2006/2007 PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE — BUILDING & ENERGY

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TENTATIVE ORDER OF DISCUSSION

2006-2007 PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE BUILDING & ENERGY

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation **does not** necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair.

NOTE: For IRC Energy Code Changes designated "RE", see page RB395

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RB1–06/07
R101.2

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

Revise as follows:

R101.2 Scope. The provisions of the *International Residential Code for One- and Two-family Dwellings* shall apply to the construction, alteration, ~~movement,~~ enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above-grade in height with a separate means of egress and their accessory structures. Structures being moved into the jurisdiction shall comply with this Code.

Reason: This code change will delete the word "movement" and add wording that will clarify that any structure moved into the jurisdiction shall meet the requirements of this Code. This would include exits, design loads, egress windows, etc.

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

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

RB2-06/07
R101.2

Proponent: William W. Stewart, FAIA, Chesterfield, Missouri, representing himself

Revise as follows:

R101.2 Scope. The provisions of the *International Residential Code for One- and Two-family Dwellings* shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above-grade plane in height with a separate means of egress and their accessory structures.

Reason: Inserted text makes the IRC consistent with the IBC. As written the IRC words could be construed to mean that a basement that is totally below grade is a story as far as the limitations of the IRC are concerned, thus making the IRC inapplicable for a three story residence that has a basement.

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

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

RB3–06/07
R101.3

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

R101.3 ~~Purpose~~ Intent. The purpose of this code is to ~~provide~~ establish 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 and to provide safety to fire fighters and emergency responders during emergency operations.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes

but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the intent of the IRC and intends to provide correlation between the IRC and Section 101.3 of the *International Building Code* and *International Fire Code*. The added text will make the intent of the code clear---that it is to set forth regulations that establish the minimum acceptable level to provide protection for fire fighters and emergency responders in building emergencies and well as to safeguard public health, safety and welfare. Renaming the section and changing "provide" to "establish", while editorial, will also correlate with the section in the *International Building Code* and *International Fire Code.*

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

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

RB4–06/07
R101.3

Proponent: Joseph A. Finnegan, Firemen's Association of the State of New York, representing the Firemen's Association of the State of New York, Association of Fire Districts of the State of New York, New York State Association of Fire Chiefs, and New York State Fire Marshals and Inspectors Association

1. Revise as follows:

R101.3 Purpose. 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. An automatic sprinkler system shall be installed in all buildings in accordance with NFPA 13 D.

2. Add standard to Chapter 43 as follows:

NFPA

NFPA 13D Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

Reason: The objective of this proposal is to implement needed and reasonable requirements that will reduce life loss, injury and property loss from fires in residential occupancies. Implementation of the proposed requirements is consistent with the stated objective of R.101.3 and will provide a specific means of addressing those objectives. Based on information provided by the National Fire Incident Reporting System that purpose is not being met for one and two family occupancies. The recognized need for and value of automatic suppression in one and two family occupancies has been clearly illustrated by two recent and historic code activities:

1. On June 10, 2005, National Fire Protection Association membership voted to require fire sprinkler systems in one and two family dwellings.
2. In October, 2005 The International Code Council membership passed an adoptable appendix to the IRC to require fire sprinkler systems in all new one and two family dwellings and townhouses

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 hazards and other hazards attributed to the built environment.

Municipalities and jurisdictions regardless of size, face funding priorities presently and in the future that will limit their ability to maintain even the current levels of funding dedicated to fire suppression. Sufficient resources required to provide safe manual fire suppression activities are not currently available in most municipalities defended by full time firefighting personnel. Areas defended by Volunteer or Call Firefighters face the immediate and increasingly difficult task of recruiting and retaining sufficient personnel for safe and effective firefighting activities. There is no indication that increased numbers of volunteers will become available in the future. There is neither indication nor reason to believe that additional dollars will become available from, already strapped, municipal budgets. Educational demands, health care costs, infrastructure maintenance and improvements, unprecedented increases in funding costs to support a rapidly increasing elderly population will reduce future funding for manual suppression resources. Validated fire loss statistics; continued and current recommendations from fire protection specialists, the agreed to objective of the purpose of R101.3 and a reality based view of dollars and firefighter time available for manual fire suppression mandate automatic fire suppression in the occupancy that contributes most to fire losses in America. We must address the identified need to make the buildings our citizens live in and that our firefighters respond to fire safe for each of those groups.

The following will substantiate the proposal:

1. Data provided by the National Fire Protection Association illustrates that in 2003, 3,145 fire deaths occurred in the home. This was a 17.8% increase from the previous year. During the same period there was an estimated 18,125 civilian fire injuries. More than 75% of those injuries occurred in residential occupancies. The 2003 data regarding life safety from fire in one-two family occupancies does not present a new observation. It rather substantiates what has been appropriately documented, debated and reaffirmed for decades.
   - In 1973 "America Burning" identified residential fire as the leading cause of injuries and death in the United States.
   - National Fire Protection Association, Fire Loss Statistics from 1974 thru 2004 identified the residential occupancy as the leading occupancy where fire injuries and deaths occurred.
   - The 2000 "America Burning Recommissioned" report states: that in 1997, there were 582,000 structure fires in the United States.
     - Almost three-quarters of those fires occurred in residential properties.
     - Fifty-five percent (55%) or 302,550 fires were in one and two-family homes
     - The largest number of civilian deaths occurred in residential buildings.
     - Eighty-three percent (83%) of the 4,035 total civilian deaths occurred in home structure fires – with sixty-seven percent (67%) or 2,700 in one and two-family homes.
   - Between 1994 and 1998 there was an average of 310,200 reported home structure fires resulting in 2,876 civilian deaths.
   - 68% of total fire deaths occurred in the one and two-family dwelling environment.
   - 12, 244 civilian injuries occurred in one and two-family homes.
   - Approximately $3.5 billion dollars in direct property damage occurred annually.
   - Fire losses in these occupancies far exceed any other occupancy losses.

- Manufacturing represented the next highest dollar loss category ($653.6 million dollars). That figure represents 18.6% of the loss for one and two-family dwellings.

2. Data provided by the New York State Office of Fire Prevention and Control in their Civilian and Firefighter Casualty Reports from January 1, 2000 through December 31, 2004 support and starkly indicate the need to implement proven fire prevention strategies in one and two family homes.
   - More than 81% of all injuries reported in identified structures occurred in homes
   - More than 84% of all civilian fatalities reported in identified structures occurred in homes
   - More than 71% of all reported fire fighter injuries occurred during fire fighting activities in homes
3. The "America Burning Recommissioned" report states in Finding #2 – The Application and Use of Sprinkler Technology.
   - *"The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers".*

Based on the current code requirements, the protection levels in the IRC do not match the life safety hazards in the one-two-family dwelling environment. Automatic sprinklers in the residential occupancy will initiate automatic alarm and suppression and drastically reduce time currently associated with manual suppression.

4. A 15-year study of a sprinkler ordinance in Scottsdale, Arizona shows the value of residential sprinklers in limiting fire losses. The study noted that of 598 home fires 49 occurred in occupancies with sprinklers.
   - No death occurred in those homes that were sprinklered
   - Thirteen people died in unsprinklered homes
   - More than 90% of fires in sprinklered occupancies were extinguished with two or less heads operating.
5. The cost associated with affordable housing remains a "concern" raised in opposition to automatic fire sprinklers in the one and two-family dwellings. The associated values of residential sprinklers are not easily estimated. The life and property loss reduction experienced and documented in Scottsdale merged with an unbiased view of what automatic suppression provides clearly demonstrates that we must require automatic suppression in the residential occupancy.
   - The "Scottsdale Report" indicates that average cost has been reduced from $1.14 per square foot to $0.59 per square foot.
6. Persons 5 and under and 65 and over are most vulnerable in home fires. Individuals in these age groups will, in most cases, need assistance in evacuating before the home is untenable. Because of their vulnerability, sprinklers are the most effective method of securing time to exit.
7. The potential infrastructure savings that are achievable through residential sprinkler protection are also well illustrated in this report. Although the focus of residential sprinklers is on life safety, the "Scottsdale Report" has used data to demonstrate one community's loss reduction experience with fire sprinklers for property protection.
   - The 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 unsprinklered properties.
   - Statistics provided by the National Fire Protection Association, although not as dramatic, clearly indicate a substantial savings in sprinklered homes. The average fire loss in non-sprinklered home fires between 1994 and 1998 was $10,988. Sprinklered homes had an average loss of $5,383 per fire incident. The loss reduction was 50.5% with sprinklers present.
   - The estimated sprinkler flow per residential incident was 209 gallons. For the same period, the estimated suppression flow per residential incident was 3,290 gallons. Substantial water conservation was expected and has been demonstrated. Substantial water conservation will be required.
   - Costs to the individual homeowner for water damages associated with current manual suppression activities cannot be documented by substantiated data. They are however recognized by family members who experience a fire in their residence as well as those who respond to assist.

Bibliography:

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America Burning Recommissioned: Principle Findings and Recommendations- Working Paper, (1999) FEMA, Washington, DC
Civilian Casualty Reports, (2000-2004) New York State Office of Fire Prevention and Control, Albany, NY
Firefighter Casualty Reports, (2000-2004) New York State Office of Fire Prevention and Control, Albany, NY
Ford, J., *Saving Lives, Saving Money: Automatic Sprinklers, A 10 Year Study (rep.)* ,(1997) Scottsdale, AZ: Rural/Metro Fire Department, City of Scottsdale, AZ
Hall, J. R. , *Characteristics of Home Fire Victims (rep.),* (2005) NFPA, Quincy, MA
Rohr, K. D., & Hall, J. R. , *U.S. Experience with Sprinkler and Other Fire Extinguishing Equipment (rep.),* (2005) NFPA, Quincy, MA

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

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

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

RB5–06/07
R102.8 (New), R102.9 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

R102.8 Subjects not regulated by this code. Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or policies adopted by the jurisdiction, compliance with applicable standards of other nationally recognized safety standards, as approved, shall be deemed as prima facie evidence of compliance with the intent of this code.

R102.9 Matters not provided for. Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof, which are not specifically provided for by this code shall be determined by the building official consistent with the necessity to establish the minimum requirements to safeguard the public health, safety and general welfare.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

Although both of these proposed sections provide a useful administrative provision, their content is very similar in that they both deal with those instances when the code or other adopted laws or standards simply do not provide adequate requirements for the protection of public safety. The primary difference between the two texts is that Section 102.7 uses any appropriate nationally recognized safety standard to fill the gap while Section 102.8 uses the judgement and authority of the code official.

Note that both of the proposed sections currently appear in the *International Fire Code,* as indicated in the individual reason statements below.

102.8: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 102.7 of the *International Fire Code* and Section 102.8 of the *ICC Electrical Code---Administrative Provisions.*

The section will provide the code official with an effective tool to accomplish the task of reasonable enforcement by providing guidance for situations in which no specific standard or requirement is designated in the code or otherwise adopted by the jurisdiction.

A similar correlating proposal has also been submitted to the *International Existing Building Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code, International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Fuel Gas Code.*

102.9: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 102.8 of the *International Fire Code* and Section 102.9 of the *International Fuel Gas Code*, *International Plumbing Code, International Mechanical Code*, and *International Private Sewage Disposal Code*. Evolving technology in our society will sometimes result in a situation or circumstance that the code does not cover. The reasonable application of the code to such hazardous, unforeseen conditions will be provided through this section. Clearly, such a section is needed and the code official's experience and judgement must be used. The proposed section, however, would not override requirements that may be preferred when the code provides alternative methods. Additionally, the section can be used to implement the general performance-oriented language of the code in specific enforcement situations. A similar correlating proposal has also been submitted to the *International Existing Building Code*, *International Energy Conservation Code, International Property Maintenance Code* and *International Wildland-Urban Interface Code.*

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

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

RB6–06/07
R102.4

Proponent: Dave Cantrell, Chief Plumbing Inspector, Seattle-King County Public Health, Bellevue, Washington, representing Washington Association of Building Officials (WABO)

Revise as follows:

R102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment, material, plumbing fixture or appliance, the conditions of the listing and manufacturer's instructions shall apply.

Reason: To clarify the code. The terms "equipment" and "appliances" do not adequately cover plumbing materials or plumbing fixtures that are also regulated in the IRC.

Analysis: Mr. Cantrell has submitted a similar code change proposal to be heard by the IPC committee.

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

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

RB7–06/07
R102.8 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Add new text as follows:

R102.8 Structures in Wildland-Urban Interface Areas. Where an area has been designated by the local jurisdiction as a Wildland-Urban Interface area, the requirements of the *International Wildland-Urban Interface Code* shall apply.

Reason: The *International Wildland-Urban Interface Code* is not actually referenced in the IRC but it should be because buildings in areas designated for such use need to comply with the IWUIC.

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

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

RB8–06/07
R104

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION R104
DUTIES AND POWERS OF THE
BUILDING OFFICIAL

R104.1 General. (No change to current text)

R104.2 Applications and permits. (No change to current text)

R104.3 Notices and orders. (No change to current text)

R104.4 Inspections. The building official ~~is authorized to~~ shall make all of the required inspections, or the building official shall have the authority to accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual. The building official is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

R104.5 Identification. (No change to current text)

R104.6 Right of entry.

R104.7 Department records. (No change to current text)

R104.8 Liability. (No change to current text)

R104.9 Approved materials and equipment. (No change to current text)

R104.9.1 Used materials and equipment. The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless such elements have been reconditioned, tested and placed in good and proper working condition and approved by the building official. ~~Used materials, equipment and devices shall not be reused unless approved by the building official~~.

R104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the building official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety ~~requirements~~ or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

R104.10.1 Areas prone to flooding. (No change to current text)

R104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Compliance with the specific performance-based provisions of the *International Codes* in lieu of specific requirements of this code shall also be permitted as an alternate.

R104.11.1 Tests. (No change to current text)

R104.11.2 Research reports Supporting data where necessary to assist in the approval of materials or assemblies not specifically provided for in this code shall consist of valid research reports from approved sources.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the duties and powers of the code official in the IRC. A section-by-section discussion follows:

R104.4: The purpose of this proposed change is to provide correlation of the text of this section with the same text in Section 104.4 of the *International Building Code* and *International Existing Building Code*.

The inspection of the work in progress or accomplished is a significant element in determining code compliance. While a department does not have the resources to inspect every aspect of all work, there are certain inspection that must be made by the code official as listed in Section R109 or as may be otherwise dictated by administrative rules and procedures. Simply providing the authority to inspect but not a mandate to do so is not in the best interest of public safety and welfare.

A similar correlating proposal has been submitted to the *International Fire Code*.

R104.9.1: The purpose of this proposed change is to provide correlation of the text of the IRC with the current text of Section 104.9.1 of the *International Existing Building Code,* Section 105.4 of the *International Fuel Gas Code*, *International Mechanical Code* and *International Property Maintenance Code*, Section 104.7.1 of the *International Fire Code,* Section 105.5 of the *International Plumbing Code*, *International Private Sewage Disposal Code*, and Section 601.4 of the *ICC Electrical Code---Administrative Provisions*.

This section recognizes that the code criteria for materials and equipment have changed over the years and that evaluation of testing and materials technology has permitted the development of new criteria that the old materials may not satisfy. As a result, used materials are required to be evaluated in the same manner as new materials. The requirements of this section currently appear in one form or another in most of the I-Codes, however having fully consistent requirements among the I-Codes will enhance public safety by assuring that used materials, regardless of what code they are subject to, will comply with a consistent standard of quality and integrity.

A similar correlating proposal has also been submitted to the *International Building Code*, *International Existing Building Code*, *International Fire Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code, International Property Maintenance Code*, and *International Fuel Gas Code.*

R104.10: The purpose of this proposed change is to provide correlation with current Section 104.10 of the *International Building Code* and *International Existing Building Code* and Section 601.2 of the *ICC Electrical Code---Administrative Provisions*. It will also add several important elements to the requirements, most notably compliance with accessibility provisions and a clear statement of what the basis is for the code official to consider a modification, i.e. upon application by the owner.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code* and *International Property Maintenance Code.*

R104.11: The purpose of this proposed change is to provide correlation of the text of this section of the IRC with the current text of Section 104.11 of the *International Building Code* and *International Existing Building Code*, Section 105.2 of the *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code,* and *International Private Sewage Disposal Code,* Section 105.2 of the *International Property Maintenance Code*, Section 104.9 of the *International Fire Code* and Section 103.3 of the *International Wildland-Urban Interface Code*.

. The added text will provide the code official with needed parameters for judging the use of alternative materials and the specific areas in which they must meet the requirements for equivalency with the code.

R104.11.2: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 104.11.1 of the *International Building Code*.

The section would provide a means for the code official to judge the suitability or equivalency of an alternative method being proposed. Reports providing evidence of this equivalency must be supplied by a source that the code official considers reliable and accurate.

A similar correlating proposal has also been submitted to the *International Existing Building Code*, *International Fire Code*, *International Private Sewage Disposal Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code, International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Fuel Gas Code.*

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

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

RB9–06/07
R105.2

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

R105.2 Work exempt from permit. Permits shall not be required for the following. Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

Building: (No change to current text)

Electrical:

1. Listed cord and plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefore.
3. Repair or replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. **~~Repairs and maintenance~~:** ~~A permit shall not be required for~~ Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

Gas: (No change to current text)
Mechanical: (No change to current text)

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This section is proposed for revision to correlate the electrical work that is exempt from a permit in the IRC with the exemptions allowed in Section 401.3 of the *ICC Electrical Code---Administrative Provisions*.

A similar correlating proposal has been submitted to the *International Building Code* and *International Existing Building Code,* where this text also appears. The revision will create a format consistent with the rest of Section R105.2 and provide the code user with more specificity as to what types of electrical "work" do not need a permit.

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

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

RB10–06/07
R105.2

Proponent: Jim McClintic, Sandy City Corporation, Utah, representing Utah Chapter of ICC

Revise as follows:

R105.2 Work exempt from permit. Permits shall not be required for the following. Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet (11.15 m2).
2. Fences not over 6 feet (1829 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks, ~~and~~ driveways and exterior platforms not more than 30 inches (762 mm) above grade, and not over any basement or story below.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.

Electrical:

Repairs and maintenance: A permit shall not be required for minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

Gas:

1. Portable heating, cooking or clothes drying appliances.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
3. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating appliances.
2. Portable ventilation appliances.
3. Portable cooling units.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.

The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Reason: The added text in this exemption will eliminate the need to add a new exemption to this section of the code.

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

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

RB11–06/07
R105.2

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R105.2 Work exempt from permit. Permits shall not be required for the following. Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet (11.15 m2).
2. Fences not over 6 feet (1829 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.

8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks without roof structures that (a) are not more than 30 inches above grade at any point, (b) are not structurally attached to a dwelling, and (c) do not serve the exit door required by Section R311.4.

Electrical:

Repairs and maintenance: A permit shall not be required for minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

Gas:

1. Portable heating, cooking or clothes drying appliances.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
3. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating appliances.
2. Portable ventilation appliances.
3. Portable cooling units.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.

The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Reason: The purpose of this code change is to delete permit requirements for open decks that are built close to the ground and pose little danger. There is little in the IRC to regulate them. These structures are exempt from frost footing requirements by R403.1.4.1. They don't need guards. They don't require stairs. They don't serve the main exit door. The cost for permits and plan reviews to the homeowner is an unnecessary expense. The building department's resources can be better used on projects that have more of an impact on safety. As with the other structures that are exempted from permits, there is still an obligation by the owner to follow any codes that might be applicable including any local zoning ordinances. But just like the tool shed or retaining wall, they wouldn't need to obtain a permit.

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

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

RB12–06/07
R105.3.1.1

Proponent: William Easterling, Grand Haven, Michigan, representing himself

Revise as follows:

R105.3.1.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas. For applications for reconstruction, rehabilitation, addition or other improvement of existing buildings or structures located in an area prone to flooding as established by Table R301.2(1), the building official shall examine or cause to be examined the construction documents and shall prepare a finding with regard to the value of the proposed work. For buildings that have sustained damage of any origin, the value of the proposed work shall include the cost to repair the building or structure to its pre-damage condition. If the building official finds that the value of proposed work

equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the finding shall be provided to the board of appeals for a determination of substantial improvement or substantial damage. Applications determined by the board of appeals to constitute substantial improvement or substantial damage shall require all existing portions of the entire building or structure to meet the requirements of Section R324.

Reason: The purpose of the proposed code change is clarify the code by making it clearer that the entire structure, including existing buildings and portions thereof must comply with Section R323 when existing buildings or structures are determined to be substantially improved or substantially damaged.

The last sentence of Section R105.3.1.1 implies that only the "application" needs to meet the requirements of Section R323 without imposing any requirements on the existing building or structure located below the design flood elevation. The application of the code in this manner could conflict with the requirements of the National Flood Insurance Program (NFIP) in certain instances which requires the elevation of such a structure.

An example of where the current code text is lacking would be an existing single story slab on grade home valued at $100,000 with the first floor being four feet below the design flood elevation. An application for a proposed second story addition with no work being done to the first floor is submitted at a cost of $75,000. According to the current wording of Section R105.3.1.1 of the IRC, only the work proposed in the application, the second story addition would need to comply with the applicable flood resistant construction provisions, which there are none because the finished floor elevations of the second story is above the design flood elevation. Allowing this substantial improvement of this structure without requiring the first floor to be in compliance with Section R323 would be in violation NFIP's regulations and be jeopardizing a community's participation in the NFIP by someone legally meeting the minimum requirements of the communities adopted building code, being the IRC.

Cost Impact: The code change proposal will not increase the cost of construction if the community in which it is located that is participating in and complying with the NFIP. For those communities not participating in the NFIP, the first cost of complying with this requirement is increased but is substantially offset by the costs eliminated from future flooding by protecting the structures through elevation

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

RB13–06/07
R105.9 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

R105.9 Preliminary inspection. Before issuing a permit, the building official is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 109.2 of the *International Building Code* and *International Existing Building Code.*

This provision would provide the code official with a useful tool in the permit process, especially in cases of permits being issued for an existing building. While the construction documents may show the scope and nature of work to be done, there may be other existing conditions in the building that could affect the continued safety profile of the building and the approval of a permit which could only be discovered by inspection.

A similar correlating proposal has also been submitted to the *International Building Code, International Existing Building Code, International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code* and *International Wildland-Urban Interface Code.*

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

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

RB14–06/07
R106

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION R106
CONSTRUCTION DOCUMENTS

R106.1 Submittal documents. (No change to current text)
R106.1.1 Information on construction documents. (No change to current text)
R106.1.2 Manufacturer's installation instructions. (No change to current text)
R106.1.3 Information for construction in flood hazard areas. (No change to current text)

R106.2 Site plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. in the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

R106.3 Examination of documents. (No change to current text)

R106.3.1 Approval of construction documents. When the building official issues a permit, ~~the~~ construction documents are required ~~shall be approved~~, the construction documents shall be~~,~~ endorsed in writing and stamped "Reviewed for Code Compliance." ~~or by a stamp which states "APPROVED PLANS PER IRC SECTION R106.3.1."~~ Such approved construction documents shall not be changed, modified or altered without authorization from the building official. Work shall be done in accordance with the approved construction documents. One set of construction documents so reviewed shall be retained by the building official. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the building official or his or her authorized representative.

R106.3.1.1 ~~106.4~~ Amended construction documents. ~~Work shall be installed in accordance with the approved construction documents, and any c~~ Changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

R106.3.2 Previous approvals. (No change to current text)
R106.3.3 Phased approval. (No change to current text)
R106.4 ~~R106.5~~ Retention of construction documents. (No change to current text)

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the construction document provisions in the IRC. A section-by-section discussion follows:

R106.2: The purpose of this proposed change is to provide correlation with Section 106.2 of the *International Building Code* and *International Existing Building Code* and Section 501.3 of the *ICC Electrical Code---Administrative Provisions.*

The revised text will provide more specific important information that is required on the plan to not only locate accurately the structure on the site but also identify the site's flood hazard profile. It will also provide the code official with flexibility in determining when the scope of work makes the submittal of a site plan unnecessary.

A similar correlation change has been proposed to the *International Wildland-Urban Interface Code*.

R106.3.1: The intent of this proposed change is to provide correlation with current Section 106.3.1 of the *International Building Code* and *International Existing Building Code*.

The revision from "Approved" to "Reviewed for Code Compliance" is consistent with the duties ascribed to the code official in Section R106.3 of the code and thereby limits the responsibility of the code official to that of functions associated with evaluating design plans for code compliance only. Other aspects of design creation and development are peculiar to the design professions and outside the scope of code compliance, and therefore are not approved or disapproved in any circumstance.

The revision will also make it clear that, once the construction documents have been endorsed, no unapproved changes to them may be made. This proposal will also clarify the intent of the code that these provisions only apply to construction documents that are required by the code.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code,* and *International Wildland-Urban Interface Code.*

106.3.1.1 ~~106.4~~: This proposed change editorially relocates the requirements of current Section 106.4 to immediately follow Section 106.3.1 for the purpose of creating a more sequential order of the sections addressing construction documents. Note that the first sentence that states, "Work shall be installed in accordance with the approved construction documents, and any…" is being deleted because it becomes redundant based on the revision to Section 106.3.1.

A similar correlation proposal has been submitted to the *International Building Code* and *International Existing Building Code.*

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

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

RB15–06/07
R106.1.4 (New)

Proponent: Alan Seymour, Oregon Department of Energy

Add new text as follows:

R106.1.4 Wood framing moisture content. Documentation certifying that moisture content in wood framing is less than 19 percent moisture content shall be submitted to the building official prior to installation of insulation or any interior wall board.

Reason: This proposal is related to reducing moisture-related problems within a building. Increased levels of moisture in homes contribute to mold, which can become health issues and lead to dry rot damage in wood components of the building. Insurance for a contractor, architect, or homeowner does not cover damages due to moisture related issues.

While most molds are benign, some can cause devastating health problems and lead to dry rot in wood building components. Requiring replacement of wood components due to dry rot after a building is constructed is much more expensive to mitigate and repair than during construction of a new building.

There is an increased cost associated with the proposal. The cost for mitigation during construction would be less a fraction of the cost associated with mitigating and repairing damage. One of the mitigating measures to prevent damage from occurring again may be the measure that being proposed. Due to the magnitude of the potential problems, a cost cannot be associated with this proposal.

Referenced Standards: It is not necessary to specify this standard in code, it is provided as justification – Part 3280, Manufactured Home Construction and Safety Standards, excerpted from the Code of Federal Regulations, Housing and Urban Development - Section 3280.304 Materials

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

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

RB16–06/07
R108.3, R108.6 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

R108.3 Building permit valuations. The applicant for a permit shall provide an estimated permit value at time of application. Building permit valuation shall include total value of the work for which a permit is being issued, such as electrical, gas, mechanical, plumbing equipment and other permanent systems, including materials and labor. If, in the opinion of the building official, the valuation is underestimated on the application, the permit shall be denied unless the applicant can show detailed estimates to meet the approval of the building official. Final building permit valuation shall be set by the building official.

R108.6 Work commencing before permit issuance Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the building official, which shall be in addition to the required permit fees.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the permit fee provisions in the IRC. A section-by-section discussion follows:

R108.3: The purpose of this proposed change is to provide correlation of this Section with Section 108.3 of the *International Building Code* and *International Existing Building Code* by providing the code official with needed administrative tools for the establishment and collection of permit fees.

The first sentence of added text establishes the requirement that a building permit value be submitted with the permit application. The balance of the added text provides the code official with a means for dealing with under-valued permit work estimates and clearly establishes that the code official is the final determiner of the permit valuation.

R108.6: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 108.4 of the *International Building Code* and *International Existing Building Code.*

This proposed section recognizes that the code official will incur certain costs (i.e., inspection time and administrative) when investigating and citing a person who has commenced work without having obtained a permit. The code official is, therefore, entitled to recover these costs by establishing a fee, which should be in addition to that collected when the required permit is issued, to be imposed on the responsible party. The amount of the fee should be determined by the code official based on the actual costs incurred. It is not the intent of this section that the additional fee be a penalty for violating the code as covered in R118.4.

A similar correlation proposal has also been submitted to the *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code* and *International Private Sewage Disposal Code.*

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

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

RB17–06/07
R109

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

SECTION R109
INSPECTIONS

R109.1 General. The building official is authorized to conduct such inspections as are deemed necessary to determine compliance with the provisions of this code. Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

R109.2 ~~R109.1~~ Types of inspections. (No change to current text.)

R109.2.1 ~~R109.1.1~~ Footing and foundation inspection. Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job.

R109.2.2 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the sub-floo**r.**

(Renumber subsequent sections)

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be “new” because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the inspection requirements of the IRC. A section-by-section discussion follows:

109.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is current Section106.2 of the *International Fire Code* and current Section 109.1 of the *International Building Code.*

This section authorizes the building official to inspect the work for which a permit has been issued and requires that the work to be inspected remain accessible to the building official until inspected and approved. The section also makes it clear that any expense incurred in removing or replacing material that conceals an item to be inspected is not the responsibility of the building official or the jurisdiction. The section also includes text that states that, as with the issuance of permits, approval as a result of an inspection is not a license to violate the code and an approval in violation of the code does not relieve the applicant from complying with the code and is not valid. The responsibility for keeping work accessible for inspection and any costs associated for having to uncover uninspected work is clearly placed upon the permitee by this proposed section.

R109.2.1: The purpose of this proposed change is to provide correlation of this Section with Section 109.3.1 of the *International Building Code* and Section 109.1.1 of the *International Existing Building Code* by providing the code official with needed administrative tools for conducting footing and foundation inspections. The added text provides specific requirements for concrete foundation inspections and provides an exception to the requirements for concrete that is prepared off-site.

R109.2.2: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is current Section109.3.2 of the *International Building Code* and *International Existing Building Code.*

This proposed section recognizes the importance of under-slab observations and will provide the building official with the needed ability to inspect the soil and any required under-slab drainage, waterproofing or dampproofing material, as well as reinforcing steel, conduit, piping and other service equipment embedded in or installed below a slab prior to the placing of the concrete. Similarly, items installed below a floor system other than concrete must be inspected before they are concealed by the floor sheathing or subfloor.

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

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

RB18–06/07
R109.5 through R109.5.3 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

R109.5 Evaluation and follow-up inspection services. Prior to the approval of a prefabricated construction assembly having concealed work and the issuance of a permit, the building official shall require the submittal of an evaluation report on each prefabricated construction assembly, indicating the complete details of the installation, including a description of the system and its components, the basis upon which the system is being evaluated, test results and similar information and other data as necessary for the building official to determine conformance to this code.

R109.5.1 Evaluation service. The building official shall designate the evaluation service of an approved agency as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to this code.

R109.5.2 Follow-up inspection. Except where ready access is provided to installations, service equipment and accessories for complete inspection at the site without disassembly or dismantling, the building official shall conduct the in plant inspections as frequently as necessary to ensure conformance to the approved evaluation report or shall designate an independent, approved inspection agency to conduct such inspections. The inspection agency shall furnish the building official with the follow-up inspection manual and a report of inspections upon re-quest, and the installation shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

R109.5.3 Test and inspection records. Required test and inspection records shall be available to the building official at all times during the fabrication of the installation and the erection of the building; or such records as the building official designates shall be filed.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

The purpose of this proposed change is to provide needed administrative provisions not currently in the IRC, the source text for which is the current text of Sections 107.1.2, 107.1.2.1, 107.1.2.2 and 107.1.2.3 of the *International Fuel Gas Code, International Mechanical Code* and *International Plumbing Code.* These proposed sections would provide the code official with an alternative to the physical inspection by the code

official in the plant or location where prefabricated components are made by providing the code official with the option of accepting an evaluation report and special inspection services from an approved agency detailing such inspections. These evaluation reports could serve as the basis from which the code official will determine code compliance.

The provisions also require that all testing and inspection records related to a fabricated assembly would need to be filed with the code official in order to maintain a complete and legal record of the assembly of the building and its systems.

A similar correlation change has been submitted to the *International Building Code, International Existing Building Code*, *International Private Sewage Disposal Code* and *International Wildland-Urban Interface Code.*

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

Analysis: If this code change is approved, the final numbers of these new sections will be correlated with all other approved code changes affecting Section 109 of this code.

