

DHCD – Division of Building and Fire Regulation  
2009 Code Change Cycle

COMPILATION DOCUMENT  
(of all code changes received with staff evaluations)

PART II

Code changes beginning with a “C” are to the Virginia Construction Code; with an “R” are to the Virginia Rehabilitation Code; with an “M” are to the Virginia Maintenance code; with an “F” are to the Virginia Statewide Fire Prevention Code; with an “I” are to the Virginia Industrialized Building Safety Regulations; and with an “A” are to the Virginia Amusement Device Regulations. The order is as follows: C – R – M – F – I – A.

PART I contains page numbers 1 – 80 and code changes C-101.2 (a) – C-308.3.1

PART II contains page numbers 81 – 178 and code changes C-310.6(R302.1(6)) – C-708.14

PART III contains page numbers 179 – 270 and code changes C903.2 – C-Appendix E

PART IV contains page numbers 271 – 376 and code changes R-705.3.1.1(4) – A-280

<u>Code Change No.</u>	<u>Description of Change</u>	<u>Page No.</u>
C-310.6(R302.1(6)).....	Separation Distance Proffers.....	81
C-310.6(R311.6.1).....	Accessory Structure Ramps.....	84
C-310.6(R313.1).....	Residential Sprinkler Coalition.....	86
C-310.6(R314.2).....	Household Fire Warning System.....	101
C-310.6(R315.2).....	Carbon Monoxide Retrofit.....	103
C-310.6(R315.3).....	Carbon Monoxide Detector Type.....	105
C-310.6(R329).....	Fire Extinguishers Kitchens.....	107
C-310.6(R401.3).....	Lot Drainage.....	109
C-310.6(R408.3.1).....	Termite Inspections.....	111
C-310.6(R602.10).....	Wall Bracing (Revised 2006).....	114
C-310.6(R602.10.6).....	Wall Bracing Stem Walls.....	143
C-310.6(E3902.11).....	Arc-Fault Circuits.....	146
C-310.6(Appendix O)(a) and (b).....	Residential Gray and Rain Water.....	148
C-403.3.5.....	Fire Command Rooms.....	151
C-403.4.4 (a) and (b).....	High-Rise Emergency Responder.....	153
C-420.4.....	Group I-1 Smoke Compartments.....	156
C-422 (a) and (b).....	Ambulatory Health Care Facilities.....	158
C-424 (a) through (d).....	Fertilizer Tanks.....	162
C-424.4.....	Skirting.....	169
C-705.2 (a) and (b).....	Separation of Porches and Decks.....	171
C-708.14.....	Elevator Lobbies.....	175

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R302.1(6))**

**Nature of Change:**

To permit exterior walls of new houses closer than five feet from a property line to be or normal construction as opposed to having to have a fire-resistance rating due to zoning, land use or deed restrictions which will prevent another dwelling on an adjacent lot from being too close.

**Proponent:** Chris Snidow, representing the Henrico County Building Department

**Staff Comments:**

While the proponent states that the purpose of the proposal is to lessen the paperwork necessary when modifications under the USBC have to be issued for every house in a subdivision when proffered conditions exist which would prevent houses on adjacent lots from being close enough together to cause a fire hazard, the model codes (the IBC and IRC in particular) have historically used the distance to the lot line to establish when exterior walls must have a fire-resistance rating. The reason for the historical use of the lot line is that zoning restrictions, proffers and even deed restrictions may change over time, but lot lines are typically more permanent. This proposal was not received in time to be vetted through the workgroup process.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6 (R302.1(6))

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: L. Christian Snidow, P. E.

Representing: Henrico County Building Inspections Dept.,  
Plan Review Office

Mailing Address: P O Box 90775 Henrico, VA 23273-0775

Email Address: sni@co.henrico.va.us

Telephone Number: 804-501-4363

Proposal Information

Code(s) and Section(s): Virginia Residential Code (IRC) R302.1, add new exception #6

Proposed Change (including all relevant section numbers, if multiple sections):

**R302.1 Exterior walls.** Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1.

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.
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.
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).
5. Foundation vents installed in compliance with this code are permitted.
6. **A fire resistance rating for exterior walls shall not be required where local ordinances, land use regulations or deed restrictions require such exterior walls or accessory structures to be separated for a distance of not less than 10 feet.**

Supporting Statement (including intent, need, and impact of the proposal):

A number of localities in the Commonwealth have adopted zoning or subdivision ordinances or accept proffered conditions that incorporate the concept of "zero lot line" development. Using the "zero lot line" concept, the usual minimum side-yard set-back (typically required by local zoning ordinances and measured from the property line) is waived and in its place a minimum distance between dwellings is established.

Typically, the exterior wall of one dwelling is permitted to be located on or near the property line and the side wall of the dwelling on the adjoining lot is required to be a specified minimum distance away. The resulting minimum separation distances may be any distance acceptable to the locality however, 15 to 20 feet between dwellings with a dedicated maintenance easement are fairly typical. However, this condition creates a code compliance issue in that R302.1 requires the exterior wall of the dwelling located at the property line to be fire-resistance rated and openings, overhangs and penetrations limited. This is in spite of the fact that the applicable "zero lot line" rules may not permit a dwelling on the adjoining lot to be any closer than

would normally occur if the separation distances of Table R302.1 were applied to both buildings. To accommodate this concept, many localities now issue modifications to allow the wall at the property line to be unrated. This approach requires additional work on the part of the applicant and building department to process and record the modifications for an entire development. The records of such modifications are required to be permanently maintained by the local building department.

This amendment would provide an exception to cover this condition without the need for issuing code modifications. Exterior walls would be permitted to be constructed without a fire-resistance rating if the distance between dwellings is not less than 10 feet—the same distance that would result from constructing unrated dwelling walls 5 feet from each side of a property line as required by R302.1—and is enforceable through local land use regulations or deed restrictions.

Submittal Information

Date Submitted: AUGUST 25, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R311.6.1)**

**Nature of Change:**

To add an exception to the IRC for ramps for residential accessory structures.

**Proponent:** Chris Snidow, representing the Henrico County Building Department

**Staff Comments:**

The proponent states that the ramp provisions may be applied to ramps to residential accessory structures constructed under the IRC. However, Section R311.1, which is the Means of Egress section in the IRC and which contains the provisions for ramps, clearly states that only dwellings must be provided with a means of egress complying with the section. This proposal was not received in time to be vetted through the workgroup process; however staff did inform the proponent of the fact that the ramp provisions only apply to dwellings and not to residential accessory buildings because of the language in Section R311.1.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6 (R311.6.1)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: L. Christian Snidow, P. E.

Representing: Henrico County Building Inspections Dept.,  
Plan Review Office

Mailing Address: P O Box 90775 Henrico, VA 23273-0775

Email Address: sni@co.henrico.va.us

Telephone Number: 804-501-4363

Proposal Information

Code(s) and Section(s): Virginia New Construction Code (IRC) R311.6.1 add new exception

Proposed Change (including all relevant section numbers, if multiple sections):

**R311.6.1 Maximum slope.**

**Ramps shall have a maximum slope of one unit vertical in twelve units horizontal (8.3-percent slope).**

**Exceptions: 1. 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).**

**2. Ramps constructed for access to accessory storage buildings.**

Supporting Statement (including intent, need, and impact of the proposal):

The current code language makes no distinction between ramps that may be constructed for access/egress from the main dwelling and a ramp that may be constructed at an accessory storage building to facilitate moving items such as lawn equipment or other wheeled items in or out. Ramps built for such utility functions should be excluded from the same requirements as ramps constructed for the dwelling because neither handicapped accessibility nor emergency egress are typically issues in their normal use.

It may seem commonsensical to not apply the maximum slope requirement to a lawn mower ramp built at a back yard storage shed but, as the code is written, they are not exempt.

built  
Submittal information

Date Submitted: AUGUST 25, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: tsu@dhcd.virginia.gov  
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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R313.1)**

**Nature of Change:**

A series of proposals for requiring sprinkler systems to be installed in new townhouses and to provide incentives for such systems to be installed more economically.

**Proponent:** James R. Dawson, Chesterfield County Fire Marshal, representing the Virginia Residential Sprinkler Coalition

**Staff Comments:**

These proposals are offered as a compromise to requiring all single family dwellings to be sprinklered. The townhouse proposal would permit a one-hour fire wall between units rather than the two-hour fire wall which is currently required for unsprinklered townhouses. An additional proposal would permit exterior walls of such sprinklered townhouses (end units) to be located as close as three feet to property lines without requiring the exterior wall to be rated. Other additional proposals address lessening the requirements for fire apparatus access roads, fire flow requirements and the number and distribution of fire hydrants in the Virginia Statewide Fire Prevention Code. While a sub-workgroup was established for the overall issue of residential sprinklers, no consensus has been achieved concerning these proposals or the proposal from the Home Builders of Virginia (Code Change No. C-310.6(R329)).

**Codes and Standards Committee Action:**

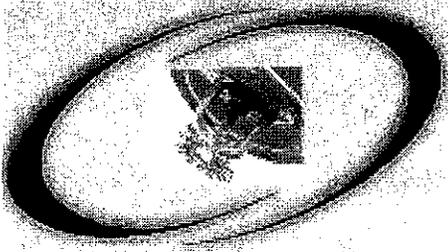
\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):



**Virginia Residential Sprinkler Coalition**  
**A Partnership for Public Safety**

September 7, 2009

Mr. Tom Fleury, Chairman  
Board of Housing and Community Development  
c/o Mr. Emory Rodgers, Deputy Director of Building and Fire Regulations  
Main Street Centre  
600 East Main Street, Suite 300  
Richmond, Virginia 23219

RE: Virginia Residential Construction Code Amendment Proposals

Dear Mr. Fleury:

On behalf of the Virginia Residential Sprinkler Coalition (VARSC), an organization representing over 3000 building safety and fire safety professionals throughout the Commonwealth of Virginia, I submit the attached code change proposals as a package in an effort to enhance public safety for the citizens in our state.

We believe these changes represent a common sense approach to fire protection while offering cost saving reductions in building construction and infrastructure that will assist with off-setting the costs of these systems for the new home buyer. These changes have been fully vetted within the member organizations which make up the Coalition and the representative members of our Board of Directors unanimously support these changes as we present them here.

We have discussed this package with the Home Builders Association of Virginia and have asked for their suggestions on how these changes may be improved upon. They have not had the opportunity to present this information to their membership at the present time, therefore they have not offered any suggested changes to this comprehensive package. We have however received positive feedback from NAHB's leadership on our efforts to reach a common middle ground consensus.

We anticipate this code change package will be used in the upcoming discussions for the workgroups slated for later this year, and look forward to working with you and the other interest groups to move these changes forward as a complete comprehensive package.

Sincerely,

*Submitted via e-mail*

James R. Dawson, VARSC Chairman  
Fire Marshal  
CHESTERFIELD FIRE AND EMS  
cc: HBAV, VBCOA, VPMIA, VFCA, IAFF, VFPA, VSFA



[www.varsc.org](http://www.varsc.org)

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: \_\_\_\_\_

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Guy Tomberlin, Vice Chair

Representing: VA Residential Sprinkler Coalition (VRSC)

Mailing Address: 12055 Government Center Parkway, Suite 630  
Fairfax, VA 22035

Email Address: guy.tomberlin@fairfaxcounty.gov

Telephone Number: 703-324-1611

Proposal Information Require mandatory sprinkler installation in all Townhouse construction with trade-off incentives, not including detached 1 and 2 family dwellings.

Code(s) and Section(s): 2009 IRC Section R313

Proposed Change (including all relevant section numbers, if multiple sections):

Retain, and implement provisions with adoption of the next USBC, current text exactly as it appears in the published International Code Council (ICC) International Residential Code (IRC) 2009 edition, Sections R 313.1, R 313.1.1, and R 302.2.

**R 313.1 Townhouse automatic fire sprinkler systems.** An automatic residential fire sprinkler system shall be installed in *townhouses*.

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

And

**R 313.1.1 Design and installation.** Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with Section P 2904.

And

**R 302.2 Townhouses.** Each *townhouse* shall be considered a separate building and shall be separated by fire-resistant-rated wall assemblies meeting the requirements of Section R 302.1 for exterior walls.

**Exception:** A common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with Chapters 34 through 43. Penetrations of electrical outlet boxes shall be in accordance with Section R 302.4

Supporting Statement (including intent, need, and impact of the proposal):

During the Public Hearings the BHCD encouraged communication between all interested parties with a underlying emphasis on compromise. This proposal is a result of the Boards direction. We would like to take this opportunity to elaborate on many of the issues that have been raised to date. We hope to dispel many of the misconceptions that have been put forward during public testimony by providing the applicable factual information. Our goal is to promote the installation of residential sprinklers while recognizing all sides of the issues by incorporating the concept of compromise and trade-off incentives in hopes the Board will view this recommendation favorably.

