

**TABLE R301.2.1.3  
EQUIVALENT BASIC WIND SPEEDS <sup>a</sup>**

3-second gust, $V_{3s}$	85	90	100	105	110	120	125	130	140	145	150	160	170
Fastest mile, $V_{fm}$	<u>71</u> 70	<u>76</u> 75	<u>85</u> 80	<u>90</u> 85	<u>95</u> 90	<u>104</u> 100	<u>109</u> 105	<u>114</u> 110	<u>123</u> 120	<u>128</u> 125	<u>133</u> 130	<u>142</u> 140	<u>152</u> 150

For SI: 1 mile per hour = 1.609 km/h.

a. Linear interpolation is permitted.

**Reason:** The conversions from 3-second gust to fastest mile wind speeds in Table R301.2.1.3 were derived from the Durst curve depicted in Figure C6.1 of ASCE 7-98. For the 2002 edition of ASCE 7, the curve was replotted to more closely reflect the original work of C. S. Durst in 1960. This resulted in the new curve of Figure C6-2 of ASCE 7-02. Slight changes in the replotted curve cause changes in conversion wind speeds. In addition, the manner in which the original conversions were made for the 2000 IRC (from fastest-mile to 3-second gust rather than vice versa) resulted in the values of fastest mile wind speeds being unconservative (lower than they should be). The following table illustrates the unconservative nature of the conversion values in the existing table. For example, the existing table gives the fastest mile wind speed of 80 mph for a 3-second gust speed of 100 mph. While the 5 mph increase being proposed may seem to be small, this translates into an increase of approximately 13% in the design wind pressure ( $(85/80)^2 = 1.129$ ). Stated differently, the 5 mph reduction now contained in the code results in the design wind pressure being approximately 11.4% less than it should be. The changes being proposed will bring the IRC's conversion values into agreement with results that would be obtained using ASCE 7-05.

$V_{3-seC}$	Calculated $V_{fm}$	2003 IRC $V_{fm}$	Underdesign with present table <sup>a</sup>
85	71	70	3%
90	76	75	3%
100	85	80	11%
105	90	85	11%
110	95	90	10%
120	104	100	8%
125	109	105	7%
130	114	110	7%
140	123	120	5%
145	128	125	5%
150	133	130	4%
160	142	140	3%
170	152	150	3%

a. Equal  $[1 - (IRC V_{fm}/\text{calculated } V_{fm})^2] \times 100$ , which represents how using a velocity that is too lower affects the design wind pressure

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

## RB34-04/05

### R301.2.1.3, Table R301.2(1), R202

**Proponent:** Jason Smart, Institute for Business & Home Safety, Tampa FL

**Revise as follows:**

**R301.2.1.3 Wind speed conversion.** When referenced documents are based on fastest mile wind speeds, the three second gust wind velocities of Figure R301.2(4) shall be converted to fastest mile wind velocities using Table R301.2.1.3. Wind speeds so converted shall be clearly noted as such on design and construction documents. In no case shall a converted basic wind speed be used with the current editions of design and construction standards listed in Section R301.2.1.1 (with the exception of the 1999 edition of SSTD 10) or with the construction requirements of this code that are based on 3-second gust basic wind speed.

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

**(No change to table contents)**

a through d (No change to current text)

e. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map (Figure R301.2(4)). Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4. Conversion of the basic wind speed to a fastest-mile wind speed shall be limited to only the applications permitted in Section R301.2.1.3. Converted wind speeds shall not be entered in this table.

f through k (No change to current text)

### SECTION R202 DEFINITIONS

**BASIC WIND SPEED.** Three-second gust speed at 33 feet (10 058 mm) above the ground in Exposure C (see Section R301.2.1) as given in Figure R301.2(4). Whereas out-dated wind standards used a gust factor adjustment to account for the effect of wind gusts not represented in an averaged fastest-mile wind speed, modern wind standards and this code now uses a basic wind speed (i.e., 3-second gust) that implicitly accounts for the gustiness of wind in the determination of wind load.

**Add new definition as follows:**

**FASTEST-MILE WIND SPEED.** Fastest-mile wind speed is an-out-dated representation of wind speed based on the fastest speed averaged over a one-mile length of wind. Prior

wind load and construction standards based on this wind speed definition included a separate adjustment to wind load to account for the gustiness of wind. Newer wind load standards and this code now account for gustiness of wind directly in the basic wind speed.

**Reason:** In recent transition to the use of 3-second gust wind speed as the basic wind speed in the I-codes and modern wind standards, there has been confusion as to the difference between use of fastest-mile wind speeds in older wind standards and the use of gust wind speeds in modern standards. In some instances, this situation has resulted in converted basic wind speeds (fastest mile) being used as the basic wind speeds with I-code and reference standards provisions that were intended for use with 3-second gust wind speeds. For example, one jurisdiction in Maryland converted the 90-mph basic wind speed (gust) to 75-mph fastest-mile wind speed and apparently requires that this wind speed be used with the I-codes and referenced wind standards which are based on 3-second gust wind speed. This effectively reduces the intended safety margins for design and construction by  $90^2/75^2 = 1.44$ . So, where a safety margin of 2.0 may be intended by the code, a safety margin of 1.39 is actually provided. This proposal clarifies and adds definitions and code language to prevent such misunderstandings that have inadvertently created a safety problem. A similar proposal has been submitted to coordinate with the IBC.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB35-04/05

### R301.2.2

**Proponent:** Kelly Cobeen, Cobeen & Associates, Lafayette, CA

**Revise as follows:**

**R301.2.2.2.1 Weights of materials.** Average dead loads shall not exceed 15 psf (0.72 kN/m<sup>2</sup>) for roofs/ceiling assemblies or 10 psf (0.48 kN/m<sup>2</sup>) for floor assemblies, except as further limited by Section R301.2.2. Dead loads for walls above grade shall not exceed:

1. Fifteen psf (0.72 kN/m<sup>2</sup>) for exterior light-frame wood walls.
2. Fourteen psf (0.67 kN/m<sup>2</sup>) for exterior light-frame cold-formed steel walls.
3. Ten psf (0.48 kN/m<sup>2</sup>) for interior light-frame wood walls.
4. Five psf (0.24 kN/m<sup>2</sup>) for interior light-frame cold-formed steel walls.
5. Eighty psf (3.83 kN/m<sup>2</sup>) for 8-inch-thick (203 mm) masonry walls.

6. Eighty-five psf (4.07 kN/m<sup>2</sup>) for 6-inch-thick (152 mm) concrete walls.

#### **Exceptions:**

1. Roof/ceiling dead loads not exceeding 25 psf (1.19 kN/m<sup>2</sup>) shall be permitted provided the wall bracing amounts in Chapter 6 are increased in accordance with Table R301.2.2.2.1.
2. Light-frame walls with stone or masonry veneer shall be permitted in accordance with the provisions of Sections R702.1 and R703.
3. Fireplaces and chimneys shall be permitted in accordance with Chapter 10.

**R301.2.2.3.1 Anchored Stone and masonry veneer.** ~~Anchored s~~ Stone and masonry veneer shall comply with the requirements of Sections R702.1 and R703. ~~be limited to the first story above grade and shall not exceed 5 inches (127 mm) in thickness.~~

~~**Exception:** In Seismic Design Category C, anchored stone and masonry veneer not exceeding 5 inches (127 mm) in thickness shall be permitted to the height allowed in Section R703.7. In other than the topmost story, the length of wall bracing shall be 1.5 times the length otherwise required in Table R602.10.1.~~

**R301.2.2.4.2 (Supp) Anchored s Stone and masonry veneer.** ~~Buildings with anchored s~~ Stone and masonry veneer shall comply with the requirements of Sections R702.1 and R703. ~~be designed in accordance with accepted engineering practice.~~

#### **Exceptions:**

1. ~~In Seismic Design Category D1, exterior masonry veneer with a maximum nominal thickness of 4 inches (102 mm) is permitted in accordance with Section R703.7, Exception 3.~~
2. ~~In Seismic Design Category D2, exterior masonry veneer with a maximum actual thickness of 3 inches (76 mm) is permitted in accordance with Section R703.7, Exception 4.~~

**Reason:** This proposed change clarifies currently permitted exceptions to the seismic weight limits. Application of Chapter 7 provisions for veneer in Seismic Design Categories C, D0, D1 and D2, is clarified by directly referencing the Chapter 7 provisions in Sections R301.2.2.2, R301.2.2.3 and R301.2.2.4. The revised section title "stone and masonry veneer" matches the title of Section R703.7. Current Section R301.2.2 language (added in RB 24-02) creates possible confusion by restating a portion of the Chapter 7 provisions. This proposed change completes the intent of RB 24-02 by referencing provisions without modifying

them. Chapter 10 provisions for fireplaces and chimneys are referenced; this is consistent with current Section R301.2.2.2.2, Item 7 exception, which permits fireplaces and chimneys across all SDC's. No technical change is intended.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

of 15 and 25 psf should be compared to the adjusted (increased) roof dead load per square foot of horizontal projected area. As a simplification for IRC users, it is proposed that the adjustment not be required for roof slopes of 6 in 12 and less because the resulting adjustment is moderate. Example adjustment factors for roof slopes greater than 6 in 12 are:

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## RB36-04/05

### R301.2.2.2.1

**Proponent:** Gerald Jones and Kelly Cobeen, representing FEMA/BSSC Code Resource Support Committee, Washington, DC

#### Revise as follows:

**R301.2.2.2.1 Weights of materials.** Average dead loads shall not exceed 15 psf (0.72 kN/m<sup>2</sup>) for the combined roof and ceiling assemblies or 10 psf (0.48 kN/m<sup>2</sup>) for floor assemblies, except as further limited by Section R301.2.2. For roof slopes exceeding 6 in 12, the roof dead load shall be adjusted to account for the effect of roof slope. Dead loads for walls above grade shall not exceed:

1. Fifteen psf (0.72 kN/m<sup>2</sup>) for exterior light-frame wood walls.
2. Fourteen psf (0.67 kN/m<sup>2</sup>) for exterior light-frame cold-formed steel walls.
3. Ten psf (0.48 kN/m<sup>2</sup>) for interior light-frame wood walls.
4. Five psf (0.24 kN/m<sup>2</sup>) for interior light-frame cold-formed steel walls.
5. Eighty psf (3.83 kN/m<sup>2</sup>) for 8-inch-thick (203 mm) masonry walls.
6. Eighty-five psf (4.07 kN/m<sup>2</sup>) for 6-inch-thick (152 mm) concrete walls.

**Exception:** Combined roof and ceiling dead loads not exceeding 25 psf (1.19 kN/m<sup>2</sup>) shall be permitted provided the wall bracing amounts in Chapter 6 are increased in accordance with Table R301.2.2.2.1.

#### (No change to table)

**Reason:** The term "roof/ceiling" is clarified to mean combined roof plus ceiling to allow uniform interpretation. This use is consistent with calculations used to justify lateral bracing requirements. The dead load of a sloped roof assembly is first determined in psf on slope (square foot of sheathing, linear foot of rafter, etc.), and increases when it is adjusted to a square foot of horizontal projected area. To be consistent with the calculations used to justify lateral bracing, the dead load limits

<b>Slope</b>	7:12	8:12	9:12	10:12	11:12	12:12	15:12	16:12	18:12
<b>Dead Load Adjustment Multiplier</b>	1.16	1.20	1.25	1.30	1.36	1.41	1.60	1.67	1.80

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

18 risers yields 17 treads @ 10" = 170"/12" = 14.17', when doubled yields approximately 29'3".

If the exception is added, this structure would become a regular structure and permitted to be constructed without having components designed for plan irregularity.

**RB37-04/05**  
**R301.2.2.2.2**

**Proponent:** Diane Glenn, The Construction Consultants, Bellevue, WA

**Revise as follows:**

**R301.2.2.2.2 (Supp) Irregular buildings.** Concrete construction complying with Section R611 or R612 and conventional light-frame construction shall not be used in irregular portions of structures in Seismic Design Categories C, D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub>. Only such irregular portions of structures shall be designed in accordance with accepted engineering practice to the extent such irregular features affect the performance of the conventional framing system. A portion of a building shall be considered to be irregular when one or more of the following conditions occur:

1. through 3. (No change to current text)
4. When an opening in a floor or roof exceeds the lesser of 12 feet (3657 mm) or 50 percent of the least floor or roof dimension

**Exception:** Dwellings with a plan dimension 30 feet or less.

5. through 7. (No change to current text)

**Reason:** If a dwelling is constructed with prescriptive stud heights as listed in the current code, there exist conditions where the opening in the plan dimension for a code-minimum stairway would exceed the maximum allowable opening size, thus creating a plan irregularity simply by following code minimums. By including this exception, buildings with 10' stud heights and 16" floor assembly thickness would be considered regular buildings and meet the requirements for prescriptive construction through the use of code minimum stair geometry of 7 ¾" x 10".

$120" + 16" = 136"/7.75" = (17.5)$  18 risers

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

**RB38-04/05**  
**R301.2.2.2.2**

**Proponent:** Gerald Jones and J. Daniel Dolan, Washington State University, representing FEMA/BSSC Code Resource Support Committee, Washington D.C.

**Revise as follows:**

**R301.2.2.2.2 (Supp) Irregular buildings.** ~~Concrete construction complying with Section R611 or R612 and conventional light-frame construction shall not be used in irregular portions of~~ Prescriptive construction as regulated by this code shall not be used for irregular structures located in Seismic Design Categories C, D<sub>1</sub> and D<sub>2</sub>. ~~Only such~~ Irregular portions of structures shall be designed in accordance with accepted engineering practice to the extent such irregular features affect the performance of the ~~conventional framing~~ remaining structural system. When the forces associated with the irregularity are resisted by a structural system designed in accordance with accepted engineering practice, the remainder of the building shall be permitted to be designed using the provisions of this code. A building or portion of a building shall be considered to be irregular when one or more of the following conditions occur:

1. through 7. (No change to current text)

**Reason:** This section of the code has always been intended to apply to all buildings not just concrete and wood light-frame construction. However, the wording implies that the section only applies to these two

types of construction. We believe that all of the material groups assumed that the section applied to their systems, and never really read the words closely. This change is intended to correct this mistake and make the section apply to all buildings.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB39-04/05

### R301.3

**Proponent:** Edward L. Keith, APA - The Engineered Wood Association, Tacoma, WA

**Revise as follows:**

**R301.3 Story height.** Buildings constructed in accordance with these provisions shall be limited to story heights of not more than the following:

1. For wood wall framing, the laterally unsupported bearing wall stud height permitted by Table R602.3(5) plus a height of floor framing not to exceed sixteen inches.

**Exception:** For wood framed wall buildings with bracing in accordance with Table R602.10.1, and Sections R602.10.5 and R602.10.6, the wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet without requiring an engineered design for the building wind and seismic force resisting systems provided that the length of bracing required by Table R602.10.1 and the length of the alternative bracing wall panels in R602.10.6.1 is increased by multiplying by a factor of 1.20. The frame alternatives permitted in Sections R602.10.5 and R602.10.6.2 shall maintain their prescribed aspect ratios at the required height up to and including 12 feet. Wall studs are still subject to the requirements of this section.

**(No change to remainder of section)**

**Reason:** The proposed change permits the alternative bracing methods described in Sections R602.10.5 and R602.10.6 to be used in 12-foot high walls. The 32" alternative (R602.10.6.1) would have its width increased by a factor of 1.2 in the same manner as the bracing methods described in Table R602.10.1 and the vertical elements of the frames described R602.10.5 and R602.10.6.2 would see a similar increase in width the vertical leg of the frame by requiring the aspect ratio to be maintained at the required height. Increasing the width of the vertical leg increases the polar moment of inertia at the nailed connection where the sheathing overlaps the header, increases the shear capacity of the vertical leg itself, and similarly increases the effectiveness of the

attachment at the base of the vertical leg by increasing the moment arm between the anchor bolts.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB40-04/05

### R301.5

**Proponents:** Donald LeBrun, CBO, State of Indiana and Craig Wagner, County of Whitley representing the Indiana Assoc. Of Building Officials and Indiana Assoc. Of Home Builders

**Revise as follows:**

**R301.5 Live load.** The minimum uniformly distributed live load shall be as provided in Table R301.5.

#### R301.5.1 Live Load Reduction.

1. Tributary floor area. A structural member which supports a tributary floor area of greater than two hundred (200) square feet on a given story is permitted to be designed using a reduced uniform floor live load for each qualifying story in accordance with the following formula:

$$L = L_0 \left[ 0.25 + \frac{10.6}{\sqrt{A_t}} \right] \geq 0.75 \text{ for } A_t > 200 \text{ ft}^2$$

Where:  $A_t$  is the tributary area of floor surface in square feet supported by the structural member and  $L_0$  is the floor live load from TABLE R301.5.

2. Multiple stories. When floor, roof, and attic live loads from multiple story levels are applied to a structural member, the live loads may be factored as follows:

$$L = L_1 + 0.7(L_2 + L_3 + \dots)$$

Where:  $L_1$  is the live load from Tables R301.5 and R301.6 producing the maximum individual load effect, and  $L_2, L_3,$  and so forth are live loads from other sources or stories in accordance with Tables R301.5 and R301.6.

**Reason:** Houses have been growing in size. Additionally engineered wood (and non-wood) products have made larger spans and bigger open areas more economical and more common. When no reduction of live loads is used the members supporting these areas and levels are commonly designed for statically improbable loads.

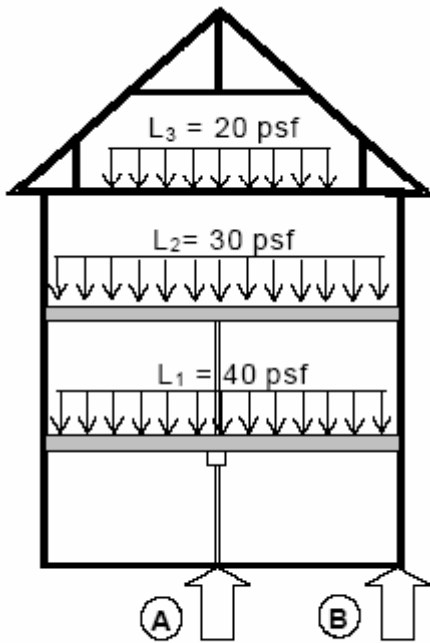
These live load reduction considerations are part of the state of Indiana IRC adoption amendments.

The State of Indiana and our proposed code revision relies upon section 4.4 of the HUD, Structural Design Loads for One- and Two-Family Dwellings, which uses the following rationale:

From the section 4.4 Commentary: "The uniform live load values for floors in Table 4.1 are based on a floor area of 200 square feet. As the floor area under consideration becomes larger than 200 square feet, the potential for a large uniform live load over the entire area decreases. The equation for live load reduction makes this adjustment specifically for residential occupancies. The equation used in existing building codes and standards is based on commercial buildings.

The approach of combining multiple sources of live loads (multi-story construction) provides a conservative adjustment, not on the basis of floor area supported, but rather on the basis of the statistical "independence" and the improbability of maximum live loads occurring on different stories of the dwelling at the same time."

Figure 4.4 is included from HUD, Structural Design Loads for One- and Two-Family Dwellings, to illustrate how these reductions might be applied.



$$\text{Live Load @ A} = L_1 + 0.7(L_2)$$

$$\text{Live Load @ B} = L_1 + 0.7(L_2 + L_3)$$

Notes:

1.  $L_1$ ,  $L_2$ , and  $L_3$  may be reduced according to their individual floor tributary areas when  $A_T$  for each is greater than 200 ft<sup>2</sup>; refer to Section 4.4.1.
2. Load values shown for  $L_1$ ,  $L_2$ , and  $L_3$  are for example only.

**FIGURE 4.4**  
**APPLICATION OF LIVE LOAD REDUCTIONS**

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

**Proponent:** Anthony C. Apfelbeck, representing Florida Fire Marshals and Inspectors Association

**Add new text follows:**

**SECTION R302**  
**FIRE APPARATUS ACCESS ROADS**

**R302.1 Fire apparatus access.** Fire apparatus access shall be provided in accordance with Section 503 of the International Fire Code.

**(Renumber subsequent sections)**

**Reason:** There is no reference within the IRC to the fire apparatus access requirements of section 503 contained within the IFC. This creates the potential for a builder, owner or designer to overlook the IFC access requirements. Insertion of this language will ensure the requirements of this section are not missed in the design phase.

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

**RB41-04/05**  
**R302 (New)**

## RB42-04/05

### R302 (New)

**Proponent:** Anthony C. Apfelbeck representing Florida Fire Marshals and Inspectors Association

**Add new text as follows:**

#### **SECTION R302** **FIRE PROTECTION WATER SUPPLIES**

**R302.1 Fire protection water supplies.** Fire protection water supply shall be provided in accordance with Section 508 of the *International Fire Code*.

**(Renumber subsequent sections)**

**Reason:** There is no reference within the IRC to the fire protection water supply requirements of section 508 contained within the IFC. This creates the potential for a builder, owner or designer to overlook the IFC fire protection water supply requirements. Insertion of this language will ensure the requirements of this section are not missed in the design phase.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB43-04/05

### R302.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R302.1 (Supp) Exterior walls.** Exterior walls with a fire separation distance less than 5 feet (1524 mm) shall have not less than a 1-hour fire-resistance rating with exposure from both sides. Projections shall not extend to a point closer than 4 feet (1219 mm) from the line used to determine the fire separation distance.

**Exception:** Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may have roof eave projections not exceeding 4 inches (102 mm).

~~Projections extending into the fire separation distance shall have not less than 1-hour fire-resistant construction on the underside. The above provisions shall not apply to walls~~

that are perpendicular to the line used to determine the fire separation distance.

**Exception:** Detached tool and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.

**Reason:** It makes little sense to provide one-hour construction on the bottom side of projections (eaves) when there is no prohibition or limitation on openings in the eaves. Eave vents will render this fire membrane useless. An exposed eave, common on some designs, is not permitted, unless one puts the protection under the sheathing, which results in a questionable fire stop. There are no applications for the fascia portion of the eaves, which seems could be left open. The CABO One and Two Family Dwelling Code did not regulate this area at all. The rule in the IRC is impractical and doesn't do what is intended. It should be deleted.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB44-04/05

### R302.1, R302.2, R302.3

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R302.1 (Supp) Exterior walls.** Exterior walls with a fire separation distance less than 5 3 feet (~~1524~~ 914 mm) shall have not less than a 1-hour fire-resistance rating with exposure from both sides. Projections shall not extend to a point closer than 4 2 feet (~~1219~~ 610 mm) from the line used to determine the fire separation distance.

**Exception:** Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may have roof eave projections not exceeding 4 inches (102 mm).

Projections extending into the fire separation distance shall have not less than 1-hour fire-resistant construction on the underside. The above provisions shall not apply to walls that are perpendicular to the line used to determine the fire separation distance.

**Exception:** Detached tool and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.

**R302.2 (Supp) Openings.** Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance less than 3 feet (914 mm). ~~Openings in excess of 25 percent of the area of the wall shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance between 3 and 5 feet (914 and 1524 mm).~~ This distance shall be measured perpendicular to the line used to determine the fire separation distance.

**Exceptions:**

1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.
2. Foundation vents installed in compliance with this code are permitted.

**R302.3 (Supp) Penetrations.** Penetrations located in the exterior wall of a dwelling with a fire separation distance less than ~~5~~ 3 feet (~~1524~~ 914 mm) shall be protected in accordance with Section R317.3.

**Exception:** Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.

**Reason:** The IRC and IBC Committees disapproved this code change (G-128) in Nashville because no substantiation was provided to support the change. This code change was challenged by the proponent in Overland Park who submitted the following comment: "To address committee concerns, this proposed modification deletes the proposed change to the IBC and modifies the proposed change to the IRC so that the provisions of the IBC and IRC are consistent. The modification will eliminate the difficulties and confusion that often arise when structures being built according to the IBC and other structures being built in accordance with the IRC are being built in one development." However, there was still no substantiation submitted to validate the change. In what we believe is an error, the membership approved the change. This is a significant change that is being made to the IRC without benefit of a reason.

The argument that was used to support the change was that there is confusion when buildings of differing uses are built in the same development. The proponent didn't indicate who was confused. The argument doesn't hold water. The IRC applies to one- and two-family dwellings and townhouses. The IBC applies to everything else. Unless one does not know the use of the building they are designing, constructing, or inspecting, there should be no confusion. Usually there are professional designers involved in the design of buildings constructed under the IBC. They will likely know that they would not use the IRC to design a convenience store. Also, if one were confused about which rules were applicable within a development, why would one not be confused if differing uses were constructed adjacent one another but in different "developments".

There were also references to separation necessary for fire protection. But no data was submitted to indicate that the current fire separation distances are inadequate or that increasing them will reduce fire safety to any measurable degree.

