RB46-06/07
R301.2.2.2.2

Proposed Change as Submitted:

Proponent: Robert W. Rice, Josephine County Building Safety, Oregon, representing Josephine County Building Safety and Southern Oregon chapter of ICC
Revise as follows:

R301.2.2.2.2 Irregular buildings. Prescriptive construction as regulated by this code shall not be used for irregular structures located in Seismic Design Categories C, D_0, D_1 and D_2. Irregular portions of structures shall be designed in accordance with accepted engineering practice to the extent the irregular features affect the performance of the remaining structural system. When the forces associated with the irregularity are resisted by a structural system designed in accordance with accepted engineering practice, design of the remainder of the building shall be permitted 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. When exterior shear wall lines or braced wall panels are not in one plane vertically from the foundation to the uppermost story in which they are required.

   Exception: For wood light-frame construction, floors with cantilevers or setbacks not exceeding four times the nominal depth of the wood floor joists are permitted to support braced wall panels that are out of plane with braced wall panels below provided that:

   1. Floor joists are nominal 2 inches by 10 inches (51 mm by 254 mm) or larger and spaced not more than 16 inches (406 mm) on center.
   2. The ratio of the back span to the cantilever is at least 2 to 1.
   3. Floor joists at ends of braced wall panels are doubled.
   4. For wood-frame construction, a continuous rim joist is connected to ends of all cantilever joists. When spliced, the rim joists shall be spliced using a galvanized metal tie not less than 0.058 inch (1.5 mm) (16 gage) and 1 1/2 inches (38 mm) wide fastened with six 16d nails on each side of the splice or a block of the same size as the rim joist of sufficient length to fit securely between the joist space at which the splice occurs fastened with eight 16d nails on each side of the splice; and
   5. Gravity loads carried at the end of cantilevered joists are limited to uniform wall and roof loads and the reactions from headers having a span of 8 feet (2438 mm) or less.

2. When a section of floor or roof diaphragm is not positively connected to and laterally supported by shear walls or braced wall lines on all edges with edge nailing to framing members or solid blocking per Table 602.3(1).

   Exceptions:

   1. Portions of floors that do not support shear walls or braced wall panels above, or roofs, shall be permitted to extend no more than 6 feet (1829 mm) beyond a shear wall or braced wall line.
   2. When the floor or roof diaphragm is positively connected to the braced wall line by one of the following methods;
      1. Engineered truss blocking for the extent of the wall line designed for 182 plf, or per *Wood Frame Construction Manual for One and Two Family Dwellings*, 2001 Edition, Table A-3.4, and attached to sheathing above and wall below per Table R602.3(1).
      2. Roof or floor diaphragm sheathing above is extended to the braced wall line, for the extent of the wall line, and attached to 2 × 4 minimum blocking with fasteners per Table R602.3(1) . (See Figures R301.2.2.2.2(2)1 and R301.2.2.2.2(2)2.).
      3. Connected in a manner approved by the building official.

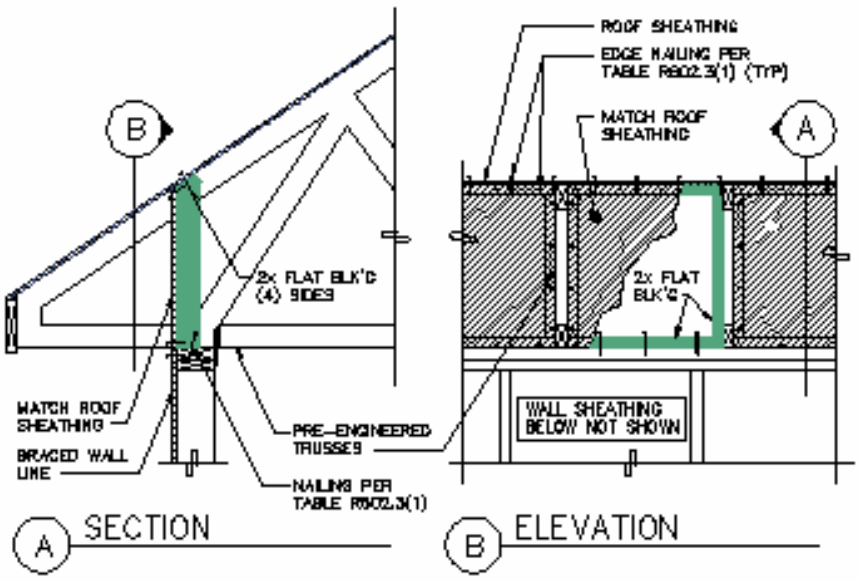


FIGURE R301.2.2.2.2(2)1

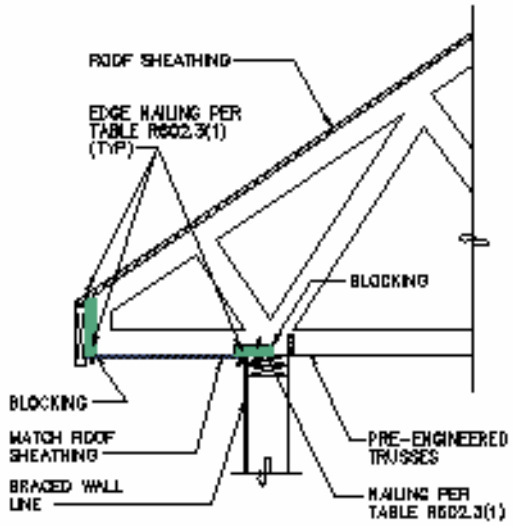


FIGURE R301.2.2.2.2(2)2

3. When the end of a braced wall panel occurs over an opening in the wall below and ends at a horizontal distance greater than 1 foot (305 mm) from the edge of the opening. This provision is applicable to shear walls and braced wall panels offset in plane and to braced wall panels offset out of plane as permitted by the exception to Item 1 above.

   Exception: For wood light-frame wall construction, one end of a braced wall panel shall be permitted to extend more than 1 foot (305 mm) over an opening not more than 8 feet (2438 mm) wide in the wall below provided that the opening includes a header in accordance with the following:

   1. The building width, loading condition and framing member species limitations of Table R502.5(1) shall apply and
   2. Not less than one 2×12 or two 2×10 for an opening not more than 4 feet (1219 mm) wide or 3. Not less than two 2×12 or three 2×10 for an opening not more than 6 feet (1829 mm) wide or
   4. Not less than three 2×12 or four 2×10 for an opening not more than 8 feet (2438 mm) wide and 5. The entire length of the braced wall panel does not occur over an opening in the wall below.

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.
5. When portions of a floor level are vertically offset.

   Exceptions:

   1. Framing supported directly by continuous foundations at the perimeter of the building.
   2. For wood light-frame construction, floors shall be permitted to be vertically offset when the floor framing is lapped or tied together as required by Section R502.6.1.

6. When shear walls and braced wall lines do not occur in two perpendicular directions.
7. When stories above-grade partially or completely braced by wood wall framing in accordance with Section R602 or steel wall framing in accordance with Section R603 include masonry or concrete construction.

   Exception: Fireplaces, chimneys and masonry veneer as permitted by this code. When this irregularity applies, the entire story shall be designed in accordance with accepted engineering practice.

R602.10.8 Connections. Braced wall line sole plates shall be fastened to the floor framing and top plates shall be connected to the framing above in accordance with Table R602.3(1). Sills shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11. Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced wall panels. Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1).

R602.10.8.1: Sole plate connections. Braced wall panel sole plates shall be fastened to the floor framing in accordance with Table R602.3.(1). Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced panels. Sills shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11.

R602.10.8.2 Top plate connections: Braced walls shall be connected to floor and roof diaphragms above with full height solid blocking between joist, rafter or truss. Attach roof sheathing to blocking and blocking to top of wall per Table R602.3(1) or per exceptions described in R301.2.2.2.2, Item 2.

Reason: The current code text does not clearly state the intention of connecting the braced wall line to the roof or floor diaphragm above. This proposal re-words two current code sections and adds options for accomplishing the connection when solid blocking is not possible.

1. The prescriptive lateral bracing requirements in the International Residential Code are based on the engineering concept of horizontal (or nearly horizontal) diaphragms connected to shearwalls (braced wall lines) to transfer lateral loads, both wind and seismic, to the foundation as evidenced throughout the code. For example;
   a. Section **R301.1 Design**. ……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.
   b. Section **R301.1.2** The requirements of the code are based on platform and balloon-frame construction for light-frame buildings.

c. Section **R301.2.2.2.2 Irregular buildings**. , Item 2: "When a section of floor or roof is not laterally supported by shear walls or braced wall lines on all edges.

d. **Table R602.3(1), footnote "i",** "…….Floor and roof perimeter shall be supported by framing members or solid blocking."

Per the code, a "**Diaphragm**" is defined as, "A horizontal or nearly horizontal system acting to transmit lateral forces to the vertical resisting elements. …" (i.e. Roof sheathing to braced wall lines.).

The following proposal adds words section R301.2.2.2.2 Irregular buildings, Item 2 to more clearly state the intended requirement and provides exceptions to the obscure general requirement stated in footnote "i" of Table R602.3.(1).

Item A in the exceptions allows engineered truss blocking with a minimum design value of 182 plf which is the design value from *Wood Frame Construction Manual For One and Two Family Dwelling, 2001 Edition, Table A-3.4, "Rafter/Truss Framing to Wall Connection Requirements for Wind Loads – Exposure C"* for 150mph, exposure C. The Load Duration Factor reflected in the table is 1.6. Some jurisdictions adopt a more conservative Load Duration Factor of 1.33. The value from the table (151 plf) has been modified to reflect the more conservative 1.33 LDF.

As an alternate option, the following table could be included and referenced in the text:

Table 301.2.2.2.2(2.1)
TRUSS BLOCKING DESIGN VALUES [a]

Wind Speed	**85**		**90**		**100**		**110**		**120**		**130**		**140**		**150**	
Load Duration	1.33	1.6	1.33	1.6	1.33	1.6	1.33	1.6	1.33	1.6	1.33	1.6	1.33	1.6	1.33	1.6
Design Load (plf)	58	48	65	54	81	67	97	81	117	97	136	113	158	131	182	151

a. Design values are based on Wood Frame Construction Manual For One and Two Family Dwellings, 2001 Edition Table A-3.4, ""Rafter/Truss Framing to Wall Connection Requirements for Wind Loads - Exposure C" with roof dead loads = 15psf.

Item B, in concept, is extending the already defined roof sheathing (diaphragm) to the braced wall either vertically in the truss bays or horizontally through the soffit with roof sheathing nailing already defined.

Item C allows for other methods approved by the building official.

Furthermore, the wording in R602.10.8 is reworded and divided into R602.10.8.1 and R602.10.8.2 to distinguish braced wall line sole plate and top plate connections respectively for clarity. Besides the reference to the new section in R301.2.2.2.2, (".. or per exceptions described in R301.2.2.2.2, Item 2") the text is virtually unchanged in content.

Typically, the connection in normal rafter or truss applications occurs via the 2x blocking at the eave. This is inherent in the engineering concept and directly called for in the code in footnote "i" of Table R602.3.(1) which states, "Floor and roof perimeter shall be supported by framing members or solid blocking". This footnote "i" appears in the table next to the edge nailing column for roof and floor sheathing and correctly implies that edge nailing is to occur that attaches the roof diaphragm to the blocking which in turn is connected, again per Table R602.3(1), with (3) 8d each block to the top plate.

However, in certain construction applications, such as raised-heel trusses & cantilevered trusses, it's not possible to connect the roof diaphragm to the braced wall line with solid 2x blocking and edge nailing. Therefore, it is not uncommon that no connection from roof diaphragm to braced wall line occurs.

This raised diaphragm condition is becoming more common all the time. In keeping with the intention of prescriptive codes it would be appropriate to provide a solution when solid blocking cannot be used.

Bibliography: American Forest & Paper Association American Wood Council. *Wood Frame Construction Manual for One and Two Family Dwellings*, 2001 Edition.

Cost Impact: The code change proposal will not increase the cost of construction. Without prescriptive provisions in the current code this condition would require engineering. Typically, the engineering solution would provide details similar to those included in this proposal. Therefore, the solution and construction costs would not change. Costs would be reduced by eliminating additional costs for engineering in most cases where a prescriptive solution works.

Committee Action: Disapproved

Committee Reason: The code change should also include floor trusses. As it is currently written there are load path issues and some inconsistency with the use of the word diaphragm. Deep trusses are a major concern for load path transfer.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Robert Rice, Joseph County, Oregon, representing Joseph County Building Safety, Southern Oregon Chapter of ICC, requests Approval as Modified by this public comment.

Modify proposal as follows:

R301.2.2.2.2 Irregular buildings. Prescriptive construction as regulated by this code shall not be used for irregular structures located in Seismic Design Categories C, D0, D1 and D2. Irregular portions of structures shall be designed in accordance with accepted engineering practice to the extent the irregular features affect the performance of the remaining structural system. When the forces associated with the irregularity are resisted by a structural system designed in accordance with accepted engineering practice, design of the remainder of the building shall be permitted 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 occur:

1. When exterior shear wall lines or braced wall panels are not in one plane vertically from the foundation to the uppermost story in which they are required:

   Exception: For wood light-frame construction, floors with cantilevers or setbacks not exceeding four times the nominal depth of the wood floor joists are permitted to support braced wall panels that are out of plane with braced wall panels below provided that:

   1. Floor joists are nominal 2 inches by 10 inches (51 mm by 254 mm) or larger and spaced not more than 16 inches (406 mm) on center.
   2. The ratio of the back span to the cantilever is at least 2 to 1.
   3. Floor joists at end of braced wall panels are doubled.
   4. For wood-frame construction, a continuous rim joist is connected to ends of all cantilever joists. When spliced, the rim joists shall be spliced using a galvanized metal tie not less than 0.058 inch (1.5 mm) (16 gauge) and 1 ½ inches (38 mm) wide fastened with six 16d nails on each side of the splice or a block of the same size as the rim joist of sufficient length to fit securely between the joist space at which the splice occurs fastened eight 16d nails on each side of the splice: and
   5. Gravity loads carried at the end of cantilevered joists are limited to uniform wall and roof loads and the reactions from headers having a span of 8 feet (2438 mm) or less.

2. When a section of floor or roof ~~diaphragm~~ is not ~~positively connected to and~~ laterally supported by shear walls or braced wall lines on all edges ~~with edge nailing to framing members or solid blocking per Table 602.3(1)~~.

   Exception~~s~~:

   ~~1.~~ Portions of floors that do not support shear walls or braced wall panels above, or roofs, shall be permitted to extend no more than 6 feet (1829 mm) beyond a shear wall or braced wall line.

   ~~2. When the floor or roof diaphragm is positively connected to the braced wall line by one of the following methods;~~

   ~~2.1. Engineered truss blocking for the extent of the wall line designed for 182 plf, or per Wood Frame Construction Manual for One and Two Family Dwellings, 2001 Edition, Table a-3.4, and attached to sheathing above and wall below per Table R602.3(1).~~

   ~~2.2. Roof or floor diaphragm sheathing above is extended to the braced wall line, for the extent of the wall line, and attached to 2 x 4 minimum blocking with fasteners per Table R602.3(1). (See Figures R301.2.2.2.2(2)1 and R301.2.2.2.2(2)2.).~~

   ~~3. Connected in a manner approved by the building official.~~

Delete Figures R301.2.2.2.2(2)1 and R301.2.2.2.2(2)2 and relocated to become Figures R602.10.8.3(1) and R602.10.8.3(2)

3. When the end of a braced wall panel occurs over an opening in the wall below and ends at a horizontal distance greater than 1 foot (305 mm) from the edge of the opening. This provision is applicable to shear walls and braced wall panels offset in plane and to braced wall panels offset out of plane as permitted by the exception to Item 1 above.

   Exception: For wood light-frame wall construction, one end of a braced wall panel shall be permitted to extend more than 1 foot (305 mm) over an opening not more than 8 feet (2438 mm) wide in the wall below provided that the opening includes a header in accordance with the following:

   1. The building width, loading condition and framing member species limitations of Table R502.5(1) shall apply and
   2. Not less than one 2×12 or two 2×10 for an opening not more than 4 feet (1219 mm) wide or 3. Not less than two 2×12 or three 2×10 for an opening not more than 6 feet (1829 mm) wide or
   3. Not less than three 2×12 or four 2×10 for an opening not more than 8 feet (2438 mm) wide and 5. The entire length of the braced wall panel does not occur over an opening in the wall below.

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.
5. When portions of a floor level are vertically offset.

   Exceptions:

   1. Framing supported directly by continuous foundations at the perimeter of the building.
   2. For wood light-frame construction, floors shall be permitted to be vertically offset when the floor framing is lapped or tied together as required by Section R502.6.1.

6. When shear walls and braced wall lines do not occur in two perpendicular directions.
7. When stories above-grade partially or completely braced by wood wall framing in accordance with Section R602 or steel wall framing in accordance with Section R603 include masonry or concrete construction.

   Exception: Fireplaces, chimneys and masonry veneer as permitted by this code. When this irregularity applies, the entire story shall be designed in accordance with accepted engineering practice.

R602.10.8 Connections. ~~Braced wall line sole plates shall be fastened to the floor framing and top plates shall be connected to the framing above in accordance with Table R602.3(1). Sills shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11. Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1).~~ Braced wall panels shall be connected at wall top and bottom in accordance with the provisions of this section.

R602.10.8.1 Sole plate connections. Braced wall panel sole plates shall be fastened to the floor framing in accordance with Table R602.3(1). Where ~~joists~~ floor framing members are perpendicular to the braced wall lines above, full height blocking shall be provided between framing members, under and in line with braced panels. Where floor framing members are parallel to braced wall lines above, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1). ~~Sills shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11.~~

R602.10.8.2 Foundation sill plate connections. Braced wall panel foundation sill plates shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11.

R602.10.8.~~2~~3 Top plate connections. ~~Braced walls shall be connected to floor and roof diaphragms above with full height solid blocking between joist, rafter or truss. Attach roof sheathing to blocking and blocking to top of wall per Table R602.3(1) or per exceptions described in R301.2.2.2.2, Item 2.~~ Exterior braced wall panel top plates shall be connected to floor or roof framing above. Where the floor or roof framing members above are parallel to the braced wall lines, a full height parallel framing member shall be provided at the wall. Where the roof or floor framing members above are perpendicular to the braced wall line, full height blocking shall be provided between the framing members and in line with the braced wall panels. Roof or floor sheathing above shall be attached to the full height framing or blocking and the full height framing or blocking shall be attached to top of the wall per Table R602.3(1).

Exception: Where the full height blocking required for top plate connection is over 9 ¼ inches (235 mm) exterior braced wall panel top plates are permitted to be connected in accordance with one of the following methods:

1. In accordance with Figure R602.10.8.3(1)
2. In accordance with Figure R602.10.8.3(2)
3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM). Roof or floor sheathing above shall be attached to the blocking panels and the blocking panels shall be attached to top of wall in accordance with Table R602.3(1).
4. Designed in accordance with accepted engineering methods.

Interior braced wall panel top plates shall be connected to floor or ceiling framing above and fastened in accordance with Table R602.3(1). Where the framing members above are parallel to braced wall lines, a parallel framing member shall be provided at the wall. Where the framing members are perpendicular to the braced wall line, blocking shall be provided in line with the braced wall panels.

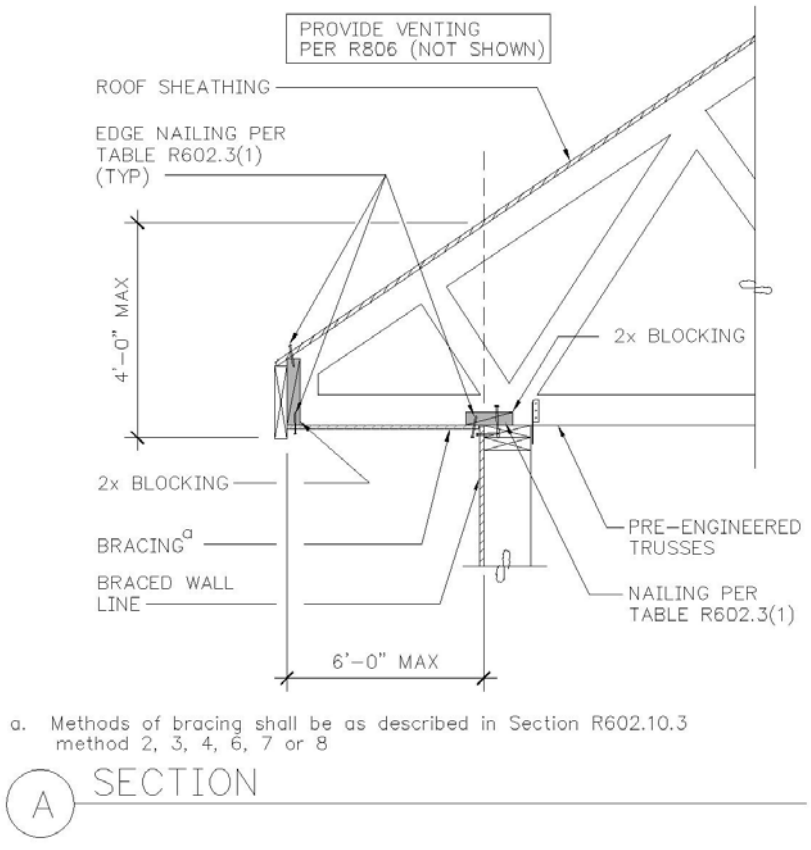


Figure R602.10.8.3(1) Alternate braced wall panel top plate connection.

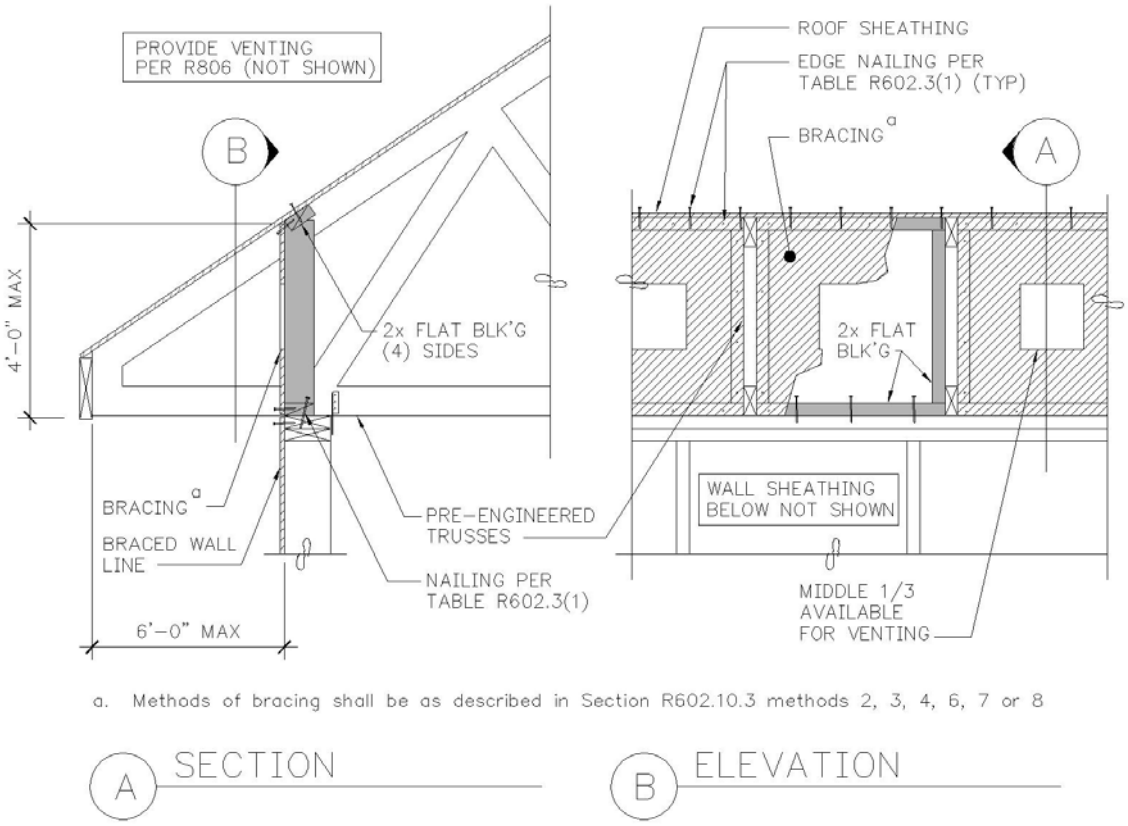


Figure R602.10.8.3(2) Alternate braced wall panel top plate connection.

Commenter's Reason:

1. The code change as originally submitted placed the requirement of providing the connection in "R301.2.2.2.2 Irregular buildings". That limited the prescriptive solution of this code change to high seismic zones and caused lack of clarity. This connection should occur at braced walls in general whether governed by seismic or wind (as stated in the 2006 IRC section R602.10.8 and the reasons and purpose of the original proposal). Therefore, this public comment deletes the proposed changes to section "R301.2.2.2.2 Irregular buildings" and the details R301.2.2.2.2 (2)1 and R301.2.2.2.2 (2)2 leaving only original code language. The proposed changes are now entirely in "R602.10.8 Connections".
2. The code change as originally submitted did not define limits for the height of the prescriptive panels. This is now clearly stated in the revised details.
3. The code change as originally submitted provided for truss blocking designed for a value of 182 plf per American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One and Two Family Dwellings* (WFCM) based on 150 mph wind speed as a "worst-case". Since design criteria will vary per location and the prescriptive provisions of the IRC are limited to 110 mph wind speeds the specific design value is removed and the section directly references American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One and Two Family Dwellings* (WFCM) as the code already does elsewhere (e.g. R301.1.1 & R301.2.1.1). It also includes "or other approved design criteria".
4. The committee expressed questions about venting through the sheathed panels that was not shown in the details. A similar detail is in the draft of the new, *ICC Standard for Residential Construction in High Wind Regions*. To be consistent, the same venting note has been incorporated into the details of this proposal.
5. To resolve concerns regarding the detail calling to "Match roof sheathing", the sheathing requirement is revised to allow other code-defined methods of bracing. The footnote "a" in the details is consistent with footnote "c" of Table R602.10.1.
6. All of the existing R602.10.8 should have been shown struck-out in the original proposal, as shown here, but was misprinted. In the original proposal the connections described in the original code section R602.10.8 were divided up into individual items based on bottom of wall, sill plate, and top of wall respectively for clarity. In addition to showing that as intended, this modification further distinguishes "Exterior" from "Interior" walls in "R602.10.8.3 Top plate connections" and provides for the use of the prescriptive details and design options that were originally referenced in R301.2.2.2.2 of the original proposal.

   The original proposal mistakenly used 2003 IRC language and correctly reflects 2006 IRC language in this public comment. The need for the blocking is more clearly stated in the 2006 language of R608.10.8 that says, "..Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels."
7. The issue of floor trusses not being included in the prescriptive solution was brought up by truss industry representatives during Code Development Hearings. This proposal is not an attempt to address each and every condition that occurs with a prescriptive detail. This code proposal is intended to; 1. Clarify the necessity to connect the roof or floor sheathing above to the braced wall line to complete the lateral load path and, 2. Provide two details for the very common condition where the pre-engineered trusses cantilever over the braced wall line. (See original proposals comments/purpose for further background.). In the case of bottom bearing, open web floor trusses or joists and other various conditions, item 3 or 4 of the exception in this proposal would apply. This

proposal would have no adverse effect on other conditions not directly identified by this proposal as they would be dealt with the same way they are now.

8. See purpose as stated in original proposal RB46 for additional information.
9. The details provided with the original proposal have been revised to address concerns brought up at the Code Development Hearings. Also, they have been relocated and renumbered to occur in chapter 6.

Public Comment 2:

Gary J. Ehrlich, PE, National Association of Home Builders (NAHB), requests Disapproval.