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

RB19–06/07
R109.5 through R109.5.3 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

R109.5 Testing. Installations shall be tested as required in this code and in accordance with Sections R109.5.1 through R109.5.3. Tests shall be made by the permit holder and observed by the building official.

R109.5.1 New, altered, extended or repaired installations. New installations and parts of existing installations, which have been altered, extended, renovated or repaired, shall be tested as prescribed herein to disclose leaks and defects.

R109.5.2 Apparatus, instruments, material and labor for tests. Apparatus, instruments, material and labor required for testing an installation or part thereof shall be furnished by the permit holder

R109.5.3 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the building official for inspection and testing.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

The purpose of this proposed change is to provide needed administrative provisions not currently in the IRC, the source text for which is the current text of Sections 107.2, 107.2.1, 107.2.2 and 107.2.3 of the *International Fuel Gas Code* and *International Mechanical Code* and Sections 107.3, 107.3.1, 107.3.2 and 107.3.3 of the and *International Plumbing Code.*

Testing of fuel gas, plumbing, mechanical and electrical systems and equipment is required where testing is specified in the technical chapters of the code. These sections will provide testing guidelines as to when testing is required, establish responsibility for the testing and providing the associated apparatus and equipment and guidelines for handling test failure and re-testing.

A similar correlation change has been submitted to the *International Fire Code, International Private Sewage Disposal Code* and *International Wildland-Urban Interface Code.*

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

Analysis: If this code change is approved, the final numbers of these new sections will be correlated with all other approved code changes affecting Section 109 of this code.

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

RB20–06/07
R112.2.2

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

Revise as follows:

R112.2.2 Criteria for issuance of a variance for areas prone to flooding. A variance shall only be issued upon:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards in Section R324 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, ~~nor create nuisances,~~ cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Reason: The text is shown to be deleted because, without a direct provision in the IRC citing what constitutes a "nuisance", this provision is arbitrary and may ultimately be enforceable. A nuisance as it relates to any occupancy or construction would probably already be covered under the laws or ordinances of the adopting jurisdiction, which is already a criterion of this Section.

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

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

RB21–06/07
R113

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION R113
VIOLATIONS

R113.1 Unlawful acts. (No change to current text)

R113.2 Notice of violation. (No change to current text)

R113.2.1 Service. A notice of violation issued pursuant to this code shall be served upon the owner, operator, occupant, or other person responsible for the condition or violation, either by personal service, mail, or by delivering the same to, and leaving it with, some person of responsibility upon the premises. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with return receipt requested or a certificate of mailing, to the last known address of the owner, occupant or both.

R113.3 Prosecution of violation. (No change to current text)

R113.4 Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, installs, constructs, alters or repairs a building or structure or does work in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a [SPECIFY OFFENSE], punishable by a fine of not more than [AMOUNT] dollars or by imprisonment not exceeding [NUMBER OF DAYS], or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense. ~~subject to penalties as prescribed by law~~.

R113.5 Abatement of violation. In addition to the imposition of the penalties herein described, the code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.

R113.6 Unauthorized tampering. Signs, tags or seals posted or affixed by the code official shall not be mutilated, destroyed or tampered with or removed without authorization from the code official.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the violation provisions in the IEBC. A section-by-section discussion follows:

113.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 109.2.1 of the *International Fire Code*.

The section provides the code official with useful guidance on what are generally recognized as legally sound methods of service of violation notices, in descending order of preference..

A similar correlating proposal has also been submitted to the *International Building Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Mechanical Code, International Fuel Gas Code*, and *International Property Maintenance Code.*

113.4: The purpose of this proposed change is to correlate the text for violation penalties among the I-Codes based on the source text in Section 109.3 of the *International Fire Code* which the AHC considered more comprehensive in that a standard fine or other penalty as deemed appropriate by the jurisdiction is prescribed. Additionally, the section would codify the principle that "each day that a violation continues shall be deemed a separate offense" for the purpose of applying the prescribed penalty in order to facilitate prompt abatement of the violation.

A similar correlating proposal has also been submitted to the *International Building Code*, *International Existing Building Code*, *International Energy Conservation Code, International Property Maintenance Code*, *International Wildland-Urban Interface Code*, and *International Fuel Gas Code.*

113.5: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 109.3.1 of the *International Fire Code*.

The added section would make it clear that, despite the assessment of a penalty in the form of a fine or imprisonment against a violator, the violation itself must still be corrected. Failure to make the necessary corrections would result in the violator being subject to additional penalties as described in proposed Section 113.4.

A similar correlating proposal has also been submitted to the *International Building Code*, *International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code, International Property Maintenance Code* and *International Wildland-Urban Interface Code,*.

113.6: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC, the source text for which is Section 109.2.4 of the *International Fire Code.*

When a building element, component or system is found to be in violation and is removed from service by the code official, notice and warning of such action is typically given by signs, tags or seals which must remain in place until the hazard is abated as approved by the code official. The section would provide the code official with a useful enforcement tool by prohibiting any action that would diminish the effectiveness of the warnings since the safety of the occupants may depend on the warning signs posted by the code official remaining intact and in place.

A similar correlating proposal has also been submitted to the *International Building Code*, *International Fuel Gas Code, International Mechanical Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code, International Property Maintenance Code*, and *International Wildland-Urban Interface Code.*

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

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

RB22–06/07
R114

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION R114
STOP WORK ORDER

R114.1 Notice to owner. (No change to current text)

R114.1.1 Emergencies. Where an emergency exists, the building official shall not be required to give a written notice prior to stopping the work.

R114.2 ~~Unlawful continuance~~ Failure to comply. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be ~~subject to penalties as prescribed by law~~ be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the stop work provisions of the IRC. A section-by-section discussion follows:

R114.1.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IRC the source text for which is Section 111.3 of the *International Fire Code*.

This section gives the code official the authority to stop the work in dispute immediately when, in his or her opinion, there is an unsafe emergency condition that has been created by the work. The need for the written notice is suspended for this situation so that the work can be stopped immediately. After the work is stopped, immediate measures should be taken to correct the work at issue.

A similar correlating proposal has also been submitted to the *International Existing Building Code, International Existing Building Code*, *International Energy Conservation Code,* and *International Wildland-Urban Interface Code.*

R114.2: The purpose of this proposed change is to provide correlation with the source text in Section 111.4 of the *International Fire Code* which the AHC considered more comprehensive in that a standard fine or other penalty as deemed appropriate by the jurisdiction is prescribed.

A similar correlating proposal has also been submitted to the *International Building Code, International Existing Building Code*, *International Energy Conservation Code,* and *International Wildland-Urban Interface Code.*

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

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

RB23–06/07
R115 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

SECTION R115
UNSAFE STRUCTURES AND EQUIPMENT

R115.1 General. Structures or existing equipment that are or hereafter become unsafe, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the building official deems necessary and as provided for in this section. A vacant structure that is not secured against entry shall be deemed unsafe".

R115.2 Records. The building official shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition

R115.3 Notice. If an unsafe condition is found, the building official shall serve on the owner, agent or person in control of the structure, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or that requires the unsafe structure to be demolished within a stipulated time. Such notice shall require the person thus notified to declare immediately to the building official acceptance or rejection of the terms of the order

R115.4 Method of service. Such notice shall be deemed properly served if a copy thereof is (a) delivered to the owner personally; (b) sent by certified or registered mail addressed to the owner at the last known address with the return receipt requested; or (c) delivered in any other manner as prescribed by local law. If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner upon the owner's agent or upon the person responsible for the structure shall constitute service of notice upon the owner

R115.5 Placarding. Upon failure of the owner or person responsible to comply with the notice provisions within the time given, the building official shall post on the premises or on defective equipment a placard bearing the word "Condemned" and a statement of the penalties provided for occupying the premises, operating the equipment or removing the placard.

R115.5.1 Placard removal. The owner, operator, or occupant of a building, premises or equipment deemed unsafe by the building official shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action**.**

R115.6 Abatement. The owner, operator, or occupant of a building, premises or equipment deemed unsafe by the building official shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action

R115.7 Evacuation. The building official shall be authorized to order the immediate evacuation of any occupied building deemed unsafe when such building has hazardous conditions that present imminent danger to building occupants. Persons so notified shall immediately leave the structure or premises and shall not enter or reenter until authorized to do so

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on proposed unsafe structures provisions in the IRC. The purpose of this proposed change is to provide needed administrative provisions not currently in the IRC, the primary source text for which is Section 115 of the *International Building Code* and *International Existing Building.* Other I-Code source texts also contribute, as noted per section. This code language will provide the building official clear authority for structures when hazardous conditions exist. A section-by-section discussion follows:

R115.1: This section describes the responsibility of the code official to investigate reports of unsafe structures and equipment and provides criteria for such determination. It also provides for means to remedy the unsafe condition.

R115.2: This section establishes the responsibility of the code official to file a report on each investigation of unsafe conditions, stating the occupancy of the structure and the nature of the unsafe condition. This report provides the basis for the notice described in Section R115.3.

R115.3: This section establishes that when a building or structure is deemed unsafe, the code official is required to notify the owner or agent of the building as the first step in correcting the problem. Such notice must describe the necessary repairs and improvements to correct the deficiency or must require the unsafe building or structure to be demolished in a specified time in order to provide for public health, safety and welfare. Additionally, such notice requires the immediate response of the owner or agent.

R115.4: This section specifies legally sound delivery methods for the notices issued under proposed Section 115.3. Under this section, notices would be required to be delivered personally to the owner. If the owner or agent cannot be located, additional procedures are established, including posting the unsafe notice on the premises in question.

R115.5, R115.5.1: The purpose of this proposed change is to provide needed administrative provisions not currently in the IRC, the source texts for which are Sections 108.4 and 108.4.1of the *International Property Maintenance Code.*

The section would provide the code official with a useful administrative and enforcement tool by providing for the posting of an unsafe building or equipment as being condemned and also the means for having such designation removed by the code official. Because the safety of the occupants may depend on the warning signs posted by the code official remaining in place, proposed Section R115.5.1 would be an important tool placing any other person who removes or defaces a placard in violation of the code and subject to its penalties.

R115.6: The source text for this section is the current text of Section 110.4 of the *International Fire Code*. The word "equipment" was added to make the section more universally usable in all codes within the I-Code family. The proposed section makes it clear that unsafe buildings may not remain so and provides the code official with abatement guidance in the circumstance when a building system has such critical violations that it is declared unsafe by the code official.

R115.7: The source text for this section is Section 110.2 of the *International Fire Code.* This section would provide the code official with an important tool in the event that a building or system in a building is determined to be in such condition that life safety is compromised and immediate evacuation is needed. The severe and immediate danger anticipated in this proposed section dictates such extreme measures to protect public health, safety and welfare.

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

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

RB24–06/07
R202

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

Revise definitions as follows:

APPLIANCE. A device or apparatus that is manufactured and designed to utilize energy and for which this code provides specific requirements, and that is permanently installed and integrated to provide control of environmental conditions for buildings.

EQUIPMENT. All piping, ducts, vents, control devices and other components of systems, other than appliances, that ~~are permanently installed and integrated to~~ provide control of environmental conditions for buildings. This definition shall also include other systems specifically regulated in this code.

Reason: According to the 2003 International Residential Code Commentary, "For the application of the code provisions, the terms 'appliance' and 'equipment' are mutually exclusive." However, the definition of "equipment" contains language that appears intended to describe what is meant by "appliance." This proposal moves that language to the definition of appliance.

This proposal is significant because it clarifies that piping for mechanical appliances is not allowed in a two-hour wall separating townhouses. Section R317.2 states

> "…**Exception:** A common 2–hour fire–resistance–rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall…."

The existing definition of equipment leaves one wondering what is "permanently installed". This proposal clarifies that it is the appliances that are meant to be permanently installed—equipment is regulated if it is a component of a system that is regulated by this code.

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

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

RB25–06/07
R202

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise definition as follows:

ATTIC. ~~The~~ A non-habitable unfinished space between the ceiling joists of the top story and the roof rafters.

Reason: The current text references space between "ceiling joists" (not floor joists) and "roof rafters" which seems to imply an unfinished non-habitable space. But the IRC Committee disapproved a code change in Cincinnati (RB232-04/05) that would have allowed alternative stair designs to an attic with the statement that the change would have allowed noncompliant stairs to a *habitable* attic. The term "habitable attic" is an oxymoron. The space would then be considered a story and traditional stairs would be required. Typical attics would not be considered a story. Because of confusion that may be caused as a result of statements attributed to the committee, it is necessary to clarify that this space is non-habitable.

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

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

RB26–06/07
R202

Proponent: Donald LeBrun, CBO, State of Indiana, representing Indiana Association of Building Officials

Revise definition as follows:

FIREBLOCKING. Building materials or materials labeled for use as fireblocking, installed to resist the free passage of flame to other areas of the building through concealed spaces.

Reason: As currently written fireblocking materials are limited to building materials. This definition would exclude the use of several products currently available on the market which were developed specifically for use as fireblocking and force the building official to resort to R104.11 every time one of these listed alternative products was proposed. With a few simple words we will allow the inspectors to simply noted that the material was labeled properly and move on, otherwise the entire process is slowed by obtaining the proper paperwork and having the material re-approved on each project.

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

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

RB27–06/07
R202

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Delete definition and substitute as follows:

~~**FLAME SPREAD INDEX.** The numeric value assigned to a material tested in accordance with ASTM E 84.~~

FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E 84.

Reason: This proposal is purely editorial. The definition of flame spread index proposed is taken from the IBC and is consistent with definitions in ASTM fire standards (ASTM E 176) and other documents. It is also consistent with the proposed definition of smoke developed index.

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

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

RB28–06/07
R202

Proponent: David W. Cooper, Stairway Manufacturers' Association

Add new definition as follows:

SECTION R202
DEFINITIONS

NOSING. The leading edge of treads of stairs and of landings at the top of stairway flights.

Reason: Clarification of the code. This proposal is needed to simplify the code. This term already exists in the IBC:

1002.1 NOSING. The leading edge of treads of stairs and of landings at the top of stairway flights.

The term nosing is used through out the IRC, and is critical to the understanding of the code and needs to be added for those jurisdictions not using the IBC. This definition will allow substitution of the word nosing for what often is a complex litany of words or sentences that is varies from one section of the code to the other.

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

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

RB29–06/07
R202 (New)

Proponent: Brian D. Miller, National Precast Concrete Association

Add new definition as follows:

PRECAST CONCRETE FOUNDATION SYSTEM. Pre-engineered foundation system comprised of one or multiple precast concrete units, which may vary in size, all of which, must be designed to meet the minimum performance criteria of Section 404.6.2.

Reason: Clarify the code. To define terms used with in the code.

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

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

RB30–06/07
R202

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Delete definition and substitute as follows:

~~**SMOKE-DEVELOPED RATING.** A numerical index indicating the relative density of smoke produced by burning assigned to a material tested in accordance with ASTM E 84.~~

SMOKE-DEVELOPED INDEX. A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with ASTM E 84.

Reason: This proposal is purely editorial. The correct terminology is "flame spread index" and "smoke developed index", which is what is reported in the results of ASTM E 84. The definition of smoke developed index proposed is taken from the IBC and is consistent with definitions in ASTM fire standards (ASTM E 176) and other documents. It is also consistent with the proposed definition of flame spread index.

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

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

RB31–06/07
R202

Proponent: Roy Scott, New York State Department of State (NYSDOS)

Add new definition as follows:

SECTION 202
DEFINITIONS

STAIRWAY. One or more flights of stairs, either interior or exterior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another within or attached to a building, porch or deck.

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

Reason: While there are a lot of very detailed requirements for stairways in the residential code, there is no definition to tell what a stair or stairway is.

Many code officials attempt to regulate stairways that have nothing to do with achieving safe egress from a dwelling, such as from a patio, into a swimming pool or some other landscaping feature. It is understood that stairways both within a building and those that provide access to grade from a dwelling need to be regulated. Stretching the code to apply to features that aren't related to safe ingress and egress to and from a dwelling is overly restrictive. The applicability of the code must be consistent with the scoping in R101.2; dwellings and accessory structures. Accessory structures are also buildings by definition. In order to assure that stairways that are not necessary for use in gaining access to or egress from a building are not inadvertently regulated, this definition must be included.

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

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

RB32–06/07
R202

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise definition as follows:

TOWNHOUSE. A single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from foundation to roof and with ~~open space~~ a yard or public way on at least two sides.

Reason: The purpose of this code change is to replace an incorrect term with a defined and correct term. The term "open space" is defined in the I-Codes (see R201.3) as "OPEN SPACE. Land areas that are *not* occupied by buildings, structures, parking areas, streets, alleys or required yards. Open space shall be permitted to be devoted to landscaping, preservation of natural features, patios, and recreational areas and facilities." As it is currently written, the open space required in the definition of townhouse cannot be used for parking areas, streets, alleys, or required yards. But this is exactly how this open space is most often provided. It would seem that the current language is requiring just the opposite of what is standard practice. The proposed change reflects actual practice and uses terms defined in the IRC.

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

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

RB33–06/07
R301.1.1, Chapter 43; IBC 2301.2, Chapter 35

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

Proponent: Rob Pickett, Rob Pickett & Associates, LLC, representing ICC IS-LOG Standards Committee

PART I – IRC

1. Revise as follows:

301.1.1 Alternative provisions. As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards the design shall comply with the *International Building Code*.

1. American Forest & Paper Association (AF&PA), Wood Frame Construction Manual (WFCM).
2. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing – Prescriptive Method for One- and Two-family Dwellings (COFS-PM).
3. ICC-400.

2. Add standard to Chapter 43 as follows:

International Code Council (ICC)

ICC-400 IS-LOG Standard for the Design and Construction of Log Structures

PART II – IBC

1. Revise as follows:

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be in accordance with one of the following methods:

1. Allowable stress design in accordance with Sections 2304, 2305 and 2306.
2. Load and resistance factor design in accordance with Sections 2304, 2305 and 2307.
3. Conventional light-frame construction in accordance with Sections 2304 and 2308.

   Exception: Buildings designed in accordance with the provisions of the AF&PA WFCM shall be deemed to meet the requirements of the provisions of Section 2308.

4. The design and construction of log structures shall be in accordance with the provisions of the ICC-400.

2. Add standard to Chapter 35 as follows:

International Code Council (ICC)

ICC-400 IS-LOG Standard for the Design and Construction of Log Structures

Reason: Currently the IBC and IRC do not provide any guidelines or list a standard for the construction of log structures. The ICC-400 IS-LOG Standard for the Design and Construction of Log Structures represents those industry standards and guidelines.

Cost Impact: The cost of construction will be that incurred to build properly with quality products, connectors and methods as compared to the utilization of any material with no proper methodology used in the structures development.

Analysis: The proposed standard has not been reviewed for compliance with Section 3.6 of the ICC Code Development process. Staff will review it and post the results at the ICC website prior to the code change hearings.

PART I – IRC

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

PART II – IBC

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

RB34–06/07

R202 (New), R301.1.1, R301.2.1.1, R301.2.2.2.1, R301.2.2.4.1, R301.2.3, R301.3, M1308.1, M2101.6, P2603.2, R614 (New), Chapter 43

Proponent: Edward L. Keith, P.E., APA – The Engineered Wood Association

1. Add new definitions as follows:

SECTION R202
DEFINITIONS

CORE. The light-weight middle section of the sandwich structural insulated panel composed of molded expanded polystyrene (EPS) insulation, which provides the link between the two facing shells.

FACING. The structural wood panel facers that form the two outmost rigid layers of the structural insulated panel.

PANEL THICKNESS. Thickness of core plus two layers structural wood panel facers.

SPLINE. A long, flat, pliable strip of wood structural panel cut from the same material used for the panel facers, used to connect two structural insulated panels. The strip (spline) fits into a groove cut into the longitudinal edges of the two structural insulated panels to be joined. Splines are used in pairs, one behind each facing of the structural insulated panels being spliced as per Figure R614.8.

STRUCTURAL INSULATED PANEL (SIP). A structural sandwich panel which consists of a light weight core securely laminated between two thin, rigid facings.

2. Revise as follows:

R301.1.1 Alternative provisions. As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards the design shall comply with the *International Building Code*.

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual* (WFCM).
2. American Iron and Steel Institute (AISI) *Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings* (COFS/PM) *with Supplement to Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings*.
3. Structural Insulated Panel Association (SIPA), Prescriptive Method for Structural Insulated Panel Wall Construction. (PM/SIP)

R301.2.1.1 Design criteria. Construction in regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 miles per hour (45 m/s) in hurricane-prone regions, or 110 miles per hour (49m/s) elsewhere, shall be designed in accordance with one of the following:

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM); or
2. *Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction* (SSTD 10); or
3. *Minimum Design Loads for Buildings and Other Structures* (ASCE-7); or
4. American Iron and Steel Institute (AISI), *Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings*.
5. Concrete construction shall be designed in accordance with the provisions of this code.
6. Structural insulated panels shall be designed in accordance with the provisions of this code.

R301.2.2.2.1 Weights of materials. Average dead loads shall not exceed 15 pounds per square foot (720 Pa) for the combined roof and ceiling assemblies (on a horizontal projection) or 10 pounds per square foot (480 Pa) for floor assemblies, except as further limited by Section R301.2.2. Dead loads for walls above grade shall not exceed:

1. Fifteen pounds per square foot (720 Pa) for exterior light-frame wood walls.
2. Fourteen pounds per square foot (670 Pa) for exterior light-frame cold-formed steel walls.
3. Ten pounds per square foot (480 Pa) for interior light-frame wood walls.
4. Five pounds per square foot (240 Pa) for interior light-frame cold-formed steel walls.
5. Eighty pounds per square foot (3830 Pa) for 8-inch-thick (203 mm) masonry walls.
5. Eighty-five pounds per square foot (4070 Pa) for 6-inch-thick (152 mm) concrete walls.
7. Ten psf (0.48 kN/m^2) for structural insulated panel walls.

Exceptions:

1. Roof and ceiling dead loads not exceeding 25 pounds per square foot (1190 Pa) shall be permitted provided the wall bracing amounts in Chapter 6 are increased in accordance with Table R301.2.2.2.1.
2. Light-frame walls with stone or masonry veneer shall be permitted in accordance with the provisions of Sections R702.1 and R703.
3. Fireplaces and chimneys shall be permitted in accordance with Chapter 10.

R301.2.2.4.1 Height limitations. Wood framed buildings shall be limited to three stories above grade or the limits given in Table R602.10.1. Cold-formed steel framed buildings shall be limited to two stories above grade in accordance with COFS/PM. Mezzanines as defined in Section 202 shall not be considered as stories. Structural insulated panel buildings shall be limited to two stories above grade.

R301.2.3 Snow loads. Wood framed construction, cold-formed steel framed construction and masonry and concrete construction, and structural insulated panel construction in regions with ground snow loads 70 pounds per square foot (3.35 kPa) or less, shall be in accordance with Chapters 5, 6 and 8. Buildings in regions with ground snow loads greater than 70 pounds per square foot (3.35 kPa) shall be designed in accordance with accepted engineering practice.

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

1. For wood wall framing, the laterally unsupported bearing wall stud height permitted by Table R602.3(5) plus a height of floor framing not to exceed 16 inches.

   Exception: For wood framed wall buildings with bracing in accordance with Table R602.10.1, the wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet without requiring an engineered design for the building wind and seismic force resisting systems provided that the length of bracing required by Table R602.10.1 is increased by multiplying by a factor of 1.20.Wall studs are still subject to the requirements of this section.

2. For steel wall framing, a stud height of 10 feet, plus a height of floor framing not to exceed 16 inches.
3. For masonry walls, a maximum bearing wall clear height of 12 feet plus a height of floor framing not to exceed 16 inches.

   Exception: An additional 8 feet is permitted for gable end walls.

4. For insulating concrete form walls, the maximum bearing wall height per story as permitted by Section 611 tables plus a height of floor framing not to exceed 16 inches.
5. For structural insulated panel walls, the maximum bearing wall height per story as permitted by Section 614 tables plus a height of floor framing not to exceed 10 feet.

Individual walls or walls studs shall be permitted to exceed these limits as permitted by Chapter 6 provisions, provided story heights are not exceeded. An engineered design shall be provided for the wall or wall framing members when they exceed the limits of Chapter 6. Where the story height limits are exceeded, an engineered design shall be provided in accordance with the *International Building Code* for the overall wind and seismic force resisting systems.

M1308.1 Drilling and notching. Wood-framed structural members shall be drilled, notched or altered in accordance with the provisions of Sections R502.8, R602.6, R602.6.1 and R802.7. Holes in cold-formed, steel-framed, load-bearing members shall be permitted only in accordance with Sections R505.2, R603.2 and R804.2. In accordance with the provisions of Sections R505.3.5, R603.3.4 and R804.3.5, cutting and notching of flanges and lips of cold-formed, steel-framed, load-bearing members shall not be permitted. Structural insulated panels shall be drilled and notched or altered in accordance with the provisions of Section R614.

M2101.6 Drilling and notching. Wood-framed structural members shall be drilled, notched or altered in accordance with the provisions of Sections R502.6, R602.6, R602.6.1 and R802.6. Holes in cold-formed, steel-framed, load-bearing members shall be permitted only in accordance with Sections R506.2, R603.2 and R804.2. In accordance with the provisions of Sections R505.3.5, R603.3.4 and R804.3.5, cutting and notching of flanges and lips of cold-formed, steel-framed, load-bearing members shall not be permitted. Structural insulated panels shall be drilled and notched or altered in accordance with the provisions of Section R614.

P2603.2 Drilling and notching. Wood-framed structural members shall not be drilled, notched or altered in any manner except as provided in Sections R502.8, R602.5, R602.6, R802.7 and R802.7.1. Holes in cold-formed steel-framed load-bearing members shall be permitted only in accordance with Sections R505.2, R603.2 and R804.2. In

accordance with the provisions of Sections R603.3.4 and R804.3.5 cutting and notching of flanges and lips of cold-formed steel-framed load-bearing members shall not be permitted. Structural insulated panels shall be drilled and notched or altered in accordance with the provisions of Section R614.

3. Add new text as follows:

SECTION R614
STRUCTURAL INSULATED PANEL WALL CONSTRUCTION

R614.1 General. Structural Insulated Panel walls shall be designed in accordance with the provisions of this section. When the provisions of this section are used to design structural insulated panel walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority.

R614.2 Applicability Limits. The provisions of this section shall control the construction of exterior structural Insulated panel walls and interior load-bearing structural insulated panel walls for buildings not greater than 60 feet (18 288 mm) in length perpendicular to the joist or truss span, not greater than 40 feet (10 973 mm) in width parallel to the joist span or truss, and not greater than two stories in height with each story not greater than 10 feet (3048 mm) high. All exterior walls installed in accordance with the provisions of this section shall be considered as load-bearing walls. Structural insulated panel walls constructed in accordance with the provisions of this section shall be limited to sites subjected to a maximum design wind speed of 130 miles per hour Exposure A, B or C and a maximum ground snow load of 70 pounds per foot (3.35 kN/m2), and Seismic Zones A, B, and C.

R614.3 Materials. Structural insulated panels (SIPs) shall comply with the following criteria:

R614.3.1 Core. The core material of SIPs shall be composed of molded expanded polystyrene (EPS) meeting the requirements of ASTM C 578, type I, with minimum density of 0.90 lb/cu ft or an approved alternate. Flame-spread rating of SIP cores shall be less than 75 and the smoke-development rating shall be less than 450, tested in accordance with ASTM E 84. The minimum thickness of the core for SIP walls shall be 3.5 inches (89 mm). SIP core insulation shall bear a label with the manufacturer identification, product standard and type, flame-spread/smoke-developed and name of quality assurance agency.

R614.3.2 Facing. Facing materials for structural insulated panels shall be wood structural panels conforming to DOC PS 1 or DOC PS 2, each having a minimum nominal thickness of 7/16 inches (11 mm). Facing shall be identified by a grade mark or certificate of inspection issued by an approved agency. The facing materials shall meet the minimum qualification test values specified in R301.1.1.

R614.3.3 Adhesive. Adhesives used to structurally laminate the EPS insulation core material to the structural wood facers shall be Type II, Class 2 conforming to ASTM D2559 specifically intended for use as an adhesive intended for use in the lamination of structural insulated panels. Each container of adhesive shall bear a label with the adhesive manufacturer name, adhesive name and type and the name of the quality assurance agency.

R614.3.4 Lumber. The minimum lumber framing materials used for SIPs prescribed in this document is NLGA graded No. 2 Spruce-pine-fir (SPF). Other wood species/grades that meet or exceed the mechanical properties and specific gravity of No. 2 SPF shall be permitted for substitution.

R614.3.5 SIP Screws. Screws used for the erection of SIPs as specified in Section R614.5 shall be provided by the SIPs manufacturer and shall be sized to fully penetrate the main member – the wood member to which the assembly is being attached.

R614.4 SIP Wall Panels. SIPs for wall systems shall comply with Figure R614.4 and shall have minimum panel thickness as per Tables R614.5(1) and R614.5(2) for above-grade walls. All SIPs shall be identified by grade mark or certificate of inspection issued by an approved agency.

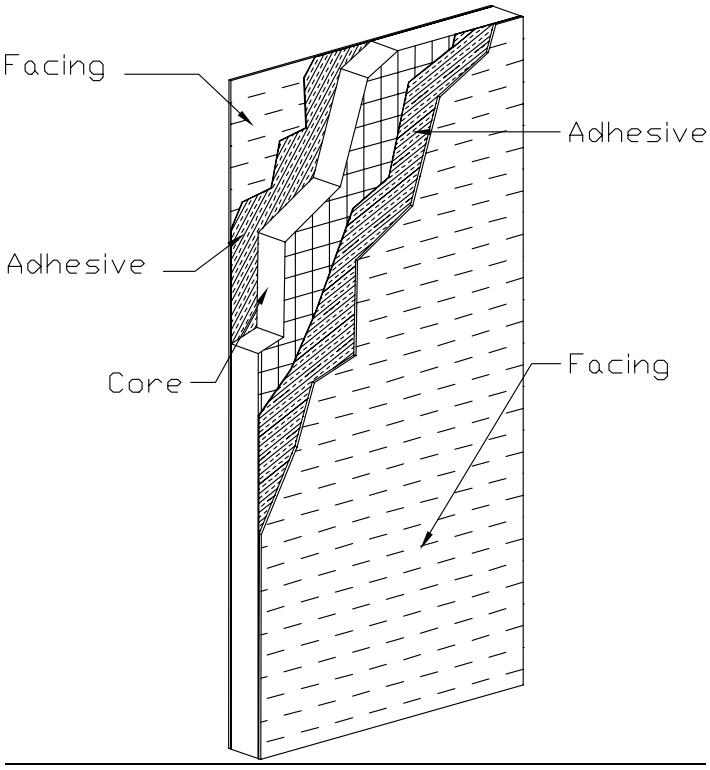


FIGURE R614.4
SIPS WALL PANEL

R614.4.1 Labeling. All panels shall be identified by grade mark or certificate of inspection issued by an approved agency. Each structural insulated panel shall bear a stamp or label with the following minimum information.

- Manufacturer Name/Logo
- Identification of the assembly
- Quality assurance agency

R614.5 Wall Construction. Exterior walls of structural insulated panel construction shall be designed and constructed in accordance with the provisions of this section and Tables R614.5(1) and R614.5(2) and Figures R614.5(1) and R614.5(2). Structural insulated panel walls shall be fastened through both facing surfaces to other wood building components in accordance with Tables R602.3(1) through R602.3(4).

Framing shall be attached in accordance to Section R602.3(1) unless otherwise provided for in Section R614.