1. This proposal still maintains the optional (non-mandatory) installation of residential sprinklers in detached 1 and 2 family dwellings, just as industry has indicated the need for during this current economic environment. One philosophy for this proposal could be explained as this will "assist in the protection from others, outside the control of ones own family."
2. Sprinkler system installation has been required for 4 story townhouses since back in the Legacy code era (pre year 2000). So, we should be able to capture real life, actual added cost of the sprinkler system to the construction of a townhouse. We need to disregard the numbers of cost that have been brought forward because they are not based on the current economic environment or actual typical installations. This proposal is not a huge departure from current business operation, in fact a sprinkler system for a townhouse 3 stories or less should considerably less than a system install for a 4 story structure. The VRSC will attempt obtain real estimates for the average size 3 story or less townhouse, approximately (2,000 sq. ft?) form various contractors across the state and submit these estimates to the BHCD. This method will provide hard numbers, from contractors that have already been doing this type work and not arbitrary numbers that can be skewed one way or another. Hopefully some other industry groups will step up and provide actual documentation as to the cost for the installation of sprinklers in the average 4 story townhouses from existing projects. It appears that currently, 4 story townhouses are selling as well as any other type dwelling in this economy, they are not out of the market because they have a sprinkler system and therefore the cost is just too excessive.
3. There is not a maintenance issue to be concerned with, and no added cost throughout the life of the home. The Fire Official will not be visiting residential homes on a routine basis just as they do not visit the 4 story townhomes, or any residences that currently have sprinkler systems installed today. This is one vast misconception, unfortunately residential sprinkler systems are being confused with the only other systems people are familiar with..."commercial" systems. The residential system is not a separate independent system as in a commercial building. They are an active part of the homes water distribution system that supplies the water closets, kitchen sinks, and every other fixture that utilizes potable water. Therefore, these are nothing more than future water lines, not any different than the future water line installed in thousands of houses for future bathrooms such as in a basement location. There simply is no maintenance required for a future water line. The only other component of the system is the sprinkler head itself. Keep in mind, recessed heads are available on the market today and would probably be the most desirable. However, if someone elects to utilize a protruding type sprinkler head, there is still no maintenance required. It is no different than an outside hose bib that never gets used. Yes, there is a risk of physical damage but no more than any other plumbing fixture in the home.
4. Monitoring systems are not part of the required installation and design provisions. There really is not anything to monitor. However, if someone wanted to exceed the code requirements and install this type technology it should not be a problem.
5. There is not a marked increase chance for leaks and flooding damage. Plumbing water piping systems today are quite reliable. You just don't have pipes bursting as a routine typical occurrence, this situation has actually never been an issue unless it was related to a particular product failure. Residential sprinkler systems are nothing more than extensions of the typical house domestic piping. A guess would be, probably no more than an additional 10% of pipe and fittings would be required beyond what the system would have without a sprinkler system. Please note this is nothing more than a guesstimate and this does not increase the chance for leakage by 10%, just look at the statistics for pipe burst and you will see it is not a common occurrence.
6. Plumbing system design in VA inherently has always had another element to deal with, and that is the potential for pipes freezing. The front end design will have to take climatic conditions into consideration.

- Sprinkler piping systems will ultimately end up using wall locations whenever possible of the top floors of dwelling units, just as for any other plumbing fixture. But when a room is too large for wall mounted sprinkler heads, provisions will have to be incorporated into the design and installation to prevent freezing conditions.
7. A Registered Design Professional (RDP) will not be required to design these systems and a licensed sprinkler contractor will not be required to install them. The current USBC Section 108.3 authorizes the owner of a property to apply for permitting and through the USBC and the Department of Occupation and Regulation (DPOR) an owner/occupant can perform the actual system installation. Therefore no contractor or RDP is required to be involved in the process. DPOR has said that since these provisions are located within the IRC and specifically in Chapter 29 (which is a plumbing chapter) that a licensed plumbing contractor will be able to obtain the permitting and perform the installation. So, a typical plumbing permit will be required and an owner can certainly use a specialty contractor or RDP if they elect but it is not required and should not be a problem if someone chooses to utilize any professional services.
  8. Water tap fees are not going to increase drastically. For example, in Fairfax County the water authority has indicated that if a larger meter is required for the purpose of installing a residential sprinkler system (as opposed to more plumbing fixtures) than an increased meter size will cost an additional \$150.00. In Chesterfield the water purveyor indicated that the larger meter would cost \$45.00.
  9. Residential sprinklers located in homes in rural areas do in fact have other things to take into consideration. Storage and water availability are issues that must be dealt with. However, well systems must have some type storage as well as a pump included in their initial installation. So yes the flow capacity of a pump may need to be increased as well as the tank capacity for water storage but keep in mind there is already the initial cost of the original installation components that must be accounted for before you factor in the increased size cost adjustments. The VRSC intends to obtain real cost estimates from plumbing supply wholesalers from across the state based on the estimates obtained from the contractors as outlined in item # 2 and will forward these cost estimates to the BHCD.
  10. Finally there are several elements to the cost benefit analysis. Some which are just near impossible to place any type number on and claim accuracy. For example, we cant even look at 4 story town house statistics to see how well sprinklers are working, because there are so many 4 story units that predate the sprinkler mandate. It will take years before we can accurately get some numbers attached to the cost savings in the event of a fire happening in a dwelling unit with sprinklers. Another fallacy is to say that over X number of years that the cost will be recovered. From the VRSC perspective one life saved trumps all the cost incurred, others view this philosophy different. Savings can be recovered from things like fire rating reductions (as we have put forward), hydrant location, fire department staffing levels, fire department response time. smaller water mains due to reduction of hydrants, more narrow streets, etc.. All these things are continuously moving targets that no fixed savings number is going to satisfy. Anyone can do the math in order to gain their particular intended outcome. The bottom line, real facts are,

***“residential sprinkler systems will increase the cost of construction and residential sprinkler systems will save lives.”*** For further information on the Coalition please visit <http://www.varsco.org/>

Submittal Information

Date Submitted: September 8, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
 The Jackson Center  
 501 N. 2nd Street  
 Richmond, VA 23219-1321

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
 Fax Number: (804) 371-7092  
 Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: \_\_\_\_\_

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Shahriar Amiri

Representing: VRSC

Mailing Address: 2100 Clarendon Blvd., Suite 1000, Arlington, VA 22201

Email Address: samiri@arlingtonva.us

Telephone Number: 703-228-3848

Proposal Information

Code(s) and Section(s): \_\_\_\_\_

Proposed Change (including all relevant section numbers, if multiple sections): Change Exception I to current USBC Section R310.1 to read:

**Exceptions:**

1. Dwelling units equipped throughout with an approved automatic sprinkler system installed in accordance with NFPA 13, 13R or 13D or Section P2904.

Supporting Statement (including intent, need, and impact of the proposal): This is an editorial change to add the reference to Section P 2904 as an acceptable method to sprinkler one and two-family dwellings.

Submittal Information

Date Submitted: September 7, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Centre  
600 E. Main St., Ste. 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

**Code Change Form for the 2009 Code Change Cycle**

Code Change Number: \_\_\_\_\_

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Shahriar Amiri

Representing: VRSC

Mailing Address: 2100 Clarendon Blvd., Suite 1000, Arlington, VA 22201

Email Address: samiri@arlingtonva.us

Telephone Number: 703-228-3848

Proposal Information

Code(s) and Section(s): Change Table R302.1 as follows:

Proposed Change (including all relevant section numbers, if multiple sections): **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	< 5 feet <sup>1</sup>
	(Not fire-resistance rated)	0 hours	≥ 5 feet <sup>1</sup>
Projections	(Fire-resistance rated)	1 hour on the underside	≥ 2 feet to 5 feet <sup>1</sup>
	(Not fire-resistance rated)	0 hours	5 feet <sup>1</sup>
Openings	Not allowed	N/A	< 3 feet
	25% Maximum of Wall Area	0 hours	3 feet
	Unlimited	0 hours	5 feet <sup>1</sup>
Penetrations	All	Comply with Section R317.3	< 5 feet <sup>1</sup>
		None required	5 feet <sup>1</sup>

<sup>1</sup> 3 feet when dwelling units are equipped throughout with an approved automatic sprinkler system installed in

accordance with NFPA 13, 13R, 13D or Section P2904.

Supporting Statement (including intent, need, and impact of the proposal): 2003 IRC required that exterior walls of dwellings with fire separation distance of less than 3 feet to have a fire-resistance rating. USBC amended this requirement to 5 feet based on the IRC supplement. This proposal is to allow zero rated exterior walls from 3 to 5 feet provided that the dwelling unit is equipped throughout with an approved automatic sprinkler system established by the code. This reduction will provide a degree of protection for exterior walls permitted by 2003 IRC with the additional requirement that the dwelling be sprinklered.

Submittal Information

Date Submitted: September 7, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Centre  
600 E. Main St., Ste. 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: \_\_\_\_\_

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Robby Dawson, Chairman

Representing: Virginia Residential Sprinkler Coalition

Mailing Address: 9800 Government Center Parkway, Chesterfield, VA 23832

Email Address: dawsonj@chesterfield.gov

Telephone Number: 804-717-6838

Proposal Information

Code(s) and Section(s): IFC 503.2.1

Proposed Change (including all relevant section numbers, if multiple sections):  
Change the following code sections as noted: Add exception as noted

**503.2.1 Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115mm)

**Exception:** Fire apparatus access roads exclusively serving fully sprinklered residential developments in accordance with IRC Section 313.1 or 313.2 shall have an unobstructed width of not less than 18 feet (5486mm), exclusive of shoulders.

Supporting Statement (including intent, need, and impact of the proposal):

With the improved fire safety of residential sprinklers, the need for apparatus access to combat large scale fires is reduced. This reduction in residential street width takes advantage of the inclusion of sprinklers in new construction. This reduction is limited to single family dwellings where the all dwelling units in the development are electively sprinklered and townhouse developments only.

This approach has been used in localities in Virginia already without fire service operational issues. This is also the standard used by a number of other communities where residential sprinklers are used as a community fire protection strategy. The reduction in impervious surface in addition to the infrastructure cost savings will offset the additional costs associated with fire sprinkler systems.

While no specific cost savings have been identified, this change would result in as much as a 10% reduction in certain required fire apparatus access roads and the resulting savings in materials and impervious surfaces will have a positive impact on the infrastructure costs and environmental impacts.

Submittal Information

Date Submitted: September 7, 2009

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The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [taso@dhcd.virginia.gov](mailto:taso@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change  
Number: \_\_\_\_\_

Proponent  
Information

(Check one):  Individual  Government  
Entity  Company

Name: Robby Dawson, Chairman Representing: Virginia Residential Sprinkler Coalition

Mailing Address: 9800 Government Center Parkway, Chesterfield, VA 23832

Email Address: [dawsonrj@chesterfield.gov](mailto:dawsonrj@chesterfield.gov) Telephone Number: 804-717-6838

Proposal Information

Code(s) and Section(s): IFC Appendix B Table B105.1

Proposed Change (including all relevant section numbers, if multiple sections):

See attached table

Supporting Statement (including intent, need, and impact of the proposal):

The reduction of required fire suppression water in structures protected with water based fire protection systems has been a long-standing trade-off in the International Building Code. With the addition of the residential sprinkler requirement in town home developments, and selected detached single family homes, the inclusion of these guidelines in the SFPC Appendix will allow local fire officials to base their decision for required fire flow on a consistent basis across the commonwealth.

The basis of the flows noted here are based on the fire ground formula of

$$\frac{\text{fire area square footage}}{3} = \text{required gpm}$$

These requirements also take into account the long-standing allowance of fire flow reductions when structures are equipped with a sprinkler system.

Cost savings associated with this change are difficult to estimate due to the variability between local water authorities. An estimate was prepared for a number of developments in Chesterfield County. The following is submitted as a comparison:

Small subdivision of 25 single family dwellings-  
Cost as proposed - \$172,353  
Cost with reduced fire flow (smaller water lines) - \$142,547  
Savings - \$29,806 (\$1192 per unit)

Small townhouse project of 42 dwelling units-  
Cost as proposed - \$176,389  
Cost with reduced fire flow (smaller water lines) - \$143,556  
Savings - \$32,833 (\$782 per unit)

Large subdivision of 103 single family dwellings -  
Cost as proposed - \$524,781  
Cost with reduced fire flow (smaller water lines) - \$433,381  
Savings - \$91,400 (\$887 per unit)

These estimates are based on 3 planned developments currently in the approval process.

Submittal Information

Date Submitted: September 7, 2009 \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
taso@dhcd.virginia.gov  
501 N. 2nd Street  
Richmond, VA 23219-1321  
or (804) 371-7150

Email Address:

Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140



**TABLE B105.1  
MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS<sup>a</sup>**

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute) <sup>c</sup>	FLOW DURATION (hours)
Type IA and IB <sup>b</sup>	Type IIA and IIIA <sup>b</sup>	Type IV and V-A <sup>b</sup>	Type IB and IIIB <sup>b</sup>	Type V-B <sup>b</sup>		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600 0-5,000 <sup>d</sup>	1,500 1,000 <sup>d</sup>	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800 5,001-7,200 <sup>d</sup>	1,750 1,250 <sup>d</sup>	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200 7,201-8,200 <sup>d</sup>	2,000 1,500 <sup>d</sup>	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700 8,201-9,500 <sup>d</sup>	2,250 1,750 <sup>d</sup>	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400 9,501-11,000 <sup>d</sup>	2,500 2,000 <sup>d</sup>	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300 11,301-13,000 <sup>d</sup>	2,750 2,250 <sup>d</sup>	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	3
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
--	--	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
--	--	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
--	--	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
--	--	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
--	--	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
--	--	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
--	--	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
--	--	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895kPa.

a. The minimum required fire flow shall be allowed to be reduced by 25 percent for Group R.

b. Types of construction are based on the *International Building Code*.

c. Measured for 20 psi.

d. For use with town homes equipped with a residential sprinkler systems in accordance with R313.1 or when all detached single family homes in developments are equipped with sprinklers in accordance with NFPA13D, NFPA 13R or P2409.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

**Code Change Form for the 2009 Code Change Cycle**

Code Change Number: \_\_\_\_\_

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Robby Dawson

Representing: Virginia Residential Sprinkler Coalition

Mailing Address: 9800 Government Center Pky, Chesterfield, VA 23832

Email Address: dawsonj@chesterfield.gov

Telephone Number: 804-717-6838

Proposal Information

Code(s) and Section(s): IFC Appendix C Table C105.1

Proposed Change (including all relevant section numbers, if multiple sections):

**TABLE C105.1  
NUMBER AND DISTRIBUTION OF FIRE HYDRANTS**

FIRE –FLOW REQUIREMENT (GPM)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS <sup>a, b, c, d</sup> (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT <sup>d, f</sup>
1,750 or less	1	500	250
2,000 – 2,250	2	450	225
2,500	3	450	225
3,000	3	450	225
3,500 – 4,000	4	350	210
4,500 – 5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500 – 7,000	7	250	150
7,500 or more	8 or more <sup>e</sup>	200	150

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895kPa.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d. Reduce by 50 feet for dead-end streets or roads.

e. One hydrant for each 1,000 gallons per minute or fraction thereof.

f. The fire code official shall be permitted to increase spacing and distances by 100% for residential use group developments when all dwellings are protected with fire sprinklers in accordance with NFPA 13, 13R, 13D or P2409 standards.

