yeh, P.E., technical services director for APA. "SR-405 provides easy-to-apply solutions for code compliance, while affording additional fire protection to occupants and firefighters, as required by some local jurisdictions in this country."

Download a free PDF of *APA System Report SR-405: Fire Protection of Floors Constructed with Prefabricated Wood I-Joists for Compliance with the 2012 International Residential Code*.

IRC Section R501.3

2012 INTERNATIONAL RESIDENTIAL CODE

FIRE PROTECTION OF FLOORS

ICC EVALUATION SERVICE — Most Widely Accepted and Trusted

ICC-ES Evaluation Report — **ESR-1153***

Reissued April 2013

This report is subject to renewal May 1, 2015.

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 33—Wood I-joists

REPORT HOLDER:

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REDBUILT™ LLC
200 EAST MALLARD DRIVE
BOISE, IDAHO 83706

PACIFIC WOODTECH CORPORATION
1850 PARK LANE
POST OFFICE BOX 465
BURLINGTON, WASHINGTON 98233

EVALUATION SUBJECT:

TJI® PREFABRICATED WOOD I-JOISTS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012 and 2009 *International Building Code®* (IBC)
- 2012 and 2009 *International Residential Code®* (IRC)

Properties evaluated:

- Structural
- Sound ratings
- Fire-resistance ratings

2.0 USES

TJI joists are prefabricated wood I-joists used as floor joists, roof rafters, blocking panels and rim joists, to support code-required loads. Prefabricated wood I-joists described in this report comply with Section 2303.1.2 of the IBC, for allowable stress design; and Section R502.1.4 of the IRC.

3.0 DESCRIPTION

3.1 General:

TJI joists are prefabricated wood I-joists having wood or wood-based flanges and Performance Plus® oriented strand board (OSB) webs. Either the top and bottom flanges are parallel, forming a constant-depth joist; or the top flange has a single taper, forming a variable-depth joist. The web panels have the face grain oriented vertically, and the web-to-web connection is either butt jointed or serrated and glued to form a continuous web. The web-to-flange connection is a proprietary tongue-and-groove glued joint. Refer to Table 1 for TJI joist series and material descriptions. The TJI L65, TJI L90, TJI H90, TJI HD90, and TJI HS90, may also be trademarked as: TJI L460, TJI L560, TJI H560, TJI HD560, and TJI HS560, respectively.

3.2 Material Specifications:

3.2.1 Flanges: Flange material is either Microllam® laminated veneer lumber (LVL), TimberStrand® laminated strand lumber (LSL) or machine stress rated lumber (MSR). Microllam LVL and TimberStrand LSL are recognized in evaluation report ESR-1387. Table 1 of this report specifies flange widths and depths. Flange material and grades are as specified in the quality control manual that contains Weyerhaeuser manufacturing standards.

3.2.2 Webs: Web material is Performance Plus® OSB conforming to DOC Voluntary Product Standard PS2, Exposure 1, along with further requirements set forth in the quality control manual that contains Weyerhaeuser manufacturing standards. Web material thickness requirements are noted in Table 1 of this report.

3.2.3 Adhesives: Adhesives are of the types specified in the quality control manual that contains Weyerhaeuser manufacturing standards.

4.0 DESIGN AND INSTALLATION

4.1 General:

The design and installation of TJI joists described in this report must comply with Sections 4.2 through 4.16. Additionally, design of TJI joists is governed by the applicable code and corresponding editions of ANSI/AWC *National Design Specification for Wood Construction®* (NDS).

4.2 Design Values:

Table 3 specifies reference design moments, reactions, vertical shear forces, and joist stiffness (*EI*). Reference design reactions are based on minimum bearing lengths of $1^3/_4$ inches, $2^1/_2$ inches and $3^1/_2$ inches (45, 64 and 89 mm),

*Revised July 2014

4.17 TJI Joists with Flak Jacket™ Protection Used in IRC Section R501.3 Fire Protected Floors:

TJI® Joists with Flak Jacket™ protection applied to both sides of the web and vertical sides of the bottom flange are an alternative to the 2-by-10 dimension lumber, prescribed in the 2012 IRC Section R501.3 Exception 4, and have met the requirements of a floor assembly demonstrating equivalent floor performance. TJI® Joists with Flak Jacket™ protection are identified in the field by a Flak Jacket™ Protection stamp or label placed on the web of the I-joist member. Flak Jacket™ protection is applied in accordance with the TJI® Joist with Flak Jacket™ Protection Manufacturing Standard and quality control program.

IRC Section R501.3

2012 INTERNATIONAL RESIDENTIAL CODE

SMOKE ALARMS

R314.3.1 Alterations, repairs and 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~~ 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 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. ~~replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.~~
2. Installation, alteration or repairs of plumbing or electrical, mechanical systems are exempt from the requirements of this section.

MR 1309.0314, section R314.3.1

2012 INTERNATIONAL RESIDENTIAL CODE

CARBON MONOXIDE ALARMS

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 ~~shall be~~ installed ~~outside of each separate sleeping area in the immediate vicinity of the bedrooms in *dwelling units* within which fuel-fired *appliances* are installed and in dwelling units that have attached garages.~~ 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 ten feet from each separate sleeping area or bedroom. Alarms must be installed on each level containing sleeping areas or bedrooms.

MR 1309.0315, section R315.1 and R315.1.1

STORM SHELTERS

IRC section R323 is deleted in its entirety.

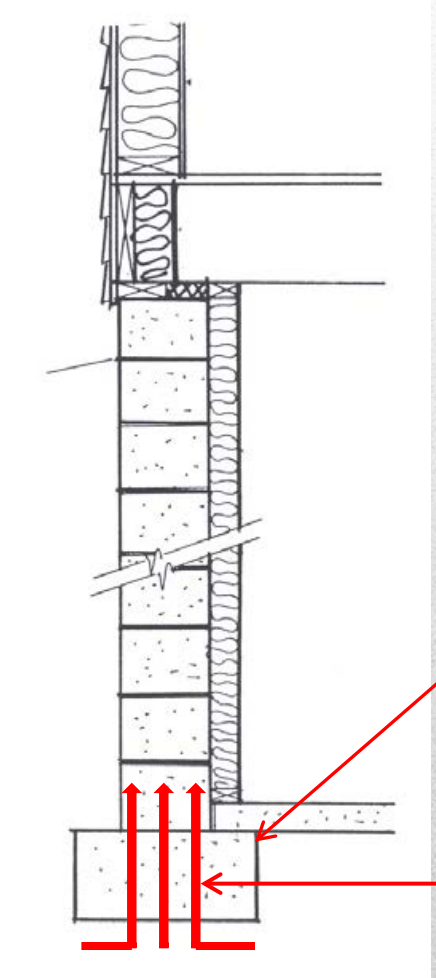
~~**R323.1 General.**~~

~~This section applies to the construction of storm shelters when constructed as separate detached buildings or when constructed as safe rooms within buildings for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes. In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC/NSSA-500.~~

2012 INTERNATIONAL RESIDENTIAL CODE

MATERIALS

TABLE R402.2 MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE



5,000 psi compressive strength concrete footing or;

2,500 psi compressive strength concrete footing with an approved admixture that provides a water and vapor resistance at least equivalent to 5,000 psi concrete.