TABLE R614.5(1)
MINIMUM THICKNESS FOR SIP WALL SUPPORTING SIP OR LIGHT-FRAME ROOF ONLY

Wind Speed (3-sec. gust)		Snow	Building Width (ft)														
			24			28			32			36			40		
Exp. A/B	Exp. C	Load (psf)	Wall Height (ft)			Wall Height (ft)			Wall Height (ft)			Wall Height (ft)			Wall Height (ft)		
			8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
85		20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
100	85	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
110	100	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
120	110	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4	4	4	4	4	6	4	4	6
130	120	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	6	4	4	6	4	4	6
		70	4	4	4	4	4	6	4	4	6	4	6	N/A	4	6	N/A
	130	20	4	4	6	4	4	N/A	4	4	N/A	4	4	N/A	4	6	N/A
		30	4	4	N/A	4	4	N/A	4	4	N/A	4	6	N/A	4	6	N/A
		50	4	6	N/A	4	6	N/A	4	N/A	N/A	6	N/A	N/A	6	N/A	N/A
		70	4	N/A	N/A	6	N/A	N/A	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
Deflection criteria: L/240.
Roof load: 7 psf.
Ceiling load: 5 psf.
Wind loads based on Table R301.2(2).
N/A indicates not applicable.

TABLE R614.5(2)
MINIMUM THICKNESS FOR SIP WALLS SUPPORTING SIP OR LIGHT-FRAME ONE STORY AND ROOF

Wind Speed (3-sec. gust)		Snow	Building Width (ft)														
			24			28			32			36			40		
Exp. A/B	Exp. C	Load (psf)	Wall Height (ft)			Wall Height (ft)			Wall Height (ft)			Wall Height (ft)			Wall Height (ft)		
			8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
85		20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4	4	4	4	4	6	6	6	6
100	85	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6
		50	4	4	4	4	4	4	4	4	4	4	4	6	4	6	6
		70	4	4	4	4	4	4	4	4	6	6	6	6	6	N/A	N/A
110	100	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6
		30	4	4	4	4	4	4	4	4	4	4	4	6	4	6	6
		50	4	4	4	4	4	4	4	4	6	4	6	6	6	6	N/A
		70	4	4	4	4	4	6	6	6	N/A	6	N/A	N/A	N/A	N/A	N/A
120	110	20	4	4	4	4	4	4	4	4	6	4	4	6	4	6	N/A
		30	4	4	4	4	4	6	4	4	6	4	6	N/A	6	6	N/A
		50	4	4	6	4	4	6	4	6	N/A	6	N/A	N/A	N/A	N/A	N/A
		70	4	4	6	4	6	N/A	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
130	120	20	4	4	6	4	4	6	4	6	N/A	4	6	N/A	6	N/A	N/A
		30	4	4	6	4	4	N/A	4	6	N/A	6	N/A	N/A	6	N/A	N/A
		50	4	6	N/A	4	6	N/A	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		70	4	6	N/A	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	130	20	6	N/A	N/A	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		30	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Deflection criteria: L/240.
Roof load: 7 psf.
Ceiling load: 5 psf.
Second floor live load: 30 psf.
Second floor dead load: 10 psf.
Second floor dead load from walls: 10 psf.
Wind loads based on Table R301.2(2).
N/A indicates not applicable.

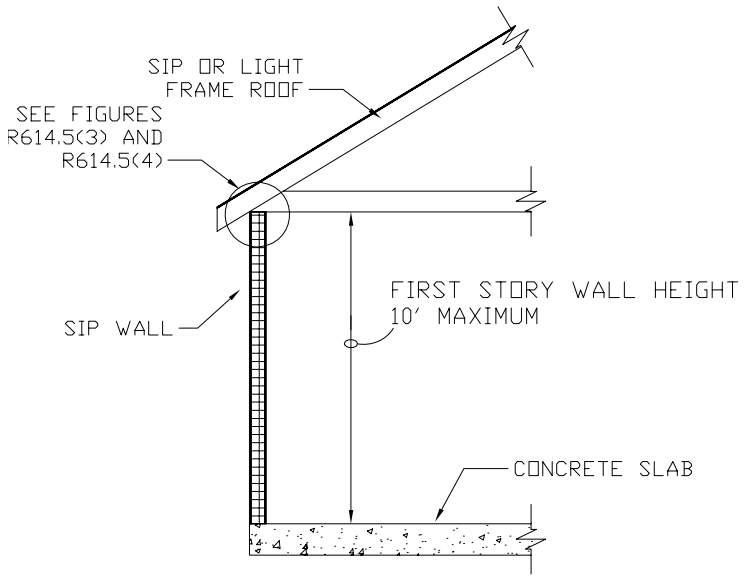


FIGURE R614.5(1)
MAXIMUM ALLOWABLE HEIGHT OF SIP WALLS

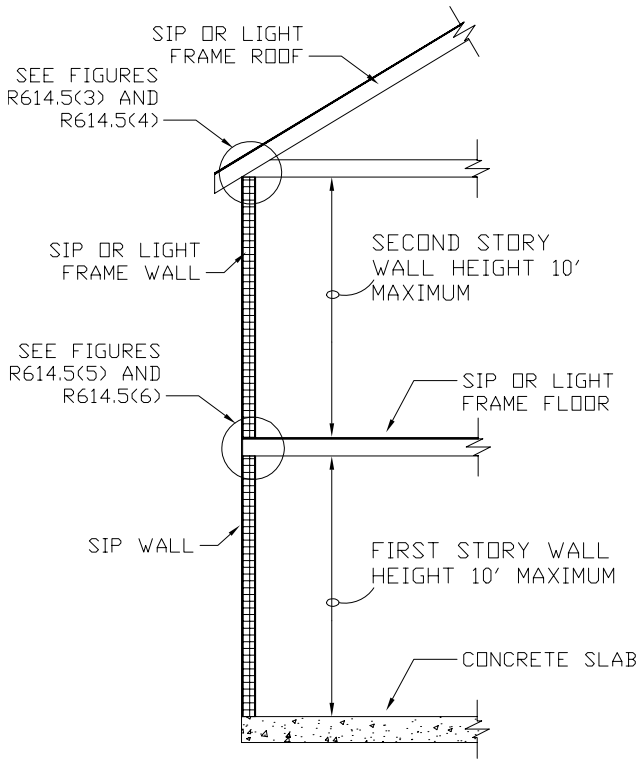


FIGURE R614.5(2)
MAXIMUM ALLOWABLE HEIGHT OF SIP WALLS

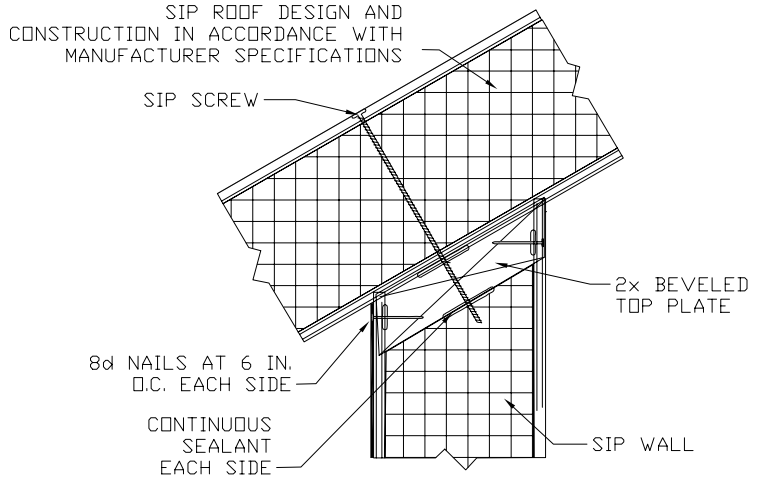


FIGURE R614.5(3)
SIP WALL TO ROOF BEVELED TOP PLATE CONNECTION

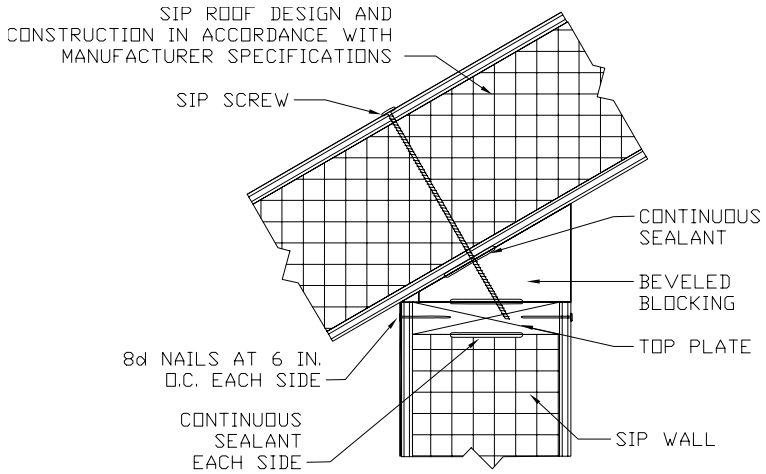


FIGURE R614.5(4)
SIP WALL TO ROOF BEVELED BLOCKING CONNECTION

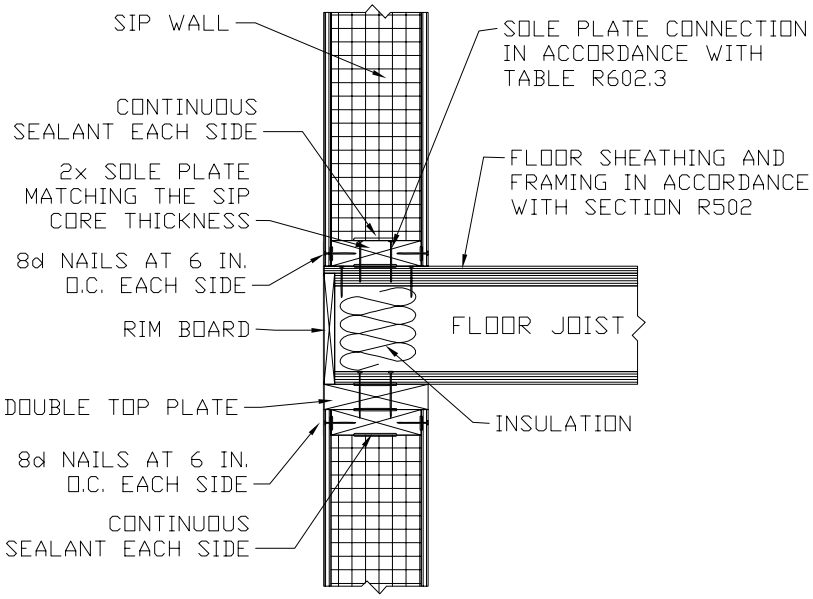


FIGURE R614.5(5)
SIP WALL TO WALL PLATFORM FRAME CONNECTION

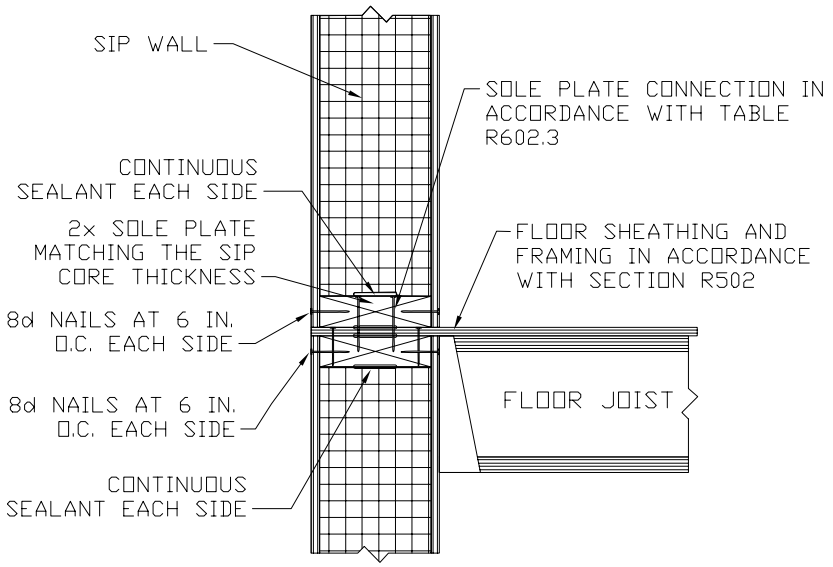
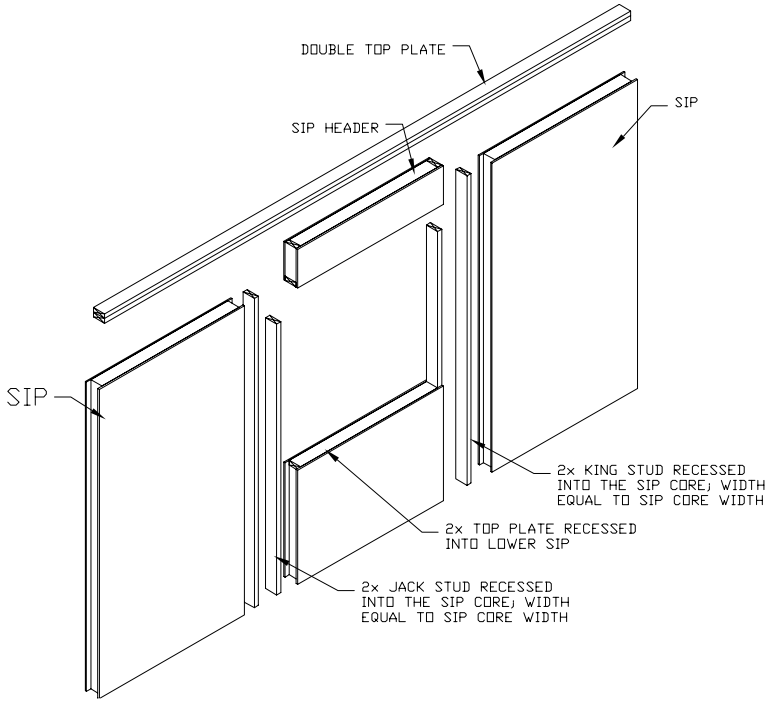


FIGURE R614.5(6)
SIP WALL TO WALL BALOON FRAME CONNECTION

R614.5.1 Top plate. Structural insulated panel walls shall be capped with a double top plate installed to provide overlapping at corner, intersections and splines in accordance with Figure R614.5.1. End joints in top plates shall be offset at least 24 inches (610 mm). Plates shall be a nominal 2 inches in depth (51 mm) and have a width equal to the width of the structural insulated panel core.



Notes:
Top plates shall be continuous over header.
SIP facing surfaces shall be nailed to framing and cripples with 8d common galvanized box nails spaced 3 inches on center, staggering alternate nails ½ inch.
Galvanized nails shall be hot-dipped or tumbled. Framing shall be attached in accordance to R602.3(1) unless otherwise provide for in Section R614.

FIGURE R614.5.1
SIP WALL FRAMING CONFIGURATION

R614.5.2 Bottom (sole) plate. Structural insulated panel walls shall have full bearing on sole plate having a width equal to the nominal width of the foam core. When structural insulated wall panels are supported directly on continuous foundations, the wall wood sill plate shall be anchored to the foundation in accordance with Section R403.1.

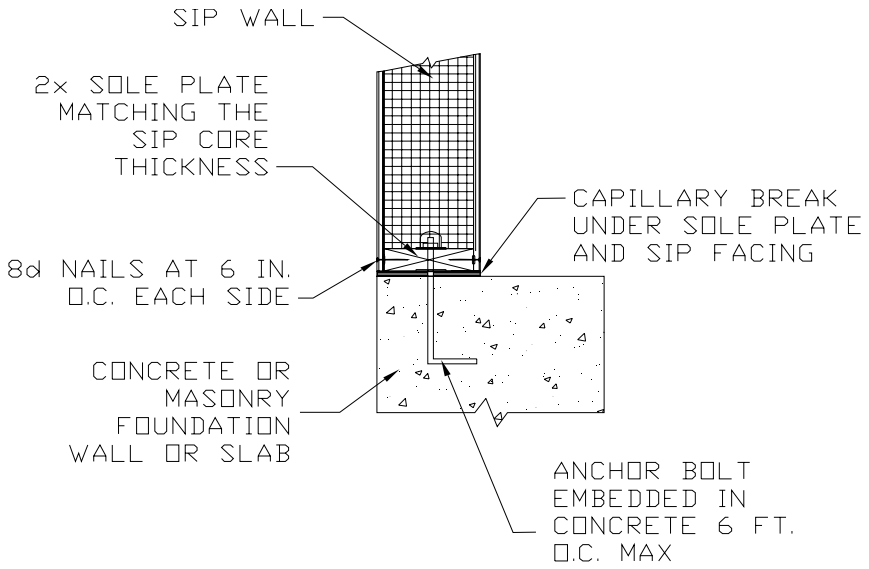


FIGURE R614.5.2
SIP WALL TO CONCRETE SLAB OR FOUNDATION WALL ATTACHMENT

R614.5.3 Wall bracing. Structural insulated panel walls shall be braced in accordance with Section R602.10. SIP walls shall be considered continuous wood structural panel sheathing for purposes of computing percent bracing required. SIP walls shall meet the requirements of R602.10.5 except that SIPs corners shall be fabricated as shown in Figure R614.9.

R6.14.6 Interior load-bearing walls. Interior load-bearing walls shall be constructed as specified for exterior walls.

R614.7 Drilling and Notching-SIPs. The maximum vertical chase penetration in SIPs shall have a maximum side dimension of 2-inches (50.8 mm) centered in the panel core. Vertical chases shall have a minimum spacing of 24-inches (610 mm) on center. Maximum of 2 horizontal chases shall be permitted in each wall panel-one at 14-inches (360 mm) from the bottom of the panel and one at mid height of wall panel. The maximum allowable penetration size in a wall panel shall be circular or rectangular with maximum dimension of 12-inches (300 mm). Over-cutting of holes in facing panels shall not be permitted.

R614.8 Splicing. Structural insulated panels shall be spliced in accordance with Figure R614.8 or by other approved method.

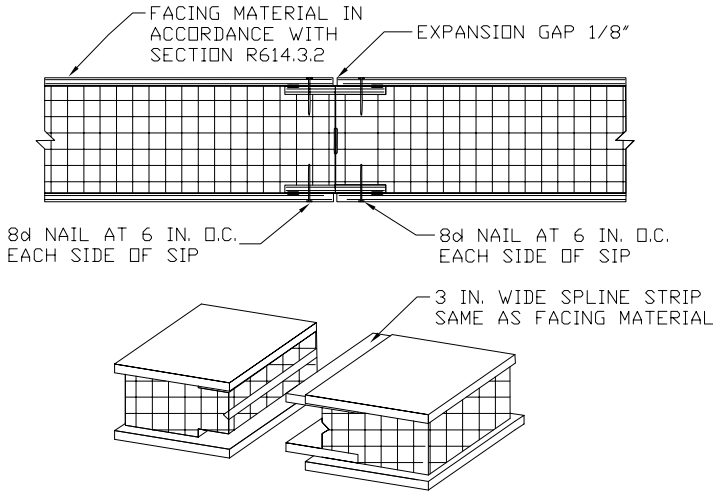


FIGURE R614.8
TYPICAL SIP SPLICING DETAILS

R614.9 Corner Framing. Corner framing of structural insulated panel walls shall be constructed in accordance with Figure R614.9.

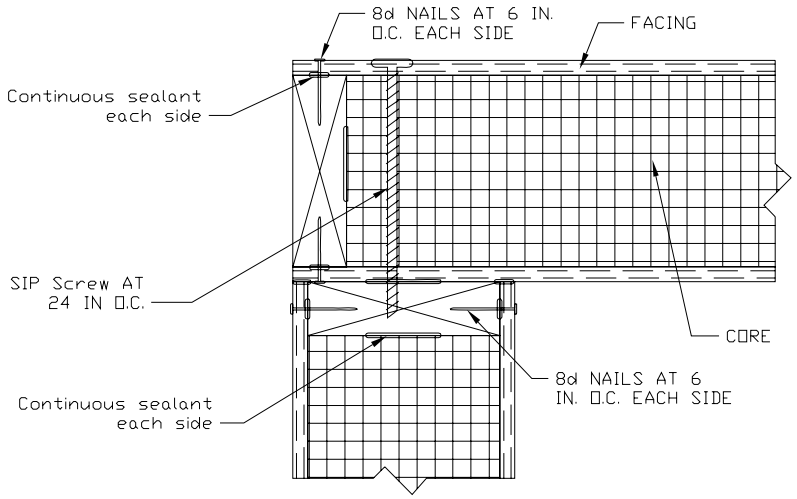


FIGURE R614.9
SIP CORNER FRAMING DETAIL

R614.10 Headers. Structural insulated panel headers shall be designed and constructed according to Table R614.10 and Figure R614.5.1(1). SIPs headers shall be continuous sections without splines. Headers longer than 4 ft should be constructed according to Section 602.7.

TABLE R614.10
MAXIMUM SPANS FOR SIP HEADERS

Load Condition	Snow Load (psf)	Building Width (ft)				
		24	28	32	36	40
Supporting Roof Only	20	4	4	4	4	2
	30	4	4	4	2	2
	50	2	2	2	2	2
	70	2	2	2	N/A	N/A
Supporting Roof and One-Story	20	2	2	N/A	N/A	N/A
	30	2	2	N/A	N/A	N/A
	50	2	N/A	N/A	N/A	N/A
	70	N/A	N/A	N/A	N/A	N/A

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
Deflection criteria: L/360.
Roof load: 7 psf.
Ceiling load: 5 psf.
Second floor live load: 30 psf.
Second floor dead load: 10 psf.
Second floor dead load from walls: 10 psf.
N/A indicates not applicable.

R614.10.1 Wood structural panel box headers. Wood structural panel box headers shall be allowed where structural insulated panel headers are not applicable. Wood structural panel box headers shall be constructed in accordance with Figure R602.7.2 and Table R602.7.2.

4. Add standard to Chapter 43 as follows:

ASTM

ASTM D 2559-04 Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (West Use) Exposure Conditions

Reason: Add a proven construction methodology to the IRC.

In 2003 the Structural Insulated Panel Association (SIPA) made a proposal to the U. S. Department of Housing and Urban Development (HUD), through their Partnership for Advancing Technology in Housing (PATH), to develop a prescriptive method for the residential design using structural insulated panels (SIPs). HUD approved the proposal and subsequently signed a contract with the National Association of Home Builders – Research Center (NAHB-RC) to manage the project. The NAHB-RC has worked in conjunction with Building Works, Incorporated, to develop this method.

APA – The Engineered Wood Association worked with SIPA and the wood structural panel industry in the development of minimum design properties for the wood structural panel skins. Minimums were also established for adhesives and foam density. Using these industry developed minimum properties for panels, adhesives and foam density, APA ran a series of tests on SIPs manufactured to reflect these minimums. Tests included axial, shear and transverse loads, all conducted in accordance with recognized test methods. From the results of these tests, capacities were developed and used for the attached proposal.

Using the prescriptive information provided in this proposal, a building designer should be able to draw up a set of residential house plans within the bounds set by the IRC. The code change proposal was modeled after the light gage steel section recently added to the IRC. After acceptance by the code the SIPs will be required to carry a third-party trademark stamp like all other code recognized construction materials.

The proposal contains generic tables, bracing information, moisture proofing information and construction details similar to those found in the wood, light gage steel, and concrete sections.

Acceptance of this proposal would go a long way toward mainstreaming a building method with many years of outstanding performance that is extremely efficient in conserving both our building materials and energy resources.

A list of benefits that can be attributed to the use of SIP panel construction are as follows:

- Thermal Efficiency - The R-value of a SIP varies depending on the thickness and type of foam core used. According to a study by Oak Ridge National Laboratory, the "whole-wall" R-value of a wall with a 3-1/2" EPS core is 14 compared to 9.8 for a 2"x 4" wood framed wall insulated with R-11 fiberglass insulation. When the performance of the whole wall system is considered, SIPs perform better than traditional systems because they are manufactured in a controlled environment characterized by uniform fabrication of components without gaps or air pockets. They are also designed for efficient field installation that reduces air infiltration, and there are few thermal breaks or penetrations in the panels that are typical of wood frame construction.
- Cost - Building with SIPs generally costs about the same as building with wood frame construction, when the labor savings resulting from shorter construction time and less job-site waste are factored in. Cutting and fabricating are typically done in a SIP manufacturing plant. That reduces site labor and time building materials are exposed to the weather on the job site. Other savings are realized because less expensive heating and cooling systems are required with SIP construction.
- Strength and Fire Resistance - SIPs structural characteristics are similar to a steel I-beam. The skins act like the flanges of an I-beam, and the rigid core provides the web of the I-beam configuration. This composite assembly yields stiffness, strength, and predictable performance.
- Environmentally Friendly Material - SIPs homes can save 50% or more on energy costs when compared to conventional stick frame construction. That means less fossil fuel consumption and less greenhouse gas emissions. SIP technology provides higher whole-wall R-value, tightens the building envelope, and reduces air infiltration. That allows a downsized the heating and cooling equipment. SIP construction produces less job-site waste, which results in green building benefits, better utilization of material resources, and more environmentally friendly building practices.

Proposal also adds a new standard ASTM D 2559-04 to Chapter 43 as it is referenced in proposal.

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

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

RB35–06/07

R301.1.4 (New)

Proponent: T. Eric Stafford, Institute for Business and Home Safety

Add new text as follows:

R301.1.4 Tested materials and assemblies. Assemblies and materials required by this code to be tested shall be installed in the configuration described in the applicable test reports.

Reason: This proposal is quite simple and straightforward. It is intended to state a requirement that is already implied by the code and that is enforced by code officials. This proposal does not prohibit deviations from the tested configuration provided the configuration used complies with one that is outlined in the test report. This proposal is simply a clarification.

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

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

RB36–06/07

R301.2.1, Table R301.2(4) (New)

Proponent: Joseph R. Hetzel, P.E., Door and Access Systems Manufacturers Association

1. Revise as follows:

R301.2.1Wind limitations. Buildings and portions thereof shall be limited by wind speed, as defined in Table R301.2(1) and construction methods in accordance with this code. Basic wind speeds shall be determined from Figure R301.2(4). Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where loads for wall coverings, curtain walls, roof coverings, exterior windows, skylights~~, garage doors~~ and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights~~, garage doors~~ and exterior doors. Where loads for garage doors are not otherwise specified, the loads listed in Table R301.2(4) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for garage doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.6.

2. Add new table as follows:

TABLE R301.2(4)
GARAGE DOOR LOADS FOR A BUILDING
WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B

ROOF ANGLE > 10 DEGREES EFFECTIVE AREA:		BASIC WIND SPEED (MPH – 3 SECOND GUST)													
Width (ft)	Height (ft)	90		100		110		120		130		140		150	
9	7	12.8	-14.5	15.8	-17.9	19.1	-21.6	22.8	-25.8	26.7	-30.2	31.0	-35.1	35.6	-40.2
16	7	12.3	-13.7	15.2	-16.9	18.3	-20.4	21.8	-24.3	25.6	-28.5	29.7	-33.1	34.1	-38.0

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 sq m, 1 mile per hour = 1.609 km/h

1. For effective areas or wind speeds between those given above the load may be interpolated, otherwise use the load associated with the lower effective area.
2. Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table R301.2(3).
3. Plus and minus signs signify pressures acting toward and away from the building surfaces.
4. Negative pressures assume door has 2 feet of width in building's end zone.

Reason: Clarification is needed for the code user regarding provisions governing wind effects on garage doors, particularly wind loads.

The use of Table 301.2 (2) is difficult to apply to garage doors. Common garage door sizes are other than those shown in the table. Common garage door proximity to building corners results in doors being installed within multiple building wind zones. Consequently, garage door wind load determinations using that table are not adequate. Therefore, DASMA proposes that the IRC include a chart to provide a simplified means of such determinations. The table, formatted for consistency with other similar tables currently in the IRC, takes into consideration the following:

1. Common sizes. The 9x7 and 16x7 sizes are most commonly associated with residential applications.
2. Multiple zones. A note below the charts indicates “negative pressures assume door has 2 feet of width in building’s end zone.” DASMA research has shown that this end zone condition covers the vast majority of applications.
3. Roof angle. Residential applications are closely associated with roof angles greater than 10 degrees.

The proposed table is currently incorporated into the 2004 Florida Building Code.

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

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

RB37–06/07
R301.2.1.1

Proponent: Bob Boyer, Building Officials Association of Florida Development Committee, representing the Building Officials Association of Florida

Revise as follows:

R301.2.1.1 Design criteria. ~~Construction~~ In regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 miles per hour (45 m/s) in hurricane-prone regions, or 110 miles per hour (49m/s) elsewhere, the structural design of buildings shall be ~~designed~~ in accordance with one of the following:

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM); or
2. *Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction* (SSTD 10); or
3. *Minimum Design Loads for Buildings and Other Structures* (ASCE-7); or
4. American Iron and Steel Institute (AISI), *Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings*.
5. Concrete construction shall be designed in accordance with the provisions of this code.

Reason: The intent of this proposal is to clarify the code. Some code readers assume that if the building in question is constructed in an area with design wind speeds equal to or greater than those given in R301.2.1.1, no portion of the building is required to comply with the IRC. The wording being proposed will make clear that only the structural portions of the building fall outside the requirements contained in the code.

Cost Impact: The code change proposal will not increase the cost of construction. This change merely clarifies the applicable design standards for high wind areas.

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

RB38–06/07
R301.2.1.1

Proponent: Dennis Pitts, American Forest and Paper Association (AF&PA)

Revise as follows:

R301.2.1.1 Design criteria. ~~Construction~~ In regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 miles per hour (45 m/s) in hurricane-prone regions, or 110 miles per hour (49 m/s) elsewhere, the structural design of buildings shall be ~~designed~~ in accordance with one of the following:

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM); or
2. S*outhern Building Code Congress International Standard for Hurricane Resistant Residential Construction* (SSTD 10); or
3. *Minimum Design Loads for Buildings and Other Structures* (ASCE-7); or
4. American Iron and Steel Institute (AISI), *Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings*.
5. Concrete construction shall be designed in accordance with the provisions of this code.

Reason: Currently the IBC and IRC do not provide any guidelines or list a standard for the construction of log structures. The ICC-400 IS-LOG Standard for the Design and Construction of Log Structures represents those industry standards and guidelines.

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

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

RB39–06/07
R202, R301.2.1, Figures R301.1.4 (1-3) (New), Table R301.2(4) (New)

Proponent: Scott Beard, City of Tacoma, Washington, representing Structural Engineers Association of Washington

1. Add new definition as follows:

SECTION R202
DEFINITIONS

TOPOGRAPHIC FEATURE. A land surface feature characterized by having lower elevation land on at least one side, such as a hill, ridge, or escarpment.

2. Revise as follows:

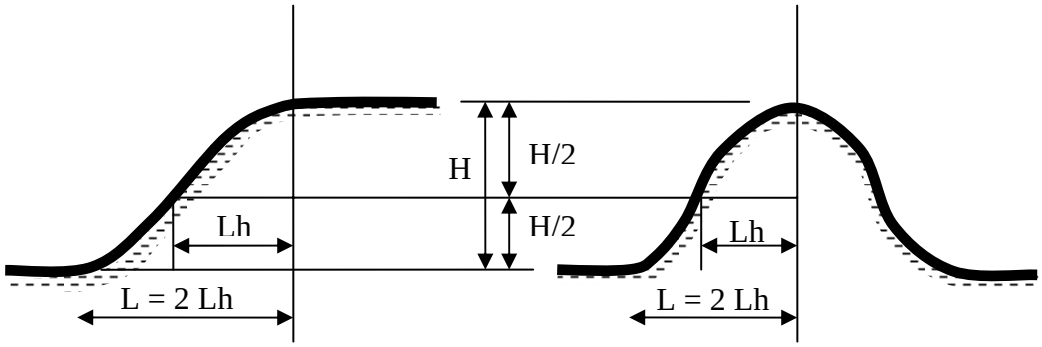
R301.2.1 Wind limitations. Buildings and portions thereof shall be limited by wind speed, as defined in Table R301.2(1) and construction methods in accordance with this code. Basic wind speeds shall be determined from Figure R301.2(4). Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where loads for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.6.

Buildings sited on the top half of an isolated topographic feature, meeting the following conditions shall be designed for an increased wind basic wind speed as determined by Table R301.2(4):

1. The topographic feature is 60 feet or higher if located in Exposure B or 30 feet or higher if located in Exposures C or D;
2. The average slope of the top half of the topographic feature exceeds 10 percent; and
3. The topographic feature is unobstructed up-wind by other such topographic features for a distance from the high point of 100 times the height of the hill or 2 miles, whichever is less.
4. The topographic feature protrudes above the height of upwind topographic features within a 2-mile radius in any quadrant by a factor of 2 or more.