**Supporting Statement (including intent, need, and impact of the proposal):**

This change to Appendix C provides for a reduction in the number of hydrants required in developments that utilize residential sprinklers. The language in footnote f indicates "shall be permitted" to account for individual fire service equipment standards. For those departments that carry greater than 1000 feet of supply hose, it would be logical to extend the distance by 100%. For those that carry 1000 feet or less, the distance between hydrants may be extended to a reasonable distance based on the local operational capabilities.

**Submittal Information**

Date Submitted: September 7, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [taso@dhcd.virginia.gov](mailto:taso@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R314.2)**

**Nature of Change:**

To remove owner and monitoring requirements from the household fire warning system option for smoke detection in the 2009 IRC.

**Proponent:** Mike Toalson, Home Builders Association of Virginia

**Staff Comments:**

This proposal was tentatively approved at the Codes and Standards Committee meeting of December 14, 2009 unless public comment is received during the Compilation Document comment period.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6(R314.2)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Mike Toalson

Representing: HBAV

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): **IRC 314.2 - Smoke detection systems.**

**R314.3.1 - Delete**

Proposed Change (including all relevant section numbers, if multiple sections):

**Amend to delete 314.2 second new sentence: where a household fire warning system is installed using a combination of smoke detectors and available notification device(s), the system shall become a permanent fixture of the dwelling unit, and owned by the homeowner. The system shall be monitored by an approved supervising station and be maintained in accordance with NFPA 72.**

**Delete 314.3.1 entirely.**

Supporting Statement (including intent, need, and impact of the proposal):

**The IRC doesn't require smoke detection systems to be monitored. The IRC does allow fire security systems to be used. These non-required systems can be removed, but R314.2 already clearly states that the primary code required smoke detection system shall be operable regardless of whether the owner wants them to be maintained as part of a fire security alarm system. This new second sentence is thus unnecessary and goes beyond the intent of the IRC and USBC by stating the system is to be permanent, and must be used by the homeowner and monitored.**

**Delete R314.3.1 as this section is a retrofit requirement.**

Submittal Information

Date Submitted: \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

Main Street Center  
600 E. Main St., Suite 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R315.2)**

**Nature of Change:**

To delete a retrofit requirement for carbon monoxide alarms in the 2009 IRC.

**Proponent:** Guy Tomberlin, Fairfax County Building Department, representing VPMIA and VBCOA's Plumbing/Mechanical/Fuel Gas Committees

**Staff Comments:**

This proposal was tentatively approved at the Codes and Standards Committee meeting of December 14, 2009 unless public comment is received during the Compilation Document comment period.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6 (R315.2)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Guy Tomberlin

Representing: VA Plumbing and Mechanical Inspectors Association and VA Building and Code Officials Association Plumbing/Mechanical/Fuel Gas Committees

Mailing Address: 12055 Government Center Parkway, Suite 630  
Fairfax, VA 22035

Email Address: guy.tomberlin@fairfaxcounty.gov

Telephone Number: 703-324-1611

Proposal Information Clarify Carbon Monoxide requirements

Code(s) and Section(s): IRC R315.2 Where required in existing dwellings.

Proposed Change (including all relevant section numbers, if multiple sections):

Delete Section R315.2 in its entirety.

Note to staff- renumber R315.3 to R315.2.

Supporting Statement (including intent, need, and impact of the proposal): The submitting code committees viewed this as a retroactive action and felt the USBC should not endorse this type activity. It would be extremely difficult to enforce and may even cause folks to not obtain permits. For example if someone wanted to build a deck and they happen to have an attached garage they would need to equip the dwelling unit with CO alarms, that's just not reasonable.

Submittal Information

Date Submitted: July 2, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: tsu@dhcd.virginia.gov  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R315.3)**

**Nature of Change:**

To clarify that the 2009 IRC provisions and standards for carbon monoxide alarms permit either battery-powered, plug-in or hard-wired detectors.

**Proponent:** Guy Tomberlin, Fairfax County Building Department, representing VPMIA and VBCOA's Plumbing/Mechanical/Fuel Gas Committees

**Staff Comments:**

This proposal was tentatively approved at the Codes and Standards Committee meeting of December 14, 2009 unless public comment is received during the Compilation Document comment period.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C - 310.6 (R 315.3)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Guy Tomberlin

Representing: VA Plumbing and Mechanical Inspectors Association and VA Building and Code Officials Association Plumbing/Mechanical/Fuel Gas Committees

Mailing Address: 12055 Government Center Parkway, Suite 630  
Fairfax, VA 22035

Email Address: guy.tomberlin@fairfaxcounty.gov

Telephone Number: 703-324-1611

Proposal Information Clarify Carbon Monoxide requirements

Code(s) and Section(s): IRC R315.3 Alarms requirements..

Proposed Change (including all relevant section numbers, if multiple sections):

**R315.3 Alarms requirements.** Single station carbon monoxide alarms shall be hard wired, plug-in or battery type, listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

Supporting Statement (including intent, need, and impact of the proposal): The submitting code committees felt that this section needed further clarity to provide the user the information that clearly reflects the information contained in the UL Standard 2034 which includes the 3 different type s of CO alarms the added text references.

Submittal Information

Date Submitted: July 2, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: tsu@dhcd.virginia.gov  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R329)**

**Nature of Change:**

To require a fire extinguisher to be installed in the kitchen area of new dwelling units in lieu of a sprinkler system.

**Proponent:** Mike Toalson, Home Builders Association of Virginia

**Staff Comments:**

The proposal was considered at one of the later sub-workgroup for residential sprinklers meetings but was not agreed upon by the fire service representatives as a substitute for requiring sprinklers, but there was no objection to the requirement in addition to sprinklers.

**Codes and Standards Committee Action:**

Approve as presented.

Disapprove.

Approve as modified (specify):

Carry over to next cycle.

Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6(R329)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Mike Toalson

Representing: Home Builders Association of Virginia

Mailing Address: 707 East Franklin Street, Richmond, VA 23219

Email Address: mltoalson@hbav.com

Telephone Number: 804-643-2797

Proposal Information

Code(s) and Section(s): 2009 USBC IRC R 329 and add new section on Fire Extinguishers

Proposed Change (including all relevant section numbers, if multiple sections):

R329.1 Kitchen Areas. Other than where the dwelling unit is equipped with an approved sprinkler system in accordance with R 313 or P 2904, a 10 BC fire extinguisher or an approved equivalent type of fire extinguisher shall be installed in the kitchen area.

Supporting Statement (including intent, need, and impact of the proposal): Kitchens are the top location for home fires. Many are small and controllable if discovered early, and according to the National Association of State Fire Marshall's, fire extinguishers have historically been the first line of defense for the same. According to the same professional group, if a fire is discovered in its early stages, the most effective means of protecting life and preventing property loss is to sound an alarm and then control and/or extinguish the incipient stage fire with a portable fire extinguisher. Fire extinguishers are manufactured with instructions and can be operated by untrained persons. They would provide a cost effective and enhanced active fire suppression measure to new homes. The typical 10 BC fire extinguisher would cost less than \$50.00.

According to the National Association of State Fire Marshall's, fire extinguishers provide a very good first line of defense.

Submittal Information

Date Submitted: December 4, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Centre  
600 E. Main St., Ste. 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R401.3)**

**Nature of Change:**

To add clarifying language to the 2009 IRC for the foundation drainage requirements to apply to only situations which may affect the dwelling unit.

**Proponent:** Douglas S. Jones, Keystone Builders

**Staff Comments:**

This proposal was tentatively approved at the Codes and Standards Committee meeting of December 14, 2009 unless public comment is received during the Compilation Document comment period.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R408.3.1)**

**Nature of Change:**

To add an termite inspection gap to the 2009 IRC for unvented crawl spaces.

**Proponent:** Lynn Underwood, City of Norfolk Building Department, representing himself

**Staff Comments:**

This proposal was tentatively approved at the Codes and Standards Committee meeting of December 14, 2009 unless public comment is received during the Compilation Document comment period.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

**DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM**

(Use this form to submit changes to building and fire codes)

Address to submit to:  DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321  Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us		Document No. <u>C-310.6 (R408.3.1)</u>  Committee Action: _____  BHCD Action: _____
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Submitted by: \_\_\_Lynn Underwood, CBO\_\_\_\_\_ Representing: \_\_\_himself\_\_\_\_\_

Address: \_400 Granby, Norfolk, Va 23510\_\_\_\_\_ Phone No.: (757) 664-6511\_\_\_\_\_

Regulation Title: \_Unvented crawl space\_\_\_\_\_ Section No(s): Section R408.3\_\_\_\_\_

**Proposed Change:**  
**R408.3 Unvented crawl space.** Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where:

1. Exposed earth is covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall; and
2. One of the following is provided for the under-floor space:
  - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7m<sup>2</sup>) of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.9;
  - 2.2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m<sup>2</sup>) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.9;
  - 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

**R408.3.1 Termite Inspection**  
Where an unvented crawl space is installed and meets the criteria in Section R408, the vertical face of the sill plate shall be clear and unobstructed and an inspection gap shall be provided below the sill plate along the top of any interior foundation wall covering. The gap shall be a minimum of one inch and a maximum of two inches in width and shall extend throughout all parts of any foundation that is enclosed. Joints between the sill plate and the top of any interior wall covering may be sealed.

**EXCEPTION:**

- (1) In areas not subject to damage by termites as indicated by Table R301.2(1).
- (2) Where other approved means are provided to inspect for potential damage.

Where pier and curtain foundations are installed as depicted in Figure R404.1.5(1), the inside face of the rim joist and sill plate shall be clear and unobstructed except for construction joints which may be sealed.

**EXCEPTION:** Fiberglass or similar insulation may be installed if easily removable.

**Supporting Statement:**

This proposed change in the 2009 IRC would allow Termite Inspection and Treatment services to more adequately do their job. Without this language, a fully enclosed crawl space would meet the code and yet conceal undetected termite infestation. This change does not reduce the energy efficiency provided for by enclosed and conditioned crawl spaces. There is a detail provided by expert in the

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R602.10)**

**Nature of Change:**

A rewrite of the International Residential Code provisions for wall bracing.

**Proponent:** Chuck Bajnai and Brian Foley, representing the Chesterfield and Fairfax County Building Departments

**Staff Comments:**

In the continuation of the development of the wall bracing requirements for the 2006 USBC, this proposal coordinates the work of a code development committee at ICC and proposals approved in the ICC code development process for the 2012 IRC. Due to the nature of the changes, the current wall bracing provisions in the USBC would be deleted and this proposal substituted in its place. As the proposal represents much of what will be in the 2012 IRC, the state amendments would be able to be deleted in the next code change cycle used by the Department for the 2012 codes.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6(R602.10)

Proponent Information (Check one):  Individual  Government Entity  Company

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Proposal Information

Code, Sections: IRC Table R602.3(1), new Section R602.3.5, Table R802.11, Section R602.10 and new Section R602.12

**1. Edit Section R301.2.2.1.1 as follows:**

**R301.2.1.1.1 Alternate determination of seismic design category.** The Seismic Design Categories and corresponding Short Period Design Spectral Response Accelerations,  $S_{DS}$  shown in figure R301.2(2) are based on soil Site Class D, as defined in Section 1613.5.2 of the *International Building Code*. If soil conditions are other than Site Class D, the Short Period Spectral Response Accelerations,  $S_{DS}$ , for a site can be determined according to Section 1613 of the *International Building Code*. The value of  $S_{DS}$ , determined according to Section 1613 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 R601.10.3(3)4, R603.7 and other seismic design requirements of this code.

**2. Delete Sections R301.2.2.3 and R301.2.2.4.**

**3. Edit Section R301.3, Item 1, Exception as follows:**

**Exception:** For wood framed wall buildings with bracing in accordance with Section R602.10 Tables R602.10.1.2(1) and R602.10.1.2(2), the wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet (3658 mm) without requiring an engineered design for the building wind and seismic force resisting system provided that the length of bracing required by Table R602.10.1.2(1) is increased by multiplying a factor of 1.10 and the length of bracing required by Table R602.10.1.2(2) is increased by multiplying by a factor of 1.20. Wall studs are still subject to the requirements of this section.

**4. Edit Section R403.1.6 exceptions 2 and 3 as follows:**

2. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Figure R602.10.4.4(1).

3. Connection of walls 12 inches (305 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted. The wall shall be attached to the adjacent braced wall panels at corners as shown in Figure R702.10.4.4(1).

5. Delete Section R403.1.6.1, Item 5, renumber subsequent items.

6. Edit Section R502.2.1 as follows:

**R502.2.1 Framing at braced wall panels lines.** A load path for lateral forces shall be provided between floor framing and braced wall panels located above or below a floor, as specified in Sections R602.3.5 and R602.10.86.