Commenter's Reason: We understand the proponent is submitting a public comment to address the concerns raised by the committee and testimony at the Public Hearing. We had an opportunity to review the proposed comment and still have a number of concerns. The proposal imposes a full-height blocking requirement for roof joists and rafters, and roof trusses with short heels, that is inconsistent with the lateral support requirements of Section R802.8 and R802.8.1 and the unblocked roof diaphragm assumption that is the basis of the IRC lateral load provisions. Testing performed by the NAHB Research Center for HUD indicates the standard toe-nailed connections per Table R602.3(1) have sufficient capacity to resist lateral loads in low-hazard regions. Hurricane clips can provide additional resistance up to the wind and seismic limits of the IRC. The proposal is not clear if blocking is required only at individual braced wall panels or along the entire length of a braced wall line, and the sheathing requirements exclude Method 5 without technical justification. Finally, the proponent's modification does not properly reflect changes to the underlying section implemented by RB179 and RB225. If the proposal passes the Code Correlation Committee will need to resolve the resulting conflict. NAHB asks for your support in upholding the committee's action of disapproving the proposal.

Reference: *Roof Framing Connections in Conventional Residential Construction*, by NAHB Reseach Center for U.S. Dept. of Housing and Urban Development, Washington, D.C. February 2002.

Final Action: AS AM AMPC____ D

RB50-06/07

Table 301.7

Proposed Change as Submitted:

Proponent: Richard E. Bartell, Hanover County, Virginia, representing the Virginia Building Code Officials Association (VBCOA)

Revise table as follows:

TABLE R301.7
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS[a,b,c,d]

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Exterior walls—wind loads[a] with brittle finishes	L/240[d] and H/240[d]
Exterior walls—wind loads[a] with flexible finishes	L/120[d] and H/240[d]

(Portions of table not shown do not change)

Note: L = span length (between studs for exterior walls), H = span height.

a. The wind load shall be permitted to be taken as 0.7 times the Component and Cladding loads for the purpose of the determining deflection limits herein.
b. For cantilever members, L shall be taken as twice the length of the cantilever.
c. For aluminum structural members or panels used in roofs or walls of sunroom additions or patio covers, not supporting edge of glass or sandwich panels, the total load deflection shall not exceed L /60. For sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed L/120.
d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of L/180 and H/180.

Reason: To satisfy the allowable deflection requirement of L/180 for interior partitions, the allowable deflection for exterior walls having an interior gypsum board finish should be limited to L/180.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposed allowable deflection of H/240 is too stringent. The intermixing of H and L does not work here.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Chris Snidow, County of Henrico, Virginia, representing Virginia Building and Code Officials Association (VBCOA), requests Approval as Modified by this public comment.

Modify proposal as follows:

TABLE R301.7
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS a,b,c,d

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3/12 with no finished ceiling attached to rafters	L/180
Interior walls and partitions	H/180
Floors and plastered ceilings	L/360
All other structural members	L/240
Exterior walls with plaster or stucco finish	H/360
Exterior walls – wind loads[a] with brittle finishes	~~L/240~~[d] ~~and~~ H/240[d]
Exterior walls – wind loads[a] with flexible finishes	~~L~~H/120[d] ~~and H/240~~[d]

Note: L = span length ~~(between studs for exterior walls),~~ H = span height.

a. The wind load shall be permitted to be taken as 0.7 times the Component and Cladding loads fo the purpose of the determining deflection limits herein.
b. For cantilever members, L shall be taken as twice the length of the cantilever.
c. For aluminum structural members or panels used in roofs or walls of sunroom covers, not supporting edge of glass or sandwich panels, the total load deflection additions or patio shall not exceed L/60. For sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed L/120.
d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of ~~L/180 and~~ H/180.

Commenter's Reason: To be compatible with the allowable deflection requirement of H/180 for interior walls and partitions, the allowable deflection for exterior walls having an interior gypsum board finish should be limited to H/180.

Final Action: AS AM AMPC____ D

RB52-06/07
R301.9 (New)

Proposed Change as Submitted:

Proponent: Randall Shackelford, Simpson Strong-Tie Co.

Add new text as follows:

R301.9 Anchorage of light Framing. Subject to the limitations of Sections R301.2.1.1 and R301.2.2, anchorage of wood or cold-formed steel to concrete shall not be subject to consideration of cracked concrete, ductile anchor performance, or simulated seismic testing.

Reason: ACI 318, Appendix D contains new, very conservative requirements for calculating and testing the capacity of cast-in-place and post-installed anchors in concrete. In general, the lateral force resisting systems in the IRC do not offer ductile performance, so it is overkill to require anchorages to exhibit this property. The IRC currently contains many anchor specifications that were not calculated using these new requirements. Applying these new requirements will require significant reworking of IRC anchorages.

The requirements of the IRC are based on years of satisfactory performance. This change will allow the current wood and steel to concrete methods that are used in the IRC to continue to be used.

Cost Impact: The code change proposal will not increase the cost of construction. In fact, there will be an increase in cost of construction if this is not approved.

Committee Action: **Disapproved**

Committee Reason: There is insufficient technical data provided to support this code change proposal. Target anchor bolts and the horizontal applications are not the intent but seem to be implied by the proponent. Performance criteria is being mixed up with prescriptive code language.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Gary Ehrlich, PE, National Association of Home Builders (NAHB), requests Approval as Submitted.

Commenter's Reason: ACI 318, Appendix D contains new design requirements and testing provisions for cast-in-place and post-installed anchors in unreinforced concrete based on fatigue loading, ductile anchor behavior, and seismic requirements. As noted by the proponent, these provisions will lead to more conservative designs for residential construction due to embedment and edge distance requirements which adversely affect hold-downs and anchor bolts as used in foundation walls. In fact, the reduced bolt strengths calculated per Appendix D are as low as 30%-40% of the previous values, a substantial reduction from previously accepted strength values with an excellent history of performance in residential construction.

There is no evidence to suggest that concrete breakout or pullout failure at hold-downs and anchor bolts in either cracked or uncracked concrete is a problem for residential light-frame construction. In fact, it is likely that the wood sill plate or cold-formed track will fail by splitting or deforming well before concrete pullout or breakout occurs and well before the bolt itself yields. Fatigue loading is not an issue in residential construction. As for seismic loading, in high-seismic areas foundation walls will have horizontal reinforcing in accordance with the prescriptive provisions of the IRC. This reinforcing will restrain through shear friction any breakout or pullout cracking that initiates at a point of anchorage.

Recent anchor testing performed at the University of Minnesota on wire-formed and bolt inserts in thin concrete slabs suggest that tensile stresses around the point of anchorage develop due to bending of the test specimen and contribute to the ultimate failure. Typical residential installation of anchors will be in foundation walls and turned-down slab edges. Flexural tension stresses developing at the anchorage in concrete walls and turn-downs will be substantially lower and will not contribute to failure of the anchors as they did in the tests of thin specimens.

Currently, only three post-installed anchors (Hilti Kwik-Bolt TZ expansion bolt, HSL-3 sleeve anchor and HAD undercut anchor) have received an ICC Evaluation Report under Acceptance Criteria AC193 for testing per ACI 318 Appendix D standards. With adoption of the IRC 2006 proceeding, an exclusionary requirement now exists for those jurisdictions that require evaluation reports until such time as more anchors complete testing.

There is no reason to impose conservative design and testing requirements in an application where anchors in concrete have shown good performance. In addition, there has been no evidence to suggest that current anchorage requirements in the IRC are inadequate and need revision, which the proponent correctly indicates would need to happen under Appendix D requirements. This proposal would allow anchors in residential applications to be designed and selected using the current testing-based tables developed by a variety of manufacturers and using existing evaluation reports.

NAHB asks for your support in approving the proposal as submitted and reversing the committee's action.

References:

Baran, E., Schultz, A. and French, C., "Tension Tests on Cast-in-Place Inserts: The Influence of Reinforcement and Prestress", PCI Journal, September-October 2006.

Burdette, E. and Zisi, N., "Shear Towards a Free Edge", ACI Concrete International, March 2004.

Final Action: AS AM AMPC____ D

RB54-06/07

R302.1, Table 302.1

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1. These provisions shall not apply to walls, projections,

openings or penetrations in walls that are perpendicular to the line used to determine the fire separation distance. ~~Projections beyond the exterior wall shall not extend more than 12 inches (305 mm) into the areas where openings are prohibited.~~ No projections are permitted within 2 feet (610 mm) of 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 are permitted to 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

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Projections	(Fire-resistance rated)	1 hour on the underside	~~4~~ 2 feet
	(Not fire-resistance rated)	0 hours	~~5~~ 3 feet

(Portions of table not shown do not change)

Reason: The purpose of this code change is to simplify the text regulating projections and reduce errors and confusion. As this section is read, it appears there are two means to determine limitations on projections. First the section states that projections shall comply with Table R302.1. The table limits projections to no closer than 4 feet from the line used to determine the fire separation distance.

But as one reads further down the paragraph there is a specific rule for projections that is based on prohibition of openings. To use this provision one must first determine when openings are prohibited by Table R302.1 and at what distance from the line used to determine the fire separation distance that occurs. Then one must subtract 12 inches from that distance to determine the extent of projections from the wall. Since openings are prohibited less than 3 feet from the line used to determine the fire separation distance this method would lead you to believe that projections could extend to within 2 feet of the line used to determine the fire separation distance. Because there are two methods to determine the distance, this is an invitation for errors and lack of uniformity.

Because openings are always prohibited less than 3 feet from the line used to determine the fire separation distance, the current text will always result in projections being able to project to within 2 feet of the line used to determine the fire separation distance. If the dimension is a constant, why require the user of the code to go through multiple steps to achieve the answer? Why not just state that projections must be 2 feet from the line used to determine the fire separation distance?

Also what is proposed here is that projections be regulated by the 3-foot limitation on openings and not the 5-foot limit. The governing text limits projections “where openings are prohibited”. Openings are not prohibited between 3 and 5 feet although they are limited. The table as it currently is written is misleading and it is obvious that different people will interpret it differently. The proposal eliminates the confusion and creates a single standard based on the current text in the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The minimum fire separation distance for a projection is already listed in the IRC. This was listed in the first posted errata on the 2006 IRC. There was insufficient justification and no technical data presented to support changing the 5 foot separation distance to 3 feet when a projection has no fire resistance rating.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Modified by this public comment.

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1. These provisions shall not apply to walls, projections, openings or penetrations in walls that are perpendicular to the line used to determine the fire separation distance. No projections are permitted within 2 feet (610 mm) of 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 are permitted to 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

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Projections	(Fire-resistance rated)	1 hour on the underside	~~2~~ 4 feet
	(Not fire-resistance rated)	0 hours	~~3~~ 5 feet

(Portions of table not shown do not change)

Commenter's Reason: The proposed modification retains the current language for Minimum Fire Separation Distance in table R302.1 but editorially revises the last sentence of R302.1 for simplicity. The current text states that projections may not extend more than 12 inches into areas where openings are **prohibited**. To determine the extent of the projection, one must first determine when openings are prohibited. Openings are always prohibited when the wall is less than 3 feet from the line used to determine the fire separation distance by table R302.1. This means that projections would be permitted to extend to within 2 feet of this line. Since this is a fixed rule, unlike the IBC, it is unnecessary to require the user of the code to go through two steps to determine the extent of projections. Projections are never permitted closer than two feet from the line used to determine fire separation distance. There are no other alternatives. The proposal is to simplify the code by just stating that projections are not permitted within 2 feet of the line used to determine the fire separation distance. This proposal does not change **where** projections are permitted. It only states the rule in a simpler method.

Final Action: AS AM AMPC____ D

RB57-06/07
R302.1

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

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 are permitted to have roof eave projections not exceeding 4 inches (102 mm).
3. ~~Foundation vents installed in compliance with this code are permitted.~~

Reason: The purpose of this code change is to regulate foundation vents in the same manner as other openings in exterior walls requiring fire resistance. The current text allows unlimited openings in walls adjacent lot lines if they are “foundation vents” all the while requiring that a penetration of a cable TV wire be protected. At the hearings in Cincinnati, the committee made the following statement: “The code does need to address the lack of protection required for foundation vent openings. In seeking to provide a solution to this problem the proposed change would eliminate the protection for all openings and does not provide the needed solution.” The proposal follows the direction of the committee.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: It would be a mistake to eliminate the exception for foundation vents. It can become difficult to provide needed ventilation in a home without foundation vents.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: The published reason for disapproval of this code change is that it eliminates the requirement for foundation vents. That is an incorrect statement. Foundation vents continue to be required by R408. This code section regulates penetrations and openings in walls where fire resistance is required. This proposal puts foundation vents, which currently can be of unlimited size, on the same basis as other wall openings and penetrations. It makes no sense to require that a penetration of a cable TV wire be protected when it is right next to a four square foot foundation vent that exposes the under floor framing to fire in a building that could be inches away. The code currently regulates windows but excludes foundation vents completely. These vent openings provide just as much of an opportunity for spread of fire as a window and in some cases potentially more due to the fact that smoke, heat, and flames can be drawn into the underfloor space through the vent. It was argued that this would pose a problem in venting some spaces because it potentially takes away an exterior wall. But this happens already in the case of townhomes where it is very common to have only one exterior foundation wall available for venting. This proposal provides reasonableness and consistency to this portion of the code.

Final Action: AS AM AMPC____ D

RB58-06/07
Table 302.1

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

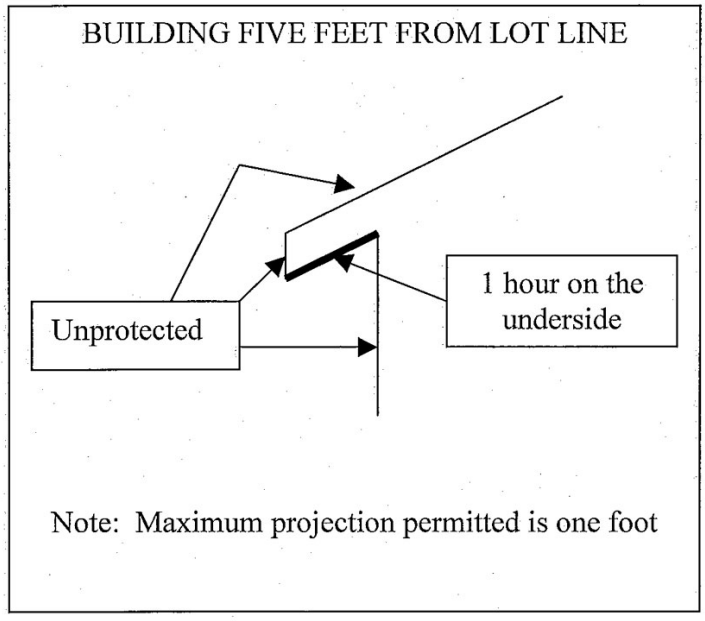
Revise table as follows:

TABLE R302.1
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Projections	(Fire-resistance rated)	~~1 hour on the underside~~ 5/8-inch Type X gypsum board applied to vertical and horizontal faces and no openings	4 feet
	(Not fire-resistance rated)	0 hours	5 feet

(Portions of table not shown do not change

Reason: The purpose of this code change is to address a section of the code that does not accomplish its intent to provide fire resistance to projections. The current text requires that fire-resistive materials be placed on the underside of projections such as eaves but does not address the face of these projections that may be open and makes no mention of potential openings in the projection (see illustration). Both of these omissions make the rule meaningless. The proposal requires that the fire-resistive construction also wrap up the face of the projection and that there be no openings, such as eave vents, in the projection. Also, text similar to that used for garage/dwelling separations is used rather than the term "1 hour" which will be more easily understood than the current language.



Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: A single layer of 5/8 inch type x gypsum board is not the equivalent of a one hour rating. The existing language is preferred. The diagram does not take eave ventilation into consideration.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: The current text requires that projections be protected with "1 hour on the underside". The code doesn't require a one-hour fire-resistive assembly, only "protection on the underside". The published reason why the Committee disapproved this code change was that a single layer of 5/8 inch Type X did not constitute a one hour rating. The code doesn't require a one hour rating. It only asks for a membrane on the underside of the framing and not a full blown assembly. But, since there are no fire resistance tables in the IRC, one must go to the IBC to find a "1 hour" assembly. The only design that remotely applies to wood frame roof projections is Table 720.1(3), #21. This design requires two layers of 5/8" Type X gypsum board be applied to the underside. Is this what our expectation is? We typically think of one layer of ½" regular or 5/8" Type X gypsum board as providing sufficient protection for the dwelling/garage separation. Is this type of projection so hazardous as to require two layers? IBC section 721 Calculated Fire Resistance, provides a method to calculate fire resistance based on typical framing applications. But, you will find that the section cannot be used when framing members exceed 16" o.c. or when trusses are used. This is hardly acceptable given the frequent use of 24 inch spacing and truss roofs. The current text is a performance standard in what is supposed to be a prescriptive code. One layer of 5/8" Type X gypsum board provides sufficient protection in this case. This is consistent with what is required by R309.2 for the separation between a garage and habitable space above. If a single layer of gypsum board is sufficient to protect the occupants of a dwelling, it is sufficient to protect an eave. The Committee also stated that the proposal does not take ventilation into consideration. This is true. This proposal does not permit openings in these projections. But you cannot protect the eave and then fill it full of vent openings. Ventilation can be achieved by locating vents in locations other than the eave adjoining a lot line.

Final Action: AS AM AMPC____ D

RB69-06/07
Figure R307.1

Proposed Change as Submitted:

Proponent: Tom Rubottom, City of Lakewood, Colorado, representing The Colorado Chapter of ICC

Revise figure as follows:

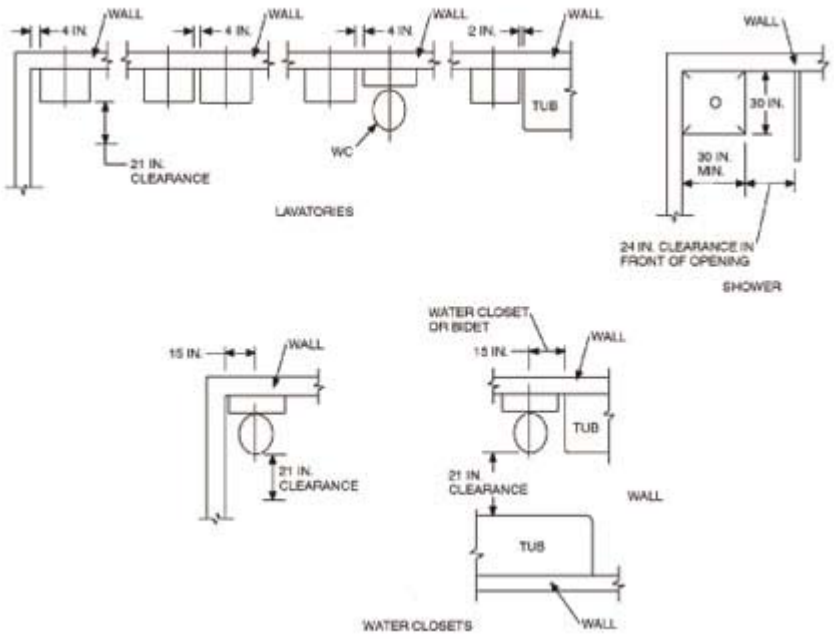


FIGURE R307.1
MINIMUM FIXTURE CLEARANCES

(Portions of figure not shown do not change)

Reason: According to the *International Residential Code* commentary, the figures in R307.1 are necessary to make fixtures accessible and usable. Unfortunately, the side wall and fixture to fixture clearance requirements for lavatories greatly reduces the ability of homeowners and builders to use the wide variety of lavatory types and styles available in today's marketplace. If the purpose of Figure R307.1 is for disabled accessibility and usability, then clearance requirements should be based on those in ICC/ANSI A117.1.

The drawings in figure R307.1 do not indicate if these are wall mounted or free standing fixtures, or installed in the countertops of vanities, or kitchen cabinets, or all of the above. In addition; the drawings do not indicate if the clearance requirements are to edge of the fixture or to the edge of the bowl making this section of the code especially difficult to interpret and enforce.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposed change to Figure R307.1 is not apparent. The change to the figure and substantiation should be brought back by the proponent through public comment for further consideration.

Assembly Action: **None**

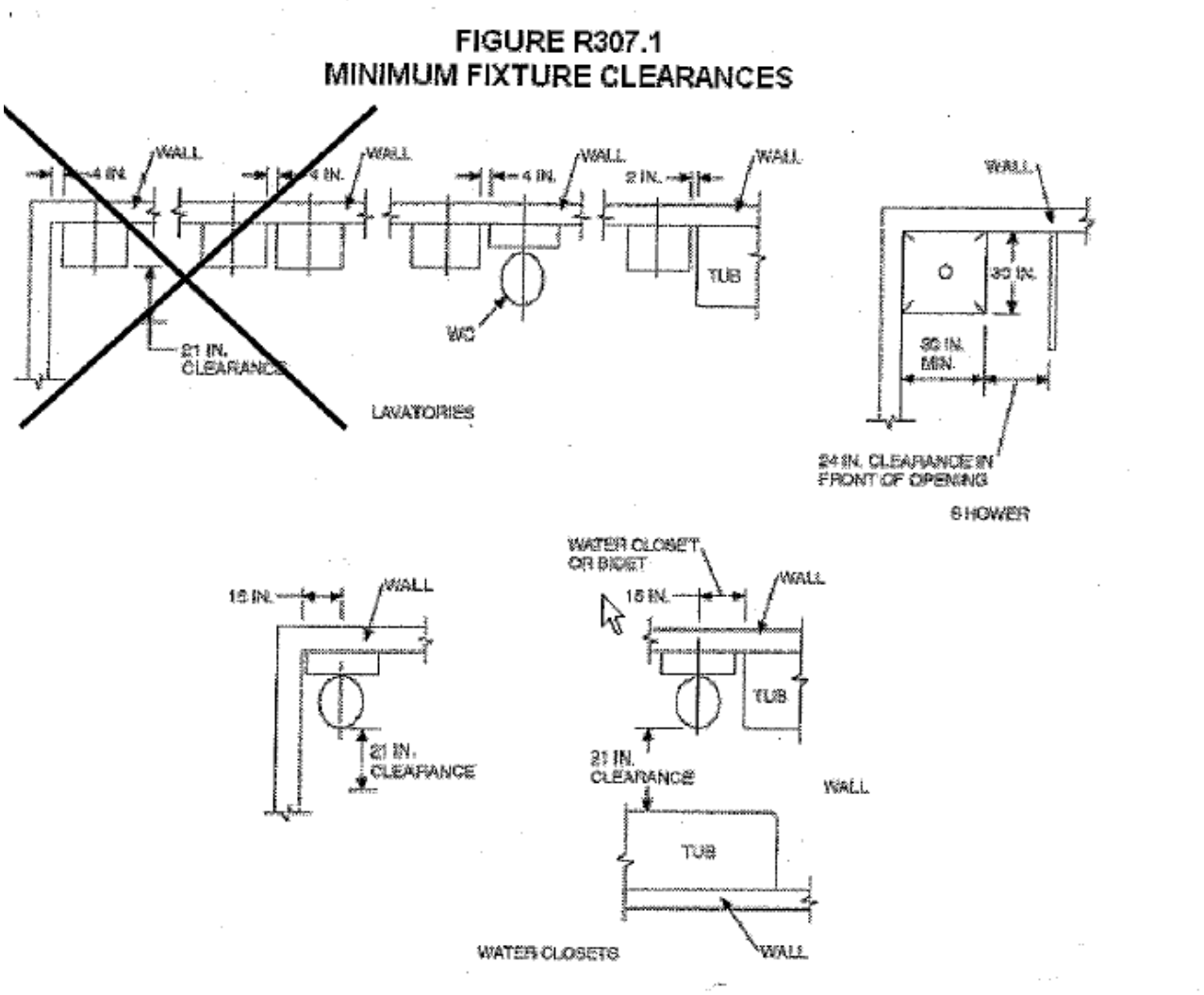
Individual Consideration Agenda

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

Public Comment:

Tom Rubottom, City of Lakewood, Colorado, representing Colorado Chapter of ICC, requests Approval as Modified by this public comment.

Modify proposal as follows:



Commenter's Reason: The cross-out indicated on revised Figure R307.1 was omitted in the monograph. As a result, the code change proposed was confusing to the committee and subsequently disapproved. This modification restores the original intent of the proposal.

Currently, the figure requires all lavatories to be placed 4" from side walls or provided with 4" separation between other lavatories. The code does not state if this requirement pertains to stand-alone lavatories, those placed within countertops and/or those formed integrally within the countertop. The code does not indicate if the dimension is taken from the bowl edge or from the fixture or counter that the bowl is installed within. This has led to considerable confusion in enforcement. Regardless, this requirement has absolutely no life-safety justification and has no place within a minimum standard code. We request approval as modified to eliminate this confusing and unnecessary requirement.

Final Action: AS AM AMPC____ D

RB70-06/07
R308.4

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

1. Glazing in swinging doors except jalousies.
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,~~ whirlpool~~s~~ baths, 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. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch (610 mm) arc of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 and 6 above, that meets all of the following conditions:
   7.1. Exposed area of an individual pane larger than 9 square feet (0.836 m^2).
   7.2. Bottom edge less than 18 inches (457 mm) above the floor.
   7.3. Top edge more than 36 inches (914 mm) above the floor.
   7.4. One or more walking surfaces within 36 inches (914 mm) horizontally of the glazing.
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm) horizontally of the water's edge. This shall apply to single glazing and all panes in multiple glazing.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

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

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. Decorative glass in Items 1, 6 or 7.
3. Glazing in Section R308.4, Item 6, when there is an intervening wall or other permanent barrier between the door and the glazing.
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position, other than the wall toward which the door swings when opened, 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. Glazing in Section R308.4, Items 7 and 10, when a protective bar is installed on the accessible side(s) of the glazing 36 inches ± 2 inches (914 mm ± 51 mm) above the floor. The bar shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 1 1/2 inches (38 mm) in height.
6. Outboard panes in insulating glass units and other multiple glazed panels in Section R308.4, Item 7, when the bottom edge of the glass is 25 feet (7620 mm) or more above grade, a roof, walking surfaces, or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.
7. Louvered windows and jalousies complying with the requirements of Section R308.2.
8. Mirrors and other glass panels mounted or hung on a surface that provides a continuous backing support.
9. Safety glazing in Section R308.4, Items 10 and 11, is not required where:
   9.1. The side of a stairway, landing or ramp has a guardrail or handrail, including balusters or in-fill panels, complying with the provisions of Sections 1013 and 1607.7 of the *International Building Code*; and
   9.2. The plane of the glass is more than 18 inches (457 mm) from the railing; or
   9.3. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (863 mm) to 36 inches (914 mm)above the floor and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as the protective bar.
10. Glass block panels complying with Section R610.

Reason: The term "hot tub" is used in two different sections, #5 and #9, with each providing different standards for safety glazing. Because it is perceived that the danger from hot tubs is similar to pools and spas, the term is deleted from #5. Also, whirlpool *baths* are just a bathtub with water pumped through orifices but typically occupied by only a single person. Whirlpools on the other hand are more like hot tubs so the term is editorially amended to help create a distinction from residential bathing facilities typically used by one or two persons versus those that may be used by more people in a more open setting inside or outside the dwelling

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: There is an important distinction between items 5 and 9. Item 5 refers to doors and item 9 speaks specifically to walls and fence enclosures. While both of these items refer to hot tubs the other specific issues in these items are such that the current wording is preferred over the proposed text.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: You conduct a plan review on a project involving the placement of an indoor hot tub that is four feet from a series of windows. You review section R308.4(5) that requires safety glazing "in doors or enclosures for hot tubs..." Since the hot tub is not in an enclosure, you approved the plan without requiring safety glazing. It is grouped with bathtubs and you see no difference between a bathtub 4 feet from a wall and a hot tub the same distance. The field inspector issues a correction order on the installation citing R308.4(9) which states that glazing within 60 inches of indoor hot tubs must be safety glazed. Who is correct? Why are hot tubs referenced in two areas of the same section with different requirements. If (5) is safe and a minimum standard, why wouldn't (9) also be safe? In a residential setting, one could probably argue that a hot tub is more likely to be used in recreation, just like a swimming pool. They are different from a bathtub because most hot tubs are designed to hold several people whereas most bathtubs are designed for one. Then why shouldn't the term "hot tub" be deleted from inclusion with bathtubs and showers and be included with swimming pools? Good question. The committee disapproved this code change because they said that (9) did not include doors while (5) did and they felt that the protection should extend to doors. They are right. But glazing in all doors is already required, whether it serves an area with a bathtub or a hot tub or a wash tub. If this code change is approved, there will be no reduction in safety, there will be less confusion in the code, and there will be no increase in cost to building owners. And there won't be conflicts between the plan reviewer and field inspector.