Furthermore, the proposal creates confusion. It requires penetrations to be protected out to 5 feet but allows windows only protected to three feet. It leaves open to question the matter of existing buildings that may be expanded, repaired, or remodeled. Can windows in an existing dwelling built 3 feet from a lot line be replaced? What if the area of the existing windows exceeds the 25% limit, can they be replaced? Could this result in a building official requiring an egress window to be removed? Also, detached garages that have typically been built 3 feet from a lot line and have been allowed a 1 foot eave will now be prohibited from having any eave, will be prohibited from having windows where previously permitted, and will require fire protection of the wall between 3 and 5 feet.

Amazingly, the proponent indicated that this would have no cost impact on construction. This is obviously incorrect. The increased fire protection will cost money. But most significantly, to construct the same dwelling that would have been permitted under the previous rule, the lot must be at least 4 feet wider. This will significantly increase cost.

Ironically, the membership disapproved a proposal that would have regulated combustible decks and balconies constructed to a lot line to address the spread of fire but increased the fire separation distance for the dwelling. This is inconsistent thinking and fuels speculation that the membership erred in voting or misunderstood the ramifications of their vote.

The following text is background material for this code change.

1. (IBC) Revise footnotes as follows:

TABLE 602

FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS  
BASED ON FIRE SEPARATION DISTANCE<sup>a</sup>

2. (IRC) Revise as follows:

R302.1 Exterior walls. Exterior walls with a fire separation distance less than 3 feet (914 mm) 5 feet shall have not less than a one-hour fire-resistance rating with exposure from both sides. Projections shall not extend to a point closer than 2 feet (610 mm) 4 feet (1220 mm) from the line used to determine the fire separation distance.

Exception: Detached garages accessory to a dwelling located within 2 feet of a lot line may have roof eave projections not exceeding 4 inches.

Projections extending into the fire separation distance shall have not less than one-hour fire resistive construction on the underside. The above provisions shall not apply to walls which are perpendicular to the line used to determine the fire separation distance.

Exception: Detached tool and storage sheds, playhouses and similar structures exempted from perm its by R105.2 are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.

R302.2 Openings. Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance less than 3 feet (914 mm) 5 feet. This distance shall be measured perpendicular to the line used to determine the fire separation distance.

Exceptions:

1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.
2. Foundation vents installed in compliance with this code are permitted.

R302.3 Penetrations. Penetrations located in the exterior wall of a dwelling with a fire separation distance less than 3 feet (914 mm) 5 feet shall be protected in accordance with Section R317.3.

Exception: Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.

Reason: This proposed change will coordinate the requirements in the IBC and the IRC with respect to the separation distance required between adjacent exterior walls and the openings in these walls. The codes should provide no less protection for a three-story residence as they provide for a four-story residence. By coordinating these requirements, confusion will be eliminated in those situations where both types of dwellings are being constructed.

Cost Impact: None

Item 1 (IBC)

Committee Action: Disapproved

Committee Reason: The proposed change would be inconsistent with Table 704.8. In addition no data was provided for technical justification.

Assembly Action: None

Item 2 (IRC)

Committee Action: Disapproved

Committee Reason: There has been no statistical data presented on fires to justify this change.

Assembly Action: None

Individual Consideration Agenda

Modify item 2 of proposal as follows:

2. (IRC) Modify the proposed change to the IRC as follows:

R302.1 Exterior walls. Exterior walls with a fire separation distance less than 5 feet shall have not less than a 1-hour fire resistance rating with exposure from both sides. Projections shall not extend to a point closer than 4 feet from the line used to determine the fire separation distance.

Projections extending into the fire separation distance shall have not less than a 1-hour fire resistance rating on the underside. The above provisions shall not apply to walls which that are perpendicular to the line used to determine the fire separation distance.

Exception: Detached tool and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot.

R302.2 Openings. Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire

separation distance less than 5 feet 3 feet. Openings in excess of 25% of the area of the wall shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance between 3 and 5 feet. This distance shall be measured perpendicular to the line used to determine the fire separation distance.

Exceptions:

1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.
2. Foundation vents installed in compliance with this code are permitted.

R302.3 Penetrations. Penetrations located in the exterior wall of a dwelling with a fire separation distance less than 5 feet shall be protected in accordance with Section R317.3.

Exception: Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.

Commenter's Reason: To address committee concerns, this proposed modification deletes the proposed change to the IBC and modifies the proposed change to the IRC so that the provisions of the IBC and IRC are consistent. The modification will eliminate the difficulties and confusion that often arise when structures being built according to the IBC and other structures being built in accordance with the IRC are being built in one development.

Note: The previous modified proposal was the proposal approved in Overland Park.

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB45-04/05

### R302.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R302.1 (Supp) Exterior walls.** Exterior walls with a fire separation distance less than 5 feet (1524 mm) shall have not less than a 1-hour fire-resistance rating with exposure from both sides. ~~Projections shall not extend to a point closer than 4 feet (1219 mm) from the line used to determine the fire separation distance.~~ This provision shall not apply to walls that are perpendicular to the line used to determine the fire separation distance.

~~**Exception:** Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may have roof eave projections not exceeding 4 inches (102 mm).~~

~~Projections extending into the fire separation distance shall have not less than 1-hour fire-resistant construction on the underside. The above provisions shall not apply to walls that are perpendicular to the line used to determine the fire separation distance.~~

**Exception:** Detached tool and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. ~~Projections beyond the exterior wall shall not extend over the lot line.~~

**R302.1.1 Eaves.** Eaves shall not extend to a point closer than 4 feet (1220 mm) from the line used to determine the fire separation distance and may not extend over a lot line. Eaves extending into the fire separation distance shall have not less than one-hour fire-resistive construction on the underside.

**Exception:** Detached accessory structures located within 4 feet of a lot line may have eaves not exceeding 4 inches.

**Reason:** For ease of understanding, rules related to exterior walls and projections are being separated. References to "projections" have been changed to "eaves" because that appears to be what is being regulated. Webster defines eaves as: "The lower border of a roof that overhangs the wall". The current language causes some confusion since some building officials try to apply this section to decks and balconies. But since this section only requires fire protection "on the underside" of the projection, it makes no sense to apply it to decks and balconies. The second exception is misplaced and should be located following exterior wall requirements. The last sentence of the second exception is being relocated since projections beyond property lines should apply to all eaves and not just those on tool sheds. Support for this sentence is found in the following interpretation from ICC:

CHAPTER 3  
BUILDING PLANNING  
SECTION R321.1  
IRC Interpretation No. 41-03  
2000 Edition  
Issued: 06-08-04

R321.1 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies of not less than 1-hour fire-resistive 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 the underside of the roof sheathing.

Exception: 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.

Q: Is a two-family dwelling with a property line separating the dwelling units required to comply with the separation provisions in Section R321.1?

A: No. The code does not address a property line within an attached two-family dwelling. A dwelling is a building that contains one or two dwelling units. A building line, or property line, is a line established by law, beyond which a building shall not extend. An attached two-family dwelling with a property line between the two dwelling units is considered two separate buildings, located on two separate lots. Two individual dwellings must comply with the fire separation distance required in Section R302.1.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB46-04/05

### R302

**Proponent:** Lawrence Brown, CBO, National Association of Home Builders (NAHB), Washington, DC

**Delete and substitute as follows:**

#### SECTION 302 LOCATION ON LOT

~~**R302.1 (Supp) Exterior walls.** Exterior walls with a fire separation distance less than 5 feet (1524 mm) shall have not less than a 1-hour fire-resistance rating with exposure from both sides. Projections shall not extend to a point closer than 4 feet (1219 mm) from the line used to determine the fire separation distance.~~

~~**Exception:** Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may have roof eave projections not exceeding 4 inches (102 mm).~~

~~Projections extending into the fire separation distance shall have not less than 1-hour fire-resistant construction on the underside. The above provisions shall not apply to walls that are perpendicular to the line used to determine the fire separation distance.~~

~~**Exception:** Detached tool and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection~~

~~based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.~~

have roof eave projections not exceeding 4 inches (102 mm).

~~**R302.2 (Supp) Openings.** Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance less than 3 feet (914 mm). Openings in excess of 25 percent of the area of the wall shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance between 3 and 5 feet (914 and 1524 mm). This distance shall be measured perpendicular to the line used to determine the fire separation distance.~~

3. Foundation vents installed in compliance with this code are permitted.

**Exceptions:-**

- ~~1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.~~
- ~~2. Foundation vents installed in compliance with this code are permitted.~~

~~**R302.3 (Supp) Penetrations.** Penetrations located in the exterior wall of a dwelling with a fire separation distance less than 5 feet (1524 mm) shall be protected in accordance with Section R317.3.~~

~~**Exception:** Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.~~

**SECTION 302**  
**EXTERIOR WALL LOCATION**

**R302.1 Exterior walls.** Construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1. The minimum fire separation distance shall be measured perpendicular to the line used to determine the fire separation distance. These provisions shall not apply to walls, projections, openings, or penetrations in walls that are perpendicular to the line used to determine the fire separation distance.

**Exceptions:**

1. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.
2. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may

**TABLE R302.1  
EXTERIOR WALLS**

<u>EXTERIOR WALL ELEMENT</u>		<u>MINIMUM FIRE-RESISTANCE RATING</u>	<u>MINIMUM FIRE SEPARATION DISTANCE</u>
<u>Walls</u>	<u>(Fire-resistance Rated)</u>	<u>1-Hour with Exposure from Both Sides</u>	<u>0 Feet (0 mm)</u>
	<u>(Non Fire-resistance Rated)</u>	<u>0-Hours</u>	<u>5 Feet (1525 mm)</u>
<u>Projections</u>	<u>(Fire-resistance Rated)</u>	<u>1-Hour on the Underside</u>	<u>4 Feet (305 mm)</u>
	<u>(Non Fire-resistance Rated)</u>	<u>0-Hours</u>	<u>5 Feet (1525 mm)</u>
<u>Openings</u>	<u>Not Allowed</u>	<u>N/A</u>	<u>&lt; 3 Feet (915 mm)</u>
	<u>25% Maximum of Wall Area</u>	<u>0-Hours</u>	<u>3 Feet (915 mm)</u>
	<u>Unlimited</u>	<u>0-Hours</u>	<u>5 Feet (1525 mm)</u>
<u>Penetrations</u>	<u>All</u>	<u>Comply with Section R317.3</u>	<u>&lt; 5 Feet (1525 mm)</u>
		<u>Non Required</u>	<u>5 Feet (1525 mm)</u>

N/A = Not Applicable

**Reason:** This revision uses the provisions from the text of Section R302 as shown in the 2004 Supplement. The title is changed because the text of this Section covers the location of the exterior walls. It was realized that after looking at the number of times certain provisions are repeated with Section 302, and the need for a person to ascertain how all of the 302 Sections relate to each other, it would seem natural to provide the requirements in a single Table. This also groups the three Exceptions together. With the provisions in a single table, a plan reviewer or inspector can look at an exterior wall of a dwelling and easily see if it complies with the Code. All of the provisions shown in the 2004 Supplement are included and are technically unchanged.

**Analysis:** This code change is one of four similar code changes proposed for this section. Please review all of the code changes as you make your decision.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

**RB47-04/05  
R302**

**Proponent:** Lawrence Brown, CBO, National Association of Home Builders (NAHB), Washington, DC

**Delete and substitute as follows:**

**SECTION R302  
LOCATION ON LOT**

~~**R302.1 (Supp) Exterior walls.** Exterior walls with a fire separation distance less than 5 feet shall have not less than a 1-hour fire-resistance rating with exposure from both sides. Projections shall not extend to a point closer than 4 feet from the line used to determine the fire separation distance.~~

**Exception:** Detached garages accessory to a dwelling located within 2 feet of a lot line may have roof eave projections not exceeding 4 inches.

~~Projections extending into the fire separation distance shall not have less than a 1-hour fire-resistance rating on the underside. The above provisions shall not apply to walls that are perpendicular to the line used to determine the fire separation distance.~~

~~**Exception:** Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.~~

~~**R302.2 (Supp) Openings.** Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance less than 3 feet. Openings in excess of 25% of the area of the wall shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance between 3 and 5 feet. This distance shall be measured perpendicular to the line used to determine the fire separation distance.~~

~~**Exceptions:**~~

- ~~1. Openings shall be permitted in walls that are perpendicular to the line used to determine fire separation distance.~~
- ~~2. Foundation vents installed in compliance with this code are permitted.~~

~~**R302.3 (Supp) Penetrations.** Penetrations located in the exterior wall of a dwelling with a fire separation distance less than 5 feet shall be protected in accordance with Section R317.3~~

~~**Exception.** Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.~~

**SECTION R302**  
**EXTERIOR WALL LOCATION**

**R302.1 Exterior walls.** Construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1. The minimum fire separation distance shall be measured perpendicular to the line used to determine the fire separation distance. These provisions shall not apply to walls, projections, openings, or penetrations in walls that are perpendicular to the line used to determine the fire separation distance.

**Exceptions:**

1. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.

2. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line may have roof eave projections not exceeding 4 inches (102 mm).
3. Foundation vents installed in compliance with this code are permitted.

**TABLE R302.1  
EXTERIOR WALLS**

<b>EXTERIOR WALL ELEMENT</b>		<b>MINIMUM FIRE SEPARATION DISTANCE</b>	<b>MINIMUM FIRE-RESISTANCE RATING</b>
<b>Walls</b>	<u>Fire-resistance Rated</u>	<u>0 Feet (0 mm)</u>	<u>1-Hour with Exposure from Both Sides</u>
	<u>Non Fire-resistance Rated With No Openings</u>	<u>3 Feet (915 mm)</u>	<u>0-Hours</u>
	<u>Non Fire-resistance Rated (With or Without Openings)</u>	<u>5 Feet (1525 mm)</u>	<u>0-Hours</u>
<b>Projections</b>	<u>Not Allowed</u>	<u>&lt; 18 inches (455 mm)</u>	<u>N/A</u>
	<u>Fire-resistance Rated</u>	<u>18 inches (455 mm)</u>	<u>1-Hour All Sides</u>
	<u>Fire-resistance Rated</u>	<u>2 Feet (305 mm)</u>	<u>1-Hour on the Underside</u>
	<u>Non Fire-resistance Rated</u>	<u>5 Feet (1525 mm)</u>	<u>0-Hours</u>
<b>Openings</b>	<u>Not Allowed</u>	<u>&lt; 3 Feet (915 mm)</u>	<u>N/A</u>
	<u>25% Maximum of Wall Area</u>	<u>3 Feet (915 mm)</u>	<u>0-Hours</u>
	<u>Unlimited</u>	<u>5 Feet (1525 mm)</u>	<u>0-Hours</u>
<b>Penetrations</b>	<u>All</u>	<u>&lt; 5 Feet (1525 mm)</u>	<u>Comply with Section R317.3</u>
		<u>≥ 5 Feet (1525 mm)</u>	<u>Non Required</u>

N/A = Not Applicable

**Reason:** This revision uses the provisions from the text of Section R302 as shown in the 2004 Supplement. The title is changed because the text of this Section covers the location of the exterior walls. It was realized that after looking at the number of times certain provisions are repeated with Section 302, and the need for a person to ascertain how all of the 302 Sections relate to each other, it would seem natural to provide the requirements in a single Table, such as those used in the IBC Chapter 7. This also groups the three Exceptions together. With the provisions in a single table, a plan reviewer or inspector can look at the exterior wall construction of a dwelling and easily see if it complies with the Code.

Except for the three items described below, all of the provisions shown in the 2004 Supplement are included and are technically unchanged.

**#1:** Tests at NIST have shown that an opening (typically a window) in the wall facing an adjoining building located in close proximity is the main cause for the rapid spread of fire to the adjoining building. Without an opening present in the wall it will take many minutes for a fire to spread to an adjoining dwelling. Based on the fire rating of components of IBC Tables 721.6.2(1) and 721.6.2(2) this could be 40 minutes or more for typical wood frame construction that is non-rated. Considering this amount of time for a non-rated wall, and since a 1-hour rated wall with windows can be located with a 3-foot separation distance, it is reasonable to allow a non-rated wall with no openings to have a 3-foot separation distance.

**#2:** Considering that wall construction rated at 1-hour from both sides can have a "0" separation distance, and that this would also apply to townhouses that abut each other constructed under Section R317.2, projections with a 1-hour rating and a minimum separation distance of 18-inches has been added to Section R302. This also

correlates with IBC Section 704.2.3 that requires combustible projections with this separation distance to have a 1-hour fire-resistance rating. Also added is the requirement that projections cannot be located with less than an 18-inch separation distance.

**#3:** Allowing a projection with 1-hour rating from the underside and a 2-foot minimum fire separation distance is from the 2003 IRC, and correlates with the IBC. It was changed to 4-feet in the IRC during the 2003-04 CDC when a separation distance from 3-feet to 5-feet for non-rated construction was approved. With the above changes for wall construction, these projections would only be allowed on a 1-hour rated wall or a non-rated exterior wall that has no openings. This change to 2-feet correlates with IBC Section 704.2 #2 that allows projections "no more than 12 inches into areas where openings are prohibited." As openings are allowed to be located with a 3-foot separation distance, a projection with a 2-foot separation distance should be allowed. Unchanged is the requirement for a non-rated wall with openings to have a minimum fire separation distance of 5-feet, and the projections to have a minimum fire-resistance rating on the underside of 1-hour.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

**RB48-04/05  
R302.3, R303.5**

**Proponent:** Rick Davidson, City of Hopkins, representing City of Hopkins

**1. Delete without substitution:**

~~**R302.3 (Supp) Penetrations.** Penetrations located in the exterior wall of a dwelling with a fire separation distance less than 5 feet (1524 mm) shall be protected in accordance with Section R317.3:~~

~~**Exception:** Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.~~

**2. Revise as follows:**

**R303.5 Outside opening protection.** Air exhaust and intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles having a minimum opening size of 1/4 inch (6.4 mm) and a maximum opening size of 1/2 inch (12.7 mm), in any dimension. Openings shall be protected against local weather conditions. ~~Outdoor air exhaust and intake openings shall meet the provisions for exterior wall opening protectives in accordance with this code.~~

**Reason:** Penetrations of exterior walls are insignificant compared to foundation vents that are permitted by exception 2. These penetrations might include electrical service entrances, penetrations for cable TV and telephone wires, water faucets, and appliance vents. These penetrations are typically small and afford limited potential for penetration by fire. Foundation vents, on the other hand, are not limited in area and by their very nature will allow heat, smoke, and flames to penetrate into the foundation space. At previous hearings we have heard people talk of 20 foot crawl spaces. In those scenarios, foundation vents may be many feet above grade and several square feet in area.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## RB49-04/05

### R302.2 (New)

**Proponent:** Stephen V. Skalko, P.E., Portland Cement Association, Macon, GA

**Add new text as follows:**

**R302.2 Noncombustible exterior wall covering.** Exterior walls with a fire separation distance less than 5 feet shall have a noncombustible exterior wall covering consisting of one of the following:

1. Brick veneer, concrete masonry veneer, stone veneer, or cement fiber siding, each complying with

the minimum thickness requirements of Table R703.4:

2. Steel siding complying with the minimum thickness requirements of Table R703.4 installed over a backing of concrete, masonry or 5/8-inch Type X gypsum sheathing;
3. Exterior plaster complying with Section R703.6; or
4. Other approved noncombustible material.

**Exceptions:**

1. Aluminum or vinyl siding complying with the minimum thickness requirements of Table R703.4 installed over a backing of concrete, masonry or 5/8-inch Type X gypsum sheathing.
2. Combustible architectural trim not exceeding 10% of the wall area.
3. Approved fire-retardant-treated wood intended for exterior installation installed over a backing of concrete, masonry or 5/8-inch Type X gypsum sheathing.

(Renumber subsequent sections)

**Reason:** The IRC does not regulate the combustibility of exterior wall coverings for exterior walls, including those that are erected closer than 5 feet to the lot line. Section 1406.2.2 of the IBC prohibits combustible exterior wall coverings from exceeding 10% of the wall area on exterior walls with a fire separation distance of 5 feet or less. This is to prevent flames coming through openings of a burning building on the opposite side of the property line from impinging directly on the combustible wall covering. This can occur since the IRC permits up to 25% unprotected openings in exterior walls with a fire separation distance of as little as 3 feet. In developing the opening limitations of Table 704.8 of the IBC, it was assumed that flames extending through an opening project 6 feet beyond the face of the wall. By prohibiting combustible exterior wall coverings where the fire separation distance is less than 5 feet, direct flame impingent should be avoided since there will be a minimum of 8 feet between the wall with the opening, and the wall with the combustible exterior wall covering on the opposite side of the property line. Under this proposal, combustible exterior wall coverings will still be permitted where 5 feet or more fire separation distance is provided. In addition, vinyl siding will also be permitted provided it is installed over a noncombustible backing.

**Cost Impact:** The code change will increase the cost of construction.

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## RB50-04/05

### R302.4

**Proponent:** Rick Davidson, City of Hopkins, MN

**Add new text as follows:**

SECTION R302  
LOCATION ON LOT

**R302.4 Decks and balconies.** Decks and balconies shall be allowed to extend to a lot line.

**Reason:** Current language in section 302 is silent on the matter of decks and balconies, which means they are unregulated. However this results in some code enforcement officials applying rules that don't exist since decks and balconies are regulated in the IBC or because they misunderstand or misapply the rule. This position to leave decks unregulated in the IRC was affirmed by the ICC membership in Overland Park. Local zoning ordinances will typically regulate the location of decks and balconies.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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**RB51-04/05**  
**R303.6.1**

**Proponent:** Sheila Lee, City of Santa Clara, CA, representing East Bay, Peninsula, & Monterey Bay Chapters

**Revise as follows:**

**R303.6.1 Light activation.** Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The control for activation of the required interior stairway lighting shall be accessible at the top and bottom of each stairway without traversing any steps. The illumination of exterior stairways shall be controlled from inside the dwelling unit.

**Exception:** Lights that are continuously illuminated or automatically controlled.

**Reason:** IRC Section E3803.3 currently requires a wall switch at each floor level to control interior stairway lighting where the stairway has six or more risers. This proposed modification eliminates the conflict and creates consistency with Sections R303.6.1 and E3803.3. The IRC electrical chapters are provided under a contract to ICC and can not be changed through this code change process. The only opportunity for coordination is to either delete Section R303.6.1 or revise the section to agree with Section E3803.3. Our proposal is to revise Section R303.6.1.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

**RB52-04/05**  
**R303.7, R303.7.1**

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**1. Revise as follows:**

**R303.7 Required glazed openings.** Required glazed openings shall open directly onto a street or public alley, or a yard or court located on the same lot as the building.

**Exceptions:**

1. Eave projections shall not be considered as obstructing the clear open space of a yard or court.
2. Required glazed openings may face into a roofed porch where the porch abuts a street, yard or court and the longer side of the porch is at least 65 percent open and unobstructed.
3. Required glazed openings may face into the area under a deck, balcony, bay or floor cantilever provided a clear vertical space at least 3 feet (914 mm) in height is provided.

**2. Delete without substitution:**

~~**R303.7.1 Roofed porches.** Required glazed openings may face into a roofed porch where the porch abuts a street, yard or court and the longer side of the porch is at least 65 percent open and unobstructed and the ceiling height is not less than 7 feet (2134 mm).~~

**Reason:** The first change addresses the issue of projection of eaves into yards and courts, which is a common occurrence. Yards and courts are defined as clear and open from the ground to the sky. Common sense dictates that eaves should not be an impediment but for the sake of uniformity this matter should be addressed. The second change addresses the common practice of placing windows under decks and balconies. With lot sizes decreasing in size and land being used more intensively, it is often necessary to have windows serving habitable rooms under a deck or balcony. This is particularly true for bi-level designs. Last, since R303.7.1 is really an exception to R303.7, all three conditions are placed as exceptions to the charging language.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

# RB53-04/05

## R305.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

### Revise as follows:

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

### Exceptions:

1. Beams and girders spaced not less than 4 feet (1219 mm) on center may project not more than 6 inches (152 mm) below the required ceiling height.
2. Ceilings in basements without habitable spaces may project to within 6 feet, 8 inches (2032 mm) of the finished floor; and beams, girders, ducts or other obstructions may project to within 6 feet, 4 inches (1931 mm) of the finished floor.
3. ~~Not more than 50 percent of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet (2134 mm) in height with no portion of the required floor area less than 5 feet (1524 mm) in height. For rooms with sloped ceilings, at least 50% of the required floor area of the room must have a ceiling height of at least 7 feet (1931 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).~~
4. Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2036 mm) over the fixture and at the front clearance area for fixtures as shown in Figure R307.2. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches (2036 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.

**Reason:** The way exception number 3 is written you can only have 35 square of sloped ceiling no matter how large the room. As written, "not more than 50% of the required floor area (read 70 square feet) of a room or space is permitted to have a sloped ceiling..." What is meant is that "For rooms with sloped ceilings, at least 50% of the required floor area of the room must have a ceiling height of 7 feet." Do we care how much of the floor area is substandard as long as the minimum area is met?