7. Revise Table R602.3(1) as follows:

**TABLE R602.3(1)  
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS**

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a,b,c</sup>	SPACING OF FASTENERS
<b>Roof</b>			
1	Blocking between joists or rafters to top plate, toe nail	3-8d (2 1/2" x 0.113")	--
2	Ceiling joists to plate, toe nail	3-8d (2 1/2" x 0.113")	--
3	Ceiling joist not attached to parallel rafter, laps over partitions, face nail	3-10d	--
4	Collar tie to rafter, face nail, or 1-1/4" x 20 gage ridge strap	3-10d (3" x 0.128")	--
5	Rafter to plate, toe nail	2-16d (3 1/2" x 0.135")	--
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d (3 1/2" x 0.135") 3-16d (3 1/2" x 0.135")	-- --
<b>Wall</b>			
7	Built-up corner studs –face nail	10d (3" x 0.128")	24" o.c.
8	Abutting studs at intersecting wall corners, face nail	16d (3 1/2" x 0.135")	12"oc
89	Built-up header, two pieces with 1/2" spacer	16d (3 1/2" x 0.135")	16" o.c. along each edge
910	Continued header, two pieces	16d (3 1/2" x 0.135")	16" o.c. along each edge
4011	Continuous header to stud, toe nail	4-8d (2 1/2" x 0.113")	-
4412	Double studs, face nail	10d (3" x 0.128")	24" o.c.
4213	Double top plates, face nail	10d (3" x 0.128")	24" o.c.
4314	Double top plates, minimum 4824-inch offset of end joints, face nail in lapped area	8-16d (3 1/2" x 0.135")	-
4415	Sole plate to joist or blocking, face nail	16d (3 1/2" x 0.135")	16" o.c.
4516	Sole plate to joist or blocking at braced wall panels	3-16d (3 1/2" x 0.135")	16" o.c.
4617	Stud to sole plate, toe nail	3-8d (2 1/2" x 0.113") or 2-16d (3 1/2" x 0.135")	- -
4718	Top or sole plate to stud, end nail	2-16d (3 1/2" x 0.135")	-
4819	Top plates, laps at corners and intersections, face nail	2-10d (3" x 0.128")	-
4920	1" brace to each stud and plate, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/4"	- -
2021	1" x 6" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/4"	- -
2422	1" x 8" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 3 staples 1 1/4"	- -
2223	Wider than 1" x 8" sheathing to each bearing, face nail	3-8d (2 1/2" x 0.113") 4 staples 1 1/4"	- -
<b>Floor</b>			
2324	Joist to sill or girder, toe nail	3-8d (2 1/2" x 0.113")	-
2625	Rim joist to top plate, toe nail (roof applications also)	8d (2 1/2" x 0.113")	6" o.c.
26	Rim joist or blocking to sill plate, toe nail	8d (2 1/2" x 0.113")	6" o.c.
2427	1" x 6" subfloor or less to each joist, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/4"	- -
2528	2" subfloor to joist or girder, blind and face nail	2-16d (3 1/2" x 0.135")	-
2729	2" planks (plank & beam – floor & roof)	2-16d (3 1/2" x 0.135")	at each bearing
2830	Built up girders and beams, 2-inch lumber layers	10d (3" x 0.128")	Nail each layer as follows: 32" o.c. at top and bottom and staggered. Two nails at ends and at each splice.
2931	Ledger strip supporting joists or rafters	3-16d (3 1/2" x 0.135")	At each joist or rafter

(Remainder of table unchanged except item numbers)

8. New Section R602.3.5 as follows:

**R602.3.5 Braced wall panel uplift load path.** Braced wall panels located at exterior walls that support roof rafters or trusses (including stories below top story) shall have the framing members connected in accordance with one of the following:

1. Fastening in accordance with Table R602.3(1) where:
  - 1.1. The basic wind speed does not exceed 90 mph (40 m/s), the wind exposure category is B, the roof pitch is 5:12 or greater, and the roof span is 32 feet (9754 mm) or less, or
  - 1.2. The net uplift value at the top of a wall does not exceed 100 plf (146 N/mm). The net uplift value shall be determined in accordance with Section R802.11 and shall be permitted to be reduced by 60 plf (57 N/mm) for each full wall above.
2. Where the net uplift value at the top of a wall exceeds 100 plf (146 N/mm), installing approved uplift framing connectors to provide a continuous load path from the top of the wall to the foundation or to a point where the uplift force is 100 plf (146 N/mm) or less. The net uplift value shall be as determined in Item 1.2 above.
3. Wall sheathing and fasteners designed in accordance with accepted engineering practice to resist combined uplift and shear forces.

**9. Edit Section R602.9 as follows:**

**R602.9 Cripple walls.** Foundation cripple walls shall be framed of studs not smaller than the studding above. When exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional story.

Cripple walls with a stud height less than 14 inches (356 mm) shall be continuously sheathed on at least one side with a wood structural panels ~~that is~~ fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking.

All cripple walls shall be supported on continuous foundations.

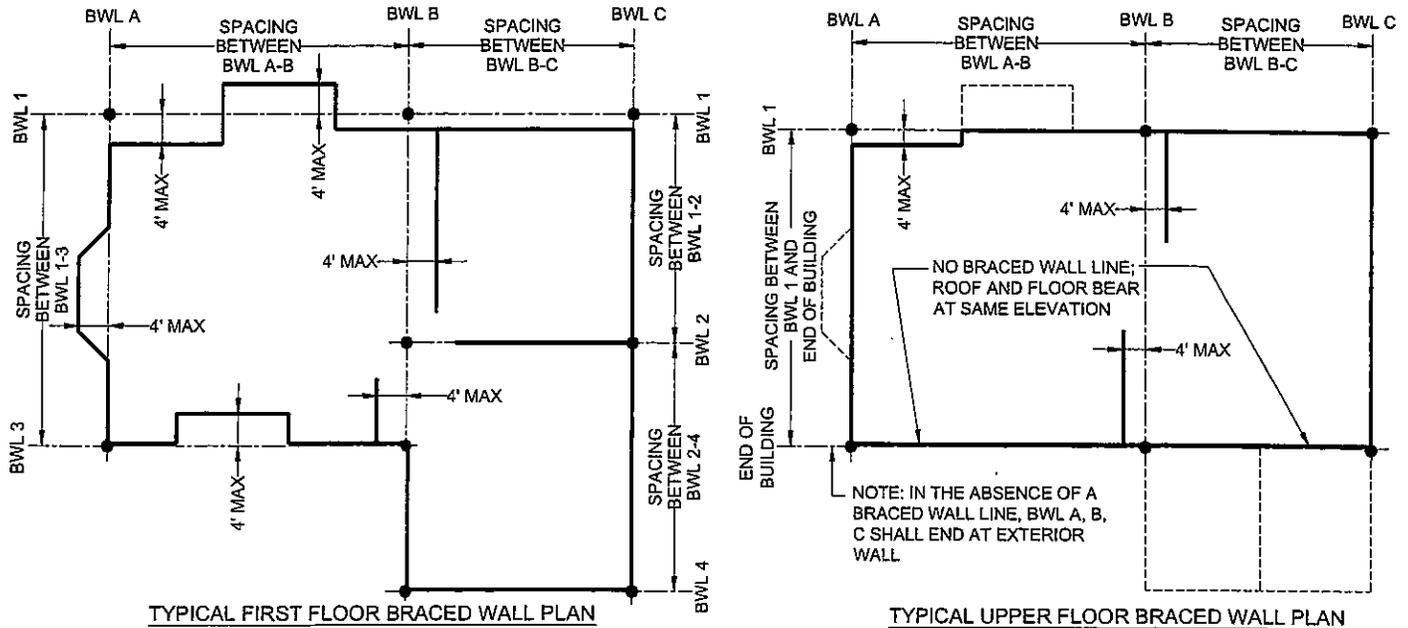
**10. Delete Section R602.10 and replace with the following:**

**R602.10 Wall bracing.** Buildings shall be braced in accordance with this section, or, when applicable, Section R602.12. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1.

The building official may require the permit applicant to identify and locate on the construction documents braced wall lines and braced wall panels as described herein.

**R602.10.1 Braced wall lines.** For the purpose of determining the amount and location of bracing required in each story level of a building, braced wall lines shall be designated as straight lines in the building plan placed in accordance with this section.

**R602.10.1.1 Length of a braced wall line.** The length of a braced wall line shall be the distance between its ends. The end of a braced wall line shall be the intersection with a perpendicular braced wall line, an angled braced wall line as permitted in Section R602.10.1.4 or an exterior wall as shown in Figure R602.10.1.1.



For SI: 1 foot=304.8mm

**FIGURE R602.10.1.1  
BRACED WALL LINES**

**R602.10.1.2 Offsets along a braced wall line.** All exterior walls parallel to a braced wall line shall be permitted to offset up to 4 feet (1219 mm) from the designated braced wall line location as shown Figure R602.10.1.1. Interior walls used as bracing shall be permitted to offset up to 4 feet (1219 mm) from a braced wall line through the interior of the building as shown in Figure R602.10.1.1.

**R602.10.1.3 Spacing of braced wall lines.** There shall be a minimum of two braced wall lines in both the longitudinal and transverse direction as shown in Figure R602.10.1.1. Intermediate braced wall lines through the interior of the building shall be permitted. The spacing between parallel braced wall lines shall be in accordance with Table R602.10.1.3.

**TABLE R602.10.1.3  
BRACED WALL LINE SPACING**

APPLICATION	CONDITION	BUILDING TYPE	BRACED WALL LINE SPACING CRITERIA	
			Maximum Spacing	Exception to Maximum Spacing
Wind bracing	85 mph to <110 mph	Detached, townhouse	60 feet	None
Seismic bracing	SDC A - C	Detached	Use wind bracing	
	SDC A - B	Townhouse	Use wind bracing	
	SDC C	Townhouse	35 feet	Up to 50 feet when length of required bracing per Table R602.10.3(3) is adjusted in accordance with Table R602.10.3(4)

For SI: 1 foot = 304.8 mm

**R602.10.1.4 Angled walls.** Any portion of a wall along a braced wall line shall be permitted to angle out of plane for a maximum diagonal length of 8 feet (2438 mm). Where the angled wall occurs at a corner, the length of the braced wall line shall be measured from the projected corner as shown in Figure R602.10.1.4. Where the diagonal length is greater than 8 feet (2438 mm), it shall be considered a separate braced wall line and shall be braced in accordance with Section R602.10.1.



**FIGURE R602.10.2.2  
LOCATION OF BRACED WALL PANELS**

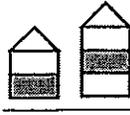
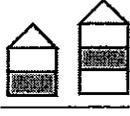
**R602.10.2.3 Minimum number of braced wall panels.** Braced wall lines with a length of 16 feet (4877 mm) or less shall have a minimum of two braced wall panels of any length or one braced wall panel equal to 48 inches (1219 mm) or more. Braced wall lines greater than 16 feet (4877 mm) shall have a minimum of two braced wall panels.

**R602.10.3 Required length of bracing.** The required length of bracing along each braced wall line shall be determined as follows.

1. All buildings in Seismic Design Categories A and B shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
2. Detached buildings in Seismic Design Category C shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
3. Townhouses in Seismic Design Category C shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4) respectively.

Only braced wall panels parallel to the braced wall line within the 4 foot (1219 mm) offset permitted by Section R602.10.1.2 shall contribute towards the required length of bracing of that braced wall line. If a braced wall panel is located along an angled wall and meets the minimum length requirements of Tables R602.10.5 or R602.10.5.2, it shall be permitted to contribute its projected length towards the minimum required length of bracing for the braced wall line as shown in Figure R602.10.1.4. If a braced wall panel is located along an angled wall at the end of a braced wall line, it shall contribute its projected length for only one of the braced wall lines at the projected corner.