In the case of the high side of an escarpment, the increased basic wind speed shall extend horizontally downwind from the edge of the escarpment 1.5 times the horizontal length of the upwind slope (1.5L), or 6 times the height of the escarpment (6H), whichever is greater.

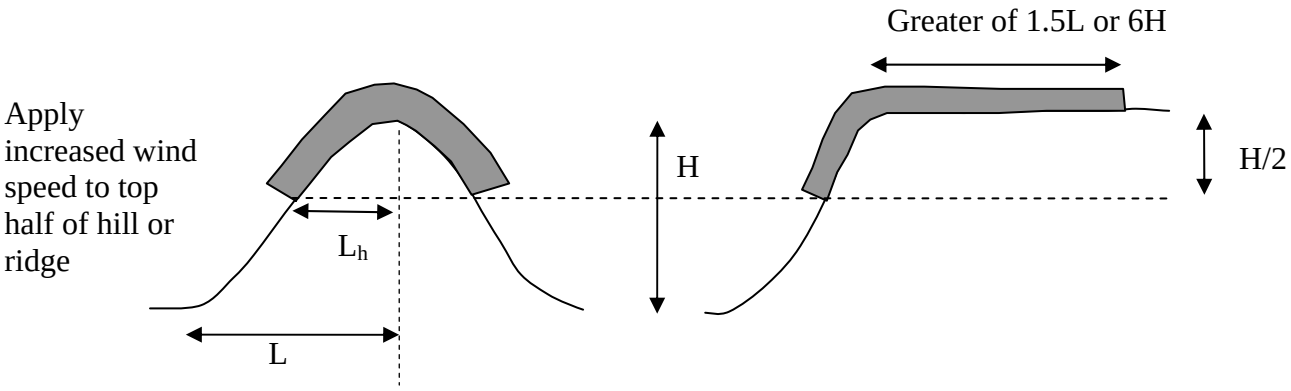
3. Add new figures as follows:



ESCARPMENT RIDGE OR HILL

Note: H/2 determines the measurement point for Lh. L is twice Lh.

FIGURE R301.1.4(1)
TOPOGRAPHIC FEATURES FOR WIND SPEED UP EFFECT



Hill or Ridge Escarpment

FIGURE R301.1.4(2)
ILLUSTRATION OF WHERE ON A TOPOGRAPHIC FEATURE, WIND SPEED INCREASE IS APPLIED

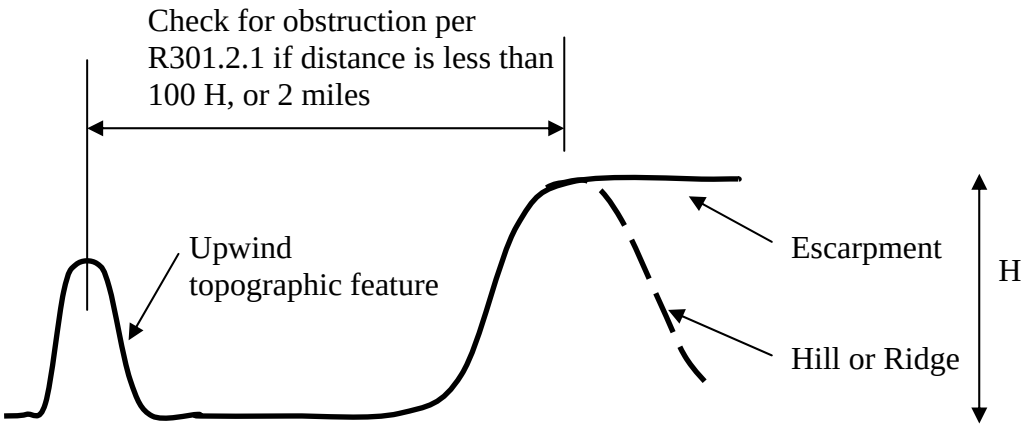


FIGURE R301.1.4(3)
ILLUSTRATION OF UPWIND OBSTRUCTION

4. Add new table as follows:

TABLE R301.2(4)
BASIC WIND SPEED MODIFICATION FOR TOPOGRAPHIC WIND SPEED UP EFFECT

BASIC WIND SPEED FROM FIGURE R301.2(4)	AVERAGE SLOPE OF THE TOP HALF OF THE TOPOGRAPHIC FEATURE						
	0.10	0.125	0.15	0.175	0.20	0.23	0.25 or greater
	Required basic wind speed, modified for topographic wind speed up to:						
85	100	100	100	110	110	110	120
90	100	100	110	110	120	120	120
100	110	120	120	130	130	130	140
110	120	130	130	140	140	150	150
120	140	140	150	150	n/a	n/a	n/a
130	150	n/a	n/a	n/a	n/a	n/a	n/a

Reason: This proposal does two related things. First, it provides a method to be able to safely use the two alternatives to prescriptive, the Wood Framed Construction Manual and SSTD-10, on hills and other topographic features. It also provides a method to determine if wind speed increases due to topographic effects are great enough that they go past the simple low-wind detailing of the prescriptive provisions, so that to ensure the integrity of the house during a full design wind the Wood Framed Construction Manual or SSTD-10 should be used, which do have the proper detailing for higher winds.

The wind speed up effect is simplified from previous proposals. The main difference is that on closer examination, worst case hills and ridges are so steep and pointy topped that they are essentially un-buildable. Any house at that such a location would for steepness reasons be engineered, and thus have the correct ASCE-7 wind corrections.

This not only simplifies the table, but since escarpments have a lesser speed up effect, the impact is less. The values are rounded down (per k2 effect), so that no interpolation is required. In addition, the designer no longer has to distinguish between hills, ridges, and escarpments. They only need to recognize that they are on a steep “generic” topographic feature.

Let’s be clear here. We are after the “bad boys” of hills. Remember that when the table gives an average slope of 10%, that hills are typically rounded at the top, so the steepest section would be 20%. There is no mistaking these hills. They are not small gentle rises. These are the ones that you want traction devises for your car during the winter.

A pair of pictures will illustrate what we are trying to take account of with this provision:

Note: this is what a 15% average slope hill looks like. Prescriptive would be ok in most of the country (where base wind speed is 90 mph or less).

This is what a 27% average slope hill looks like. The vegetation is on a shear cliff. This hill would require use of WFCM or SSTD 10 for a prescriptive design.

Clearly, we get speed-up effects on hills like these. If you are still unsure, go to Radio Shack, get a pair of cheap anemometers, and take a friend over to a steep hill next big windstorm, and see the effect for yourself.

Not all jurisdictions have hills like these. They are common in the western part of the country. Wherever you live, if you have a hill like this, you need to account for the wind speed-up.

Some have argued that it should be left to the local jurisdiction to map these hills. This would just put an unfair burden on small jurisdictions. They often do not have a structural engineer on staff, and without some warning in the Code, may not even be aware that they have a problem that needs to be dealt with. Why send them out to get an expensive wind study, when the problem has already been defined and solved. All we need to do is to adopt it.

Two more quick items:

The triggers for topographic wind speed up vary between ASCE-7, and the IBC. There are multiple routs through the code that would result in different triggers. What we have done is to envelope the triggers that are least likely to require topo speedup. This is justified by the size and nature of residential construction. Applying pure ASCE-7 not only requires advanced study, but also will typically produce higher pressure. Despite that, anyone wishing to apply ASCE-7, instead of these provisions, is welcome to.

Don't let the large appearing wind speeds fool you. This is a consequence of how the new code measures wind. The lateral pressures from a worst-case escarpment are almost identical to the lateral pressures in the legacy BOCA and UBC codes. (In other words, BOCA and UBC got it right, if you design for "one size fits all" worst-case wind, you end up with the traditional lateral values.)

The reason we have the new wind code is that we have discovered that uplift and cladding pressures are really higher than in the older codes. Once we get past 100 mph, (or 110 mph), the current prescriptive code does not have the cladding and uplift detailing that is necessary. We are observing patterns of damage in large windstorms, (less than full design wind), that match the steep hill locations. In these locations, we need to be using one of the alternate prescriptive codes that do address this detailing. (Wood Framed Construction Manual, or SSTD-10.)

This is one of the few times that "doing it right" doesn't have to cost more. The Wood Framed Construction Manual is so efficient in its use of bracing that higher winds are not a penalty. It isn't really a case of adding more, it's a case of having the builders follow the correct details for their wind area.

Take for example a one story 35'x35' house in 90 mph exp B, with topographic wind speed-up that brings it up to 120 mph. (Worst case speedup.)

Current IRC Prescriptive			Wood Framed Construction Manual		
48' of braced wall panel			16' of braced wall panel		
12 pcs of OSB @ $13.80	=	$166	4 pcs of OSB @ $13.80	=	$55
			6 STHD14 foundation straps		
			6 pcs @ $12.50	=	$75
			4 extra 2x4 studs		
			4 @ $1.80	=	$7
			more nails per panel, but less total		
		$166			$137

In addition, this proposal would allow use of the Wood Framed Construction Manual on lesser topographic features, where the cost savings would be greater.

The Wood Framed Construction Manual is also more flexible in its layout rules. We estimate that in our jurisdiction, over 90% of the custom engineered houses could have been done by the WFCM, if allowed in topographic speed up areas. This would result in a savings to the construction industry in engineering fees alone of nearly $200,000 per year from the City of Tacoma jurisdiction alone.

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

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

RB40–06/07
Table R301.2(2)

Proponent: Edward L. Keith, P.E., APA – The Engineered Wood Association

Revise table as follows:

TABLE R301.2(2)
COMPONENT AND CLADDING LOADS FOR A BUILDING WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (psf)

(Portions of table not shown do not change)

NOTES: The effective wind area shall be equal to the span length multiplied by an effective width. This width shall be permitted to be not be less than one-third the span length. For cladding fasteners, the effective wind area shall not be greater than the area that is tributary to an individual fastener. For effective areas between those given above the load may be interpolated, otherwise use the load associated with the lower effective area.
Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table R301.2(3).
See Figure R301.2(7) for location of zones.
Plus and minus signs signify pressures acting toward and away from the building surfaces.

Reason: To clarify the code.

In order to utilize Table R301.2(2) in the IRC the user must enter the table with the appropriate effective wind area (third column on the left in table). This term is currently undefined. It is assumed that with the poor performance on many sheathing types during this last hurricane season, this table will be used more in the future by designers and it is appropriate for all term used in the table to be defined. The definition proposed is taken from ASCE7-05 modified editorially to fit the IRC table. Another possible location would be in the definition section of the IRC. I would consider it a friendly amendment to place this definition in the Section R202- Definitions. Regardless of the location, it is important to make this information available to the people using this table.

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

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

RB41–06/07
R301.2.1.2, Chapter 43

Proponent: Joseph R. Hetzel, P.E., Door and Access Systems Manufacturers Association

1. Revise as follows:

R301.2.1.2 Protection of openings. Windows in buildings located in windborne debris regions shall have glazed openings protected from windborne debris. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of an approved impact resisting standard or ASTM E 1996 and ASTM E 1886 referenced therein. Garage door glazed opening protection for wind-borne debris shall meet the requirements of an approved impact resisting standard or ANSI/DASMA 115.

Exception: Wood structural panels with a minimum of 7/16 inch (11 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be secured with the attachment hardware provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2) or Section 1609.6.5 of the *International Building Code*. Attachment in accordance with Table R301.2.1.2 is permitted for buildings with a mean roof height of 33 feet (10 058 mm) or less where wind speeds do not exceed 130 miles per hour (58 m/s).

2. Add standard to Chapter 43 as follows:

ANSI

ANSI/DASMA 115-03 Standard Method for Testing Sectional Garage Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure

Reason: The purpose of this proposed code change is to reference an ANSI standard published specifically for the windborne debris resistance testing of garage doors. ANSI/DASMA 115 should be the primary standard referenced for this purpose. Other standards exist that could be deemed "approved impact resisting standards", including ASTM E 1886 / ASTM E 1996 and TAS 201 / TAS 203. It should be noted that ASTM E 1886 and ASTM E 1996 require interpretation regarding their use with garage doors. ASTM E6.51.17 (impact resistance task group) has not developed specific references to garage doors in those standards because of their awareness of the existence of, and industry use of, ANSI/DASMA 115.

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

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

RB42–06/07

R301.2.1.4

Proponent: Ed Sutton, National Association of Home Builders (NAHB)

Revise as follows:

R301.2.1.4 Exposure category. For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the site at which the building or structure is to be constructed. For a site located in the transition zone between categories, the category resulting in the largest wind forces shall apply. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features. The exposure category shall be representative of the anticipated conditions during the life of the structure. For a site where multiple detached one- and two-family dwellings, townhouses or other structures are planned, it shall be based upon the conditions that will exist at the time when all adjacent structures have been constructed. For any given wind direction, the exposure in which a specific building or other structure is sited shall be assessed as being one of the following categories:

1. Exposure A. Large city centers with at least 50 percent of the buildings having a height in excess of 70 feet (21 336 mm). Use of this exposure category shall be limited to those areas for which terrain representative of Exposure A prevails in the upwind direction for a distance of at least 0.5 mile (0.8 km) or 10 times the height of the building or other structure, whichever is greater. Possible channeling effects or increased velocity pressures due to the building or structure being located in the wake of adjacent buildings shall be taken into account.
2. Exposure B. Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meets the definition of another type exposure.
3. Exposure C. Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm) extending more than 1,500 feet (457 m) from the building site in any quadrant. This exposure shall also apply to any building located within Exposure B type terrain where the building is directly adjacent to open areas of Exposure C type terrain in any quadrant for a distance of more than 600 feet (183 m). This category includes flat open country, grasslands and shorelines in hurricane prone regions.
4. Exposure D. Flat, unobstructed areas exposed to wind flowing over open water (excluding shorelines in hurricane prone regions) for a distance of at least 1 mile (1.61 km). Shorelines in Exposure D include inland waterways, the Great Lakes and coastal areas of California, Oregon, Washington and Alaska. This exposure shall apply only to those buildings and other structures exposed to the wind coming from over the water. Exposure D extends inland from the shoreline a distance of 1,500 feet (457 m) or 10 times the height of the building or structure, whichever is greater.

Reason: This change is intended to clarify that the exposure category of homes constructed on a large residential development site should be based upon the exposure condition that will exist for the vast majority of the structure's life, not the temporary condition(s) that may exist during build-out of the development. Residential construction frequently involves the construction of multiple detached homes and/or townhouses on a large residential development site. Such sites are often cleared creating a temporary situation where Exposure Category C exists until a significant number of the homes are constructed.

This is no different than a large industrial site upon which multiple buildings and structures are being constructed. The exposure category of individual buildings on such sites should be based on the exposure conditions that will exist when the construction on the site has been completed, not on the construction sequence of the buildings on the site.

ASCE 7-05 defines Exposure Category B as "Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger." The Commentary to ASCE 7 indicates that in a recent study, the majority of buildings are in Exposure Category B – as many as 60 to 80 percent. Even a higher percentage is likely for residential construction as jurisdictions push for higher density development and homes are constructed on smaller lots to reduce the impact of rapidly escalating land costs.

Yet, a few jurisdictions have been requiring homes to be designed and constructed to meet the higher Exposure Category C simply because they are among the first to be constructed on a site that has been cleared for construction or where Exposure Category C existed prior to starting the development. It is believed that this is not the intent of ASCE 7.

Exposure Category B will clearly exist for homes in most residential developments upon build-out of the site. Exposure Category C is intended for a building constructed on a site with open terrain and where this exposure would be anticipated to exist for a significant portion of the building's life.

Building to the higher wind loads for Exposure Category C adds significant unjustified construction costs to a home when done solely for transient conditions such as this. In a time when many are looking to conserve our natural resources, it is a waste of building materials and the home buyer's money. Further, there is adequate margin of safety in the design of a home to prevent a structural failure even if the 50-year design wind event should occur during the short time that a transient condition of Exposure Category C existed. It is not until you get to an event with a much longer and infrequent return period that the structural capacity of the building could be exceeded.

This change adds a needed clarification to the IRC, and NAHB asks your support.

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

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

RB43–06/07

R301.2.1.5 (New), Table R301.2(1), Section R202

Proponent: Ed Sutton, National Association of Home Builders (NAHB)

1. Add new definitions as follows:

SECTION R202
DEFINITIONS

ESCARPMENT: With respect to topographic wind effects, a cliff or steep slope generally separating two levels or gently sloping areas.

HILL: With respect to topographic wind effects, a land surface characterized by strong relief in any horizontal direction.

RIDGE: With respect to topographic wind effects, an elongated crest of a hill characterized by strong relief in two directions.

2. Add new text as follows:

R301.2.1.5 Topographic wind effects. In areas designated in Table R301.2(1) as having local historical data documenting structural damage to buildings due to wind speed-up at isolated hills, ridges, and escarpments that are abrupt changes from the general topography of the area, topographic wind effects shall be considered in the design of the building in accordance with the provisions of ASCE 7.

In these designated areas, topographic wind effects shall apply only to buildings sited on the top half of an isolated hill, ridge or escarpment where all of the following conditions exist:

1. The average slope of the top half of the hill, ridge or escarpment is 10 percent or greater.
2. The hill, ridge or escarpment is 60 feet or greater in height for Exposure B, 30 feet or greater in height for Exposure C, and 15 feet or greater in height for Exposure D.
3. The hill, ridge or escarpment is isolated or unobstructed by other topographic features of similar height in the upwind direction for a distance measured from its high point of 100 times its height or 2 miles, whichever is less.
4. The hill, ridge or escarpment protrudes by a factor of two or more above the height of other upwind topographic features located in any quadrant within a radius of two miles measured from its high point.

3. Revise table as follows:

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

GROUND SNOW LOAD	WIND DESIGN		SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP
	Speed[d] (mph)	Topographic Effects[k]		Weathering[a]	Frost line depth[b]	Termite[c]					

(Portions of table not shown do not change)

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

a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index (i.e., "negligible," "moderate" or "severe") for concrete as determined from the Weathering Probability Map [Figure R301.2(3)]. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.
b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.
c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [FigureR301.2(4)].Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
e. The outdoor design dry-bulb temperature shall be selected from the columns of 971/2-percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the building official.
f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
g. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the currently effective FIRM and FBFM, or other flood hazard map adopted by the community, as may be amended.
h. In accordance with Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES". Otherwise, the jurisdiction shall fill in this part of the table with "NO".
i. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99%) value on the National Climatic Data Center data table "Air Freezing Index- USA Method (Base 32°Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.
j. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.
k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "Yes". Otherwise, the jurisdiction shall indicate "No" in this part of the table.

Reason: During the 2004/2005 cycle, there was a push by the engineering community, particularly those from the Pacific Northwest, to add requirements for consideration of topographic wind effects to the IRC. This proposal is being offered as a balanced approach to addressing the concerns raised by those proponents while taking into account the past performance of housing.

Historically, consideration of wind speed-up due to topographic effects has been ignored in the U.S. for the design and construction of new homes. In fact, it was ignored for most other structures until provisions calling for consideration were included in the 1995 Edition of ASCE 7.

Despite this fact, reports of structural failures of homes due to wind speed-up have been extremely small and limited to areas where there are dramatic changes in the ground topography. Either the loads predicted by the engineering formulas used to calculate wind speed-up are overly conservative or the actual structural capacity of single-family homes and townhouses is much higher than determined by engineering analysis.

Since its inception, the IRC has been intended to be a simple, stand-alone code that provides prescriptive provisions for the design and construction of detached one- and two-family homes and townhouses. It was also agreed during the drafting process that existing conventional construction practices would be allowed when past historical performance demonstrated their acceptability. It is in that spirit that this proposal is being offered.

The procedures for determining wind speed-up due to topographic effects are simply too complex for inclusion in the IRC and require the services of a structural engineer with experience in wind analysis and design. That is why this proposal calls for consideration in accordance with the provisions of ASCE 7 where there is a demonstrated need for consideration. Topographic configurations can be quite complex and any resulting speed-up difficult at best to determine. In fact, modeling the ground topography and testing in a wind tunnel is probably the only means of getting an accurate estimate of the wind speed-up. Using engineering calculations will likely give an overly conservative estimate of the resulting speed-up for an idealized topographic configuration.

That is why this proposal limits consideration of topographic wind effects to areas having historical data documenting structural damage to buildings due to wind speed-up at isolated hills, ridges, and escarpments. The structural engineers from the Pacific Northwest area indicated that they in fact have such data, which makes sense given the often dramatic topography of that area. However, there is no such data for most areas of the U.S., and home construction need not be subjected to the large increase in wind speeds that would be predicted by the provisions of ASCE 7.

Additionally, this proposal provides guidance to aid builders and designers in designated areas requiring consideration of topographic wind effects on where wind speed-up will likely occur and needs to be considered. These provisions are based on the requirements of ASCE 7-05, with one exception. ASCE 7-05 requires consideration of wind speed-up for a building located on the top half of a hill, ridge, or escarpment in Exposure Category C when its height is 15 feet or greater.

This proposal sets the height at 30 feet or greater for Exposure C, which is consistent with earlier editions of ASCE 7. If left at 15 feet or greater, every isolated farm house located on a small hill surrounded by flat, cleared farm land would be subjected to wind speed-up due to topographic effects. The 15-feet trigger is simply too low and does not reflect what is occurring in the built environment.

NAHB urges your support of this balanced approach for addressing wind-speed up due to topographic effects in the IRC.

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

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

RB44–06/07
R301.2.2

Proponent: Jay H. Crandell, ARES Consulting

Revise as follows:

R301.2.2 Seismic provisions. The seismic provisions of this code shall apply to buildings constructed in Seismic Design Categories C, D_0, D_1 and D_2, as determined in accordance with this section. ~~Buildings in Seismic Design Category E shall be designed in accordance with the *International Building Code*, except when the seismic design category is reclassified to a lower seismic design category in accordance with Section R301.2.2.1.~~

Deleted text moved to new Section R301.2.4 for SDC E.

Exception: Detached one- and two-family dwellings located in Seismic Design Category C are exempt from the seismic requirements of this code. ~~The weight and irregularity limitations of Section R301.2.2.2 shall apply to buildings in all seismic design categories regulated by the seismic provisions of this code. Buildings in Seismic Design Category C shall be constructed in accordance with the additional requirements of Section R301.2.2.3. Buildings in Seismic Design Categories D_0, D_1 and D_2 shall be constructed in accordance with the additional requirements of Section R301.2.2.4.~~

Deleted text is unnecessary with reorganization that follows.

R301.2.2.1 Determination of seismic design category. Buildings shall be assigned a seismic design category in accordance with Figure 301.2(2).

R301.2.2.1.1 Alternate determination of seismic design category. The Seismic Design Categories and corresponding Short Period Design Spectral Response Accelerations, SDS shown in Figure R301.2(2) are based on soil Site Class D, as defined in Section 1615.1.1 of the *International Building Code.* If soil conditions are other than Site Class D, the Short Period Design Spectral Response Acceleration, SDS, for a site can be determined according to Section 1615.1 of the *International Building Code.* The value of SDS determined according to Section 1615.1 of the *International Building Code* is permitted to be used to set the seismic design category according to Table R301.2.2.1.1, and to interpolate between values in Tables R602.10.1, R603.7, and other seismic design requirements of this code.

TABLE R301.2.2.1.1
SEISMIC DESIGN CATEGORY DETERMINATION

(No change to table contents)

R301.2.2.1.2 Alternative determination of Seismic Design Category E. Buildings located in Seismic Design Category E in accordance with Figure R301.2(2) are permitted to be reclassified as being in Seismic Design Category D_2 provided one of the following is done:

1. A more detailed evaluation of the seismic design category is made in accordance with the provisions and maps of the *International Building Code.* Buildings located in Seismic Design Category E per Table R301.2.2.1.1, but located in Seismic Design Category D per the *International Building Code,* may be designed using the Seismic Design Category D_2 requirements of this code.
2. Buildings located in Seismic Design Category E that conform to the following additional restrictions are permitted to be constructed in accordance with the provisions for Seismic Design Category D_2 of this code:
   2.1. All exterior shear wall lines or braced wall panels are in one plane vertically from the foundation to the uppermost story.
   2.2. Floors shall not cantilever past the exterior walls.
   2.3. The building is within all of the requirements of Section R301.2.2.2.2 for being considered as regular.

~~**R301.2.2.2 Seismic limitations.** The following limitations apply to buildings in all Seismic Design Categories regulated by the seismic provisions of this code.~~

~~**R301.2.2.2.1**~~ **<u>R301.2.2.2</u> Weights of materials.** Average dead loads shall not exceed 15 pounds per square foot (720 Pa) for the combined roof and ceiling assemblies (on a horizontal projection) or 10 pounds per square foot (480 Pa) for floor assemblies, except as further limited by Section R301.2.2. Dead loads for walls above grade shall not exceed:

1. Fifteen pounds per square foot (720 Pa) for exterior light-frame wood walls.
2. Fourteen pounds per square foot (670 Pa) for exterior light-frame cold-formed steel walls.
3. Ten pounds per square foot (480 Pa) for interior light-frame wood walls.
4. Five pounds per square foot (240 Pa) for interior light-frame cold-formed steel walls.
5. Eighty pounds per square foot (3830 Pa) for 8-inch-thick (203 mm) masonry walls.
6. Eighty-five pounds per square foot (4070 Pa) for 6-inch-thick (152 mm) concrete walls.

Exceptions:

1. Roof and ceiling dead loads not exceeding 25 pounds per square foot (1190 Pa) shall be permitted provided the wall bracing amounts in Chapter 6 are increased in accordance with Table R301.2.2.2.1.
2. Light-frame walls with stone or masonry veneer shall be permitted in accordance with the provisions of Sections R702.1 and R703.
3. Fireplaces and chimneys shall be permitted in accordance with Chapter 10.

TABLE R301.2.2.2.1
WALL BRACING ADJUSTMENT FACTORS BY ROOF COVERING DEAD LOAD[a]

WALL SUPPORTING	ROOF/CEILING DEAD LOAD 15 psf or less	ROOF/CEILING DEAD LOAD 25 psf
Roof only	1.0	1.2
Roof plus one ~~story~~ or two stories	1.0	1.1

For SI: 1 pound per square foot = 0.049 kPa.
a. Linear interpolation shall be permitted.

~~**R301.2.2.3.1**~~ **R301.2.2.2.2 Stone and masonry veneer.** Stone and masonry veneer shall comply with the requirements of Sections R702.1 and R703.

~~**R301.2.2.3.2**~~ **R301.2.2.2.3 Masonry construction.** Masonry construction shall comply with the requirements of Section R606.11.2.

~~**R301.2.2.3.3**~~ **R301.2.2.2.4 Concrete construction.** Concrete construction shall comply with the requirements of Section R611 or R612.

~~**R301.2.2.4**~~ **R301.2.2.3 Seismic Design Categories D_0, D_1 and D_2.** Structures assigned to Seismic Design Categories D_0, D_1 and D_2 shall conform to the requirements for Seismic Design Category C and the additional requirements of this section.

~~**R301.2.2.4.1**~~ **R301.2.2.3.1 Height limitations.** Wood framed buildings shall be limited to three stories above grade or the limits given in Table R602.10.1. Cold-formed steel framed buildings shall be limited to two stories above grade in accordance with COFS/PM. Mezzanines as defined in Section 202 shall not be considered as stories.

~~**R301.2.2.2.2**~~ **R301.2.2.3.2 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 is not laterally supported by shear walls or braced wall lines on all edges.

   Exception: 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.

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.

~~**R301.2.2.4.2**~~ **R301.2.2.3.3 Stone and masonry veneer.** Stone and masonry veneer shall comply with the requirements of Sections R702.1 and R703.

~~**R301.2.2.4.3**~~ **R301.2.2.3.4 Masonry construction.** Masonry construction in Seismic Design Categories D_0 and D_1 shall comply with the requirements of Section R606.11.3. Masonry construction in Seismic Design Category D_2 shall comply with the requirements of Section R606.11.4.

~~**R301.2.2.4.4**~~ **R301.2.2.3.5 Concrete construction.** Buildings with above-grade concrete walls shall be in accordance with Section R611, R612, or designed in accordance with accepted engineering practice.

~~**R301.2.2.4.5**~~ **R301.2.2.3.6 Cold-formed steel framing in Seismic Design Categories D_0, D_1 and D_2.** In Seismic Design Categories D_0, D_1 and D_2 in addition to the requirements of this code, cold-formed steel framing shall comply with the requirements of COFS/PM.

R301.2.2.3.7 Masonry chimneys. Masonry chimneys shall be reinforced and anchored to the building in accordance with Sections 1003.3 and 1003.4.

R301.2.2.3.8 Anchorage of water heaters. Water heaters shall be anchored against movement and overturning in accordance with Section M1307.2.

R301.2.2.4 Seismic Design Category E. Buildings in Seismic Design Category E shall be designed in accordance with the *International Building Code*, except when the seismic design category is reclassified to a lower seismic design category in accordance with Section R301.2.2.1.

Reason: This proposal revises material for a current provision of the Code. This proposed revision of Section R301.2.2 seismic provisions is primarily a modest editorial revision and re-organization of the section. The intent is to improve clarity of seismic provisions and when they do or do not apply. Current exemptions for all buildings in SDC A/B and single family detached homes in SDC C are unchanged. References to seismic requirements (vulnerability concerns) existing in other parts of the code are added to ensure awareness and compliance (e.g., masonry chimney and water heater anchorage requirements in SDC D).

There also are some technical improvements in this proposal. For example, the irregularity limits are moved under the heading of Seismic Design Category D requirements (previously applying also to SDC C). This change is consistent with the treatment of irregular structures in Section 2308.12.6 of the IBC. In addition, weight limitations are moved under requirements for SDC C (and also apply to SDC D). This is consistent with the general exemption of seismic provisions for SDC A/B and also clarifies that wall bracing amount adjustments for weights of materials (and the additional calculation this requires in Chapter 6, Section R602.10) is not necessary for buildings in SDC A/B.

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

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

RB45–06/07
R301.2.2.2.2

Proponent: Jim W. Sealy and Kelly Cobeen, National Institute of Building Sciences, representing FEMA/BSSC Code Resource Support Committee

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. Where braced wall panels are supported on cantilevers, an uplift connection shall be provided from the doubled joists to the backspan support at each pair of doubled joists. The uplift connection shall have an allowable stress design capacity of not less than 900 lb for a ratio of cantilever to backspan of 2 to 1, and not less than 600 lb for a ratio of 3 to 1 or greater. Connection of the doubled joists in accordance with Table R502.3.3(1) or R502.3.3(2) is not required.
   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 is not laterally supported by shear walls or braced wall lines on all edges.

   Exception: 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.

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.

Reason: The proposed addition completes existing code provisions; no specific requirements for backspan uplift connection currently exist. The above proposed requirements are similar to Table R502.3.3(1), which will likely be used for gravity load at the cantilever location. The uplift connection allows for a downward load of not less than 1800 lb from braced wall panel overturning. This corresponds to 180 plf for a 10 foot wall height, or 225 plf for 8 foot. The 180 plf is based on the allowable load for minimum permitted wood structural panel bracing: 5/16 wood structural panel sheathing with 6d common nails at 6 inches edge/12 inches field.

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

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

RB46–06/07
R301.2.2.2.2

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 <u>diaphragm</u> is not <u>positively connected to and</u> laterally supported by shear walls or braced wall lines on all edges <u>with edge nailing to framing members or solid blocking per Table 602.3(1)</u>.

   Exception<u>s</u>:

   <u>1.</u> 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.