MR 1309.0402, Table R402.2

2012 INTERNATIONAL RESIDENTIAL CODE

MATERIALS

TABLE R402.2 MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE

TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH[a] (f'_c)		
	Weathering Potential[b]		
	Negligible	Moderate	Severe
Footings[g]	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.

MR 1309.0402, Table R402.2

2012 INTERNATIONAL RESIDENTIAL CODE

MATERIALS

TABLE R402.2 MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE
(Footnotes)

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'_c) of 2,500 psi, with an approved admixture that provides a water and vapor resistance at least equivalent to 5,000 psi concrete.

MR 1309.0402, Table R402.2

2012 INTERNATIONAL RESIDENTIAL CODE

FOOTINGS

R403.1.4.1 Frost protection. Footings shall not bear on frozen soil.~~Except where otherwise protected from frost,~~ Foundation walls, piers and other permanent supports of buildings and structures not otherwise protected from frost 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; or
4. Erected on solid rock.
5. Constructing in accordance with Minnesota Rules, chapter 1303.

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

MR 1309.0403, Subp. 1, section R403.1.4.1

FOOTINGS

R404.1.3. Design required. Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice when either of the following conditions exists:

1. Walls are subject to hydrostatic pressure from groundwater.

2. Walls supporting more than 48 inches (1219 mm) of unbalanced backfill that do not have permanent lateral support at the top and bottom.

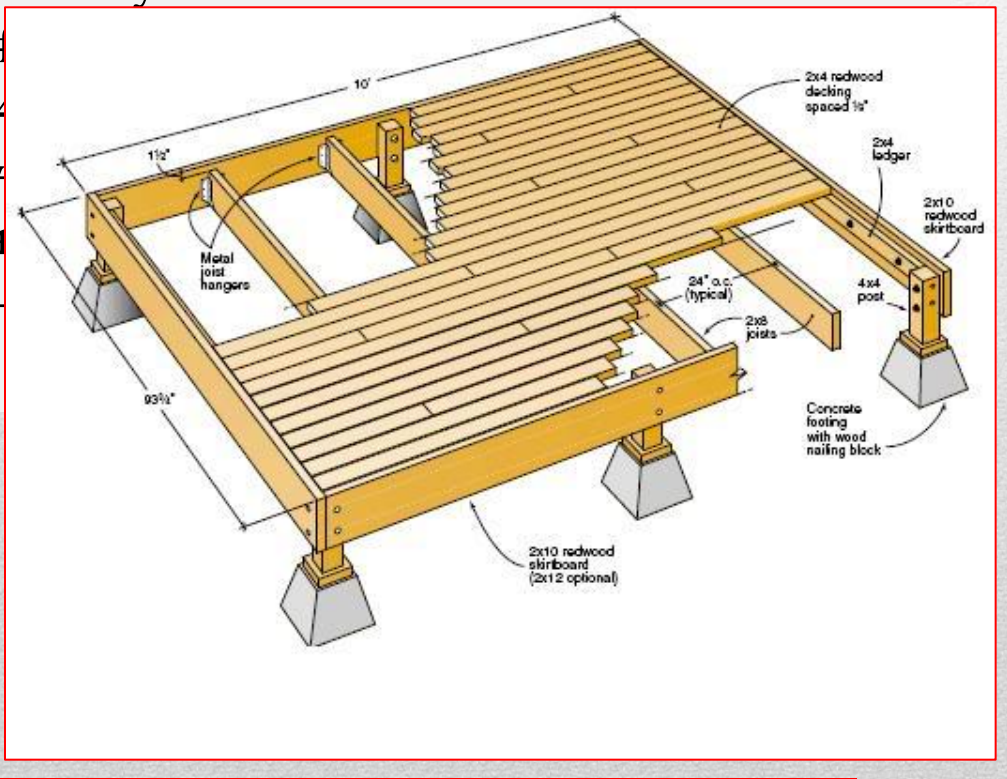
Exception: Cantilevered concrete and masonry foundation walls constructed in accordance with Table R404.1.1(6), R404.1.1(7), or R404.1.1(8).

FOOTINGS

R403.1.4.1 Frost protection. (cont)

1. ~~Protection of freestanding accessory structures with an area of 600 square feet (56 m^2) or less, of light-frame construction, with an eave height of 10 feet (3048 mm) or less shall not be required.~~
2. ~~Protection of freestanding accessory structures with an area of 400 square feet (37 m^2) or less, of~~ ~~an eave height of 10 feet (304~~
3. ~~Decks not supported by a dw~~ ~~that extend below the frost lin~~

~~Footings shall not bear on frozen~~ ~~permanent~~



MR 1309.0403, Subp. 1, section R403.1.4.1

FOUNDATION ANCHORAGE

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 anchor 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 ~~seven~~ 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.

FOUNDATION ANCHORAGE

R403.1.6 Foundation anchorage. (cont)

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 wood sill plates or anchored directly to the foundation as required in Section R505.3.1 or R603.3.1. 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 at least 1-inch (25 mm) of grout between the bolt and the masonry.

1. **Exceptions:** Foundation ~~anchorage~~ 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.

FOUNDATION ANCHORAGE

R403.1.6 Foundation anchorage. (cont)

Exceptions:

2. Walls 24 inches (610 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 ~~at corners as shown in item 8 of Table R602.3(1)~~ according to Figure R602.10.5 at corners.

3. ~~Connection of~~ Walls 12 inches (~~305~~ 304.8 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts 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 ~~as shown in item 8 of Table R602.3(1).~~

2012 INTERNATIONAL RESIDENTIAL CODE

FOUNDATION AND RETAINING WALLS

2012 IRC references to foundations being laterally supported.

R404.1.2.2 Reinforcement for foundation walls.
Concrete foundation walls shall be laterally supported at the top and bottom. (see remainder of text)

R606.9 Lateral support.
Masonry walls shall be laterally supported in either the horizontal or the vertical direction. The maximum spacing between lateral supports shall not exceed the distances in Table R606.9. Lateral support shall be provided by cross walls, pilasters, buttresses or structural frame members when the limiting distance is taken horizontally, or by floors or roofs when the limiting distance is taken vertically.

Now What??

FOUNDATION AND RETAINING WALLS

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).

FOUNDATION AND RETAINING WALLS

R404.1 Concrete and masonry foundation walls. (cont)

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 two joist spaces of the foundation wall. Floor sheathing shall be fastened to blocking in accordance with Table R602.3(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 linear foot capacity.

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

2012 INTERNATIONAL RESIDENTIAL CODE

FOUNDATION AND RETAINING WALLS

Table R404.1.(1) [Amended Table R404.1(2) for 2006 IRC]

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)[b]	1/2" diameter Anchor Bolt Spacing (inches)[a]	Spacing of Blocking Perpendicular To Floor Joist (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

[a] 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.

MR 1309.0404, Subp. 2, Table R404.1(1)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(5) [Amended Table R404.1(6) for 2006 IRC]

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]

See footnotes

MR 1309.0404, Subp. 6, Table R404.1.1(5)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(5) (cont) [Amended Table R404.1(6) for 2006 IRC]

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 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.

MR 1309.0404, Subp. 6, Table R404.1.1(5)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(6) [Amended Table R404.1(7) for 2006 IRC]

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]

See footnotes

MR 1309.0404, Subp. 7, Table R404.1.1(6)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(6) (cont) [Amended Table R404.1(7) for 2006 IRC]

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.