**Cost Impact:** None

# RB54-04/05

## R202, R306.2; IRC P2901.1

**Proponent:** W. Roy Scott, RA, NY State Department of State, Albany, NY

**THIS PROPOSAL IS ON THE AGENDA OF THE IRC BUILDING/ENERGY AND IRC PLUMBING CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IRC B/E

#### SECTION R202 DEFINITIONS

#### 1. Add new definition as follows:

**OWNER-OCCUPIED.** The continual or intermittent use and physical presence of any person having a legal interest in the property.

#### 2. Revise as follows:

**R306.1 Toilet facilities.** Every dwelling unit shall be provided with a water closet, lavatory, and a bathtub or shower.

**Exception:** Owner-occupied one family dwellings subject to the approval of the building official.

**R306.2 Kitchen.** Each dwelling unit shall be provided with a kitchen area and every kitchen area shall be provided with a sink.

**Exception:** Owner-occupied one family dwellings subject to the approval of the building official.

**R303.8 Required heating.** When the winter design temperature in Table R301.2(1) is below 60°F (16°C), every dwelling unit shall be provided with heating facilities capable of maintaining a minimum room temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at the design temperature. The installation of one or more portable space heaters shall not be used to achieve compliance with this section.

**Exception:** Owner-occupied one family dwellings subject to the approval of the building official.

**PART II – IRC PLUMBING**

**Revise as follows:**

**P2901.1 Potable water required.** Dwelling units shall be provided with a supply of potable water in the amounts and pressures specified in this chapter. In a building where both a potable and nonpotable water-distribution system are installed, each system shall be identified by color marking, metal tag or other appropriate method. Any nonpotable outlet that could inadvertently be used for drinking or domestic purposes shall be posted.

**Exception:** Owner-occupied one family dwellings subject to the approval of the building official.

**Reason:** The purpose of this proposal is to exempt owner occupied one family dwellings from the requirements for heating equipment, a fixed potable water source, plumbing fixtures and electrical and electrical service. The current provisions do not account for seasonal type dwellings such as camps or certain religious groups who do not believe in such amenities. The proposed code change provides a means for the authority having jurisdiction to provide relief for an owner occupied one family dwelling, when these requirements are unnecessary or undesirable.

**Analysis:** In past code change development text such as this has been removed because it results in non-uniform enforcement. The general consensus of past code development committees was that the building official would have no basis to use in deciding whether or not to require potable water.

**Cost Impact:** None

**PART I – IRC B/E**

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

**PART II – IRC PLUMBING**

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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**RB55-04/05**

**R308.1**

**Proponent:** William E. Koffel, P.E., Koffel Associates, Inc., Ellicott City, MD

**Revise as follows:**

**R308.1 Identification.** Except as indicated in Section R308.1.1, each pane of glazing installed in hazardous

locations as defined in Section R308.4 shall be provided with a ~~manufacturer's or installer's label~~, manufacturer's designation specifying who applied the designation, designating the type and ~~thickness~~ of glass and the safety glazing standard with which it complies, which is visible in the final installation. The ~~label designation~~ shall be acid etched, sandblasted, ceramic-fired, laser burned, an embossed mark, or shall be of a type which once applied cannot be removed without being destroyed. A label shall be permitted in lieu of the manufacturer's designation.

**Exceptions:**

1. For other than tempered glass, ~~labels~~ manufacturer's designations are not required ~~may be omitted~~ provided the building official approves the use of a certificate, affidavit or other evidence confirming compliance with this code.
2. Tempered spandrel glass ~~may~~ is permitted to be identified by the manufacturer with a removable paper label designation.

**Reason:** Chapter 2 distinguishes between the requirements for a label, mark, and manufacturer's designation. Although the IRC has used the word label, neither the Legacy Codes nor common interpretation of the IBC and IRC has required the use of a "label" as defined in Chapter 2. In fact, over the past few code change cycles proposals to require independent third party testing of safety glazing have been disapproved. Based upon this action, the proposed revisions are editorial in nature to clarify the current and historic intent of these sections. The purpose of the change is to use the correct terminology consistent with the defined terms. It should be noted that a companion change has been submitted to revise the IBC. The insertion of "laser burned" is consistent with the action taken on S86-03/44 in the IBC. Other changes are to eliminate permissive lanague.

The thickness of the glass is not necessary to determine code compliance. Where a specific performance is required, such as safety glazing, the manufacturer's mark is required to identify the test standard to which the glass has been tested and that is what is necessary to determine code compliance. Although ANSI Z97.1 previously required the thickness it is not an optional marking and 16 CFR 1201 does now require thickness to be part of the marking.

When replacing glass, a glazing contractor will typically measure the thickness of the glass instead of looking for or relying on the information provided in the manufacturer's designation.

More importantly today is the concern for building security. In August 2004 when the terror alert was raised to orange in certain East Coast cities, it was noted that terrorists had been methodically casing buildings. In order to access the vulnerability of certain buildings, the information collected included the thickness of the glass. Since including the thickness of the glass in the manufacturer's mark is not necessary for purposes of code enforcement or glass replacement and since the thickness of glass is considered a building security issue, there is no reason to include the information on the glass.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB56-04/05

### R308.3

**Proponent:** Kate Steel, SAFTI, div. Of O’Keeffe’s, Inc., Piedmont, CA

**Revise as follows:**

**R308.3 Human impact loads.** Individual glazed areas including glass mirrors in hazardous locations such as those indicated as defined in Section R308.4 shall pass the test requirements of CPSC 16 CFR, Part 1201. Glazing shall comply with CPSC 16 CFR, Part 1201 criteria for Category I or Category II as indicated in Table R308.3.

**Exception:**

- ~~1. Polished wired glass for use in fire doors and other fire resistant locations shall comply with ANSI Z97.1 listed in Chapter 35.~~
2. Louvered windows and jalousies shall comply with Section R308.2.

**Reason:** This same code change to IBC 2406.1 was considered last year as S85-03/04, and final action by the General Assembly at the 2004 Final Action Hearing was for Approval as Submitted, by a vote of 163-68. Deletion of the exception here will conform to the revised IBC 2406.1. Statements of Reason supporting Public Proposal S85 and Public Comment S85 are on record with ICC.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB57-04/05

### R308.4

**Proponent:** Randy Sullivan, Greater Houston Home Builders Association, Houston, TX

**Revise as follows:**

**R308.4 (Supp) Hazardous locations.** The following shall be considered specific hazardous locations for the purposes of glazing:

1. through 11. (No change to current text)

**Exception:** The following products, materials and uses are exempt from the above hazardous locations:

1. through 3. (No change to current text)
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position or where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth. Glazing in these applications shall comply with Section R308.4, Item 7.
5. Through 9. (No change to current text)

**Reason:** As written, tempered glass is required if closet or storage area exceeds 3 feet in depth. There is no significant reason where depth should require the use of tempered glass.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB58-04/05

### R308.4

**Proponent:** Rick Davidson, City of Hopkins, representing City of Hopkins

**Revise as follows:**

**R308.4 (Supp) Hazardous locations.** The following shall be considered specific hazardous locations for the purposes of glazing:

**Exception:** The following products, materials and uses are exempt from the above hazardous locations:

1. through 3. (No change to current text)
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position or where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth or to a bathtub or shower enclosure. Glazing in these applications shall comply with Section R308.4, Item 7.
- 5 through 11 (No change to current text)

**Reason:** Access to a walk-in closet is no more hazardous than one that is three feet deep. The depth of the closet won't change the likelihood of contact with the window. Windows outside of shower and bath enclosures are not a problem. Often times the shower door may be installed after the final inspection. Sometimes there will be a curtain rather than a door. No change in hazard. Following are excerpts from the ICC Bulletin Board to illustrate the confusion caused by this section:

constructionarbitrator

posted 04-13-2004 08:50 AM

Agreed, but if the tub has a sliding glass (or swinging) door then the 24" rule comes into play, and any windows within 24" of the door must

be safety glazed just like a sliding or swinging door going out of a house.

constructionarbitrator  
posted 04-13-2004 11:17 AM

The intent of the code is to prevent people from becoming injured by broken glass, there is much more chance of injury from a person exiting a shower than a regular door. If there is just a shower curtain the safety glass is not required, but once you install a "door" the code provision is triggered.

constructionarbitrator  
posted 04-13-2004 05:49 PM

If somebody slipped stepping out of a shower, pushed their hand through an adjacent window that wasn't safety glass, and was seriously injured, I am sure a court would decide that the 24" rule did apply.

piarrett  
posted 04-14-2004 06:29 AM

I'm just looking for clarification on this code. To me it seems that if I end up in court and do not require this I would probably lose.

Designer  
posted 07-20-2004 07:42 AM

Interesting discussion. Bottom line is we don't know whether a window in a bathroom near a tub has to be tempered or not.

Snickers  
posted 07-20-2004 12:18 PM

The ICC seminar speaker for our 2000 IRC seminar also said that the glazing in walls enclosing tubs also includes those areas of that same wall adjacent to the tub. That particular code doesn't limit it to just the area inside the fixture lines. Look at the last sentence in item 5. It talks about glazing less than 60" above a "walking surface". Surely, the tub or shower is not a walking surface. It must apply to an area of the bathroom outside of the fixture. Take an enclosed gazebo w/ a hot tub in it. There is a 24" cedar seat/walkway around the hot tub at the top of the fixture. On the outer side of the seat/walkway is the glazed-in outer walls of the gazebo. Now, the glazing isn't inside of the fixture lines, because there is a 24" wide walkway between them. Is the occupant in any less danger when he walks on the platform than he would be if he was walking in the hot tub? I think not. The main concern here is slipping or tripping as you step out of the shower, whirlpool, or tub. Does that same model code glazing requirements for other similar environments that would give us at least a basis for this? R308.4 items # 9 and 10 both give a horizontal measurement of 60" from cause of the hazard. This would be a good basis to work from. I use this basis in my inspections. The only exception I make is if it is a small window and there is a water closet in front of it. The water closet creates a barrier between the glazing and occupant. Given this, I would have to say that glazing w/i 60" of the fixture must meet the requirements of 308.3.

Designer  
posted 07-21-2004 09:43 AM

We're all trying to build a better building. In my case, better homes. From what I see here, we still don't know if the CODE calls for safety glass in areas next to tubs/showers. If you want to view the area in front of the tub as "walking areas" then the wdw will has to meet ALL the criteria in R308.4 par. 7.1 to 7.4. It's nice to think we are giving the user a safer environment, but DOES CODE REQUIRE IT!

Ewenme  
posted 07-21-2004 10:08 AM

I think the 2003 IRC is very clear: R308.4.5: "Glazing in any part of a wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60" measured vertically above any standing or walking surface." I interpret this to mean that any bathroom wall that is an extension of the enclosing wall of a tub/shower needs to have safety glazing unless the bottom of the window is more than 60" above

the standing or walking surface. That leaves the wall opposite the tub/shower available for non-safety glazed windows.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB59-04/05

### R308.4

**Proponent:** Rick Davidson, City of Hopkins, MN

**Revise as follows:**

**R308.4 (Supp) Hazardous locations.** The following shall be considered specific hazardous locations for the purposes of glazing:

1. Glazing in swinging doors except жалousies.
2. Glazing in fixed and sliding panels of sliding door assemblies and panels in sliding and bifold closet door assemblies.
3. Glazing in storm doors.
4. Glazing in all unframed swinging doors.
5. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. ~~Glazing in any part of a building wall enclosing these compartments~~ where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing ~~or walking surface~~.
6. through 11. (No change to current text)

**Reason:** The current language seems to imply that glazing in a window that may be several feet from the water basin must be safety glazed because it reads: "glazing in any part of a wall enclosing...". It has been argued that one might slip on the floor outside the tub and fall into a window and that the current code requirement provides for virtually any window in a bathroom to be safety glazed. This proposal seeks to clarify that only doors and glazing immediately adjacent the basin or tub are regulated. Following are excerpts from the ICC Bulletin Board to illustrate the confusion caused by this section:

constructionarbitrator  
posted 04-13-2004 08:50 AM

Agreed, but if the tub has a sliding glass (or swinging) door then the 24" rule comes into play, and any windows within 24" of the door must be safety glazed just like a sliding or swinging door going out of a house.

constructionarbitrator  
posted 04-13-2004 11:17 AM

The intent of the code is to prevent people from becoming injured by broken glass, there is much more chance of injury from a person exiting a shower than a regular door. If there is just a shower curtain the

safety glass is not required, but once you install a "door" the code provision is triggered.

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The ICC seminar speaker for our 2000 IRC seminar also said that the glazing in walls enclosing tubs also includes those areas of that same wall adjacent to the tub. That particular code doesn't limit it to just the area inside the fixture lines. Look at the last sentence in item 5. It talks about glazing less than 60" above a "walking surface". Surely, the tub or shower is not a walking surface. It must apply to an area of the bathroom outside of the fixture. Take an enclosed gazebo w/ a hot tub in it. There is a 24" cedar seat/walkway around the hot tub at the top of the fixture. On the outer side of the seat/walkway is the glazed-in outer walls of the gazebo. Now, the glazing isn't inside of the fixture lines, because there is a 24" wide walkway between them. Is the occupant in any less danger when he walks on the platform than he would be if he was walking in the hot tub? I think not. The main concern here is slipping or tripping as you step out of the shower, whirlpool, or tub. Does that same model code glazing requirements for other similar environments that would give us at least a basis for this? R308.4 items # 9 and 10 both give a horizontal measurement of 60" from cause of the hazard. This would be a good basis to work from. I use this basis in my inspections. The only exception I make is if it is a small window and there is a water closet in front of it. The water closet creates a barrier between the glazing and occupant. Given this, I would have to say that glazing w/ 60" of the fixture must meet the requirements of 308.3.

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We're all trying to build a better building. In my case, better homes. From what I see here, we still don't know if the CODE calls for safety glass in areas next to tubs/showers. If you want to view the area in front of the tub as "walking areas" then the wdw will has to meet ALL the criteria in R308.4 par. 7.1 to 7.4

It's nice to think we are giving the user a safer environment, but DOES CODE REQUIRE IT!

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I think the 2003 IRC is very clear: R308.4.5: "Glazing in any part of a wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60" measured vertically above any standing or walking surface." I interpret this to mean that any bathroom wall that is an extension of the enclosing wall of a tub/shower needs to have safety glazing unless the bottom of the window is more than 60" above the standing or walking surface. That leaves the wall opposite the tub/shower available for non-safety glazed windows.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## RB60-04/05

### R308.4

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R308.4 (Supp) Hazardous locations.** The following shall be considered specific hazardous locations for the purposes of glazing:

1. through 11. (No change to current text)

**Exception:** The following products, materials and uses are exempt from the above hazardous locations:

1. through 9. (No change to current text)

10. Glazing in Section R308.4, item 6, that is adjacent to the fixed panel of sliding door assemblies.

**Reason:** Windows adjacent to the fixed panels of sliding doors are far removed from the operating unit and pose no hazard. The Uniform Building Code Applications Manual stated: "Q. If a window occurs within a 24-inch arc of the vertical edge of a fixed panel of a sliding glass door and the bottom edge of the window is less than 60 inches above the walking surface, should the glass panel in the window be safety glazing? A. Safety glazing would be required unless exempted by any of the exceptions to Item 8 of Section 2406.4. Most sliding glass doors are manufactured so that the location of the fixed panels may be changed, allowing the entire assembly to be considered as the door assembly." While this matter is not addressed in ICC manuals, many building officials require these windows to be safety glazed. Rarely is the orientation of the panels of patio doors changed. This alteration is outside of the area of knowledge of most homeowners and is not an easy modification. It is overly restrictive to require a window that is 5 feet from the operating door to be safety glazed. This code change eliminates a potentially unnecessary requirement and promotes uniformity.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## RB61-04/05

### R308.4

**Proponent:** Gary Lampella, City of Tigard, Oregon, representing Oregon Building Officials Association

**Revise as follows:**

**R308.4 (Supp) Hazardous locations.** The following shall be considered specific hazardous locations for the purposes of glazing:

- 1. through 11. (No change to current text)  
**Exceptions:** the following products, materials and uses are exempt from the above hazardous locations:

- 1. through 9. (No change to current text)
- 10. Glass block panels complying with Section R610

**Reason:** The International Building Code specifically exempts glass unit masonry from hazardous locations. With glass block becoming more prevalent in the design of homes for enclosures for walk-in showers the building official either has to deny the installation or approve an alternate method of construction by utilizing the IBC. The IBC allows the use of glass block when installed in accordance with Section 2110. Section R610 of the IRC is almost identical to Section 2110 of the UBC. The addition of this exemption would allow jurisdictions an easier avenue to approve these installations.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

## RB62-04/05

**Table R301.6, R308.5 (New), R310.5 (New), R403.1.4.3 (New)**

**Proponent:** Michael D. Fischer, National Sunroom Association, Chittenango, NY

- 1. Add table footnote as follows:

**TABLE R301.6  
 MINIMUM ROOF LIVE LOADS IN POUNDS-FORCE  
 PER SQUARE FOOT OF HORIZONTAL PROJECTION<sup>a</sup>**

ROOF SLOPE	TRIBUTARY LOADED AREA IN SQUARE FEET FOR ANY STRUCTURAL MEMBER		
	0 TO 200	201 TO 600	Over 600
Flat or rise less than 4 inches per foot (1:3)	20	16	12
Rise 4 inches per foot (1:3) to less than 12 inches per foot (1:1)	16	14	12

Rise 12 inches per foot (1:1) and greater	12	12	12
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For SI: 1 square foot = 0.0479 kN/m<sup>2</sup>,  
 1 inch per foot = 0.0833 mm/m

- a. Patio covers shall be designed and constructed to sustain, within the stress limits of this code, all dead loads plus a minimum vertical live load of 10 pounds per square foot (0.48 kN/m<sup>2</sup>).

**2. Add new text as follows:**

**R308.5 Patio covers.** Openings in patio covers shall be permitted to be enclosed with any of the following materials:

- 1. Insect screening.
- 2. Approved translucent or transparent plastic not more than 0.125 inch (3.2mm) in thickness.
- 3. Glass conforming to the provisions of Section R308.
- 4. Any combination of items 1-3 above.

**(Renumber subsequent sections)**

**R310.5 Patio covers.** Exterior openings required for light and ventilation shall be permitted to open into a patio cover, provided that the patio structure shall be unenclosed if such openings are serving as required emergency escape or rescue openings from sleeping rooms.

**(Renumber subsequent sections)**

**R403.1.4.3 Patio covers.** In areas with a frost-line depth of zero as specified in Table R301.2(1), a patio cover shall be permitted to be supported on a slab on grade without footings, provided the slab conforms to the provisions of Section R505 of this code, is not less than 3.5 inches (89 mm) thick and the columns do not support live and dead loads in excess of 750 pounds (3.34 kN) per column.

**Reason:** This proposal carries certain provisions from the Patio Cover Appendix Chapter into the body of the code.

Part 1 brings an appropriate minimum live load requirement for patio covers into Table R301.6. The roof systems of these rooms are often constructed of light-gauge aluminum pans- or in the case of a pool cover- are screened.

Part 2 provides clarifications for the type of materials allowed in patio cover wall and ceiling openings, and clarifies a requirement that any glass- including skylight assemblies- must comply with the requirements of Section R308. By including this text in the code, we may ensure that appropriate safety considerations are taken and that less restrictive safety provisions for green-houses are not mistakenly applied to patio covers.

Part 3 clarifies the construction of patio covers adjacent to light and ventilation openings- and if the emergency escape and rescue openings are inside the patio cover it mandates that the patio cover be unenclosed. This is an important life safety provision that should be included in the code.

Part 4 brings appropriate prescriptive foundation provisions for certain patio covers into the code.

Note that these provisions apply to patio covers- which are unheated- often open- and always non-habitable space. Sunrooms- by definition changes contained in separate proposals- contain habitable space and are not included in the scope of these changes.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB63-04/05

### R309.1

**Proponent:** Michael Baker, City of Peoria, representing Arizona Building Officials, Peoria, AZ

**Revise as follows:**

**R309.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35 mm) thick, or 20-minute fire-rated doors. Doors providing opening protection shall be self-closing and self-latching.

**Reason:** In the legacy codes the garage was rated to protect the inhabitants of the structure from harmful conditions which exist within a garage. The rating of the garage has been partially eliminated with the exception of livable areas above the garage. However the necessity of a self closing door remains to protect the inhabitants from exposure to smoke or carbon monoxide or other potentially harmful vapors from the garage area.

We had a house fire at night. The fire started in the garage. The occupants were a man and woman. They were awakened and while trying to escape were overcome by the smoke. The fire department was called by a passerby. When the responding fire department arrived at the scene they found the man and woman unconscious in the living room. They removed the victims from the house and resuscitated them. The fire was confined to the garage by the rated wall material and the closed garage door. Had the garage door not been closed and latched, there is no doubt that the fire would have poured more deadly fire gases into the house and eventually enter the house itself. The closed and latched garage door saved those people's lives.

Private garages are used for automotive repair, body work, furniture repair, storage, and other hobby activities, people use these areas for much more than simply parking a car. Consequently the majority of fires in my jurisdiction in garages are caused by something other than the car. Faulty equipment, spontaneous ignition of wood finishing products, failure to turn off equipment, the list goes on.

Any fire investigator can tell you that a closed door works. They see this day in and day out as they investigate building fires. This is the reason that the national Fire Protection Association, among others, strongly recommends that people sleep with their bedroom doors shut. Closed doors save lives.

In addition it would seem that in our effort to conserve energy with the International Energy Conservation Code, closed garage doors can affect how much energy is used to heat or cool a home.

The cost of a spring loaded hinge is approximately \$5.00. But even if they cost \$100.00 it would be worth it if a life was saved. Please support this proposal to reduce death, injury and property damage by fire in residential occupancies.

**Cost Impact:** This code change will increase the cost of construction.

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB64-04/05

### R309.1

**Proponent:** Anthony C. Apfelbeck Okeechobee, FL, representing Florida Fire Marshals and Inspectors Association

**Revise as follows:**

**R309.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35 mm) thick, or 20-minute fire-rated doors.

**Exception:** Buildings with garages protected by an approved automatic fire sprinkler system installed in accordance with Section 903.3.1 of the *International Fire Code*.

**R309.1.1 Duct penetration.** Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material and shall have no openings into the garage.

**Exception:** Buildings with garages protected by an approved automatic fire sprinkler system installed in accordance with Section 903.3.1 of the *International Fire Code*, shall be permitted to have ducts constructed of any approved material.

**R309.2 (Supp) Separation required.** The garage shall be separated from the residence and its attic area by not less than 1/2-inch (12.7 mm) gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8-inch (15.9 mm) Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the

structure supporting the separation shall also be protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent. Garages located less than 3 feet (914 mm) from a dwelling unit on the same lot shall be protected with not less than 1/2-inch (12.7 mm) gypsum board applied to the interior side of exterior walls that are within this area. Openings in these walls shall be regulated by Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

**Exception:** Buildings with garages protected by an approved automatic fire sprinkler system installed in accordance with Section 903.3.1 of the International Fire Code.

**Reason:** The changes to R309.1 and 309.2 recognize the significant added protection of providing fire sprinkler protection in the one- and two-family dwelling environment by eliminating the fire separation requirements between the garage and the house when the building and garage is protected by a fire sprinkler system. NFPA 13D has recently been revised to address the option for this added protection within the garage. The presence of sprinkler protection in the one- and two-family dwelling environment, including the garage, will more than offset the loss in fire separation. NFPA's statistics indicate the significant effect fire sprinklers have on their primary purpose in the home, life safety protection. Between 1994 and 1998, there were 9.5 fire deaths per 1,000 fires with no fire sprinkler system present in the home. When a fire sprinkler system is present in the home, this death rate drops to 2.2 per 1,000 fires. This is a 76.6% reduction in life loss when sprinklers are present. Although residential sprinklers are primarily focused on the protecting live safety, the "Scottsdale Report" has shown one community's experience with fire sprinklers for property protection. This report states that the average loss per non-sprinklered property was \$17,067. The loss per sprinklered property was \$1,945. This is a property loss savings of 89% over the unsprinklered property. NFPA's statistics also support a substantial savings. The average fire loss in non-sprinklered home structure fires between 1994 and 1998 was \$10,877. Sprinklered homes had an average loss of \$5,383 per fire incident. The loss reduction was 50.5% with sprinklers present. Based on these hard statistics, the benefits of encouraging residential fire sprinkler protection by offsetting the installation cost in other redundant areas is abundantly clear.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

## RB65-04/05

### R309.2

**Proponent:** Joseph T. Holland, Hoover Treated Wood Products, Daytona Beach, FL

**Revise as follows:**

**R309.2 (Supp) Separation required.** The garage shall be separated from the residence and its attic area by not less than 1/2-inch (12.7 mm) gypsum board or 1/2-inch nominal fire-retardant-treated wood applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8-inch (15.9 mm) Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2-inch (12.7 mm) gypsum board, 1/2-inch nominal fire-retardant-treated wood or equivalent. Garages located less than 3 feet (914 mm) from a dwelling unit on the same lot shall be protected with not less than 1/2-inch (12.7 mm) gypsum board applied to the interior side of exterior walls that are within this area. Openings in these walls shall be regulated by Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

**Reason:** Fire-retardant-treated wood has a flame spread rating better than gypsum (10 to 15 vs. as much as 50). The peak rate of heat release is equivalent to gypsum board (note: the total heat released will be higher). In addition, a fire cannot be started with FRTW nor will it spread the fire.