**TABLE R602.10.3(1)  
BRACING REQUIREMENTS BASED ON WIND SPEED**

<ul style="list-style-type: none"> <li>• EXPOSURE CATEGORY B</li> <li>• 30 FT MEAN ROOF HEIGHT</li> <li>• 10 FT EAVE TO RIDGE HEIGHT</li> <li>• 10 FT WALL HEIGHT</li> <li>• 2 BRACED WALL LINES</li> </ul>			<b>MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE <sup>a</sup></b>			
Basic Wind Speed (mph)	Story Location	Braced Wall Line Spacing (feet)	Method LIB <sup>b</sup>	Method GB	Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB <sup>c</sup>	Methods CS-WSP, CS-G, CS-PF
≤85		10	3.5	3.5	2.0	1.5
		20	6.0	6.0	3.5	3.0
		30	8.5	8.5	5.0	4.5
		40	11.5	11.5	6.5	5.5
		50	14.0	14.0	8.0	7.0
		60	16.5	16.5	9.5	8.0
		10	6.5	6.5	3.5	3.0
		20	11.5	11.5	6.5	5.5
		30	16.5	16.5	9.5	8.0
		40	21.5	21.5	12.5	10.5
		50	26.5	26.5	15.0	13.0
		60	31.5	31.5	18.0	15.5
		10	NP	9.0	5.5	4.5
		20	NP	17.0	10.0	8.5
		30	NP	24.5	14.0	12.0
		40	NP	32.0	18.0	15.5
		50	NP	39.0	22.5	19.0
		60	NP	46.5	26.5	22.5
≤90		10	3.5	3.5	2.0	2.0
		20	7.0	7.0	4.0	3.5
		30	9.5	9.5	5.5	5.0
		40	12.5	12.5	7.5	6.0
		50	15.5	15.5	9.0	7.5
		60	18.5	18.5	10.5	9.0
		10	7.0	7.0	4.0	3.5
		20	13.0	13.0	7.5	6.5
		30	18.5	18.5	10.5	9.0
		40	24.0	24.0	14.0	12.0
		50	29.5	29.5	17.0	14.5

<ul style="list-style-type: none"> <li>EXPOSURE CATEGORY B</li> <li>30 FT MEAN ROOF HEIGHT</li> <li>10 FT EAVE TO RIDGE HEIGHT</li> <li>10 FT WALL HEIGHT</li> <li>2 BRACED WALL LINES</li> </ul>			MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE <sup>a</sup>				
Basic Wind Speed (mph)	Story Location	Braced Wall Line Spacing (feet)	Method LIB <sup>b</sup>	Method GB	Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB <sup>c</sup>	Methods CS-WSP, CS-G, CS-PF	
		60	35.0	35.0	20.0	17.0	
		10	NP	10.5	6.0	5.0	
		20	NP	19.0	11.0	9.5	
		30	NP	27.5	15.5	13.5	
		40	NP	35.5	20.5	17.5	
		50	NP	44.0	25.0	21.5	
		60	NP	52.0	30.0	25.5	
≤100		10	4.5	4.5	2.5	2.5	
		20	8.5	8.5	5.0	4.0	
		30	12.0	12.0	7.0	6.0	
		40	15.5	15.5	9.0	7.5	
		50	19.0	19.0	11.0	9.5	
		60	22.5	22.5	13.0	11.0	
		10	8.5	8.5	5.0	4.5	
		20	16.0	16.0	9.0	8.0	
		30	23.0	23.0	13.0	11.0	
		40	29.5	29.5	17.0	14.5	
		50	36.5	36.5	21.0	18.0	
		60	43.5	43.5	25.0	21.0	
		10	NP	12.5	7.5	6.0	
		20	NP	23.5	13.5	11.5	
		30	NP	34.0	19.5	16.5	
		40	NP	44.0	25.0	21.5	
		50	NP	54.0	31.0	26.5	
		60	NP	64.0	36.5	31.0	
	< 110 <sup>d</sup>		10	5.5	5.5	3.0	3.0
			20	10.0	10.0	6.0	5.0
			30	14.5	14.5	8.5	7.0
40			18.5	18.5	11.0	9.0	
50			23.0	23.0	13.0	11.5	
60			27.5	27.5	15.5	13.5	
		10	10.5	10.5	6.0	5.0	
		20	19.0	19.0	11.0	9.5	
		30	27.5	27.5	16.0	13.5	
		40	36.0	36.0	20.5	17.5	
		50	44.0	44.0	25.5	21.5	
		60	52.5	52.5	30.0	25.5	
		10	NP	15.5	9.0	7.5	
		20	NP	28.5	16.5	14.0	
		30	NP	41.0	23.5	20.0	
		40	NP	53.0	30.5	26.0	
		50	NP	65.5	37.5	32.0	
		60	NP	77.5	44.5	37.5	

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm.

a. Linear interpolation shall be permitted.

b. Method LIB shall have gypsum board fastened to at least one side with nails or screws per Table R602.3(1) for exterior sheathing or Table R702.3.5 for interior gypsum board. Spacing of fasteners at panel edges shall not exceed 8 inches (203 mm).

c. Method CS-SFB does not apply where the wind speed is greater than 100 mph.

**TABLE R602.10.3(2)**  
**WIND ADJUSTMENT FACTORS TO THE REQUIRED LENGTH OF WALL BRACING**

<u>ADJUSTMENT BASED ON</u>	<u>STORY/ SUPPORTING</u>	<u>CONDITION</u>	<u>ADJUSTMENT FACTOR</u> <sup>a,b</sup>  (multiply length from Table R602.10.3(1) by this factor)	<u>APPLICABLE METHODS</u>
<u>Exposure category</u>	<u>One story structure</u>	B	1.00	All methods
		C	1.20	
		D	1.50	
	<u>Two-story structure</u>	B	1.00	
		C	1.30	
		D	1.60	
	<u>Three-story structure</u>	B	1.00	
		C	1.40	
		D	1.70	
<u>Roof eave-to-ridge height</u>	<u>Roof only</u>	≤ 5 ft	0.70	
		10 ft	1.00	
		15 ft	1.30	
		20 ft	1.60	
	<u>Roof + 1 floor</u>	≤ 5 ft	0.85	
		10 ft	1.00	
		15 ft	1.15	
		20 ft	1.30	
	<u>Roof + 2 floors</u>	≤ 5 ft	0.90	
		10 ft	1.00	
		15 ft	1.10	
		20 ft	Not permitted	
<u>Wall height adjustment</u>	<u>Any story</u>	8 ft	0.90	
		9 ft	0.95	
		10 ft	1.00	
		11 ft	1.05	
		12 ft	1.10	
<u>Number of braced wall lines (per plan direction)<sup>c</sup></u>	<u>Any story</u>	2	1.00	
		3	1.30	
		4	1.45	
		≥ 5	1.60	
<u>Additional 800 lb hold-down device</u>	<u>Top story only</u>	<u>Fastened to the end studs of each braced wall panel and to the foundation or framing below</u>	0.80	DWB, WSP, SFB, PBS, PCP, HPS
<u>Interior gypsum board finish (or equivalent)</u>	<u>Any story</u>	<u>Omitted from inside face of braced wall panels</u>	1.40	DWB, WSP, SFB, PBS, PCP, HPS, CS-WSP, CS-G, CS-SFB
<u>Gypsum board fastening</u>	<u>Any story</u>	<u>4 in. o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked</u>	0.7	GB

For SI: 1 foot = 305 mm, 1 lb = 4.48 N.

a. Linear Interpolation shall be permitted.

b. The total adjustment factor is the product of all applicable adjustment factors.

c. The adjustment factor is permitted to be 1.0 when determining bracing amounts of intermediate braced wall lines provided the bracing amounts on adjacent braced wall lines are based on a spacing and number that neglects the intermediate braced wall line.

**TABLE R602.10.3(3)**  
**BRACING REQUIREMENTS BASED ON SEISMIC DESIGN CATEGORY**

<ul style="list-style-type: none"> <li>SOIL CLASS D<sup>b</sup></li> <li>WALL HEIGHT = 10 FT</li> <li>10 PSF FLOOR DEAD LOAD</li> <li>15 PSF ROOF/CEILING DEAD LOAD</li> <li>BRACED WALL LINE SPACING ≤25 FT</li> </ul>			MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE <sup>a</sup>				
Seismic Design Category	Story Location	Braced Wall Line Length (ft)	Method LIB <sup>c</sup>	Method GB	Methods DWB, SFB, PBS, PCP, HPS, CS-SFB	Method WSP	Methods CS-WSP, CS-G
C (townhouses only)		10	2.5	2.5	2.5	1.6	1.4
		20	5.0	5.0	5.0	3.2	2.7
		30	7.5	7.5	7.5	4.8	4.1
		40	10.0	10.0	10.0	6.4	5.4
		50	12.5	12.5	12.5	8.0	6.8
		10	NP	4.5	4.5	3.0	2.6
		20	NP	9.0	9.0	6.0	5.1
		30	NP	13.5	13.5	9.0	7.7
		40	NP	18.0	18.0	12.0	10.2
		50	NP	22.5	22.5	15.0	12.8
		10	NP	6.0	6.0	4.5	3.8
		20	NP	12.0	12.0	9.0	7.7
		30	NP	18.0	18.0	13.5	11.5
		40	NP	24.0	24.0	18.0	15.3
		50	NP	30.0	30.0	22.5	19.1

For SI: 1 foot 305 mm

- Linear interpolation shall be permitted.
- Wall bracing lengths are based on a soil site class "D." Interpolation of bracing length between the S<sub>ds</sub> values associated with the Seismic Design Categories shall be permitted when a site-specific S<sub>ds</sub> value is determined in accordance with Section 1613.5 of the International Building Code.
- Method LIB shall have gypsum board fastened to at least one side with nails or screws per Table R602.3(1) for exterior sheathing or Table R702.3.5 for interior gypsum board. Spacing of fasteners at panel edges shall not exceed 8 inches (203 mm).

**TABLE R602.10.3(4)**  
**SEISMIC ADJUSTMENT FACTORS TO THE REQUIRED LENGTH OF WALL BRACING**

ADJUSTMENT BASED ON:	STORY/SUPPORTING	CONDITION	ADJUSTMENT FACTOR <sup>a,b</sup> (Multiply length from Table R602.10.3(3) by this factor)	APPLICABLE METHODS
Story height (Section 301.3)	Any story	≤10 ft	1.0	All methods
		>10 ft ≤12 ft	1.2	
Braced wall line spacing	Any story	≤35 ft	1.0	
		>35 ft ≤50 ft	1.43	
Wall dead load	Any story	≥ 8 ft < 15 ft	1.0	
		< 8 psf	0.85	
Roof/ceiling dead load for wall supporting	Roof plus one or two stories	< 15 psf	1.0	
		>15 psf <25 psf	1.1	
	Roof only	>15 psf <25 psf	1.2	
Walls with stone or masonry veneer			1.0	
			1.5	
			1.5	
Interior gypsum board finish (or equivalent)	Any story	Omitted from inside face of braced wall panels	1.5	DWB, WSP, SFB, PBS, PCP, HPS, CS-WSP, CS-G, CS-SFB

For SI: 1 psf = 47.8 N/m<sup>2</sup>.

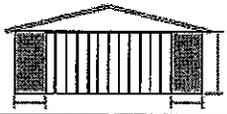
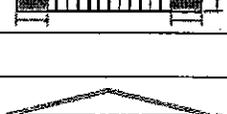
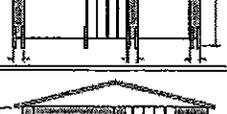
- Linear interpolation shall be permitted.
- The total length of bracing required for a given wall line is the product of all applicable adjustment factors.
- The length-to-width ratio for the floor/roof diaphragm shall not exceed 3:1. The top plate lap splice nailing shall be a minimum of 12-16d nails on each side of the splice.

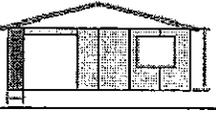
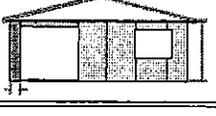
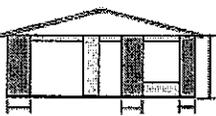
d. Applies to stone or masonry veneer exceeding the first story height.

e. The adjustment factor for stone or masonry veneer shall be applied to all exterior braced wall lines and all braced wall lines on the interior of the building.

**R602.10.4 Bracing methods for braced wall panels.** Braced wall panels shall be constructed in accordance with this section and the methods listed in Table R602.10.4.

**TABLE R602.10.4  
BRACING METHODS**

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA *	
			Fasteners	Spacing
Intermittent Bracing Methods	<b>LIB</b> Let-in-bracing		Wood: 2-8d common nails or 3-8d (2 1/2" long x 0.113" dia.) nails Metal: per manufacturer	Wood: per stud and top and bottom plates Metal: per manufacturer
	<b>DWB</b> Diagonal wood boards		2-8d (2 1/2" long x 0.113" dia.) nails or 2 - 1 3/4" long staples	Per stud
	<b>WSP</b> Wood structural panel (See Section R604)		Exterior sheathing per Table R602.3(3) Interior sheathing per Table R602.3(1) or R602.3(2)	6" edges 12" field  Varies by fastener
	<b>SFB</b> Structural fiberboard sheathing		1 1/2" long x 0.12" dia. (for 1/2" thick sheathing) 1 3/4" long x 0.12" dia. (for 25/32" thick sheathing) galvanized roofing nails or 8d common (2 1/2" long x 0.131" dia.) nails	3" edges 6" field
	<b>GB</b> Gypsum board		Nails or screws per Table R602.3(1) for exterior locations Nails or screws per Table R702.3.5 for interior locations	For all braced wall panel locations: 7" edges (including top and bottom plates) 7" field
	<b>PBS</b> Particleboard sheathing (See Section R605)		For 3/8", 6d common (2" long x 0.113" dia.) nails For 1/2", 8d common (2 1/2" long x 0.131" dia.) nails	3" edges 6" field
	<b>PCP</b> Portland cement plaster		1 1/2" long, 11 gage, 7/16" dia. head nails or 7/8" long, 16 gage staples	6" o.c. on all framing members
	<b>HPS</b> Hardboard panel siding		0.092" dia., 0.225" dia. head nails with length to accommodate 1 1/2" penetration into studs	4" edges 8" field
	<b>ABW</b> Alternate braced wall		See Section R602.10.6.1	See Section R602.10.6.1
	<b>PFH</b> Portal frame with hold-downs		See Section R602.10.6.2	See Section R602.10.6.2
<b>PFG</b> Portal frame at garage		See Section R602.10.6.3	See Section R602.10.6.3	

Continuous Sheathing Methods	<b>CS-WSP</b> Continuously sheathed wood structural panel	$\frac{3}{8}$ "		Exterior sheathing per Table R602.3(3) Interior sheathing per Table R602.3(1) or R602.3(2)	6" edges 12" field
	<b>CS-G</b> <sup>b, c</sup> Continuously sheathed wood structural panel adjacent to garage openings	$\frac{3}{8}$ "		See Method CS-WSP	Varies by fastener
	<b>CS-PF</b> Continuously sheathed portal frame	$\frac{7}{16}$ "		See Section R602.10.6.4	See Section R602.10.6.4
	<b>CS-SFB</b> <sup>d</sup> Continuously sheathed structural fiberboard	$\frac{1}{2}$ " or $\frac{25}{32}$ " for maximum 16" stud spacing		$1\frac{1}{2}$ " long x 0.12" dia. (for $\frac{1}{2}$ " thick sheathing) $1\frac{3}{4}$ " long x 0.12" dia. (for $\frac{25}{32}$ " thick sheathing) galvanized roofing nails or 8d common ( $2\frac{1}{2}$ " long x 0.131 dia.) nails	3" edges 6" field

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm.