MR 1309.0404, Subp. 7, Table R404.1.1(6)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(7) [Amended Table R404.1(8) for 2006 IRC]

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]

See footnotes

MR 1309.0404, Subp. 8, Table R404.1.1(7)

FOUNDATION AND RETAINING WALLS

Table R404.1.1(7) (cont) [Amended Table R404.1(8) for 2006 IRC]

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.

MR 1309.0404, Subp. 8, Table R404.1.1(7)

FOUNDATION AND RETAINING WALLS

R404.1.3 Design required. Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice when either of the following conditions exists:

1. Walls are subject to hydrostatic pressure from groundwater.

2. Walls supporting more than 48 inches (1219 mm) of unbalanced backfill that do not have permanent lateral support at the top or bottom.

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).

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FOUNDATION WATERPROOFING AND DAMPROOFING

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 from the top of the footing to the finished grade. Masonry walls shall have 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**2**) 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 dampproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

MR 1309.0406, Subp. 1, section R406.1

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FOUNDATION WATERPROOFING AND DAMPROOFING

R406.2 Concrete and masonry foundation waterproofing.

~~In areas where a highwater table or other severe soil-water conditions are known to exist, exterior~~ Exterior foundation walls that retain earth and enclose below grade interior spaces, ~~and~~ floors, and crawl spaces below grade shall be waterproofed. Waterproofing shall be installed at a minimum from the top of the footing to the finished grade or in accordance with the manufacturer's installation instructions. 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 ~~(3 mm)~~ cement-based, fiber-reinforced, waterproof coating.
8. 60-mil (~~0.22~~ 1.5 mm) solvent-free liquid-applied synthetic rubber.

Exception:

MR 1309.0406, Subp. 2, section R406.2

FOUNDATION WATERPROOFING AND DAMPROOFING

R406.2 Concrete and masonry foundation waterproofing. (cont)

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. Use of plastic roofing cements, acrylic coatings, latex coatings, mortars and pargings to seal ICF walls is permitted. 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°F (93°C).

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

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WOOD WALL FRAMING

Table R602.3.1 [Amended Table R602.3.1 for 2006 IRC]

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

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

MR 1309.0602, Subp. 1, Table R602.3.1

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WOOD WALL FRAMING

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

MR 1309.0602, Subp. 1, Table R602.3.1

2012 INTERNATIONAL RESIDENTIAL CODE

WOOD WALL FRAMING

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

MR 1309.0602, Subp. 1, Table R602.3.1

2012 INTERNATIONAL RESIDENTIAL CODE

WOOD WALL FRAMING

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

MR 1309.0602, Subp. 1, Table R602.3.1

2012 INTERNATIONAL RESIDENTIAL CODE

WOOD WALL FRAMING

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

MR 1309.0602, Subp. 1, Table R602.3.1

2012 INTERNATIONAL RESIDENTIAL CODE

WOOD WALL FRAMING

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~~materials listed in items 32 to 38 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 opeings 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.

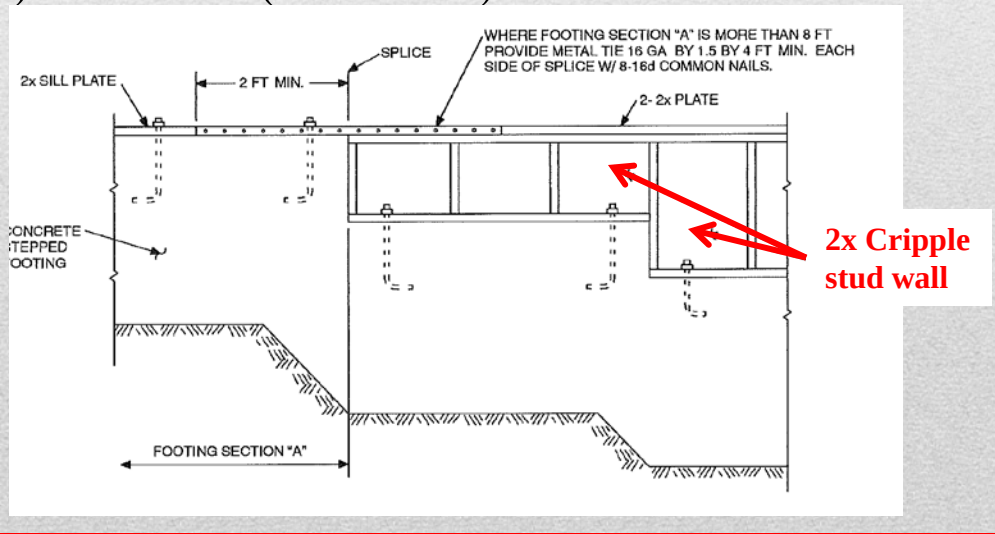
h. Exposure B-Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meets the definition of another type exposure.

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.

MR 1309.0602, Subp. 1, Table R602.3.1

WALL FRAMING

R602.10.11 Cripple wall bracing. Cripple walls shall be constructed in accordance with Section R602.9 and braced in accordance with this section. Cripple walls shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1) and R602.10.3(3), and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively, except that the length of cripple wall bracing shall be multiplied by a factor of 1.15. ~~The distance between adjacent edges of *braced wall panels* shall be reduced from 20 feet (6096 mm) to 14 feet (4267 mm).~~



MR 1309.0602, Subp. 2, section R602.10.11

EXTERIOR WINDOWS AND DOORS

R612.1 General. This section prescribes performance and construction requirements for exterior window and door installed in wall. Windows and doors shall be installed ~~and flashed~~ in accordance with the fenestration manufacturer's written installation instructions. Window and door openings shall be flashed in accordance with Section R703.8. Written installation instructions shall be provided by the fenestration manufacturer for each window or door.

2012 INTERNATIONAL RESIDENTIAL CODE

INTERIOR COVERING

Table R702.1(3) CEMENT PLASTER PROPORTINS, PART BY VOLUME

COAT	CEMENT PLASTER TYPE	CEMENTITIOUS MATERIALS				VOLUME OF AGGREGATE PER SUM OF SEPARATE VOLUMES OF CEMENTITIOUS MATERIALS[b]
		Portland Cement Type I, II or III or Blended Cement Type IP, I (PM), IS or I (SM)	Plastic Cement	Masonry Cement Type M, S or N	Lime	
First	Portland or blended	1			$^{3}/_{4}$ - $1^{1}/_{2}$[a]	$2^{1}/_{2}$ - 4
	Masonry			1	+	$2^{1}/_{2}$ - 4
	Plastic		1			$2^{1}/_{2}$ - 4
Second	Portland or blended	1			$^{3}/_{4}$ - $1^{1}/_{2}$	3 - 5
	Masonry			1		3 - 5
	Plastic		1			3 - 5
Finish	Portland or blended	1			$^{3}/_{4}$ - 2	$1^{1}/_{2}$ - 3
	Masonry			1		$1^{1}/_{2}$ - 3
	Plastic		1			$1^{1}/_{2}$ - 3

For SI: 1 inch = 25.4 mm, 1 pound = 0.545 kg.

a. Lime by volume of 0 to $^{3}/_{4}$ shall be used when the plaster will be placed over low-absorption surfaces such as dense clay tile or brick.

b. The same or greater sand proportion shall be used in the second coat than used in the first coat.