If this provision is being applied to the garage walls we find by using Table 721.6.2(1) and Table 721.6.2(2) in the International Building Code a stud wall with 1/2-inch gypsum board and wood studs has a fire rating of 35 minutes. The same wall with 1/2-inch nominal plywood has a fire rating of 30 minutes. They are essentially equivalent.

For the ceiling ASCE 29-99 assigns a time of 5 minutes to trusses. The total time for the truss and gypsum board is 20 minutes and 15 minutes for the 1/2-inch nominal plywood; if wood joists are used its 25 and 20. Again, they are approximately equivalent.

In addition, it has a higher structural capacity than gypsum board for areas where seismic and high winds are a factor. We see this option being used primarily for the cover to the attic access opening.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
 Assembly: ASF AMF DF

## RB66-04/05

### R309.2.1(New)

**Proponent:** Stephen L. Thomas, Cherry Hills Village, CO, representing Colorado Chapter ICC, Inc.

**Revise as follows:**

**R309.2 Separation required.** The garage shall be separated from the residence and its attic area by not less than 1/2-inch (12.7 mm) gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than

5/8-inch (15.9 mm) Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent. Garages located less than 3 feet (914 mm) from a dwelling unit on the same lot shall be protected with not less than 1/2-inch (12.7 mm) gypsum board applied to the interior side of exterior walls that are within this area. Openings in these walls shall be regulated by Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

**R309.2.1 Penetrating items.** Penetrating items are permitted provided that the annular space is filled with an approved material to resist the free passage of flame and the products of combustion.

**Reason:** The current provision for separating the garage from the house does not address the condition where pipes, conduits, wires or other material penetrate the protection membrane. This change has been revised from a similar proposal disapproved during the last code cycle. The committee stated that it was not clear what a penetration is. Penetrations are defined in Section 702 of the IBC. The term penetration is also used in: Section 309.1.1 regarding duct penetrations, 317.3.1 regarding through penetrations without any apparent problems understanding what a penetrating item is. The intent of this section is to address penetrations of pipes, conduits, tubing, cables and other similar items.

This change is patterned after IBC Sections 712.4.3 and 716.2.5 for non-fire-resistive assemblies and fire blocking. The requirement to install gypsum board noted in the IRC is not a fire-resistive separation, but does provide minimal protection from fire and smoke spread from garage to the house. When materials penetrate the assembly and they are not sealed, the protection is compromised to a point of allowing smoke and fire to infiltrate the home easier. This proposal would require that the annular space be sealed to resist the passage of smoke or fire similar to those non-rated assemblies addressed in the IBC.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB67-04/05

### R309.3, R309.4

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R309.3 Floor surface.** Garage floor surfaces 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.~~

**R309.4 Carports.** Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. 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.~~

**Reason:** Sloped floors weren't a requirement in the UBC or the BOCA National Building Code and this didn't seem to pose a problem. The construction of sloped floors is expensive and unnecessary especially for detached garages. Detached garages are routinely built on monolithic slab foundations. It is very difficult to incorporate any type of meaningful slope on these floors. The only effective way to achieve a sloping floor is to use a perimeter foundation and pour the floor separately on the inside of the foundation. This nearly doubles the cost of a garage foundation. The IRC provides no rule on the amount of the slope, this from a code that is supposed to be prescriptive. In colder climates, sloped floors will cause melt water to drain to the overhead door freezing the door shut. Since most garage doors have a gasket on the bottom, draining fluids to the door will only change the location where they pool and not drain them out the door. Carports are often constructed over existing parking surfaces that may be flat. The placement of a roof over the space does not increase the hazard. The IRC Commentary states "The floor surface must either slope toward the garage door opening or slope to an approved drain. This allows grease, flammable liquids, or other hazardous materials that might drain from an automobile to be drained from the garage." The viscosity of grease and oil precludes them from draining anywhere. Gasoline spills rarely ever amount to anything but a slow drip and then the gas evaporates before it ever even creates a puddle. There is at least one case where you might not want hazardous materials to run out of the garage. That is the case with antifreeze. It is toxic to animals and its sweet taste encourages them to drink it. It would be better to contain it in a garage and clean it up. This requirement has been unnecessary in the past, is unnecessary now, increases costs without justification, and should be removed.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB68-04/05

### R309.3, R309.4

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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**Revise as follows:**

**R309.3 Floor surface.** Garage floor surfaces shall be of ~~approved noncombustible material~~ concrete, asphalt, sand, gravel, crushed rock or natural earth.

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.

**R309.4 Carports.** Carports shall be open on at least two sides. Carport floor surfaces shall be of ~~approved noncombustible material~~ 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.

**Reason:** This change provides prescriptive requirements for garage and carport surfaces, which is a stated goal of the IRC: "This comprehensive, stand-alone residential code establishes minimum regulations for one- and two-family dwellings and townhouses using prescriptive provisions – Preface." Reference to an "approved noncombustible material" is not a prescriptive requirement. Language referencing noncombustible surfaces has been removed because some thought it eliminated asphalt as a surface. The 2000 IRC Commentary on page 121 states: "Garage floor surfaces must be of an approved noncombustible material such as concrete." Is this really the minimum acceptable surface for parking a vehicle? Does concrete meet the scope of the code, which is to provide a minimum standard and address affordability? The '96 BOCA National Building Code required attached garages to have a concrete or noncombustible floor. It was silent on the matter of detached garages. The '97 UBC stated "In areas where motor vehicles are stored or operated; floor surfaces shall be of noncombustible or asphaltic paving materials." The UBC Interpretations Manual went on to say: "The intent of the provision was to prohibit the use of combustible materials such as wood, which would absorb flammable liquids accidentally leaked or spilled from motor vehicles onto the garage floor surface and result in a possible increase in the severity of a fire within that area. We do, however, feel that rock, sand, gravel, and earth would be acceptable floor surfacing materials." The Southern Building Code only stated that asphalt surfaces were permitted "at grade level." So there are ample precedents for the types of surfaces suggested. The current text places the burden on the building official as to the appropriateness of a surface but provides little guidance besides combustibility. This proposal gives the building official some direction if he is to approve an alternate surface.

**Cost Impact:** None

## **RB69-04/05**

### **R309.3, R309.4**

**Proponent:** Rick Davidson, City of Hopkins, representing City of Hopkins

**Revise as follows:**

**R309.3 Floor surface.** Garage floor surfaces shall be of approved noncombustible material.

The area of floor used for parking of automobiles or other vehicles shall be sloped a minimum of 1/4 inch per foot (2% slope) to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. The maximum variation from a flat surface shall be 1/8 inch per 10 feet (32mm per 3m)

**R309.4 Carports.** Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. 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 a minimum of 1/4 inch per foot (2% slope) to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. The maximum variation from a flat surface shall be 1/8 inch per 10 feet (32 mm per 3m)

**Reason:** The code requires that the floor drain but provides no specifications for slope or workmanship that goes into the floor. This is in conflict with the preface of the code that states that the IRC provides prescriptive provisions. The proposed pitch is reasonable to drain oils and other automobile fluids and is used elsewhere in the IRC.

The second portion added would prevent depressions in floor surfaces that would impede drainage and is a standard specification. While this specification is not consistent with the most recent recommendations of the American Concrete Institute, the implementation of the F-Number System is thought to be to complex for some homeowners or contractors to comprehend and adhere to. However, if the IRC Committee believes that the new standard is more appropriate, we can bring back a revised version with the new standard.

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB70-04/05

### R309.6

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Delete without substitution:**

~~**R309.6 Automatic garage door openers.** Automatic garage door openers, if provided, shall be listed in accordance with UL 325.~~

**Reason:** If it is in the code, it is meant to be regulated. If it is regulated, then a permit is required. Garage doors and garage door openers are not required by the code. Why inspect them? We don't inspect manual garage door openers. There are Federal regulations that address this issue.

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB71-04/05

### R310.1

**Proponent:** Rick Davidson, City of Hopkins, MN

**Delete and substitute as follows:**

~~**R310.1(Supp)Emergency escape and rescue required.** Basements and every sleeping room shall have at least one operable emergency and rescue opening. Such opening shall open directly into a public street, public alley, yard or court. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall 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) above the floor. 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.~~

~~**Exception:** Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m<sup>2</sup>).~~

**R310.1 Emergency escape and rescue required.** Every sleeping room shall have at least one operable exterior window or door approved for emergency escape and rescue. Emergency escape and rescue openings shall have a sill height of not more than 44 inches (1118 mm) above the floor. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well or bulkhead in accordance with Sections R310.2 and R310.3.

**Reason:** This code change (RB66-03/04) was approved by the IRC Committee in Nashville but overturned by the membership. Then RB67-03/04 was approved that expanded the scope of emergency escape and rescue openings from basements with habitable space to all basements. If you were at Overland Park, you read or heard the following reasons why RB67-03/04 should be approved. None of the reasons were justified and all fall outside the scope of the code.

Not requiring egress windows in every basement is different than what was required in the UBC and will reduce egress standards in historically UBC jurisdictions.

Comment: One of the goals of combining the previous model codes was to take the least restrictive provisions from each for a given application. While egress windows may have been required in basements under the UBC, they were not a requirement of the CABO One- and Two-Family Dwelling Code (Section 310) and the Southern Building Code (Section 1005.4).

Installing the windows at the time of construction will save homeowners money in the future.

Comment: Saving homeowners money in the future is outside the scope of the I-Codes. The I-Codes are supposed to encourage affordability. Requiring unnecessary windows at the time of construction increases the cost of the dwelling and is counter to affordability. The argument fails to recognize that some basements will never be finished, sometimes because of flood regulations, ground water conditions or other issues such as the choice of the owner. It fails to recognize that if the basement is finished, someone other than the original owner may finish it so the cost is borne by someone who will not benefit from the expense. If this argument were taken to it's logical conclusion, the code would require not one, but multiple egress windows in anticipation of bedrooms in every corner of the basement. It would require plumbing rough-ins in anticipation of future bathrooms. It would require the installation of walls, insulation, wiring, heating and air conditioning, wall finishes, carpeting, and full completion that might save the future homeowner even more money. The homeowner might save so much money that the home will come free! Also, this argument fails to recognize in the years that pass between the construction of the dwelling and any potential basement finishing that rules or technology may change making egress windows obsolete. All of the cost of the window would then be lost.

Installing the windows in all basements simplifies enforcement.

Comment: The basis for requiring the public to spend money should never be that it simplifies enforcement. These rules are not about making life easy for the code enforcement community.

The window provides a ready source of natural light and ventilation when the basement is finished.

Comment: Again, the comment assumes something that may never occur. There is no guarantee that the window will be placed to accomplish this result. The type of finish envisioned by the owner may not include the need for natural light such as a home theater. Natural light is no longer a requirement of the code if artificial light is provided.

The proponent has listed the cost impact of additional egress windows as "none"!

Comment: Obviously this is incorrect. The cost of a single egress window in a full basement will add in the range of \$2000 and more. This cost is significant. Especially for entry-level homes.

The home building industry is trying to avoid the expense of installing the window in every new home.

Comment: It is a common misconception that the home building industry will save money by not installing the window at the time of construction of the dwelling. There are two problems with this theory. First, it is the homebuyer who saves money by not having the window installed, not the builder. Second, the home building industry does not absorb the cost of code requirements. They are all passed on to the buyer.

Basements will inevitably be finished and this change will address those people that don't get permits and don't put in emergency windows when that finish is undertaken or that lie about the future use of a room or space.

Comment: It is not true that all basements will be finished. There are no statistics to indicate that they will. And it is poor public policy to impose a rule on the public in anticipation of some future illegal act. This is unprofessional and likely illegal. There was no information provided to indicate that finish of basements without permits is a chronic problem. We also need to come to the realization that we aren't the saviors of the public. We need to accept plans that show an unfinished basement or a room labeled as a sewing room without accusing the public that they are dishonest or are lying. If the use of the room is later changed or the permit applicant lied and we did our job, as we should, we don't have any liability.

The windows can be used for firefighting purposes.

Comment: Following is the definition of EMERGENCY ESCAPE AND RESCUE OPENING. "An operable window, door or similar device that provides for a means of escape and access for rescue in the event of an emergency. " Nowhere in the definition is it indicated that the purpose of the window is for firefighting purposes, firefighter egress, or saving people money. If windows are required for firefighting purposes they should be entirely above grade, located at specific distances around the perimeter of the building, and do not need to be of a size for emergency escape or rescue. Firefighting can be accomplished with nothing more than basement pipe inlets. It will be a dangerous precedent to acknowledge that the purpose of basement windows is for firefighting and fire fighter escape.

Firefighters may need them to escape a basement.

Comment: Also burglars, rapists, and thieves can use them to access a basement. If firefighters are receiving proper training, they will never enter an area that doesn't provide them with a means of ready escape via stairs. Similarly, firefighters should not risk falling through a floor in any building where there is obvious fire below.

"As housing costs continue to increase, more and more prospective owners are utilizing basements for living space. "

Comment: This comment is self-fulfilling. Increased government regulation increases costs and drives more efficient use of the space that can be afforded.

"This proposal is intended to deal with areas of the country where basements are standard and more often than not, originally built with an unfinished basement and ultimately finished with sleeping rooms, and the modifications needed to provide this escape opening are extremely expensive. Any reasonable designer will consider the best possible floor plan for a future basement finish and provide this opening in the area intended to be converted to a sleeping room, thereby reducing the cost up front and for future plans."

Comment: This argument to require the window is actually an argument not to require them at the time of construction. The statement that basements are more often than not unfinished at the time of construction is a correct statement and provides a basis for delaying the cost of the installation of the window until necessary, if ever. It also fails to realize that it is impossible for a home designer, who may be a lumberyard draftsman, to anticipate the future needs of the owner of a dwelling and design all features of a basement that would satisfy every future owner. It falsely assumes that the owner will want a sleeping room in the basement. The owner may want none, one, two, or more.

"The second portion of the proposal for additional language is extracted directly from Section 1025.1 of the IBC and is intended to clarify that access to this rescue opening is not to travel through intervening rooms or areas."

Comment: Well, not exactly. The text is not taken verbatim from the IBC. The IBC contains alternatives to the installation of egress windows, which the IRC does not. Furthermore, the IBC is intended to apply to all types of transient residential occupancies and the IRC does not. Also, the code seems clear that access to the window is not to be through an intervening room. The code states: "every sleeping room shall have at least one..." And, if it is the intent to prohibit access to the window via intervening space, it is not accomplished as the proponent intended. The language does not address interior access to the window but access outside of the window. Lastly, this issue is already addressed by IRC section R303.7.

"An additional consideration is the obvious benefit for rescue by emergency personnel. The following was a news report by the Denver Rocky Mountain News as it relates to this very important safety feature. Thursday, April 25, 2002 Woman rescued from house fire. Reports of incendiary device investigated, but cause of blaze remains unknown. By Bill Scanlon. Firefighters broke out a basement window to rescue a woman trapped in a house fire of unknown origin early Wednesday morning in northeast Denver. When the crews pulled up, "They had heavy fire and smoke coming out of every window in the upper floor." The woman..."it looks like it started in the kitchen then spread to the living room and to the basement." This woman would have surely perished had it not been for the window provided. Granted the size and location are not mentioned, but the fact that she had the ability to exit the structure when the interior stair had been destroyed is significant. This proposal is a minimum effort to provide the mandated life safety of the structures which we regulate."

Comment: This news article was cited in the monograph and at the hearings as a reason to require egress windows. The proponent agrees that the size and location of the window was not indicated. It is unknown what impact, if any, a code compliant window would have had. The article does not indicate the age or location of the dwelling, whether the basement was completely below grade or near grade, whether there were smoke alarms in the dwelling, or how long the fire had burned. And with this small amount of mostly anecdotal misinformation, we are supposed to inflict a costly code change on the public!

"And, finally the proposed exception is intended to deal with areas of the country where some basements are only used for this purpose (Basements used only to house mechanical equipment)."

Comment: This is an argument to eliminate egress windows, not require them. If basements are used only for service of the building as the proponent suggests, it is a real disservice to the public to require them to spend money to install an unnecessary window. And if the basement is used for service of the building, there is no need to limit the size to 200 square feet. Is a 250 square foot basement more hazardous than one of 200 square feet? What about one of 500 square feet or 750 square feet? If they are unfinished, even the proponents seem to acknowledge that there is no hazard.

"The proposed revision eliminates the need to make a subjective determination as to whether basements are habitable or not habitable at the time of construction by requiring an emergency escape and rescue opening in all basements."

Comment: As stated above, eliminating the need for the code enforcement community to think is not a basis for a code change. Requiring all buildings to comply with a requirement so that we don't have to think is insulting. The plan reviewer has every right to ask that the use of each room or space be labeled and apply the code accordingly. Then one need not apply the egress rules just because someone's basement office has a closet.

"This revision acknowledges the likelihood, supported by historical fact, that basements are frequently used as habitable space or as sleeping rooms, while creating a reasonable exception for basement space, designed primarily for mechanical equipment, of a size with little potential for use as a sleeping room or habitable space."

Comment: If this position is supported by historical fact, the proponent failed to cite the source. Failing that, the statement does not pass muster as the basis for a code change.

"By incorporating language regarding the opening terminus, the code assures the emergency escape and rescue opening will not be impeded by deck construction or un-escapable enclosures while maintaining well founded code principals of appropriate egress terminus."

Comment: As mentioned previously, this issue is addressed in at least two different sections of the code and fails to recognize commonly accepted building practices that have allowed windows under decks and balconies for decades with no reduction in safety.

Other arguments against expanded use of egress windows include:

Increased use of smoke alarms throughout dwellings whether in new buildings or remodeled ones provide early warning of a fire and allow basement occupants time to exit a basement via stairs.

There were no studies, statistics, or other information provided that requiring egress windows in all basements would reduce deaths occurring in basement fires or how many such deaths are occurring.

Requiring windows in all basements creates a serious problem for the design of townhouses. Interior townhouses will have two walls adjacent other dwelling units and potentially have a third wall common to an attached garage. This will leave only one exterior wall to locate the window, which will often be the front wall. This will place the window right next to the front door. These basements are often of limited size and used for laundries and service of the building.

While proponents of egress windows in all basements tout their safety benefits, they fail to recognize the dangers those windows present. In 2002, there were 95,136 forcible rapes and 2,151,875 burglaries – FBI Index of Crime. In 2002 there were 247,730 rapes/sexual assaults – U.S Department of Justice. A sexual assault occurs every 2 minutes in the US. About 4 out of ten sexual assaults take place at the victim's own home – Rape, Abuse, & Incest National Network. Two of every three burglaries were residential in nature. 67% of all burglaries involved forcible entry – US Dept of Justice. Approximately 4000 people each year die from fire. It is unknown how many of those die from an inability to exit a basement but it is likely the

number is only a few hundred at most given the cause and location of most residential fires. These statistics indicate that a person stands a much greater chance of injury, death, or rape in their dwelling from an encounter with an intruder than from a fire. Basement windows, out of site from neighbors, police, and passersby, provide an ideal access for criminals. It is ironic that children who may be the target of the intruder often use basement bedrooms.

There is no evidence that homeowner groups or anyone else are contacting city managers or elected officials complaining that these windows are not being installed and that the result is costing them money.

If homebuyers felt having the windows was important they could specify them when the home was built. If there were a large public demand for the windows, the home building industry would include them in all homes.

Especially when someone buys their first home, a few thousand dollars can mean the difference between buying and renting. The total cost of installing the window, window well, and related costs can easily add \$2000 per window to the cost of the home.

The following text is related to this proposal and is included for information purposes only.

RB66-03/04

R310.1

Proposed Change as Submitted:

Proponent: Gerald R. Smith, C.B.O., representing Greater Birmingham Association of Home Builders, Alabama

Revise as follows:

R310.1 Emergency escape and rescue required.

~~Basements with habitable space and e~~Every sleeping room shall have at least one operable window or exterior door approved 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 shall 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) above the floor. 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 310.3. 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 window/door openings with a finished sill height below the adjacent ground elevation shall be provided with a window well or bulkhead in accordance with Sections R310.2 and R310.3~~

Reason: The present wording is long, confusing and hard to read. The changed wording is similar to that found in the Standard Building Code, CABO 1-2 Family Code & the Uniform Building Code the change hasn't changed the intent and makes it easier to interpret. The deleted portion on bulkheads is already in Section R310.3. Why repeat it?

Cost Impact: None

Committee Action: Approved as Modified

Modify proposal as follows:

R310.1 Emergency escape and rescue required. Every sleeping room shall have at least one operable window or exterior door approved emergency escape and rescue opening. Emergency escape and rescue openings shall have a sill height of not more than 44 inches (1118 mm) above the floor. Emergency escape and rescue window/door openings with a finished sill below the adjacent ground elevation shall be provided with a window well or bulkhead in accordance with Sections R310.2 and R310.3.

Committee Reason: Based on proponent's published reason. The modification was made to retain the word "opening".

Assembly Action: Disapproved

#### Individual Consideration Agenda

This item is on the agenda for individual consideration because an assembly action was successful and public comments were submitted.

##### Public Comment 1:

Thomas Anderson, State of MN, representing the Assoc. of MN Building Officials, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R310.1 Emergency escape and rescue required. Every sleeping room shall have at least one operable window or exterior door approved for emergency escape and rescue opening. Emergency escape and rescue openings shall have a sill height of not more than 44 inches (1118 mm) above the floor. Emergency escape and rescue window/door openings with a finished sill below the adjacent ground elevation shall be provided with a window well or bulkhead in accordance with Sections R310.2 and R310.3.

Commenter's Reason: The proposal as approved by the committee is grammatically incorrect. This proposal corrects the grammatical error.

##### Public Comment 2:

John LaTorra, City of Redwood City, CA, representing the Peninsula Chapter of ICC, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R310.1 Emergency escape and rescue required. Basements with habitable space and Every sleeping room shall have at least one operable window or exterior door approved emergency escape and rescue opening. Emergency escape and rescue openings shall have a sill height of not more than 44 inches (1118 mm) above the floor. Emergency escape and rescue window/door openings with a finished sill below the adjacent ground elevation shall be provided with a window well or bulkhead in accordance with Sections R310.2 and R310.3.

Commenter's Reason: The Committee approved as modified the original code proposal with the reason "Based on proponent's published reason. The modification was made to retain the word "opening". The proponent's published reason does not discuss deleting the requirement for an emergency escape and rescue opening in basements with habitable space. The published reason states that "the present wording is long, confusing and hard to read. The changed wording is similar to that found in the ... Uniform Building Code...the change hasn't changed the intent and makes it easier to interpret". The Committee approved code proposal definitely changes the intent of the code and is different than the Uniform Building Code. Based upon the proponent's published reason, we believe the emergency escape and rescue opening from basements with habitable space was inadvertently deleted. This proposed modification places the requirement back into the code. The ICC Tri-Chapters (Peninsula, East Bay, and Monterey Bay) just completed a detailed policy on basements. This policy confirmed the necessity for including an emergency escape and rescue opening in basements with habitable space. The proponent of RB67-03/04 included comments from an April 25, 2002 newspaper article illustrating the importance of an emergency escape and rescue opening in habitable basements. The IRC contains a definition of "habitable space" which we have found to be useful in applying the provision for an emergency escape and rescue opening in habitable basements.

##### Public Comment 3:

Sean W. Reid, City of Lenexa, KS, representing Metro Kansas City Chapter of ICC, requests Disapproval.

Commenter's Reason: Section 310.1 is concise, clear and simple to administer. It makes clear that basements, in finished or unfinished

condition, with or without sleeping rooms must have emergency escape and rescue openings. The language creates an unimpeachable set of dimensional standards and effectively ties the requirements of Section 310.3 to 310.1. In point of fact, the proposed changes create language inconsistent with the IBC and reduce basement egress standards in historically UBC jurisdictions. The proposed change ignores the fact that basements, finished or unfinished, are more frequently than not used as habitable space and as sleeping rooms. The current language provides the additional benefits of simplifying future enforcement of the escape and rescue opening standard while providing reduced cost to the homeowner at such time a sleeping room is created in the basement. It provides a ready source of natural light and ventilation for habitable space when the basement finish is done. Vincent Bush, in his landmark Handbook to the Uniform Building Code and the 2000 International Residential Code Commentary-Volume 1 both provide eloquent arguments, supported by historical reference, favoring the language as it stands in the code. Code officials, fire fighters and homeowners in jurisdictions where basements are the norm and typically finished at some point in the life of the home would, I suspect, stand united against the desire of the home building industry to avoid the expense of providing a simple emergency escape and rescue opening in every new home basement.