Final Action: AS AM AMPC____ D

RB71-06/07
R308.4

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

1. Glazing in swinging doors except jalousies.
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~~ or windows located in walls or enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers where the bottom edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface. For purposes of this section, glazing within 36 inches (914 mm) measured horizontally from the water's edge shall be considered to be within the enclosure. ~~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. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch (610 mm) arc of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 and 6 above, that meets all of the following conditions:
   7.1. Exposed area of an individual pane larger than 9 square feet (0.836 m^2).
   7.2. Bottom edge less than 18 inches (457 mm) above the floor.
   7.3. Top edge more than 36 inches (914 mm) above the floor.
   7.4. One or more walking surfaces within 36 inches (914 mm) horizontally of the glazing.
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm) horizontally of the water's edge. This shall apply to single glazing and all panes in multiple glazing.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

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

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. Decorative glass in Items 1, 6 or 7.
3. Glazing in Section R308.4, Item 6, when there is an intervening wall or other permanent barrier between the door and the glazing.
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position, other than the wall toward which the door swings when opened, 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. Glazing in Section R308.4, Items 7 and 10, when a protective bar is installed on the accessible side(s) of the glazing 36 inches ± 2 inches (914 mm ± 51 mm) above the floor. The bar shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 1 1/2 inches (38 mm) in height.
6. Outboard panes in insulating glass units and other multiple glazed panels in Section R308.4, Item 7, when the bottom edge of the glass is 25 feet (7620 mm) or more above grade, a roof, walking surfaces, or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.
7. Louvered windows and jalousies complying with the requirements of Section R308.2.
8. Mirrors and other glass panels mounted or hung on a surface that provides a continuous backing support.
9. Safety glazing in Section R308.4, Items 10 and 11, is not required where:
   9.1. The side of a stairway, landing or ramp has a guardrail or handrail, including balusters or in-fill panels, complying with the provisions of Sections 1013 and 1607.7 of the *International Building Code*; and
   9.2. The plane of the glass is more than 18 inches (457 mm) from the railing; or
   9.3. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (863 mm) to 36 inches (914 mm) above the floor and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as the protective bar.
10. Glass block panels complying with Section R610.

Reason: The purpose of this code change is to address changing bathroom designs and the move to larger rooms and placement of bathtubs away from walls. If a bathtub is placed in the center of a room, do the exterior walls of the room constitute the enclosure triggering safety glazing in any windows in the room? Obviously this doesn't make sense if the windows are some distance from the tub. But what if the tub is 1 foot or 2 feet or 3 feet from a window with walking space around the tub? When does the safety glazing apply? This proposal is intended to address those situations. The distance of 36 inches was chosen, as it is consistent with items 7 and 10 in the same section and uses the term "water's edge" which is found in item 9. While the distance to safety glazing for pools is 60 inches, it is

more likely that children or adults may be running or engaged in horseplay and that floor surfaces would be covered with water, which would require a greater distance than should be necessary for a bathtub. Also, the section is editorially revised by moving the last sentence to be part of the first.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: There is an important distinction between items 5 and 9. Item 5 refers to doors and item 9 speaks specifically to walls and fence enclosures. While both of these items refer to hot tubs the other specific issues in these items are such that the current wording is preferred over the proposed text.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: The current text is confusing when applied to a tub or shower located in a typical enclosure. It doesn't work at all when the tub is freestanding and located adjacent a window. The question that needs to be asked is how close a bathtub must be to a window before it must be safety glazed. The IRC regulates glazing in enclosures of bathtubs. What about when the bathtub is not in an enclosure but is freestanding next to a wall. Should safety glazing requirements still apply? Obviously there is a hazard if someone falls when they are in the bathtub or slips on a wet floor adjacent the tub and they contact an adjoining window. Glazing within 36 inches of the tub seems to be a reasonable standard for requiring safety glazing because the IRC regulates glazing adjacent walking surfaces if that glazing is within 36 inches measured horizontally from a walking surface. The Committee expressed concern as to how to measure the 36 inch dimension and would the rule require that the measurement could be taken around a corner. This concern is unnecessary. Similar language is used in items 9, 10, and 11 in the same section. In each case it says that "glazing within 35 inches (or 60 inches) horizontally of…" We know that we don't take the measurement around corners for these three existing code sections. The proposal is intended to be applied in the same manner as other existing rules in the same section.

Final Action: AS AM AMPC____ D

RB72-06/07
R308.4

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

1. Glazing in swinging doors except jalousies.
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. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch (610 mm) arc of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 and 6 above, that meets all of the following conditions:

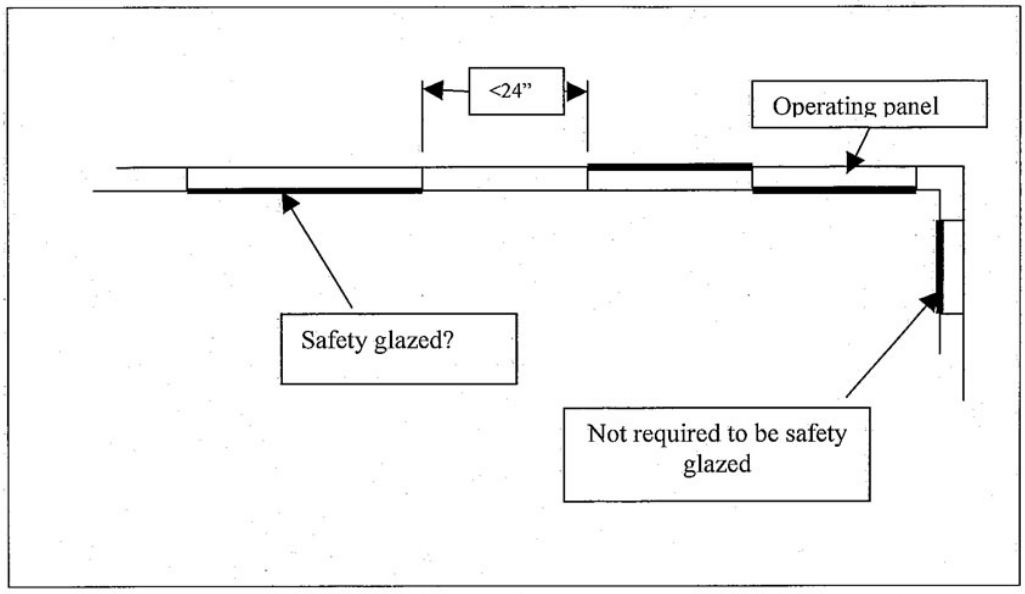
7.1. Exposed area of an individual pane larger than 9 square feet (0.836 m^2).
7.2. Bottom edge less than 18 inches (457 mm) above the floor.
7.3. Top edge more than 36 inches (914 mm) above the floor.
7.4. One or more walking surfaces within 36 inches (914 mm) horizontally of the glazing.

8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm) horizontally of the water's edge. This shall apply to single glazing and all panes in multiple glazing.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

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

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. Decorative glass in Items 1, 6 or 7.
3. Glazing in Section R308.4, Item 6, when there is an intervening wall or other permanent barrier between the door and the glazing.
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position, other than the wall toward which the door swings when opened, 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. Glazing in Section R308.4, Items 7 and 10, when a protective bar is installed on the accessible side(s) of the glazing 36 inches ± 2 inches (914 mm ± 51 mm) above the floor. The bar shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 1 1/2 inches (38 mm) in height.
6. Outboard panes in insulating glass units and other multiple glazed panels in Section R308.4, Item 7, when the bottom edge of the glass is 25 feet (7620 mm) or more above grade, a roof, walking surfaces, or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.
7. Louvered windows and jalousies complying with the requirements of Section R308.2.
8. Mirrors and other glass panels mounted or hung on a surface that provides a continuous backing support.
9. Safety glazing in Section R308.4, Items 10 and 11, is not required where:
   9.1. The side of a stairway, landing or ramp has a guardrail or handrail, including balusters or in-fill panels, complying with the provisions of Sections 1013 and 1607.7 of the *International Building Code*; and
   9.2. The plane of the glass is more than 18 inches (457 mm) from the railing; or
   9.3. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (863 mm) to 36 inches (914 mm)above the floor and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as the protective bar.
10. Glass block panels complying with Section R610.
11. Glazing in Section R308.4, item 6, that is adjacent to the fixed panel of sliding door assemblies.

Reason: Keeping in mind that the IRC is supposed to be a minimum standard, windows adjacent to the **fixed** panel of sliding door assemblies are far removed from the operating panel and pose no hazard. At the last code session, it was argued that a homeowner may reverse the operation of the door at some point or exchange the sliding door for swinging doors and then the window would need to be protected. It is inappropriate that ICC approves rules based on speculation that a homeowner may engage in modification of a door assembly that is beyond their expertise and highly unlikely at some unknown future date. In fact, the potential for this modification is slim at best. If this is a legitimate argument, then one could argue that a homeowner may change the swing of a door or install a door anywhere in a wall so maybe all windows should be safety glazed. It is important to realize that should the sliding door be installed in a corner, such as depicted below, the window in the wall at right angles to the door need not be safety glazed by exception 4. This makes it seem all the more ridiculous to require safety glazing in a window that may be 5 feet from the door when glazing a few inches away is exempt.



Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: This proposal to add an exception for glazing adjacent to the fixed panel of sliding door assemblies adds practicality to the code. It is unlikely that sliding doors will be reversed by the owner and people are familiar with their home environments. Therefor, this new language helps to clarify the code text.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

William E. Koffel, PE, Koffel Associates, Inc., representing Glazing Industry Code Committee, requests Disapproval.

Commenter's Reason: The proposal eliminates the requirement for safety glazing when it is installed adjacent to and in the same plane of a sliding door when the glazing is on the same side as the fixed panel in the door. The proponent acknowledges that previous attempts to exempt such glazing from the safety glazing requirements were disapproved, at least in part due to a concern about the possibility of the operating panel of the door being changed. The proponent and Committee seem to agree that the likelihood of such a change is unlikely. However, no one appears to be able to determine the likelihood of such a change nor is it an impossibility.

The Committee also indicates that the people in the dwelling are familiar with their home environment. Such an argument would seem to infer that safety glazing is not required anywhere in a dwelling. Safety glazing is required in areas subject to human impact. The impact may be the result of not recognizing that glazing is present by the homeowner, family members, or guests (some of whom may not be familiar with the environment). However, the human impact may also be the result of slips, trips, or falls that cause the individual to impact the glazing. The familiarity with the home environment will have little impact on these accidental impact scenarios.

Final Action: AS AM AMPC____ D

RB73-06/07
R308.4

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

1. Glazing in swinging doors except jalousies.
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. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch (610 mm) arc of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 and 6 above, that meets all of the following conditions:
   7.1. Exposed area of an individual pane larger than 9 square feet (0.836 m^2).
   7.2. Bottom edge less than 18 inches (457 mm) above the floor.
   7.3. Top edge more than 36 inches (914 mm) above the floor.
   7.4. One or more walking surfaces within 36 inches (914 mm) horizontally of the glazing.
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm) horizontally of the water's edge. This shall apply to single glazing and all panes in multiple glazing.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

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

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. Decorative glass in Items 1, 6 or 7.
3. Glazing in Section R308.4, Item 6, when there is an intervening wall or other permanent barrier between the door and the glazing.
4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position, other than the wall toward which the door swings when opened~~, 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. Glazing in Section R308.4, Items 7 and 10, when a protective bar is installed on the accessible side(s) of the glazing 36 inches ± 2 inches (914 mm ± 51 mm) above the floor. The bar shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 11/2 inches (38 mm) in height.
6. Outboard panes in insulating glass units and other multiple glazed panels in Section R308.4, Item 7, when the bottom edge of the glass is 25 feet (7620 mm) or more above grade, a roof, walking surfaces, or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.
7. Louvered windows and jalousies complying with the requirements of Section R308.2.
8. Mirrors and other glass panels mounted or hung on a surface that provides a continuous backing support.
9. Safety glazing in Section R308.4, Items 10 and 11, is not required where:

9.1. The side of a stairway, landing or ramp has a guardrail or handrail, including balusters or in-fill panels, complying with the provisions of Sections 1013 and 1607.7 of the *International Building Code*; and
9.2. The plane of the glass is more than 18 inches (457 mm) from the railing; or
9.3. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (863 mm) to 36 inches (914 mm)above the floor and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as the protective bar.

10. Glass block panels complying with Section R610.

Reason: This code section assumes that a person's manner in approaching a door that may have glazing next to it is based on the use and depth of the space on the other side of the door even though the person may be unaware of the use and depth of the space on the other side of the door. This thought process seems to be peculiar only to this code section. Would it be appropriate to allow ordinary glazing in a door sidelight as long as the space on the other side is not more than 36 inches? Of course not. This section also creates scenarios whereby glazing that may be perpendicular to the closet door and only inches away would be exempt from safety glazing but glazing 23 inches away would need to be protected.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee voted to disapprove this code change proposal based upon the proponent's request. The issue that is being addressed is the door swinging into the glass and breaking it. With the 3 foot restriction this is not likely to happen.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Modified by this public comment.

Modify proposal as follows:

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

1. Glazing in swinging doors except jalousies.
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. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch (610 mm) arc of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 and 6 above, that meets all of the following conditions:
   7.1. Exposed area of an individual pane larger than 9 square feet (0.836 m2).
   7.2. Bottom edge less than 18 inches (457 mm) above the floor.
   7.3. Top edge more than 36 inches (914 mm) above the floor.
   7.4. One or more walking surfaces within 36 inches (914 mm) horizontally of the glazing.
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm) horizontally of the water's edge. This shall apply to single glazing and all panes in multiple glazing.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

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

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. Decorative glass in Items 1, 6 or 7.
3. Glazing in Section R308.4, Item 6, when there is an intervening wall or other permanent barrier between the door and the glazing.

4. Glazing in Section R308.4, Item 6, in walls perpendicular to the plane of the door in a closed position, other than the wall toward which the door swings when opened, or where access through the door is to a closet or storage area. Glazing in these applications shall comply with Section R308.4, Item 7.

(Portions of section not shown remain unchanged)

Commenter's Reason: This is one of those code sections that defy logic. It presumes that the manner in which you interact with a window adjacent a door will predictably depend on the depth of a closet on the other side of the door. The general requirement is that glazing within 24 inches of a door must be safety glazed. The section in question eliminates the safety glazing requirement if the room on the other side of the door is a closet that is not more than 36 inches deep. The usual argument that is heard supporting the need for safety glazing adjacent a door is that persons exiting quickly from a building may be disoriented and inadvertently contact adjacent glazing or that children engaged in horse-play may get pushed into the glazing while going outside to play. Neither of those situations occurs with a door accessing a closet or storage area. If you live in the dwelling, you know what is on the other side of the door. You are familiar with the layout and will not try to exit the building through a closet. The current 3 foot depth is arbitrary and has no basis in safety. Glazing adjacent a door giving access to a closet 36 inches deep is not a hazard but the same glazing giving access to a closet 37 inches deep is a hazard! This is inexplicable.

Final Action: AS AM AMPC____ D

RB74-06/07

R308.6.9, R308.6.10 (New), R308.6.11 (New), R308.6.12 (New), R308.6.12.1 (New)

Proposed Change as Submitted:

Proponent: Stephen R. Harp, Texas Department of Insurance, representing Engineering Services/Inspections

1. Delete and substitute as follows:

~~**R308.6.9Testing and labeling.** Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.~~

R308.6.9Performance. Skylights shall be designed to resist the design wind loads specified in Table R301.2(2) adjusted for height and exposure per Table 301.2(3).

2. Add new text as follows:

R308.6.10 Testing and labeling. Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.

R308.6.11 Other skylight assemblies. Skylight assemblies not included within the scope of Section R308.6.10 shall be tested in accordance with ASTM E 330.

R308.6.12 Windborne debris protection. Protection of exterior skylights in buildings located in hurricane-prone regions from windborne debris shall be in accordance with Section R301.2.1.2.

R308.6.12.1 Testing and labeling. Skylights shall be tested by an approved independent laboratory, listed by an approved entity, and bear a label identifying manufacturer, performance characteristics, and approved inspection agency to indicate compliance with the requirements of the following specification:

1. ASTM E 1886 and ASTM E 1996; or
2. AAMA 506

Reason: The purpose of the proposed code changes is to clarify the code. The reasons for these proposed changes are as follows:

- The current IRC codes (2006 IRC and 2003 IRC) are inadequate because they do not specifically address wind force resistance criteria pertaining to skylights. This information is critical in establishing acceptability parameters for skylight assemblies within the hurricane-prone coastal areas of the United States. The proposed changes will clarify the code by specifically addressing wind force resistance criteria pertaining to skylights.
- The current IRC codes (2006 IRC and 2003 IRC) are inadequate because they require a skylight assembly to be subjected to a series of tests (AAMA/WDMA/CSA 101/I.S.2/A440), yet they do not address acceptable design pressure requirements which should be verified through the testing. The proposed changes will clarify the code by providing a performance section (Section 308.6.9) which clarifies performance requirements.

- The current IRC codes (2006 IRC and 2003 IRC) are inadequate because they do not provide acceptability criteria regarding the testing and performance of small skylight assemblies (which are commonly called sun tunnels, tubular skylights or tubular day-lighting devises). These small skylights are popular among yet they are not addressed by the current code because they do not meet the minimum gateway test specimen sizes of AAMA/WDMA/CSA 101/I.S.2/A440. The proposed changes will clarify the code by providing an "other skylight assemblies section" (Section 308.6.11) which clarifies testing and performance requirements for small skylights.
- The current IRC codes (2006 IRC and 2003 IRC) are inadequate because they do not address the need to protect skylights from windborne debris impact in hurricane-prone regions. The proposed changes shown above will clarify the code by providing a windborne debris section (Section 308.6.12) which requires that skylights be protected from windborne debris. This added section will include a testing and labeling subsection (Section 308.6.12.1) which specifies testing and labeling requirements for impact-resistant skylights.
- The current IRC codes (2006 IRC and 2003 IRC) are inadequate because the skylight wind performance criteria and the testing and labeling requirements are lacking specific, defined information. Skylight manufactures are unable to interpret these codes and assess the performance requirements and testing criteria for their products. Numerous skylight manufacturers have conveyed this problem to me over the telephone. Many skylight manufactures have, unfortunately, elected to forgo testing and labeling their products as required by the IRC. Their skylight products are, therefore, ineligible for approval by TDI inspectors for use in the Texas coastal area. Currently, less than a dozen skylight manufactures are have achieved the building code requirements and been evaluated and approved by TDI. As building code enforcement is increasing in the coastal areas, skylight purchasers are often limited to choosing skylights from among a small selection of code-compliant products. Clarifying the codes will help manufacturers understand testing, labeling, inspection, and performance criteria and enable more manufacturers to provide skylight products which meet the building codes. Consumers will benefit from having a greater selection of code-compliant skylight products.

The proposed changes can be substantiated based on the following logic:

- Skylights are fenestrated assemblies just as windows are fenestrated assemblies. Skylights and windows contain similar parts and components. Skylights are subjected to similar adverse environmental conditions as windows. Skylights and windows should, therefore, be governed by similar building code requirements. These proposed changes incorporate sections which were taken, word for word, from the 2006 IRC Section R613, "Exterior Windows and Glass Doors". The IRC provides clear and specific detailed requirements pertaining to the wind-resistance of windows. The IRC, should, likewise, provide similar clear and specific detailed requirements pertaining to the wind-resistance of skylights.

Bibliography: Please refer to the 2006 IRC, Sections R613.3, R613.6, and R613.7

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: If this language was approved it would make it impossible to properly test sloped glazing applications.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Julie Ruth, PE, JRuth Code Consulting, representing American Architectural Manufacturers Association, requests Approval as Submitted.

Commenter's Reason: At the present time the structural provisions of the IRC for skylights only addresses unit skylights. Unit skylights by definition only contain one pane of glazing material, whether it is glass or plastic.

RB 74 kept the provisions for unit skylights and added provisions for all other skylights. It also added use of an AAMA 506 tag to demonstrate compliance with the provisions of the IRC for impact resistant openings, for those skylights which are labeled for compliance with AAMA/WDMA/CSA 101/I.S.2/A440-05. Testing in accordance with ASTM E1886 and E1996 is the basis for use of the AAMA 506 tag.

The proponent of RB 74 was not at the Public Hearings and therefore was not available to respond to questions from the IRC committee in regards to it. As a consequence, the IRC committee disapproved it. In actuality, however, the provisions of the proposal are appropriate and needed. We ask that the membership reconsider the action of the IRC committee on this proposal and vote to approve it.

Final Action: AS AM AMPC____ D

RB75-06/07
R309.1, R309.1.1

Proposed Change as Submitted:

Proponent: Michael Baker, City of Prescott, Arizona, representing Arizona Building Officials

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 1 3/8 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.~~

~~**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.~~

Reason: The committee in Cincinnati indicated that a garage did not pose a significant fire hazard and there was insufficient technical justification showing an increased contribution to residential dwelling fires. The legacy codes required a self-closing door in these locations for fire and life safety. In the I-codes the self closer was eliminated from this section since it could not be shown to substantially reduce fire losses. By eliminating the self closer we conceded that garages were not a major fire safety risk when considering residential dwelling fires. For the same reasoning above the requirements for the doors and ducts should be eliminated. Partially protecting a garage from a residence adds only a false sense of well being.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The language proposed for deletion in this code change is important and needs to remain in the code text. There is a risk of fire spreading not only from the garage to the residence but from the residence to the garage as well as a result of unprotected openings. The additional risk of CO is another concern that protection of openings addresses.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Ben Cox, CBO, Town of Gilbert, Arizona, representing Arizona Building Officials requests Approval as Submitted.

Commenter's Reason: The committee reason as published in 2006 Report of Public Hearings indicates that the code language proposed for deletion is important and needs to be retained in the code text. The committee cites the risk of fire spread not only from the garage to the residence but from the residence to the garage as well resulting from unprotected openings. In addition the committee cites another risk, that being CO as another reason to maintain opening protection. With the approximate minimum 22 square foot opening (the door leading from the garage to the residence) left unprotected why did the committee (2006) feel it is necessary to protect any of the penetrations.

As noted in the proponent's reason statement, the same committee at code hearings in Cincinnati in 2005 stated there was insufficient technical justification to approve the installation of self-closing and self-latching devices on the largest opening/penetration (the door leading from the garage to the residence) of the required separation between a garage and residence required by R309.2. The committee also indicated there was no specific type of mechanism or strength of spring specified, although the proponent of RB63-04/05 provided the technical data and product information that indicated the self-closing devices are readily available, listed by third party testing agencies approved by ICC-ES, and are inexpensive.

It begs to be asked which committee is correct, the committee in 2005 or the committee in 2006?

I urge you to overturn the committee's action for disapproval and support approval as submitted.

Final Action: AS AM AMPC____ D

RB76-06/07
R309.1

Proposed Change as Submitted:

Proponent: Proponent: Joseph Holland, Hoover Treated Wood Products

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 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors. Fire-retardant-treated wood shall be permitted to protect openings between the garage and the attic.

Reason: To allow the opening to the attic to be protected with materials currently being used.

The code can be interpreted to require all opening, not just the opening between the garage and residence, be protected with only a 1-3/8 inch solid or honeycomb or 20-minute fire-rated door. The current practice for the opening from the garage to the attic is to install a pull down stair. These are typically covered with a fire-retardant-treated panel product 1/4 or 3/8 inch thick.

FRTW has a very low flame spread rating, and will self extinguish when the fire is removed. Will recognize current practice.

Cost Impact: The code change proposal will not increase the cost of construction.

Errata: Add proponent as follows: (The proponent was inadvertently left off of the proposal)

Proponent: Joseph Holland, Hoover Treaded Wood Products

Committee Action: **Disapproved**

Committee Reason: There was no size limitation tested or offered as a part of this proposed code change language. Minimum thickness and size of the fire retardant treated material needs to be addressed.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Mike Baker, Town of Gilbert, Arizona, representing Arizona Building Officials, requests Approval as Modified by this public comment.

Modify proposal as follows:

R309.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other opening between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35mm) in thickness, solid or honey comb core steel doors not less than 1 3/8 inches (35mm), or 20 minute fire rated doors. Doors providing opening protection shall be self-closing and self-latching. 1/2-inch (12.7 mm), 5/8-inch (15.9 mm) Type X gypsum board or equivalent ~~Fire-retardant-treated wood~~ shall be permitted to protect openings between the garage and the attic.

Commenter's Reason: The original proponent's proposal brought attention to an issue that needs to be addressed in this section of the code. Unfortunately the original proponent's focus and opportunities for compliance were to narrowly focused whereas with the newly revised text and completion of the large door opening protect this code section is complete when addressing often overlooked yet significant issues.

The committee that addressed this code proposal at the 2005 code hearings in Cincinnati had a whole lot more to say than just "there was insufficient technical justification to support the change and there was concern that there was no specific mechanism or strength of spring". Those were the comments that were are printed. Those of you who were present when the committee made their comments might recall one of the members rising from his chair and yelling at the proponent. In addition you heard statements such as "don't force the rest of us to do it, they are not there 30 days after final inspection, there are to many variables – what is the closer, need more specific data, what are the principals of a fire door, no data to prove they work, the dog will get cut in half, my child's fingers will get caught in the door, or what about when I want to air cool my garage".

If a rated separation and a rated door are necessary, then requiring the door to be self-closing and self-latching is necessary; just as they are in **every other** (emphasis added) case where a rated door or smoke barrier door is required in the IBC. The IBC committee in 2005 at Cincinnati approved a similar change to the 2006 IBC and overwhelmingly disapproved proposal G79-06/07 in 2006 in Lake Buena Vista to remove the requirement from the IBC. This corrects this inconsistency in the IBC.

I could argue away each one of the comments noted above but it would seem it is unnecessary to do so. We need to provide the same minimum life safety features in residential construction in both the IRC and IBC. The data below is the rest of the technical justification.

Although specific fire statistics are not available to address fire origin and spread involving single-family, two-family and townhome dwellings there is a variety of indirect evidence to support the proposed change.

One direct example is from the NFPA Journal®, September/October 2002 describing a fire involving a vehicle parked in an attached garage of a single-family dwelling unit. The occupant went to investigate when he smelled smoke, swung open the door then quickly turned and ran out of the home through an exterior door in the living area. He did not take the time to close the door and it did not self-close; the structure was a total loss.

Another direct example is discussed in a publication titled Fire in the United States, 1987-1996, Eleventh Edition and Fire in the United States, 1992-2201, Thirteenth Edition published by Federal Emergency Management Agency, United States Fire Administration National Fire Data Center, www.usfa.fema.gov. The agency reports that residential garage fire statistics are not provided in a consistent and accurate format by fire service personnel for a variety of reasons. The reporting standard specifies that attached and detached garage fires should be reported separately, yet they are not. This leads to inaccurate and misleading fire data including information related to deaths and injuries. There is concern expressed that more accurate data may provide clarity and insight into the causes and affects of residential garage fires on dwelling occupants and the fire affects on the life safety of the occupants. The report indicates, "Garage/storage areas are not shown as one of the leading areas, but they are actually more significant than implied. If these storage/garage fires were accurately counted, the total number of fires in dwellings would increase by about 8 percent. There were 24,700 such garage fires in 1996. This portion of the residential fire problem is sometimes overlooked." (p.79). The report indicates that fire deaths attributed to garage fires are between 11-25 persons annually with significantly more persons injured in these fires; including fire fighting personnel.