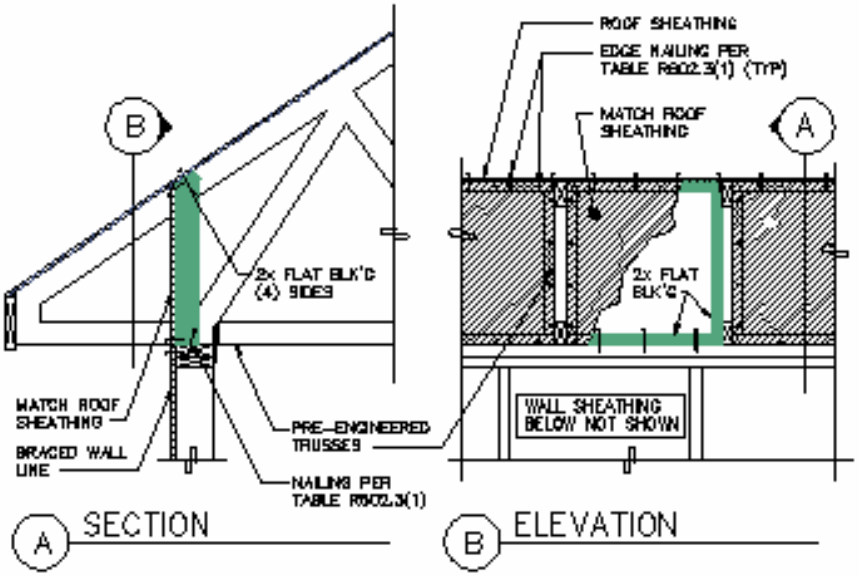


FIGURE R301.2.2.2.2(2)1

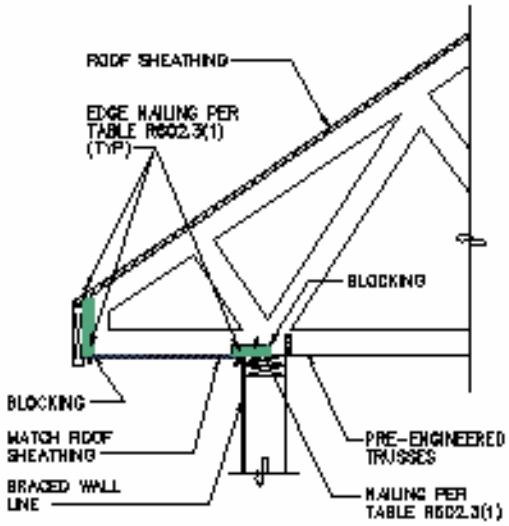


FIGURE R301.2.2.2.2(2)2

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.

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

RB47–06/07

R301.2.4, R324.2.4.1 (New), R324.1, R324.1.1 (New)

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

1. Revise as follows:

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with Section R324.

Exception: Buildings and structures located in whole or in part in identified floodways ~~as established in Table R301.2(1)~~ shall be designed and constructed ~~as stipulated~~ in accordance with the flood loads and flood resistant design provisions of the *International Building Code*.

R301.2.4.1 Alternative provisions. As an alternative to the requirements in Section R324.3 for buildings and structures located in whole or in part in coastal high hazard areas (V Zones), the flood loads and flood resistant design provisions in the *International Building Code* are permitted subject to the limitations of this code and the limitations therein.

R324.1 General. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with the provisions contained in this section.

Exception: Buildings and structures located in whole or in part in identified floodways ~~as established in Table R301.2(1)~~ shall be designed and constructed ~~as stipulated~~ in accordance with the flood loads and flood resistant design provisions of the *International Building Code*.

R324.1.1 Alternative provisions. As an alternative to the requirements in Section R324.3 for buildings and structures located in whole or in part in coastal high hazard areas (V Zones), the flood loads and flood resistant design provisions in the *International Building Code* are permitted subject to the limitations of this code and the limitations therein.

Reason: The purposes of this code change are to revise text related to floodways for clarity, and to add text to provide an alternative for buildings and structures in certain parts of flood hazards areas (coastal high hazard areas) to allow design according to the *International Building Code* (2003).

The proposed revision of the code related to floodways is to clarify that the specific provisions of the IBC related to flood loads and flood resistant design are applicable. The proposed code change for coastal high hazard areas is to recognize that certain parts of flood hazard areas have conditions (generally depth, velocity, wave heights, and potential debris impacts) that warrant design and construction according to the IBC and the referenced standard ASCE 24, *Flood Resistant Design and Construction.*

The IRC already recognizes that conditions in floodways warrant referral to the *International Building Code* (floodways are generally where flood velocities are higher and floodwaters are deeper). Coastal high hazard areas, shown as V Zones on flood hazard maps prepared by the National Flood Insurance Program, are areas where wave heights of 3 feet or more are anticipated during the base flood, and in many coastal communities these areas also are subject to erosion and local scour. R324.3.6 requires that construction documents include documentation that is prepared and sealed by a registered design professional regarding the design and construction methods for buildings in coastal high hazard areas. Evidence gathered after many hurricanes and coastal storms in the past decade indicates that it is appropriate to allow use of the flood loads and flood resistant design provision of IBC as an alternative to the provisions in R324.3.

The technical information used to substantiate this code change includes Mitigation Assessment Team reports prepared by teams of experts assembled by FEMA after significant disasters since 1992. The reports are published by FEMA and are available in hardcopy by calling the FEMA Distribution Center (800-480-2520) or online at http://www.fema.gov/fima/mat/mat_rprts.shtm. A summary report of the 2004 hurricane season in Florida (FEMA 490) characterizes the nature and severity of damage and recommendations that are intended to reduce future damage, including improved foundations and freeboard. The summary report for Hurricane Katrina (FEMA 548) includes a specific recommendation that one- and two-family construction in flood hazard areas be designed using the flood loads and flood resistant provisions in ASCE 7 and ASCE 24 (referenced standards in IBC).

Coastal high hazard areas (V Zone) represent a very small percentage of the Nation's total floodplain. Based on a total land area of 3,011,000 square miles (Continental U.S.), about 8% is mapped as either riverine or coastal flood hazard area (246,000 sq mi). Of all flood hazard areas, mapped V Zones account for about 3% (7,000 sq mi), which is less than 0.003% of the total land area of the Continental U.S. Coastal storms in recent years have caused widespread and significant damage and many coastal areas are experiencing considerable development and redevelopment activity. This code change allows an alternative for one- and two-family dwellings in a small portion of the nation's floodplains.

Relatively speaking, a small number of the nation's dwellings are in coastal high hazard areas and, while coastal communities are experiencing significant growth, there is evidence that this proposal does not affect the majority of residential construction. The National Flood Insurance Program reports that as of January 31, 2006, just over 88,000 flood insurance policies are in-force on buildings in V/VE Zones (only 1.8% of all flood insurance policies). About half of those policies are written on single family homes and 2-4 family dwellings (the remainder are written on condominiums and non-residential occupancies). For a number of reasons, the NFIP policy database does not provide a clear picture of the number of new homes that are built each year, including (a) not all mortgages are subject to the requirement for flood insurance; and (b) redevelopment that replaces an older home with a new one would not result in a net increase in the number of policies. A recent report on the federal requirement that certain mortgage lenders require flood insurance on homes that are in flood hazard areas reports that approximately 7.5 million residences are in the nation's mapped floodplains (RAND).

Bibliography:

FEMA 548, *Summary Report on Building Performance: Hurricane Katrina 2005*
FEMA 490, *Summary Report on Building Performance: 2004 Hurricane Season*
FEMA Mitigation Assessment Team reports published since 1992
RAND Corporation (Dixon, et al.), *The National Flood Insurance Program's Market Penetration Rate: Estimates and Policy Implications*, 2006.

Cost Impact: The code change proposal will increase the cost of construction. This code change will slightly increase the cost of construction when the alternative to design according to the IBC is selected. The IRC R324.3 already requires that designs and methods of construction for coastal high hazard areas include documentation that is prepared and sealed by a registered design professional to document that the criteria of R324.3 are satisfied. By referencing ASCE 24, the IBC includes a small factor of safety known as "freeboard" or added height for lowest floors above the flood elevation. In coastal high hazard areas, ASCE 24 requires elevation of lowest horizontal structural member to the higher of the base flood elevation plus one-foot, or the design flood elevation. The small added cost in coastal high hazard areas is supported in unpublished research undertaken by the FEMA Region IV office after Hurricane Katrina regarding costs associated with several foundation types and freeboard. The research indicates that for modest-sized homes the cost increase for one additional foot of height ranges from 0.3% of the base building cost for wood piles, to 0.4% or 0.5% for steel "H" or precast concrete piles. There will be no increase in costs for construction in floodways because the IRC already requires design in accordance with the IBC, and thus according ASCE 24.

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

RB48–06/07

R301.2.4, R301.2.4.1 (New), R324.1, R324.1.1 (New), R324.1.5, Chapter 43

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

1. Revise as follows:

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with Section R324.

Exception: Buildings and structures located in whole or in part in identified floodways ~~as established in Table R301.2(1)~~ shall be designed and constructed ~~as stipulated in the *International Building Code*~~ in accordance with *Flood Resistant Design and Construction (ASCE 24).*

R301.2.4.1 Alternative provisions. As an alternative to the requirements in Section R324.3 for buildings and structures located in whole or in part in coastal high hazard areas (V Zones), the standard *Flood Resistant Design and Construction* (ASCE 24) is permitted subject to the limitations of this code and the limitations therein.

R324.1 General. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with the provisions contained in this section.

Exception: Buildings and structures located in whole or in part in identified floodways ~~as established in Table R301.2(1)~~ shall be designed and constructed ~~as stipulated in the *International Building Code*~~ in accordance with *Flood Resistant Design and Construction (ASCE 24).*

R324.1.1 Alternative provisions. As an alternative to the requirements in Section R324.3 for buildings and structures located in whole or in part in coastal high hazard areas (V Zones), the standard *Flood Resistant Design and Construction* (ASCE 24) is permitted subject to the limitations of this code and the limitations therein.

R324.1.5 Protection of mechanical and electrical systems. Electrical systems, equipment and components, and heating, ventilating, air conditioning and plumbing appliances, plumbing fixtures, duct systems, and other service equipment shall be located at or above the design flood elevation. If replaced as part of a substantial improvement, electrical systems, equipment and components, and heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Electrical systems, equipment and components, and heating, ventilating, air conditioning and plumbing appliances, plumbing fixtures, duct systems, and other service equipment are permitted to be located below the design flood elevation provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in ~~compliance with the flood-resistant construction requirements of the *International Building Code*~~ in accordance with *Flood Resistant Design and Construction (ASCE 24)*. Electrical wiring systems are permitted to be located below the design flood elevation provided they conform to the provisions of the electrical part of this code for wet locations.

2. Add standard to Chapter 43 as follows:

ASCE

ASCE 24-05 Flood Resistant Design and Construction

Reason: The purpose of this code change is to add text to provide an alternative for buildings and structures in certain parts of flood hazards areas (coastal high hazard areas) be designed and constructed according to the standard ASCE 24 *Flood Resistant Design and Construction* (2003), and to revise text to require that buildings and structures in floodways to be designed according to that same standard.

This code change is to recognize that certain parts of flood hazard areas have conditions (generally depth, velocity, wave heights, and potential debris impacts) that warrant design and construction according to the standard ASCE 24 *Flood Resistant Design and Construction.* For flood-resistant design and construction, the IBC Section 1612 largely relies on ASCE 24; thus, it will be easier for contractors, code officials, and designers to use ASCE 24 directly rather than through the IBC.

The IRC already recognizes that conditions in floodways warrant referral to the *International Building Code* (floodways are generally where flood velocities are higher and floodwaters are deeper). Coastal high hazard areas, shown as V Zones on flood hazard maps prepared by the National Flood Insurance Program, are areas where wave heights of 3 feet or more are anticipated during the base flood, and in many coastal communities these areas also are subject to erosion and local scour. Currently, R324.3.6 requires documentation of the design and methods of construction to be signed and sealed by a registered design professional, and ASCE 24 is provides the appropriate design requirements. Evidence gathered after many hurricanes and coastal storms in the past decade indicates that it is appropriate to have foundations designed according to the specific requirements that have been incorporated into the 2005 edition of ASCE 24.

The code changes proposed for R324.1.5 (mechanical, plumbing, and electrical systems) and R324.1.8 (manufactured housing) are for consistency with the approach described above to refer directly to ASCE 24 rather than the IBC.

The technical information used to substantiate this code change includes Mitigation Assessment Team reports prepared by teams of experts assembled by FEMA after significant disasters since 1992. The reports are published by FEMA and are available in hardcopy by calling the FEMA Distribution Center (800-480-2520) or online at http://www.fema.gov/fima/mat/mat_rprts.shtm. A summary report of the 2004 hurricane season in Florida (FEMA 490) characterizes the nature and severity of damage and recommendations that are intended to reduce future damage, including improved foundations and freeboard. The summary report for Hurricane Katrina (FEMA 548) includes a specific recommendation that one- and two-family construction in flood hazard areas be designed using the flood loads and flood resistant provisions in ASCE 7 and ASCE 24 (referenced standards in IBC).

Coastal high hazard areas (V Zone) represent a very small percentage of the Nation's total floodplain. Based on a total land area of 3,011,000 square miles (Continental U.S.), about 8% is mapped as either riverine or coastal flood hazard area (246,000 sq mi). Of all flood hazard areas, mapped V Zones account for about 3% (7,000 sq mi), which is less than 0.003% of the total land area of the Continental U.S. Coastal storms in recent years have caused widespread and significant damage and many coastal areas are experiencing considerable development and redevelopment activity. This code change allows an alternative for one- and two-family dwellings in a small portion of the nation's floodplains.

Relatively speaking, a small number of the nation's dwellings are in coastal high hazard areas and, while coastal communities are experiencing significant growth, there is evidence that this proposal does not affect the majority of residential construction. The National Flood Insurance Program reports that as of January 31, 2006, just over 88,000 flood insurance policies are in-force on buildings in V/VE Zones (only 1.8% of all flood insurance policies). About half of those policies are written on single family homes and 2-4 family dwellings (the remainder are written on condominiums and non-residential occupancies). For a number of reasons, the NFIP policy database does not provide a clear picture of the number of new homes that are built each year, including (a) not all mortgages are subject to the requirement for flood insurance; and (b) redevelopment that replaces an older home with a new one would not result in a net increase in the number of policies. A recent report on the federal requirement that certain mortgage lenders require flood insurance on homes that are in flood hazard areas reports that approximately 7.5 million residences are in the nation's mapped floodplains (RAND).

Bibliography:
FEMA 548, *Summary Report on Building Performance: Hurricane Katrina 2005*
FEMA 490, *Summary Report on Building Performance: 2004 Hurricane Season*
FEMA Mitigation Assessment Team reports published since 1992
RAND Corporation (Dixon, et al.), *The National Flood Insurance Program's Market Penetration Rate: Estimates and Policy Implications*, 2006.

Cost Impact: The code change proposal will increase the cost of construction. This code change will slightly increase the cost of construction when the alternative to design according to the ASCE 24 is selected. The IRC R324.3 already requires that designs and methods of construction for coastal high hazard areas include documentation that is prepared and sealed by a registered design professional to document that the criteria of R324.3 are satisfied. ASCE 24 includes a small factor of safety known as "freeboard" or added height for lowest floors above the flood elevation. In coastal high hazard areas, ASCE 24 requires elevation of lowest horizontal structural member to the higher of the base flood elevation plus one-foot, or the design flood elevation. The small added cost in coastal high hazard areas is supported in unpublished research undertaken by the FEMA Region IV office after Hurricane Katrina regarding costs associated with several foundation types and freeboard. The research indicates that for modest-sized homes the cost increase for one additional foot of height ranges from 0.3% of the base building cost for wood piles, to 0.4% or 0.5% for steel "H" or precast concrete piles. There will be no increase in costs for construction in floodways because the IRC already requires design in accordance with the IBC, and thus according ASCE 24.

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

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

RB49–06/07
Table 301.5

Proponent: Kirk Grundhal, P.E., WTCA, representing the Structural Building Components Industry

Revise as follows:

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

(Portions of table not shown do not change)

a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.
b. Attics without storage are those where the maximum clear height between joist and rafter is less than 42 inches, or where there are not two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater, located within the plane of the truss. For attics without storage, this live load need not be assumed to act concurrently with any other live load requirements.
c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.
d. A single concentrated load applied in any direction at any point along the top.
e. See Section R502.2.1 for decks attached to exterior walls.
f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.
g. For attics with limited storage and constructed with trusses, this live load need be applied only to those portions of the bottom chord where there are two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high or greater by 2 feet wide or greater, located within the plane of the truss. The rectangle shall fit between the top of the bottom chord and the bottom of any other truss member, provided that each of the following criteria is met:

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

    <u>The bottom chords of trusses meeting the above criteria for limited storage shall be designed for the greater of the actual imposed dead load or 10 psf, uniformly distributed over the entire span.</u>

h. Attic spaces served by a fixed stair shall be designed to support the minimum live load specified for sleeping rooms.
i. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

Reason: To clarify and harmonize IRC requirements regarding the increase in dead load with IBC footnote to Table 1607.1 and with the original BOCA requirements at BOCA Section 1606.2.3.
In addition, a criterion has been added in the IRC, to not require the storage load application in areas where the insulation depth precludes the use of the space for storage.

IBC footnote to Table 1607.1

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

i. The attic area is accessible by a pull-down stairway or framed opening in accordance with Section 1209.2, and
ii. The truss shall have a bottom chord pitch less than 2:12.
iii. Bottom chords of trusses shall be designed for the greater of actual imposed dead load or 10 psf, uniformly distributed over the entire span.

The minimum ceiling insulation requirement per Table N1102.1 is R30. This typically requires about 9 inches of batt or blown insulation. A storage load applied in trussed areas with insulation will cause collateral damage of the ceiling surface that will prevent the use of the area as a storage area.

Cost Impact: The code change proposal will not increase the cost of construction. Truss design software is programmed to include the load evaluation in this manner.

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

RB50–06/07
Table 301.7

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.

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

RB51–06/07
Table R301.7.2 (New)

Proponent: Bob Boyer, Building Officials Association of Florida Development Committee, representing the Building Officials Association of Florida

Add new table as follows:

TABLE R301.7.2
ROOF STRUCTURAL MEMBER DEFLECTION LIMITS[a, f, g]

ROOF MEMBERS[c]	L	W[d]	D + L[b,e]
Supporting plaster ceiling	$l/360$	$l/360$	$l/240$
Supporting nonplaster ceiling	$l/240$	$l/240$	$l/180$
Not supporting plaster ceiling	$l/180$	$l/180$	$l/120$

For SI: 1 foot = 304.8 mm.

a. For structural roofing made of formed metal sheets, the total load deflection shall not exceed l/60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed l/150. For roofs, this exception only applies when the metal sheets have no roof covering.
b. For wood structural members having a moisture content of less than 16 percent at time of installation and used under dry conditions, the deflection resulting from L + 0.5D is permitted to be substituted for the deflection resulting from L + D.
c. The above deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to assure adequate drainage shall be investigated for ponding. See *International Building Code, Building*, Section 1611 for rain and ponding requirements and Section 1503.4 for roof drainage requirements.
d. The wind load is permitted to be taken as 0.7 times the "component and cladding" loads for the purpose of determining deflection limits herein.
e. For steel structural members, the dead load shall be taken as zero.
f. For aluminum structural members or aluminum panels used in roofs of sunroom additions or patio covers, not supporting edge of glass or aluminum sandwich panels, the total load deflection shall not exceed l/60. For aluminum sandwich panels used in roofs of sunroom additions or patio covers, the total load deflection shall not exceed l/120.
g. For cantilever members, l shall be taken as twice the length of the cantilever.

Reason: The deflection criteria were taken from the *International Building Code* Section 1604.3.6 Limits. Most roof coverings installed under the *International Residential Code* will not be considered with the deflection limits. Roof sheathing and the roof framing are designed to comply with these deflection limits. These deflection limits are included to address the roof coverings that serve a dual function of roof covering and roof sheathing. These roof coverings must comply with the deflection criteria to prevent drainage and ponding problems.

There is no cost increase in the application of as these deflection limits since these criteria already exists in the *International Building Code* and should be applicable to residential buildings.

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

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

RB52–06/07
R301.9 (New)

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.

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

RB53–06/07
Table R302.1

Proponent: William W. Stewart, FAIA, Chesterfield, Missouri, representing himself

Revise table as follows:

TABLE R302.1
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Openings in walls	Not allowed	N/A	< 3 feet
	25% Maximum of Wall Area	0 hours	3 feet
	Unlimited	0 hours	5 feet

(Portions of table not shown do not change)

Reason: This change clarifies the code. As is, a reader might conclude that “Openings” includes the openings in the soffit or other projection. It is my understanding that ”Openings” is intended to cover openings in the exterior wall. This makes that point clear. If openings were intended to apply to soffits then a major conflict with soffit ventilation openings would exist when the overhang gets to less than 3 feet from the property line. I debated saying “exterior walls” but the title of the table is exterior walls so “exterior” would be redundant. Also, two rows above it says walls and I’m addressing those same walls, so adding exterior would be confusing as well as redundant.

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

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

RB54–06/07
R302.1, Table 302.1

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.

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

RB55-06/07
R302.1

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.
4. Landings, decks and balconies without roofs.

Reason: The purpose of this code change is to clearly address the matter of landings, decks, and balconies without roofs and how they are regulated as they are constructed near a lot line. This proposal simply lists landings, decks, and balconies as an exception to the requirements for location on property as is done for some accessory structures. Homeowners and builders often wish to have landings serving an entry door that may be near a lot line and often prefer to construct them of wood. These structures provide very limited impact on the spread of fire from one lot to the other. The code already allows tool and storage sheds and similar buildings (that have roofs) and awnings to be constructed to a lot line without protection and places no limits on the number of these structures on a lot. Fences that can be constructed with an unlimited height and no separation create as much or more of a contribution to fire spread as a deck. Limitations based on height or size would be arbitrary and dismissed by the committee and the membership as such and given the lack of limitations on the number of storage sheds would be inappropriate. While it is true that this proposal may create a conflict with local zoning ordinances, the more restrictive rule would apply and it is inappropriate and precedent setting for the committee to disapprove a code change because of a potential conflict with any type of local regulation.

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

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

RB56–06/07
R302.1

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:

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. Walls, projections, openings, or penetrations in walls perpendicular to the line used to determine the fire separation distance.
2. Walls of dwellings and accessory structures located on the same lot.

~~1.~~ 3. 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.~~ 4. 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.~~ 5. Foundation vents installed in compliance with this code are permitted.

Reason: IBC Section 704.3 offers an exception to rating exterior walls of buildings on the same lot. If multiple buildings can be constructed as 1 building without exceeding the area limitations of Table 503, no rating is required. Since IBC Table 503 imposes no area limit on Group R-3 buildings and there are no area limitations placed on dwellings by the IRC, there should be no rating requirement for the exterior walls of buildings on the same lot unless the walls are in close proximity to lot lines. Limitation of openings and penetrations should remain.

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

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

RB57–06/07
R302.1

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.

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

RB58–06/07
Table 302.1

Proponent: Rick Davidson, City of Hopkins, Minnesota

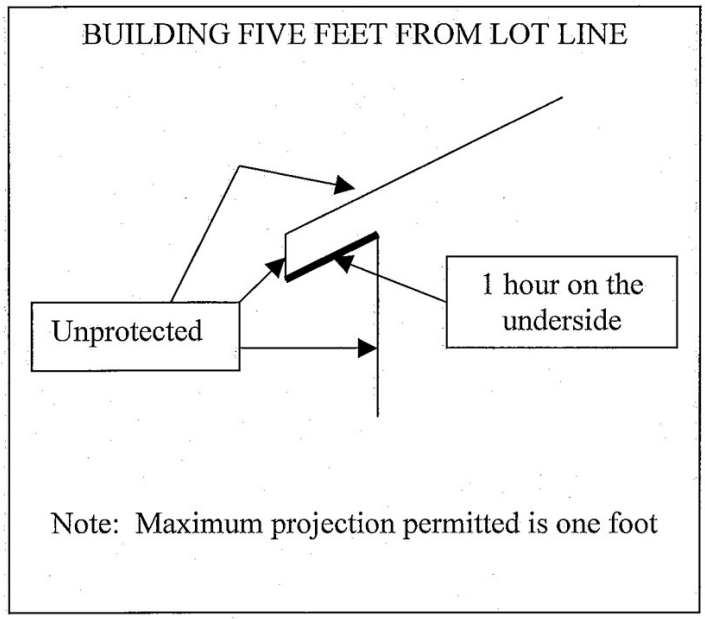
Revise table as follows:

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.

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

RB59–06/07
R302.1, Table R302.1

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

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.

TABLE R302.1
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	(Fire-resistance rated)	1 hour with exposure from both sides	0 feet
	(Not fire-resistance rated)	0 hours	5 feet
Projections	<u>(Fire-resistance rated)</u>	<u>1 hour on all exposed sides</u>	<u>0 feet</u>
	(Fire-resistance rated)	1 hour on the underside	2 feet
	(Not fire-resistance rated)	0 hours	5 feet
Openings	Not allowed	N/A	< 3 feet
	25% Maximum of Wall Area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R317.3	< 5 feet
		None required	5 feet

N/A = Not Applicable.

Reason: The last sentence is shown to be stricken as, though the stricken text allows projections to be located 12 inches into the area where windows are prohibited (3 feet for windows), Table 302.1 will not allow any projection to be less than 4 feet to the property line. A new line in Table 302.1 has been added for projections that have a fire-resistance rating of 1 hour on all exposed sides. This coordinates with the provisions for walls less than 5 feet to the fire separation line to have a fire-resistance rating of 1 hour from both sides, and projection between 4 and 5 feet to have a fire-resistance rating of 1 hour on the underside. There should be no reason to exclude any construction with a 1 hour fire-resistance from all exposed sides from being located less than 5 feet to the fire separation line.

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

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

RB60–06/07
R303.1

Proponent: Steven T. Taylor, Taylor Engineering LLC, representing David Grimsrud, chair of ASHRAE Standards Project Committee 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings (SSPC 62.2) and past chair of ASHRAE Standards Project Committee 62.1 Ventilation for Acceptable Indoor Air Quality (SSPC 62.1), Max Sherman, past chair of SSPC 62.2, Steven Emmerich, chair of ASHRAE TC 5.12 Ventilation Requirements & Infiltration, Steven Taylor, past chair of SSPC 62.1 and member of IAPMO Mechanical Technical Committee

1. Revise as follows:

R303.1 Habitable rooms. All habitable rooms shall have an aggregate glazing area of not less than 8 percent of the floor area of such rooms. Natural ventilation shall be through windows, doors, louvers or other approved openings to the outdoor air. Such openings shall be provided with ready access or shall otherwise be readily controllable by the building occupants. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

Exceptions:

~~1. The glazed areas need not be openable where the opening is not required by Section R310 and an approved mechanical ventilation system capable of producing 0.35 air change per hour in the room is installed or a whole-house mechanical ventilation system is installed capable of supplying outdoor ventilation air of 15 cubic feet per minute (cfm) (78 L/s) per occupant computed on the basis of two occupants for the first bedroom and one occupant for each additional bedroom.~~

~~2.~~ 1. The glazed areas need not be installed in rooms where ~~Exception 1 above is satisfied and~~ artificial light is provided capable of producing an average illumination of 6 footcandles (65 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

~~3.~~ 2. Use of sunroom additions and patio covers, as defined in Section R202, shall be permitted for natural ventilation if in excess of 40 percent of the exterior sunroom walls are open, or are enclosed only by insect screening.

R303.2 Adjoining rooms. For the purpose of determining light and ventilation requirements, any room shall be considered as a portion of an adjoining room when at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room but not less than 25 square feet (2.3 m^2).

Exception: Openings required for light ~~and/or ventilation~~ shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that there is an openable area between the adjoining room and the sunroom addition or patio cover of not less than one-tenth of the floor area of the interior room but not less than 20 square feet (2 m^2). The minimum openable area to the outdoors shall be based upon the total floor area being ventilated.

R303.3 Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet (0.3 m^2), one-half of which must be openable.

Exception: The glazed areas shall not be required where artificial light and a mechanical ventilation system are provided. The minimum ventilation rates shall be 50 cubic feet per minute (24 L/s) for intermittent ventilation or 20 cubic feet per minute (10 L/s) for continuous ventilation. Ventilation air from the space shall be exhausted directly to the outside.

2. Add new text as follows:

R303.4 Mechanical ventilation. Each dwelling unit shall be provided with a mechanical exhaust system, supply system, or combination thereof to provide continuous whole-building ventilation with outdoor air.

R303.4.1Ventilation rate. The required ventilation system shall provide outdoor air continuously at a rate not less than determined in accordance with Table R303.4.1 or Equation 3.1.

Equation 3.1 $Q_{fan} = 0.01A_{floor} + 7.5(N_{br}+1)$

Where:

Q_{fan} = fan flow rate in cubic feet per minute (cfm).
A_{floor} = floor area in square feet (ft^2).
N_{br} = number of bedrooms; not to be less than 1.

TABLE R303.4.1
VENTILATION AIR REQUIREMENTS, CFM

FLOOR AREA (square feet)	BEDROOMS				
	0-1	2-3	4-5	6-7	> 7
< 1,500	30	45	60	75	90
1,501-3,000	45	60	75	90	105
3,001-4,500	60	75	90	105	120
4,501-6,000	75	90	105	120	135
6,001-7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 1 square foot = 0.0929 m^2.

R303.4.2 System design. The required whole-house ventilation system shall consist of one or more supply and/or exhaust fans and associated ducts and controls. Local exhaust fans shall be permitted to be part of such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to be supply ventilation where the air handler's manufacturers' requirements for minimum return air temperature are met.

The "fan on" switch for a heating or air conditioning system shall be permitted as an operational control for systems supplied with outdoor air through a duct connected to the return side of an air handler. A readily accessible override control shall be provided. Local exhaust fan switches and "fan on" switches shall be permitted to serve as such override controls. All controls shall be labeled as to their function.

(Renumber subsequent sections)

Reason: The purpose of this proposal is to provide modest levels of continuous mechanical ventilation in detached one- and two-family houses and low-rise townhouses.

Relying on infiltration and openable windows to provide ventilation gives erratic rates throughout a year. Providing continuous mechanical ventilation means that pollutants are controlled continuously rather than only times of strong winds and large indoor-outdoor temperature differences when infiltration is large.

Substantiation: Ventilation is used to control pollutant concentrations in buildings. These pollutants are emitted from building materials, consumer products, and from occupants themselves. Many pollutants are emitted continuously throughout a year. New building technologies have made houses tighter, therefore reducing infiltration rates. During long intervals of the year when driving forces are small, infiltration rates are small. Since pollutants are emitted continuously pollutants concentrations can build to large values during these periods. These large concentrations cause large exposures for building occupants. Continuous mechanical ventilation reduces these large concentrations and reduces the large exposures for building occupants.

Openable windows are also part of the ventilation requirement. These provide excess ventilation when needed (temporary increase in occupancy, use of strong pollutant sources, etc.) as determined by the building occupants. The ventilation requirement assumes that infiltration contributes an additional 2 cfm/100 ft^2 of ventilation air to the space.

Bibliography: ASHRAE Standard 62.2-2004 *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*

Cost Impact: The code change proposal will increase the cost of construction modestly by requiring a mechanical fan system rated for continuous operation.

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

RB61–06/07 (Duplicate of RM15, see RM15-06/07)

RB62–06/07
R303.4.2

Proponent: David M. Wenzlaff, County of Henrico, Virginia, representing Virginia Building and Code Officials Association (VBCOA), Virginia Plumbing and Mechanical Inspectors Association (VPMIA)

Revise as follows:

R303.4.2 Exhaust openings. ~~Outside~~ Outdoor exhaust openings shall be located so as not to create a nuisance. Exhaust air shall not be directed onto walkways.

Reason: This is a consistency change both the IRC and IMC need to refer to outdoors instead of outside.

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

Analysis: It is the proponent's intent to change the word outside to outdoor throughout the International Residential Code.

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

RB63–06/07
R303.4.2

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

Revise as follows:

R303.4.2 Exhaust openings. ~~Outside exhaust openings shall be located so as not to create a nuisance.~~ Exhaust air shall not be directed onto walkways.

Reason: The text is shown to be deleted because, without a direct provision in the IRC citing what constitutes a "nuisance", this provision is arbitrary and may ultimately be enforceable.

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

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

RB64–06/07
R303.7

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

Exceptions:

1. Required glazed openings may face into a roofed porch where the porch abuts a street, yard, or court and the longer side of the porch is at least 65% unobstructed and the ceiling height is not less than 7 feet (2134 mm).
2 Eave projections shall not be considered as obstructing the clear open space of a yard or court.
3. Required glazed openings may face into the area under a deck, balcony, bay or floor cantilever provided a clear vertical space at least 36 inches (914 mm) in height is provided.