B67-03/04

R310.1

Proposed Change as Submitted:

Proponent: Tom Meyers, City and County of Broomfield, representing Colorado Chapter ICC

Revise as follows:

R310.1 Emergency escape and Rescue required.

Basements ~~with habitable space~~ and every sleeping room shall have at least one operable emergency and rescue opening. Such opening shall open directly into a public street, public alley, yard or court. ~~Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall 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) above the floor. 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 310.3. 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.

Exception: Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet.

Reason: The first portion of this proposals is intended to deal with areas of the country where basements are standard and more often than not, originally built with an unfinished basement and ultimately finished with sleeping rooms, and the modifications needed to provide this escape opening are extremely expensive. Any reasonable designer will consider the best possible floor plan for a future basement finish and provide this opening in the area intended to be converted to a sleeping room, thereby reducing cost up front and for future plans. An additional consideration is the obvious benefit for rescue by emergency personnel. The following was a news report by the Denver Rocky Mountain News as it relates to this very important safety feature. Thursday, April 25, 2002 Woman rescued from house fire. Reports of incendiary device investigated, but cause of blaze remains unknown.

By Bill Scanlon. Firefighters broke out a basement window to rescue a woman trapped in a house fire of unknown origin early Wednesday morning in northeast Denver. When the crews pulled up, "They had heavy fire and smoke coming out of every window in the upper floor." The woman...."it looks like it started in the kitchen then spread to the living room and to the basement." This woman would have surely perished had it not been for the window provided. Granted the size and location are not mentioned, but the fact that she had the ability to exit the structure when the interior stair had been destroyed is significant. This proposal is a minimum effort to provide the mandated life safety of the structures which we regulate.

The second portion of the proposal for additional language is extracted directly from Section 1025.1 of the IBC and is intended to clarify that access to this rescue opening is not to travel through intervening rooms or areas.

The deleted language is not needed. If a sleeping room is provided, by the charging language, an opening is required and other areas in a basement are covered by the light requirements found in Section R303. And, finally the proposed exception is intended to deal with areas of the country where some basements are only used for this purpose.

Cost Impact: None

Committee Action: Disapproved

Committee Reason: Action taken on RB66-03/04 is preferred.

Assembly Action: None

#### Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

#### Public Comment:

Sean W. Reid, City of Lenexa, KS, representing Metro

KS City Chapter of ICC, requests Approval as

Modified by this Public Comment.

Modify proposal as follows:

R310.1 Emergency escape and Rescue required. Basements and every sleeping room shall have at least one operable emergency and rescue opening. Such opening shall open directly into a public street, public alley, yard or court. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall 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) above the floor. 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 310.3. 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.

Exception: Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet.

Commenter's Reason: The proposed revision eliminates the need to make a subjective determination as to whether basements are habitable or not habitable at the time of construction by requiring an emergency escape and rescue opening in all basements. This revision acknowledges the likelihood, supported by historical fact, that basements are frequently used as habitable space or as sleeping rooms, while creating a reasonable exception for basement space, designed primarily for mechanical equipment, of a size with little

potential for use as a sleeping room or habitable space. By incorporating language regarding the opening terminus, the code assures the emergency escape and rescue opening will not be impeded by deck construction or un-escapable enclosures while maintaining well founded code principals of appropriate egress terminus. Retaining the latter struck language (see Proposed Modification) clarifies the intent of the code as to locations required to have emergency escape and rescue openings.

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB72-04/05

### R310.5

**Proponent:** Sheila Lee, City of Santa Clara, CA, representing East Bay, Peninsula, & Monterey Bay Chapters

**Revise as follows:**

**R310.5 (Supp) Emergency escape and rescue windows under decks and porches.** Emergency escape and rescue windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape and rescue window to be fully opened and provides a path not less than 6 feet 8 3/8 inches (2032mm) (914 mm) in height to a yard or court.

**Reason:** The Assembly approved this modification in the 2003-2004 code change cycle (proposed change RB79). However, the wording of this new section omits the words "and rescue" that are included in all the other parts of section R310. This omission contradicts the intent of section R310. It is unrealistic to expect firefighters or other personnel arriving at a rescue scene to know about such a window opening when it is not visible because it is below an overlying deck or porch floor that is only 36 inches above grade. The intended purpose of the openings specified in section R310 are for both emergency escape and rescue and this dual purpose should be maintained. If the path is at least 6'-8" high, it will be more visible to and useable by emergency personnel. This height is preferred because it is the minimum height for a doorway and the minimum ceiling height for a basement without habitable space.

Cost Impact:

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB73-04/05

### R311.4

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

### **R311.4 Doors.**

**R311.4.1 Exit door required.** ~~Not less than~~ At least one exit door conforming to this section shall be provided for each dwelling unit. The required exit door shall provide for direct access from the habitable portions of the dwelling to the exterior without requiring travel through a garage. ~~Access to habitable levels not having an exit in accordance with this section shall be by a ramp in accordance with Section R311.6 or a stairway in accordance with Section R311.5. Any basement or story not having an exit door meeting the requirements of this section shall be connected by stairs or ramps with a story having an exit door.~~

**R311.4.2 Door type and size.** The required exit door shall be a side-hinged door not less than 3 feet (914 mm) in width and 6 feet 8 inches (2032 mm) in height. ~~Other doors shall not be required to comply with these minimum dimensions may be of any size.~~

**R311.4.3 (Supp) Landings at exterior doors.** ~~There shall be a floor or landing on each side of each exterior door. The landing shall be permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent).~~

**Exception:** ~~Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door.~~

~~The floor or landing at the exit door required by Section R311.4.1 shall not be more than 1.5 inches (38 mm) lower than the top of the threshold. The floor or landing at exterior doors other than the exit door required by Section R311.4.1 shall not be required to comply with this requirement but shall have a rise no greater than that permitted in Section R311.5.3.~~

**Exception:** ~~The landing at an exterior doorway shall not be more than 7 3/4 inches (196 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door does not swing over the landing.~~

The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914mm) measured in the direction of travel.

The required exit door must have an interior landing not more than 1.5 inches (38 mm) lower than the top of the threshold. All other exterior doors may exceed this limitation.

The required exit door must have an exterior landing not more than 7 3/4 inches (196 mm) lower than the top of the threshold. The required exit door may swing over the exterior landing when the exterior landing is not more than 1.5 inches (38 mm) below the threshold.

Doors other than the required exit door must have an exterior landing when the door is served by a stairway having more than three risers. Landings may be no more than 7 3/4 inches (196 mm) lower than the top of the threshold.

Exterior storm or screen doors may swing over any exterior stairs or landings.

**Reason:** This is a revision of the entire section for simplicity and clarity and to place the rules in proper order

All charging language for the location and size of landings should lead the section on landings. Rules specific to interior landings, the landings at the required exit door, and doors other than the required exit door follow in order. It is difficult to track the provisions for screen and storm doors and this is specifically addressed.

Following is background information regarding the matter of stairs with two risers serving landings and the rationale.

5. Where a stairway, of two or fewer risers, is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door.

Proponent's Reason: The charging language required landings on both sides of all exterior doors. Prior to the change approved as RB260-99, landings were only required at the exit door. Thus the change greatly increased the landing requirements. However, the exception for sliding doors may be too liberal in that it could allow a stairway of 10 or 12 steps to approach a sliding door. The intent of the sliding door exception was to allow a step, or two, down to an exterior deck or patio. A similar problem exists between a house and a garage or carport. Since the garage or carport is often considered another occupancy, the door between them is considered an exterior door. One step is not going to be sufficient in these instances. Two steps, especially in the garage scenario is typical.

ITEM 1 (IRC)

Committee Action: Approval as Submitted

Committee Reason: Approved based on proponent's published reason.

Assembly Action: No Motion

The last line of the proponent's reason suggests that two steps are typical and provide the basis for the exception for a landing. However, two steps means three risers. But what went into the code was two risers. What we are proposing is that the original intent of the proponent be used in the code. Where this issue most frequently occurs is within garages and at exterior patio doors. In garages, there is limited space for landings. At exterior patio doors, conventional construction practices will rarely result in a stair with only two risers. The height from grade to the threshold requires three risers and two steps, just as the proponent stated. But the current rule would require that this stair with two steps and three risers be provided with a landing.

**Cost Impact:** None

## RB74-04/05

### R311.4.3

**Proponent:** Tom Rubottom, City of Lakewood, CO, representing Colorado Chapter of the ICC

#### Revise as follows:

**R311.4.3 (Supp) Landings at doors.** There shall be a floor or landing on each side of each exterior door. The landing at the exterior door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold. The landing shall be permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent).

#### Exceptions:

1. Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door: provided the door, other than an exterior storm or screen door does not swing over the stairway.

~~The floor or landing at the exit door required by Section R311.4.1 shall not be more than 1.5 inches (38 mm) lower than the top of the threshold. The floor or landing at exterior doors other than the exit door required by Section R311.4.1 shall not be required to comply with this requirement but shall have a rise no greater than that permitted in Section R311.5.3.~~

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

The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914mm) measured in the direction of travel.

**Reason:** The current language regarding exterior landings is confusing. As the code is currently written, it appears to have exceptions to exceptions. It also creates confusion as to what kind of landing must be provided at the required exit door vs. other exterior doors. Is the required exit door only permitted to have a landing 1.5 inches below the threshold? There has been a staff interpretation saying just that. We do not believe that this was the intent of the committee. This proposal attempts to clarify the intent of the original provision. The proposal would give the designer three options for a landing at exterior doors, which we believe was the original intent: a landing 1.5 inches below threshold; a landing not more than 7 3/4 inches below the threshold, and; a two riser stair with a landing.

**Cost Impact:** None

## RB75-04/05

### R311.5.3; IBC 1009.3 (IFC [B] 1009.3)

**Proponent:** Carolyn R. Williams, Richmond, VA, representing herself

**THIS PROPOSAL IS ON THE AGENDA OF THE IRC BUILDING/ENERGY AND IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IRC

#### Revise as follows:

##### R311.5.3 Stair treads and risers.

**R311.5.3.1 Riser height.** The maximum riser height shall be ~~7 3/4~~ 7 inches (~~196~~ 178 mm). (Remainder unchanged)

**R311.5.3.2 Tread depth.** The minimum tread depth shall be ~~11~~ inches (~~254~~ 279 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder treads shall have a minimum tread depth of ~~11~~ inches (~~254~~ 279 mm) measured as above at a point 12 inches (305) mm from the side where the treads are narrower. (Remainder unchanged)

**R311.5.3.3 Profile.** The radius of curvature at the leading edge of the tread shall be no greater than 9/16 inch (14.3 mm). ~~A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4 inch (32 mm) shall be provided on stairways with solid risers. If projecting nosings are provided, the~~ greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. (Remainder unchanged)

#### Exceptions:

1. ~~A nosing is not required where the tread depth is a minimum of 11 inches (279 mm).~~
2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less.

#### PART II – IBC

#### Revise as follows:

**1009.3 (Supp) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle measured to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

**Exceptions:**

- 1 through 3 (No change to current text)
4. In ~~occupancies in Group R-3, as applicable in Section 101.2~~ and occupancies in Group U, which are accessory to an occupancy in Group R-3, as applicable in Section 101.2, the maximum riser height shall be 7.75 inches (197 mm) and the minimum tread depth shall be 10 inches (254 mm), the minimum winder tread depth at the walk line shall be 10 inches (254 mm), and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279mm).
5. (No change to current text)

**(Reason for IBC)** This issue has been the subject of enormous research, study and debate for many years now. Throughout these debates, there has been virtually no disagreement that the requirements for the 7 inch maximum riser height and the 11 inch minimum tread depth required for all occupancies (*except one and two family residences*) is the uniformly acknowledged standard for providing a minimum level of stairway safety. To date, there is absolutely no justifiable substantiation for inflicting a double standard for residential stairs, precisely where stair use is considerably more prevalent, and where significantly more stair injuries occur.

**(Reason for IRC)** Purpose: To eliminate this unreasonable and technically unsubstantiated double standard for residential stairs; and to finally provide the same level of stair safety precisely where it's most indicated. Requiring the same standard for stairs in one and two-family dwellings will accomplish the added benefit of enabling society's growing number of aging and infirmed residents (all of us, eventually) to realize our virtually universal common desire to remain independent and in our own homes much longer (ideally throughout our/their lives) rather than be forced to move into other residential settings because of undue hardships encountered navigating unnecessarily steep and hazardous stairs.

The double standard for stair design has been primarily driven by massive political efforts, on local, state, nationwide, and even international arenas. This is most unfortunate, especially since the very existence of this lesser standard for residential stairs is based on technically unsubstantiated rationale. All entities involved in developing codes and standards such as these must recognize the primacy of their responsibilities to the public as a whole, not merely to those who represent powerful special interest groups. The time is overdue for voices on behalf of the public interest to be heard and respected.

My interests in actively pursuing this vital health and safety issue are many and varied; some of which are included in this code proposal submittal, including the following:

While employed with the Commonwealth of Virginia Department of Housing and Community Development, I previously served as a member of the BOCA Ad Hoc Stairway Safety Committee that developed a total of twenty-three (23) recommendations, the majority of which the BOCA National Building Code, then the CABO One and Two Family Dwelling Code, ultimately adopted. During the course of serving on the aforementioned ad hoc committee, I read every piece of literature, studied all available research data, listened carefully and thoughtfully to all the public testimony (pros and cons), deliberated, debated, engaged in some individual research of my own, and spent countless hours in conscientiously and diligently fulfilling my role as an impartial finder of facts, striving to fulfill the goals and objectives stated by the then current BOCA President, Gerard Garafalo when he decided to establish this special ad hoc committee. At the time he publicly announced the decision to formulate and appoint members to serve on this committee, a major part of his charge to us was for us to separate the prior years' political rhetoric, hyperbole, innuendo, and emotional aspects of this debate from the actual and factual basis for properly addressing these code issues, and (based on those resulting findings) develop relevant code change recommendations.

The more formally stated purpose for which this national ad hoc committee was appointed and convened was to:

1. Conduct a thorough study of the pertinent substantive technical code issues,
2. Read and consider volumes of relevant studies, copious written documentation/statistical data,
3. Receive public testimony during five separate public hearings conducted over several months, in different geographical locations, and
4. Develop well-informed code change recommendations based on the committee's overall findings.

The abovementioned BOCA Ad Hoc Committee recommendations (which subsequently resulted in the requirements for residential stairs currently specified in both the International Building Code and the International Residential Code) reflected a compromised set of code requirements for residential stair geometry (maximum 7¼ in. riser height, 10 in. minimum tread depth with 1 inch nosing; rather than the standard "maximum 7 inch riser height, minimum 11 inch tread depth stair geometry provisions required for stairs in every other occupancy classification).

Unfortunately, unified efforts of special interest groups to prevent the development of a single, minimum-standard set of stairway requirements (which is uniform for virtually every other stair except those for one and two-family residences in the United States for every other use group where the I-codes are enforced) as well as efforts to "roll-back" requirements on a state by state basis to prevent even the current requirements (maximum 7¼ in. riser height, 10 in. minimum tread depth with 1 inch nosing) from being adopted and enforced...have been significantly successful to-date. That constitutes a tragically sad commentary to the national code change process over the past several years resulting in an overwhelming detriment to the health, safety and welfare of so many people: nationally, even globally.

The greater majority of homeowners today are completely unaware of the supreme efforts and funds which have been expended for so many years to avoid being required to build stairs in residences to the same set of requirements for stairs in all other occupancies. It is only a matter of time until they become aware. Once informed; there will be a huge public outcry demanding that this inequity be properly addressed.

I will not be deterred. I will continue to speak in favor of providing a uniform set of building safety requirements for all occupants; and to speak in opposition to the powerfully dominant political stronghold initiated and fueled by members of various special interest groups' political action committees which have continued to keep the stair

safety of our nation's homes ill-served; without any technical merit to substantiate this failure to standardize.

**Cost Impact:** The code change will increase the cost of construction.

## PART I – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## PART II – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB76-04/05

### R311.5.3.1

**Proponent:** David W. Cooper, Code Representative, representing, Stairway Manufacturers Association, Westminster, MA

#### Revise as follows:

**R311.5.3.1 Riser height.** The maximum riser height shall be 7-3/4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm) and adjacent risers shall not vary by more than 1/8 inch (3mm).

**R311.5.3.2 Tread depth.** The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads, and at a right angle to the straight tread's leading edge. ,and at the intersection of risers and walk line of winders. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm) and adjacent treads shall not vary by more than 3/16 inches (4.8 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point 12 inches (305) mm from the side where the treads are narrower. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point. Within any flight of stairs, the greatest winder tread depth at the 12 inch (305 mm) walk line shall not exceed the smallest by more than 3/8 inch (9.5 mm)

**Reason:** The current 3/8 inch (9.5 mm) tolerance between adjacent treads and risers poses a tripping hazard. The 3/8 inch variation is acceptable between flights separated by a landing within a stairway or where a step installed level meets a floor or grade that is not. The variation between winder treads is not as critical due to the angle of placement of the foot on the winder.

The layout of winder treads is done by dividing an arc equally and if one measures square to the treads or tangent to the arc the resulting dimension is inaccurate.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB77-04/05

### R311.5.3.3 (New), R311.5.3.4 (New)

**Proponent:** David W. Cooper, Code Representative, Westminster, MA, representing, Stairway Manufacturers Association

#### Add new text as follows:

**R311.5.3.3 Tread riser ratio.** The sum of the height of two risers plus the depth of one tread measured at the walk line, 12 inches (305 mm) from the centerline of the handrail, shall be between 23-5/8 inches (600 mm) and 25-5/8 inches (651 mm).

**R311.5.3.4 Stair Pitch.** The pitch of stairs shall be between 20 degrees and 38 degrees. This angle shall be measured between a level horizontal and the line connecting the edge of the nosings at the walk line 12 inches (305 mm) from the centerline of the handrail.

**R311.5.3.35 Profile.** (No change to current text)

#### (Renumber subsequent sections)

**Reason:** The riser height and tread depth needs to be proportioned to the ergonomics of the average human stride about 28 to 30 inches. The length of this stride becomes shorter when walking up or down an incline. In order to make stairs comfortable the relationship between the tread depth and riser height must be considered as well as the pitch.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB78-04/05

### R311.5.6, R312.1

**Proponent:** David Bibber, representing ICC/IAFC Eastern Regional Code Action Committee

**Revise as follows:**

**R311.5.6 Handrails.** Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers or elevation change more than 18 inches.

**R312.1 (Supp) Guards required.** Porches, balconies, ramps or raised floor surfaces located more than ~~1830~~ inches (~~457 762~~ mm) above the floor or grade below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than ~~1830~~ inches (~~457 762~~ mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.

Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than ~~1830~~ inches (~~457 762~~ mm) above the floor or grade below.

**Reason:** Common sense would dictate that reducing the height from 30" to 18" will produce a much safer environment.

Injury and death rates:

More than two and a half million children ages 14 and under are treated annually at hospital emergency rooms for fall-related injuries.

In 1997, falls killed 112 children ages 14 and under.

More than half of fall-related injuries among children occur among ages 5 and under.

Statistics from the Center for Diseses Control Web Page:

**Falls and Hip Fractures Among Older Adults**

How serious is the problem?

More than one-third of adults ages 65 years and older fall each year (Hornbrook 1994; Hausdorff 2001).

Among older adults, falls are the leading cause of injury deaths (Murphy 2000) and the most common cause of nonfatal injuries and hospital admissions for trauma (Alexander 1992).

In 2001, more than 1.6 million seniors were treated in emergency departments for fall-related injuries and nearly 388,000 were hospitalized (CDC 2003).

What outcomes are linked to falls?

In 2001, more than 11,600 people ages 65 and older died from fall-related injuries (CDC 2003). More than 60% of people who die from falls are 75 and older (Murphy 2000).

Of those who fall, 20% to 30% suffer moderate to severe injuries such as hip fractures or head traumas that reduce mobility and independence, and increase the risk of premature death (Sterling 2001).

Among people ages 75 years and older, those who fall are four to five times more likely to be admitted to a long-term care facility for a year or longer (Donald 1999).

Falls are a leading cause of traumatic brain injuries (Jager 2000).

Among older adults, the majority of fractures are caused by falls (Bell 2000).

Approximately 3% to 5% of older adult falls cause fractures (Cooper 1992; Wilkins 1999). Based on the 2000 census, this translates to 360,000 to 480,000 fall-related fractures each year.

The most common fractures are of the vertebrae, hip, forearm, leg, ankle, pelvis, upper arm, and hand (Scott 1990).

**Cost Impact:** This code change will increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB79-04/05

### R311.6.1

**Proponent:** Roger Borgenicht, ASSIST, Inc., Salt Lake City, UT

**Delete and substitute as follows:**

**R311.6.1 Maximum slope.** ~~Ramps shall have a maximum slope of one unit vertical in eight units horizontal (12.5-percent slope).~~ Ramps used as a part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8.3-percent slope). The slope of other ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

**Reason:**

1. Purpose: The purpose of the proposed revision to the IRC 2003 (Section R311.6.1 Maximum Slope) is to require safe and usable access ramps when needed in one and two family dwellings. The revision would still allow utility ramps be built with a steeper grade.
2. Reasons: As people age they often desire to remain in their homes but as people live longer they often need safety or accessibility modifications to be able to stay in their homes or add access features to new homes they build or buy. Access ramps are the modification most often needed by persons who use wheelchairs. People using walkers or canes often cannot negotiate steps safely and request ramps as well, or better yet sloped pathways. The vast majority of persons using mobility aids can not use a ramp that is steeper than one unit vertical in 12 units horizontal (1:12). A ramp with a slope of 1:8 is not usable by people using a manual wheelchair (with the exception of wheelchair athletes) and is very unsafe for people using walkers or canes.  
The IRC 2003 does not make a distinction between ramps that are part of a means of egress and utility ramps. Consequently, when building officials and designers reference the IRC 2003 index and look up ramps they are advising designers, builders and homeowners that a 1:8 ramp slope is allowed even if the ramp is being used for wheelchair access into a home.  
The proposed revision substitutes the language from the IBC Section 1010.2 (Ramp Slope) into the IRC 2003 verbatim because it draws the distinction between ramps used as a part of a means of egress and other (utility) ramps.
3. Substantiation: All building code requirements and accessibility standards for ramps that are part of a means of egress or are part of an accessible route require that a ramp not be steeper than 1:12.

The only exception allowed by the IBC 2003 is for access to existing buildings or facilities where the rise is less than six inches. IBC 2003 Table 3409.7.5 allows a slope not steeper than 1:10 if the rise is up to six inches, or not steeper than 1:8 if the rise is less than three inches. Even in historic buildings a 1:8 slope is only allowed for a ramp run of 24 inches maximum (IBC 2003 3409.8.5 Ramps). All of the sources listed below in the bibliography state that a ramp should have a slope of 1:12 or gentler for minimum safety and usability for people using wheelchairs.

4. Bibliography

Borgenicht, Roger and Melissa Hoffmann. The ASSIST Guidebook to the Accessible Home: Practical Designs for Home Modifications and New Construction. ASSIST Inc. 2002

Davies, Thomas D, AIA and Kim A. Beasley, AIA. Accessible Home Design: Architectural Solutions for the Wheelchair User. Washington DC: Paralyzed Veterans of America. 1999

Harkness, Sarah P. and James N. Groom, Jr. Building without Barriers for the Disabled. Watson-Guptill Publications. 1976

National Council on Seniors' Housing. Designs for a Lifetime: The Expanding Appeal of Universal Design. National Association of Home Builders. 1999

Nickels, Karen. An Accessible Entrance: Ramps. Design Coalition. 1979

Schwab, Charles. Universal Designed "Smart" Homes For the 21st Century. Schwab. 2004

Sorenson, Robert James. Design for Accessibility. McGraw Hill Book Company. 1979

**Cost Impact:** The cost of a 1:12 sloped ramp will be more than a 1:8 sloped ramp but with designs that minimize the rise from finished grade to other levels

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB80-04/05

### R312.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R312.1 (Supp) Guards.** Porches, balconies, ramps or raised floor surfaces located more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.

Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

**Exception:** Porches, balconies or raised floor surfaces located 30 inches (762 mm) or less above the floor or grade below may have guards of any height or design.

**Reason:** This change is necessary to clarify that a non-required guard need not meet the height requirements for guards. Some building officials require that if a guard is provided, it must comply with height and opening requirements. While one could argue that when no rail is required that any design may be acceptable, one would need to also conclude that the application of gypsum wall board, which is not required, could be installed without meeting the fastener schedule.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB81-04/05

### R312.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R312.1 (Supp) Guards.** Porches, balconies, ramps or raised floor surfaces located more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.

Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

**Exception:** Guards shall not be required at window wells.

**Reason:** Some inspectors interpret the bottom of a window well to be "the floor or grade below" and require guardrails around them. This is clearly not intended and will further impede rescue or exiting from the well. The bottom of the window well does not meet the definition of "floor" or "grade". If one argued that the bottom of the well is a floor, could one also argue that a window seat is a floor, or how about the large plant shelves common in some new home designs? Would they need guards? If the bottom of the well were interpreted to meet the definition of "grade", it would significantly change application of many terms in the IRC such as "story above grade". This code change is necessary to improve uniformity.

Cost Impact: None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB82-04/05

### R312.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R312.1 (Supp) Guards.** Porches, balconies, ramps or raised floor surfaces located more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.

Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

**Exceptions:**

1. Skylights, roof windows, and vertical windows are not required to have guards.
2. Where fixed benches or seating areas are installed adjacent guards, guard height shall be measured from the floor.

**Reason:** If the provision is read literally, one could come to the conclusion that window openings would need to be protected to a height of 36 inches if the floor adjacent the window were more than 30 inches above the floor or grade outside the window. The windows listed come from the definition of fenestration. The second exception is intended to clarify that guard heights are determined from the floor height and not from an adjacent fixed bench or seating area. One example of such an installation are fixed benches that are constructed adjacent the guards of decks.

Cost Impact: None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB83 -04/05

### R313.1

IRC - RB70

**Proponent:** Lawrence Brown, CBO, National Association of Home Builders (NAHB), Washington, DC

**1. Add new text as follows:**

**R313.1 Smoke detection and notification.** All smoke alarms shall be listed in accordance with UL217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall be capable of providing the same level of smoke detection and alarm as required by this section for smoke alarms in the event the fire alarm panel is removed or the system is not connected to a central station.

**2. Revise as follows:**

**R313.21 Location Smoke alarms.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

~~All smoke alarms shall be listed and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.~~

**Reason:** This change recognizes the widely tested and accepted technology of household fire alarm systems. These systems have been recognized in NFPA 72 since 1993 as an alternative to the single or multiple station smoke alarm installation in one- & two-family dwellings. Both installations will provide the same performance in detecting smoke from a fire, and to announce the presence of the fire situation allowing occupants of the dwelling to vacate the structure.

ICC PUBLIC HEARING ::: February 2005

The sentence requiring the installation to comply with NFPA 72 is moved to the first sentence of this Section as it is a "general" requirement. The new second sentence is added to be specific in the intent that the fire alarm system smoke detection and alarm be provided as required for single or multiple station smoke alarms. The additional new sentence takes into consideration the concerns that the smoke detection and alarms will become useless or disabled when a tenant moves or does not continue central station service. It requires that the same level of protection is provided, whether or not the fire alarm system itself is present.

**Cost Impact:** None

**Analysis:** Portions of the text which is indicated as new is existing text that has been relocated from its current text location.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB84-04/05

### R313.1

**Proponent:** Lawrence Brown, CBO, National Association of Home Builders (NAHB), Washington, DC

**Revise as follows:**

**R313.1 (Supp) Smoke alarms.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. ~~The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.~~

All smoke alarms shall be listed and installed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

**Reason:** This text is proposed for deletion as the requirement to hear the alarm in the dwelling is already in NFPA 72, the standard in which the installation of the smoke alarm installation is required to comply states: "Fire-warning equipment for dwelling units shall provide a sound that is audible in all occupiable dwelling areas." Also, as currently written, this is a somewhat redundant requirement as alarms are now required within each bedroom. A person in a bedroom does not need to also hear the alarms located elsewhere in the dwelling over the alarm in that bedroom. It would appear, as shown in the matrix below, that when the provision mandating smoke detectors/alarms in every bedroom was established in the residential construction codes, the text for the audibility of the alarm was not changed to reflect this installation. The following matrix shows all of the smoke detector/alarm location, audibility and interconnection requirements from the 1983 CABO One- & Two-family Code through the 2004 Supplement to the 2003 International Residential Code (IRC). The matrix also reflects the related NFPA household fire warning equipment provisions that were established during each residential code cycle.

As for the history, the relevant NFPA standard when the first CABO code was developed was NFPA 74 (1980) - Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment. In 1993 the provisions of NFPA 74, along with many other NFPA standards on fire warning equipment, were incorporated into NFPA 72 – National Fire Alarm Code.

The requirement for interconnection of smoke detectors/alarms first appeared in NFPA 72 in the 1989 edition. The subsequent edition of the CABO Code (1992) then included a similar provision.

The requirement for mandatory smoke detectors in bedrooms first appeared in NFPA 72 in the 1993 edition. Though, this requirement was only applicable to new construction. The subsequent edition of the CABO Code (1995) included the same provision for bedrooms, but it did not exclude existing construction. It was not until the 1999 edition of NFPA 72 when the wording for the locations was revised to clearly list "all sleeping rooms" as mandatory (the words "in new construction" were removed), although sleeping rooms in existing construction were still an exception.

It was also in the 1999 edition of NFPA 72 where the text on audibility was changed to reflect the performance an alarm was suppose to achieve, that being: "Fire warning equipment for dwelling units shall provide a sound that is audible in all occupiable dwelling areas", not just the bedrooms.

It was in the 2000 IRC when NFPA 72 was shown as the referenced standard for the installation smoke alarms. It is evident from the matrix that, up to that time, the text of the smoke detector/alarm requirements in the one- & two-family codes merely reflected the text of the NFPA standards. As it is in the other I-Codes, where the referenced standard contains the necessary provisions, there is no need to repeat the text in the I-Code. Deleting the current, outdated text and relying on the text of the referenced standard for all installation requirements is an appropriate change.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB85-04/05

### R313.1

**Proponent:** Anthony C. Apfelbeck Okeechobee, FL, representing Florida Fire Marshals and Inspectors Association

**Revise as follows:**

**R313.1 (Supp) Smoke alarms.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.

**Exception:** Smoke alarms shall not be required in each sleeping room when the building is protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1 of the *International Fire Code*.

2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

All smoke alarms shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

**Reason:** The life safety value added by the presence of fire sprinkler protection in the sleeping room will more than compensate for the loss of detection in the room. Residential fire sprinklers have been designed and proven to protect individuals even when the fire in room of origin with the person. The cost savings for this change is intended to partially compensate for the trade-up of providing fire sprinkler protection.

Although smoke detectors clearly save hundreds if not thousands of lives each year, they are not the complete solution to fire deaths and injuries in one- and two-family dwelling units. A study published in the Journal of Fire Protection Engineering showed that only 72 to 76% of people wake up when an alarm (60 dBA received) is sounded. In addition, operational smoke detectors were present in only 36.9% of one- and two-family dwellings that had a home structure fire.

The relative risk for fire deaths in one- and two-family dwellings is greatest for those 5 years of age and under and the those 65 years of age and over. A person 5 and under is 1.96 times, 85 and over 4.56 times, 75-84 2.45 times, and 65-74 1.47 times more likely to die in a

home fire than the average person. Persons in these age groups are most likely to need assistance in exiting a home during a fire condition. Due to this lack of egress capability, the only effective method of protecting this group is with automatic fire sprinkler protection.

NFPA's statistics indicate the significant effect fire sprinklers have on their primary purpose in the home, life safety protection. Between 1994 and 1998, there were 9.5 fire deaths per 1,000 fires with no fire sprinkler system present in the home. When a fire sprinkler system is present in the home, this death rate drops to 2.2 per 1,000 fires. This is a 76.6% reduction in life loss when sprinklers are present. NFPA's fire data review has indicated that "When sprinklers are present, the chances of dying in a fire and the average property loss per fire are both cut by one-half to two-thirds, compared to fires where sprinklers are not present. What's more, this simple comparison understates the potential value of sprinklers because it lumps together all sprinklers, regardless of type, coverage, or operational status, and is limited to fires reported by fire departments. If unreported fires could be included and if complete, well maintained, and properly installed and designed system could be isolated, sprinkler effectiveness would be seen as even more impressive."

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## **RB86-04/05**

### **R313.1 (New)**

**Proponent:** Michael E. Dell'Orfano, Thornton Fire Department, representing Marshal's Association of Colorado, Thornton, CO

**Add new text as follows:**

#### **SECTION R313** **FIRE PROTECTION SYSTEMS**

**R313.1 Automatic fire sprinkler systems.** An automatic fire sprinkler system installed in accordance with NFPA 13D shall be provided throughout all new one- and two-family dwellings.

**(Renumber subsequent sections)**

**Reason:** The purpose of this code change is to improve the protection of lives and property in one- and two-family dwellings. Over the past several years, close to 60% of all structure fires have occurred in one- and two-family dwellings and have accounted for the vast majority of civilian deaths, civilian injuries, and property damage (see table below). And because of the large occurrence of one- and two-family dwelling fires, they have also accounted for the majority of firefighter injuries and deaths. From the period 1994-1998, 71% of firefighter fireground injuries occurred at residential occupancy fires (all types included). From the period 1994-2003, 117 firefighter fatalities occurred at one- and two-family dwelling fires, representing 42% of all fireground deaths at structure fires.

These familiar residential fire statistics have helped the United States to continue to have one of the worst fire histories of the industrialized world. For years, so many reports and studies from the

National Fire Protection Association, United States Fire Administration, Home Fire Sprinkler Coalition, and many others have found that fire sprinklers protecting a home can be one of the most effective ways to help address the residential fire problem. Progressive cities and fire departments have mandated sprinklers in homes and found remarkable results, showing significantly less deaths, injuries, fire damage, water damage, and installation costs. These positive results can be found in the extensive analysis completed in Scottsdale, Arizona. But the Scottsdale study was completed almost a decade ago and still only about 2% of homes are protected by sprinklers and still our nation resists this life-saving technology. The time has come, and is long overdue, to accept the challenge of this code change proposal and declare that it is no longer acceptable to make the home one of the more dangerous places to be.

**Cost Impact:** This code change will increase the cost of construction

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB87-04/05

### R313.1.1

**Proponent:** W. Roy Scott, RA, New York State Department of State Division of Code Enforcement, Albany, NY

**Revise as follows:**

**R313.1.1 Alterations, repairs and additions.** When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are ~~added~~ or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hard wired.

**Exceptions:**

1. (No change to current text)
2. ~~Repairs to~~ Work involving only the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.

**Reason:** The commentary explains that work done to the exterior only, not requiring that access be provided to the interior of the dwelling, is exempt from the smoke alarm retrofit requirements. It uses examples of roofing and siding replacement or repair and some window replacement systems. Since deck construction would not require access to the interior of the dwelling, as well, it should also be specifically exempted in the code text. Additionally, since many attics, basements and crawl spaces in existing dwellings do expose the structure and provide access to floors and ceilings, even a simple window or door replacement project in such a dwelling would require full hard-wired smoke alarm installation. We all support the installation of smoke alarms in existing dwelling units but clarifying the language by

including specific exemptions will help create uniform enforcement.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB88-04/05

### R313.1.1, R313.2

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R313.1.1 Alterations, repairs and additions.** When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be ~~interconnected and~~ hard wired.

**Exceptions:**

1. Smoke alarms in existing areas shall not be required to be ~~interconnected and~~ hard wired ~~where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes~~ unless the alterations or repairs result in exposing the existing interior wall or ceiling framing.
2. Repairs to the exterior surfaces of dwellings are exempt from the requirements of this section.

**R313.2 Power source.** In new construction, the required smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs or additions regulated by Section R313.1.1.

**Reason:** This proposal was heard by this committee in Nashville and was approved by a 7-1 vote. A challenge was successful in Overland Park but it is our feeling that the membership did not fully understand the ramifications that occur if this change is not approved. Interconnection of detectors, while feasible in new construction, can be extremely expensive and difficult in existing construction.

Interconnection of detectors was not required in previous model codes. Homeowners who do their own work find compliance with this section extremely difficult and will almost certainly need to hire an electrician to install the alarms, which will significantly increase the cost with no appreciable increase in safety. Since the IRC permits battery-powered detectors that are not interconnected, it has already established them as a minimum standard. There also seems to be a conflict between R313.1.1 and the last sentence of the last section, which is corrected by this proposal. R313.2 clearly seems to allow battery-powered alarms in buildings undergoing alterations, repairs or additions. But R313.1 seems to require hard-wired and interconnected alarms. Also, as written and if exception 1 were applied, a permit to install a water heater would trigger the need to install interconnected and hardwired alarms. There are no exceptions in the permitting section or this section to exclude the requirement for smoke detectors for alterations, repairs, or additions to plumbing or mechanical systems. This significantly increases the cost of minor repairs. Previous model codes permitted battery alarms in existing areas. It is possible under the current rules that an inspector could be faced with ordering the installation of hardwired detectors to be installed in existing areas of a dwelling just after his local fire department completed installation of battery alarms that many departments do as a public relations gesture. Most importantly, our goal should be to get the alarms in as many homes as possible and not get caught up in the hardwired versus battery alarms controversy. If we run the cost up to high, we run the risk of homeowners not obtaining permits and then we may get no alarms at all.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB89-04/05

### R313.1.1, R313.2

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R313.1.1 Alterations, repairs and additions.** When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hard wired.

**Exceptions:**

4. Smoke alarms in existing areas shall not be required to be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.
2. ~~Repairs to the exterior surfaces of dwellings are exempt from the requirements of this section.~~

**R313.2 Power source.** ~~In new construction, the required~~ Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. ~~Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs or additions regulated by Section R313.1.1.~~

**Reason:** Battery powered alarms are not safe. Dead batteries are not replaced rendering the alarm useless. Building occupants need the additional protection hardwired alarms provide. Surface mounted wiring can be used.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB90-04/05

### R313.1.1

**Proponent:** Dave Cantrell, Seattle/King County Public Health, Seattle, WA

**Revise as follows:**

**R313.1.1 Alterations, repairs and additions.** When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hard wired.

**Exceptions:**

1. and 2. (No change to current text)
3. Alterations of systems or equipment not subject to the provisions of Part III or Part IV of this code are exempt from the requirements of this section.

**Reason:** The current text would indicate that something as common as changing out electric appliances for gas-fired appliances would invoke the smoke alarm provisions. This would not only impose a significant impact on the cost of such installations, but would likely result in many such installations being installed without the permit and inspection process in an effort to avoid the high cost.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## **RB91-04/05**

### **R314 (New)**

**Proponent:** Jesse J. Beitel, Hughes Associates, Inc., Baltimore, MD, representing Alliance for the Polyurethane Industry, Extruded Polystyrene Foam Association, Polyisocyanurate Insulation Manufacturers Association and Spray Polyurethane Foam Association

**Delete existing text and substitute as follows:**

#### **SECTION R314** **FOAM PLASTIC**

**R314.1 General.** The provisions of this section shall govern the materials, design, application, construction and installation of foam plastic materials.

**R314.1.1 Definition. Foam Plastic Insulation.** A plastic that is intentionally expanded by the use of a foaming agent to produce a reduced-density plastic containing voids consisting of open or closed cells distributed throughout the plastic for thermal insulating or acoustic purposes and that has a density less than 20 pounds per cubic foot (320 kg/m<sup>3</sup>) unless it is used as interior trim.

**R314.1.2 Definition. Foam Plastic Interior Trim.** Exposed foam plastic used as picture molds, chair rails, crown moldings, baseboards, handrails, ceiling beams, door trim and window trim and similar decorative or protective materials used in fixed applications.

**R314.1.3 Definition. Siding Backer Board.** Foam plastic used in siding applications where the foam plastic is a component of the siding.

**R314.2 Labeling and identification.** Packages and containers of foam plastic insulation and foam plastic insulation components delivered to the job site shall bear the label of an approved agency showing the manufacturer's name, the product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

**R314.3 Surface burning characteristics.** Unless otherwise allowed in Section R314.5 or Section R314.6, all foam plastic or foam plastic cores in manufactured assemblies used in building construction shall have a flame-spread index of not more than 75 and shall have a smoke-developed index of not more than 450 when tested in the maximum thickness intended for use in accordance with ASTM E 84. Loose-fill type foam plastic insulation shall be tested as board stock for the flame spread index and smoke-developed index.

**Exception:** Foam plastic insulation greater than 4 inches in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches, provided the end use is approved in accordance with Section R314.6 using the thickness and density intended for use.

**R314.4 Thermal barrier.** Unless otherwise allowed in Section R314.5 or Section R314.6, foam plastic shall be separated from the interior of a building by an approved thermal barrier of minimum 0.5 inch (12.7 mm) gypsum wallboard or an approved finish material equivalent to a thermal barrier material that will limit the average temperature rise of the unexposed surface to no more than 250°F (139°C) after 15 minutes of fire exposure complying with the ASTM E 119 standard time temperature curve. The thermal barrier shall be installed in such a manner that it will remain in place for 15 minutes based on NFPA 286 with the acceptance criteria of Section R315.4, FM 4880, UL 1040, or UL 1715.

**R314.5 Specific requirements.** The following requirements shall apply to these uses of foam plastic unless specifically approved in accordance with Section R314.6 or by other sections of the code.

**R314.5.1 Masonry or concrete construction.** The thermal barrier specified in Section R314.4 is not required in a masonry or concrete wall, floor or roof when the foam plastic insulation is separated from the interior of the building by a minimum 1-inch (25.4 mm) thickness of masonry or concrete.

**R314.5.2 Roofing.** The thermal barrier specified in Section R314.4 is not required when the foam plastic in a roof assembly or under a roof covering is installed in accordance with the code and the manufacturer's installation instructions and is separated from the interior of the building by tongue and groove wood planks or wood structural panel sheathing in accordance with Section R803, not less than 15/32 inch (11.9 mm) in thickness bonded with exterior glue and identified as Exposure 1, with edge supported by blocking or tongue-and-groove joints or an equivalent

material. The smoke developed index for roof applications shall not be limited.

**R314.5.3 Attics.** The thermal barrier specified in Section 314.4 is not required where attic access is required by Section R807.1 and where entry is made only for service of utilities and when the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:

1.5-inch-thick (38 mm) mineral fiber insulation,  
0.25-inch-thick (6.4 mm) wood structural panels,  
0.375-inch (9.5 mm) particleboard,  
0.25-inch (6.4 mm) hardboard,  
0.375-inch (9.5 mm) gypsum board, or  
Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.406 mm).

The above ignition barrier is not required where the foam plastic insulation has been tested in accordance with Section R314.6.

**R314.5.4 Crawl spaces.** The thermal barrier specified in Section 314.4 is not required where crawlspace access is required by Section R408.3 and where entry is made only for service of utilities and the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:

1.5-inch-thick (38 mm) mineral fiber insulation,  
0.25-inch-thick (6.4 mm) wood structural panels,  
0.375-inch (9.5 mm) particleboard,  
0.25-inch (6.4 mm) hardboard,  
0.375-inch (9.5 mm) gypsum board,  
Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.406 mm).

The above ignition barrier is not required where the foam plastic insulation has been tested in accordance with Section R314.6.

**R314.5.5 Foam-filled exterior doors.** Foam-filled exterior doors are exempt from the requirements of Sections R314.3 and R314.4.

**R314.5.6 Foam-filled garage doors.** Foam-filled garage doors in attached or detached garages are exempt from the requirements of Sections R314.3 and R314.4.

**R314.5.7 Siding backer board.** The thermal barrier specified in Section 314.4 is not required where siding backer board foam plastic insulation has a maximum thickness of 0.5 inch (12.7 mm) and a potential heat of not more than 2000 BTU per square foot (22 720 kJ/m<sup>2</sup>) when

tested in accordance with NFPA 259 provided that:

1. The foam plastic insulation is separated from the interior of the building by not less than 2 inches (51 mm) of mineral fiber insulation or
2. The foam plastic insulation is installed over existing exterior wall finish in conjunction with re-siding or
3. The foam plastic insulation has been tested in accordance with Section R314.6.

**R314.5.8 Re-siding.** The thermal barrier specified in Section 314.4 is not required where the foam plastic insulation is installed over existing exterior wall finish in conjunction with re-siding provided the foam plastic has a maximum thickness of 0.5 inch (12.7 mm) and a potential heat of not more than 2000 BTU per square foot (22 720 kJ/m<sup>2</sup>) when tested in accordance with NFPA 259.

**R314.5.9 Interior trim.** The thermal barrier specified in Section 314.4 is not required for exposed foam plastic interior trim, provided all of the following are met:

1. The minimum density is 20 pounds per cubic foot (320 kg/m<sup>3</sup>).
2. The maximum thickness of the trim is 0.5 inch (12.7 mm) and the maximum width is 4 inches (102 mm).
3. The trim constitutes no more than 10 percent of the area of any wall or ceiling.
4. The flame-spread index does not exceed 75 when tested per ASTM E 84. The smoke-developed index is not limited.

**R314.5.10 Interior finish.** Foam plastics shall be permitted as interior finish where approved in accordance with R314.6. Foam plastics that are used as interior finish shall also meet the flame spread and smoke developed requirements of Section R315.

**R314.5.11 Sill plates and headers.** Foam plastic shall be permitted to be spray applied to a sill plate and header without the thermal barrier specified in Section R314.4 subject to all of the following:

1. The maximum thickness of the foam plastic shall be 3 1/4 inches (82.6 mm).
2. The density of the foam plastic shall be in the range of 1.5 to 2.0 pcf (24 to 32 kg/m<sup>3</sup>).
3. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke developed index of 450 or less when tested in accordance with ASTM E84.

**R314.5.12 Sheathing.** Foam plastic insulation used as sheathing shall comply with Section R314.3 and Section

R314.4. Where the foam plastic sheathing is exposed to the attic space at a gable or kneewall, the provisions of Section 314.5.3 shall apply.

**R314.6 Specific approval.** Foam plastic not meeting the requirements of Sections R314.3 through R314.5 shall be specifically approved on the basis of one of the following approved tests: NFPA 286 with the acceptance criteria of Section R315.4, FM4880, UL 1040, or UL 1715, or fire tests related to actual end-use configurations. The specific approval shall be based on the actual end use configuration and shall be performed on the finished foam plastic assembly in the maximum thickness intended for use. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

**R314.7 Termite damage.** The use of foam plastics in areas of "very heavy" termite infestation probability shall be in accordance with Section R320.4.

**Reason:** This proposal is a rewrite of Section R314, Foam Plastic. This rewrite is supported by the plastics industry and the following organizations have participated in this effort:

Alliance for the Polyurethanes Industry (API)  
Extruded Polystyrene Foam Association (XPSA)  
Polyisocyanurate Insulation Manufacturers Association (PIMA)  
Spray Polyurethane Foam Association (SPFA)

The primary intent of the rewrite is to remove vague and permissive language currently in the IRC and thus clarifying the requirements for foam plastics in structures covered by the scope of the IRC. As such, the existing IRC requirements have basically been maintained and in some cases, strengthened. There is also inclusion of IBC requirements as appropriate for residential construction. The basic Section format has been retained with editorial changes so as to make the text more user friendly and provide a better definition of Code requirements based on specific applications.

The following is a brief review of the rewrite:

#### Definitions

IBC Definitions for Foam Plastic Insulation and Foam Plastic Interior Trim have been added.

A new definition for Siding Backer Board had been added based on industry definition and use of the term.

#### Labeling Requirements

Addition of IBC Labeling requirements

#### Surface Burning Characteristics

Addition of IBC testing requirements for loose fill insulation and addition of an exception regarding the testing of foam plastic insulation that exceeds 4 inches in thickness.

#### Thermal Barrier

Replacement of the prescriptive mechanical attachment of gypsum board with IBC language allowing several equivalent performance tests.

#### Masonry or Concrete Construction

No change to technical requirements

#### Roofing

No change to technical requirements

#### Attics and Crawl Spaces

This section has been split into two separate sections for clarity. Editorial changes also clarify the thermal barrier requirements and the use of an ignition barrier.

#### Foam Filled Doors

This section has been split into two separate sections: one for foam filled exterior doors and another for foam filled garage doors. The technical requirements are not changed.

#### Siding Backer Board

This section has been clarified that it applies to siding backer board defined as foam plastic that is a component of the siding, whether in new construction or re-siding. . Technical requirements have not been changed. The use of ½ in. gypsum wallboard to separate the siding backer board from the interior of the building is still allowed since this material is prescriptively designated as a thermal barrier. The rewrite of this section addresses exceptions to the thermal barrier requirement.

#### Re-siding

This application had been included in the siding backer board section and is now a separate section that addresses the use of foam plastic insulation, typically boards or fan-fold, that are used in re-siding applications. Technical requirements are unchanged. The use of ½ in. gypsum wallboard to separate the foam insulation from the interior of the building is still allowed since this material is prescriptively designated as a thermal barrier. The rewrite of this section addresses exceptions to the thermal barrier requirement.

#### Interior trim

This application was relocated to this Section and is defined in a manner similar to that in IBC Section 802.1. Technical requirements are unchanged.

#### Interior finish

This application was relocated and technical requirements are clarified with a reference to Section R315 flame spread and smoke developed requirements.

#### Sill plates and headers

No change.

#### Sheathing

This new section addresses the extensive use of foam plastic insulation as sheathing and provides requirements (flame spread index, smoke developed index and thermal barrier) for this application. A clarification is provided such that foam plastic insulation sheathing exposed to the attic space is subject to the requirements for foam plastic in attics.