- Adhesive attachment of wall sheathing, including Method GB, shall not be permitted in townhouses in Seismic Design Category C.
- Applies to panels next to garage door opening when supporting gable end wall or roof load only. May only be used on one wall of the garage.
- Garage openings adjacent to a Method CS-G panel shall be provided with a header in accordance with Table R502.5(1). A full height clear opening shall not be permitted adjacent to a Method CS-G panel.
- Method CS-SFB does not apply in areas where the wind speed exceeds 100 mph.

**R602.10.4.1 Mixing methods.** Mixing of bracing methods shall be permitted as follows:

- Mixing intermittent bracing and continuous sheathing methods from story to story shall be permitted.
- Mixing intermittent bracing methods from braced wall line to braced wall line within a story shall be permitted. In regions where the basic wind speed is less than or equal to 100 mph, mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.
- Mixing intermittent bracing methods along a braced wall line shall be permitted in Seismic Design Categories A and B, and detached dwellings in Seismic Design Category C provided the length of required bracing in accordance with Table R602.10.3(1) or R602.10.3(3) is the highest value of all intermittent bracing methods used.
- Mixing of continuous sheathing methods CS-WSP, CS-G and CS-PF along a braced wall line shall be permitted.
- In Seismic Design Categories A and B, and for detached one- and two-family dwellings in Seismic Design Category C, mixing of intermittent bracing methods along the interior portion of a braced wall line with continuous sheathing methods CS-WSP, CS-G and CS-PF along the exterior portion of the same braced wall line shall be permitted. The length of required bracing shall be the highest value of all intermittent bracing methods used in accordance with Table R602.10.3(1) or R602.10.3(3) as adjusted by Tables R602.10.3(2) and R602.10.3(4), respectively. The requirements of Section R602.10.7 shall apply to each end of the continuously sheathed portion of the braced wall line.

**R602.10.4.2 Continuous sheathing methods.** Continuous sheathing methods require structural panel sheathing to be used on all sheathable surfaces on one side of a braced wall line including areas above and below openings and gable end walls and shall meet the requirements of Section R602.10.7.

**R602.10.4.3 Braced wall panel interior finish material.** Braced wall panels shall have gypsum wall board installed on the side of the wall opposite the bracing material. Gypsum wall board shall be not less than  $\frac{1}{2}$  inch (12.7 mm) in thickness and be fastened with nails or screws in accordance with Table R602.3(1) for exterior sheathing or Table R702.3.5 for interior gypsum wall board. Spacing of fasteners at panel edges for gypsum wall board opposite Method LIB bracing shall not exceed 8 inches (203 mm). Interior finish material shall not be glued in townhouses in Seismic Category C.

**Exceptions:**

1. Interior finish material is not required opposite wall panels that are braced in accordance with Method GB, ABW, PFH, PFG and CS-PF, unless otherwise required by Section R302.6.
2. An approved interior finish material with an in-plane shear resistance equivalent to gypsum board shall be permitted to be substituted, unless otherwise required by Section R302.6.
3. Except for Method LIB, gypsum wall board is permitted to be omitted provided the required length of bracing in Tables R602.10.3(1) and R602.10.3(3) is multiplied by the appropriate adjustment factor in Tables R602.10.3(2) and R602.10.3(4) respectively, unless otherwise required by Section R302.6.

**R602.10.5 Minimum length of a braced wall panel.** The minimum length of a braced wall panel shall comply with Table R602.10.5. For Methods CS-WSP and CS-SFB, the minimum panel length shall be based on the vertical dimension of the adjacent opening in accordance with Table R602.10.5 and Figure R602.10.5. When a panel has openings on either side of differing heights, the larger vertical dimension shall be used to determine the minimum braced wall panel length.

**R602.10.5.1 Contributing length.** For purposes of complying with the required length of bracing in Tables R602.10.3(1) and R602.10.3(3), the contributing length of each braced wall panel to the total length of bracing shall be as specified in Table R602.10.5.

**TABLE R602.10.5  
MINIMUM LENGTH OF BRACED WALL PANELS**

METHOD (See Table R602.10.4)	MINIMUM LENGTH <sup>a</sup> (in)					CONTRIBUTING LENGTH (in)	
	Wall Height						
	8 ft	9 ft	10 ft	11 ft	12 ft		
DWG, WSP, SFB, PBS, PCP, HPS	48	48	48	53	58	Actual <sup>b</sup>	
GB	48	48	48	53	58	Double sided = Actual Single sided = 0.5 x Actual	
LIB	55	62	69	NP	NP	Actual <sup>b</sup>	
ABW	28	32	34	38	42	48	
PFH	Supporting roof only	16	16	16	18°	20°	48
	Supporting one story and roof	24	24	24	27°	29°	48
PFG	24	27	30	33°	36°	1.5 x Actual <sup>b</sup>	
CS-G	24	27	30	33	36	Actual <sup>b</sup>	
CS-PF	18	18	20	22°	24°	Actual <sup>b</sup>	
CS-WSP, CS-SFB	Adjacent opening vertical dimension (in)						
	≤64	24	27	30	33	36	Actual <sup>b</sup>
	68	26	27	30	33	36	
	72	27	27	30	33	36	
	76	30	29	30	33	36	
	80	32	30	30	33	36	
	84	35	32	32	33	36	
	88	38	35	33	33	36	
	92	43	37	35	35	36	
	96	48	41	38	36	36	
	100		44	40	38	38	
	104		49	43	40	39	
	108		54	46	43	41	
	112			50	45	43	
	116			55	48	45	
	120			60	52	48	
	124				56	51	
128				61	54		
132				66	58		
136					62		
140					66		
144					72		

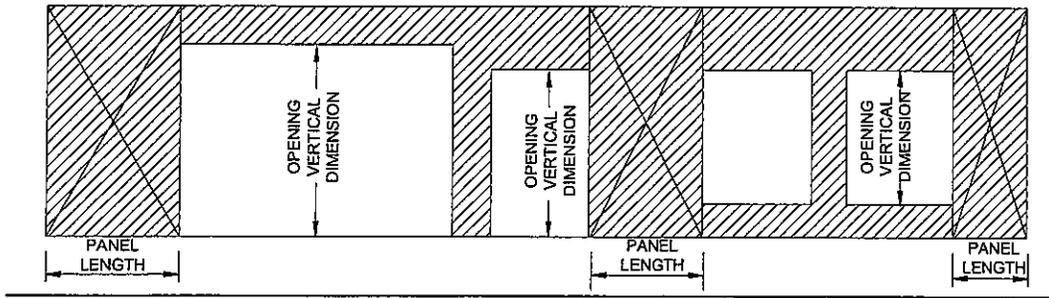
For SI: 1 inch = 25.4 mm

NP = Not permitted

a. Linear interpolation shall be permitted.

b. Use the actual length provided it is greater than or equal to the minimum length.

c. Maximum header height for is 10'; however, wall height may be increased to 12' with a pony wall per Table R602.10.6.4.



**FIGURE R602.10.5  
BRACED WALL PANELS WITH CONTINUOUS SHEATHING**

**R602.10.5.2 Partial credit.** For Methods DWB, WSP, SFB, PBS, PCP and HPS panels between 36 inches and 48 inches in length shall be considered a braced wall panel and shall be permitted to partially contribute towards the required length of bracing in Table R602.10.3(1) and R602.10.3(3), and the contributing length shall be determined from Table R602.10.5.2.

**TABLE R602.10.5.2  
PARTIAL CREDIT FOR BRACED WALL PANELS LESS THAN 48 INCHES IN ACTUAL LENGTH**

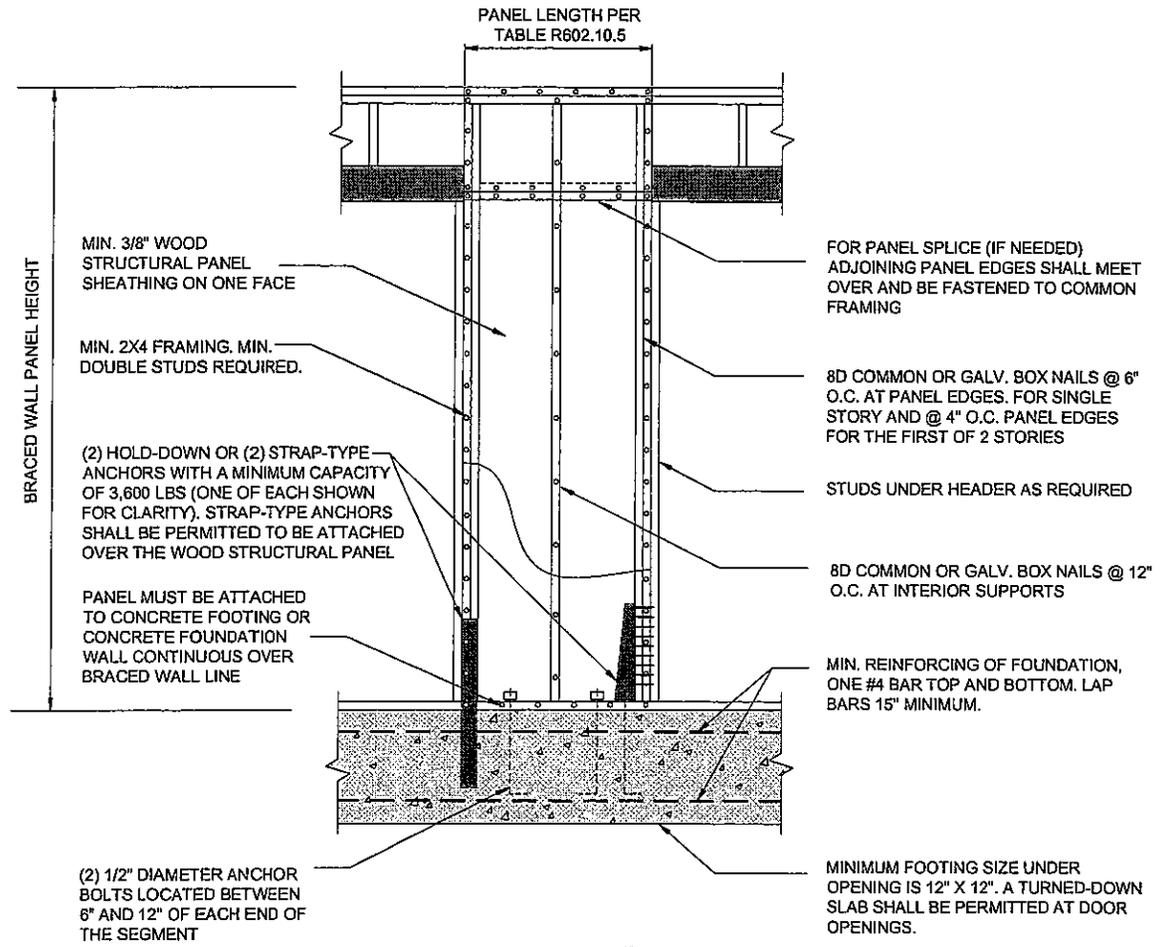
Actual Length of Braced Wall Panel (in)	Contributing Length of Braced Wall Panel (in) <sup>a</sup>	
	8 ft Wall Height	9 ft Wall Height
48	48	48
42	36	36
36	27	N/A

For SI: 1 inch = 25.4mm

a. Linear interpolation shall be permitted.

**R602.10.6 Construction of Methods ABW, PFH, PFG and CS-PF.** Methods ABW, PFH, PFG and CS-PF shall be constructed as specified in Sections R602.10.6.1 through R602.10.6.4.

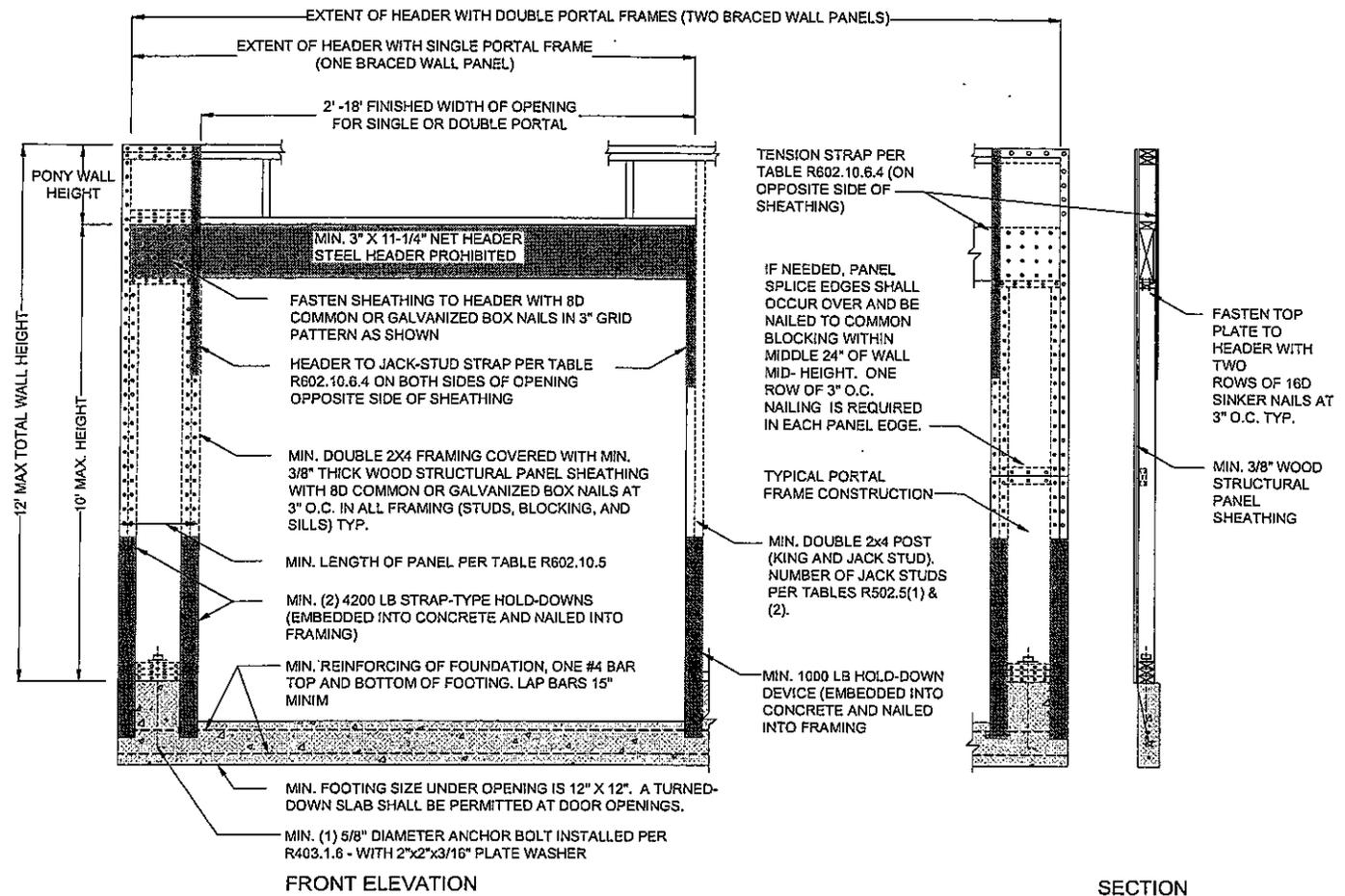
**R602.10.6.1 Method ABW: Alternate braced wall panels.** Method ABW braced wall panels shall be constructed in accordance with Figure R602.10.6.1.