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

Reason: Required glazed openings may not necessarily have to open if they are provided for natural light only. The first text change addresses that reality and uses consistent language as found in R303.7.1 (face).

R303.7 is the rule. R303.7.1 is an exception to the rule. It should be listed as an exception and not another rule. The revision places it as exception #1.

Yards and courts are defined as being open and unobstructed from the ground to the sky. Interpreted literally, this would prevent any projection above a required window. Yet eaves are commonly placed above windows and in apartment buildings it is common to have decks over required windows. The second exception removes that problem. Concern that an eave could project to a lot line and thus block all natural light is unfounded as eave projections are limited from extending to a lot line so there will always be some open space above them.

The third exception addresses windows that open under balconies, decks, bays, etc. R310.5 permits emergency escape openings to open "under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less

than 36 inches (914 mm) in height to a yard or court." This text has been placed before the membership numerous times and repeatedly approved. It is fully understood how it should be applied. If it is appropriate for an egress window to open under a deck, other required glazed openings should receive the same benefit.

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

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

RB65–06/07
R303.8

Proponent: Mark Riley, Building Department, City of Troy, Michigan

Revise as follows:

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

Reason: Though the code has no definition of habitable rooms, but has a definition for *habitable space.* This definition does not include bathrooms and toilet rooms as a habitable space, this would create confusion on whether bathroom or toilet room would required to heated. With this code change this would clear up any confusion or loop holes not requiring heating in such rooms, which would be required in to prevent freezing of plumbing systems, and comfort of the home owner.

Cost Impact: The code change proposal will increase the cost of construction. The heating of bathrooms and toilet rooms is already being done in the industry.

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

RB66–06/07
R303.8

Proponent: Mark Riley, Building Department, City of Troy, Michigan

Revise as follows:

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

Reason: Though the code has no definition of habitable rooms, but has a definition for *habitable space* This definition does not include bathrooms and toilet rooms as a habitable space, this would create confusion on whether bathroom or toilet room would required to heated. Changing the wording of this section from habitable rooms to *living spaces* would clear up any confusion or loop holes not requiring heating in such rooms, which would be required in to prevent freezing of plumbing systems, and comfort of the home owner.

Cost Impact: The code change proposal will increase the cost of construction. The heating of bathrooms and toilet rooms is already being done in the industry.

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

RB67–06/07
R305.1

Proponent: Rick Davidson, City of Hopkins, Minnesota

1. Revise as follows:

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

Exceptions:

1. ~~Beams and girders spaced not less than 4 feet (1219 mm) on center may project not more than 6 inches (152 mm) below the required ceiling height.~~
2. ~~Ceilings in basements without habitable spaces may project to within 6 feet, 8 inches (2032 mm) of the finished floor; and beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.~~

~~3.~~ 1. For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).

~~4.~~ 2. Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2036 mm) over the fixture and at the front clearance area for fixtures as shown in Figure R307.1. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches (2036 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.

2. Add new text as follows:

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

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

Reason: First, “habitable space” is defined. “Habitable rooms” is not. Second, “corridors” do not exist in dwellings. Third, “Ceiling height” is defined which permits the deletion of the last sentence of the first paragraph. Also note that the sentence proposed for deletion conflicts with the definition. Fourth, the first exception has never made any sense. It seems to imply that it is ok to hit your head at four foot intervals but not 3 foot intervals. Also, the width of the beam or girder is not addressed. As a result, if you had beams 4 feet on center and 16 inches wide, it is ok for the beams to project 6 inches from the ceiling. But if you have beams 3 feet 10 inches on center that are only 4 inches wide that is not ok. In the first case, there would be 32 inches of 7 foot ceiling between the beams. In the second illegal case, there would be 42 inches between the beams. How is one situation safer than the other? It isn’t. It is suggested that this exception be deleted because it is meaningless and serves no rational purpose. Fifth, exception two is moved to its own section on basements. And since the second sentence of exception 2 is really an exception to the exception and not an exception to ceiling heights in habitable and similar spaces, it is listed strictly as an exception to the height required for a basement.

This proposal eliminates redundant and unnecessary language. It organizes the text in a more user friendly manner. It deletes meaningless language. The result will be a section that is easier to understand and enforce.

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

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

RB68–06/07
R307.1

Proponent: Guy Tomberlin, Fairfax County, Virginia, representing Virginia Building and Code Officials Association (VBCOA), Virginia Plumbing and Mechanical Inspectors Association (VPMIA)

Revise as follows:

R307.1 Space required. Fixtures shall be spaced ~~as per~~ in accordance with Figure R307.1, and in accordance with the requirements of Section P2705.1.

Reason: This makes a connection for the user so as not to overlook the more detailed fixture provisions related to spacing that are located in Section P2705.1 of the International Residential Code.

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

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

RB69–06/07
Figure R307.1

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

Revise figure as follows:

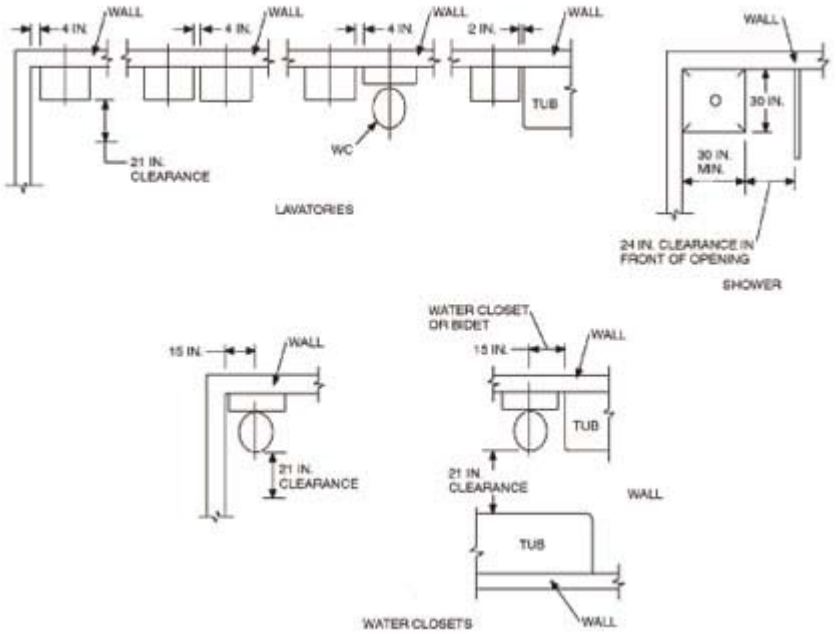


FIGURE R307.1
MINIMUM FIXTURE CLEARANCES

(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.

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

RB70–06/07
R308.4

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.

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

RB71–06/07
R308.4

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.

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

RB72–06/07
R308.4

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.

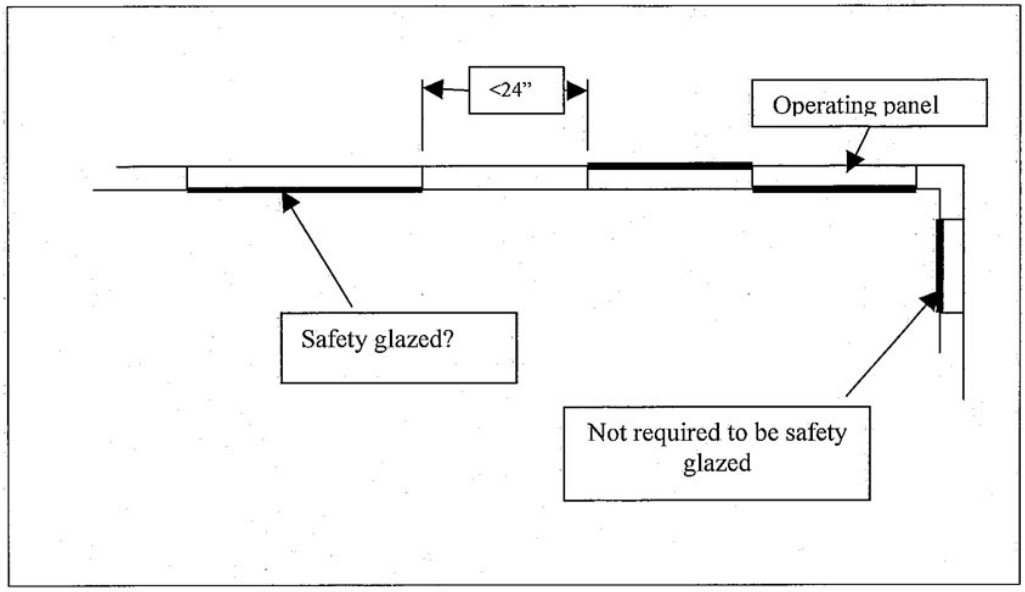
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 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.

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

RB73–06/07
R308.4

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.

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

RB74–06/07
R308.6.9, R308.6.10 (New), R308.6.11 (New), R308.6.12 (New), R308.6.12.1 (New)

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.

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

RB75–06/07
R309.1, RB309.1.1

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.

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

RB76–06/07
R309.1

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. <u>Fire-retardant-treated wood shall be permitted to protect openings between the garage and the attic.</u>

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.

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

RB77–06/07
R309.1

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

Revise as follows:

R309.1 <u>Garage penetrations.</u>

<u>R309.1.1</u> 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.

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

RB78–06/07
R309.2

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.

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

RB79–06/07
R309.2, Table R309.2 (New)

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.

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

RB80–06/07
R309.2

Proponent: Joseph Holland, Hoover Treated Wood Products

Revise as follows:

R309.2 Separation required.

1. 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. Fire-retardant-treated wood 1/2 inch (12.7 mm) or greater shall be permitted in Seismic Design Categories A through F and Wind Zones with a basic wind speed of 90 miles per hour or higher.
2. 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. Fire-retardant-treated wood 5/8 inch (15.9 mm) or greater shall be permitted in Seismic Design Categories A through F and Wind Zones with a basic wind speed of 90 miles per hour or higher.
3. 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. Fire-retardant-treated wood 1/2 inch (12.7 mm) or greater shall be permitted in Seismic Design Categories A through F and Wind Zones with a basic wind speed of 90 miles per hour or higher.

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.

Reason: To allow FRTW in seismic and high wind areas to help in resisting the loads associated with these exposures.

The FRTW will allow designers to utilize a material (plywood) with a proven track record in the design of the resisting diaphragms.

Plywood (treated and untreated) is a recognized component of diaphragms. From a fire protection perspective the FRTW plywood is essentially equivalent. Using Table 721.6.2(1) and Table 721.6.2(2) in the International Building Code a stud wall with ½-inch gypsum board and wood studs has a fire rating of 35 minutes. The same wall with ½-inch nominal plywood has a fire rating of 30 minutes. They are essentially equivalent. For the ceiling ASCE 29-99 assigns a time of 5 minutes to trusses. The total time for the truss and gypsum board is 20 minutes. For the 1/2-inch nominal plywood it's 15 minutes; if wood joists are used its 25 and 20. Again, they are approximately equivalent.

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

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

RB81–06/07
R309.2

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

Reason: The code provides a specification for the garage/dwelling separation of a minimum of ½ inch or 5/8-inch gypsum board and then goes on to add the unnecessary text "or equivalent". The code doesn't give the reason for the separation although it could be presumed that this is a fire separation. Without a reason, this makes inclusion of the term "or equivalent" problematic. Does "equivalent" mean in terms of fire resistance, moisture resistance, cost, weight, color, or what? Does "equivalent" mean the same as "approved"? If it does why isn't the term "approved" used? Since "approved" means approved by the building official, does "equivalent" leave the door open to selection by the owner or builder? Section R104.11 always permits the building official to accept alternative materials or methods subject to his review. The code doesn't need to repeat that, particularly if language that confuses the issue is used.

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

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

RB82–06/07
R309.2 (New)

Proponent: Steven T. Taylor, Taylor Engineering LLC, representing David Grimsrud, chair of ASHRAE Standards Project Committee 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings (SSPC 62.2) and past chair of ASHRAE Standards Project Committee 62.1 Ventilation for Acceptable Indoor Air Quality (SSPC 62.1), Max Sherman, past chair of SSPC 62.2, Steven Emmerich, chair of ASHRAE TC 5.12 Ventilation Requirements & Infiltration, Steven Taylor, past chair of SSPC 62.1 and member of IAPMO Mechanical Technical Committee

Add new text as follows:

R309.2.1 Air leakage. All joints, seams, penetrations; doors; openings between door assemblies and their respective jambs and framing; and other sources of air leakage through the wall and ceiling assemblies separating the garage from the residence and its attic area shall be caulked, gasketed, weatherstripped, wrapped, or otherwise sealed to limit air movement.

Reason: The purpose of this proposal is to strengthen the requirements to prevent the migration of contaminants from attached garages to occupiable spaces.

Garages attached to residences may contain numerous sources of air contaminants. These contaminants can be transported into the residence through either leaks in the separating walls or through leaky air handlers and ducts. This change will improve the code by reducing the potential for contaminant transport from garages into residences.

Substantiation: Many pollutant sources are commonly stored or used in residential attached garages such as gasoline-fired engines (automobiles, lawnmowers, etc.), paints, and solvents. Pressure differences across air leakage paths between the garage and adjoining living space can result in the transport of these contaminants to the living space. Factors influencing this transport include temperature differences, wind, the placement of the air handler or ducts in the garage, duct leakage, and equipment operation, such as exhaust fans and vented combustion appliances. A recent literature review (Emmerich et al. 2003) found substantial evidence that transport of contaminants from garages has the potential to negatively impact residential indoor air quality in either an acute or chronic manner.

Traditional practice assumed that garages were leaky structures and that infiltration would keep garages adequately ventilated. However, conventional construction practice for garages today result in significantly tighter structures with little infiltration and elevated contaminant concentrations in the garage. In fact, recent field measurements (Emmerich et al. 2003) have found that the envelopes of modern attached garages can be as tight as the envelopes of houses. Keeping contaminants in garages from transferring into living space requires constructing a substantially airtight barrier between the garage and house which can be accomplished through caulking, weather-stripping, etc.

Bibliography: ASHRAE Standard 62.2-2004 *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings,* Emmerich, SJ et al.. 2003. *NISTIR 7072 Air and Pollutant Transport from Attached Garages to Residential Living Spaces – Literature Review and Field Measurements.* National Institute of Standards and Technology.

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

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

RB83–06/07
R309.3, R309.4

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.

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

RB84–06/07
R309.5

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

Revise as follows:

R309.5 Flood hazard areas. For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be:

1. Elevated to or above the design flood elevation as determined in Section R324; or
2. Located below the design flood elevation provided they are at or above grade on ~~all sides~~ at least one side, are used solely for parking, building access, or storage, meet the requirements of Section R324, and are otherwise constructed in accordance with this code.

Reason: The purpose of this code change proposal is to be consistent with R324.2.1(3) which addresses "basement floors that are below grade on all sides" and to be consistent with the National Flood Insurance Program regulations; an enclosure such as a garage is not a basement provided that it is "at or above grade on at least one side."

Section R324.2.1 sets forth elevation requirements for buildings in flood hazard areas and generally requires that the lowest floor, including basement, be at or above the design flood elevation. R324.2.1(3) essentially defines a basement for the purposes of the flood-resistant provisions of the IRC (i.e., a basement is "below-grade on all sides," which varies from the general definition in the IRC). R324.2.2 outlines the requirements for enclosures that are below the design flood elevation. An enclosure is not a basement as long as at least one side is at or above grade (and the enclosure meets all other requirements of R324.2.2).

The technical information used to substantiate this proposal is the NFIP regulation §59.2 (definition of "basement") and §60.3(c)(5) (requirements for enclosures).

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

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

RB85–06/07
R310.1

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.

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

RB86–06/07
R310.1

Proponent: Paul Hayward, City of Farmington, Utah, representing Bonneville Chapter of ICC

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 open directly into a public street, public alley, yard or court. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall

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

Exception: Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m^2).

Reason: The purpose is to delete extraneous wording that is not a code requirement.
The current phrase that is proposed for deletion is not a code requirement. It says what someone DOES NOT have to do to comply. Volumes could (and probably should) be written explaining the intent and meaning of what the code contemplates and how to achieve compliance. It is called "commentary," and as such has some value, but is not properly included into the code. The sentence makes perfect sense without the additional commentary.

Here is the original reason from the 03/04 cycle, dated 8/10/04:
The wording as adopted from RB67-03/04 is superfluous and is not necessary. When a sleeping room in a basement has an egress window installed, the provisions of the code have been met that require at least one such window in a basement. The current wording is commentary, not a code requirement. In fact, if it is preferred it needs to be written as an exception.

Bibliography: This proposal goes back to IRC Section 310.1. The original thinking came from the 03/04 code development cycle. There were ten (10) proposals considered by the committee in September 2003 in Nashville, Tennessee. There were RB64-03/4, RB65-03/04, RB66-03/04, RB67-03/04, RB68-03/04, RB69-0304, RB70-03/04, RB71-03/04, RB72-03/04 and RB73-03/04. Of those ten, only RB66-03/4 was approved. It was Approved As Modified. All the remaining nine were disapproved. RRB69-03/04 has a successful Assembly Motion for As Submitted. The final action hearings at Overland Park, Kansas, in May, 2004 considered the four proposals that received public comment. They were RB66-03/04, RB67-03/04, RB69-03/04 and RB71-03/04. RB66-03/04 was disapproved, RB69-03/04, although having a successful Assembly Motion, was withdrawn and RB71-03/04 was withdrawn. The membership approved RB67-03/04 as Amended by Public Comment #1. To that approval, the original proposed change was submitted on August 10, 2004, so that it would come before the committee the following February (2005) in Cincinnati. ICC Staff informed me that due to an error in their software a few proposals were lost. This was one of them, and the error was not realized at the hearings in Cincinnati. After it became apparent that the proposal never saw the light of day, permission was asked to submit it as a public comment to RB71-04/05, which would be heard in Detroit in September, 2005. It was NOT allowed to be published as a public comment, but only to ask for different action on RB71-04/05, and when it came to the floor to beg the membership for "Approval As Modified" and attempt to modify the item with unpublished language. Not being able to have a representative attend the IRC portion of the Detroit hearings, it was determined to quickly let it be disapproved and resubmit it as a fresh, new change for the committee to review. (The explanation as to what had transpired and then what was now desired would have exceeded our time limit to justify the change.) So it's a brand new proposal!

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

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

RB87–06/07
R311

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.

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

RB88–06/07
R311.1

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

> **Exception:** Stairs and ladders used to access attics, crawl spaces, window wells and similar areas and those used to service equipment are exempt from the requirements of this section.

Reason: There is often a desire to provide safer access to a crawl space, attic or similar space but the area to provide a code compliant stair is not available, headroom cannot be maintained, or the frequency of use does not warrant a traditional stair. A good example of this is the pull down stair sometimes used to access an attic and permitted in many jurisdictions. Another example may be a ships ladder used to access a crawl space. These types of stairs are used only by the homeowner or a service person and are used infrequently. They pose little danger and are much more practical than a full stair and are much safer than a stepladder or other moveable and unfixed device. The former UBC provided a similar exception for stairs attending equipment. IMC 306.5 also has exceptions for stairs accessing equipment on roofs of all occupancies. The terms “attics”, “crawl spaces”, and “storage spaces” was used rather than “non-habitable” spaces because non-habitable spaces include bathrooms, toilet rooms, and hallways.

While it seems evident that there are no provisions in the IRC to permit alternative stairs, the committee, in Cincinnati, stated this issue was already covered in section R311.4.1, which follows:

> **R311.4.1 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 SectionR311.6 or a stairway in accordance with Section R311.5.

If this section does regulate alternative stairs to non-habitable spaces, it would seem to contradict R311.1 which states that stairways shall comply with this section and that implies maintaining appropriate rise/run, headroom, etc.

The committee also stated that this would remove the requirement for a compliant stair leading to habitable attic space. By definition an attic is “Attic. The unfinished space between the *ceiling* joists of the top story and the roof rafters.” So by definition an attic is not habitable space since it references ”ceiling” joists, not “floor” joists. A code change has been submitted to additionally clarify the definition. This code change will help provide direction to the user and to code enforcement. It will also help create uniformity with regards to this issue, reduce costs to homeowners, and create safer access to little used spaces.

By way of some history, this matter was discussed by the committee during the approval of RB33-00 when it was stated that the adoption of that proposal excluded pull down stairs and similar devices. It was further pointed out that the code prior to RB33 excluded those types of stairs and RB33-00 would not change that

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

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

RB89–06/07
R311.1

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.

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

RB90–06/07
R311.1, R311.2, R311.2.1

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

R311.2 Construction.

R311.2.1 Attachment. ~~Required~~ Exterior ~~egress~~ landings, decks, 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 or shall be designed to be self-supporting. ~~Such~~ Attachment to the primary structure shall not be accomplished by use of toenails or nails subject to withdrawal.

Reason: First, exterior egress balconies are referenced in the first sentence of this section but then there is no section of rules addressing exterior egress balconies like there are for stairways, ramps, hallways, and doors. It is proposed to delete the term. Second, only “required exit” balconies, stairs and the like must be positively anchored under the current text. Shouldn’t these structures be safe if they are required or not and whether or not they serve the exit? The implication with the current text is that it applies only to required structures and leaves the door open to no regulation for similar structures that are not required. This proposal addresses all of these types of structures because that is believed to be what was intended. Furthermore, the option for self-supporting structures is added using the same terms as are found in R502.2.2.

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

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

RB91–06/07
R311.4, R311.4.1, R311.4.2

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

R311.4 Doors.

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

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

Reason: This proposal is partially editorial and also contains some substantive changes. The major substantive change deletes the last two sentences of the first paragraph and replaces them with new language that addresses the failure of the current text to address stairs to non-habitable basements and to areas that may contain non-habitable space such as a bathroom. As currently written, there is no requirement to provide access by approved stairs or ramps to areas such as a basement or a raised bathroom. Some undefined terms are replaced with defined terms. Is the term “habitable level” the same as a “habitable story”? The changes are intended to make the section more understandable and enforceable.

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

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

RB92–06/07

R311.4.3, R311.4.3.1 through R311.4.3.3 (New)

Proponent: Rick Davidson, City of Hopkins, Minnesota

Delete and substitute 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.~~

R311.4.3 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 unit vertical in 12 units horizontal (2-percent).

R311.4.3.1 Landings at the required exit door. Landings at the required exit door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold.

Exception: The exterior landing is not permitted to be more than 7 3/4 inches (196 mm) below the top of the threshold provided the required exit door does not swing over the landing.

When exterior landings serving the required exit door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.6 or a stairway in accordance with Section R311.5.

R311.4.3.2 Landings for other exterior doors. Doors other than the required exit 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.

R311.4.3.3 Storm and screen doors. Storm and screen doors may swing over all exterior stairs and landings.

Reason: The following are offered as problems with this section:

- The title of the section is "Landings at doors" but reading the text indicates that it only applies to exterior doors.
- The second sentence of the first paragraph reads "The floor or landing at the exterior door…", which exterior door? All exterior doors? Any single exterior door? The original text of this section, prior to modification in Cincinnati, required a floor or landing at the "exit door required by Section R311.4.1" to be not more than 1.5 inches below the top of the threshold. This intent did not make it into the revision and there was no technical justification submitted to warrant requiring a change for other doors.
- The third sentence provides for slope of "the landing". Which landing? All landings? A particular landing? If only one, why not all?
- The section requires that the main exit door have an exterior landing but doesn't provide for stairs or a ramp to grade. Is that sufficient?
- The third exception requires a "floor" at certain exterior doors. Is a "floor" the same as a "landing". Must a "floor" meet the same size requirements as a "landing"? The terms seem to be used interchangeably in the section but do they have the same meaning? It appears not.
- The third exception permits "floors" to be not more than 7 3/4 inches below the threshold. Is this an interior or exterior floor or both. The second exception permits the exterior landing to be 7 3/4 inches below the threshold if a door doesn't swing over the landing. Does the third exception override the second?
- Because of the conflicting and confusing language, interpretation and use of this section continues to be a problem. The proposed solution is largely editorial and is intended to reflect the intent of the current text. The lone exception is the inclusion of language requiring a ramp or stair from the main exit door landing.

The proposed amendment does the following:

- Combines the general requirements for landings in the first paragraph and deletes references to "floors".
- Lists rules specific to the main exit door in one section. It also provides for a stair or ramp for this landing if it is not at grade.
- Lists rules for doors other than the main exit door in a separate section. Note that landings may be 7 3/4 inches below the threshold on both sides of the door based on former exception #3.
- Provides a separate reference for storm or screen doors identical to that found in IBC section 1003.1.4, exception 1.2..

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

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

RB93–06/07
R311.4.3

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.

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

RB94–06/07
R311.5.1

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

Revise as follows:

R311.5.1Width. Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31.5 inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides. Stairways without handrails are allowed to have stringers encroach up to 1 1/2 inches (38 mm) on both sides.

Exception: The width of spiral stairways shall be in accordance with Section R311.5.8.

Reason: The added code language will deal with the lack of allowing any encroachments for stairs that do not have any handrails. The Code only requires handrails when there are 4 or more risers. Therefore when there is a stair that has 2 or 3 risers and the owner chooses to not install any handrails, the Code will now require that the stair treads be at least 36" wide without any allowable encroachments. The Code would now allow the stair to be only 27" wide at or below handrails if installed on both sides. This would still require treads to be at least 33" wide which would be safer and make up for not having handrails.

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

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

RB95–06/07
R311.5.3.3 (New)

Proponent: David W. Cooper, Stairway Manufacturers' Association

Add new text as follows:

R311.5.3.3 Tread riser ratio. Tread depth and riser height shall be permitted to be proportioned such that the sum of the height of two risers plus the depth of one tread measured at the walk line is not less than 23-5/8 inches (600 mm) nor more than 25-5/8 inches (651 mm).

Reason: To add a new section to the code. This proposal will provide a recommended prescriptive that may be used to assure standardization**.**

A prescriptive is needed in the code for those who wish to proportion the tread to the riser and to serve jurisdictions that would like to adopt the ICC and have need for a tread riser ratio standard.

This is not a requirement but will provide prescriptive language for those that wish to proportion treads and risers. This standard is one that is used through out the world in its metric form of 600 mm – 650 mm. It is the most common and widely recognized and should be recognized by the ICC. Jurisdictions that previously utilized tread riser ratios such as New York, Rhode Island, etc or those that wish to include them may adopt varying standards that will complicate enforcement and interpretation across the nation. Such is the case in the state of Florida where a similar but different standard was adopted as seen below: (please note that the underlined bold type indicates the text being referenced)

> **R311.5.3.2 Tread depth.** The minimum tread depth, **exclusive of nosing, shall be not less than 9 inches (254 mm). Treads and risers of stairs shall be permitted to be so proportioned that the sum of two risers and a tread, exclusive of projection of nosing, is not less than 24 inches nor more than 25 inches.** The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point 12 inches (305) mm from the side where the treads are narrower. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point. Within any flight of stairs, the greatest winder tread depth at the 12 inch (305 mm) walk line shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Although we can never assure that any ICC standard will be adopted in its entirety we should provide a standard for those who wish to use it.

The need for a standard is also especially clear to be indicated when at the extreme of the code parameters such as step downs with low rises and short treads or stairs with high rises and wide treads. This section in the code although not required will provide an aid to better stair design at the option of the user while providing guidance for those wishing to improve the geometry of stairs by matching the proportion of tread and riser to the human stride.

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

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

RB96–06/07
R311.5.6

Proponent: David W. Cooper, Stairway Manufacturers' Association

Revise as follows:

R311.5.6 Handrails. Handrails shall be provided on at least one side of each ~~continuous run of treads or~~ flight with four or more risers not more than 30 inches (762 mm) from the stairway walk line.

Reason: To add a need requirement for wide stairways**.** This provision will assure that a handrail is within reach of the designed walk line of the stairway.

Substantiation: Stairs should be designed with regard to the walk line for comfortable walking and it is important that a required handrail is within reach of this optimal point to encourage compliant, safe, use of stairways. This is generally not an issue except in the case of wider and monumental entry stairs often adorning larger homes. This would allow stairs up to 46-1/2 inches wide to have the required handrail on either side of the stair. This figure was determined by adding the handrail projection or 4-1/2 inches, the 30 inch requirement, and the 12 inch walk line dimensions. This is not required in codes that require handrails on both sides of the stair such as the IBC.

Finally an editorial change is being recommended to eliminate the redundant text "continuous run of treads" in hopes that the definition of "flight" that we have submitted will be accepted.

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

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

RB97–06/07
R311.5.6.1

Proponent: David W. Cooper, Stairway Manufacturers' Association

Revise as follows:

R311.5.6.1 Height. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

Exceptions:

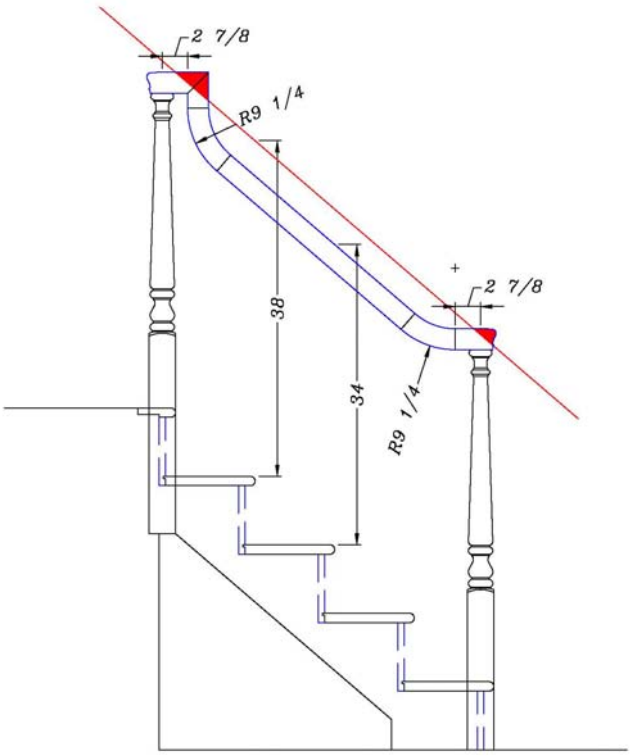
1. The use of a volute, turnout, or starting easing shall be allowed over the lowest tread.
2. When handrail fittings are used to provide continuous transition between flights, the transition from handrail to guardrail, or used at the start of a flight, the handrail height at the fitting shall be permitted to exceed the maximum height.

Reason: To add additional language required The proposal will make exception for minor variances in height that have been noted when starting fittings permited to interrupt the rail are used and allow height exception for gooseneck fittings when fittings are used to provide continuity.

Substantiation: Reasons for allowing these highly sought starting fittings include, historically accepted aesthetic practice in stairway construction and design, they provide a safe closed ending for the handrail, and have little effect on continuity. As the user approaches the stair, if they use the handrail, the users hand is extended in front of the body more than the distance of one tread to grasp the rail. This kind of usage can be documented by the visually apparent wear marks on rails. Essentially the handrail in the area over the lowest tread sees little use.

Starting fittings are allowed to break continuity of a rail over the lowest tread. This means that no handrail is required in this area. If no handrail is required in this area whatever is permitted to be there should not have to meet the handrail height code however this is being misinterpreted and the addition of exception 1 is necessary in addition to the similar exception in the continuity code. Please see graphic below.

A similar situation occurs the top of stairs where the gooseneck fitting ascends to connect to the next fitting to provide a continuous rail. At this location the top of the gooseneck will often extend above the maximum handrail height within 4 to 5 inches of the top nosing. The second exception being offered is limited to continuous rails and would prevent the extension of the stairwell or more likely narrowing of the tread depth to accommodate this additional height by moving the post back onto the floor to allow the rail more horizontal distance to climb.



In the illustration above the shaded areas indicate the needed exception at the top of a stair and over the lowest tread.