#### Specific Approval

The major change here is the removal of ASTM E84 as a "Specific Approval" test. This section is intended to allow testing of foam plastic insulation in intermediate and full-scale tests reflecting actual end use configurations which would preclude the use of ASTM E84, commonly viewed as a small scale test. Additional language strengthening this section includes requirements that the tested assembly include "seams, joints, and other typical details used in the installation of the assembly".

Termite damage  
This section is unchanged.

**Analysis:** The definition of foam plastic insulation in Section R314.1.1 should be relocated into Chapter Two with the other definitions.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB92-04/05

### R314.1.1 (New)

**Proponent:** Joseph E. Lyman, Insulating Concrete Form Association

**Add new text as follows:**

**R314.1.1 Labeling and identification.** Packages and containers of foam plastic insulation components delivered to the job site shall bear the label of an approved agency showing the manufacturer's name, the product listing, product identification and information sufficient to determine the end use will comply with the code requirements.

**(Renumber subsequent sections)**

**Reason:** Section 2603 of the *International Building Code* contains the requirements for the use of foam plastic insulation material in buildings. The provisions in Section 2603.2 specifically require labeling and identification of foam plastic insulation and foam plastic components that are delivered to the job site. This proposal places these same requirements into the *International Residential Code* for consistency.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB93-04/05

### R314.1(New), R309.1, R309.1.1, R309.2, R310.1, R313.1

**Proponent:** Reed Jarvis, Chair, South/eastern/Southwestern Code Action Committee

**1. Add new text as follows:**

#### **SECTION R314**

#### **FIRE PROTECTION SYSTEMS**

**R314.1 Automatic sprinklers.** An approved automatic sprinkler system shall be installed in new buildings and structures in accordance with 903.3.1 of the *International Fire Code*.

**(Renumber subsequent sections)**

**2. Revise as follows:**

**R309.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35 mm) thick, or 20-minute fire-rated doors.

**Exception:** Buildings and garages which are both protected by an approved automatic fire sprinkler system installed in accordance with 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *International Fire Code*.

**R309.1.1 Duct penetration.** Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material and shall have no openings into the garage.

**Exception:** Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage may be constructed of any approved material in buildings and garages, which are both protected by an approved automatic fire sprinkler system installed in accordance with 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *International Fire Code*.

**R309.2 (Supp) Separation required.** The garage shall be separated from the residence and its attic area by not less than 1/2-inch (12.7 mm) gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8-inch (15.9 mm) Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent. Garages located less than 3 feet (914 mm) from a dwelling unit on the same lot shall be protected with not less than 1/2-inch (12.7 mm) gypsum board applied to the interior side of exterior walls that are within this area. Openings in these walls shall be regulated by Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

**Exception:** Buildings and garages which are both protected by an approved automatic fire sprinkler

system installed in accordance with 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *International Fire Code*.

### **R310.1 (Supp) Emergency escape and rescue required.**

Basements and every sleeping room shall have at least one operable emergency and rescue opening. Such opening shall open directly into a public street, public alley, yard or court. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall 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) above the floor. 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.

#### **Exceptions:**

1. Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m<sup>2</sup>).
2. Emergency escape and rescue openings shall not be required in each sleeping room when the building is protected by an approved automatic fire sprinkler system installed in accordance with 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *International Fire Code*.

**R313.1 (Supp) Smoke alarms.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.

**Exception:** Smoke alarms shall not be required in each sleeping room when the building is protected by an approved automatic fire sprinkler system installed in accordance with 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *International Fire Code*.

2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each ~~additional~~ story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower

level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

All smoke alarms shall be listed and installed in accordance with UL 217 and in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

**Reason:** The intent of this proposal is to provide a cost effective method to assist in offsetting the costs of residential fire sprinkler system installation in the one- and two-family dwelling environment. The "trade-up options are detailed in items 1, 2 and 3. The justification for residential sprinklers in the one- and two-family dwelling environment is detailed in items 4-17.

1. The changes to R309.1 and 309.2 recognize the significant added protection of providing fire sprinkler protection in the one- and two-family dwelling environment by eliminating the fire separation requirements between the garage and the house when the building and garage is protected by a fire sprinkler system. The information in items 4-17 below clearly indicate that value added by the presence of the fire sprinkler protection would clearly compensate for the loss of fire separation. The cost savings for this change is intended to partially compensate for the trade-up of providing fire sprinkler protection. NFPA 13D has recently been revised to address the option for this added protection within the garage.
2. The changes to R310.1 recognize the significant added protection of providing fire sprinkler protection in a one- and two-family dwelling environment. With the presence of an automatic fire sprinkler system, the emergency escape and rescue opening is no longer necessary as the fire is controlled or extinguished. The occupants can then egress the structure via a traditional path. The 76.6% reduction in life loss is achieved with the presence of fire sprinklers no longer necessitates the emergency escape and rescue opening requirement. This "trade-up" is already recognized in the IBC section 1025.1 for buildings that are fire sprinklered in accordance with 903.3.1.1 or 903.3.1.2. The cost savings for this change is intended to partially compensate for the trade-up of providing fire sprinkler protection.
3. The changes to R313.1 recognize the significant added protection of providing fire sprinkler protection in a one- and two-family dwelling environment. The life safety value added by the presence of fire sprinkler protection in the sleeping room will more than compensate for the loss of detection in the room. Residential fire sprinklers have been designed and proven to protect individuals even when the fire in room of origin with the person. The cost savings for this change is intended to partially compensate for the trade-up of providing fire sprinkler protection.
4. The purpose in R101.3 states that "The purpose of this code is to provide minimum requirements to safeguard the public safety, health and general welfare, through affordability, structural strength, means of egress facilities, stability,

sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment.” This objective is not met for the one and two-family dwelling with the current code requirements in the IRC. Based on NFPA fire death data, only 15.5% of the fire deaths in the one- two-family dwelling environment are actually intimate with ignition. With 84.5% of one- two-family dwelling fire deaths occurring when then occupant was not intimate with the ignition, the “Purpose” in R101.3 is clearly not being achieved.

5. The recent innovation of multi-purpose piping systems, as provided for in NFPA 13D 2002 Edition Section 6.3, permits a single contractor the ability to install both the plumbing and fire protection system. The utilization of this approach removes the need for a builder to coordinate with additional contractor regarding the fire protection system installation.
6. The life safety hazards in the one-two family occupancy are clear: Between the years of 1994 and 1998 there was an average of 310,200 reported home structure fires resulting in 2,876 civilian deaths, 12,244 civilian injuries and \$3.5 billion dollars in direct property damage per year. These losses and deaths far exceed any of the other occupancy types. 68% of total fire deaths occurred in the one- and two-family dwelling environment. The next highest fire death categories are 13% for apartments and 12% for highway vehicles and 4% for non-residential structures. The next highest dollar loss category is \$653.6 million dollars for manufacturing which is only 18.6% of the loss for one- and two-family dwellings.
7. The ICC documents provide much more onerous code requirements for occupancy types other than the one- and two-family dwelling. These other occupancy types have significantly less fire death and loss history, yet they are provided with greater protection. Based on the current code requirements, the protection levels in the IRC do not match the lifesafety hazards in the one- two-family dwelling environment.
8. The Scottsdale Report has shown the potential infrastructure savings that can be achieved by residential sprinkler protection. From January 1, 1985 through January 1, 1996, the estimated sprinkler flow per residential incident was 209 gallons. For the same period, the estimated suppression flow per residential incident was 3,290 gallons. For small to intermediate size water distribution systems, the infrastructure savings can be substantial.
9. In the year 2001, 55% of all fireground Firefighter deaths occurred in dwellings and apartments.
10. According to NFPA, between 1998 and 2002 there was 1 firefighter death in a building with a complete operational fire sprinkler system. This is contrasted with 129 deaths in 103 structures that were either not protected by a fire sprinkler system or where the presence of sprinkler protection was not reported. The benefits of an automatic sprinkler system on the safety conditions for firefighters is obvious.
11. Although residential sprinklers are primarily focused on the protecting live safety, the “Scottsdale Report” has shown one community’s experience with fire sprinklers for property protection. This report states that the average loss per non-sprinklered property was \$17,067. The loss per sprinklered property was \$1,945. This is a property loss savings of 89% over the unsprinklered property. NFPA’s statistics also support a substantial savings. The average fire loss in non-sprinklered home structure fires between 1994 and 1998 was \$10,877. Sprinklered homes had an average loss of \$5,383 per fire incident. The loss reduction was 50.5% with sprinklers present.
12. NFPA’s statistics indicate the significant effect fire sprinklers have on their primary purpose in the home, life safety protection. Between 1994 and 1998, there were 9.5 fire deaths per 1,000 fires with no fire sprinkler system present in the home. When a fire sprinkler system is present in the home, this death rate drops to 2.2 per 1,000 fires. This is a 76.6% reduction in life loss when sprinklers are present. NFPA’s fire data review has indicated that “When sprinklers are present, the chances of dying in a fire and the average property loss per fire are both cut by one-half to two-thirds, compared to fires where sprinklers are not present. What’s more, this simple comparison understates the potential value of sprinklers because it lumps together all sprinklers, regardless of type, coverage, or operational status, and is limited to fires reported by fire departments. If unreported fires could be included and if complete, well maintained, and properly installed and designed system could be isolated, sprinkler effectiveness would be seen as even more impressive.”
13. The relative risk for fire deaths in one- and two-family dwellings is greatest for those 5 years of age and under and the those 65 years of age and over. A person 5 and under is 1.96 times, 85 and over 4.56 times, 75-84 2.45 times, and 65-74 1.47 times more likely to die in a home fire than the average person. Persons in these age groups are most likely to need assistance in exiting a home during a fire condition. Due to this lack of egress capability, the only effective method of protecting this group is with automatic fire sprinkler protection.
14. Frequently, an argument against fire sprinklers in single-family dwellings is that fires in these occupancies mostly occur in older homes. This is myth. NFPA’s report titled “U.S. Fire Death Patters by State” indicates that “Defined by the percentage of housing units built before 1940, age of housing (shown in Table 6) also is a very poor predictor of fire death rates. The study by Schaeenman et al., footnoted on the previous page, indicated that age of housing is not a strong primary predictor of high fire incident rates.” (emphasis added)
15. Although smoke detectors clearly save hundreds if not thousands of lives each year, they are not the complete solution to fire deaths and injuries in one- and two-family dwelling units. A study published in the Journal of Fire Protection Engineering showed that only 72 to 76% of people wake up when an alarm (60 dBA received) is sounded. In addition, operational smoke detectors were present in only 36.9% of one- and two-family dwellings that had a home structure fire.
16. Cost and affordable housing has long been a factor raised in opposition to automatic fire sprinklers in the one- and two-family dwelling environment. The experience in Scottsdale Arizona has shown that this concern is no longer valid. The cost of residential sprinklers has been reduced dramatically where widespread application has occurred. The “Scottsdale Report” indicates that average cost has been reduced from \$1.14 per square foot to \$0.59 per square foot.
17. The “America Burning: Recommissioned” report states in Finding #2 – “The Application and Use of Sprinkler Technology- The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers. If the focus is limited to prevention and reduction of the loss of life, smoke alarms are also extremely effective. However, the use of sprinklers and smoke detectors has not been sufficiently comprehensive.” The report further states, “The need for emphasis on residential construction is born out by statistics. For the most recently compiled year, 1997, there were 552,000 structure fires in the

United States. Almost three-quarters of structure fires occurred in residential properties including homes, hotels, motels, rooming houses and dormitories. Fifty-five percent (55%) or 302,500 were in one- and two-family homes and seventeen percent (17%) or 93,000 occurred in apartments. The largest number of civilian deaths occurred in residential buildings. Eighty-three percent (83%) of the 4035 total civilian deaths occurred in home structure fires - with sixty-seven percent (67%) or 2700 in one-and two-family homes."

**Cost Impact::** This code change will increase the cost of construction.

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB94-04/05

### R314.2.7

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R314.2.7 Sill plates and headers.** Foam plastic shall be permitted to be spray applied to a sill plate and header without thermal barrier subject to all of the following:

1. The maximum thickness of the foam plastic shall be 31/4 inches (82.6 mm).
2. ~~The density of the foam plastic shall be in the range of 1.5 to 2.0 pcf (24 to 32 kg/m<sup>3</sup>).~~
3. 2. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke developed index of 450 or less when tested in accordance with ASTM E84.

**Reason:** There is no reason to limit the density. This can result in only certain products being used. If the flame spread and smoke developed index is appropriate, the installation will be safe. It could be argued that the existing rule is proprietary.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB95-04/05

### R314.2.8 (New)

**Proponent:** Allen O. Zepper, Allen O. Zepper LLC, White Bear Lake, MN, representing, Superior Walls of America

**Add new text as follows:**

**R314.2.8 Precast concrete foundations.** Foam plastic shall be permitted without a thermal barrier on foundation walls subject to all of the following:

1. The maximum thickness of the foam plastic shall be 2 1/2 inches (63.5 mm).
2. The foam plastic shall have a flame spread index of 75 or less with an accompanying smoke developed index of 450 or less when tested in accordance with ASTM E84.
3. The wall assembly has successfully passed one of the approved tests listed in Section R314.3 for actual end-use configurations.

**Reason:** The purpose of ASTM E84 is to measure the comparative surface burning characteristics of building materials by observing the spread of flame and the amount of smoke developed in a controlled combustion setting.

When an assembly has successfully passed one of the approval tests described in Section R314.3, such as UL 1715, there is no need to cover the foam plastic since the intent of such a test is to evaluate the actual end use of a product for flammability contribution and the effectiveness of components as protection for the occupants during early fire growth.

This has been an area of confusion or reluctance on the part of some building officials. Often the person who is interpreting the code will not understand the purpose or intent of the tests described in Section R314.3 or this person may not be trained to interpret the results of such tests. This proposal will ensure better uniformity in code enforcement and actually lower building expense in some areas.

**Analysis:** The proponent had not submitted the referenced standard for review prior to the printing of the monograph. Staff will review it and post the results at the ICC website prior to the

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB96-04/05

### R317.1, R317.1.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R317.1 (Supp) 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 a 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 from basement or

enclosed crawl space floors to the underside of the roof sheathing.

**Exceptions:**

1. A fire-resistance rating of ½ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.
2. Wall assemblies need not extend through attic spaces when the ceiling is protected by not less than 5/8-inch (15.9 mm) Type X gypsum board and an attic draft stop constructed as specified in Section R502.12.1 is provided above and along the wall assembly separating the dwellings. The structural framing supporting the ceiling shall also be protected by not less than ½ -inch (12.7 mm) gypsum board or equivalent.

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

**Reason:** Clarification is needed to insure that the separation occurs in basements and crawl spaces to prevent fire from spreading from one dwelling unit to the other through those spaces. Crawl spaces may be used for service of the building or storage and pose a fire hazard. Currently there are no requirements for smoke alarms in these locations.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

**RB97-04/05**  
**R317.1**

**Proponent:** Michael D. Redifer, County of Nelson, Virginia, Lovingston, VA, representing himself

**Revise as follows:**

**R317.1 (Supp) 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 from the foundation or fire-resistance-rated floor-ceiling assembly to the underside of the roof sheathing.

**Exceptions:** (No change to current text)

**Reason:** Current language does not specifically require separation of crawl space or basement areas from the dwelling unit when such spaces are not part of the dwelling unit. Although commonly required by code officials, the continuity of the separation wall is not specifically addressed for two-family dwellings except through the attic space to the roof sheathing. It is possible for a fire to occur in a crawl space or basement which contains no habitable space. Occupants in a two-family dwelling should be provided with protection equivalent to occupants of a townhouse.

**Cost Impact:** This code change will increase the cost of construction

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

**RB98-04/05**  
**R317.2.1**

**Proponent:** Lawrence Brown, CBO, National Association of Home Builders (NAHB), Washington, DC

**Revise as follows:**

**R317.2.1 Continuity.** The ~~common fire-resistance-rated wall or assembly for separating~~ townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating and shall extend the full length of the common wall or assembly, including walls extending extensions through and separating attached accessory structures.

**Reason:** As these are the terms used in Section R317.2 and its Exception, this clarifies that continuous separation of the townhouse buildings by a fire-resistance-rated wall or assembly is required, not just a continuous common wall.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

**RB99-04/05**  
**R317.2.1**

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R317.2.1 Continuity.** The common wall for townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab and shall extend the full

length of the common wall including walls extending through and separating attached accessory structures. Fireblocking of eaves is required at the line of dwelling unit separation.

**Reason:** The direction on how to handle the matter of eaves at the property line is vague. While some would correctly argue that the one-hour wall should extend through this area, conventional construction techniques make this difficult to properly accomplish. Fireblocking is an effective measure in this location. This is consistent with section R602.8, #7, which requires fireblocking of the eaves of a two-family dwelling at the party wall.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB100-04/05

### R317.2.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R317.2.1 Continuity.** The common wall for townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab and shall extend the full length of the common wall including walls extending through and separating attached ~~accessory structures~~ garages.

**Reason:** The published reason for this change, which was submitted by AMBO, was to address garages. The use of the term "structures" expands the intent beyond what was intended.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB101-04/05

### 317.2.2

**Proponent:** Rick Davidson, City of Hopkins, MN

**Delete without substitution:**

~~**R317.2.2 (Supp) Parapets.** Parapets constructed in accordance with Section R317.2.3 shall be provided for townhouses as an extension of exterior walls or common walls in accordance with the following:~~

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

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

**Exception:** A parapet is not required in the two cases above when the roof is covered with a minimum class C roof covering, and the roof decking or sheathing is of noncombustible materials or approved fire retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a minimum distance of 4 feet (1220 mm) on each side of the wall or walls.

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

**Reason:** There are not similar requirements for parapets for dwellings and garages, only for townhouses. If it isn't a problem for dwellings and garages, why townhomes?

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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## RB102-04/05

### R319 (New), R320, R321, Chapter 43

**Proponent:** Joseph T. Holland, Hoover Treated Wood Products, Daytona Beach, FL

**Add new text as follows:**

#### SECTION R319 PRESERVATIVE-TREATED WOOD

**R319.1 Preservative-treated wood.** Preservative-treated wood is any wood product impregnated with chemical by a pressure process to reduce its susceptibility to deterioration caused by fungi, insects, or marine borers. The end use of the product shall determine the species of wood and preservative system used. The product shall be identified for one of the following end uses: above ground – interior, above ground – exterior, ground contact, foundation, and marine.

**R319.1.1 End use.** Product identified for one use shall be permitted use for a less severe exposure.

1. Above ground – interior end use shall only be used in applications where continuously protected from liquid water.
2. Above ground – exterior end use shall be used for above ground – exterior and above ground – interior applications.
3. Ground contact end use shall be used for in ground and above ground applications, and in contact with fresh water.
4. Foundation end use shall be used for foundations, in ground, and above ground applications.
5. Marine end use shall be used for marine, foundations, in ground, and above ground applications.

**R319.1.2 Formosan termites.** In areas where the above ground- interior treated wood is subject to attack by Formosan termites it shall be further identified by the words Formosan resistant.

**R319.2 Preservative system.** The preservative system used for lumber, timber, plywood, piles, and poles supporting permanent structures shall be tested for resistance to attack by fungi, insects, and marine borers as appropriate for the end use. The preservative system shall conform to the requirements of R319.2.1 or R319.2.2

**R319.2.1 Specification standards.** Preservative-treated wood shall be treated in accordance with ASTM D1760 or AWPA Standard U1 and M4. For wood treated in accordance with the AWPA Standards, the preservative shall conform to AWPA P1/P13, P2, P5, P8, or P9.

**R319.2.2 Testing standards.** Preservative treated wood shall be tested for the efficacy and permanence of the treatment in accordance with this section. All testing shall be conducted in association with, or under the supervision of, an approved agency in accordance with the International Building Code, Section 1703.

**R319.2.2.1 Termites.** Material vulnerable to attack by subterranean termites shall be tested in accordance with

ASTM D3345 and ASTM D1758. The duration of the test under ASTM D1758 shall be a minimum of three years. For the preservative system to be considered effective against attack by termites the blocks under ASTM D3345 shall have an average rating of 9.75 and the stakes under ASTM D1758 shall have an average grade or index of condition not less than 9.5.

**R319.2.2.2 Decay.** Material vulnerable to attack by decay organisms shall be tested in accordance with ASTM D1413 and ASTM D1758. The duration of the test under ASTM D1758 shall be a minimum of three years. For a preservative system to be considered effective against attack by decay there shall be no weight loss caused by decay of the wood block tested using ASTM D1413 and the stakes shall have an average grade or index of condition of 9.5 using ASTM D1758.

**R319.2.2.3 Marine borers.** Material used in a salt-water environment shall be tested in accordance with ASTM D2481 for a period of not less than 3 years. For a preservative system to be considered effective against marine borers the calculated average index of condition shall be 9 or higher.

**R319.2.2.4 Other considerations.** In addition, the treated wood shall be subjected to approved methods of investigation that take into consideration the chemical and thermal stability, effect on the strength properties of the untreated wood product, effect on fire properties, leachability in soil and water, evaporative aging, hygroscopicity, and corrosivity of the preservative for each species to be treated.

**R319.3 Identification.** Preservative treated wood products shall bear the qualify mark or label of an approved agency. The quality mark or label shall be on a stamp or tag affixed to the preservative-treated wood. The quality mark or label shall include the following information.

1. Identification of the treating manufacturer.
2. Type of preservative used.
3. Minimum preservative retention (pcf).
4. End use for which the product is treated.
5. Standard to which the product was treated.
6. Identification mark of the approved agency.

**R319.3.1 Approved Agency.** An Approved Agency shall be:

1. An inspection agency that maintains continuing supervision, testing and inspection over the quality of the preservative-treated wood. Inspection agencies shall be listed by an accreditation body that complies with the requirement of the American

Lumber Standards Committee Treated Wood Program or equivalent; or

2. An agency defined in the *International Building Code*, Section 1702 and meets the requirements for labeling in accordance with the *International Building Code*, Section 1703.5.

**R319.3.2 Face marking.** Stamping the label on the exterior pieces of a bundled unit or by end labeling not less than 25 percent of the pieces shall be permitted when the lumber is:

1. Less than nominal 1 inch by 5 inches (25.4 mm by 127 mm), or
2. Less than 2 inches by 4 inches (51 mm by 102 mm), or
3. 36 inches (914 mm) or less in length.

**R319.4 Fasteners.** Fasteners for pressure preservative treated wood used in an exterior exposure shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper. Steel bolts of one-half-inch (12.7 mm) diameter or greater shall be permitted.

**R319.5 Moisture content.** Where preservative-treated wood is used in enclosed locations where drying in service cannot readily occur, such wood shall be at a moisture content of 19 percent or less before being covered with insulation, interior wall finish, floor covering, or other materials.

2. Revise as follows:

### SECTION R319 320 PROTECTION AGAINST DECAY

**R319 (Supp) 320.1 Location required.** In areas subject to decay damage as established by Figure R301.2(7), the following locations shall require the use of an approved species and grade of lumber, pressure preservative treated in accordance with Section 319 AWPA-U1 for the species, product, preservative and end use or the decay-resistant heartwood of redwood, black locust, or cedars. Preservatives shall conform to AWP A-P1/P3, P2, P3, or P5:

1. though 7. (No change to current text)

**319.1.4 320.1.1 Ground contact.** (No change to current text)

**319.1.2 320.1.2 Geographical areas.** (No change to current text)

**319.1.3 320.1.3 Posts, poles and columns.** (No change to current text)

**319.1.4 320.1.4 Wood columns.** (No change to current text)

**319.1.5 (Supp) 320.1.5 Exposed glued-laminated timbers.** (No change to current text)

3. Delete without substitution.

**R319.2 Quality mark.** ~~Lumber and plywood required to be pressure preservative treated in accordance with Section R319.1 shall bear the quality mark of an approved inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been approved by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.~~

**R319.2.1 Required information.** ~~The required quality mark on each piece of pressure preservative treated lumber or plywood shall contain the following information:~~

1. ~~Identification of the treating plant.~~
2. ~~Type of preservative.~~
3. ~~The minimum preservative retention.~~
4. ~~End use for which the product was treated.~~
5. ~~Standard to which the product was treated.~~
6. ~~Identity of the approved inspection agency.~~
7. ~~The designation "Dry," if applicable.~~

**Exception:** ~~Quality marks on lumber less than 1 inch (25.4 mm) nominal thickness, or lumber less than nominal 1 inch by 5 inches (25.4 mm by 127 mm) or 2 inches by 4 inches (51 mm by 102 mm) or lumber 36 inches (914 mm) or less in length shall be applied by stamping the faces of exterior pieces or by end labeling not less than 25 percent of the pieces of a bundled unit.~~

**R319.3 Fasteners.** ~~Fasteners for pressure preservative and fire retardant treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper.~~

**Exception:** ~~One-half-inch (12.7 mm) diameter or greater steel bolts.~~

4. Revise as follows:

### SECTION 320 321 PROTECTION AGAINST TERMITES

**R320.1 R321.1 Subterranean termite control.** In areas favorable to termite damage as established by Table

R301.2(1), methods of protection shall be by chemical soil treatment, pressure preservative treated wood in accordance with ~~the AWPA standards listed in Section R319.1,~~ naturally termite-resistant wood or physical barriers (such as metal or plastic termite shields), or any combination of these methods.