People use private garages for much more than simply parking a car. Private garages are often used for uses other than intended such as automotive repair, body work, furniture repair and re-finishing, storage, and other hobby activities. Faulty equipment both permanently mounted or portable, spontaneous ignitions of wood finishing products or oily rags, failure to turn off equipment are a few of the causes of fires. These are only some of the many examples of the hazards that lurk in an area that is all too frequently un-occupied except for these hobby activities. Combined with the storage of gasoline, pesticides, fertilizers, pool chemicals, paints and paint thinners what is created is a mini hazardous materials storage area or moderately hazardous manufacturing environment; not a car parking garage. All of this occurs in a dwelling where people spend most of their time sleeping or participating in activates that sometimes lead to impaired judgment or diminished physical ability, consequently reducing their reaction time and response to emergency situations. Quite often occupants voluntarily or involuntarily sleep in areas that directly communicate with the garage. These are areas that may or may not be protected by smoke detectors. They are not sleeping rooms provided with emergency egress and rescue doors and windows. They are living rooms, dens, family rooms, and the like.

Even where smoke detectors are installed they failed to operate 78% of the time when present in a residence with a fire event. This information is taken from a report titled, Residential Structure Fires in 2000, June 2004, published by the U.S. Fire Administration/National Fire Data Center, Federal Emergency Management Agency. That's 78% of the time the smoke detector did not operate, it did not provide early warming to the occupant of a fire hazard. The use of smoke detectors is cited as a major factor in reduction of fire deaths in an article titled House Fire Deaths, authored by Elliot Eisenberg of the NAHB and published in Housing Economics, November 2002. Although smoke detectors have provided a remarkable increase in fire safety, they are only one component of functional passive fire protection. Smoke detectors and their installation are not always the best solution. One could therefore argue that adding additional smoke detectors would not necessarily be the best or better option. In addition, the cost associated with an additional smoke detector is in the range of $30 to $50 per unit. This far exceeds the cost of the typical spring type hinge that would be used as a closer for the door.

In all other occupancies where similar opening protectives are required, the doors are required to be self-closing and self-latching. Consider the hotel rooms you have stayed in the past where the door closes behind you as you enter or exit your room. These doors utilize the same or similar spring hinges that would most commonly be used in a residential application. Yet, although the IRC requires limited fire resistant protection in section R309.1 of walls and ceilings; requires duct penetrations to be of No. 26 gage steel or other approved materials with no openings into the garage in section R 309.1.1 and does not permit opening into a room used for sleeping purposes, the current IRC provisions permit what is essentially and typically a 21 square foot unprotected opening in the wall. To further support the need for protection from garage hazards IRC section M1307.3 requires appliances having an ignition source to be elevated a minimum of 18 inches above the floor of the garage. This similar requirement is also noted for water heaters in IRC section P2801.6.

This increased protection comes at a truly minimal cost. A pair of spring type hinges typically range from $10 to $20 for hinges manufactured by Hager, Emtek and Stanley to name a few. A pair of non-spring type hinges typically range from $5 to $10. The spring type hinges used in this application are UL listed and comply with NFPA 80. For approximately an additional $10 there is the potential to save as many as 25 lives and countless more people from the horrific and painful injuries suffered in a fire. The increased cost is less than that required to install a smoke detector. For that matter, it is less than many of the upgrades added to make a home more convenient. These hinges are designed to work well whether or not a weatherstripped door is utilized.

The arguments offered in opposition to the proposed code amendment address a variety of issues that offer no technical justification not to include these requirements in the code. One would have to ask why fire protective openings work so well in occupancies with the lowest incidence of fire and fire related deaths and injuries. Simply stated they work. They provide time for people that are most often awake, alert, and able to self evacuate. These opening protectives provide occupants the opportunity to safely evacuate, thereby reducing deaths and injuries. In addition they reduce property loss and more importantly increase safety for fire suppression personnel responding to these emergencies.

This is not whether someone gets their finger pinched in the door; most of us have done that in some door, even if it was not self-closing; car door comes to mind. This is not whether someone wants to leave the door open when they bring in the groceries, they get distracted forget the open door and what is left is an unprotected opening. A moment of inconvenience is worth the life saved or injury avoided. Self-closing, self-latching devices are required on swimming pool enclosures. They are put on storm and screen doors. These are not viewed as inconvenient, but necessary to protect our children from drowning or keeping the bugs out of our homes. You may have heard your parent exclaim, "Don't let the door slam when you go out that door". Just as with pool safety, fire safety should hold the same importance. The gate or the door can be adjusted to gently close and latch; you won't hear it slam, but rest assured that when there is a fire in the garage the door is closed and latched. The argument that "most" people close the door is flawed. How many close the door? As defined it would be at best an indefinite large number of people. How many is does this mean? So poorly a defined criteria does not even consider the age and mental responsibility of the door's user.

We urge you to support this proposal to reduce death, injury and property damage from fires in residential occupancies. This is an inexpensive way to increase the protection of occupants of residential occupancies; the location with the highest fire death and injury rate of any building occupied by the individuals we strive to protect.

The images are provided as an example of a typical spring type hinge that would be used in this application.

Public Comment 2:

Ben Cox, CBO, Town of Gilbert, Arizona, representing Arizona Building Officials, requests Approval as Modified by this public comment.

Modify proposal as follows:

R309.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other opening between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35mm) in thickness, solid or honey comb core steel doors not less than 1 3/8 inches (35mm), or 20 minute fire rated doors. Doors providing opening protection shall be self-closing and self-latching. ~~Fire-retardant-treated wood shall be permitted to protect openings between the garage and the attic.~~

Commenter's Reason: The committee that addressed this code proposal at the 2005 code hearings in Cincinnati had a whole lot more to say than just "there was insufficient technical justification to support the change and there was concern that there was no specific mechanism or strength of spring". Those were the comments that were are printed. Those of you who were present when the committee made their comments might recall one of the members rising from his chair and yelling at the proponent. In addition you heard statements such as "don't force the rest of us to do it, they are not there 30 days after final inspection, there are to many variables – what is the closer, need more specific data, what are the principals of a fire door, no data to prove they work, the dog will get cut in half, my child's fingers will get caught in the door, or what about when I want to air cool my garage".

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garage. All of this occurs in a dwelling where people spend most of their time sleeping or participating in activates that sometimes lead to impaired judgment or diminished physical ability, consequently reducing their reaction time and response to emergency situations. Quite often occupants voluntarily or involuntarily sleep in areas that directly communicate with the garage. These are areas that may or may not be protected by smoke detectors. They are not sleeping rooms provided with emergency egress and rescue doors and windows. They are living rooms, dens, family rooms, and the like.

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The arguments offered in opposition to the proposed code amendment address a variety of issues that offer no technical justification not to include these requirements in the code. One would have to ask why fire protective openings work so well in occupancies with the lowest incidence of fire and fire related deaths and injuries. Simply stated they work. They provide time for people that are most often awake, alert, and able to self evacuate. These opening protectives provide occupants the opportunity to safely evacuate, thereby reducing deaths and injuries. In addition they reduce property loss and more importantly increase safety for fire suppression personnel responding to these emergencies.

This is not whether someone gets their finger pinched in the door; most of us have done that in some door, even if it was not self-closing; car door comes to mind. This is not whether someone wants to leave the door open when they bring in the groceries, they get distracted forget the open door and what is left is an unprotected opening. A moment of inconvenience is worth the life saved or injury avoided. Self-closing, self-latching devices are required on swimming pool enclosures. They are put on storm and screen doors. These are not viewed as inconvenient, but necessary to protect our children from drowning or keeping the bugs out of our homes. You may have heard your parent exclaim, "Don't let the door slam when you go out that door". Just as with pool safety, fire safety should hold the same importance. The gate or the door can be adjusted to gently close and latch; you won't hear it slam, but rest assured that when there is a fire in the garage the door is closed and latched. The argument that "most" people close the door is flawed. How many close the door? As defined it would be at best an indefinite large number of people. How many is does this mean? So poorly a defined criteria does not even consider the age and mental responsibility of the door's user.

We urge you to support this proposal to reduce death, injury and property damage from fires in residential occupancies. This is an inexpensive way to increase the protection of occupants of residential occupancies; the location with the highest fire death and injury rate of any building occupied by the individuals we strive to protect.

The images are provided as an example of a typical spring type hinge that would be used in this application.

Final Action: AS AM AMPC____ D

RB77-06/07
R309.1

Proposed Change as Submitted:

Proponent: Larry Brown, CBO, National Association of Home Builders (NAHB)

Revise as follows:

R309.1 Garage penetrations.

R309.1.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors.

~~**R309.1.1**~~ **R309.1.2 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.

~~**R309.1.2**~~ **R309.1.3 Other penetrations.** Penetrations through the separation required in Section R309.2 shall be protected as required by Section R602.8 ~~by filling the opening around the penetrating item with approved material to resist the free passage of flame and products of combustion~~.

Reason: The text to be stricken is repetitive of the requirements already required by Section R602.8 # (shown below). It is better to keep all of the fireblocking methods and materials in one section of the code. In addition, Section 309.1 and its two subsections are shown to placed in a separate section as these provisions pertain in general to all penetrations into the garage, and are not a subsection of requirements shown in the current text under "Opening protection".

Section R602.8 #4:

4. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: This proposed change helps to clean up the section on duct penetration. It is better to keep all of the fireblocking methods and materials in one area and just reference Section R602.8.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Maureen Traxler, Department of Planning and Development, City of Seattle, Washington, requests Approval as Modified by this public comment.

Modify proposal as follows:

R309.1.3 Other penetrations. Penetrations through the separation required in Section R309.2 shall be protected as required by Section R602.8, Item 4.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The original proposal adds useful coordination with Chapter 6 requirements for fireblocking in garage penetrations. This proposed modification clarifies by referencing only the specific portion of Section R602.8 that applies to the "other penetrations" of garage separations. The other portions of R602.8 apply to other conditions that require fireblocking.

Public Comment 2:

Ben Cox, CBO, Town of Gilbert, Arizona, representing Arizona Building Officials, requests Disapproval.

Commenter's Reason: Striking the existing text and referencing IRC Section R602.8 does not clean up the section on duct penetrations as noted in the committee's reason statement. The deleted change and revised code language does not specifically address duct penetrations We do not disagree that maintaining all of the fireblocking requirements in one section of the code is a good idea; it is not being accomplished with this code change proposal. Section 602.8 # 4 addresses penetrations and ceilings and floors, not walls. The intent of the code modification approved and published in the 2006 IRC was to address **all** penetration locations in one section. We urge you to vote for disapproval.

Final Action: AS AM AMPC____ D

RB78-06/07
R309.2

Proposed Change as Submitted:

Proponent: Larry Brown, CBO, National Association of Home Builders (NAHB)

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 or equivalent 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 or equivalent 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: The addition of the term "or equivalent" in relationship to a performance alternative to gypsum board, is appropriate in the same manner as it is used in the second and third sentences of this same section. The installation should not be limited to only one type of material when other materials are available to achieve the same or higher level of fire-resistance rating and protection. The last part of the last sentence is not needed as the fire-resistance of a concrete or masonry wall would be "equivalent" to the rating of ½-inch gypsum board. Also, the list should not be limited to two materials.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: The committee supported this proposal because it takes out specific product requirements with the additional, "or equivalent" language. With the advancements in materials and current technology this terminology is important to the code user.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Rick Davidson, City of Maple Grove, Minnesota, requests Disapproval.

Commenter's Reason: The Committee statement for approval of this code change erroneously argues that the term "or equivalent" is necessary to accommodate new products or methods of construction. In fact, the language only adds confusion and unnecessary language to the code. R104.11 allows the building official to accept alternate materials or methods of construction in all applications of the code. It is not necessary to continually repeat that language in every code section. Using the term "or equivalent" adds confusion to the code because the term is not defined nor is it clear on what to base equivalency or who makes the decision. It implies some other form of approval than what is expected in R104.11. R104.11 states that the building official may approve alternate design methods, materials, or equipment. The more appropriate language for this section, if it were deemed necessary, would be something like "or other approved materials" which is used throughout the code.

Public Comment 2:

Michael Gardner, Gypsum Association, requests Disapproval.

Commenter's Reason: What remains unaddressed by the committee approval of this proposal is the process of establishing equivalency between gypsum board and the alternate materials. Is the equivalency to be based on material thickness or dimensional characteristics? Or should it be based on equivalent thermal properties? Or is it based on fire-test performance? Unfortunately, the approved language leaves the method for establishing equivalency completely undefined. As a result, defining the equivalency becomes the sole responsibility of an inspector or a code official.

In addition, it should again be noted that the "or equivalent" that applies to the 5/8 type X product was placed into the code to refer to products – products that are not classified as gypsum board – that are 5/8-inch-thick materials and that display the type X product rating that is indicative of a material with an improved fire-resistance. In the interest of life-safety, the "or equivalent" language was incorporated in that specific instance to ensure that any material installed complied with the type X criteria. While ½-inch-thick regular gypsum board has a natural fire-resistance, no language quantifying a method of comparison similar to that for the type X product was incorporated into the approved proposal.

Since the proposed language lacks a definitive method to establish equivalency between ½ -inch-thick gypsum board and an alternate material it should not be approved.

Final Action: AS AM AMPC____ D

RB79-06/07

R309.2, Table R309.2 (New)

Proposed Change as Submitted:

Proponent: Larry Brown, CBO, National Association of Home Builders (NAHB)

1. Delete and substitute 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 SectionR309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.~~

R309.2 Garage separation. The garage shall be separated as required by Table R309.2. Openings in garage walls shall comply with Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

2. Add new table as follows:

TABLE R309.2
GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch (12.7 mm) gypsum board or equivalent applied to the garage side.
From all habitable rooms above the garage	Not less than 5/8-inch (15.9 mm) Type X gypsum board or equivalent.
Structure(s) supporting floor-ceiling assemblies used for separation required by this Section	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	Not less than 1/2-inch (12.7 mm) gypsum board or equivalent applied to the interior side of exterior walls that are within this area.

Reason: It was realized that after looking at the number of provisions included in one paragraph of Section 309.2, and the need for a person to ascertain how all of these provisions 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. With the provisions in a single table, a plan reviewer or inspector can look at the garage wall, ceiling, or floor-ceiling assembly support and easily see if the required separation complies with the Code.

All of the provisions shown in Section 309.2 are included and are technically unchanged. The addition of the term "or equivalent" in relationship to a performance alternative to gypsum board, is appropriate to add in the same manner as it is used in the second and third sentences of the current text. The installation should not be limited to only one type of material when other materials are available to achieve the same or higher level of fire-resistance rating and protection. The last part of the last sentence of the current text is not needed as the fire-resistance of a concrete or masonry wall would be "equivalent" to the rating of ½-inch gypsum board. Also, the list should not be limited to two materials.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: The addition of this table to support the code language improves the code. Having all of the provisions for garage separation in one easy to read table means that a plan reviewer or building official can reference garage wall, ceiling, or floor-ceiling assembly applications and easily confirm code compliance.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Modified by this public comment.

Replace proposal with the following:

R309.2 Fire separation required. The garage shall be separated from the ~~residence and its attic area by not less than ½ - 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. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than ½ - inch (12.7 mm) gypsum board. Garages located less than 3 feet (914 mm) from a dwelling unit on the same lot shall be protected with not less than ½ - inch (12.7 mm) gypsum board applied to the interior side of exterior walls that are within this area.~~ dwelling by vertical or horizontal construction as required by Table R309.2. Openings in garage walls shall comply with Section R309.1. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: In order to give the building official guidance when faced with a request for an approved alternate, it is necessary to know the purpose of the separation. The proposed modification clearly states that the separation is a "fire" separation. Without that direction, the building official will be hampered in arguing his/her approval or disapproval of a proposed alternate. The legacy codes all addressed this separation as a fire separation. Some committee members argued that perhaps the separation could be serving some other purpose such as the prevention of migration of carbon monoxide into the home. But if this was the case, the door providing access to the home would require some type of gasketing to make it air tight. There are no such requirements. The only reason why this separation is required and the code should so state that. The Committee objected to this code change on the basis that it deleted the terms "or equivalent". The proposal has been modified so that those terms are retained and the proposal only addresses the purpose for the separation.

Public Comment 2:

Michael Gardner, Gypsum Association, requests Disapproval.

Commenter's Reason: The approved language leaves open to subjective interpretation how the equivalency between ½-inch gypsum board and "an equivalent" material is to be established. Is the equivalency based on material thickness or dimensional characteristics? Is it based on equivalent thermal properties? Or is it based on fire-test performance? Unfortunately, the approved language leaves the method for establishing equivalency completely undefined. As a result, defining the equivalency becomes the sole responsibility of an inspector or a code official.

In addition, it should again be noted that the "or equivalent" that applies to the 5/8 type X product was placed into the code to refer to products – products that are not classified as gypsum board – that are 5/8-inch-thick materials and that display the type X product rating that is indicative of a material with an improved fire-resistance. In the interest of life-safety, the "or equivalent" language was incorporated in that specific instance to ensure that any material installed complied with the type X criteria. While ½-inch-thick regular gypsum board has a natural fire-resistance, no language quantifying a method of comparison similar to that for the type X product was incorporated into the approved proposal.

Since the proposed language lacks a definitive method to establish equivalency between ½ -inch-thick gypsum board and an alternate material it should not be approved.

Final Action: AS AM AMPC____ D

RB83-06/07
R309.3, R309.4 (New)

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

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**~~ **R309.3 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.~~

R309.4 Garage and carport floors. Garage and carport floors shall be sloped to facilitate the movement of liquids to an approved drain or toward the main vehicle entry doorway. Floors shall be concrete.

Exception: Carports shall be permitted to have asphalt surfaces when located at grade.

Reason: This revision addresses two issues. First, the requirements for floor surfaces for garages and carports are combined in a separate section. The second revision provides a prescriptive rule for garage and carport surfaces. The stated purpose of the IRC is to provide "prescriptive provisions" for dwelling construction (see Preface). Currently the requirement for floors is a performance standard. A prescriptive provision is one that specifies what is required for code compliance. A performance standard is one that provides an expected result without specifying how that result is achieved. The reference to garage and carport floors being "noncombustible" is a performance standard in that it only provides an expectation related to resistance to fire. It doesn't say the floor must be concrete or dirt or gravel. It only states that it must be "noncombustible. However, this is counter to the goal of the IRC to provide prescriptive provisions. Performance standards do not allow the user of the code to determine the answer to simple questions on what materials are acceptable for a garage floor without questioning the building official because the term that is used is "approved noncombustible material" and "approved" is defined as being approved by the building official. Because the building official can exercise discretion in approving a garage floor material, the user of the code can never know for sure what is acceptable without asking. Providing only a performance standard also encourages a lack of uniformity because building officials may evaluate garage floors using differing standards. The IRC Commentary in discussing this issue contains the following statement regarding garage floor surfaces: "Garage floor surfaces must be of an approved non-combustible material such as concrete." Specifying in the code that floors must be concrete, as suggested by the Commentary, meets the goal of providing a prescriptive provision. If some other garage floor material is proposed to the building official, he can consider it's use under the alternate materials provisions of the code found in R104.11 but at least for the casual user they will know what is required. The use of concrete for floors is further supported by the requirement that floors be capable of conveying liquids some distance. Because the code requires that the liquids drain to a doorway, as one example, and because standard garages may be in the range of 25 feet deep, concrete seems the only logical and regularly used surfacing material that would permit liquids to drain without being absorbed. There have been similar code changes submitted in the past that have provided a list of noncombustible materials that would have achieved the same goal. The IRC Committee in Cincinnati heard one of these proposals, RB68 04/05. The committee disapproved the proposal with the following comment: "To utilize a specific "laundry list" of acceptable items takes us away from more desirable aspect of prescriptive language." The reason given by the committee is confusing. What is in the code is not prescriptive language but performance language. What has been proposed is prescriptive language. It is important that committee members understand that difference. Because it seems so obvious what is intended, and because the Commentary suggests it, the committee should approve this proposal and settle this issue.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: This code change proposal would limit garage floor surfaces to concrete alone. The current code language which specifies "approved noncombustible material" for garage floor surfaces 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:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Modified by this public comment.

Modify proposal as follows:

R309.3 Carports. Carports shall be open on at least two sides. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.

R309.4 Garage and carport floors. Garage and carport floors shall be sloped to facilitate the movement of liquids to an approved drain or toward the main vehicle entry doorway. Floors shall be concrete, asphalt, sand, gravel, crushed rock, natural earth or other approved noncombustible material.

Exception: Carports shall be permitted to have asphalt surfaces when located at grade.

Commenter's Reason: The original proposal would have required all garage and carport floors to be concrete. However, members of both the Virginia Building Officials Association and the National Association of Homebuilders spoke in opposition because the proposal excluded gravel and other acceptable materials. This proposal results in a much needed prescriptive requirement for garage and carport surfaces. While some will argue that this provides a laundry list, whenever you have a prescriptive code with more than one acceptable material meeting that portion of the code, you will have a laundry list. One need only browse a handful of definitions to find frequent use of laundry lists such as "dead loads", "draft stop", "dwelling unit", "equipment", "fenestration", etc.

Final Action: AS AM AMPC____ D

RB85-06/07
R310.1

Proposed Change as Submitted:

Proponent: Richard E. Bartell, Hanover County, Virginia, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and the Virginia Building Code Officials Association (VBCOA)

Revise as follows:

R310.1 Emergency escape and rescue required. Basements and every sleeping room shall have at least one operable emergency escape and rescue opening. Such opening shall be directly to the exterior of the building or to a deck, screen porch or egress court, all of which shall provide access to a public way or yard. 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, including removable tilt out sashes, of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exceptions:

1. Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m^2).
2. Dwelling units equipped throughout with an approved automatic sprinkler system installed in accordance with NFPA 13, 13R or 13D.

Reason: This proposal attempts to address several areas within this section by adding direction regarding the discharge of the emergency escape and rescue opening and by providing additional exiting options to make compliance more attainable when sleeping rooms are being added to existing basements and to new construction. Windows with a tilt out sash design have been available and successfully used for more than 20 years as emergency escape and rescue openings in a large portion of the Country. The full clear width of the window opening can be readily achieved by anyone who could otherwise open a window by normal operation. Sprinkler tradeoffs have been proposed to allow an alternative method of compliance with the code when emergency escape and rescue openings were not provided originally and as an incentive for providing a sprinkler system in a new or existing home.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: There are windows on the market that have removable sashes, however the weight of the sashes on some of these units is considerable (25 - 60 pounds according to testimony presented by and industry representative) especially today's insulated glass. Another issue in this code change involved the trade off being proposed for a sprinkler system. In addition, the committee felt that it was important to have an Emergency Escape and Rescue Opening regardless of the presence of a sprinkler system.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Richard E. Bartell, Hanover County, Virginia, representing Virginia Building and Code Officials Association & Virginia Plumbing and Mechanical Inspectors Association, requests Approval as Submitted.

Commenter's Reason: This proposal attempts to address several areas within this section by adding direction regarding the discharge of the emergency escape and rescue opening and by providing additional exiting options to make compliance more attainable when sleeping rooms are being added to existing basements and to new construction. Windows with a tilt out sash design have been available and successfully used for more than 20 years as emergency escape and rescue openings in a large portion of the Country. The full clear width of the window opening can be readily achieved by anyone who could otherwise open a window by normal operation. Sprinkler tradeoffs have been proposed to allow an alternative method of compliance with the code when emergency escape and rescue openings were not provided originally and as an incentive for providing a sprinkler system in a new or existing home.

Final Action: AS AM AMPC____ D

RB87-06/07
R311

Proposed Change as Submitted:

Proponent: Tom Rubottom, City of Lakewood, Colorado, representing The Colorado Chapter of ICC

1. Delete and substitute as follows:

~~**R311.1 General.** Stairways, ramps, exterior egress balconies, hallways and doors shall comply with this section.~~

R311.1 Means of egress. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from habitable portions of each dwelling to grade located at the egress door without requiring travel through a garage.

R311.1.1 Egress door. Not less than one exit door conforming with Section 311.4.1 shall be provided for each dwelling unit.

R311.1.2 Vertical egress. 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.

R311.1.3 Components. Stairways, ramps, exterior egress balconies, hallways and doors provided as part of the means or egress shall comply with R311. Other hallways shall comply with R311.3. Other doors shall comply with R311.4. Other stairways shall comply with R311.5.

2. Revise as follows:

R311.2.1 Construction.

R311.2.1.1 Attachment. Required exterior egress balconies, exterior exit stairways and similar means of egress components shall be positively anchored to the primary structure to resist both vertical and lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.2.1.2 Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2-inch (13 mm) gypsum board.

3. Revise as follows:

R311.4.1 ~~Exit~~ Egress door required. ~~Not less than 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.~~

~~R311.4.2 Door type and size.~~ The ~~required exit~~ egress door required by Section 311.1.1 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.

(Renumber subsequent sections)

Reason: IRC Section R311 is titled “Means of Egress”. The code currently does not provide a “Means of Egress” philosophy. This change is intended to create a “definition” of means of egress in the new Section R311.1. Areas within the code that have previously addressed specific means of egress components or philosophy have been moved into new R311.1 subsections. This helps the user determine what is required for exiting without searching through numerous subsections.

R311.1 limits the means of egress to the grade at the required exterior exit door. This is intended to clarify that the IRC does not intend this path to be continuous to the public way. The IRC is used in multiple applications throughout the United States. This includes rural environments where the public way may be located miles away from the dwelling. This code is intended to provide minimum standards applicable anywhere in the US.

New Section R311.1.3 addresses components of the means of egress system. This section is intended to scope “other” selected components that may be provided, yet are not part of the required means of egress path. This would require hallways, stairs and doors provided for accessory building to meet the code prescribed requirements. The intentional omission of ramps would allow steeper slopes for non-egress applications (such as driveways at front loading garages).

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Modified**

Modify the proposal as follows:

Delete the following:

SECTION R311
MEANS OF EGRESS

~~**311.1 General.** Stairways, ramps, exterior egress balconies, hallways and doors shall comply with this section.~~

~~**311.2 Construction.**~~

~~**311.2.1 Attachment.** Required exterior egress balconies, exterior exit stairways and similar means of egress components shall be positively anchored to the primary structure to resist both vertical and lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.~~

~~**311.2.2 Under stair protection.** Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2-inch (13 mm) gypsum board.~~

~~**311.3 Hallways.** The minimum width of a hallway shall be not less than 3 feet (914 mm).~~

~~**311.4 Doors.**~~

~~**311.4.1 Exit door required.** Not less than 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.~~

~~**311.4.2 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.~~

~~**311.4.3 Landings at doors**. There shall be a floor or landing on each side of each exterior door. The floor or 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 units 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 the exterior storm or screen door does not swing over the stairway.~~
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.~~
3. ~~The height of floors at exterior doors other than the exit door required by Section R311.4.1 shall not be more than 73/4 inches (186 mm) lower than the top of the threshold.~~

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

~~**311.4.4 Type of lock or latch**. All egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort.~~

Substitute as follows:

R311.1 Means of egress. All dwellings shall be provided with a means of egress as provided in this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the exterior without requiring travel through a garage.

R311.2 Egress door. At least one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, not less than 3 feet (914 mm) in width, and not less than 6 feet 8 inches (2032 mm) in height. Other doors may be of any size. Egress doors shall be readily openable from inside the dwelling without the use of key or special knowledge or effort.