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

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

RB98–06/07
R311.5.6.2, R311.6.3.3

Proponent: David W. Cooper, Stairway Manufacturers' Association

Revise as follows:

R311.5.6.2 Continuity. Handrails for stairways shall be continuous for the full length of the flight, from a point directly above the top ~~riser~~ nosing of the flight to a point directly above the lowest ~~riser~~ nosing of the flight. Handrail ends shall be returned to a wall, guard or walking surface or shall terminate in newel posts ~~or safety terminals~~. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inch (38 mm) between the wall and the handrails.

Exceptions:

1. Handrails shall be permitted to be interrupted by a newel post at ~~the~~ a turn.
2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.

R311.6.3.3 Continuity. Handrails where required on ramps shall be continuous for the full length of the ramp. Handrail ends shall be returned to a wall, guard or walking surface or shall terminate in newel posts ~~or safety terminals~~. Handrails adjacent to a wall shall have a space of not less than 1.5 inches (38 mm) between the wall and the handrails.

Reason: Nobody knows what a safety terminal is, nor is it defined anywhere in the code. This proposal provides the needed clarification and in addition offers a more appropriate reference for start and end points.

Substantiation: As in other code change proposals we have submitted in this cycle the defined term of nosing is being used. In this case, using the same point of reference used to determine handrail height and many other issues related to stairs will promote better understanding.

For lack of a definition and because of wide misconceptions as to what a "safety terminal" is, this phrase should be eliminated from the code. One intention of this section is to eliminate open-ended handrails that would cause an accident due to the possibility of catching clothing or items being carried. The substituted text solves this problem for both stair and ramp handrails by offering a better description of where handrail ends should be returned.

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

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

RB99–06/07
R311.5.6.3, R311.6.3.2

Proponent: David W. Cooper, Stairway Manufacturers' Association

Revise as follows:

R311.5.6.3 Handrail ~~grip size~~ graspability. All required handrails shall be of one of the following types or provide equivalent graspability.

1. Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross section of dimension of 2 1/4 inches(57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).
2. Type II. Handrails with a perimeter greater than 6 1/4 inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least 3/8 inch (10 mm)to a level that is not less than 1 3/4 inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches (32 mm) to a maximum of 2 3/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

R311.6.3.2 Handrail ~~grip size~~ graspability. Handrails on ramps shall comply with Section R311.5.6.3.

Reason: Editorial revision. The current title of the section does not match the content and necessary text must be added.
Substantiation: The name of the section should match the subject of the content. The same section in the IBC is titled handrail graspability and this title more aptly suits what is being regulated.
Many Type I handrails also have edges that should be rounded. It is possible that this sentence was inadvertently dropped as it appears in the IBC text, which is identical otherwise

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

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

RB100–06/07
R311.5.5

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.

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

RB101–06/07
R311.6.1

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.

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

RB102–06/07
R202 (New), R311.7 (New), R312.3 (New), R319.4 (New), R502.1.7 (New), Chapter 43

Proponent: Michael D. Fischer, The Kellen Company, representing The Composite Lumber Manufacturer's Association

1. Add new text as follows:

SECTION R202
DEFINITIONS

WOOD PLASTIC COMPOSITE. a composite material made primarily from wood or cellulose based materials, and plastic.

R311.7 Exterior wood plastic composite handrails. Wood plastic composite handrails shall comply with the provisions of R319.4

R312.3 Exterior wood plastic composite guards. Wood plastic composite guards shall comply with the provisions of R319.4

R319.4 Wood plastic composites. Wood plastic composites used in exterior deck boards, handrails and guardrail systems shall bear a label indicating the required performance levels and demonstrating compliance with the provisions of ASTM D7032.

R502.1.7 Exterior wood plastic composite deck boards. Wood plastic composites used in exterior deck boards shall comply with the provisions of R319.4.

2. Add standard to Chapter 43 as follows:

ASTM

ASTM D 7032-04 Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)

Reason: This proposal adds a new requirement into the IRC that wood plastic composite (WPC) materials, commonly used in exterior decks boards, guards and handrails, be rated for appropriate performance criteria. The IRC is currently silent on these materials despite their widespread acceptance for residential construction, and the addition of labeling requirements for wood-plastic composites will ensure the safe application of these materials in exterior deck systems. The referenced standard, ASTM D7032, includes performance evaluations such as flexural tests, ultraviolet resistance tests, freeze-thaw resistance tests, bio-deterioration tests, fire performance tests, creep recovery tests, mechanical fastener holding tests, and slip resistance tests. The standard also includes considerations of the effects of temperature and moisture, concentrated loads, and fire-propagation tests.

Wood-plastic composite material manufacturers who seek to provide quality materials currently demonstrate compliance with the intent of code requirements in the IRC through the use of evaluation reports. Allowing these materials to be approved through testing by approved laboratories and labeling by approved quality assurance entities will ensure that the code requirements for structural and fire safety issues are met, while providing the industry with more options for demonstrating compliance. That flexibility will allow free competition for quality assurance services and will help manufacturers reduce the cost of certification.

Text from the commentary to ASTM D7032 is included below to provide additional background on the development of this consensus standard:

"X1.1 Commentary to Section 1, Scope—Because a composite is a mixture of materials, whereby the properties are defined by the components of the mixture, it stands to reason that a wide range of performance attributes will result. This specification makes no attempt to exclude any composite. It is written to address "fitness-for-use" for a specific structural application (that is, deck boards and guardrails).

X1.1.1 Over the past several years, numerous lumber substitute materials have emerged in the marketplace. Of particular note have been decking products, which include deck boards and guardrail systems. When structural performance is an issue (that is, when building code recognition is required), it is critical that uniform criteria are available to assess fitness for use. This specification has been designed to be used to establish the basis for code recognition of deck board span ratings and guardrail system performance (guards and handrails).

In particular, this specification has followed the guidelines provided by all major model codes in North America and specifically the 2003 International Building Code (IBC), and the 2003 International Residential Code (IRC).

X1.1.2 Because WPC deck boards and guardrail systems rely on a similar set of test methods and code requirements, it was deemed appropriate to place both product applications within a single specification. The Table of Contents was added to assist users of the standard in finding the portions pertinent to the application of interest.

X1.1.3 This specification draws on historical test methods for wood-based products, as well as more recent standards activity for both polyolefin lumber substitutes and wood-plastic products. Some of the more important recent standards work has been conducted within the ASTM Committee on Plastics, D20. A number of test methods and a particularly useful document, recently approved Specification D 6662, provides guidance in this area."

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

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

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

RB103–06/07
R312.1

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.

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

RB104–06/07
R312.1

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.

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

RB105–06/07
R312.1

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~~ <u>Those portions of open sides of stairs where the height of treads exceeds</u> 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.

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

RB106–06/07
R312.2

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.

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

RB107–06/07
R312.2

Proponent: John Hibner, Sr., Indianapolis, Indiana

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) 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 3/8 inches (107 mm) to pass through.

Reason: The purpose for this code change proposal is to provide the same level of safety for any application of guards.

The current edition of the residential code provides opening limitations only on required guards. The same safety considerations given for required guards should be given to those not required.

The code should not require guards in all situations, but it should require in all situations that guards are safe.

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

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

RB108–06/07
R312.2, R312.2.1 (New)

Proponent: John Hibner, Sr., Indianapolis, Indiana

1. 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 (102mm) 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 3/8 inches (107 mm) to pass through.~~

2. Add new text as follows:

R312.2.1 Stairway guard opening limitations. 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. All other openings for required guards on the sides of stair treads shall not allow a sphere 4 3/8inches (107 mm) to pass through.

Reason: The purpose for this code change proposal is to clarify the residential code.

The current edition of the residential code uses two exceptions for the one sentence of text. It would clarify the code to create a new subsection for open stairways, using the language from the two exceptions.

Elimination of exceptions in favor of code text prevents misunderstandings on when or how those exceptions are applied.

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

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

RB109–06/07
R313, R313.1.1 (New), Chapter 43

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.

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

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

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 Units*. 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.

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

RB111–06/07
R313.2.1, R313.3

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

Exception~~s~~:

1. ~~Inter connection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.~~
2. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.

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 alarms shall be interconnected. ~~Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs or additions regulated by Section R313.2.1.~~

Exceptions:

1. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.
2. Interconnection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.

Reason: This is strictly an editorial change to place the text in this section in proper order. The first change removes items referencing power issues from R313.2.1 and places them in the section titled **"Power source"** so all issues related to power are in one section. The deleted language in the last sentence of R313.2.1 is addressed as two exceptions that permit battery operated alarms in buildings without commercial power and excludes hardwired alarms in certain situations. This modification also eliminates a conflict in this portion of the code in that the last sentence of R313.1 states "…smoke alarms shall be interconnected and hardwired" for buildings undergoing alterations, repairs or additions. Then R313.3 goes on to say "smoke alarms may be battery operated … in buildings that undergo alterations, repairs, or additions." Now some would argue that the last sentence of R313.3 requires that you apply it to the exception found in R313.1 that allows battery powered alarms if you don't have attics, crawl spaces or the like to hardwire the alarms. But then, what if you do have the means to hardwire the alarms? Does R313.3 then allow you to again use battery-powered alarms? This change eliminates that conflict and allows the section to pass the enforceability test.

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

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

RB112–06/07
R313.2.1

Proponent: Rick Davidson, City of Hopkins, Minnesota

Revise as follows:

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

Exceptions:

1. Inter connection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.

2. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
3. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

Reason: The current text requires that the installation of a water heater trigger the installation of hardwired and interconnected smoke alarms. This is overly restrictive and counterproductive since it increases the cost of the installation to the extent that encourages work without a permit. The IRC Committee heard a similar proposal in Cincinnati but disapproved it because the proposal included the exemption for electrical work that the Committee felt should have been excluded. The proposal is revised to only include plumbing and mechanical exemptions.

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

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

RB113–06/07
R313.2.1

Proponent: Donald J. Sivigny, State of Minnesota Construction Codes and Licensing Division

Revise as follows:

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

Exceptions:

1. Inter connection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure~~, unless there is an attic, crawl space or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes~~.
2. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.

Reason: The deletion of this text from the code is essential for many reasons:
1. The enforcement of this section has been far from uniform since there is no real definition of “available” to the code officials. Some are requiring it, while others are not.
2. There have been and continue to be situations where the builder will finish the basement and will end up having to fish a wire from the basement to the attic, following the path that offers the least amount of work and resistance. Many times this is done using the chase that is built to run the furnace flue. This creates a fire hazard as well as other issues.
3. Accessing the attic space and actually going up into the attic is as bad idea from the standpoint of building durability. The International Energy Conservation Code addresses the issues of attic bypasses, which are created the second the attic access panel seal is broken open, (and no one will weather-strip or re-seal the access opening), and the holes that will be cut without sealing on the exterior envelope itself.
4. Another issue develops when the contractor runs wiring from an existing smoke alarm across the attic floor, they will need to staple the wire as required by the National Electrical Code. This will require the insulation in the attic floor to be removed or pushed to the side, and there will also be a lot of insulation that may be trampled or flattened down by both the contractor and the electrical inspector who, by the requirements of the code, need to see the work to approve it. As a result, the insulation may not be placed back as it should, to meet the minimum R-value requirements for the code. This code change will create many more code issues for the building and its owner than it will solve. Let them use a battery operated smoke alarm in all existing locations.

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

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

RB114–06/07
R313.3 (New)

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" report[11] states in Finding #2 – "The Application and Use of Sprinkler Technology - The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers. If the focus is limited to prevention and reduction of the loss of life, smoke alarms are also extremely effective. However, the use of sprinklers and smoke detectors has not been sufficiently comprehensive." The report further states, "The need for emphasis on residential construction is born out by statistics. For the most recently compiled year, 1997, there were 552,000 structure fires in the United States. Almost three-quarters of structure fires occurred in residential properties including homes, hotels, motels, rooming houses and dormitories. Fifty-five percent (55%) or 302,500 were in one- and two-family homes and seventeen percent (17%) or 93,000 occurred in apartments. The largest number of civilian deaths occurred in residential buildings. Eighty-three percent (83%) of the 4035 total civilian deaths occurred in home structure fires - with sixty-seven percent (67%) or 2700 in one-and two-family homes."

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Ford, J. (1997). *Saving Lives, Saving Money: Automatic Sprinklers, a 10 Year Study* (Rep.). Scottsdale, AZ: Rural/Metro Fire Department, City of Scottsdale, Arizona.

Hall, J. R. (2004). *U.S. Fire Death Rates by State* (Rep.). Quincy, MA: NFPA.

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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"

Hall, J. R. (2005). *Characteristics of Home Fire Victims* (Rep.). Quincy, MA: NFPA.
Leblanc, P. R., & Fahy, R. F. (2005). *Full Report: Firefighter Fatalities in the United States - 2004* (Rep.). Quincy, MA: National Fire Protection Association.
Rohr, K. D., & Hall, J. R. (2005). *U.S. Experience with Sprinklers and Other Fire Extinguishing Equipment* (Rep.). Quincy, MA: NFPA.

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

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

RB115–06/07
314.1.2 (New)

Proponent: James Gorman, BLUE STAR insulated concrete forms

Add new text as follows:

R 314.1.2 Thermal barrier. Foam plastic, except where otherwise noted, shall be separated from the interior of a building by a minimum ½-inch (12.7 mm) gypsum board or an approved finish material equivalent to a thermal barrier to limit the average temperature rise of the unexposed surface to no more than 250º F. (121º C.) after 15 minutes of fire exposure to the ASTM E 119 standard time temperature curve. The gypsum board shall be installed using a mechanical fastening system in accordance with Section 702.3.5. Reliance on the adhesive to ensure that the gypsum board will remain in place when exposed to ire shall be prohibited. This section shall authorize as a Class A, one-hour fire-rated thermal barrier the use of non-flammable cementitious acrylic polymer stucco-like ICF wall finish that meets or exceeds the fire safety thermal barrier protection for multi-occupancy structures as specified in ASTM C 882, E 84, E 108 and E 119.

Reason: This alternative method of providing ICF walls with appropriate thermal barrier protections permits the use of PermaCrete as a Class A, one-hour thermal barrier.

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

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

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

RB116–06/07
R314.5.3, R314.5.4

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.

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

RB117–06/07
R314.5.4

Proponent: Frank O. Moore, Jr., Honeywell International, Inc.

Revise as follows:

R314.5.4 Crawl spaces. The thermal barrier specified in Section R314.4 is not required where crawlspace access is required by Section R408.3 and where entry is made only for service of utilities and the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:

1. 1.5-inch-thick (38 mm) mineral fiber insulation;
2. 0.25-inch-thick (6.4 mm) wood structural panels;
3. 0.375-inch (9.5 mm) particleboard;
4. 0.25-inch (6.4 mm) hardboard;
5. 0.375-inch (9.5 mm) gypsum board; or
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 or the foam plastic is spray applied to the walls subject to all of the following:

1. The maximum thickness of the foam plastic is 3 1/4 inches (83 mm).
2. The density of the foam plastic shall be in the range of 1.5 to 2.0 pounds per cubic foot (24 to 32 kg/m^3)
3. The foam plastic shall have a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E 84.

Reason: Allow material with new requirements for use.
Foam plastic is permitted to be spray applied to the sill plates and headers as in R314.5.11 if the spray foam complies with the stated requirements.
Spray foam is currently permitted to be spray applied to the sill plates and headers as in R314.5.11 if the spray foam complies with the stated requirements and this would logically allow the total operation (sill plates, headers and walls) to be accomplished simultaneously.

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

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

RB118–06/07
R315

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

SECTION R315
FLAME SPREAD AND SMOKE ~~DENSITY~~ DEVELOPMENT

R315.1 Wall and ceiling. Wall and ceiling finishes shall have a flame-spread ~~classification~~ index of not greater than 200.

Exception: Flame-spread index requirements for finishes shall not apply to trim defined as picture molds, chair rails, baseboards and handrails; to doors and windows or their frames; or to materials that are less than 1/28 inch (0.91 mm) in thickness cemented to the surface of walls or ceilings ~~if these materials have a flame-spread characteristic no greater than paper of this thickness cemented to a noncombustible backing~~.

R315.2 Smoke-developed index. Wall and ceiling finishes shall have a smoke-developed index of not greater than 450.

R315.3 Testing. Tests shall be made in accordance with ASTM E 84.

R315.4 Alternate test method. As an alternate to having a flame-spread ~~classification~~ index of not greater than 200 and a smoke developed index of not greater than 450 when tested in accordance with ASTM E 84, wall and ceiling finishes~~, other than textiles~~, shall be permitted to be tested in accordance with NFPA 286. Materials tested in accordance with NFPA 286 shall meet the following criteria:

During the 40 kW exposure, the interior finish shall comply with Item 1. During the 160 kW exposure, the interior finish shall comply with Item 2. During the entire test, the interior finish shall comply with Item 3.

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. During the 160 kW exposure, the interior finish shall comply with the following:
   2.1. Flame shall not spread to the outer extremity of the sample on any wall or ceiling.
   2.2. Flashover, as defined in NFPA 286, shall not occur.
3. The total smoke released throughout the NFPA 286 test shall not exceed 1,000 m^2.

Reason: This proposal incorporates a few changes that are mostly clarification.
1. The correct terminology is "flame spread index" and "smoke developed index", which is what is reported in the results of ASTM E 84.
2. Materials with a thickness of less than 1/28 inch (0.9 mm) are exempted from testing for flame spread index and smoke developed index. Therefore, it is not possible to determine if their flame spread index is similar to that of paper, because they would have to be tested to know whether they are really similar. This makes the IRC also consistent with the IBC. For information, the IBC states as follows:

   "801.1.1 Interior finishes. These provisions shall limit the allowable flame spread and smoke development based on location and occupancy classification.

   Exceptions:

   1. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings.
   2. Exposed portions of structural members complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements."
   3. Both the IBC and the IRC already allow textiles (textile wall and ceiling coverings) to be tested by using NFPA 286. The IRC should also allow it, as NFPA 286 is a more severe test than the alternative test for textile wall coverings: NFPA 265, and will provide adequate fire performance information for those materials.
   4. The title of the section talks about "smoke density" but actually neither ASTM E 84 nor NFPA 286 measure smoke density; they measure smoke release or smoke development.

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

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

RB119–06/07
R317.2.1

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.

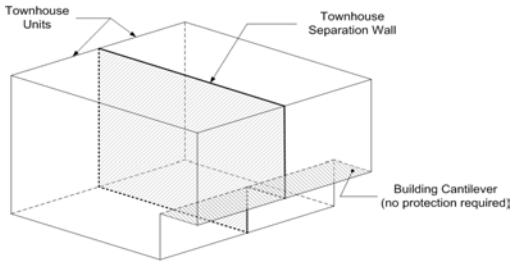

FIGURE 1 – CANTILEVERED BUILDING

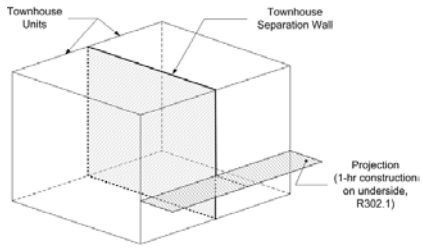

FIGURE 2 – PROJECTION

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

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

RB120–06/07
R317.2.2

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

Revise as follows:

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

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

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

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

<u>There shall not be any openings or penetrations within this 4 foot (1219 mm) zone.</u>

Reason: The added wording will clarify that the Code would not allow any openings or penetrations to be located within the 4' horizontal zone which is required to be either FRT plywood or 5/8" type X drywall and is being used as the exception to a required 30" high parapet. This would prohibit the installation roof vents, ridge vents, or even skylights within this 4' zone. We believe that the intent of the Code is to allow this exception to installing a parapet so that there is not a potential of a fire burning through the roof and jumping to the adjacent roof on other side of the fire separation wall between the townhomes. This Code change will clear up the different interpretations that numerous building officials have about what exactly is allowed or not allowed with this exception.

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

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

RB121–06/07
R317.2.2

Proponent: Maureen Traxler, City of Seattle, Washington

Revise as follows:

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

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

   Exception: A parapet is not required in the two cases above when the roof is covered with a minimum class C roof covering, and the roof decking or sheathing is of noncombustible materials or approved fire-retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a minimum distance of 4 feet (1220 mm) on each side of the wall or walls. No openings are permitted in the roof within 4 feet (1220 mm) of the wall or walls.

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

In items 1 through 3, no openings are allowed in the parapet or in the common wall between the lower roof and higher roof.

Reason: The purpose of this proposal is to provide reasonable protection where townhouses are separated by common walls.

The proposed revision prohibits openings in a roof within 4 feet of a common wall separating townhouses where there is no parapet, and prohibits openings in the wall separating the townhouses. There is a great potential for fire in one townhouse to spread to the adjacent townhouse through an opening in the roof or common wall, igniting the roof trusses or other combustibles in the adjacent townhouse.

Section R317.2 prohibits plumbing and mechanical equipment, ducts, and vents in the common wall, even if all penetrations are protected. Allowing larger openings in the wall or adjacent roof negates the protection provided by the two-hour wall. The protection required by Section R317.2 should be continued through the entire wall, including parapets. For instance, where townhouse roofs are at different heights, the current code would allow clerestory windows in the common wall and skylights in the roof adjacent to the wall.

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

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

RB122–06/07
R319.3

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.

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

RB123–06/07
R319.3

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.

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

RB124–06/07
R319.3

Proponent: David Rochester, Plating Systems & Technologies, Inc.

Delete without substitution:

~~**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.~~

Reason: One (1) ounce per square foot of zinc coating is a weighted coating and when it is applied by either the mechanical galvanizing process or the hot-dip galvanizing process, yields the same amount of zinc coating. In theory, both should provide equal amounts of corrosion protection, but in actuality, mechanical galvanizing provides significantly more corrosion protection in neutral salt spray testing. A true measure of a coating's viability should be the coating thickness followed by the corrosion protection given from such coating. Since mechanical galvanizing can equal hot-dip galvanizing in coating weight, and can exceed it in corrosion protection, the restriction on nails and timber rivets should be removed.

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

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

RB125–06/07
R319.4

Proponent: Dennis Pitts, American Forest and Paper Association (AF&PA)

Add new text as follows:

R319.4 Moisture content. Where pressure preservatively treated wood is used in enclosed locations where drying in service cannot readily occur, such wood shall be at a moisture content of 19 percent or less before being covered with insulation, interior wall finish, floor covering

Reason: This proposal makes the IRC consistent with the IBC and industry recommendations.

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

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

RB126–06/07
R202 (New), R320

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.

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

RB127–06/07

R202, R320, Table R301.2(1)

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. Chemical termiticide treatment, as provided in Section R320.2.
2. 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. Physical barriers as provided in Section R320.4.

Exception: In jurisdictions identified as subject to damage from Formosan termite infestation, all structural members of walls, floors, ceilings, and roofs shall be composed of termite resistant material.

2. Add new definition as follows:

SECTION R202
DEFINITIONS

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.

4. Revise table as follows:

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

GROUND SNOW LOAD	WIND SPEED[de] (mph)	SEISMIC DESIGN CATEGORY[fg]	SUBJECT TO DAMAGE FROM					WINTER DESIGN TEMP[ef]	ICE BARRIER UNDERLAYMENT REQUIRED[hi]	FLOOD HAZARDS[eh]	AIR FREEZING INDEX[ij]	MEAN ANNUAL TEMP[jk]
			Weathering[a]	Frost line depth[b]	Subterranean Termite		Decay[e]					
					Formosan[c]	Other[d]						

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

a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index (i.e., "negligible," "moderate" or "severe") for concrete as determined from the Weathering Probability Map [Figure R301.2(3)]. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.

b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.

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

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

~~d.~~ e. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [FigureR301.2(4)].Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

~~e.~~ f. The outdoor design dry-bulb temperature shall be selected from the columns of 971/2-percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the building official.

~~f.~~ g. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.

~~g.~~ h. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the currently effective FIRM and FBFM, or other flood hazard map adopted by the community, as may be amended.

~~h.~~ i. In accordance with Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES". Otherwise, the jurisdiction shall fill in this part of the table with "NO".

~~i.~~ j. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99%) value on the National Climatic Data Center data table "Air Freezing Index- USA Method (Base 32°Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.

~~j.~~ k. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.

Reason: This code change is intended to strengthen current termite protection requirements within the code to provide sufficient protection in areas subject to the Formosan subterranean termite (FST). The change would require protection of a home's structural members in areas subject to the (FST) – an invasive species that causes $1 billion[1] in damage and control measures annually. Hawaiian building code currently requires this protection for its homes, where the FST is responsible for $100 million in annual control measures and damages. Louisiana, where the FST has the largest foothold in the contiguous states, is now subject to $500 million in annual control measures and damages.

Repeated research has demonstrated that termiticides alone can be insufficient in protecting a structure from FSTs. Termiticides degrade over time and can be voided by landscaping, leaching into soil, heavy rains, or lapses between treatments. According to the USDA, "the Formosan termite has demonstrated the ability to infest wooden structures even though the soil surrounding them has been treated."[2] A change to current code requirements is therefore necessary to adequately protect the home's structure from the FST.

1. Louisiana State University. Termite Integrated Pest Management Series, "Formosan Subterranean Termite Damage and Detection". http://www.agctr.lsu.edu/NR/rdonlyres/2FD93BF5-A2A8-4F89-BAA0-82EBD0B50232/3287/pub2840termitedetect8.pdf
2. United States Department of Agriculture, Agriculture Research Service. National Formosan Subterranean Termite Program. http://www.ars.usda.gov/is/br/fullstop/backgrounder.htm

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

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

RB128–06/07
R320.3

Proponent: Sam Francis, American Forest & Paper Association (AFPA)

Revise as follows:

R320.3 Naturally resistant wood. Heartwood of redwood, ~~and~~ eastern red cedar, Alaska yellow cedar, and both heartwood and all sapwood of Western red cedar shall be considered termite resistant.

Reason: This change introduces species recently found to be termite resistant. Special emphasis of the study was Formosan termite resistance which is of great importance to gulf coast states trying to rebuild following recent hurricanes. These states are particularly susceptible to the Formosan termite.

Western red cedar and Alaska yellow cedar are other naturally termite resistant species of wood that offer equivalent protection to heartwood of redwood and eastern red cedar. Western red cedar sapwood and Alaska yellow cedar showed significant natural resistance to termites and were consistently listed with redwood and eastern red cedar heartwood as termite resistant species (Morales-Ramos, Rojas, 2001). Adding these wood

species to the list would upgrade the provisions by allowing commercially available, equivalent species that meet the intent of this definition. This proposal is offered to clarify the acceptance of these products where design and enforcement personnel may question whether these wood species are equivalent to those already listed. Current language requires that design professionals demonstrate to the building official in each jurisdiction that these products are acceptable alternatives, as the data indicates. This creates an avoidable challenge for those that want to use these materials across many jurisdictions. Inefficiencies such as this are best mitigated through more inclusive code language which will be accomplished by this proposal.

The abstract of the referenced paper summarizes the natural resistances of the species of wood tested in this study as follows:

> Preference was determined by consumption rates. Birch (*Betula alleghaniensis* Britton), red gum (*Liquidambar styraciflua* L.), Parana pine [*Araucaria angustifolia* (Bert.)], sugar maple (*Acer saccharum* Marsh.), pecan (*Carya illinoensis* Wangenh.), and northern red oak (*Quercus rubra* L.) were the most preferred species by *C. formosanus* in order of consumption rate. All these species were significantly more preferred than southern yellow pine (*Pinus taeda* L.), widely used for monitoring. Sinker cypress [= old growth bald cypress, *Taxodium distichum* (L.)], western red cedar (*Thuja plicata* Donn), Alaskan yellow cedar (*Chamaecyparis nootkatensis* D.Don), Eastern red cedar (*Juniperus virginiana* L.), sassafras [*Sassafras albidum* (Nutt.)], Spanish cedar (*Cedrella odorata* L.), Honduras mahogany (*Swietenia macrophyla* King), Indian rosewood (*Dalbergia latifolia* Roxb.), Honduras rosewood (*D. stevensonii* Standl.), and morado (*Machaerium* sp.) induced significant feeding deterrence and mortality to *C. formosanus*. The last eight species produced 100% mortality after 3 months.

Bibliography: *Nutritional Ecology of the Formosan Subterranean Termite (Isoptera: Rhinotermitidae): I. Feeding Response to Commercial Wood Species;* Juan A. Morales-Ramos And M. Guadalupe Rojas

Cost Impact: The code change proposal will not increase the cost of construction. In areas suffering widespread damage, construction materials can become scarce and, thus, costly. More choices typically leads to less cost pressure.

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

RB129–06/07
R324.3.1

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

Revise as follows:

R324.3.1 Location and site preparation.

1. ~~Buildings and structures~~ New buildings and buildings that are determined to be substantially improved pursuant to Section R105.3.1.1, shall be located landward of the reach of mean high tide.
2. For any alteration of sand dunes and mangrove stands the building official shall require submission of an engineering analysis which demonstrates that the proposed alteration will not increase the potential for flood damage.

Reason: The purpose of this code change is to correct the inadvertent inclusion of all structures in the limitation requiring location landward of the reach of mean high tide.

Flood-related provisions in the IRC generally are consistent with the regulations of the National Flood Insurance Program (44 C.F.R. §60.3). As currently written, R324.3.1(1) requires that piers and other non-building structures be constructed landward of the reach of mean high tide. The federal regulations limit the placement of "new construction," as defined in those regulations to landward of the reach of mean high tide (see NFIP regulation §60.3(e)(3)). The NFIP definition of "new construction" is limited to new buildings and buildings that are substantially improved (i.e., buildings that are to be brought into conformance with the flood-resistant provisions when undergoing certain work).

The technical information used to substantiate this proposal is the NFIP regulation §60.3(e)(3).

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

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

RB130–06/07
R324.2.2

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

Revise as follows:

R324.2.2 Enclosed area below design flood elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation shall:

1. Be used solely for parking of vehicles, building access or storage.

2. Be provided with flood openings that meet the following criteria:
   2.1. There shall be a minimum of two openings on different sides of each enclosed area; if a building has more than one enclosed area below the design flood elevation, each area shall have openings on exterior walls.
   2.2. The total net area of all openings shall be at least 1 square inch (645 mm²) for each square foot (0.093 m²) of enclosed area, or the openings shall be designed and the construction documents shall include a statement that the design and installation will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters.
   2.3. The bottom of each opening shall be 1 foot (305 mm) or less above the adjacent ground level.
   2.4. Openings shall be ~~at least 3 inches (76 mm) in diameter~~ not less than 3 inches (76 mm) in any direction in the plane of the wall.
   2.5. Any louvers, screens or other opening covers shall allow the automatic flow of floodwaters into and out of the enclosed area.
   2.6. Openings installed in doors and windows, that meet requirements 2.1 through 2.5, are acceptable; however, doors and windows without installed openings do not meet the requirements of this section.

Reason: The purpose of this code change is to be consistent with a language in ASCE 24-05 *Flood Resistant Design and Construction,* that is referenced by the *International Building Code*.

The requirements that apply to flood openings are detailed in both National Flood Insurance Program regulations (44 C.F.R. §60.3(c)(5) and ASCE 24-05. ASCE 24-05 specifies a minimum dimension, as shown in this code change, in order to address concerns that small openings may become clogged by floating debris, including leaves and grass clippings.

The proposed change is consistent with the performance expectation outlined in guidance issued by FEMA in the NFIP Technical Bulletin 1-93, *Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas*.

Bibliography: NFIP Technical Bulletin 1-93, *Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas*. Federal Emergency Management Agency, National Flood Insurance Program; Washington, D.C. 1993. (available online at http://www.fema.gov/fima/techbul.shtm). An electronic copy is submitted with this proposal.

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

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

RB131–06/07

R324.1.3, R324.1.7, R324.2.1, R324.3.2, M1701.6, M2201.6, P3101.5, IFGC 301.11 (G2404.7)

Proponent: Rebecca C. Quinn, RCQuinn Consulting, Inc., representing US Department of Homeland Security, Federal Emergency Management Agency

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

Revise as follows:

PART I – IRC BUILDING/ENERGY

R324.1.3 Establishing the design flood elevation. The design flood elevation shall be used to define areas prone to flooding.~~, and shall describe,~~ At a minimum, the design flood elevation is the higher of:

1. The base flood elevation at the depth of peak elevation of flooding (including wave height) which has a 1 percent (100-year flood) or greater chance of being equaled or exceeded in any given year, or
2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.