~~R320.1.1~~ **R321.1.1 Quality mark.** (No change to current text)

~~R320.2~~ **R321.2 Chemical soil treatment.** (No change to current text)

~~R320.3~~ **R321.3 Pressure preservative treated and naturally resistant wood.** (No change to current text)

~~R320.3.1~~ **R321.3.1 Field treatment.** (No change to current text)

~~R320.4~~ **R321.4 Foam plastic protection.** (No change to current text)

**5. Add new standards to Chapter 43 as follows:**

**ASTM**

D1413-99 Standard Test Method for Wood Preservatives by Laboratory Soil-Block Cultures

D1758-02 Standard Method of Evaluating Wood Preservatives by Field Test with Stakes

D1760-01 Standard Specification for Pressure Treatment of Timber Products

D2481-81 Standard Test Method for Accelerated Evaluation of Wood Preservatives for Marine Services by Means of Small Size Specimens

D3345-74 Standard Test Method for Laboratory Evaluation of Wood and Other Cellulosic Materials for Resistance to Termites

Note: D1413, D 1758, D2481, and D3345 are currently undergoing revision. As they become approved we will supply updated versions.

**Reason:** This proposal will accomplish four things:

1. Reformats the existing sections by adding a section, the new R319, on what constitutes preservative-treated wood and moving those subsections in the current R319 and R320 not associated with where preservative treated wood or naturally durable wood needs to be used to the new section.
2. Adds the ASTM Standard D1760 to the list of accepted standards referenced in the code.
3. More clearly delineates how material needs to be marked to show its end use.

4. Adds an alternate method for testing and labeling preservative treated wood. This method is intended to be a performance section as opposed to the specification method presently used at both ASTM and AWPA.

There are several reasons for this proposal:

1. The reformat will make the provisions more user friendly. Currently, the sections mix applications with the "how to" provisions; that is, what constitutes preservative-treated wood. Each are now in their own section.
2. This is the International code. ASTM Standards are broadly recognized internationally.
3. Make buying the PT wood more consumer friendly. They can look at a piece of wood and determine what the allowable use is because it will be stamped on the wood or stated on the end tag.
4. Provides an alternative to the present code requirements. The new provisions are similar to how FRTW is tested and labeled. They are performance provisions.
5. Section R319.3 was added because AWPA Standards have two retentions recognized for material used above ground-interior applications. One is for areas where Formosan termites are present the other is for areas with no Formosan termites. A user would have to know what the required retention is in order to judge whether or not it has been treated for the end use. In addition, not all species recognized by AWPA Standards can be treated for exposure to Formosan termites. This section requires the wood to be marked for the Formosan termite exposure.

Extract from International Building Code Section 1703.5

1703.5 Labeling. Where materials or assemblies are required by this code to be labeled, such materials and assemblies shall be labeled by an approved agency in accordance with Section 1703. Products and materials required to be labeled shall be labeled in accordance with the procedures set forth in Sections 1703.5.1 through 1703.5.3.

1703.5.1 Testing. An approved agency shall test a representative sample of the product or material being labeled to the relevant standard or standards. The approved agency shall maintain a record of the tests performed. The record shall provide sufficient detail to verify compliance with the test standard.

1703.5.2 Inspection and identification. The approved agency shall periodically perform an inspection, which shall be in-plant if necessary, of the product or material that is to be labeled. The inspection shall verify that the labeled product or material is representative of the product or material tested.

1703.5.3 Label information. The label shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or material's performance characteristics and approved agency's identification.

**Analysis:** The proponent has not submitted the referenced standards for review prior to the printing of the monograph. Staff will review them and post the results to the ICC website prior to the code change hearings.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

# RB103-04/05

## R202, R319.1, Figure R301.2(7)

**Proponent:** Dennis Pitts, American Forest & Paper Association, Richardson, TX

### 1. Add new definition as follows:

#### SECTION R202 DEFINITIONS

**NATURALLY DURABLE WOOD.** The heartwood of the following species:

Decay-resistant redwood, cedars, black locust and black walnut.

Note: Corner sapwood is permitted if 90 percent or more of the width of each side on which it occurs is heartwood.

### 2. Revise as follows:

**R319.1 (Supp) Location required.** ~~In areas subject to decay damage as established by Table R301.2(1);~~ Protection from decay shall be provided in the following locations-shall require by the use of naturally durable wood an approved species and grade of lumber; wood that is pressure preservatively treated in accordance with AWPA U1 for the species, product, preservative and end use or of the decay-resistant heartwood of redwood, black locust or cedars. Preservatives shall conform to AWPA P1/13, P2, P3 or P5.

1. through 7. (No change to current text)

**R319.1.1 Field treatment.** Field cut ends, notches, and drilled holes of preservatively treated wood shall be treated in the field in accordance with AWPA M4.

(Renumber subsequent sections)

### 3. Delete without substitution:

#### Figure R301.2(7) ~~DECAY PROBABILITY MAP~~

(Renumber subsequent figures)

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

ROOF SNOW LOAD	WIND Speed <sup>e,d</sup> (mph)	SEISMIC DESIGN CATEGORY <sup>f,g,h,i</sup>	SUBJECT TO DAMAGE FROM				WINTER DESIGN TEMP <sup>f,g</sup>	FLOOD HAZARDS <sup>h,g</sup>
			Weathering <sup>a</sup>	Frost line depth <sup>b</sup>	Termite <sup>c</sup>	Decay <sup>d</sup>		

**(Portions of table not shown do not change)**

Footnotes a. through c. (No change to current text)

~~d. The jurisdiction shall fill in this part of the table with “moderate to severe,” “slight to moderate,” or “none to slight” in accordance with Figure R301.2(7) depending on whether there has been a history of local damage.~~

**(Reletter subsequent footnotes)**

**Reason:** There are three things that lead the reader of the current IRC text to believe that the degree of decay damage differs from one portion of the country to another. These are

1. The phrase in Section R319.1 “... in areas subject to damage ...”
2. The box “Decay” in Table R301.2(1) and footnote “d” of the table
3. The map contained in Figure R301.2(7)

While the general climate of one area may be more conducive to outdoor decay conditions in general than that in another area, in practice decay conditions within structures are more likely to exist because of drainage problems, construction errors, leaks, problems with landscape watering, lack of ventilation, and similar conditions rather than because of climate. For this reason, when the conditions given in R319 are present, decay protection is needed regardless of geographic location. This proposal accomplishes this.

This also corrects another problem that exists in the current text: The descriptive terms used on the map in Figure R301.2(7) – Moderate to Severe, Slight to Moderate, and None to Slight – aren’t used in the text of R319. Deleting the map not only helps the reader understand that the protection requirements are general in their application, but it also removes confusion over the relationship between the requirements in the text and the labels on the map.

The requirement for field treatment of cuts and holes is duplicated from R320.3.1, which addresses the same situation in treated wood intended for termite protection.

The term “naturally durable wood” is added to the proposed text of R319.1. This term is also used in the IBC and the definition is taken from there. The word “lumber” is changed to “wood” to make it applicable to all wood products. The deleted text “...approved species and grade ...” isn’t needed.

This proposal makes the IRC consistent with the IBC and with the provisions of the Uniform Building Code and Standard Building Code. If builders and designers build in accordance with those codes, there will be no cost increase. If the use of naturally durable wood or preservatively treated wood hasn’t been consistent with those codes, there will be some additional costs.

**Cost Impact:** This code change will increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## **RB104-04/05**

### **R301.1.1 (New); IBC 2301.2 (New)**

**Proponent:** Rob Pickett, Chair -ICC IS-LOG Standard Committee, Hartland, VT

**THIS PROPOSAL IS ON THE AGENDA OF THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. PLEASE SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### **PART I – IRC**

##### **1. Add new text as follows:**

**R301.1 Design.** Buildings and structures, and all parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures shall result in a system that provides a complete load path capable of transferring all loads from their point of origin through the load-resisting elements to the foundation.

**R301.1.1 Alternative provisions.** As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards the design shall comply with the *International Building Code*.

1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual (WFCM).
2. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-family Dwellings (COFS/PM).
3. International Code Council Standard for the Design and Construction of Log Structures (ICC-400).

#### **PART II – IBC**

##### **1. Add new text as follows:**

**2301.2.3 Conventional light-frame wood construction.** The design and construction of conventional light-frame wood construction shall be in accordance with the

provisions of Sections 2304 and 2308.

**Exception:** Buildings designed in accordance with the provisions of the AF& PA Wood Frame Construction Manual for One- and Two-Family Dwellings shall be deemed to meet the requirements of the provisions of Section 2308.

**2301.2.4 Log structures.** The design and construction of log structures shall be in accordance with the provisions of the International Code Council Standard for the Design and Construction of Log Structures (ICC-400) and the applicable provisions of this code.

**Reason:** The purpose of the IBC and the IRC is to ensure that structures are safe, sanitary and fit for use and occupation. Presently, the IBC and IRC do not provide any guidance for the construction of log structures. The International Code Council Standard for the Design and Construction of Log Structures (ICC-400) has been developed by a consensus committee using an ANSI process to establish the minimum requirements for log structures necessary to safeguard public health, safety and general welfare.

**Cost Impact:** None

**PART I – IRC**

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

**PART II – IBC**

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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**RB105-04/05**

**R319.1.4**

**Proponent:** Rick Davidson, City of Hopkins, MN

**Revise as follows:**

**R319.1.1 Ground contact.** All wood in contact with the ground, embedded in concrete in direct contact with the ground, or embedded in concrete exposed to the weather and that supports permanent structures intended for human occupancy shall be approved pressure preservatively treated wood suitable for ground contact use, except untreated wood may be used where entirely below groundwater level or continuously submerged in fresh water.

**R319.1.2 Geographical areas.** In geographical areas where experience has demonstrated a specific need, approved naturally durable or pressure preservatively treated wood shall be used for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances when such

members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that would prevent moisture or water accumulation on the surface or at joints between members. Depending on local experience, such members may include:

1. Horizontal members such as girders, joists and decking.
2. Vertical members such as posts, poles and columns.
3. Both horizontal and vertical members.

~~**R319.1.3 Posts, poles and columns.** Posts, poles and columns supporting permanent structures that are embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather shall be approved pressure preservatively treated wood suitable for ground contact use.~~

**R319.1.4 Wood columns.** Wood columns shall be approved wood of natural decay resistance or approved pressure preservatively treated wood.

**Exceptions:**

1. ~~Posts or columns which are either~~ Columns exposed to the weather or located in basements or cellars, when supported by concrete piers or metal pedestals projecting 1 inch (25.4 mm) above the a concrete floor or finished grade and 6 inches (152 mm) above exposed earth, and are separated therefrom and the earth is covered by an approved impervious moisture barrier.
2. ~~Posts or columns~~ Columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building; when supported by a concrete pier or metal pedestal at a height greater than 8 inches (203mm) from exposed ground, are separated therefrom earth and the earth is covered by an impervious moisture barrier.

**Reason:** As written, this section is difficult to understand because of the wordiness of some of the sections and R319.1.3 repeats what is found in R319.1.1. This code change combines two sections that contain virtually identical language. It also revises the exceptions to R319.1.4 so they are easier to understand. Similar terms are used in each exception. This section does point out the need for definitions for the terms "basement" and "crawl space" and how they differ from "unexcavated areas".

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

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**RB106-04/05**

## R319.1.4, R408.1

**Proponent:** Rick Davidson, City of Hopkins, MN, representing Association of Minnesota Building Officials

**Revise as follows:**

**R319.1.4 Wood columns.** Wood columns shall be approved wood of natural decay resistance or approved pressure preservative treated wood.

**Exceptions:**

1. Posts or columns which are either exposed to the weather or located in basements ~~or cellars~~, supported by piers or metal pedestals projecting 1 inch (25.4 mm) above the floor or finished grade and 6 inches (152 mm) above exposed earth, and are separated there from by an approved impervious moisture barrier.
2. Posts or columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building, supported by a concrete pier or metal pedestal at a height greater than 8 inches (203mm) from exposed ground, are separated there from by an impervious moisture barrier.

**R408.1 Ventilation.** The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a basement ~~or cellar~~) shall be provided with ventilation openings through foundation walls or exterior walls. The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of under-floor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of said building.

**Reason:** The term cellar is undefined. It would seem that a basement and cellar are the same.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB107-04/05

### R319.3

**Proponent:** Dennis Pitts, American Forest & Paper Association, Richardson, TX

**Revise as follows:**

**R319.3 Fasteners.** Fasteners for pressure preservative and fire-retardant-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or

copper. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153.

**Exception:** One-half-inch (12.7mm) diameter or greater steel bolts.

**Reason:** This proposal will require that hot-dipped galvanized steel fasteners used in treated wood comply with ASTM A153. The weight of the zinc coating for galvanized fasteners was not previously specified in the code; this change will insure that galvanizing will be of a consistent weight and quality. This updates the requirements of IRC Section R319.3 to be consistent with the latest revisions made to IBC Section 2304.9.5 (proposed in S61-03/04 which was approved as modified).

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB108-04/05

### R319.3

**Proponent:** Sofya Solodkin, Tree Island Industries, Ltd, New Westminster, B.C

**Revise as follows:**

**R319.3 Fasteners.** Fasteners for pressure preservative and fire-retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153.

**Reason:** In the 2003-2004 change cycle, this change was made to the IBC with a modification of proposal S61. The same change is being proposed for the IRC to maintain compatibility between the two codes. Fasteners are the most critical part of the structural system and is the location of most structural failures. New chemical formulations for preservative treating wood has resulted in a more corrosive environment for the fasteners. It is imperative that the protective coating be required to have some minimum coating until a performance based coating standard can be completed for reference.

**Cost Impact:** None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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## RB109-04/05

### R320

**Proponent:** Gregory J. Baumann, National Pest Management Association, Inc., Dunn Loring, VA, representing, Termite Prevention Working Group

**Revise as follows:**

**SECTION R320  
PROTECTION AGAINST  
SUBTERRANEAN TERMITES**

**DESIGN CRITERIA**

**R320.1 Subterranean termite control methods.** In areas favorable subject to termite damage from termites as established indicated by Table R301.2(1), methods of protection shall be one of the following methods or a combination of these methods:

1. by chemical soil termiticide treatment, as provided in Section R320.2,
2. Termite baiting system installed and maintained according to the label.
3. Pressure preservatively treated wood in accordance with the AWPAs standards listed in Section R319.1,
4. Naturally termite-resistant wood as provided in Section R320.3.
5. or physical barriers as provided in Section R320.4 (such as metal or plastic termite shields), or any combination of these methods.

**R320.1.1 Quality mark.** (No change to current text)

**R320.1.2 Field treatment.** Field cut ends, notches, and drilled holes of pressure preservatively treated wood shall be retreated in the field in accordance with AWPAs M4.

**R320.2 Chemical soil termiticide treatment.** Field cut ends, notches, and drilled holes of pressure preservatively treated wood shall be retreated in the field in accordance with AWPAs M4.

**R320.3 Pressure preservatively treated and naturally resistant wood.** Heartwood of redwood and eastern red cedar shall be considered termite resistant. ~~Pressure preservatively treated wood and naturally termite-resistant wood shall not be used as a physical barrier unless a barrier can be inspected for any termite shelter tubes around the inside and outside edges and joints of a barrier.~~

**R320.3.1 Field treatment.** ~~Field cut ends, notches and drilled holes of pressure preservatively treated wood shall be retreated in the field in accordance with AWPAs M4.~~

**R320.4 Barriers.** Approved physical barriers, such as metal or plastic sheeting or collars specifically designed for termite prevention, shall be installed in a manner to prevent termites from entering the structure. Shields placed on top of an exterior foundation wall are permitted to be used only if in combination with another method of protection.

**R320.4 R320.5 Foam plastic protection.** No additional revisions.

2. **Revise Table R301.2(1) as follows:**

**TABLE R301.2(1)  
CLIMATIC AND GEOGRAPHIC**

**(No change to table contents)**

- a. and b. (No change to current text)
- c. The jurisdiction shall fill in this part of the table with ~~“very heavy,” “moderate to heavy,” “slight to moderate,” or “none to slight”~~ in accordance with Figure R301.2(6) to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
- d. through k. (No change to current text)

**Reason:** SECTION R320:

Title: This is a technical correction reflecting that this section is for control of subterranean termites.

1. R320.1 – The proposed terms for this section referencing Table R301.2(1) are consistent with the column headings in that table. The five acceptable methods of protection are broken out to make them easier to read. The requirement for field-treating cuts and holes is relocated from R320.3 to this location because the proposed changes to R320.3 will remove references to treated wood.
2. R320.2 – This wording is based to some extent on that proposed in RB110-03/04 and is intended to reflect current terminology in reference to termiticides and to emphasize the necessity of using the chemicals as required by their labels.
3. R320.3 – Preservatively treated wood is already addressed adequately in R320.1. Barriers are also addressed to some extent in R320.1. Wood, whether it's treated or naturally resistant, shouldn't be used as a termite barrier. Both treated wood and naturally resistant wood provide an added measure of resistance to attack by termites, but neither will provide the physical configuration (i.e., special design for this use) traditionally provided in materials specifically intended to be observation shields.
4. New R320.4 – As is done with the other methods, a subsection for barriers is created. Because the subject of barriers is very vague, physical barriers are defined and termite shield use is clarified. Historically, termite shields were assumed to be effective in preventing termite penetration. However, “shields” is a misnomer as they do not stop termites and were designed to make inspection and observation easier.

TABLE R301.2(1)

The use of the terms on Figure R301.2(6) imply that there will be degrees of termite protection depending on the level of termite infestation probability. However, as the code is currently written the termite protection provisions in Section R320 apply regardless of whether the infestation probability is Very Heavy or None. The only time that any of these terms is used in the text is in R320.4 which addresses foam plastic protection.

This change – which will have no effect on the requirements of the current R320.4 -- simplifies the requirements for termite protection and allows individual jurisdictions to determine whether termite protection is needed. If protection is needed, this makes it clear that the requirements will be the same regardless of the location

\* The Termite Prevention Working Group is an ad hoc group of organizations and individuals interested in improving the IRC's provisions addressing termite protection. The group is composed of

National Pest Management Association represented by Greg Baumann

American Forest and Paper Association represented by Dennis Pitts

National Association of Home Builders represented by Jeff Inks

Association of Structural Pest Control Regulatory Officials represented by George Saxton

Responsible Industry for a Sound Environment represented by Frank Gasperini

University of Georgia Department of Entomology, Represented by Dr. Brian Forschler

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB110-04/05 R323 (New)

**Proponent:** Ed Donoghue, Edward A. Donoghue Associates, Inc., Salem, NY

**Add new text as follows:**

### **SECTION R323 ELEVATORS AND PLATFORM LIFTS**

**R323.1 Elevators.** Where provided, passenger elevators, limited-use/limited-application elevators or private residence elevators shall comply with ASME A17.1.

**R323.2 Platform lifts.** Where provided, platform lifts shall comply with ASME A18.1.

**R323.3 Accessibility.** Elevators or platform lifts that are part of an accessible route required by Chapter 11 of the International Building Code, shall comply with ICC A117.1.

#### **(Renumber subsequent sections)**

**Reason:** Currently the IRC does not provide any guidance for these pieces of equipment. Passenger elevators, limited-use/limited application elevators, private residence elevators and platform lifts are sometimes installed within individual dwelling or sleeping units for either accessibility requirements or convenience for the occupants. These pieces of equipment should be required to meet minimum safety standards.

**Analysis:** ASME A17.1 and ICC A117.1 are currently listed in the International Building Code and have been previously reviewed and meet the requirements of 3.6. The proponent had not submitted any of these referenced standards for review prior to the printing of the monograph. If the standard is submitted within a reasonable time frame, staff will review it and post the results to the ICC website prior to the code change hearings.

**Cost Impact:** This code change will increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB111-04/05 R323.1.9

**Proponent:** F. Robert Danni, Town Of Amherst, Williamsville, NY

**Revise as follows:**

**R323.1.9 As-built elevation documentation certification.** A registered design professional shall prepare and seal documentation of the elevations specified in Section R323.2 or R323.3.

**Exception:** In communities granted an exception by the Flood Insurance Administration to Section 1910.3(c)(2) of the National Flood Insurance Program Regulations, buildings or structures constructed with flood-proofed residential basements shall be certified with a FEMA Residential Basement Flood-proofing Certificate.

**Reason:** As written, the code requires all finished floors to be located above flood plain elevation, even if the community has been granted a waiver from the Federal Insurance Administration that allows an exemption based on locally prescribed flood-proofing methods. This exemption should be included to coordinate certification requirements with section 323.3.2.1.

Cost Impact: None

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

## RB112-04/05 R323.2.1

**Proponent:** F. Robert Danni, Town Of Amherst, Williamsville, NY

**Revise as follows:**

### **R323.2.1 Elevation requirements.**

1. Buildings and structures shall have the lowest floors elevated to or above the design flood elevation.

**Exception:** Buildings and structures erected in communities granted an exception by the Federal Insurance Administration to Section 1910.3(c)2 of the National Flood Insurance Program Regulations, may have floors constructed below the base flood elevation provided the surrounding walls are flood-proofed in accordance with the community's flood damage prevention regulations and the community has adopted local flood plain management regulations meeting the standards of 44 CFR 60.3(d) of the National Flood Insurance Program's regulations.

**Reason:** As written, the code language requiring all floors to be located above flood plain elevation fails to recognize that some communities have been granted an exception by the Federal Insurance Administration to permit floodproofed residential basements. Absent the community exemption, new dwellings having floors located below the flood plain are not insurable. This exemption should be included to achieve consistency between federal laws and regulations and the code.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## **RB113-04/05**

### **R324 (New)**

**Proponents:** Phillip A. Brown, American Fire Sprinkler Association, Dallas, TX and Kevin Kelly, National Fire Sprinkler Association, Inc. Patterson, NY

**Add new text as follows:**

#### **SECTION R324** **AUTOMATIC SPRINKLER SYSTEM**

**R324.1 Automatic Sprinkler System.** All new One and Two Family Dwelling units shall be protected throughout by an automatic sprinkler system installed in accordance with NFPA 13D.

**Reason:** From 1994 through 1998 there was an average of 310,200 fires in one and two family dwellings and manufactured homes. This resulted in an annual loss rate of 2,867 civilian deaths, 12,244 civilian injuries and a direct property loss of \$3.5 billion. The passive fire protection systems that have been installed in these dwellings have helped to reduce the fire losses. Obviously, from the continuing losses, passive fire protection is not the complete answer. A NFPA 13D automatic fire sprinkler system has proven itself as an effective active defense against fire in one and two family dwellings.

Statistics have shown that the chance of surviving a fire in a home increase by over 80% if fire sprinklers and smoke detectors are installed in homes. It is time to require these life saving devices in the number one occupancy where the majority of the people are killed due to fire. No other single requirement will save more people due to the tragedy of fire. This will coordinate with the requirements of Group R occupancies in the IBC.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF

## **RB114 -04/05**

### **R324 (New)**

**Proponent:** David W. Ware, Owens Corning, Auburn, CA

**1. Add new text as follows:**

#### **SECTION R324** **SOUND TRANSMISSION**

**R324.1. Sound transmission general.** Wall and floor-ceiling assemblies separating multiple single-family dwelling units (townhouses) not more than three stories in height shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies.

#### **SECTION R325** **AIRBORNE SOUND**

**R325.1. Airborne sound general.** 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.

#### **SECTION R326** **STRUCTURAL-BORNE SOUND**

**R326.1. Structural-Borne sound general.** Floor/ceiling assemblies between dwelling units or between a dwelling unit and a public or service area within a structure shall have an Impact Insulation Class (IIC) rating of not less than 45 when tested in accordance with ASTM E 92.

**2. Add new standards to Chapter 43:**

ASTM E90-99 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements . R325

ASTM E492-90 Specifications for Laboratory Measurement of Impact Sound Transmission through Floor-ceiling Assemblies Using the Tapping Method . . . . . R326

**Reason:** Proper building acoustics are both affordable and provide building occupants with reasonable assurance that minimum sound quality of the building environment is being maintained, particularly for multi-family residences where occupant densities are higher. Bringing the requirements of sound control into the main body of the code from the Appendix improves the overall benefits being established by the IRC.

**Analysis:** The proponent has not submitted the referenced standards for review prior to the printing of the monograph. Staff will review them and post the results to the ICC website prior to the code change hearings.

**Cost Impact:** None

Public Hearing: Committee: AS AM D  
Assembly: ASF AMF DF