MR 1309.0702, Subp. 1, section R702.1

INTERIOR COVERING

R702.7 Vapor retarders.

A Class I or II vapor retarders ~~are~~ is required on the interior side of frame walls in Climate Zones ~~5,~~ 6 and 7~~, 8 and Marine 4~~. Class II vapor retarders are permitted only when specified on the construction documents.

~~**Exceptions:**~~

~~1. Basement walls.~~

~~2. Below grade portion of any wall.~~

~~3. Construction where moisture or its freezing will not damage the materials.~~

2012 INTERNATIONAL RESIDENTIAL CODE

EXTERIOR COVERINGS

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 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). The felt or other approved material shall be continuous up to the underside of the rafter or truss top chord ~~to the top of walls~~ 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.

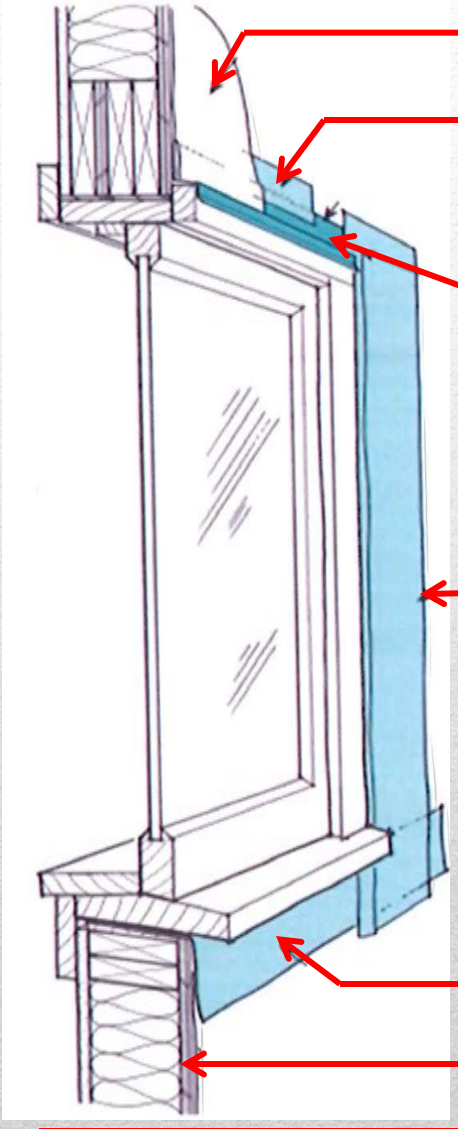
Exception: Omission of the water-resistive barrier is permitted in the following situations:

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.

MR 1309.0703, Subp. 2a, section R703.2

2012 INTERNATIONAL RESIDENTIAL CODE

EXTERIOR COVERINGS



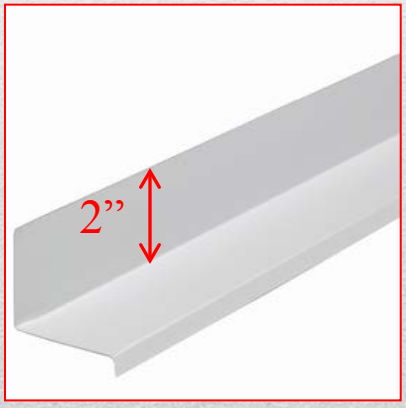
Water resistive material or felt

Flashing tape

Metal drip cap

The water-resistive barrier shall overlap the flashings required in section R703.8 not less than 2 inches.

Flashing tape or felt



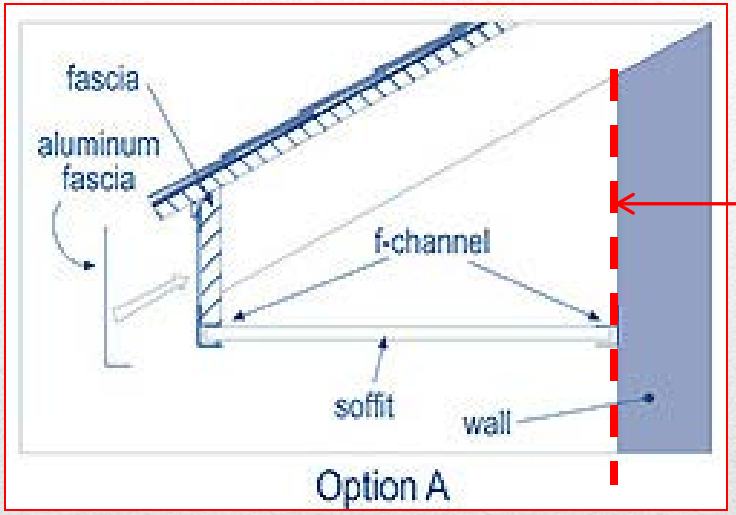
Flashing tape or felt over water resistive barrier

Water resistive barrier or felt

MR 1309.0703, Subp. 2a, section R703.2

2012 INTERNATIONAL RESIDENTIAL CODE

EXTERIOR COVERINGS



Water resistive material or felt

The felt or other approved material shall be continuous up to the underside of the rafter or truss top chord ~~to the top of walls~~ 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.

MR 1309.0703, Subp. 2a, section R703.2

EXTERIOR COVERINGS

R703.6 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 Lath. All lath and lath attachments shall be of corrosion-resistant materials. Expanded metal or woven wire lath shall be attached with ~~1½-inch (38 mm)~~, 11 gage nails having a 7/16-inch (11.1 mm) head or ~~7/8-inch-long (22.2 mm),~~ 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 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.

EXTERIOR COVERINGS

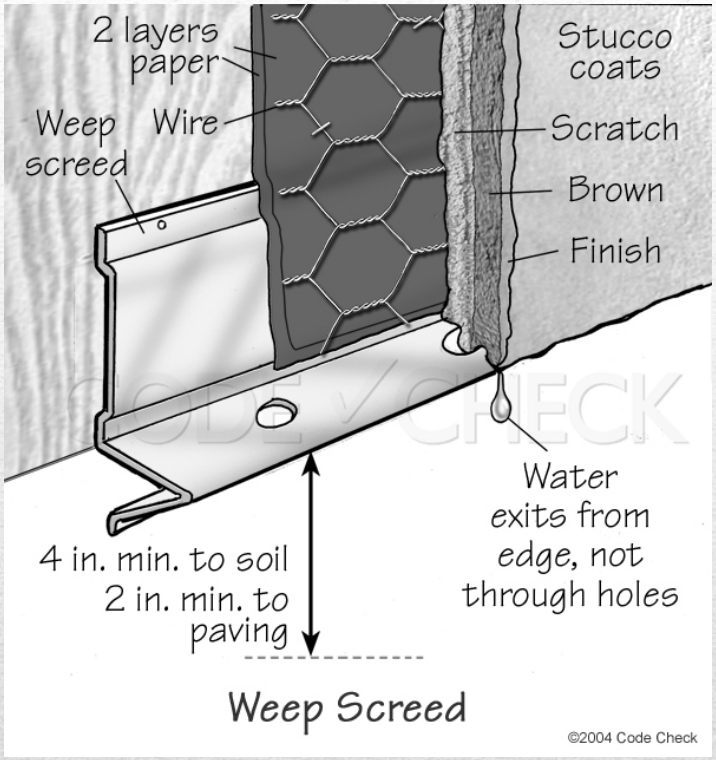
R703.6.2 Plaster. Plastering with portland cement plaster shall be not less than three coats when applied over metal lath or wire lath and shall be not less than two coats when applied over masonry, concrete, pressure-preservative treated wood or decay-resistant wood as specified in section R317.1 or 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.