R311.3 Landings at exterior doors. There shall be a landing on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 0.25 units vertical in 12 units horizontal (2-percent).

R311.3.1 Landings at the required egress door. Landings at the required egress door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold.

> **Exception:** The exterior landing may be not more than 7 3/4 inches (196 mm) below the top of the threshold provided the door does not swing over the landing.

When exterior landings serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

R311.3.2 Landings for other exterior doors. Doors other than the required egress door must have landings not more than 7 3/4 inches lower than the top of the threshold.

> **Exception:** A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door.

R311.3.3 Storm and screen doors. Storm and screen doors may swing over all exterior stairs and landings.

R311.4 Vertical egress. Access between levels shall be by a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

> **Exception:** Stairs and ladders used to access attics, crawl spaces, window wells, and similar areas and those used to service equipment.

R311.5 Construction.

R311.5.1 Attachment. Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.5.2 Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½-inch (13 mm) gypsum board.

R311.6 Hallways. The minimum width of a hallway shall be not less than 3 feet (914 mm).

(Renumber remaining sections)

Committee Reason: This change does serve to clarify the code and helps to take the existing technical language and format it so that it is more easily understood and user friendly. This section gets the user from where they are in the dwelling and tells them how to get to the exterior. The intent is to get the person out of the dwelling. The modification reorganizes Section R311 and takes the existing technical language and places it in an organized format.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Jeffrey K. Feid, State Farm Insurance, requests Approval as Modified by this public comment.

Further modify proposal as follows:

SECTION R311
MEANS OF EGRESS

R311.1 Means of egress. All dwelling~~s~~ units shall be provided with a means of egress ~~as provided in this~~ meeting the requirements of section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the exterior without requiring travel through a garage.

R311.2 Egress door. At least one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, not less than 3 feet (914 mm) in width, and not less than 6 feet 8 inches (2032 mm) in height. Other doors ~~may~~ shall be permitted to be of any size. Egress doors shall be readily openable from inside the dwelling without the use of key or special knowledge or effort.

R311.3 Landings at exterior doors. There shall be a landing on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 0.25 units vertical in 12 units horizontal (2-percent).

R311.3.1 Landings at the required egress door. Landings at the required egress door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold.

> **Exception:** The exterior landing ~~may~~ shall be permitted to be not more than 7 3/4 inches (196 mm) below the top of the threshold provided the door does not swing over the landing.

When exterior landings serving the required egress door are ~~not at~~ above grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

R311.3.2 Landings for other exterior doors. Doors other than the required egress door ~~must~~ shall be permitted to have landings not more than 7 3/4 inches lower than the top of the threshold.

> **Exception:** A landing on the exterior side of the door is not required where a stairway of two or fewer risers is located on the exterior side of the door.

R311.3.3 Storm and screen doors. Storm and screen doors ~~may~~ shall be permitted to swing over all exterior stairs and landings.

R311.4 Vertical egress. Access between levels shall be by a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

> **Exception:** Stairs and ladders used to access attics, crawl spaces, window wells, and similar areas and those used to service equipment.

R311.5 Construction.

R311.5.1 Attachment. Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.5.2 Under stair protection. Enclosed accessible space under interior stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½-inch (13 mm) gypsum board.

R311.6 Hallways. The minimum width of a hallway shall be not less than 3 feet (914 mm).

Commenter's Reason: Provides clarification and removes permissive language.

Public Comment 2:

Thomas Meyers, City of Central Colorado, representing Colorado Chapter of ICC, requests Approval as Modified by this public comment.

Further modify proposal as follows:

SECTION R311
MEANS OF EGRESS

R311.1 Means of egress. All dwellings shall be provided with a means of egress as provided in this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the exterior of the dwelling at the required egress door without requiring travel through a garage.

R311.2 Egress door. At least one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, not less than 3 feet (914 mm) in width, and not less than 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~~. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort.

R311.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent).

R311.3.1 ~~Landings~~ Floor elevations at the required egress door. Landings or floors at the required egress door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold.

> **Exception:** The exterior landing or floor ~~may be~~ shall not be more than 7 ¾ inches (196 mm) below the top of the threshold provided the door does not swing over the landing or floor.

When exterior landings or floors serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

R311.3.2 ~~Landings~~ Floor elevations for other exterior doors. Doors other than the required egress door ~~must have~~ shall be provided with landings or floors not more than 7¾ inches (196 mm) ~~lower than~~ below the top of the threshold.

> **Exception:** A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door provided the door does not swing over the stairway.

R311.3.3 Storm and screen doors. Storm and screen doors ~~may~~ shall be permitted to swing over all exterior stairs and landings.

R311.4 Vertical egress. Egress from habitable ~~Access between~~ levels and basements not provided with an egress door in accordance with Section R311.2 shall be by a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

> ~~**Exception:** Stairs and ladders used to access attics, crawl spaces, window wells, and similar areas and those used to service equipment.~~

R311.5 Construction.

R311.5.1 Attachment. Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.5.2 Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2-inch (13 mm) gypsum board.

R311.6 Hallways. The minimum width of a hallway shall be not less than 3 feet (914 mm).

(Renumber remaining sections)

Commenter's Reason: The IRC B/E committee approved this much needed change to the IRC's means of egress provisions. This change was heard by the committee as a modification containing pieces of RB87, RB88, RB90, RB91, and RB92. Unfortunately, the committee's "approval as modified" requires some revisions to correct permissive language and some unintended technical changes. Modifications are proposed as follows:

R311.1 – Changes made to add "of the dwelling at the required egress door" to clarify where on the "exterior" the path of egress travel concludes. This modification is provided to address concerns expressed during the testimony.

R311.2 – Replaces permissive language with mandatory language consistent with that used in previous editions of the IRC.

R311.3 – Adds the word "floor" to the landing requirement to permit either a "landing" or "floor" to be used on either side of a doorway. This change is in response to concerns raised by the IRC Committee and is consistent with previous action in the 2006 IRC. Heading
is also corrected with the addition of "floors" to clearly state intent.

R311.3.1 – Replaces "landing" with "floor elevations" to accurately describe intent. Corrects permissive language.

R311.3.2 – Changes correct permissive language. Clarifies scope with change from "landings" to "floor elevations".

R311.3.3 – Corrects permissive language.

R311.4 – Restores previous IRC language requiring "habitable levels" to be provided with ramps or stairways. This change restores the IRC's intent to allow other means to access and egress non-habitable levels such as attics, crawlspaces, window wells, mechanical equipment spaces, etc. This change makes the exception unnecessary, eliminating any assumed limitations imposed by an incomplete "laundry list" of examples. "Basements" was added to address concerns about access/egress from large unfinished basements that may not be "habitable".

Public Comment 3:

Julie Ruth, PE, JRuth Code Consulting, representing American Architectural Manufacturers Association, requests Approval as Modified by this public comment.

Further modify proposal as follows:

SECTION R311
MEANS OF EGRESS

R311.3 Floors and landings at exterior doors. There shall be a floor or landing on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. Exterior floors or landings shall be permitted to have a slope of not to exceed 0.25 unit vertical in 12 units horizontal.

R311.3.1 Floor elevations ~~Landings~~ at the required egress door. Floors and ~~L~~landings at the required egress door shall not be more than 1.5 inches lower than the top of the threshold.

Exception: ~~The~~ Exterior landings are permitted to ~~may~~ be not more than 7 ¾ inches below the top of the threshold provided the door does not swing over the landing.

When exterior floors or landings serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6.

R311.3.2 Floor elevations ~~Landings for~~ at other exterior doors. Doors other than the required egress door must have floors or landings not more then 7 ¾ inches lower than the top of the threshold.

Exception: A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door.

R311.3.3 Storm and screen doors. Storm and screen doors ~~may~~ shall be permitted to swing over all exterior stairs and landings.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: RB 87 was approved with modifications that were based upon code change proposals RB 88, RB 90, RB 91 and RB 92. Although the modified proposal was presented as being editorial in nature, a key aspect of Section R311 was omitted. That aspect was consideration of exterior doors that open out to a floor or other flat area, rather than a stairway landing. Focusing only upon landings at exterior doors limits the provisions of this section and in some cases has resulted in langauge that is detrimental to good building safety and home design. For example, as it currently reads Section R311.3 requires there to be a "landing on each side of each exterior door." In order to have a landing one must have a stairway, so this language would seem to imply that a stairway is required on each side of each exterior door. That, of course, would be contrary to building safety, good building design and common sense.

This public comment restores consideration of floors as well as landings at exterior doors, using the language that is currently in the International Building Code (IBC). Specifically, the words "floors or" are added before "landings" in 6 places. Additionally, part of the heading of subsection R311.3.1 and R311.3.2 is changed from "Landings" to "Floor Elevations" to clarify that the sections apply to both floors and landings.

Finally, permissive language in the exception to R311.3.1 and in Section R311.3.3 is corrected by replacing "may" with "are permitted to" and "shall be permitted to", respectively.

Final Action: AS AM AMPC____ D

RB89-06/07

R311.1

Proposed Change as Submitted:

Proponent: John Neff, Washington State Building Code Council

Revise as follows:

R311.1 General. Stairways, ramps, exterior egress balconies, hallways and doors shall comply with this section.

Exception. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen.

Reason: Add an exception to the code to allow alternate access to small, limited areas in residential dwelling units.

This proposal helps make housing more affordable by allowing the maximum use of space. Allowing access to otherwise unusable space is cost and energy efficient.

This Washington state amendment to the building code has been in place for over ten years, with no reported problems regarding injuries or other safety issues.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee preferred the language approved as modified in RB87.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Jonathan C. Siu, City of Seattle, Washington, representing Washington Association of Building Officials (WABO), requests Approval as Submitted.

Commenter's Reason: The published reason for disapproval was that the committee preferred a new section created by RB 87-06/07 to this proposal. However, we believe the committee may have been confused because of the large modification that was submitted to the committee in Orlando on RB 87. Based on our reading of the modified proposal published in the Report of the Public Hearings, we believe RB 87 does not address this particular issue.

One of the committee members stated in Orlando they were not sure how this proposal fit with the modifications made and approved for RB 87. If the committee action for Approval as Modified is sustained on item RB 87, this proposal should appear as an additional exception to Section R311.4 (as shown in the Report of the Public Hearing on item RB 87) as follows:

> **311.4 Vertical Egress.** Access between levels shall be by a ramp in accordance with Section R311.7 or a stairway in accordance with Section R311.6**.**
>
> **Exceptions:**
>
> 1. Stairs and ladders used to access attics, crawl spaces, window wells, and similar areas and those used to service equipment.
> 2. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen.

For over ten years, Washington state has allowed this exception for access to small areas such as lofts in individual dwelling units, without any injuries or safety problems reported. This exception allows maximum use of space, making housing more affordable and energy efficient.

Final Action: AS AM AMPC____ D

RB93-06/07

R311.4.3

Proposed Change as Submitted:

Proponent: Tim Pate, City of County of Broomfield Building Department, Colorado

Revise as follows:

R311.4.3 Landings at doors. There shall be a floor or landing on each side of each exterior door. The floor or 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.
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.
3. The height of floors at exterior doors other than the exit door required by Section R311.4.1 shall not be more than 7 3/4 inches (186 mm) lower than the top of the threshold.

The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. The exterior landing surface shall be an approved solid material and shall be no steeper than one unit vertical in 48 inches (2 percent slope).

Reason: The new wording needs to be added to the Code in order to regulate both the allowable type of surface for landings outside of exterior doors along with regulating the maximum slope of these same landings. Currently there are no requirements for both of these items. Someone could now use dirt as a landing which could easily be mud in a rainy climate. Once you step out of door into mud, a person could easily sink into potentially deep mud and create an unsafe area outside the door. I believe that the code should require some sort of solid surface at this location that will stay in place without someone having to re level this dirt/mud every time someone steps onto it. You also could also end up having the dimension from top of door threshold exceeding the maximum allowed 7 3/4" if the footprint in this mud happens to be directly below the door threshold and the original landing started at 7 3/4" below.

The slope of this landing should also be regulated since a person now could install the required landing at any slope they choose. It would be extremely un safe if this landing was installed at a steep slope especially if there was moisture or snow or ice on it. This would regulate the slope the same as stairway landings are already regulated in Section R311.5.5.

I feel that adding this language would help make these areas outside of doors safer for the occupants.

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

Committee Action: **Disapproved**

Committee Reason: The committee was opposed to the language that specifically required landings be of a solid material. In addition the language that was approved as modified in RB 87-06/07 supports the action taken on this code change.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Tim Pate, City and County of Broomfield, Colorado, representing himself, requests Approval as Submitted.

Commenter's Reason: The committee reason does not state exactly why they disapproved of the language to require landings to be "solid." The committee reason also refers to action taken on RB87 as modified which supports this disapproval of this proposed change. I still believe that the Code should give us some restrictions on what type of surface we would allow outside exterior doors of dwelling units. When someone steps outside any exterior door it seems that there should be a safe place to step before proceeding. The code now would not stop someone from having dirt/mud landing with a slope of 10% directly outside any exterior door. I think the jurisdiction could always allow the use of metal grating with small holes as alternate method and still meet the intent of the code (for the typical residence in snow country).

Final Action: AS AM AMPC____ D

RB100-06/07
R311.5.5

Proposed Change as Submitted:

Proponent: Tim Pate, City of County of Broomfield Building Department, Colorado

Revise as follows:

R311.5.5 Stairway walking surface. The walking surface of treads and landings of stairways shall be an approved solid surface and shall be sloped no steeper than one unit vertical in 48 inches horizontal (2-percent slope).

Reason: The Code should regulate the type of surface allowed for landings at top and bottom of stairways at the exterior. This new wording will require that these landings be some sort of solid surface so that a person could not use dirt which would be mud during the rainy season (or during the snowy season when the snow melts). If this surface could be mud it would be extremely unsafe when stepping down off set of stairs. It would create a portion of the landing where the footprint in the mud would make the last riser more than 3/8" different from the rest of risers and therefore illegal. It would also create a portion of the landing exceed the maximum allowable 2% slope. This new wording will match what already exists in the IBC.

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

Committee Action: **Disapproved**

Committee Reason: The committee preferred the existing code text. The proposed language which would require a stair to be an approved solid surface lacked sufficient justification to support the change.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Tim Pate, City and County of Broomfield, Colorado, representing himself, requests Approval as Submitted.

Commenter's Reason: The committee reason stated "The committee preferred the existing code text." The existing code text does not have any regulations for how the treads or landings need to be constructed. The only direction we have is in Table R301.5 which requires stairs to be designed to 40 pounds per square foot and individual stair treads designed to 300 pound concentrated load over area of 4 square inches. Certainly someone could provide a packed dirt stair tread and landing that would meet both this criteria but how would these still meet these requirements when the surface turns to mud?

This added language would allow the building department to at least give some sort of direction for the "intent" of the Code. I do not believe that the "intent" of the Code is to allow dirt/mud stairs and landings since mud is an extremely unsafe surface especially if it is deep or if it freezes with deep foot prints, etc. I am constantly hearing and reading of "trip and fall" situations on stairs and the Code right now does not give us any way to regulate these stairs and landings. The code would allow someone to ask for an alternate design if they wanted to use metal grates for stair treads and landings in "snow" country and that would certainly seem to fit the "intent" of the Code.

Final Action: AS AM AMPC____ D

RB101-06/07
R311.6.1

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R311.6.1 Maximum slope. Ramps shall have a maximum slope of one unit vertical in ~~twelve units horizontal (8.3-percent slope)~~ eight units horizontal (12.5-percent slope).

> ~~**Exception:** Where it is technically infeasible to comply because of site constraints, ramps may have a maximum slope of one unit vertical in eight horizontal (12.5 percent slope).~~

Reason: There are numerous problems with this code section. When this section was recently modified, it was argued that the flatter slope was necessary to allow a disabled person to negotiate the ramp without assistance. The previous code language limited the slope of a ramp to 1:8 but did not prohibit someone from having a ramp that might be 1:10 or 1:12 or 1:20 if the owner felt it necessary. Because of that, this code change was unnecessary. Beyond that it causes other problems. It was further argued that this would be an aid to assist people with disabilities to stay in their homes. In fact it could do just the opposite. The longer ramp will cost more money and may require site modifications to achieve compliance. It will likely require additional landings. For example, let's assume a home with a floor level at 30 inches above grade. The previous rule would require a ramp 20 feet long that might have been accommodated in the front setback of the dwelling. With the 1:12 slope, the ramp would need to be 30 feet long and that will more than likely require at least one additional landing and change of direction. This all means more cost. This section will also require that all ramps, including those utility ramps sometimes used in basements or to a garage, must have the flatter slope even though someone who is disabled would not use them. But, the most troubling portion of the section is created by the exception. It allows the 1:8 slope if "it is technically infeasible to comply". The term "technically infeasible" is not defined and is not used anywhere else in the IRC. Does "technically infeasible" mean the same as "physically impossible"? Are the criteria for making a determination for "technically infeasible" different than granting a modification under R104.10? It would seem so since specific new language is used. In any event, what will occur is a lack of uniformity due to interpretation of this vague statement. Under the previous rule, it was conceivable that a modification could be granted due to practical difficulties that may allow a ramp with a slope other than 1:8. The new language places an absolute limit on the lower range. Since the exception would allow a 1:8 slope it can only be assumed that this slope is considered safe. So the only reason to require a 1:12 slope is to achieve something that could have been done with the previous language but by doing so it created numerous other problems. Also, the exception limits reduction in ramp slopes only to those impacted by site constraints. Does this mean that no reduction can be applied if there are other limitations to constructing the ramp such as one might find inside the home. What if there is not enough space to put a 1:12 ramp to access a sunken living room? Do we tell the occupant they need to stay out of that room? Site typically means conditions outside the home, not inside. This amendment will accommodate a person desiring to have a flatter slope on a ramp provided they have the space and the means to pay for it without encumbering those who are not so lucky.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee preferred the existing language because it matches the current text in the ADA and the IBC for maximum slope of ramps.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: This proposal returns the minimum slope requirements for residential ramps to 1:8 which had been acceptable for dwellings for decades. There was much discussion on this proposal in Orlando and it lost on a close 6-5 vote with the chair breaking the tie. Changing the minimum ramp slope requirement from 1:8 to 1:12 was unnecessary in that the goal of the proponent could be accomplished without modification of the code. Nothing in the prior rules prevented a homeowner from building a ramp with a 1:12 slope. However, the resulting rule poses a significant hardship on disadvantaged residents living in older homes on small lots that have a difficult time complying with the new rules. These are exactly the people that the proposal was intended to help. Under the previous language, if a homeowner only had room for a ramp that might have a slope of 1:10, they could build that. They can't under the current language. Does anyone really want to deny a permit to a homeowner that will force them out of their home? Of course not. There needs to be more reasonableness to this section of the code. It also ignores those situations where a ramp is installed in a dwelling for some other purpose than access. Those Committee members voting in opposition to the code change stated that the 1:12 requirement "matches the current test in the ADA". It is a dangerous precedent to amend sections of codes applying to single family dwellings to match ADA. If this continues, requiring ADA compliant clearances in homes will have a significant cost impact.

Final Action: AS AM AMPC____ D

RB103-06/07
R312.1

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R312.1 Guards. ~~Porches,~~ Guards shall be provided on all decks, landings, 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~~. Required guards shall not be 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 equipped with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

Reason: There are two editorial changes to this section. The first change separates the portion dealing with guards for stairs into a second paragraph just for simplicity. The second editorial change changes the word "which" to the more grammatically correct "that".

The substantive change clarifies that only **required** guards must be 36 inches in height. This would make it clear that a guard of any height or design could be used on a deck that may be 12 inches above grade. The precedent for this change is found in R312.2 that states "**Required** guards on open sides…" Only required guards need meet the opening limitation requirements, not all guards. The same reasoning should apply to guard height.

A similar code change was proposed in Cincinnati but disapproved by the Committee with the following reason: "Many items are not currently regulated by the code but still should comply with the code". The committee is in error if it believes that if something is not regulated that the code still applies?

The committee went on to say that "no technical justification was presented to specifically exempt the requirement for handrails on porches, balconies and raised floor surfaces below 30 inches in height." The IRC specifically exempts guards in these situations in section R312.1. No additional technical justification should be needed. For a deck that is 28 inches above grade, is it not better to have a 24-inch high guard than no guard at all? Or, should a violation notice be issued for a guard that is 24 inches high with the result being removal of the guard? Common sense has to prevail here.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: These two changes are basically editorial and serve to clarify that only required guards shall be not less than 36 inches in height.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Paul K. Heilstedt, PE, Chair, ICC Code Technology Committee, requests Disapproval.

Commenter's Reason: The CTC has responded to the concerns raised by the code committee in E96 Part II and is recommending approval as modified for E96. As noted by CTC in E96 and the proponent of RB103, the changes are predominately editorial. The CTC prefers the reformatting of this section, consistent with the IBC, in Parts 1 and II of E96 over the wording in RB103. However, the CTC further notes that the insertion of the word "required" in RB 103 may create a hazard. If a guard is provided, it should meet the minimum height requirements.

Final Action: AS AM AMPC____ D

RB104-06/07
R312.1

Proposed Change as Submitted:

Proponent: Tom Rubottom, City of Lakewood, Colorado, representing The Colorado Chapter of ICC

Revise as follows:

R312.1 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. <u>The 30 inch (762 mm) measurement will apply to any point on the grade below up to 36 inches (914 mm) laterally from the upper level.</u>

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

Reason: The added wording to this code section will make it clear where one would need to measure to check the allowable 30 inches before you would need to add an approved guard. This will stop the practice of having a very small portion of the grade directly below the upper level meet the 30" and then have a steep drop off immediately outside this spot. We have used the 36" dimension based on the minimum required size of landings at doors and stairs and feel it would be an adequate safe landing area in case someone fell off the upper level which would not have a guard.

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

Committee Action: **Disapproved**

Committee Reason: The proposed language still needs to be cleaned up. There is still confusion where the 30 inch measurement is to be taken from.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Justin Nielsen, City of Thornton, Colorado, requests Approval as Modified by this public comment.

Modify proposal as follows:

R312.1 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. ~~The 30 inch (762 mm) measurement will apply to any point on the grade below up to 36 inches (914 mm) laterally from the upper level.~~ The height of all raised floor surfaces or open side of stairs, for purposes of this section, shall be measured from any point on the grade below within 36 inches horizontally of the edge of such raised floor surface or open side of stairs.

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

Commenter's Reason: The original code change proposal was disapproved by the committee due to confusion with the proposed language. The above wording is intended to clearly define the extent of the grade below the upper floor surface to be considered in determining the height of the raised floor.

Public Comment 2:

Tim Pate, City of County of Broomfield, Colorado, representing Colorado Chapter of ICC, requests Approval as Modified by this public comment.

Modify proposal as follows:

R312.1 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. The 30 inch (762mm) measurement will be measured down from the level of the porch, balcony, ramp or raised floor surface and apply to any point on the grade below up to 36 inches (914 mm) laterally from the ~~upper level~~ outer edge.

Commenter's Reason: The Committee expressed concerns that it was unclear on where the measurement would be taken. This added language helps to clear this up. The concept is to measure the 30" from the upper level and at any point 36" out from the outer edge.

ADDITIONAL REASONING FOR ORIGINAL CHANGE: Anthropometric studies have determined the center of gravity of the average human body is located at 55-percent of the body height. The average height of the U S adult population is 67 inches. Therefore the location of average center of gravity of the U. S. population is at 0.55 x 67 = 36.9 inches above the floor. A 36 inch wide evaluation-band adjacent to the edge of the raised surface serves to insure that the average person who may accidentally fall off a raised surface, not required to possess a guard, does not sustain serious injury by continuing to descend down a sloping or stepped incline.

Final Action: AS AM AMPC____ D

RB105-06/07
R312.1

Proposed Change as Submitted:

Proponent: Tom Rubottom, City of Lakewood, Colorado, representing The Colorado Chapter of ICC

Revise as follows:

R312.1 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~~ Those portions of open sides of stairs where the height of treads exceeds 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 equipped with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

Reason: This code change will change the requirement of requiring a guard on open stairs from the point where the treads are 30" or less above the adjacent floor or grade. The Code would not require a guard on either a platform, deck, or stairs that are 30" or less above the adjacent grade or floor. It does not make sense to require this guard at all locations along a stair when the entire stair rise exceeds 30". This change would require the guards only on the segment of the stair that is greater than 30" above the adjacent floor or level.

This will give more flexibility for finishing basements and the common practice of opening up the bottom portion of stairs in order to allow homeowners to be able to move furniture up and down stairs easier due to the tight constraints of stairs extending down to landings located by foundation walls.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee did not support stairway provisions being included in the guardrail section of the code.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Tim Pate, City and County of Broomfield, Colorado, representing Colorado Chapter of ICC, requests Approval as Submitted.

Commenter's Reason: The reason given by the Committee does not make any sense- "The committee did not support stairway provisions being included in the guardrail section of the code." The existing language that was struck out in this change referred to open sides of stairs already – "Open sides of stairs with a total rise of more than …" This code change was not to include any new requirements for stairs but to change where the handrail needed to extend down to when the total rise of a stair exceeds 30". As stated in original reason – it does not make sense to require a handrail on the bottom portion of stairs (30" or less run length) when the code already has exception for requiring a guard when change of elevation is 30" or less and handrails are not required on stairs with 3 or fewer risers.

Public Comment 2:

Tim Pate, City and County of Broomfield, Colorado, representing Colorado Chapter of ICC, requests Approval as Modified by this public comment.

Modify proposal as follows:

R312.1 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. Those portions of open sides of stairs where the height of ~~treads~~ stairs exceeds 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 equipped with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

Commenter's Reason: The reason given by the Committee does not make any sense- "The committee did not support stairway provisions being included in the guardrail section of the code." The existing language that was struck out in this change referred to open sides of stairs already – "Open sides of stairs with a total rise of more than …" This code change was not to include any new requirements for stairs but to change where the handrail needed to extend down to when the total rise of a stair exceeds 30". As stated in original reason – it does not make sense to require a handrail on the bottom portion of stairs (30" or less run length) when the code already has exception for requiring a guard when change of elevation is 30" or less and handrails are not required on stairs with 3 or fewer risers.

Another concern the committee had was the original code change language seemed to imply that risers might be up to 30" high. This modification would take care of that concern.

Final Action: AS AM AMPC____ D

RB106-06/07
R312.2

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R312.2 Guard opening limitations. Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures which do not allow passage of a sphere ~~4 inches (102 mm)~~ 4 3/8 inches (107 mm) or more in diameter.

Exceptions~~:~~:

1. ~~1.~~ The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches (152 mm) cannot pass through.
2. ~~2. Openings for required guards on the sides of stair treads shall not allow a sphere 4 3/8 inches (107 mm) to pass through.~~

Reason: There is no reason why there should be a double standard for guard openings. The purpose of the spacing limitation is to prevent a child from getting through the guard. If 4 3/8 inches is a safe standard, it should be permitted on a landing or floor as well as the stair. This will also create more uniformity in the application of the guard rules and reduce confusion that can exist with two standards.

When the committee approved RB40-01, which changed the guard spacing for stairs, the following supporting documentation was placed in the monograph by the proponent: "Mr. William W Stewart, representing Steward-Schaberg Architects presented a similar change as RB289-99 and I add this quote from proposal RB289-99. "There is a 99 percent probability that an 10-12 month old child cannot pass through a 4-3/8 inch opening. There is a 99.8 probability that a 12-17 month old child cannot pass through a 4-3/8 inch opening. While the code should anticipate that children of all ages might be unattended on all level walking surfaces it need not provide for unsupervised 12 month old children on stairs. The principal risk to a 12-month old on a stair is the risk of falling down the stair not that of squeezing through the guard.""