R324.1.5 Protection of mechanical and electrical systems. Electrical systems, equipment and components, and heating, ventilating, air conditioning and plumbing appliances, plumbing fixtures, duct systems, and other service equipment shall be located at or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher. If replaced as part of a substantial improvement, electrical systems, equipment and components, and heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Electrical systems, equipment and components, and heating, ventilating, air conditioning and plumbing appliances, plumbing fixtures, duct systems, and other service equipment are permitted to be located below the

~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in compliance with the flood-resistant construction requirements of the *International Building Code.* Electrical wiring systems are permitted to be located below the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, provided they conform to the provisions of the electrical part of this code for wet locations.

R324.1.7 Flood-resistant materials. Building materials used below the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, shall comply with the following:

1. All wood, including floor sheathing, shall be pressure- preservative-treated in accordance with AWPA U1 for the species, product, preservative and end use or be the decay-resistant heartwood of redwood, black locust or cedars. Preservatives shall be listed in Section 4 of AWPA U1.
2. Materials and installation methods used for flooring and interior and exterior walls and wall coverings shall conform to the provisions of FEMA/FIA-TB

R324.2.1 Elevation requirements.

1. Buildings and structures shall have the lowest floors elevated to or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet (mm) on the FIRM plus one foot (305 mm), or at least ~~2~~ 3 feet (~~610~~ 915 mm) if a depth number is not specified.
3. Basement floors that are below grade on all sides shall be elevated to or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher.

   Exception: Enclosed areas below the design flood elevation, including basements whose floors are not below grade on all sides, shall meet the requirements of Section R324.2.2.

R324.3.2 Elevation requirements.

1. All buildings and structures erected within coastal high hazard areas shall be elevated so that the lowest portion of all structural members supporting the lowest floor, with the exception of mat or raft foundations, piling, pile caps, columns, grade beams and bracing, is ~~located at or above the design flood elevation.~~:
   a. Located at or above the design flood elevation, if oriented parallel to the direction of wave approach, where parallel shall mean less than or equal to 20 degrees from the direction of approach, or
   b. Located at the base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, if oriented perpendicular to the direction of wave approach, where perpendicular shall mean greater than 20 degrees from the direction of approach.
2. Basement floors that are below grade on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. The placement of fill beneath buildings and structures is prohibited.

Exception: Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R324.3.4 and R324.3.5.

PART II – IRC MECHANICAL

M1701.6 Opening location. In areas prone to flooding as established by Table R301.2(1), openings shall be located at or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, established in Section R323.1.5.

M2201.6 Flood-resistant installation. In areas prone to flooding as established by Table R301.2(1), tanks shall be installed at or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, established in Section R323 or shall be anchored to prevent flotation, collapse and lateral movement under conditions of the design flood.

PART III – IRC-P

P3101.5 Flood resistance. In areas prone to flooding as established by Table R301.2(1), vents shall be located at or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, established in Section R324.1.

PART IV – IFGC

301.11 (G2404.7) Flood hazard. For structures located in flood hazard areas, the appliance, equipment and system installations regulated by this code shall be located at or above the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, and shall comply with the flood-resistant construction requirements of Section R323.

Exception: The appliance, equipment and system installations regulated by this code are permitted to be located below the ~~design flood elevation~~ base flood elevation plus one foot (305 mm) or the design flood elevation, whichever is higher, provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation and shall comply with the flood-resistant construction requirements of Section R323.

Reason: The purpose of this code change is to add a factor of safety of one-foot of additional height (called freeboard) to the requirements related to elevation of the lowest floors and other aspects of buildings that are located, in whole or in part, in flood hazard areas.

The design flood elevation is defined as the higher of the elevation of the base flood (i.e., the base flood elevation shown on many NFIP flood hazard maps) or the elevation of the flood hazard area shown on a community's flood hazard map if a community has elected to adopt a different map. A community may elect to use a design flood or design flood elevation that is higher than the base flood elevation for a number of reasons. Some communities prepare flood hazard maps based on such factors projecting build-out of upper watershed areas or a flood of record. This code change mirrors the elevation requirements in the 2005 edition of ASCE's standard *Flood Resistant Design and Construction* (ASCE 24-05).

The technical information used to substantiate this proposal is ASCE 24-05, *Flood Resistant Design and Construction.* The 2005 edition of this standard incorporates freeboard as a function of building occupancy and flood hazard zone. ASCE 24 sets requirements for Category II building, including the one- and two-family dwellings and townhouses within the scope of the IRC, such that the lowest floor is to be elevated to or above the base flood elevation plus one foot, or the design flood elevation, whichever is higher. In coastal high hazard areas (V Zone), the freeboard specified in ASCE 24 is a function of whether the lowest horizontal structural member is parallel – or perpendicular – to the anticipated direction of wave approach.

Additional substantiation for the additional elevation requirement is found in the insurance rating structure of the National Flood Insurance Program. The NFIP bases the rates for insurance for new buildings as a function of risk. Freeboard reduces risk because the lowest floors of buildings are elevated above the predicted flood levels associated with the 1-percent-annual-chance flood (100-year or base flood). This risk reduction is reflected in reduced insurance rates, with reductions of 20% or more for the first foot of freeboard (added height above the base flood elevation); the cost savings will be realized every year by building owners. A graphic that shows examples of how insurance varies as a function of elevation is provided (based on insurance rates in effect in 2004). Note: the graphic illustrates insurance costs for four scenario dwellings with different foundation types and different values of the structure and contents; it should not be used for any purpose other than to illustrate the general variation in costs as a function of elevation.

Further substantiation for this code change is found in Mitigation Assessment Team reports prepared by teams of experts assembled by FEMA after significant disasters since 1992. The reports are published by FEMA and are available in hardcopy by calling the FEMA Distribution Center (800-480-2520) or online at http://www.fema.gov/fima/mat/mat_rprts.shtm. A summary report of the 2004 hurricane season in Florida (FEMA 490) characterizes the nature and severity of damage and recommendations that are intended to reduce future damage. A specific recommendation is the adoption of freeboard requirements that are consistent the ASCE 24-05.

Bibliography:
Mitigation Assessment Team reports published by FEMA since 1992; FEMA 490 *Summary Report on Building Performance: 2004 Hurricane Season*

Cost Impact: The code change proposal will increase the cost of construction. Unpublished research undertaken by the FEMA Region IV office after Hurricane Katrina regarding costs associated with several foundation types and freeboard indicates that the cost increase for one additional foot of height ranges from 0.2% of the base building cost for CMU piers, to an average of 0.4% for various types of piles, to 1.2% for slab on structural fill. The preliminary findings of a report that is being prepared as part of a larger evaluation of the National Flood Insurance Program indicate similar small percentage increases in building costs due to additional height above the base flood elevation (report is expected to be published in late 2006).

PART I – IRC B-E

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

PART II – IRC-M

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

PART III – IRC-P

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

PART IV – IFGC

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

RB132–06/07
R325 (New), Chapter 43, Appendix K

Proponent: David W. Ware, Owens Corning

1. Add new text as follows:

SECTION R325
SOUND TRANSMISSION

R325.1. General. Walls separating two-family dwellings and multiple single-family dwelling units (townhouses) not more than three stories in height shall provide airborne sound insulation.

R325.2. Air-borne sound. Airborne sound insulation for wall assemblies shall meet a Sound Transmission Class (STC) rating of 50 (45 if field tested) when tested in accordance with ASTM E 90.

2. Add standard to Chapter 43 as follows:

ASTM

E 90–94 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements .

3. Delete without substitution:

~~**APPENDIX K**~~
~~**SOUND TRANSMISSION**~~

~~**SECTION AK101**~~
~~**GENERAL**~~

~~**AK101.1 General.** Wall and floor-ceiling assemblies separating dwelling units including those separating adjacent townhouse units shall provide air-borne sound insulation for walls, and both air-borne and impact sound insulation for floor-ceiling assemblies.~~

~~**SECTION AK102**~~
~~**AIR-BORNE SOUND**~~

~~**AK102.1 General.** Air-borne sound insulation for wall and floor-ceiling assemblies shall meet a Sound Transmission Class (STC) rating of 45 when tested in accordance with ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. Dwelling unit entrance doors, which share a common space, shall be tight fitting to the frame and sill.~~

~~**SECTION AK103**~~
~~**STRUCTURAL-BORNE SOUND**~~

~~**AK103.1 General.** Floor/ceiling assemblies between dwelling units or between a dwelling unit and a public or service area within a structure shall have an Impact Insulation Class (IIC) rating of not less than 45 when tested in accordance with ASTM E 492.~~

~~**SECTION AK104**~~
~~**REFERENCED STANDARDS**~~

~~ASTM E 90-04 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements~~

~~ASTM E 492-04 (1996)e Specification for Laboratory Measurement of Impact Sound Transmission through Floor-ceiling Assemblies Using the Tapping Machine~~

Reason: Bring into the provisions of the IRC requirements for sound transmission in multi-family dwellings currently only provided in Appendix K.

Proper building acoustics are both affordable and provide building occupants with reasonable assurance that minimum sound quality of the building environment is being maintained, particularly for multi-family residences where occupant densities are higher. Housing affordability and land use requirements are fueling interest in higher density building configurations. Occupants of residential multifamily buildings have an expectation that minimal sound quality will be assured in the same manner as multifamily buildings constructed to the provisions of the IBC. Bringing the requirements of sound control into the main body of the code from the Appendix improves the overall benefits being established by the IRC.

Studies continue to confirm the dissatisfaction for noise quality of residential buildings, resulting in disruption of family behavior patterns and other concerns. Referenced: TNS-Global Noise Reduction Market Understanding Study, January 2005; Noise Reduction Ethnographic Research, January 2005.

Cost Impact: The code change proposal will increase the cost of construction. The code change may slightly increase the cost of construction in some markets.

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

RB133–06/07
R325 (New)

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.

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

RB134–06/07
R313 (New)

Proponent: Greg Rogers, Kitsap Fire District 7, Port Orchard, Washington

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 meet for the one and two-family dwelling with the current code requirements in the IRC. Based on NFPA fire death data, only 15.5% of the fire deaths in the one- two-family dwelling environment are actually intimate with ignition. With 84.5% of one- two-family dwelling fire deaths occurring when then occupant was not intimate with the ignition, the "Purpose" in R101.3 is clearly not being achieved.
2. The life safety hazards in the one-two family occupancy are clear: Between the years of 1994 and 1998 there was an average of 310,200 reported home structure fires resulting in 2,876 civilian deaths, 12,244 civilian injuries and $3.5 billion dollars in direct property damage per year. These losses and deaths far exceed any of the other occupancy types. 68% of total fire deaths occurred in the one- and two-family dwelling environment. The next highest fire death categories are 13% for apartments and 12% for highway vehicles and 4% for non-residential structures. The next highest dollar loss category is $653.6 million dollars for manufacturing which is only 18.6% of the loss for one- and two-family dwellings.
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- 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. 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 2001, 55% of all fireground Firefighter deaths occurred in dwellings and apartments.
6. According to NFPA, between 1998 and 2002 there was 1 firefighter death in a building with a complete operational fire sprinkler system. This is contrasted with 129 deaths in 103 structures that were either not protected by a fire sprinkler system or where the presence of sprinkler protection was not reported. The benefits of an automatic sprinkler system on the safety conditions for firefighters is obvious.
7. Although residential sprinklers are primarily focused on the protecting live safety, the "Scottsdale Report" has shown one community's experience with fire sprinklers for property protection. This report states that the average loss per non-sprinklered property was $17,067. The loss per sprinklered property was $1,945. This is a property loss savings of 89% over the unsprinklered property. NFPA's statistics also support a substantial savings. The average fire loss in non-sprinklered home structure fires between 1994 and 1998 was $10,877. Sprinklered homes had an average loss of $5,383 per fire incident. The loss reduction was 50.5% with sprinklers present.

8. NFPA's statistics indicate the significant effect fire sprinklers have on their primary purpose in the home, life safety protection. Between 1994 and 1998, there were 9.5 fire deaths per 1,000 fires with no fire sprinkler system present in the home. When a fire sprinkler system is present in the home, this death rate drops to 2.2 per 1,000 fires. This is a 76.6% reduction in life loss when sprinklers are present. NFPA's fire data review has indicated that "When sprinklers are present, the chances of dying in a fire and the average property loss per fire are both cut by one-half to two-thirds, compared to fires where sprinklers are not present. What's more, this simple comparison understates the potential value of sprinklers because it lumps together all sprinklers, regardless of type, coverage, or operational status, and is limited to fires reported by fire departments. If unreported fires could be included and if complete, well maintained, and properly installed and designed system could be isolated, sprinkler effectiveness would be seen as even more impressive."
9. The relative risk for fire deaths in one- and two-family dwellings is greatest for those 5 years of age and under and the those 65 years of age and over. A person 5 and under is 1.96 times, 85 and over 4.56 times, 75-84 2.45 times, and 65-74 1.47 times more likely to die in a home fire than the average person. Persons in these age groups are most likely to need assistance in exiting a home during a fire condition. Due to this lack of egress capability, the only effective method of protecting this group is with automatic fire sprinkler protection.
10. Frequently, an argument against fire sprinklers in single-family dwellings is that fires in these occupancies mostly occur in older homes. This is myth. NFPA's report titled "U.S. Fire Death Patters by State" indicates that "Defined by the percentage of housing units built before 1940, *age of housing* (shown in Table 6) also is a very poor predictor of fire death rates. The study by Schaenman et al., footnoted on the previous page, indicated that **age of housing is not a strong primary predictor of high fire incident rates**." (emphasis added)
11. Although smoke detectors clearly save hundreds if not thousands of lives each year, they are not the complete solution to fire deaths and injuries in one- and two-family dwelling units. A study published in the Journal of Fire Protection Engineering showed that only 72 to 76% of people wake up when an alarm (60 dBA received) is sounded. In addition, operational smoke detectors were present in only 36.9% of one- and two-family dwellings that had a home structure fire.
12. 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.
13. The "America Burning: Recommissioned" report states in Finding #2 – "The Application and Use of Sprinkler Technology- The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers. If the focus is limited to prevention and reduction of the loss of life, smoke alarms are also extremely effective. However, the use of sprinklers and smoke detectors has not been sufficiently comprehensive." The report further states, "The need for emphasis on residential construction is born out by statistics. For the most recently compiled year, 1997, there were 552,000 structure fires in the United States. Almost three-quarters of structure fires occurred in residential properties including homes, hotels, motels, rooming houses and dormitories. Fifty-five percent (55%) or 302,500 were in one- and two-family homes and seventeen percent (17%) or 93,000 occurred in apartments. The largest number of civilian deaths occurred in residential buildings. Eighty-three percent (83%) of the 4035 total civilian deaths occurred in home structure fires - with sixty-seven percent (67%) or 2700 in one-and two-family homes."

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

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

RB135–06/07

R313 (New)

Proponent: Greg Rogers, Kitsap Fire District 7, Port Orchard, Washington

Add new text as follows:

313. Automatic sprinkler system. An automatic sprinkler system in accordance with the *International Fire Code* Section 903.1 shall be provided for dwelling units used for adult and child care facilities including more than five but not more than 16 occupants of any age for more than 24 hours.

(Renumber subsequent sections)

Reason: The reference to Section 101.2 is incorrect in that the exception to Section 101.2 that references the IRC only applies to "Detached one and two-family dwellings and multiple single family dwellings (town houses) not more than three stories…". It appears that the intent was to construct an R-4 as a Group R-3 except as modified by the IBC. There are some significant differences between the requirements in the IRC and the IBC. The IRC requires only one means of egress no matter how many people are in a dwelling. The IBC requires a second exit in a R occupancy when the occupant load exceeds 10. An R-4 may have 16 occupants not including staff members and would require a second means of egress using the IBC. Additionally, the intent of Section 903.1 of the IBC and the IFC is to clearly require a sprinkler system in a Group R-4. While it is debatable, staff has stated that structures built under the IRC are exempt from these sprinkler requirements. A R-4 Occupancy is intended to be used for residential board and care facilities, assisted living facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, alcohol and drug centers, and convalescent facilities. In my jurisdiction the majority of R-4 occupancies contains people with a physical or mental disability of some kind or elderly persons that are less able to successfully evacuate a building in an emergency. Even though they may meet the technical requirement for being able to respond in an emergency without physical assistance, they are generally not able to do so in a timely manner. This proposal also eliminates the confusion regarding who gets to make the choice of which code to use. Approval of this proposal will result in a safer environment for those of us who need the services provided by these facilities.

Statistics:

- Based on the 2002 US Census:
- 98% of all people live in households with less than 16 people in them. (Thank you Sara Rice)
  - 59.6 million people were 55 years old or older.
  - 44.9 million people were over 60 years old.
  - 33.7 million people were over 65 years old.
  - 3.4 million people were over 85 years old.
  - 37.6 million households with residents 55 years of age or older.
  - 19.7 million children were 5 years old or younger.
  - The estimated United State population was 290,809,777

    - In 2002, among people 55 years and over, men were more likely than women to be married and living with their spouse (74 percent vs. 50 percent)
- Two new reports from the U.S Fire Administration show o 2,500 children (under age 14) and,
    - 2,300 seniors (over 65) were injured or killed in residential fires in the United States in 2002.
    - Smoking was the leading cause of residential fires (25%) that resulted in older adult fatalities.
    - Upholstered furniture and bedding were the primary items ignited in smoking fires with older adult fatalities.
    - Cooking was the leading cause of fires resulting in older adult fire injuries.
    - Thirty-nine percent of older adults killed in residential structure fires were asleep when the fire started; 32% of older adults were trying to escape when they died.
    - Over 80% of older adult fire casualties were between the ages of 65 and 84, tracking with the age distribution of the older population (87% of older adults are between 65 and 84).
    - Adults over 65 have 2.5 times the casualty death rate as compared to younger adults age 18-64.
    - Fifty-six percent of child fire casualty deaths were under the age of 5.
- The Center for Disease Control estimates that fire and burns were the third leading cause of unintentional fatal injuries to children age 14 or younger in 2002.
- In addition, the CDC provided the following facts:
    - Arson, open flame and heating were the leading caused of fire resulting in child deaths in 2002.
    - Approximately 55% of children who were killed by fire in residential structures were asleep at the time of the fire. Twenty-six percent were killed while trying to escape.
    - Nine percent were classified as “too young to act” which implies that the child did not understand what was happening around him or her and probably did not take meaningful action to escape.
    - Similar to the trends seen for fires that cause adult fire casualties, peak months for fires that cause child casualties wee in the winter months between December and February.
    - During the summer months, June through August, open flame and cooking were the leading causes of death to children.
- Information from the National Center for Injury Prevention and Control’s Web-based Injury Statistics Query and Reporting System (WISQARS) indicated that between 1999 and 2002, 1,137 fire related deaths were recorded for children 5 years old or less in comparison with 4,929 fire related deaths of adults 65 years old or older.

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

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

RB136 – 06/07
R313 (New)

Proponent: Greg Rogers, Kitsap Fire District 7, Port Orchard, Washington

Add new text as follows:

313. Automatic sprinkler system. An automatic sprinkler system in accordance with the *International Fire Code* Section 903.1 shall be provided for dwelling units used for residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.

(Renumber subsequent sections)

Reason: The reference to Section 101.2 is incorrect in that the exception to Section 101.2 that references the IRC only applies to “Detached one and two-family dwellings and multiple single family dwellings (town houses) not more than three stories…”. It appears that the intent was to construct an R-4 as a Group R-3 except as modified by the IBC. There are some significant differences between the requirements in the IRC and the IBC. The IRC requires only one means of egress no matter how many people are in a dwelling. The IBC requires a second exit in a R occupancy when the occupant load exceeds 10. An R-4 may have 16 occupants not including staff members and would require a second means of egress using the IBC. Additionally, the intent of Section 903.1 of the IBC and the IFC is to clearly require a sprinkler system in a Group R-4. While it is debatable, staff has stated that structures built under the IRC are exempt from these sprinkler requirements. A R-4 Occupancy is intended to be used for residential board and care facilities, assisted living facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, alcohol and drug centers, and convalescent facilities. In my jurisdiction the majority of R-4 occupancies contains people with a physical or mental disability of some kind or elderly persons that are less able to successfully evacuate a building in an emergency. Even though they may meet the technical requirement for being able to respond in an emergency without physical assistance, they are generally not able to do so in a timely manner. This proposal also eliminates the confusion regarding who gets to make the choice of which code to use. Approval of this proposal will result in a safer environment for those of us who need the services provided by these facilities.

Statistics:
- Based on the 2002 US Census:
- 98% of all people live in households with less than 16 people in them. (Thank you Sara Rice)
    - 59.6 million people were 55 years old or older.
    - 44.9 million people were over 60 years old.
    - 33.7 million people were over 65 years old.
    - 3.4 million people were over 85 years old.
    - 37.6 million households with residents 55 years of age or older.
    - 19.7 million children were 5 years old or younger.
    - The estimated United State population was 290,809,777
    - In 2002, among people 55 years and over, men were more likely than women to be married and living with their spouse (74 percent vs. 50 percent)
- Two new reports from the U.S Fire Administration show o 2,500 children (under age 14) and,
    - 2,300 seniors (over 65) were injured or killed in residential fires in the United States in 2002.
    - Smoking was the leading cause of residential fires (25%) that resulted in older adult fatalities.
    - Upholstered furniture and bedding were the primary items ignited in smoking fires with older adult fatalities.

- Cooking was the leading cause of fires resulting in older adult fire injuries.
- Thirty-nine percent of older adults killed in residential structure fires were asleep when the fire started; 32% of older adults were trying to escape when they died.
- Over 80% of older adult fire casualties were between the ages of 65 and 84, tracking with the age distribution of the older population (87% of older adults are between 65 and 84).
- Adults over 65 have 2.5 times the casualty death rate as compared to younger adults age 18-64.
- Fifty-six percent of child fire casualty deaths were under the age of 5.

- The Center for Disease Control estimates that fire and burns were the third leading cause of unintentional fatal injuries to children age 14 or younger in 2002.
- In addition, the CDC provided the following facts:
  - Arson, open flame and heating were the leading caused of fire resulting in child deaths in 2002.
  - Approximately 55% of children who were killed by fire in residential structures were asleep at the time of the fire. Twenty-six percent were killed while trying to escape.
  - Nine percent were classified as "too young to act" which implies that the child did not understand what was happening around him or her and probably did not take meaningful action to escape.
  - Similar to the trends seen for fires that cause adult fire casualties, peak months for fires that cause child casualties wee in the winter months between December and February.
  - During the summer months, June through August, open flame and cooking were the leading causes of death to children.
- Information from the National Center for Injury Prevention and Control's Web-based Injury Statistics Query and Reporting System (WISQARS) indicated that between 1999 and 2002, 1,137 fire related deaths were recorded for children 5 years old or less in comparison with 4,929 fire related deaths of adults 65 years old or older.

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

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

RB137–06/07
R325 (New)

Proponent: Kevin Kelly, National Fire Sprinkler Association

Add new section as follows:

SECTION 325
AUTOMATIC SPRINKLER SYSTEMS

R325 General. Where required an automatic sprinkler system shall comply with this section.

R325.1 General requirements. An automatic sprinkler system installed in accordance with NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings,* is permitted to be provided in One- and Two-Family Dwellings and Town houses. NFPA 13D is appropriate for protection against fire hazards only in one- and two-family dwellings and manufactured homes. Residential portions of any other type of building or occupancy should be protected with residential sprinklers in accordance with section R325.2.

R325.2 Residential occupancy requirements. For protection of residential occupancies or residential portions of buildings, an automatic sprinkler system shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems,* NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*, or NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings,* as appropriate.

R325.3 Water supply requirements.

R325.3.1 Water meter. Water meters on supply lines for combined domestic and fire protection systems are permitted be 1 inch or sized to provide the required water flow to the sprinkler system.

R325.3.2 Back flow protection. Back flow protection shall be in accordance with the appropriate sections of this code. Back flow protection is not required on combined domestic/ fire protection systems constructed entirely of potable piping material.

Reason: The user of the IRC needs general guidance on residential fire sprinkler systems if such a system is installed.

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

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

RB138–06/07
R325.1 (New)

Proponent: Joseph A. Finnegan, Firemen's Association of the State of New York, representing the Firemen's Association of the State of New York, Association of Fire Districts of the State of New York, New York State Association of Fire Chiefs, and New York State Fire Marshals and Inspectors Association

1. Add new section as follows:

SECTION 325
AUTOMATIC SPRINKLER SYSTEM

R325.1 Automatic sprinkler system. An automatic sprinkler system shall be installed in all buildings in compliance with NFPA 13D.

Exception: In accessory buildings that are not used for sleeping purposes.

2. Add standard to Chapter 43 as follows:

NFPA

NFPA 13D Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

Reason: The objective of this proposal is to implement needed and reasonable requirements that will reduce life loss, injury and property loss from fires in residential occupancies. Implementation of the proposed requirements is consistent with the stated objective of R.101.3 and will provide a specific means of addressing those objectives. Based on information provided by the National Fire Incident Reporting System that purpose is not being met for one and two family occupancies. The recognized need for and value of automatic suppression in one and two family occupancies has been clearly illustrated by two recent and historic code activities:

1. On June 10, 2005, National Fire Protection Association membership voted to require fire sprinkler systems in one and two family dwellings.
2. In October, 2005 The International Code Council membership passed an adoptable appendix to the IRC to require fire sprinkler systems in all new one and two family dwellings and townhouses

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 hazards and other hazards attributed to the built environment.

Municipalities and jurisdictions regardless of size, face funding priorities presently and in the future that will limit their ability to maintain even the current levels of funding dedicated to fire suppression. Sufficient resources required to provide safe manual fire suppression activities are not currently available in most municipalities defended by full time firefighting personnel. Areas defended by Volunteer or Call Firefighters face the immediate and increasingly difficult task of recruiting and retaining sufficient personnel for safe and effective firefighting activities. There is no indication that increased numbers of volunteers will become available in the future. There is neither indication nor reason to believe that additional dollars will become available from, already strapped, municipal budgets. Educational demands, health care costs, infrastructure maintenance and improvements, unprecedented increases in funding costs to support a rapidly increasing elderly population will reduce future funding for manual suppression resources. Validated fire loss statistics; continued and current recommendations from fire protection specialists, the agreed to objective of the purpose of R101.3 and a reality based view of dollars and firefighter time available for manual fire suppression mandate automatic fire suppression in the occupancy that contributes most to fire losses in America. We must address the identified need to make the buildings our citizens live in and that our firefighters respond to fire safe for each of those groups.

The following is submitted for substantiation of the proposal:

1. Data provided by the National Fire Protection Association illustrates that in 2003, 3,145 fire deaths occurred in the home. This was a 17.8% increase from the previous year. During the same period there was an estimated 18,125 civilian fire injuries. More than 75% of those injuries occurred in residential occupancies. The 2003 data regarding life safety from fire in one-two family occupancies does not present a new observation. It rather substantiates what has been appropriately documented, debated and reaffirmed for decades.
   - In 1973 "America Burning" identified residential fire as the leading cause of injuries and death in the United States.
   - National Fire Protection Association, Fire Loss Statistics from 1974 thru 2004 identified the residential occupancy as the leading occupancy where fire injuries and deaths occurred.
   - The 2000 "America Burning Recommissioned" report states: that in 1997, there were 582,000 structure fires in the United States.
     - Almost three-quarters of those fires occurred in residential properties.
     - Fifty-five percent (55%) or 302,550 fires were in one and two-family homes
     - The largest number of civilian deaths occurred in residential buildings.
     - Eighty-three percent (83%) of the 4,035 total civilian deaths occurred in home structure fires – with sixty-seven percent (67%) or 2,700 in one and two-family homes.
   - Between 1994 and 1998 there was an average of 310,200 reported home structure fires resulting in 2,876 civilian deaths.
     - 68% of total fire deaths occurred in the one and two-family dwelling environment.
     - 12, 244 civilian injuries occurred in one and two-family homes.
     - Approximately $3.5 billion dollars in direct property damage occurred annually.
     - Fire losses in these occupancies far exceed any other occupancy losses.
     - Manufacturing represented the next highest dollar loss category ($653.6 million dollars). That figure represents 18.6% of the loss for one and two-family dwellings.
2. Data provided by the New York State Office of Fire Prevention and Control in their Civilian and Firefighter Casualty Reports from January 1, 2000 through December 31, 2004 support and starkly indicate the need to implement proven fire prevention strategies in one and two family homes.
   - More than 81% of all injuries reported in identified structures occurred in homes
   - More than 84% of all civilian fatalities reported in identified structures occurred in homes
   - More than 71% of all reported fire fighter injuries occurred during fire fighting activities in homes
3. The "America Burning Recommissioned" report states in Finding #2 – The Application and Use of Sprinkler Technology.
   - *"The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers".*

Based on the current code requirements, the protection levels in the IRC do not match the life safety hazards in the one-two-family dwelling environment. Automatic sprinklers in the residential occupancy will initiate automatic alarm and suppression and drastically reduce time currently associated with manual suppression.

4. A 15-year study of a sprinkler ordinance in Scottsdale, Arizona shows the value of residential sprinklers in limiting fire losses. The study noted that of 598 home fires 49 occurred in occupancies with sprinklers.
   - No death occurred in those homes that were sprinklered
   - Thirteen people died in unsprinklered homes
   - More than 90% of fires in sprinklered occupancies were extinguished with two or less heads operating.
5. The cost associated with affordable housing remains a "concern" raised in opposition to automatic fire sprinklers in the one and two-family dwellings. The associated values of residential sprinklers are not easily estimated. The life and property loss reduction experienced and documented in Scottsdale merged with an unbiased view of what automatic suppression provides clearly demonstrates that we must require automatic suppression in the residential occupancy.
   - The "Scottsdale Report" indicates that average cost has been reduced from $1.14 per square foot to $0.59 per square foot.
6. Persons 5 and under and 65 and over are most vulnerable in home fires. Individuals in these age groups will, in most cases, need assistance in evacuating before the home is untenable. Because of their vulnerability, sprinklers are the most effective method of securing time to exit.
7. The potential infrastructure savings that are achievable through residential sprinkler protection are also well illustrated in this report. Although the focus of residential sprinklers is on life safety, the "Scottsdale Report" has used data to demonstrate one community's loss reduction experience with fire sprinklers for property protection.
   - The 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 unsprinklered properties.
   - Statistics provided by the National Fire Protection Association, although not as dramatic, clearly indicate a substantial savings in sprinklered homes. The average fire loss in non-sprinklered home fires between 1994 and 1998 was $10,988. Sprinklered homes had an average loss of $5,383 per fire incident. The loss reduction was 50.5% with sprinklers present.
   - The estimated sprinkler flow per residential incident was 209 gallons. For the same period, the estimated suppression flow per residential incident was 3,290 gallons. Substantial water conservation was expected and has been demonstrated. Substantial water conservation will be required.
   - Costs to the individual homeowner for water damages associated with current manual suppression activities cannot be documented by substantiated data. They are however recognized by family members who experience a fire in their residence as well as those who respond to assist.

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

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

RB139–06/07

R401.1, 401.2, Table R401.1 (New),

Proponent: Charles O. Everly, PE, CBO, representing the Building Officials Association of Florida

1. Revise as follows:

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in areas prone to flooding as established by Table R301.2(1) shall meet the provisions of Section R324. Wood foundations shall be designed and installed in accordance with AF&PA Report No. 7.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations ~~only in the following situations~~ subject to the following :

1. In Buildings ~~that~~ shall have no more than two floors and a roof.
2. ~~When i~~Interior basement and foundation walls ~~are constructed~~ shall be provided at intervals not exceeding 50 feet.
3. Where the foundation uplift loads determined from Table R401.1 exceed 0 or where such uplift loads cannot be determined from Table R401.1, an engineered design shall be required.

R401.2 Requirements. Foundations shall be capable of resisting all loads from roof uplift and building overturn. Foundation uplift for light-frame wood or steel buildings shall be calculated or determined from Table R401.1. Masonry buildings within the dimensional scope of Table R401. 1 shall be assumed to be of adequate weight so as not to