~~The proportion of aggregate to cementitious materials shall be as set forth in Table R702.1(3).~~

EXTERIOR COVERINGS

R703.6.2.1 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 ~~926~~ 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.



MR 1309.0703, Subp. 3, section R703.6

EXTERIOR COVERINGS

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. ~~with a performance at least equivalent to two layers of Grade D paper. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section R703.8) intended to drain to the water-resistive barrier is directed between the layers.~~ 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.

EXTERIOR COVERINGS

R703.6.3 Water-resistive barriers. (cont)

2. A water vapor permeance 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: ~~Where the water-resistive barrier that is applied over wood-based sheathing has a water resistance equal to or greater than that of 60-minute Grade D paper and is separated from the stucco by an intervening, substantially nonwater-absorbing layer or designed drainage space.~~ 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.

EXTERIOR COVERINGS

R703.6.4 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.

MR 1309.0703, Subp. 3, section R703.6 .4

EXTERIOR COVERINGS

R703.6.5 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. The finish coat for three-coat cement plaster shall not be applied sooner than seven days after application of the second coat.

EXTERIOR COVERINGS

R703.8 Flashing. Approved corrosion-resistant flashing shall be applied shingle-fashion in a manner 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. The flashing shall extend to the surface of the exterior wall finish. Approved corrosion-resistant flashings 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 ~~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. Flashing at exterior window and door openings shall be installed in accordance with one or more of the following:

EXTERIOR COVERINGS

R703.8 Flashing. (cont)

(a)~~1.1.~~ The fenestration manufacturer's installation and flashing instructions,. When flashing is ~~or for applications~~ not addressed in the fenestration manufacturer's instructions, it shall be installed in accordance with the flashing manufacturer's 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. Openings using pan flashing shall also incorporate flashing or protection at the head and sides.~~

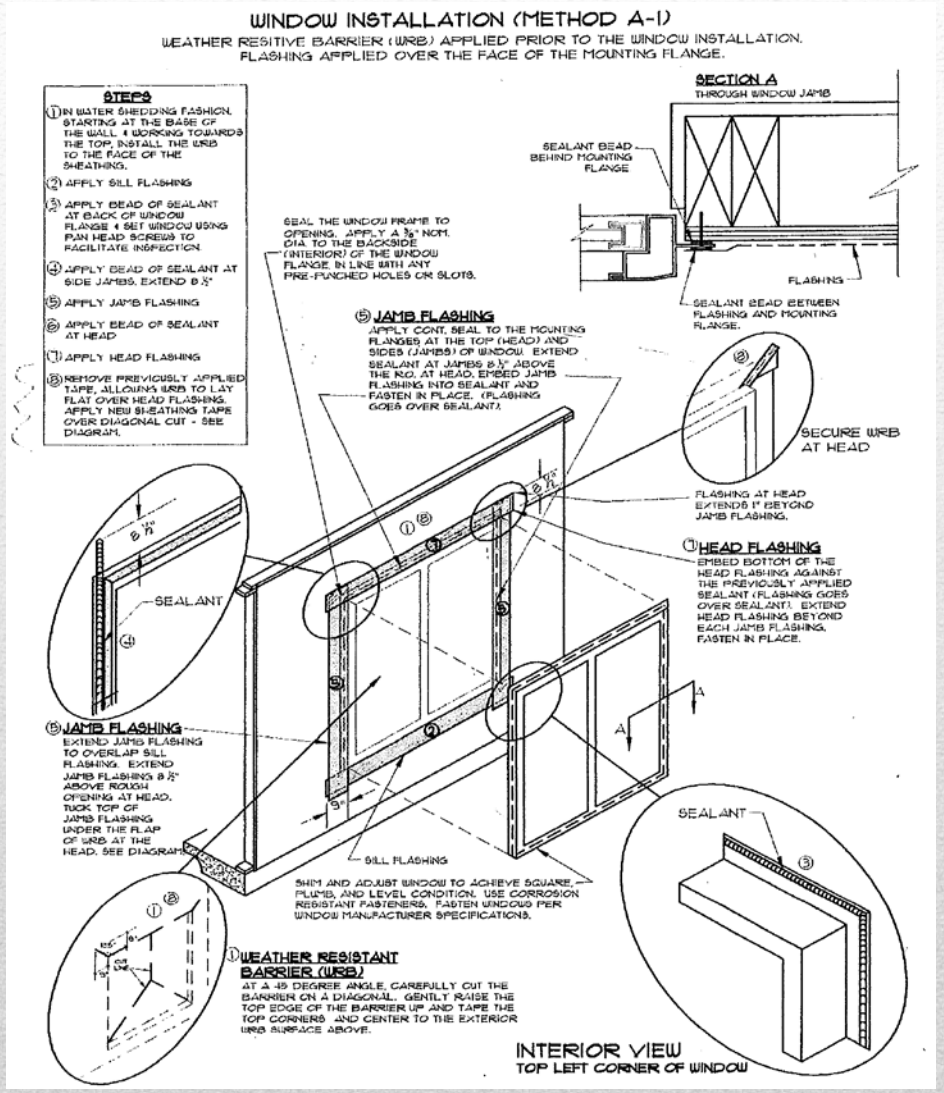
(b) ~~1.2.~~ In accordance with the flashing design or method of a registered design professional.;

(c)~~1.3.~~ In accordance with other approved methods.

2012 INTERNATIONAL RESIDENTIAL CODE

EXTERIOR COVERINGS

R703.8 Flashing. (cont)



MR 1309.0703, Subp. 9, section R703.8

EXTERIOR COVERINGS

R703.8 Flashing. (cont)

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.

MR 1309.0703, Subp. 9, section R703.8

EXTERIOR COVERINGS

R703.8 Flashing. (cont)

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

MR 1309.0703, Subp. 9, section R703.8

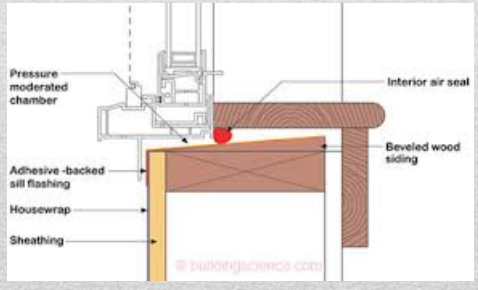
2012 INTERNATIONAL RESIDENTIAL CODE

EXTERIOR COVERINGS

R703.8.1 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.