It is pure speculation, unsupported by any facts that children are more likely to fall through a guard on a floor than one on a stair. If the statement is true, taken to its logical conclusion means that no verticals would be required in guards for the stair at all since the child won't be there. Additionally, the proponent should have extended the greater guard spacing limits to landings as well as the stairs since a child would need to traverse the stairs, where he says they won't be, to get to the landings.

Furthermore, the argument assumes the child will always be at the top of the stairs. By age 17 months, nearly all children can negotiate stairs at least by crawling and could conceivably crawl up the stairs.

It was further argued by the proponent at the time that changing the spacing of the verticals from something around 3 inches on a stair to 4 inches on a landing "looked odd". Doesn't this argument apply to the comparison of verticals on the landings to the stairs? Of course it does.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The proponent provided insufficient technical justification to change.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Submitted.

Commenter's Reason: This code change would standardize the spacing requirements for openings in guards at 4 3/8 inches. The committee disapproved this proposal on a close 6-4 vote stating that insufficient technical justification was submitted. There was sufficient technical justification provided. The same argument used to increase the spacing from 4 inches to 4 3/8 inches on stairs was used. Children's heads don't change in size when they crawl from a floor to a stair or landing. There is no data to support that children are more or less likely to fall through a guard on a stair or landing or floor. Under the current rules, anytime you have a guard that transitions from a landing to a stair, you will have two intermediate spaces side by side with different special requirements, one can be no greater than 4 inches, the other no greater than 4 3/8 inches. If 4 3/8 inches is safe, which the membership has agreed based on the action to allow 4 3/8 inch spacing for guards for stairs, then it should be permitted for all applications.

Public Comment 2:

Scott Dornfeld, City of Delano, Minnesota, representing Association of Minnesota Building Officials, requests Approval as Modified by this public comment.

Modify proposal as follows:

R312.2 Guard opening limitations. Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4 inches (102 mm) ~~4 3/8 inches (107 mm)~~ or more in diameter.

Exceptions:

1. The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches (152 mm) cannot pass through.
2. Openings for required guards on the sides of stair treads shall not allow a sphere 4 inches (102 mm) to pass through.

Commenter's Reason: We have seen that the 4 inch spacing works at the guard railings, so then why do we want to give up on this protection on the stairs. We were able to make the 4 inch spacing work in past codes on the stair treads to maintain the minimum safety standards that the code represents. The stair builders were able to persuade the committee to change to the larger spacing. Let's keep our minimum standards and not change for the sake of curb appeal.

Public Comment 3:

Todd Daniel, National Ornamental & Miscellaneous Metals Association, requests Disapproval.

Commenter's Reason: The National Ornamental and Miscellaneous Metals Association (NOMMA) agrees with the Committee's decision to disapprove this change it would negate the sound reasoning established in approval of RB103-06/07. Only guards required by the

code should be required to adhere to the limitations of the code. Applying limitations to guards that are not required is equivalent to enforcing a law in a jurisdiction where the law does not apply. The additional limitations may also discourage the inclusion of guards deemed necessary in special situations, but not required by the code. If no negative comments are received, then NOMMA withdraws this comment.

Final Action: AS AM AMPC____ D

RB109-06/07

R313, R313.1.1 (New), Chapter 43

Proposed Change as Submitted:

Proponent: Roger R. Evans, Park City Municipal Corporation, Utah, representing Utah Chapter of ICC

1. Revise as follows:

SECTION R313
~~SMOKE~~ ALARMS

2. Add new text as follows:

R313.1.1 Carbon monoxide alarms. Carbon monoxide alarms shall be installed on each habitable level of a dwelling unit equipped with fuel burning appliances. All carbon monoxide detectors shall be listed and comply with UL 2034 and shall be installed in accordance with provisions of this code and NFPA 720. Approved combination smoke and carbon monoxide detectors shall be permitted.

3. Add standard to Chapter 43as follows:

UL
2034–96 Standard for Single and Multiple Station Carbon Monoxide Alarms

NFPA
720-05 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units

Reason: According to the Journal of the American Medical Association (JAMA), carbon monoxide is the leading cause of accidental poisoning deaths in America. 1,500 people die annually due to accidental carbon monoxide exposure and additional 10,000 seek medical attention. (Medical experts agree that it's difficult to estimate the total number of carbon monoxide incidents because the symptoms of carbon monoxide poisoning resemble so many other common ailments.) www.homesafe.com

Cost Impact: The code change proposal will increase the cost of construction between $50.00 to $200.00 per residential unit.

Analysis: Results of the review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Note: The following analysis was not in the Code Change Proposal book but was published in the "Errata to the 2006/2007 Proposed Changes to the International Codes and Analysis of Proposed Reference Standards" provided at the code development hearings:

Analysis: Review of proposed new standard indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

Committee Action: **Disapproved**

Committee Reason: The committee disapproved this change after considerable negative testimony. There is no clear direction given for placement of these devices. The CO detectors are prone to false alarm indications. The Department of Homeland Security representative stated that 94 percent of the time these detectors activated it was due to a malfunction of the device. The committee also voiced concern over tying these devices in with the presence of fuel burning appliances.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Roger R. Evans, Park City Municipal Corporation, representing Utah Chapter of ICC, requests Approval as Modified by this public comment.

R313.1.1 Carbon monoxide alarms. ~~Carbon monoxide alarms shall be installed on each habitable level of a dwelling unit equipped with fuel burning appliances. All carbon monoxide detectors shall be listed and comply with UL 2034 and shall be installed in accordance with provisions of this code and NFPA 720. Approved combination smoke and carbon monoxide detectors shall be permitted~~. In new construction, dwelling units within which fuel-fired appliances are installed shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).

R313.1.2 Where required-existing dwellings. In existing dwellings, where interior alterations, repairs, fuel-fired appliance replacements or additions requiring a permit occur, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section 313.1.1.

R313.1.3 Alarm requirements. The required carbon monoxide alarms shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. Carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

UL

2034–96 Standard for Single and Multiple Station Carbon Monoxide Alarms

~~**NFPA**~~

~~720-05 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units~~

Commenter's Reason: This modification is consistent with the assembly action taken on **M41-06/07 Part I, II and III.** According to the Journal of the American Medical Association (JAMA), carbon monoxide is the leading cause of accidental poisoning deaths in America. 1,500 people die annually due to accidental carbon monoxide exposure and additional 10,000 seek medical attention. (Medical experts agree that it's difficult to estimate the total number of carbon monoxide incidents because the systems of carbon monoxide poisoning resemble so many other common ailments.) www.homesafe.com

Public Comment 2:

David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.

Commenter's Reason: GAMA believes this proposal should be disapproved on the basis that it unfairly identifies fuel-burning appliances as the only source of carbon monoxide. Carbon monoxide alarms should be installed in all residential occupancies, regardless of the type of fuel the appliances use. The recent rash of CO incidents in Washington State (predominantly electric heat pumps) and Texas during power outages as a result of inclement weather reinforces the need for theses devices to be installed in all residential buildings. A large majority of the recent CO incidents was attributed to the misuse of power generators. Had these homes had a working CO alarm with battery power backup many of these incidents might have been avoided. Carbon monoxide comes from a variety of sources unrelated to fuel-burning appliances and this proposal does not go nearly far enough to provide safety to all occupancies. Code requirements that address life safety should not fall short of its goal.

Public Comment 3

Ted A. Williams, American Gas Association, requests Disapproval.

Commenter's Reason: ICC should disapprove this proposal. The ICC Code Technology Committee has published on the ICC website its recommendation from its Area of Study - Carbon Monoxide Alarms. Its recommendation is as follows:

> "Recommendation: The CTC recommendation is:
>
> There has not been sufficient justification presented to the CTC to mandate carbon monoxide alarms in new and existing residential type occupancies.
>
> In making this recommendation, the CTC notes the importance of and the need for compliance with the applicable code provisions for equipment maintenance and compliance with equipment installation instructions to control the hazards associated with CO emissions."[1]

This recommendation follows many hours of testimony and presentation of documentation (recorded on the ICC website) on CO alarm issues from a wide variety of stakeholders at CTC meetings in Schiller Park, IL and Detroit, MI. ICC committees should address this recommendation in its deliberations and explain alternative actions to the CTC recommendation.

In addition, the following issues of the ICC proposals support disapproval:

- The U. S. Consumer Product Safety Commission (CPSC), in response to separate letter from the NEMA and Gas Appliance Manufacturers Association (GAMA) requesting CPSC support of CO alarm mandates, has stated that it would not support CO alarm mandates until issues of long term reliability of CO alarms were addressed.
- Issues of alarm reliability have not been addressed in published information on alarm performance. As a result, information to date demonstrates poor performance in the field (including data from first responders documented in the National Fire Investigation Response Data System – NFIRS) and in controlled laboratory tests for mitigating false positive and FALSE NEGATIVE activation. The information provided to the CTC and in the public record documents this information in detail.[2]

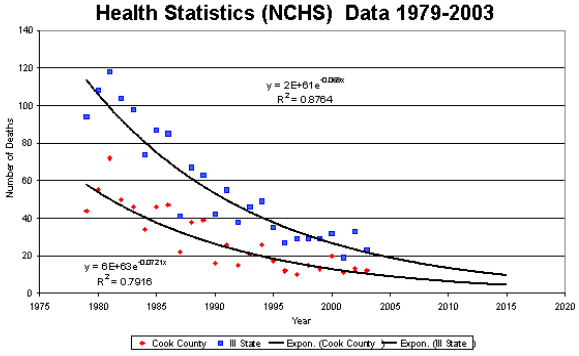
- The CO alarm proposal is in conflict with NFPA 720, the ANSI-recognized consensus standard for installation and location of CO alarms. In the case of RB109, specifically, occupancies with attached garages are excluded, whereas under NFPA 720, these occupancies are included. Other conflicts with NFPA 720 exist as well.
- RB109, through its conflicts with NFPA 720 and focus on new and renovated housing, would not have a demonstrable impact on CO fatalities nationally. Even with 100% COMPLIANCE, PERFECT ALARM RELIABILITY, and PERFECT CONSUMER RESPONSE, these proposals might address only about 20% of CO fatalities since current national residential poisoning incidents involve automobiles in attached garages and older housing without renovation or appliance replacement.

- This proposal does not address THE ONLY GROWING CAUSE OF CO FATALITIES -- PORTABLE EQUIPMENT, INCLUDING GENERATORS.
- CO alarms are not currently a stable product since UL through its Standards Technical Panel 2034 is addressing fundamental issues of alarm life and even activation points. At its upcoming meeting in October, UL will consider proposals to the UL 2034 standard to address deficiencies documented by CPSC and others. The changes proposed would fundamentally alter the design and performance of CO alarms.
- Experience from the City of Chicago, the first major metropolitan jurisdiction in the U. S. to promulgate mandatory CO alarm installation requirements, illustrates in the plot of CO fatalities below THE INEFFECTIVENESS OF MANDATES:

    - Though promulgated in 1994, Chicago and its collar communities in Cook County (many of which have similar mandates) continue to have CO fatalities. Continuing frequency of CO fatalities around ten per year appears to be stable over time and may be expected to continue in the future.
    - The annual number of deaths in this community is consistent with historical trends of declining CO fatalities over time, but no impact or change in this rate of decline can be attributed to the Chicago mandate.
    - For the mandate to have been effective, either CO fatalities would have had to decrease to zero or near zero, or at a minimum, the rate of CO fatalities would have had to show a discontinuous change that could be associated with the promulgation of the mandate.
    - Reasons for the ineffectiveness of the Chicago mandate are the subject of speculation and may be attributed to lack of compliance, lack of enforcement, lack of appropriate response, failure of alarms to perform as designed, or these and other factors in combination and discussed in AGA's presentation to the CTC[3]. Nevertheless, the societal cost of the mandate has been significant with no discernable societal benefit.

Cook County and Illinois CO Deaths

Regression Analysis of National Center for Health Statistics (NCHS) Data 1979-2003



[1] "Report of the CTC, Area of Study – Carbon Monoxide Alarms," International Code Council Code Technology Committee, September 22, 2005, Detroit Marriott Renaissance Center, Detroit, Michigan [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

[2] Williams, Ted A. "CO Alarm Mandates in Model Codes as Public Policy," presented at ICC Code Technology Committee on CO Alarms, July 26, 2005, Schiller Park, Illinois [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

[3] Williams, Ted A. "CO Alarm Mandates in Model Codes as Public Policy," presented at ICC Code Technology Committee on CO Alarms, July 26, 2005, Schiller Park, Illinois [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

Final Action: AS AM AMPC____ D

RB110-06/07
R313, R313.2 (New), R313.3

Proposed Change as Submitted:

Proponent: Frank Stanonik, Gas Manufacturers Association (GAMA)

1. Revise as follows:

SECTION R313
SMOKE ALARMS AND CARBON MONOXIDE ALARMS

2. Add new text as follows:

R313.2 Single- or multiple-station carbon monoxide alarms. Single- or multiple-station carbon alarms shall be installed in the following locations:

1. Outside of each separate sleeping area within 10 feet of any bedroom door.
2. On each additional story of the dwelling, including basements, but not including crawl spaces and uninhabitable attics.

Carbon monoxide alarms shall be listed and labeled as complying with ANSI/UL 2034, *Standard for Single and Multiple Station CO Alarms,* or CSA 6.19, *Residential Carbon Monoxide Detectors*, and shall be installed in accordance with the manufacturer's installation instructions and NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Unit*s. Listed combination smoke and carbon monoxide alarms shall be acceptable.

(Renumber subsequent sections)

3. Revise as follows:

R313.3 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 and carbon monoxide 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 R313.2.1.

4. Add standards to Chapter 43 as follows:

UL

2034-96 Standard for Single and Multiple Station Carbon Monoxide Alarms

NFPA

720-05 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units

Reason: The proposed addition to the code would require the installation of carbon monoxide (CO) alarms in dwellings regulated under the International Residential Code. CO is a colorless, odorless gas that is a product of incomplete combustion of fuels such as oil, natural gas, kerosene, gasoline, and wood. High concentrations of CO present a health hazard. Due to the nature of CO, it is only detectible with CO sensing instruments.

The Consumer Product Safety Commission (CPSC) estimates that in 2002 there were 188 CO poisoning deaths associated with the use of a consumer product. It is important to note that the CPSC estimate only includes residential use of consumer products; therefore, fatalities resulting from exposure to CO from an automobile are not included, even in the case of an attached garage.

The proposal applies to all homes because there are a variety of sources of CO, some that are portable, which may cause elevated CO concentrations in a home. For instance, the CPSC estimates that 54% of annual CO fatalities are due to heating systems, while the remaining 46% are attributable to other items such as portable generators, camp stoves, or charcoal grills. Many states and local jurisdictions have already adopted legislation requiring the installation of CO alarms in homes, most recently in Massachusetts.

The proposed code requires carbon monoxide alarms to be listed as ANSI/UL 2034 or CSA 6.19 compliant. These performance standards for CO alarms provide assurance that the product meets specific performance standards. Many questions have been raised as to the reliability, performance, and length of life of a CO alarm. A study published by Mosaic Industries in 2003 titled "Evaluating the Performance of Residential CO Alarms" raises such questions. It is important to note that while the report was published in 2003, all of the alarms tested were manufactured prior to the year 2000. There have been many revisions to the product standards since that time. In an effort to harmonize ANSI/UL 2034 with CSA 6.19 and to update ANSI/UL 2034, revisions have been to increase the number of gases in the Selectivity Test, modify the requirements in the Effect of Shipping and Storage Test, add a new Section 74A to address reliability requirements, and a low humidity test requirement. These product standards continue to improve and have already addressed many of the performance concerns that have raised concern during past CO alarm code proposals.

Bibliography: "Non-Fire Carbon Monoxide Deaths Associated with the Use of Consumer Products, 2002 Annual Estimates," Consumer Product Safety Commission

Cost Impact: The code change proposal will increase the cost of construction. The average retail price of a carbon monoxide alarm is $30.

Analysis: Results of the review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Note: The following analysis was not in the Code Change Proposal book but was published in the "Errata to the 2006/2007 Proposed Changes to the International Codes and Analysis of Proposed Reference Standards" provided at the code development hearings:

Analysis: Review of proposed new standard indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

Committee Action: **Disapproved**

Committee Reason: The committee disapproved this proposed change to be consistent with the actions taken on RB109-06/07.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.

Commenter's Reason: GAMA believes that carbon monoxide alarms should be installed in all residential occupancies. The recent rash of CO incidents in Washington State and Texas during power outages as a result of inclement weather reinforces the need for theses devices in all residential buildings. A large majority of the recent CO incidents was attributed to the misuse of power generators. Many of these incidents might have been avoided had occupants had a working CO alarm with battery power backup.

Public Comment 2:

Ted A. Williams, American Gas Association, requests Disapproval.

Commenter's Reason: : ICC should disapprove this proposal. The ICC Code Technology Committee has published on the ICC website its recommendation from its Area of Study - Carbon Monoxide Alarms. Its recommendation is as follows:

> "Recommendation: The CTC recommendation is:
>
> There has not been sufficient justification presented to the CTC to mandate carbon monoxide alarms in new and existing residential type occupancies.
>
> In making this recommendation, the CTC notes the importance of and the need for compliance with the applicable code provisions for equipment maintenance and compliance with equipment installation instructions to control the hazards associated with CO emissions."[1]

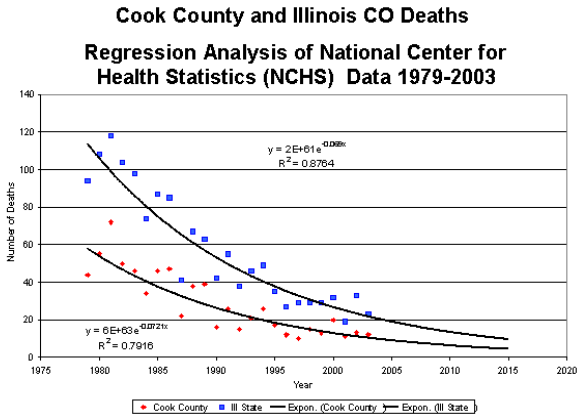
This recommendation follows many hours of testimony and presentation of documentation (recorded on the ICC website) on CO alarm issues from a wide variety of stakeholders at CTC meetings in Schiller Park, IL and Detroit, MI. ICC committees should address this recommendation in its deliberations and explain alternative actions to the CTC recommendation.

In addition, the following issues of the ICC proposals support disapproval:

- The U. S. Consumer Product Safety Commission (CPSC), in response to separate letter from the NEMA and Gas Appliance Manufacturers Association (GAMA) requesting CPSC support of CO alarm mandates, has stated that it would not support CO alarm mandates until issues of long term reliability of CO alarms were addressed.
- Issues of alarm reliability have not been addressed in published information on alarm performance. As a result, information to date demonstrates poor performance in the field (including data from first responders documented in the National Fire Investigation Response Data System – NFIRS) and in controlled laboratory tests for mitigating false positive and FALSE NEGATIVE activation. The information provided to the CTC and in the public record documents this information in detail.[2]
- The CO alarm proposal is in conflict with NFPA 720, the ANSI-recognized consensus standard for installation and location of CO alarms. In the case of RB109, specifically, occupancies with attached garages are excluded, whereas under NFPA 720, these occupancies are included. Other conflicts with NFPA 720 exist as well.
- RB110, through its conflicts with NFPA 720 and focus on new and renovated housing, would not have a demonstrable impact on CO fatalities nationally. Even with 100% COMPLIANCE, PERFECT ALARM RELIABILITY, and PERFECT CONSUMER RESPONSE, these proposals might address only about 20% of CO fatalities since current national residential poisoning incidents involve automobiles in attached garages and older housing without renovation or appliance replacement.

- This proposal does not address THE ONLY GROWING CAUSE OF CO FATALITIES -- PORTABLE EQUIPMENT, INCLUDING GENERATORS.
- CO alarms are not currently a stable product since UL through its Standards Technical Panel 2034 is addressing fundamental issues of alarm life and even activation points. At its upcoming meeting in October, UL will consider proposals to the UL 2034 standard to address deficiencies documented by CPSC and others. The changes proposed would fundamentally alter the design and performance of CO alarms.
- Experience from the City of Chicago, the first major metropolitan jurisdiction in the U. S. to promulgate mandatory CO alarm installation requirements, illustrates in the plot of CO fatalities below THE INEFFECTIVENESS OF MANDATES:

  - Though promulgated in 1994, Chicago and its collar communities in Cook County (many of which have similar mandates) continue to have CO fatalities. Continuing frequency of CO fatalities around ten per year appears to be stable over time and may be expected to continue in the future.
  - The annual number of deaths in this community is consistent with historical trends of declining CO fatalities over time, but no impact or change in this rate of decline can be attributed to the Chicago mandate.
  - For the mandate to have been effective, either CO fatalities would have had to decrease to zero or near zero, or at a minimum, the rate of CO fatalities would have had to show a discontinuous change that could be associated with the promulgation of the mandate.
  - Reasons for the ineffectiveness of the Chicago mandate are the subject of speculation and may be attributed to lack of compliance, lack of enforcement, lack of appropriate response, failure of alarms to perform as designed, or these and other factors in combination and discussed in AGA's presentation to the CTC[3]. Nevertheless, the societal cost of the mandate has been significant with no discernable societal benefit.



[1] "Report of the CTC, Area of Study – Carbon Monoxide Alarms," International Code Council Code Technology Committee, September 22, 2005, Detroit Marriott Renaissance Center, Detroit, Michigan [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

[2] Williams, Ted A. "CO Alarm Mandates in Model Codes as Public Policy," presented at ICC Code Technology Committee on CO Alarms, July 26, 2005, Schiller Park, Illinois [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

[3] Williams, Ted A. "CO Alarm Mandates in Model Codes as Public Policy," presented at ICC Code Technology Committee on CO Alarms, July 26, 2005, Schiller Park, Illinois [Available on the ICC website: http://www.iccsafe.org/cs/cc/ctc/Carbon.html].

Final Action: AS AM AMPC____ D

RB114-06/07

R313.3 (New)

Proposed Change as Submitted:

Proponent: John Dean, National Association of State Fire Marshals

Add new text as follows:

R313.1 Fire protection systems. An approved automatic fire sprinkler system shall be installed in new one- and two-family dwellings and townhouses in accordance with Section 903.3.1 of the *International Building Code*.

(Renumber subsequent sections)

Reason: The justification for providing fire sprinkler protection for the one- and two-family dwelling environment is clear and is provided in the following paragraphs.

1. 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- and two-family dwelling environment are actually intimate with ignition.1 With 84.5% of one- and two-family dwelling fire deaths occurring when the occupant was not intimate with the ignition, the "Purpose" in R101.3 is clearly not being achieved.
2. The life safety hazards in the one- and 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 2,867 civilian deaths, 12,244 civilian injuries and $3.5 billion dollars in direct property damage per year.2 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, 12% for highway vehicles and 4% for non-residential structures. The next highest dollar loss category is $653.6 million for manufacturing, which is only 18.6% of the loss for one- and two-family dwellings.3
3. 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 life safety hazards in the one- and two-family dwelling environment. (See #2 above.)
4. 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.4 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.
5. In the year 2004, 45% of all fireground firefighter deaths occurred in dwellings and apartments.5
6. Although residential sprinklers are primarily focused on the protection of life 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.6
7. NFPA's statistics indicate the significant effect fire sprinklers have on their primary purpose in the home, which is 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.7 This is a 76.6% reduction in life loss when sprinklers are present. NFPA's fire data review has indicated, "When sprinklers are present, the chances of dying in a fire are reduced by one-half to three-fourths and the average property loss per fire is 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 to fire departments. If unreported fires could be included and if complete, well maintained, and properly installed and designed systems could be isolated, sprinkler effectiveness would be seen as even more impressive."8
8. The relative risk for fire deaths in one- and two-family dwellings is greatest for those 5 years of age and under and those 65 years of age and over. A child age 5 or under is 74% more likely to die in a home fire than the average person. Adults aged 65 years and over are more than twice as likely.9 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.
9. 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 Patterns by State"10 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 Schaenman et al., footnoted on the previous page, indicated that **age of housing is not a strong primary predictor of high fire incident rates**."
10. 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. The costs stated in this proposal are based on averages calculated in Scottsdale, Arizona. Costs for residential sprinklers will vary around the country. Over time, homeowners will be able to recoup their investment for fire sprinklers by reduced insurance premiums and the possibility of lower property tax.
11. The "America Burning: Recommissioned" report11 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

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1 Ahrens, 2003, p. 65
2 *Ibid.*, 49
3 *Ibid.*, 50
4 Ford, 1997, p. 30
5 Fahy & Leblanc, 2005, p. 5
6 Ahrens, 2003, p. 66
7 *Ibid.,* 66
8 Hall & Rohr, 2005, p. i
9 Hall, 2005, p. i
10 Hall, 2004, "Fire Deaths by State"

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."

Bibliography:

Ahrens, M. (2003). *The U.S. Fire Problem Overview Report: Leading Causes and Other Patterns and Trends* (Rep.). Quincy, MA: National Fire Protection Association (NFPA).

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

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposed change to require approved automatic sprinkler systems for several reasons. The issue of cold weather and freezing of the systems was a concern. The cost of labor to install and then maintain the system was a concern. Increase of cost and demands on local infrastructure as well. Appendix P is an option that is available for anyone that wishes to adopt and enforce that appendix. Any code change to bring sprinklers into the code text needs to have a provision to delete Appendix P and this proposal did not.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Alan Perdue, Guilford County Emergency Services, representing International Association of Fire Chiefs – Fire and Life Safety Section, requests Approval as Modified by this public comment.

This public comment is being submitted on behalf of the following organizations:

National and Regional Organizations
International Association of Fire Chiefs – Fire and Life Safety Section
Center for Campus Fire Safety
ICC Joint Fire Service Review Committee
Institution of Fire Engineers, US Branch
National Association of State Fire Marshals
New England Association of Fire Marshals
Safe Buildings Coordinating Committee
Southeastern Association of Fire Chiefs

Statewide and Local Organizations
Arizona Fire Chiefs Association
Arizona Fire Marshals Association
Arizona Society of Fire Protection Engineers Chapter
Arizona: Yuma County, AZ Fire Officer's Association
California Fire Chiefs Association
California: Northern California Fire Prevention Officers Section
California: Orange County Fire Chiefs Association
Colorado: Fire Marshals Association of Colorado
Connecticut: Capitol Region Fire Marshals Association of Connecticut
Florida Fire Chiefs Association
Florida Fire Marshals and Inspectors Association
Idaho Fire Chiefs Association
Illinois Fire Chiefs Association
Illinois Fire Inspectors Association
Indiana: Fire Inspectors Association of Indiana
Iowa Fire Marshals Association
Iowa: Hawkeye State Fire Safety Association
Maryland State Firemen's Association
Michigan Association of Fire Chiefs

Michigan Fire Inspectors Society
Nevada: Fire Prevention Association of Nevada
New York: Association of Fire Districts of the State of New York
New York: Career Fire Chiefs' Association of New York State
New York: Firemen's Association of the State of New York
New York: Monroe County, NY Fire Marshals & Inspectors Association
New York State Association of Fire Chiefs
New York State Building Officials Conference
New York State Code Coalition to Protect and Preserve our Communities
New York State Fire Marshals and Inspectors Association
North Carolina State Firemen's Association
Ohio Fire Officials Association
Oregon Fire Code Committee
Oregon Fire Marshals Association
Rhode Island Association of Fire Marshals
Texas: Fire Prevention Association of North Texas
Virginia: Central Virginia Fire and Arson Association
Virginia Fire Chiefs Association
Virginia Fire Prevention Association
Washington Fire Chiefs Association
Washington State Assn of Fire Marshals

Modify proposal as follows:

SECTION R313
FIRE SPRINKLER SYSTEMS.

R313.1 General ~~Fire protection systems~~. An approved automatic fire sprinkler system shall be installed in new one-and two-family dwellings and townhouses in accordance with NFPA 13D ~~Section 903.3.1 of the *International Building Code*~~.

2. Delete IRC Appendix P.

3. Add new referenced standard to Chapter 43 as follows:

NFPA: NFPA 13D-07 Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes

Commenter's Reason: Although this reason statement is somewhat lengthy, we, the code officials who have sponsored this public comment, urge our fellow code officials to read it thoroughly. There is a great deal of important information to be conveyed, and it is important for all who attend the Rochester meeting to know first hand that we have thoroughly responded to all of the opposition issues raised at the hearing in Orlando and in the committee statement in the *2006 Report of the Public Hearing.*

At the final action hearing in Rochester, code officials will be given a unique opportunity to make a historic contribution to fire safety that directly addresses the root of America's fire problem, dwelling fires. No single change to ICC's codes for new construction could have a more direct and consequential impact on reducing the nation's long term fire losses than revising the IRC to require residential sprinklers in new homes. If your jurisdiction hopes to one day have a residential sprinkler ordinance, then there is no better way for you to accomplish this goal than by coming to the Rochester hearing and voting to approve this public comment so that the residential sprinkler requirement will become a part of the IRC. YOUR attendance to support this issue in Rochester is critical because it will require a 2/3 majority vote of members present to pass. EVERY vote will be important.

More than 30 years have passed since the concept of residential sprinklers was born, and in that time, the technology has matured greatly. Nevertheless, roughly 100,000 Americans have lost their lives in residential fires in that same time frame. Putting this death toll into perspective, it is essentially equivalent to wiping out the entire population of the City of Albany, New York in just 30-years. Those who argue that the residential fire problem is "not that bad" only get away with making such statements because residential fires tend to kill by ones and twos, ducking national attention. The solution to this problem is at hand, and yet we continue to debate whether the time has come to set out on a path that will protect current and future generations from the destruction brought by residential fires. It is time for this debate to end and for residential firesafety to take the next step forward.

There are many reasons why NOW is the time to change the IRC and establish residential sprinklers as part of the minimum safety package set forth in the national model code for residential construction. Substantial justification was offered in the reason statement originally published with this proposal, as shown above, and additional substantiation offered in this public comment focuses on issues raised in opposition comments made at the Orlando hearing.

Before addressing technical points, two housekeeping modifications proposed in this public comment need to be discussed. First, to address an important issue raised in the committee's reason for disapproval, this public comment deletes Appendix P. The committee correctly pointed out that it would be inappropriate to have a fire sprinkler requirement in both the body of the IRC and in the appendix, and this public comment resolves that issue. Second, this public comment proposes direct adoption of the NFPA 13D standard, rather than referencing the standard indirectly via reference to Chapter 9 of the IBC. Direct adoption of NFPA 13D is proposed in response to the stated desire of the National Association of Home Builders. NAHB successfully proposed this amendment (to Appendix P) in Orlando through their Proposal RB319–06/07, and this public comment yields to NAHB's preference by maintaining the direct reference to NFPA 13D and adding the appropriate text to Chapter 43 for the current edition (2007). We see no value in debating the issue of referencing 13D versus the IBC. If NAHB prefers 13D, we concede that issue.

One other introductory point to be discussed is the limitation on the scope of this proposal to only encompass new construction. This is in recognition of that fact that the infrastructure required to retrofit an existing home during a remodel or addition project may be substantially disproportionate to the project itself. Trying to create a framework to deal with such variables within the scope of a public comment to RB114 would certainly introduce new information not considered at the Orlando hearing and was therefore considered out of order.

The following paragraphs identify and respond to concerns raised at the Orlando hearing and in the committee's reason statement. With these issues addressed, the organizations sponsoring this public comment encourage the support of all code officials in approving this public comment.

1. **System freeze-ups in cold climates:** Opponents of residential sprinklers assert that system freeze-ups will cause lots of problems in cold climates. However, a sprinkler system poses no greater risk of freezing than domestic plumbing if the system is properly designed and installed. Freeze-ups result from design or installation errors that can occur with any plumbing system, and it is incorrect to suggest that sprinkler systems in cold climates are predisposed to freezing. In fact, on the contrary, there are many jurisdictions in Northern states with severely freezing climates that have adopted residential sprinkler ordinances, which would surely have been repealed if freezing problems were widespread. If we dismiss the occasional anecdotal stories about freeze-ups caused by faulty installations, common sense dictates that widespread freezing problems with sprinklers would generate an enormous political backlash in jurisdictions where sprinklers have been mandated. This simply hasn't happened.

   There are many options available to sprinkler homes in freezing climates to combat the risks of frozen piping. These include, among others:

   - Using sidewall sprinklers supplied by pipes running in walls, soffits, closets and crawl spaces to keep sprinkler piping out of unheated attics,
   - Properly installing piping beneath the insulation in attics to protect the piping from the unheated attic space (used in climates that are not subject to extremely cold temperatures),
   - Installing dry-pipe systems in unheated attics (a new technology that is just entering the marketplace)

   The Residential Fire Safety Institute documents that hundreds of jurisdictions in at least 25 states have adopted residential sprinkler legislation, including mountainous states and Northern states ranging from New York to Alaska. In addition, sprinkler systems are required in all residential occupancies governed by the IBC, which include group homes and townhouses exceeding 3-stories in height. The bottom line is that residential sprinkler systems have been installed in homes located in freezing climates for many years, and if freeze concerns are being addressed in these cases, as they must be, then homes sprinklered in accordance with the IRC can and will be handled in the same manner.

2. **Cost impact of inflated water tap fees:** Opponents of residential sprinklers argue that sprinklers costs will skyrocket in jurisdictions where local water purveyors inflate the cost of larger water taps. Obviously, this is not a building code issue, and local fees should not serve as an impediment to national policy established by the IRC. Nevertheless, an experienced designer can avoid the use of a larger meter, and associated fee increases, by applying alternative design approaches that are already permitted by NFPA 13D. Such alternatives include:

   - Using reduced sprinkler spacing in rooms protected by more than one sprinkler. UL listed sprinklers are already on the market for reduced spacing that only require 9 gpm per sprinkler. Given that NFPA 13D requires that a maximum of two sprinklers be calculated for dwelling systems, this yields a total demand of 18 gpm, which can be supplied by many municipal systems using a standard 5/8-inch meter. With this design approach, extended coverage sprinklers can still be used in rooms requiring only a single sprinkler. Although this design approach may not be the best choice for every case, it is particularly suited to smaller homes at the entry/affordable housing level.
   - If the tap fees for larger supplies are substantially out of line, there is always an option available to install a small tank/pump system supplied by a standard size water tap. Obviously, this option comes with its own associated cost, but it does provide an upper limit to the potential impact of high tap fees.

   The options listed above are available today, and they meet NFPA 13D. Obviously, the most effective approach to fighting unfairly high tap fees is to encourage that the fees be reduced when increased meter sizes are being used to support the installation of a fire sprinkler system. Mandating sprinklers will put builders and code officials on the same side of this issue, trying to get affordable sprinklers, rather than arguing over whether sprinklers should be provided.

   For such an effort to be successful, water purveyors will need to understand that increasing meter/tap sizes to supply residential sprinklers does not increase the demand on a public water system. On the contrary, residential sprinklers actually reduce demand because 1) Sprinklers only flow water when a fire occurs, and 2) The amount of water used by a residential fire sprinkler system is only a fraction of what firefighters use to extinguish fires in unsprinklered properties. This argument has already successfully resolved tap fee issues in some jurisdictions.

3. **Cost of sprinklers and impact on affordable housing.** Before specifically addressing the cost of sprinklers, there is a basic question that has to be asked when it comes to the price of housing in America, "What drives the price of a new home?" In many markets, the answer to this question is not "construction costs." Instead, prices are established based on an analysis of what the market will bear. In these markets, sales prices will continue to rise as long as there are buyers who are willing to pay the asking price, and in these markets, it would be disingenuous, at best, to suggest that the cost of fire sprinklers would price buyers out of the market.

In other segments of the home building industry, new home pricing does follow the "cost plus" model, and in these cases, the added cost of a sprinkler system is an important consideration. Such costs will be a function of many variables, including but not limited to, the availability of a public water supply, the size of the home, the level of competition in the local market, the design approach, the climate and enhancements that may be desired by the owner, such as custom colored cover plates for sprinklers.

One source of cost data associated with the widespread installation of residential sprinklers is available from Scottsdale, Arizona. Scottsdale, which became one of the first major U.S. jurisdictions to require residential sprinklers roughly 20 years ago, serves as an excellent demonstration case to show the effects of a community's decision to require residential sprinklers on system cost, life safety, property protection and the local fire-protection infrastructure. With respect to cost, residential sprinkler systems in Scottsdale were recently quoted as costing $0.55 to $0.75 per square foot, and there are now well over 40,000 sprinklered homes in the city. No one is suggesting that every other jurisdiction where residential sprinklers are required will match Scottsdale's cost structure, but Scottsdale's experience clearly demonstrates that a competitive marketplace greatly reduces sprinkler costs.

Technology, creative design approaches and labor charges also impact these costs. Design approaches, such as using combined plumbing-sprinkler systems that serve both domestic and fire protection needs (multipurpose systems) are being pursued in some jurisdictions as a way to minimize the cost and impact of sprinklers on new home construction. Multipurpose systems, which are already permitted by NFPA 13D, have been shown to be particularly well suited in affordable housing / entry-level homes because they add minimal cost to the plumbing installation. Recent surveys of sprinkler costs for affordable homes in the 1,000 to 1,200 square foot range showed that the added cost of materials related to sprinkler protection was in the $0.25 to 0.30 per square foot range, and the sprinkler installation required less than 8 hours of additional labor. While no cost increase is inconsequential when dealing with affordable housing, the significant firesafety benefits gained by installing sprinklers for such a small cost (in the $4/month range on a 30-year mortgage, not including any insurance or tax credit) certainly appears to be money well invested.

With respect to the cost of sprinklers in larger homes, the actual impact of sprinkler costs on the owner's monthly payment isn't much different. Figuring the cost of a hypothetical $3,000 sprinkler system in a $300,000 home with a 6.5% mortgage, a 5% credit on a $2,000/year insurance bill, and a combined Federal/State income tax rate of 33%; the net cost of fire sprinklers, after mortgage

related tax deductions, would be $4.37 per month. This represents a 0.23% increase in the monthly payment and roughly equates to the cost of a premium beverage at Starbucks. Just how cheap do sprinklers have to become before they're considered cost-effective?

With all of the foregoing information in mind, it seems fair to say that the true impact on the housing market associated with requiring residential sprinklers will be far less than what opponents of residential sprinklers would like code officials to believe. It has been demonstrated many times in the many jurisdictions throughout the country where residential sprinklers are required that housing markets are not affected by fire sprinklers. These local experiences show us that, once the IRC requires residential sprinklers, home building will continue as it always has. Home prices will fluctuate based on the law of supply and demand; home builders will adjust their products to meet consumer preferences and trends; and home buyers will continue to buy homes.

1. **Does the public want residential sprinklers?** Opponents of residential sprinklers suggested in Orlando that the general public, which isn't well represented at code hearings, would oppose residential sprinklers, but a recent national poll conducted by Harris Interactive indicates that this claim misrepresents public opinion. The survey of over 1,000 adults revealed that:

   - 45% of homeowners said that a sprinklered home is more desirable than an unsprinklered home,
   - 69% of homeowners said that having a fire sprinkler system increases the value of a home, and
   - 38% of homeowners said that they would be more likely to purchase a home with fire sprinklers than without. The reason that this number isn't higher appears largely tied to an unfounded fear of water damage. 48% of homeowners cited water damage as the reason they would not want to install a sprinkler system. Clearly, this indicates a need for public education on the operation and reliability of sprinkler systems as being a major component in enhancing public support and demand for sprinklers.

   The results of this survey support the assertion that the general public has become aware of and has warmed up to the concept of residential sprinklers. Certainly, this is due, at least in part, to the fact that many homeowners live in multifamily occupancies before they own a one- or two-family dwelling. Now that the IBC requires all new multi-family dwellings to be sprinklered, it is fair to say that the home-buying public will continue to become more familiar with residential sprinklers and that public support for residential fire sprinkler systems will continue to grow.

2. **Correlation between a home's age and fire risk…aren't homes built to the IRC already safe enough?:** Opponents of residential sprinklers would like to convince us that residential fire deaths are a function of a home's age and that new homes, built in accordance with the IRC, are safe. Many people buy these arguments because, on the surface, they seem to make sense. However, further analysis paints a different picture. First, most residential fires deaths result from fires caused directly or indirectly by people. Compliance with the IRC doesn't prevent these types of fires or many other common fire causes, and once a fire starts, compliance with the IRC will not slow its spread. The speed by which a fire spreads in a home is instead a function of contents and room geometry.

   Second, a simplistic correlation of residential fire deaths with the age of homes ignores several variables that tend to vary based on the age of a home. These include the socioeconomic status of the occupants, the density of occupants, the age of occupants, and the presence or omission of smoke detectors (discussed separately below), among others. Firesafety experts know that these factors are far more likely to be contributory factors in fire deaths than the age of a structure. In addition, the fact that more fire deaths occur in "older" homes than newer homes may also be related to the fact that the median age of homes in the U.S., according to a recent HUD study, is 32 years. By sheer numbers, a lot of people live in older homes.
   In summary, we do not debate that a home built in accordance with the IRC is safe, but that changes when people move in.

3. **Since only a small percentage of fire department responses are for actual structure fires, does the fire service really need residential sprinklers?** With respect to residential fire losses, the statistics submitted with Proposal RB114 clearly demonstrate the scope and magnitude of the residential fire problem in the United States. Although the percentage of emergency responses to residential structure fires is a small fraction of overall fire department responses, a shocking 45 percent of firefighter deaths that occur on the fire ground occur at residential occupancies, almost always 1- and 2-family dwellings. Dwelling fires have three characteristics that present disproportionate risks as compared to fires in other occupancies. First, they are typically well developed, post-flashover fires by the time the fire department arrives. Second, they often occur at night, and third, they often involve a real or perceived need to perform search and rescue operations. In short, dwelling fires represent a small percentage of our emergency responses but account for a very large percentage of firefighters who are killed in the line of duty.

   It is also important to point out that the ability of the fire service to protect our communities by responding to residential fires has declined significantly in recent years, and the situation isn't getting better. The public has a relatively simple expectation with respect to the fire department when a fire happens…they call 911, and the fire department responds to rescue trapped occupants and put out the fire. Unfortunately, that expectation isn't being effectively met in many parts of the country because of dwindling resources.

   Nationally, volunteer firefighters, who comprise 73% of the American fire service and protect the vast majority of the geographic area of the United States, are becoming harder and harder to retain. In New York alone, the ranks of volunteer firefighters have declined from 110,000 in the early 1990s to approximately 85,000 today. Considering that all-volunteer fire departments protect 95% of New York communities with a population of less than 10,000, what will happen when there are no longer enough firefighters to respond to 911 calls? This situation is national. It is not unique to New York.
   Long after many home builders leave a community, the homes that they leave behind and the people who live in them continue to place demands on the fire service. While the fire service will always strive to meet those demands, it is unrealistic to expect that our volunteers will always be able to do so. Therefore, the fire services' message is simple…if the public is going to be protected from home fires, it's time that we build that protection into new construction.

4. **Aren't smoke alarms enough?** Homebuilders who testified at the Orlando hearing suggested that smoke alarms are good enough to protect the public and that residential sprinklers aren't justified. Everyone can agree that smoke alarms save lives and that they are largely responsible for the dramatic reduction in fire death rates that has occurred in the U.S. over the past 30 years. Nevertheless, smoke alarms are only life-safety devices. On their own, they do nothing to stop the spread of fire, protect property or protect firefighters.

Two other issues related to reliance on smoke alarms are of concern. First, as smoke alarms age, their reliability declines. This concern prompted smoke alarm manufacturers and testing laboratories to begin stamping an expiration date on each unit indicating a 10-year replacement cycle. The questions before us are how many alarms will actually be replaced at 10-year intervals, and what will happen to the reliability of alarms that are not replaced? Although an estimated 96% of U.S. homes with telephones now have at least one smoke alarm, in ¼ of reported fires in smoke alarm equipped homes, the devices didn't work. In contrast, residential sprinkler systems have a life expectancy of 50-years, and they require essentially no maintenance, particularly for multipurpose systems. With these systems, if the domestic water is turned on, sprinklers are on as well. With the combination of sprinklers and smoke alarms, homeowners will have the best of both technologies.

The second issue related to the effectiveness of smoke alarms in further reducing fire death rates has to do with their performance and waking effectiveness. In a study that was just completed in 2006, only 58% of a test group of children ages 6-12 awakened when a standard smoke alarm sounded, and only 38% of the test group successfully evacuated. The median time to awaken was 3 minutes, and the median time to escape was the maximum allowed 5 minutes.

Another study revealed that a surprising **34% of fire deaths in one- and two-family dwellings during the 2000-2004 period occurred in homes with a working smoke detector**. Perhaps this statistic correlates with the fact that fire death rates for the young and the elderly, those who are least likely to be capable of self-preservation even if they are awakened by a smoke detector, are roughly double those for individuals in the central age group. Smoke detectors are good, but they can only go so far in reducing the nation's fire death and injury rates. We need residential sprinklers.

5. **What about homes without a public water supply?** Opponents of residential sprinklers have suggested that it is impractical and too expensive to require sprinklers in homes that will use a well as the water supply. However, design options are available that make wells a viable water supply for both sprinklers and domestic service. Wells essentially fall into two categories, deep and shallow. With a shallow well, the well will likely be designed to provide a direct feed to the home, with no intervening tank. With these types of systems, pumps can be selected at reasonable costs that are capable of supplying both the domestic and sprinkler demands. Constant pressure, variable speed pumps are an excellent choice for this type of application.

   One question that is frequently raised with respect to direct feed well systems involves the "recharge" rate, or the rate at which water can keep up with the required flow. Wells may not be capable of keeping up with the demand associated with a sprinkler system, which will typically be 20 gallons per minute or more. Many automatically assume that a tank and a secondary pump are necessary in these cases, greatly increasing the cost of the sprinkler system, but a lesser known yet simple approach called "developing the well" is a much better solution. Developing a well essentially creates an underground cistern that replaces the need for a tank. The approach involves digging the well substantially below the water table and allowing the hole to fill with water, retaining the needed capacity underground. By using an appropriate pump with a developed well, an interior tank and pump arrangement can be avoided, and the water supply costs can be limited.

   For deeper wells, there are two options. First, there are constant pressure, variable speed pumps suited for these applications. For installations utilizing this approach, a "developed well" as described above can also be used to accommodate needed water retention to satisfy the sprinkler demand. The second alternative involves a tank and pump, which can be installed between the well pump and the plumbing system. This approach is the common arrangement utilized for deep wells supplying domestic service. To supply sprinklers simply requires that the size of the domestic supply tank be increased to something in the range of 200-300 gallons, and the secondary pump needs to have an increased flow rating. Both of these enhancements can be made at modest cost.

   Some have suggested that the IRC should not require homes on wells to have fire sprinklers, yet homes in rural areas, usually corresponding to homes served by wells, are the homes that are least likely to survive a fire because of long or inadequate responses by the fire service. The solution is instead educating contractors on cost-efficient design options for well systems.

6. **Impact of residential sprinklers on public and private water systems:** It was suggested by one builder during testimony at the Orlando hearing that operation of residential sprinklers connected to a small water system in a Michigan jurisdiction resulted in the jurisdiction having to drain and decontaminate the entire water system. Subsequent identification and review of the cited event revealed that the concern regarding contamination of the water supply, which was a private system, was linked to the use of fire hydrants during suppression activities, not the sprinkler system. This clearly makes more sense, and for the record, the fire actually started outside of this building, spread to the interior, and sprinklers still helped to stop the fire's progress.

   To suggest that the water demand caused by operation of a one- or two-family dwelling or townhouse sprinkler system will lead to contamination of an entire community water system is absurd and demonstrates a complete lack of understanding regarding residential sprinkler systems. The same logic would suggest that a single broken residential pipe, which would flow more water than operating sprinklers, would have the same result. Any water system that is this feeble has much bigger concerns than residential sprinklers.

   The truth is that residential sprinklers actually result in a significantly decreased demand on water systems because residential sprinklers use far less water than firefighters to extinguish a fire. Scottsdale, Arizona's experience provides data to support this claim. Scottsdale found that the average estimated sprinkler flow per residential fire incident was 341 gallons, as compared to an estimated manual suppression flow for unsprinklered residential fire incidents of 2,935 gallons.

7. **Wait for more cost-effective approaches to residential sprinkler protection before adopting a requirement in the IRC**. Opponents of residential sprinklers suggest that we should hold off on requiring such systems in dwellings until improvements in technology make the systems more cost effective. The truth is that many recent improvements in sprinkler technology have largely improved cost effectiveness already. The real problem isn't a lack of cost effective design and installation options. Instead, the problem appears to stem from a lack of communication within the supply, design and installation communities regarding these efficient design options and the fact that momentum often drives us to continue doing things the way we've done them in the past.

   To drive the industry toward more innovative solutions, more competition is needed, and changing the IRC to require residential sprinklers will create the demand that will increase competition and motivate cost efficient designs.

   Some have suggested that we should wait for NFPA 13D or the IRC to permit the use of a single operating sprinkler as a design basis, as opposed to the currently required two sprinklers, before requiring sprinklers in the IRC. Some have also

suggested that we should revisit whether sprinklers are really needed everywhere NFPA 13D requires them before requiring residential sprinklers in the IRC. The best way to encourage research and discussion on both of these ideas is to pass the IRC requirement now. Market demand will drive the research and interest in residential sprinklers will grow.

Market demand will also drive the creation of design tools that will simplify the exercises of locating sprinklers and sizing pipe. These tools, which will present design requirements in prescriptive, cookbook formats, are already being developed, and it is expected that they will be published prior to publication of the 2009 IRC.

8. **Required maintenance:** Opponents of residential sprinklers stated in Orlando that residential sprinkler systems need regular maintenance and questioned who would perform this service. Someone suggested that local fire departments will have to perform or verify maintenance, potentially raising concerns regarding right of entry.

   The fact is that residential sprinkler systems are essentially maintenance free. Multipurpose systems have no maintenance requirements at all, and stand-alone systems only require an occasional test of the water flow alarm, if provided (not required by NFPA 13D or the IRC when the sprinkler pipe is copper, CPVC, or PEX) and the backflow preventer, if provided (again, not required by NFPA 13D). None of this maintenance would be performed or witnessed by the fire department. The alarm test can be conducted by the owner, in the same way the owner may periodically test a burglar alarm, and a plumber is required to test a backflow preventer. This test, which is a public health issue, is not associated with functionality or reliability of the sprinkler system, and therefore, it is not a firesafety concern.

9. **Trained labor/inspectors:** Opponents of residential sprinklers suggested in Orlando that, if the IRC were to require residential sprinklers, there would be a shortage of trained labor and trained inspectors to install and inspect these systems. While that is true today, there is no doubt that industry and code officials will respond once the IRC has been revised, and there will be several years to ramp up before the 2009 IRC begins to have an impact. This is exactly what has happened in the many local jurisdictions that have passed sprinkler ordinances.

   Preliminary discussions have already taken place with ICC regarding the possibility of having ICC oversee a certification program for residential sprinkler installers and inspectors. Other organizations have also expressed interest in handling installer training and certification. It is expected that, in some jurisdictions, plumbers will become trained and certified to install residential sprinklers and sprinklers will be installed as part of the plumbing system. Likewise, it is expected that, in some jurisdictions, plumbing inspectors will be trained and certified to inspect these systems. This model is not unlike the approach taken with smoke alarms. They are located and installed by electricians and they are inspected by the electrical or building inspector.

10. **Leakage and mold damage:** In Orlando, opponents of residential sprinklers expressed fear that sprinklers would leak and cause mold damage, which could make a home uninsurable. In response, it should be pointed out that residential sprinklers systems are no different than residential plumbing. If quality products are used and the system is properly installed, it won't leak. If substandard products are used or workmanship is faulty, leaks will occur.

    With respect to sprinkler systems, sprinkler piping and fittings, and sprinklers themselves, are subject to rigorous testing to ensure quality. Unquestionably, sprinklers are far higher quality and more thoroughly tested than domestic piping and fixtures. Sprinkler tests required for listing include, among others, 700 psi hydrostatic strength, 500 psi leakage resistance, 100,000 cycles water hammer resistance, 35-125°F temperature cycling, and freeze performance to 20°F below for 24 hours. Also, sprinkler piping and components are rated for a pressure of 175 psi, while plumbing water supply systems are rated for only 80 psi.

11. **Appendix P, good enough for now?** Opponents of residential sprinklers suggested in Orlando that, with the IRC having just accepted Appendix P, maybe it would be best to leave the sprinkler requirements in the appendix for a while to see what happens with it. This approach will certainly be appealing to some because it delays the sprinkler issue and gives home builders a leg up in fighting sprinklers at the local level.

    However, isn't it time that we give local code officials the leg up? Code officials who have been through the local adoption process will certainly understand that it's much easier to justify taking something controversial out of the code than to add something new during an adoption review. With respect to residential sprinklers, code officials know all too well that arguing them into the code at the local level is a very uphill climb given local politics and the strength of local home builder associations. Putting the sprinkler requirement into the body of the IRC certainly won't end the local debate, but it will at least put the burden on the home building industry to justify making an amendment to take sprinklers out.
    Local code officials would then have a respectable chance of keeping the sprinkler requirement. Other codes including the Uniform Fire Code, the NFPA Building Code and the Life Safety Code have already set a moral precedent by adding mandatory dwelling sprinkler requirements in their 2006 editions. The IBC and IFC have also done their parts by now requiring all residential occupancies within their respective scopes to be protected by fire sprinklers. Now it is time for the IRC to do the same.

Conclusion: From the perspective of fire safety, Code Change RB114 will probably be the single most important code change that code officials attending the Rochester meeting will ever vote for. Unlike many issues that we face, THIS change strikes directly at the heart of America's fire problem. Opponents of residential sprinklers have a record of fighting just about every initial effort to improve dwelling safety. The same groups initially fought against smoke detectors, ground fault interrupters and mandatory sprinklers in multi-family residential occupancies. On each of these topics, code officials heard the same predictions of gloom and doom, but once the codes moved forward to require these features, the home building industry proceeded without so much as a detectible bump in the road. As years passed, prices for all of these features declined, some dramatically, and technology advanced to create better, yet less expensive products. The scenario for residential sprinklers will play out in exactly the same way.

In Rochester and for many years to come, we can continue to debate whose statistics are right and whose are wrong; we can continue to debate whose cost estimates are right and whose are wrong, or we can finally accept the fact that it is simply good public policy to provide residential sprinklers in new home construction…to protect the public, to protect firefighters, to reduce the impact of new home construction on community resources, and to transfer the responsibility for new home fire protection from the general public to developers and homeowners who create the increased demand. No one will argue that sprinkler technology cannot be improved or made more cost efficient. However, the best way to promote such improvements and efficiencies is by establishing a requirement for residential

sprinklers in the IRC. This will bring all of the national model codes into agreement on this issue. An IRC sprinkler requirement is the best thing that we, as code officials, can do to drive enhanced competition in both technology and price to bring about better and less expensive residential sprinkler systems.

By making the change now, in a supplement cycle, code officials and affected industries will have several years to prepare for residential sprinklers. A change approved this year will be first published in the 2007 Supplement, followed by the 2009 edition of the IRC. Realistically, initial adoptions of the sprinkler requirement won't begin until at least 2010, and widespread adoptions won't begin for a couple years after that. So, changing the code today provides a buffer of five or more years before there will be a widespread impact on home construction. During this period, sprinkler technology will certainly be improved and made even more affordable.

It seems fair to say that most people familiar with residential sprinklers, even home builders, recognize that residential sprinklers will eventually become a standard feature in new home construction. That said, why are we continuing to wait? The best method of overcoming perceived obstacles is to place the sprinkler requirement into the IRC, stop focusing on the debate and start working together to efficiently integrate residential sprinklers into new home construction. We, the code officials who have co-sponsored this public comment, are committed to working with manufacturers and the home building industry as partners with the common interest of supporting continued research and development to maximize the effectiveness and affordability of residential sprinklers.