MR 1309.0703, Subp. 9, section R703.8.1

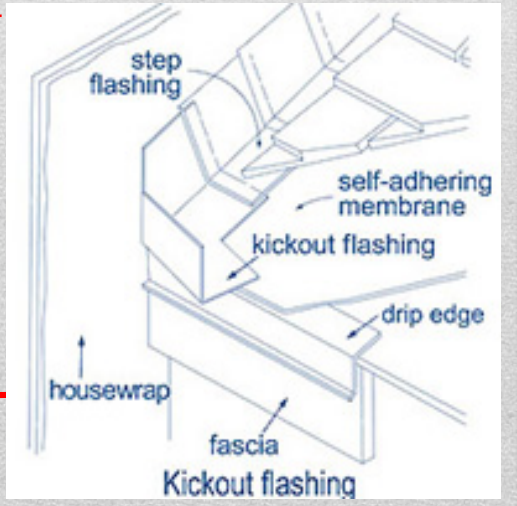
2012 INTERNATIONAL RESIDENTIAL CODE

WEATHER PROTECTION

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).

903.2.1.1 Existing buildings and structures. Kick-out flashings shall be required in accordance with section R903.2.1 when 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.

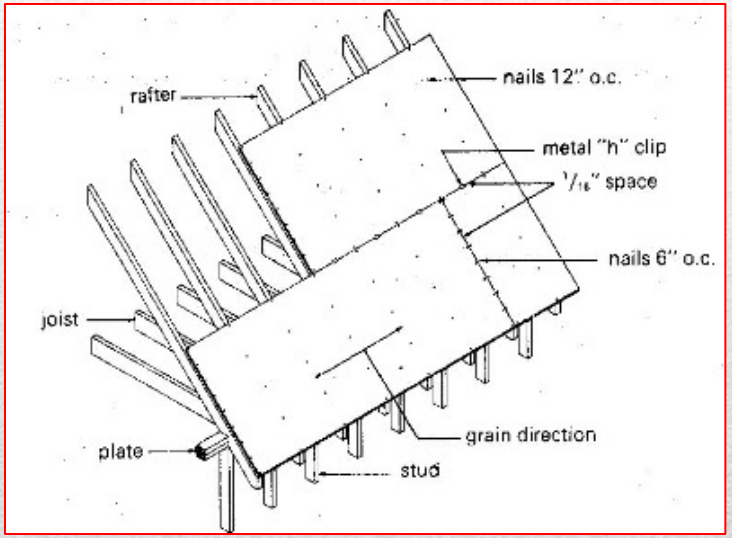


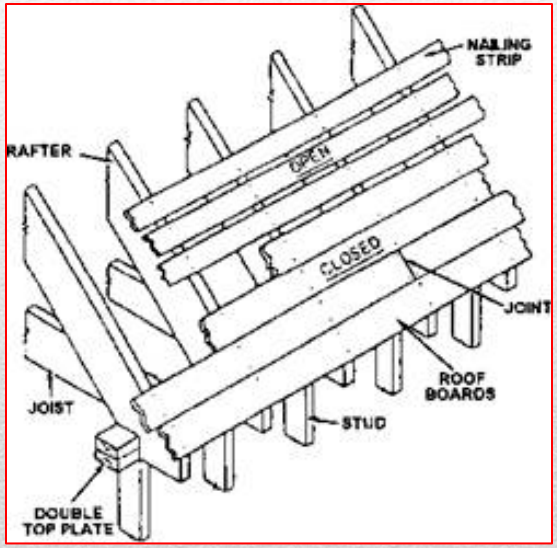
MR 1309.0903, section R903.2.1 and R903.2.1.1

2012 INTERNATIONAL RESIDENTIAL CODE

REQUIREMENTS FOR ROOF COVERINGS

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





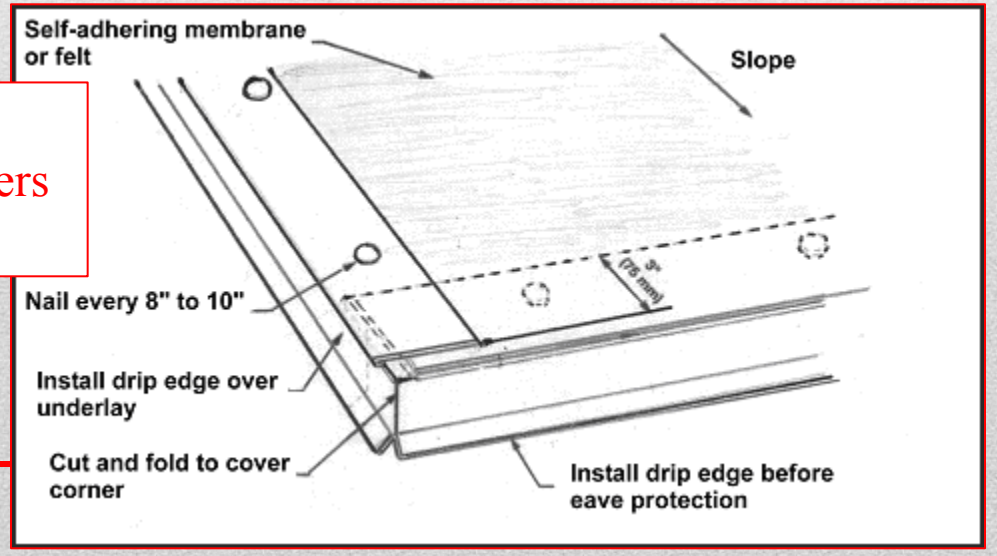
MR 1309.0905, Subp. 1, section R905.2.1

2012 INTERNATIONAL RESIDENTIAL CODE

REQUIREMENTS FOR ROOF COVERINGS

~~**R905.2.8.5 Drip edge.** A drip edge shall be provided at eaves and gables of shingle roofs. Adjacent pieces of drip edge shall be overlapped a minimum of 2 inches (51 mm). Drip edges shall extend a minimum of 0.25 inch (6.4 mm) below the roof sheathing and extend up the roof deck a minimum of 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof deck at a maximum of 12 inches (305 mm) o.c. with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves and under the underlayment on gables. Unless specified differently by the shingle manufacturer, shingles are permitted to be flush with the drip edge.~~

Drip edge is not required per code unless required per the manufacturers installation instructions



MR 1309.0905, Subp. 2, section R905.2.8.5

REPEAL vs DELETE

Repeal – to revoke or annul (a law, tax, etc.) by express legislative enactment; abrogate/abolish.

- In rule, to repeal a rule means that the amendment to the code is going away; i.e. no longer a change to code language (fall back on original code language)

- A repealer may be very old

Delete – in rule, the Department must write an amendment to delete language from the code.

- words are used to describe the deletion in the form of an amendment.

2012 INTERNATIONAL RESIDENTIAL CODE

USE OF CURRENT AND NEW MINNESOTA RULE CHAPTERS

CHAPTER 1309

DEPARTMENT OF LABOR AND INDUSTRY

INTERNATIONAL RESIDENTIAL CODE

1309.0010 ADOPTION OF INTERNATIONAL RESIDENTIAL CODE (IRC) BY REFERENCE.
1309.0020 REFER
1309.0030 ADMIN
1309.0040 VIOLAT
1309.0100 CHAPT
1309.0201 SECTION R201, GENERAL.
1309.0202 SECTION R202, DEFINITIONS.
1309.0300 SECTION R300, CLASSIFICATION.
1309.0301 SECTION R301, DESIGN CRITERIA.
1309.0302 SECTION R302, EXTERIOR WALL LOCATION.
1309.0305 SECTION R305, CEILING HEIGHT.
1309.0309 SECTION R309, GARAGES AND CARPORTS.
1309.0310 SECTION R310, EMERGENCY ESCAPE AND RESCUE OPENINGS.
1309.0311 SECTION R311, MEANS OF EGRESS.
1309.0613 SECTION R613, EXTERIOR WINDOWS AND GLASS DOORS.
1309.0703 SECTION R703, EXTERIOR COVERING.
1309.0802 SECTION 802, WOOD ROOF FRAMING.
1309.0806 SECTION R806, ROOF VENTILATION.
1309.0903 SECTION R903, WEATHER PROTECTION.
1309.0905 SECTION R905, REQUIREMENTS FOR ROOF COVERINGS.
1309.4300 REFERENCED STANDARDS.

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.

MR 1309 - 2006 IRC

REPEALER identifies current MR 1309 (2006 IRC) amended language repealed.

CHAPTER 1309

DEPARTMENT OF LABOR AND INDUSTRY

INTERNATIONAL RESIDENTIAL CODE

1309.0010 ADOPTION OF INTERNATIONAL RESIDENTIAL CODE (IRC) BY REFERENCE.
1309.0020 REFER
1309.0030 ADMIN
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1309.0302 SECTION R302, EXTERIOR WALL LOCATION.
1309.0305 SECTION R305, CEILING HEIGHT.
1309.0309 SECTION R309, GARAGES AND CARPORTS.
1309.0310 SECTION R310, EMERGENCY ESCAPE AND RESCUE OPENINGS.
1309.0311 SECTION R311, MEANS OF EGRESS.
1309.0313 SMOKE ALARMS.
1309.0314 SECTION R314, FOAM PLASTIC.
1309.0613 SECTION R613, EXTERIOR WINDOWS AND GLASS DOORS.
1309.0703 SECTION R703, EXTERIOR COVERING.
1309.0802 SECTION 802, WOOD ROOF FRAMING.
1309.0806 SECTION R806, ROOF VENTILATION.
1309.0903 SECTION R903, WEATHER PROTECTION.
1309.0905 SECTION R905, REQUIREMENTS FOR ROOF COVERINGS.
1309.4300 REFERENCED STANDARDS.

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

Subpart 1. **Generally.** The 2012 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.

MR 1309 - 2012 IRC

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC IRC AMENDMENTS REPEALED

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

Subpart 1.

Generally.

The 2006 edition of the In
Virginia, is incorporated b
in Minnesota Rules, chapt
amendments for use in Mi
text and tables from the IR

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

Subp. 2. Mandatory chapters.

The 2006 IRC Chapters 2 through 10 and 43 must b
the applicable provisions in Minnesota Rules, chapt

Subp. 3. Replacement chapters.

The following 2006 IRC chapters are being deleted

A. Chapter 1 of the 2006 IRC and any references to
chapter 1300, Minnesota Administration Code.

B. Chapter 11 of the 2006 IRC and any references t
326B.115.

C. Chapters 12 through 24 of the 2006 IRC and any
Rules, chapter 1346, Minnesota Mechanical Code.

D. Chapters 25 through 32 of the 2006 IRC and any
chapter 4715, Minnesota Plumbing Code.

E. Chapters 33 through 42 of the 2006 IRC and refe
deleted and replaced with Minnesota Rules, chapter

Adopting the 2012 IRC model code seismic provisions will impact current construction practices that were previously exempt from addressing IRC model code seismic concerns. However, Minnesota is located in Seismic Design Category "A," as identified in 2012 IRC Table R301.2(1). **Seismic Design Category "A" is the category that contains the least restrictive construction requirements.** Adopting the 2012 IRC seismic provisions and allowing Minnesota code users to apply the least restrictive **Seismic Design Category "A" provisions will have little, if any, effect on current residential construction practices because those provisions are so basic as applied to residential construction** that they do not require the additional expenditure of construction resources.

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.

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.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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 wa
Attached covered patios, co
minimum of one dry head f
covered porches, and simila
Exception:
Attached roofs of covered p
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.

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This subpart amends 2012 IRC, section R301.1.4, Automatic sprinkler systems (general). The subpart, which includes subsections R301.1.4, R301.1.4.1, and R301.1.4.2, is being repealed. The Advisory Committee recommended deleting this amendment and using the 2012 IRC for sprinkler provisions and installation requirements instead, which are located and addressed in section R313 in the 2012 IRC.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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
Atties with limited storage[b,g,h]	20
Atties without storage[b]	10
Decks[e]	
Exterior balconies	
Fire escapes	
Guardrails and handrails[d]	
Guardrails in-fill components[f]	50[i]
Passenger vehicle garages[a]	50[a]
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40[e]

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This subpart amends 2012 IRC, section R301.1.4, Automatic sprinkler systems (general). The subpart, which includes subsections R301.1.4, R301.1.4.1, and R301.1.4.2, is being repealed. The Advisory Committee recommended deleting this amendment and using the 2012 IRC for sprinkler provisions and installation requirements instead, which are located and addressed in section R313 in the 2012 IRC.

Including footnotes "a" through "I"

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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 draftstop 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 constr
construction of such assembl
Subp. 2.
IRC Section 317.2.
IRC Section 317.2 is amende
R317.2 Townhouses. Each t
assemblies meeting the requirements of Section R302
Exceptions:
A common 2-hour fire-resistance-rated wall is permitte
ducts or vents in the cavity of the common wall. Electr
Penetrations of electrical outlet boxes shall be in accor

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This rule part is being repealed. The 2006 IRC Section R317 requirements have been relocated in the 2012 IRC to section R302, Fire-resistant construction. It is reasonable and necessary to repeal this amendment because it no longer applies in this location with the adoption of the 2012 edition of the IRC.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

1309.0317 SECTION R317, DWELLING UNIT SEPARATION. (cont)
Subpart 1.
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
area within a structure shall
R317.4.3 Referenced stand
R317.4.3.1 ASTM E 90-04
Elements R317.4.1.
R317.4.3.2 ASTM E 492-04
Assemblies Using the Tappi

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This rule part is being repealed. The 2006 IRC Section R317 requirements have been relocated in the 2012 IRC to section R302, Fire-resistant construction. It is reasonable and necessary to repeal this amendment because it no longer applies in this location with the adoption of the 2012 edition of the IRC.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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.
1309.0317 SECTION R317, DWELLING UNIT SEPARATION. (cont)

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This rule part is being repealed. The 2006 IRC Section R318 requirements have been relocated in the 2012 IRC to section R702.7, Vapor retarders. It is reasonable and necessary to repeal this amendment because it no longer applies in this location with the adoption of the 2012 edition of the IRC.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

1309.0404 SECTION R404, FOUNDATION AND RETAINING WALLS.
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 ame
R404.1.1 Masonry foundat
R404.1.1(1), R404.1.1(2), R4
provisions of Sections R606,
R404.1.8 and R607.2.2. Can
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
R404.1.2 Concrete fo
comply with the provi
shall be constructed a
have permanent latera

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

Subp. 3. Table R404.1(3). The existing subpart contains language that deletes Table R404.1(3) from the 2006 IRC. This subpart is now being repealed because the table has been removed from the 2012 IRC so the current amendment is no longer needed.