At the Rochester meeting, we urge our fellow code officials to vote AGAINST the standing motion, which will be the committee's recommendation for disapproval, and FOR the follow-up motion of APPROVAL AS MODIFIED by this public comment, which will be made once the standing motion has been defeated.

Public Comment 2:

Brian Sause, National Association of Home Builders, requests Disapproval.

Commenter's Reason: The Committee's action to disapprove this and all proposals to mandate sprinklers in the body of the IRC is absolutely correct and should not be overturned. Each of the concerns raised by the committee as the basis for their disapproval is completely valid and none have been adequately addressed. The Committee's disapproval also appropriately reflects the fact that the need, practicality and impact of mandating sprinklers in one- and two-family is still a subject of much legitimate debate. For these reasons, the decision of whether or not to require sprinklers should be left up to state and local jurisdictions via an action separate from the adoption of the IRC. Jurisdictions adopting the IRC should not be forced to amend sprinkler requirements out of the code. Furthermore, state and local statutes in many jurisdictions that adopt the IRC prohibit amendments that are deemed to result in a less restrictive code and therefore prevent the amending out of sprinkler requirements.

Finally, inclusion of Appendix P was overwhelmingly deemed as the most appropriate action to take by a large group sprinkler proponents who testified so at the previous Final Action Hearings stating that the appendix provides for jurisdictions that wish to require sprinklers and those that do not.

Final Action: AS AM AMPC____ D

RB116-06/07
RB314.5.3, R314.5.4

Proposed Change as Submitted:

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R314.5.3 Attics. The thermal barrier specified in Section 314.4 is not required where:

1. Attic access is required by Section R807.1, ~~and where~~
2. The space is entered only ~~for service of utilities~~ to provide service or maintenance to appliances or equipment, and
3. ~~when~~ The foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
   - 3.1. 1.5-inch-thick (38 mm) mineral fiber insulation;
   - 3.2. 0.25-inch-thick (6.4 mm) wood structural panels;
   - 3.3. 0.375-inch (9.5 mm) particleboard;
   - 3.4. 0.25-inch (6.4 mm) hardboard;
   - 3.5. 0.375-inch (9.5 mm) gypsum board; or
   - 3.6. 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 R314.4 is not required where:

1. Crawlspace access is required by Section R408.3, ~~and where~~

2. Entry is made only ~~for service of utilities~~ to provide service or maintenance to appliances or equipment, and
3. The foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
   3.1. 1.5-inch-thick (38 mm) mineral fiber insulation;
   3.2. 0.25-inch-thick (6.4 mm) wood structural panels;
   3.3. 0.375-inch (9.5 mm) particleboard;
   3.4. 0.25-inch (6.4 mm) hardboard;
   3.5. 0.375-inch (9.5 mm) gypsum board; or
   3.6. Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.41 mm).

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

Reason: The term "service of utilities" is unclear and leads to non-uniform enforcement. Utilities are not defined in any of the I-Codes. Webster defines "utility" as "1 **:** fitness for some purpose or worth to some end; 2 : something useful or designed for use; 3 a : PUBLIC UTILITY b (1) **:** a service (as light, power, or water) provided by a public utility (2) **:** equipment or a piece of equipment to provide such service or a comparable service." This doesn't help either. Attics can contain electrical wiring, TV cable, ducts and vents, fans, plumbing piping, and other miscellaneous devices. Does R314.2.2 trigger protection of foam plastics if there is wiring in the attic? Could it be argued that access is provided to the attic for inspection purposes as well as "service of utilities" and require foam plastics to be covered with gypsum sheathing? If a hole is cut in a ceiling to access some wiring, must then the foam be covered? The revision makes clear that the rule applies when you may have a furnace, air handler, water heater, or some other device that requires regular maintenance or service but would exclude a situation where all that may be in the attic is a wiring or ductwork. The revision is necessary to provide greater direction to the user and code enforcement and for the sake of uniformity.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposed code language is too restrictive because it would include all appliances or equipment. This needs to be re-written and more specific in its coverage.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Rick Davidson, City of Maple Grove, Minnesota, requests Approval as Modified by this public comment.

Modify proposal as follows:

R314.5.3 Attics. The thermal barrier specified in Section 314.4 is not required where:

1. Attic access is required by Section R807.1,
2. The space is entered only to provide service or maintenance to appliances ~~or equipment~~, and
3. The foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
   3.1. 1.5-inch-thick (38 mm) mineral fiber insulation;
   3.2. 0.25-inch-thick (6.4 mm) wood structural panels;
   3.3. 0.375-inch (9.5 mm) particleboard;
   3.4. 0.25-inch (6.4 mm) hardboard;
   3.5. 0.375-inch (9.5 mm) gypsum board; or
   3.6. 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 R314.4 is not required where:

1. Crawlspace access is required by Section R408.3,
2. Entry is made only to provide service or maintenance to appliances ~~or equipment~~, and
3. The foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
   3.1. 1.5-inch-thick (38 mm) mineral fiber insulation;
   3.2. 0.25-inch-thick (6.4 mm) wood structural panels;
   3.3. 0.375-inch (9.5 mm) particleboard;
   3.4. 0.25-inch (6.4 mm) hardboard;

3.5. 0.375-inch (9.5 mm) gypsum board; or
3.6. Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.41 mm).

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

Commenter's Reason: This proposal was disapproved by the committee because they argued that the term “equipment” was to broad and included components that were not intended to apply in this section. The term “appliance” is defined as “a device or apparatus that is manufactured and designed to utilize energy and for which this code provides specific requirements.” The proposal as modified more clearly addresses our intent.

Final Action: AS AM AMPC____ D

RB119-06/07
R317.2.1

Proposed Change as Submitted:

Proponent: Maureen Traxler, City of Seattle, Washington, representing Washington Association of Building Officials

Revise as follows:

R317.2.1 Continuity. The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures. Where a story extends beyond the exterior wall of a story below, the underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302.

Reason: The purpose of this proposal is to clarify code requirements for townhouse designs in which upper stories overhang lower stories. The IRC doesn’t explicitly address this type of design. Section R317.2.1 requires that common walls between townhouses be continuous from foundation to roof, but doesn’t explain how that provision applies where portions of the townhouses are cantilevered. Figure 1 illustrates a common townhouse configuration, and shows the protection that is required by this proposal. Garage doors are often located in the wall below the overhang; living spaces are located in the overhanging area.

Cantilevers should be protected at least as much as projections. Projections such as balconies, located 4 feet or less from an adjoining townhouse must be protected by one-hour construction on the underside. (Section R302.1) Cantilevered overhangs are usually occupied floor area, often bedrooms, and need at least as much protection as balconies which typically are much less heavily occupied. Figure 2 shows a projection from a townhouse that must be protected with one-hour construction. The risk of fire spreading from the garage into the overhang presents a much greater hazard than the risk posed by the projection.

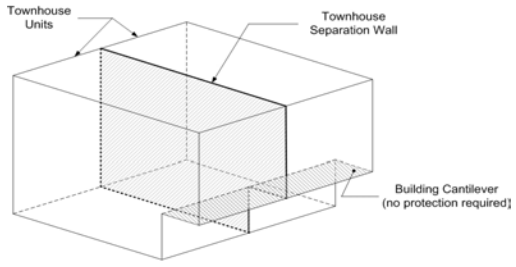

FIGURE 1 – CANTILEVERED BUILDING

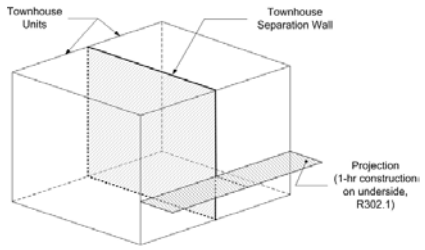

FIGURE 2 – PROJECTION

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: This proposed language is confusing. While the proposal does identify a problem and focuses on an area of protection concern with cantilevers it needs more work before it correctly addresses continuity.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Jonathan C. Siu, City of Seattle, Washington, representing Washington Building Officials (WABO) Technical Code Development Committee, requests Approval as Modified by this public comment.

Modify proposal as follows:

R317.2.1 Continuity. The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures. ~~Where a story extends beyond the exterior wall of a story below, the underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302.~~
Where an upper story extends beyond the exterior wall of a story below, creating a cantilever or overhang:

1. The fire-resistance-rated wall or assembly shall extend to the outside face of the upper story, creating a continuous separation from grade to the roof for the full length of the separation wall (see Figure R317.2(1)); or
2. The exposed underside of the overhanging floor-ceiling assembly shall be protected as required for projections in Section R302 (see Figure R317.2(2)).

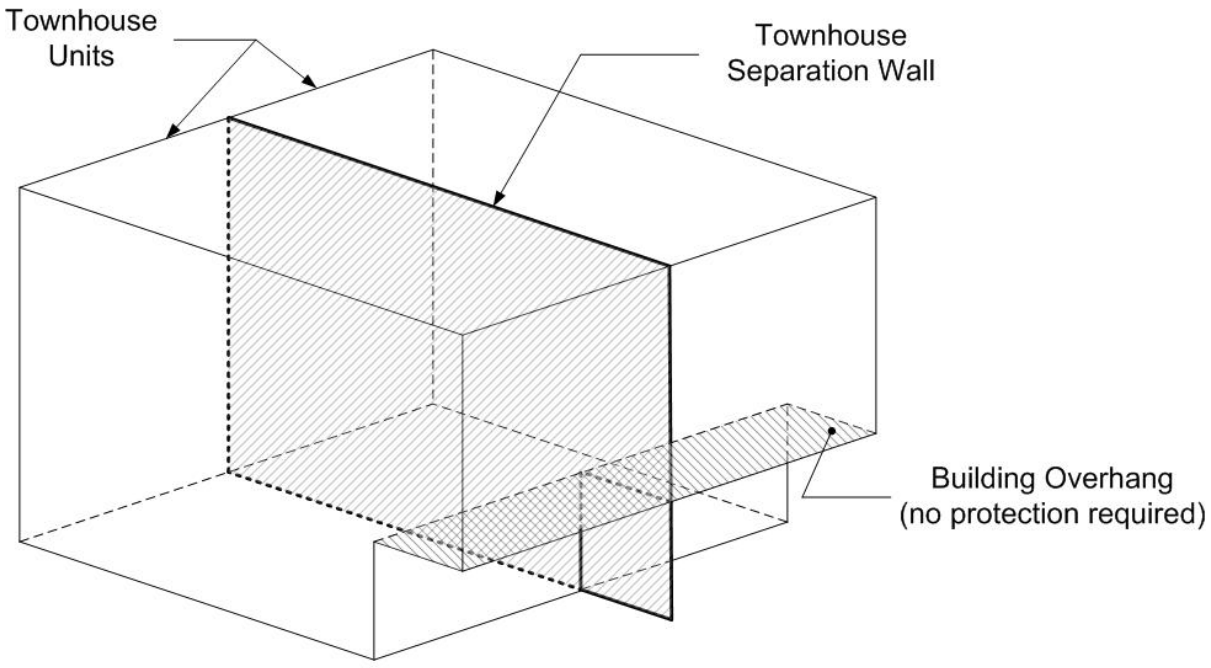

FIG. R317.2(1) – EXTENDED SEPARATION WALL

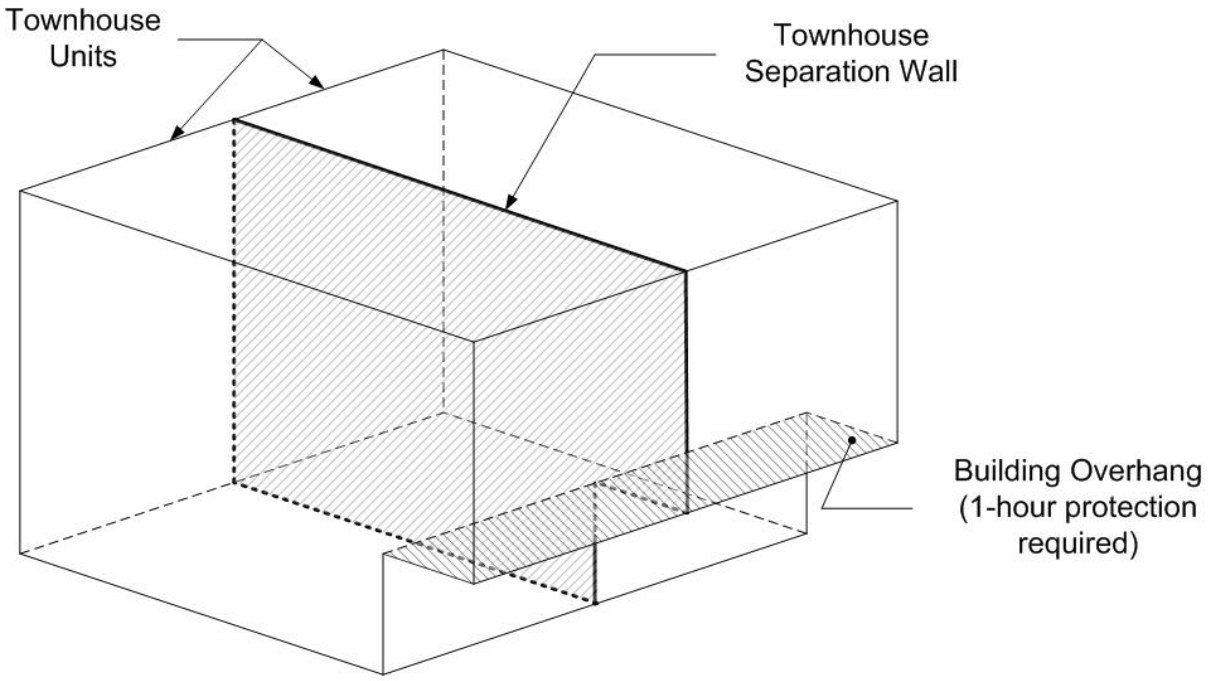

FIG. R317.2(2) – OVERHANG PROTECTION

Commenter's Reason: This proposal is intended to address townhouse designs in which upper stories overhang lower stories. The committee agreed that there is a problem with this section because it should address protection of building overhangs such as cantilevers. This modification clarifies how to maintain a continuous separation where upper stories overhang lower stories. The accompanying figures are intended to be reproduced in the code to further clarify the requirements.

This proposal would give the designer two options how to create a complete separation between adjoining units. Choosing Item 1 would require the separation wall to extend outside the building envelope to the outer wall (see Figure R317.2(1)). Choosing Item 2 would not require the "wing wall", but would require 1-hour rated protection on the underside of the overhang, as is required for projections (see Figure R317.2(2)).

Final Action: AS AM AMPC____ D

RB122-06/07

R319.3

Proposed Change as Submitted:

Proponent: Richard E. Bartell, Hanover County, Virginia, representing the Virginia Building Code Officials Association (VBCOA)

Revise as follows:

R319.3 Fasteners. Fasteners and connectors 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 A 153. Fasteners and connectors subject to exposure to salt spray shall be stainless steel grade 304 or 316 or an equivalent approved by the Building Official.

Exceptions:

1. One-half-inch (12.7 mm) diameter or larger steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55, minimum.

Reason: The extra hazard to fasteners and connectors installed in an environment of regular exposure to salt spray has been seen to promote their premature failure leading to the collapse of the decks constructed with currently code compliant fasteners and connectors. By requiring grade 304 or 316 stainless steel or an equivalent approved by the building official the usable expectant life of these fasteners and connectors will be extended to equal those installed in less hazardous environments.

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

Committee Action: **Disapproved**

Committee Reason: The committee voted to disapprove this code change proposal based upon the proponent's request. The language that addresses exposure to salt needs to be reworked to provide some specifics about how far from salt source fasteners need to be.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Richard E. Bartell, Hanover County, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Approval as Modified by this public comment.

Modify proposal as follows:

R319.3 Fasteners. Fasteners and connectors 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 A 153. Fasteners and connectors subject to exposure to ~~salt spray shall be stainless steel grade 304 or 316 or an equivalent approved by the building official~~, and located within 300 feet of, a saltwater shoreline shall be stainless steel grade 304 or 316.

Exceptions:

1. One-half-inch (12.7 mm) diameter or larger steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55, minimum.

Commenter's Reason: The extra hazard to fasteners and connectors installed in an environment of regular exposure to salt spray has been seen to promote their premature failure leading to the collapse of the decks constructed with currently code compliant fasteners and connectors. By requiring grade 304 or 316 stainless steel the usable expectant life of these fasteners and connectors will be extended to equal those installed in less hazardous environments.

Final Action: AS AM AMPC____ D

RB123-06/07
R319.3

Proposed Change as Submitted:

Proponent: Jeff Inks, National Association of Home Builders (NAHB)

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 A 153.

Exceptions:

1. One-half-inch (12.7 mm) diameter or larger steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55, minimum.
3. Fasteners permitted for untreated wood shall be permitted for wood treated with borate preservatives.

Reason: Extensive testing of borate wood preservation products to AWPA's *Standard Method of Determining Corrosion of Metal in Contact with Treated Wood* by wood product manufacturers has consistently shown that borate treated lumber poses no significant corrosion threat to standard fasteners used with untreated lumber. Borate preservative and treated lumber manufacturers clearly state this in their respective literature describing their products and the recommended use and fastening of them. R319.3 is intended to ensure fasteners used for lumber treated with corrosive preservatives are adequately corrosion resistant. Corrosion resistant fasteners are significantly more expensive than standard fasteners. As currently written, R319.3 applies to borate treated lumber products and is being enforced as such which is not necessary based on the noted testing and manufacturers' clear affirmation of the results and therefore needlessly increases construction costs. The proposed exception addresses the matter appropriately.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The current code text is preferred to the proposed language. There was some concern expressed on the tendency of borates to leach away in water. More information is needed on sealing systems or fixing agents that can be used to counteract the effect of water before the language is added to the code.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Brian Sause, National Association of Home Builders (NAHB), requests Approval as Submitted.

Commenter's Reason: The current code text on fasteners is being interpreted and enforced to apply to borate treated products that clearly should not be limited in fastener use.

Borate treated wood is a cost-effective building product that protects against termites, decay, fungi, and wood destroying insects in dry interior applications. As the reason statement states, this is a proven, cost effective, and viable alternative where fastener corrosion is no worse than with untreated wood. This application of borate treated wood in moisture protected construction is supported in literature from the USDA Forest Service, the Western Wood Preservers Institute, the Canadian Wood Council, and many others.
Section R319.1 of the IRC ensures that preservative treated woods are specified for their species, product, preservative and end use. In the application and end use of borates, manufacturers will specify that the wood products treated with borates shall not be exposed to environments that will cause leaching by water.

Information on the sealing systems and fixing agents for exterior applications does not pertain to this code section and is not consistent with the current use of borate treated lumber in protected areas of construction as recommended by preservative and treated lumber manufacturers.

ICC Evaluation Reports obtained by the manufacturers of borate treaded lumber specifically state that they pose no threat of corrosion to fasteners that are used in untreated wood and specify instructions to avoid any leaching issues. The issues of corrosion, fasteners, and protection from water are all addressed in ES reports these reports.

Public Comment 2:

Brian Sause, National Association of Home Builders (NAHB), requests Approval as Modified by this public comment.

Modify proposal 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 A 153.

Exceptions:

1. One-half-inch (12.7 mm) diameter or larger steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55, minimum.
3. Fasteners permitted for untreated wood <u>used in dry interior applications</u> shall be permitted for wood treated with <u>non-corrosive</u> borate preservatives.

Commenter's Reason: The current code text on fasteners is being interpreted and enforced to apply to borate treated products that clearly should not be limited in fastener use.

Borate treated wood is a cost-effective building product that protects against termites, decay, fungi, and wood destroying insects in dry interior applications. As the reason statement states, this is a proven, cost effective, and viable alternative where fastener corrosion is no worse than with untreated wood. This application of borate treated wood in moisture protected construction is supported in literature from the USDA Forest Service, the Western Wood Preservers Institute, the Canadian Wood Council, and many others.

Section R319.1 of the IRC ensures that preservative treated woods are specified for their species, product, preservative and end use. In the application and end use of borates, manufacturers will specify that the wood products treated with borates shall not be exposed to environments that will cause leaching by water. This is reflected in the modification limiting the exception to dry interior applications.

Information on the sealing systems and fixing agents for exterior applications does not pertain to this code section and is not consistent with the current use of borate treated lumber in protected areas of construction as recommended by preservative and treated lumber manufacturers.

Current ICC Evaluation Reports obtained by the manufacturers of borate treaded lumber specifically state that they pose no threat of corrosion to fasteners that are used in untreated wood and specify instructions to avoid any leaching issues. The issues of corrosion, fasteners, and protection from water are all addressed in ES reports these reports.

Final Action: AS AM AMPC____ D

RB126-06/07
R202 (New), R320

Proposed Change as Submitted:

Proponent: Mike Moore, Newport Partners, representing Dietrich Metal Framing

1. Revise as follows:

R320.1 Subterranean termite control methods. In areas subject to damage from termites as indicated by Table R301.2(1), methods of protection shall be one of the following methods or a combination of these methods

1. Structural members of walls, floors, ceilings and roofs composed entirely of termite resistant material.
~~1.~~ 2. Chemical termiticide treatment, as provided in Section R320.2.
~~2.~~ 3. Termite baiting system installed and maintained according to the label.
~~3. Pressure-preservative-treated wood in accordance with the AWPA standards listed in Section R319.1.~~
~~4. Naturally termite-resistant wood as provided in Section R320.3.~~
~~5.~~ 4. Physical barriers as provided in Section R320.4.

R320.1.1 Quality mark. Lumber and plywood required to be pressure-preservative-treated in accordance with Section R320.1 shall bear the quality mark of an approved inspection agency which maintains continuing supervision, testing and inspection over the quality of the product and which has been approved by an accreditation body which complies with the requirements of the American Lumber Standard Committee treated wood program.

R320.1.2 Field treatment. Field-cut ends, notches, and drilled holes of pressure-preservative-treated wood shall be retreated in the field in accordance with AWPA M4.

R320.2 Chemical termiticide treatment. Chemical termiticide treatment shall include soil treatment and/or field applied wood treatment. The concentration, rate of application and method of treatment of the chemical termiticide shall be in strict accordance with the termiticide label.

~~**R320.3 Naturally resistant wood.** Heartwood of redwood and eastern red cedar shall be considered termite-resistant.~~

~~**R320.4**~~ **R320.3 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.

~~**R320.5**~~ **R320.4 Foam plastic protection.** In areas where the probability of termite infestation is “very heavy” as indicated in Figure R301.2(6), extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).

Exceptions:

1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or pressure-preservative-treated wood.

2. When in addition to the requirements of Section R320.1, an approved method of protecting the foam plastic and structure from subterranean termite damage is used.
3. On the interior side of basement walls.

2. Add new definition as follows:

TERMITE RESISTANT MATERIAL. Pressure preservatively treated wood in accordance with the AWPA standards in Section R319.1, naturally durable termite resistant wood, steel, concrete, masonry, or other approved material.

3. Delete definition and substitute as follows:

~~**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.~~

NATURALLY DURABLE WOOD. The heartwood of the following species with the exception that an occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which it occurs is heartwood.

Decay resistant. Redwood, cedar, black locust and black walnut.
Termite resistant. Redwood and Eastern red cedar.

Reason: This code change is intended to clarify the code as well as remove discrimination between building materials. The objective of this section is to provide termite protection for the structure of the home. The prescriptive measures of section R320.1 should therefore ensure that this is accomplished by allowing the builder to stipulate termite resistant materials for the home's structural members. By combining pressure preservatively treated wood, naturally durable termite resistant wood, steel, concrete, masonry, and "other approved material" within a new option for termite protection called "termite resistant materials", adequate protection is provided for the structure and discrimination between materials is removed.

The definition for "Naturally Durable Wood" is copied directly from the 2006 IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee could not support a requirement for all structural members to be composed entirely of termite resistant material. This would place the requirement nation wide even in areas not prone to termite damage.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

Mike Moore, Newport Partners LLC, representing Dietrich Metal Framing, requests Approval as Modified by this public comment.

R320.1 Subterranean termite control methods. In areas subject to damage from termites as indicated by Table R301.2(1), methods of protection shall be one of the following methods or a combination of these methods:

1. Structural members of walls, floors, ceilings and roofs composed entirely of termite resistant material.
2. Chemical termiticide treatment, as provided in Section R320.2.
3. Termite baiting system installed and maintained according to the label.
4. Pressure-preservative-treated wood in accordance with the AWPA standards listed in Section R319.1.
5. Naturally termite-resistant wood as provided in Section R320.3.
6. Physical barriers as provided in Section R320.4.
7. Cold-formed steel framing in accordance with Sections R505.2.1 and R603.2.1.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The intent of the original proposal, RB126, was to recognize steel as an appropriate-termite resistant material. RB126 was disapproved by the IRC-BE committee largely because the proposed language created confusion relative to the locations of materials specified. This proposed modification simply seeks to include cold-formed steel framing within the optional termite protection

methods of R320.1. It does not place any restriction on the methods or materials currently in the code, but rather adds a new option. Builders can continue to build as before but would have the use of steel as an approved option under this section of the code.

The reference to Section R505.2.1 or R603.2.1 within this proposed modification is in keeping with the references provided for the other termite resistant materials within this section: naturally termite-resistant wood and pressure-preservative-treated wood. For each one of these materials, the references to other IRC sections provide guidance as to standards or specifications governing these materials.

Essentially, this proposed modification recognizes steel's inherent termite resistant properties. This change is needed to give building officials and builders a code-recognized prescriptive termite protection path for cold-formed steel framing, thus removing uncertainty for code officials and builders.

Final Action: AS AM AMPC____ D

RB133-06/07
R325 (New)

Proposed Change as Submitted:

Proponent: A. Hal Key, P.E., Mesa Fire Department, Mesa, Arizona

Add new text as follows:

SECTION R325
FIRE DEPARTMENT ACCESS AND WATER SUPPLY

R325.1 Fire department access and water supply. Buildings and Structures shall have fire department access roads according to the *International Fire Code* Section 503 and fire protection water supplies according to *International Fire Code* Section 508.

Reason: Since the ICC issued Interpretation 29-03, many throughout the industry make the judgment that the International Fire Code does not apply to any buildings or structures built using the IRC. This new section will clarify that fire access roads and water supplies are regulated by the IFC. There are two other places in the IRC that refer directly to the IFC. They are Section G2412.2 (401.2) Liquefied Petroleum Gas Storage and Section G2423 (413) CNG Gas-Dispensing Systems.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The International Residential Code is a stand alone code. The IRC covers both urban and regional issues and the proposed language may not be appropriate to all of these applications. It would not be appropriate to require fire department access and water supply for every residence built under the IRC.

Assembly Action: **None**

Individual Consideration Agenda

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

Public Comment:

A. Hal Key, Fire Department, Mesa, Arizona, requests Approval as Modified by this public comment.

Modify proposal as follows:

SECTION R325
FIRE DEPARTMENT ACCESS AND WATER SUPPLY

R325.1 Fire department access and water supply. Buildings and structures shall have fire department access roads ~~according to the *International Fire Code* Section 503~~ and fire protection water supplies ~~according to *International Fire Code* Section 508~~ as approved by the Fire Code Official.

Commenter's Reason: The committee stated that not all areas of the country will have fire departments to even adopt the IFC. By changing this proposed wording, this will allow the "Fire Code Official" to determine if and what the fire access and water supply requirements shall be. If no fire department exists then, the "Building Official" is usually the "Fire Code Official." If there is a fire department then, this provision will allow that fire department to determine the fire access and water supply requirements shall be based on their response capabilities.

Final Action: AS AM AMPC____ D