Subp. 4. R404.1.1. This section has been renumbered in the 2012 IRC to section R404.1.1.1, so the subpart is being repealed because it no longer coordinates with the 2012 IRC. This subpart also contains requirements for cantilever foundations, but the language is not necessary and is being deleted because cantilever foundation requirements are already addressed in subparts 6 through 8 of this rule part.

Subp. 5. R404.1.2. This subpart is being repealed because the language in the 2012 IRC is similar, so the amendment is no longer necessary. This subpart also contains requirements for cantilever foundations, but the language is not necessary and is being deleted because cantilever foundation requirements are already addressed in subparts 6 through 8 of this rule part.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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.

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This existing rule part that amends 2006 IRC, section R613, is being repealed. Section R613 was renumbered to R612 in the 2012 IRC. Section 612 is amended as described in the rationale for Minnesota Rules, part 1309.0612, above. It is reasonable to delete this amendment because it is no longer applicable to the 2012 IRC.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

1309.0703 SECTION R703, EXTERIOR COVERING.
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).

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This subpart is being repealed. The current amendment to this 2006 IRC section permits stone and masonry veneers to be installed on more than the first story above grade by applying exceptions for Seismic Design Category A to be used in Minnesota. This practice is already permitted in Minnesota Rules, part 1309.0301, subpart 2, Table R301.2 (1). Therefore, this amendment is redundant and is no longer necessary.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

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.
1 and Table R703.7(1).

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This rule part is being repealed because the 2012 IRC no longer contains section R802.10.5 and that information is now renumbered in the 2012 IRC to R802.11, Roof tie down. Therefore, this amendment is no longer required.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

1309.0806 SECTION R806, ROOF VENTILATION.
IRC Section R806.4 is deleted in its entirety.

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

The current amendment that deletes "conditioned attic assemblies" is being repealed. 2006 IRC, Section 806.4 was deleted because the language was unclear, conflicted with conventional Minnesota attic ventilation requirements, and improperly required an ASTM Standard. This section, renumbered R806.5 in the 2012 IRC, has been rewritten.

The changes made in the 2012 IRC Section R806.5 address Minnesota's climactic conditions and concerns. It is reasonable to delete the existing amendment to Section R806.4 because it is no longer needed.

2012 INTERNATIONAL RESIDENTIAL CODE

2006 IRC AMENDMENTS REPEALED

1309.4300 REFERENCED STANDARDS.
Modifications to chapter 43. The list of referenced standards in IRC chapter 43 is modified as follows:

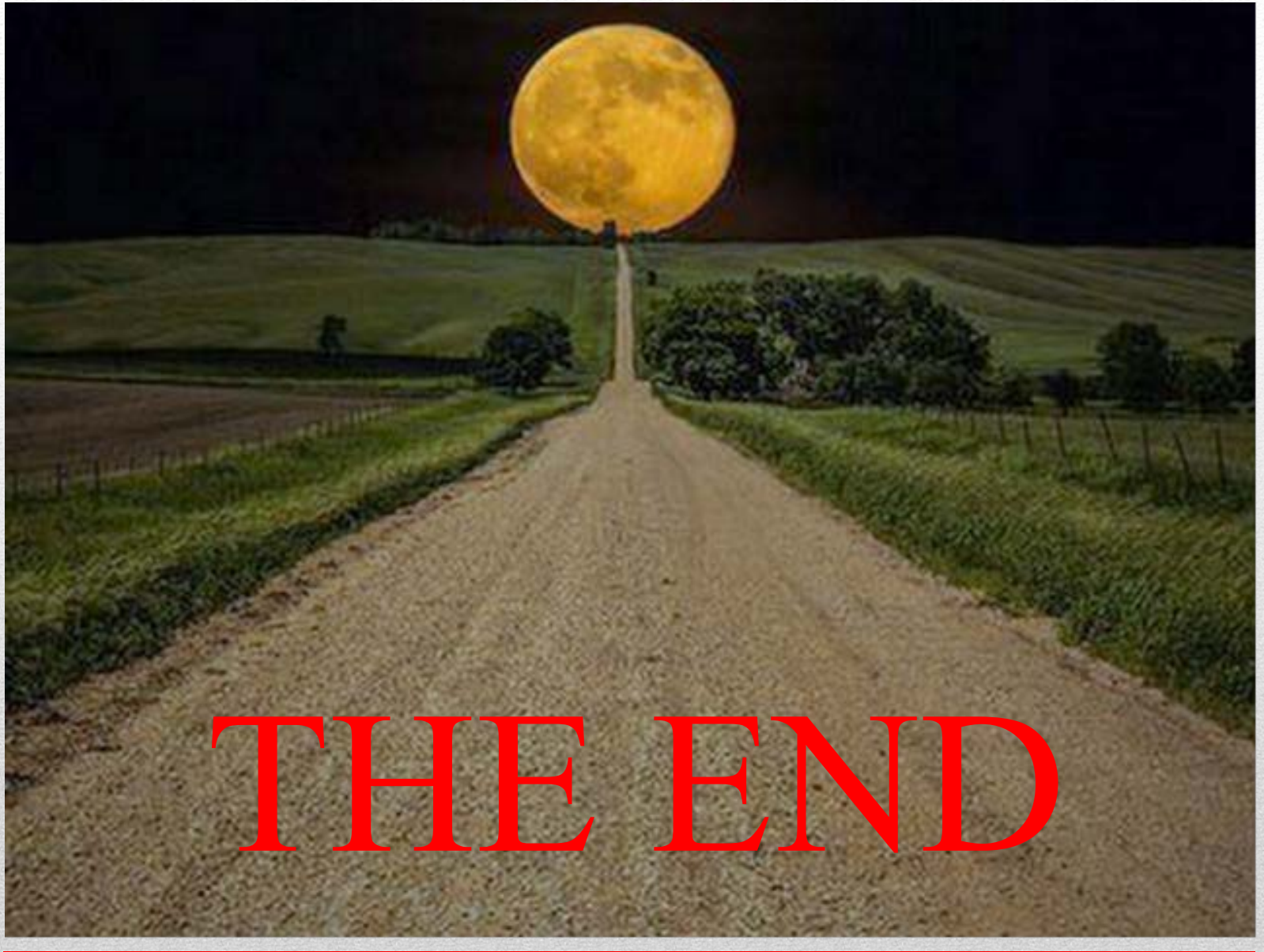
A. References to NFPA 13-02 shall be deleted and replaced with references to NFPA 13-10.

B. References to NFPA 58-04 shall be deleted and replaced with references to NFPA 58-11.

C. References to NFPA 72-02 shall be deleted and replaced with references to NFPA 72-10.

45.4 **REPEALER.** Minnesota Rules, parts 1309.0010, subpart 4; 1309.0040; 1309.0301,
45.5 subparts 1 and 4; 1309.0317; 1309.0318; 1309.0404, subparts 3, 4, and 5; 1309.0613;
45.6 1309.0703, subpart 3a; 1309.0802; 1309.0806; and 1309.4300, are repealed.

This amendment deletes chapter 43, References standards, in its entirety. This chapter is has been renumbered to chapter 44 in the 2012 IRC. The existing amendments to the NFPA Standards referenced in the existing amendment are now incorporated in chapter 44 of the 2012 edition of the IRC, so the amendments to these standards are also no longer necessary.


THE END