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm

**FIGURE R602.10.6.1**  
**METHOD ABW: ALTERNATE BRACED WALL PANEL**

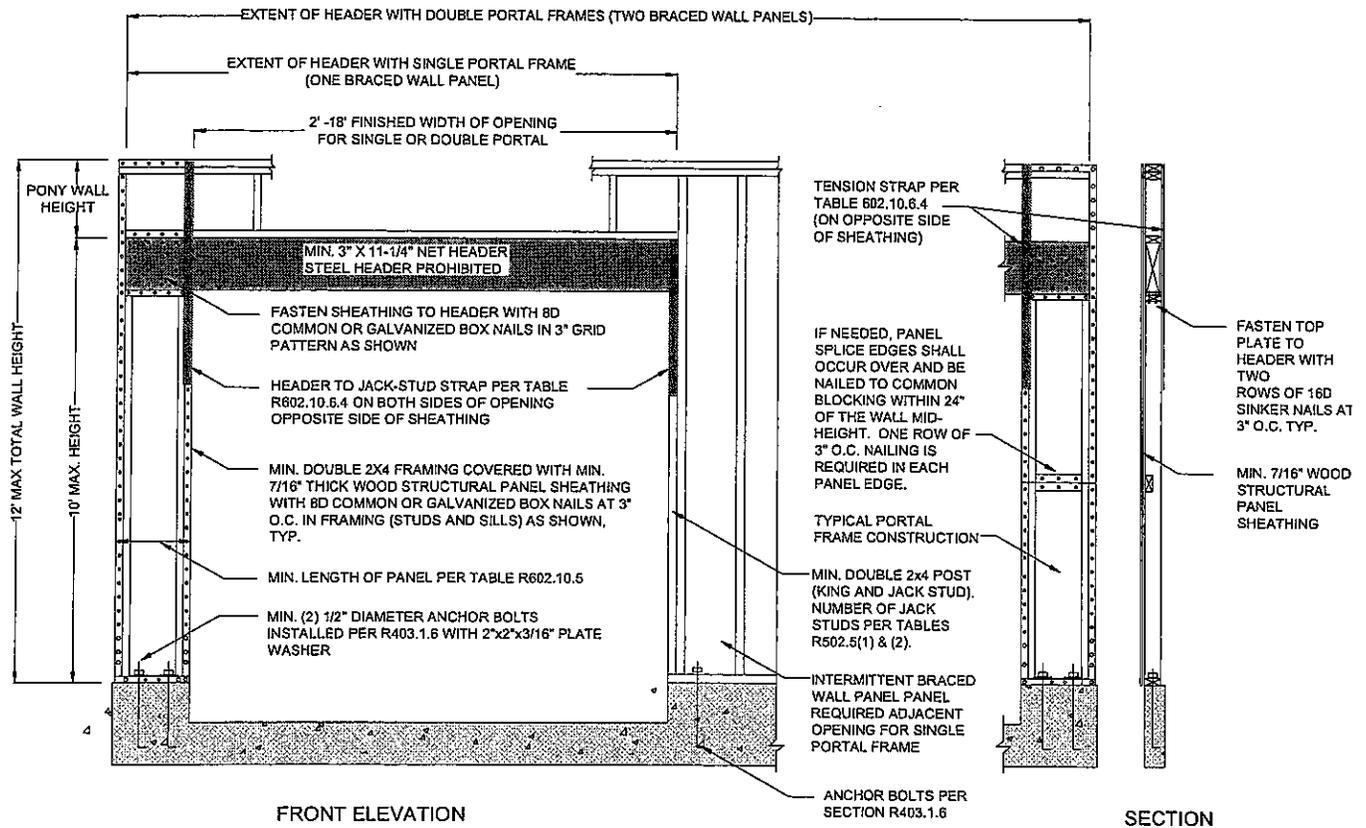
**R602.10.6.2 Method PFH: Portal frame with hold-downs.** Method PFH braced wall panels shall be constructed in accordance with Figure R602.10.6.2.



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm

**FIGURE R602.10.6.2**  
**METHOD PFH: PORTAL FRAME WITH HOLD-DOWNS**

**R602.10.6.3 Method PFG: Portal frame at garage door openings.** Where supporting a roof or one story and a roof, a Method PFG braced wall panel constructed in accordance with Figure R602.10.6.3 shall be permitted on either side of garage door openings.



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm

**FIGURE R602.10.6.3**  
**METHOD PFG: PORTAL FRAME AT GARAGE DOOR OPENINGS**  
**IN SEISMIC DESIGN CATEGORIES A, B AND C**

**R602.10.6.4 Method CS-PF: Continuously sheathed portal frame.** Continuously sheathed portal frame braced wall panels shall be constructed in accordance with Figure R602.10.6.4 and Table R602.10.6.4. The number of continuously sheathed portal frame panels in a single braced wall line shall not exceed four.

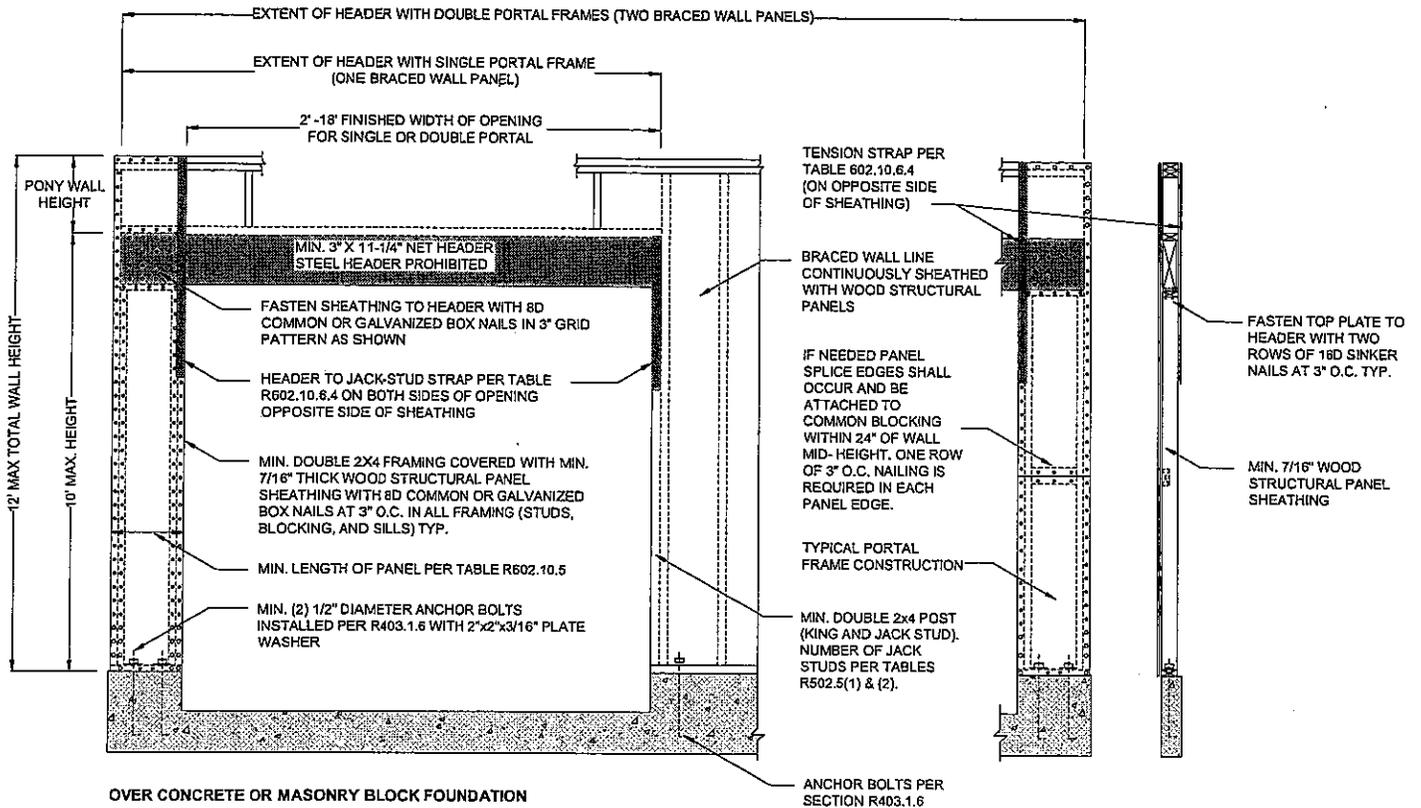
**TABLE R602.10.6.4  
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES  
PERPENDICULAR TO METHOD PFH, PFG AND CS-PF BRACED WALL PANELS**

MINIMUM WALL STUD FRAMING NOMINAL SIZE AND GRADE	MAXIMUM PONY WALL HEIGHT (ft)	MAXIMUM TOTAL WALL HEIGHT (ft)	MAXIMUM OPENING WIDTH (ft)	TENSION STRAP CAPACITY REQUIRED (lb) <sup>a</sup>					
				Basic Wind Speed (mph)					
				85	90	100	85	90	100
				Exposure B			Exposure C		
2x4 No. 2 Grade	0	10	18	1000	1000	1000	1000	1000	1000
			9	1000	1000	1000	1000	1000	1275
			16	1000	1000	1750	1800	2325	3500
	1	10	18	1000	1200	2100	2175	2725	DR
			9	1000	1000	1025	1075	1550	2500
			16	1525	2025	3125	3200	3900	DR
	2	10	18	1875	2400	3575	3700	DR	DR
			9	1000	1200	2075	2125	2750	4000
			16	2600	3200	DR	DR	DR	DR
	2	12	18	3175	3850	DR	DR	DR	DR
			9	1775	2350	3500	3550	DR	DR
			16	4175	DR	DR	DR	DR	DR
4	12	9	1000	1000	1325	1375	1750	2550	
		16	1650	2050	2925	3000	3550	DR	
		18	2025	2450	3425	3500	4100	DR	
2x6 Stud Grade	4	12	9	1125	1500	2225	2275	2775	3800
			16	2650	3150	DR	DR	DR	DR
			18	3125	3675	DR	DR	DR	DR

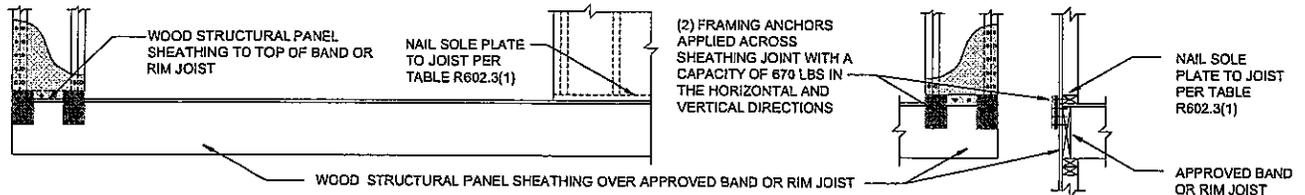
For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N

DR = design required

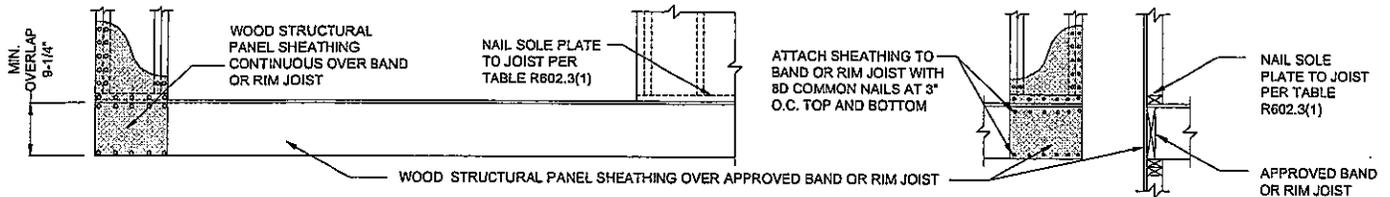
a. Strap shall be installed in accordance with manufacturer's recommendations.



OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION  
(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISED WOOD FLOOR - OVERLAP OPTION  
(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM BOARD)

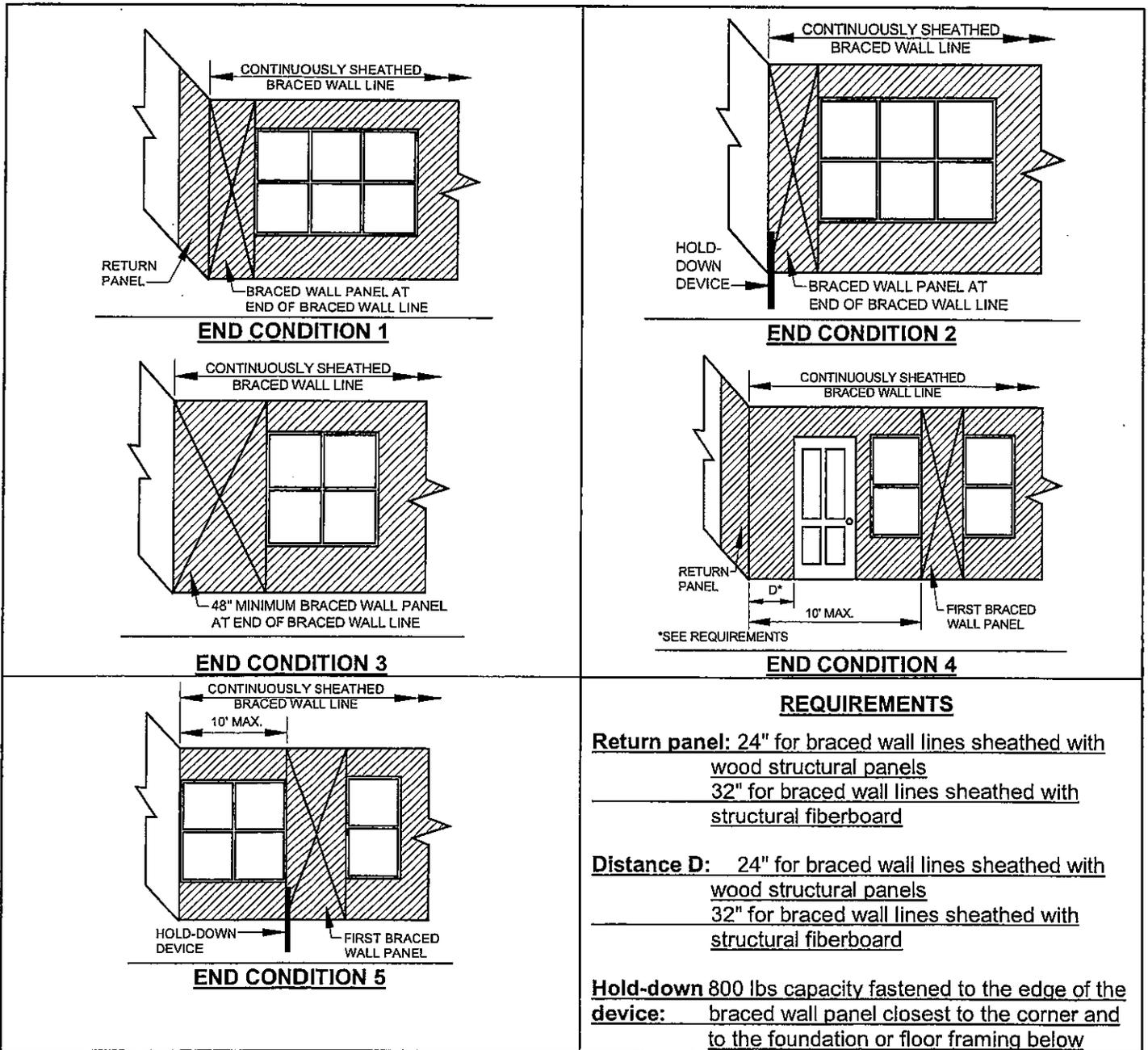
FRONT ELEVATION

SECTION

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N

**FIGURE R602.10.6.4**  
**METHOD CS-PF: CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION**

**R602.10.7 Ends of braced wall lines with continuous sheathing.** Each end of a braced wall line with continuous sheathing shall be in accordance with one of the end conditions shown in Figure R602.10.7.

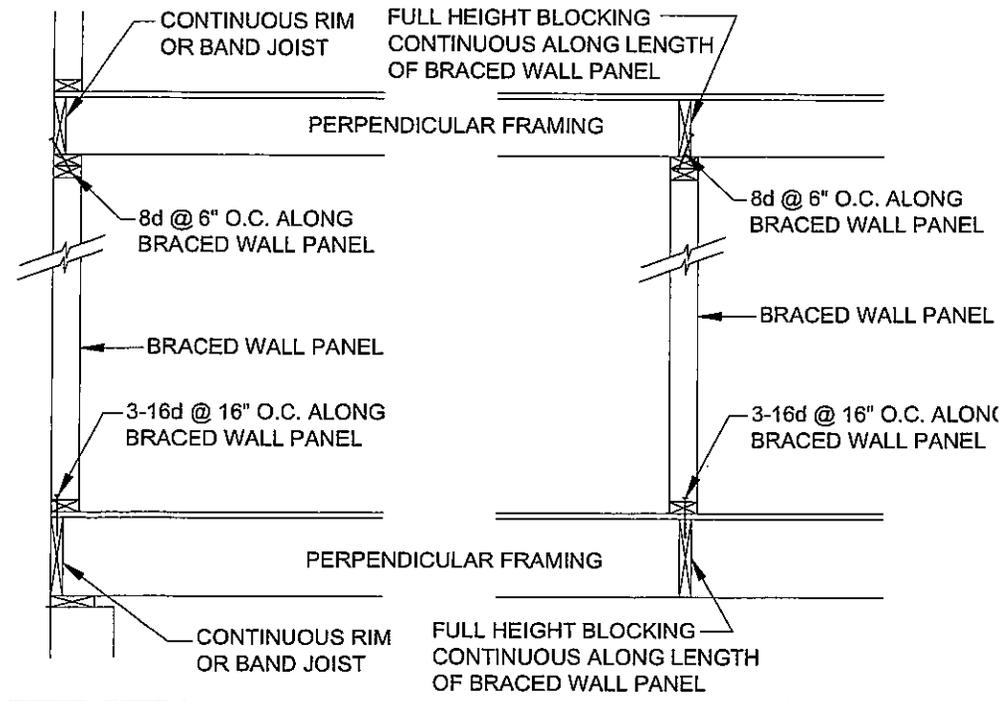


For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N

**FIGURE R602.10.7**  
**END CONDITIONS FOR BRACED WALL LINES WITH CONTINUOUS SHEATHING**

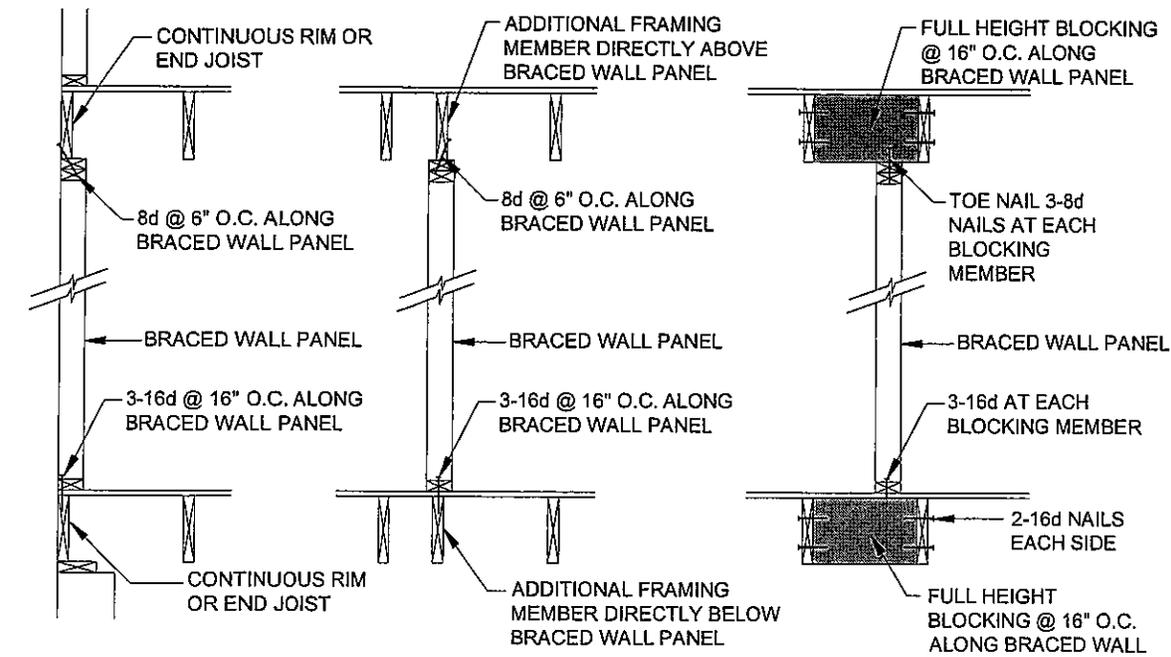
**R602.10.8 Braced wall panel connections.** Braced wall panels shall be connected to floor framing or foundations as follows:

1. Where joists are perpendicular to a braced wall panel above or below, a rim joist, band joist or blocking shall be provided along the entire length of the braced wall panel in accordance with Figure R602.10.8(1). Fastening of top and bottom wall plates to framing, rim joist, band joist and/or blocking shall be in accordance with Table R602.3(1).
2. Where joists are parallel to a braced wall panel above or below, a rim joist, end joist or other parallel framing member shall be provided directly above and below the braced wall panel in accordance with Figure R602.10.8(2). Where a parallel framing member cannot be located directly above and below the panel, full-depth blocking at 16 inch (406 mm) spacing shall be provided between the parallel framing members to each side of the braced wall panel in accordance with Figure R602.10.8(2). Fastening of blocking and wall plates shall be in accordance with Table R602.3(1) and Figure R602.10.8(2).
3. Connections of braced wall panels to concrete or masonry shall be in accordance with Section R403.1.6.



For SI: 1 inch = 25.4 mm

**FIGURE R602.10.8(1)**  
**BRACED WALL PANEL CONNECTION WHEN**  
**PERPENDICULAR TO FLOOR/CEILING FRAMING**

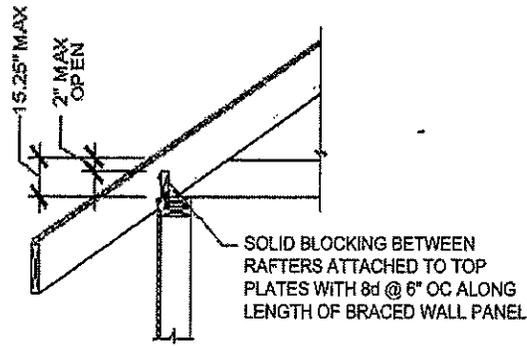


For Sl: 1 inch = 25.4 mm

**FIGURE R602.10.8(2)**  
**BRACED WALL PANEL CONNECTION WHEN**  
**PARALLEL TO FLOOR/CEILING FRAMING**

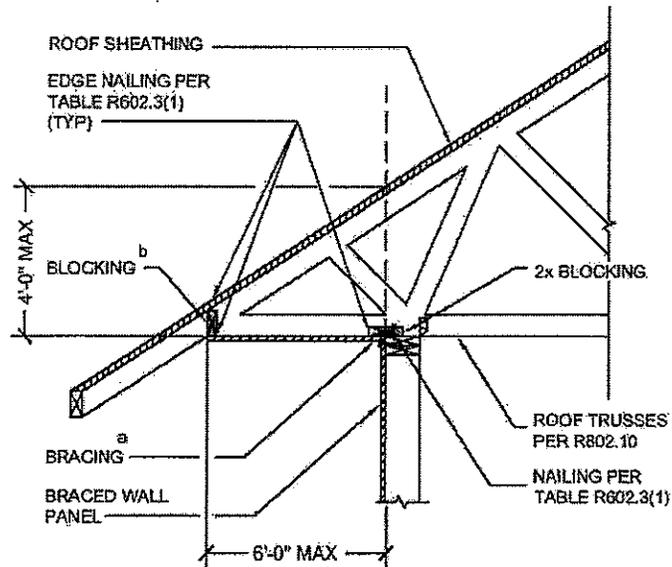
**R602.10.8.1 Connections to roof framing.** Top plates of exterior braced wall panels shall be attached to rafters or roof trusses above in accordance with Table R602.3(1) and this section. Where required by this section, blocking between rafters or roof trusses shall be attached to top plates of braced wall panels and to rafters and roof trusses in accordance with Table R602.3(1). A continuous band, rim, or header joist or roof truss parallel to the braced wall panels shall be permitted to replace the blocking required by this section. Blocking shall not be required over openings in continuously-sheathed braced wall lines. In addition to the requirements of this section, lateral support shall be provided for rafters and ceiling joists in accordance with Section R802.8 and for trusses in accordance with Section R802.10.3. Roof ventilation shall be provided in accordance with R806.1.

1. For wind speeds less than 100 mph (45 m/s):
  - 1.1 Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses above is 9.25 inches (235 mm) or less, blocking between rafters or roof trusses shall not be required.
  - 1.2 Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses above is between 9.25 inches (235 mm) and 15.25 inches (387 mm) blocking between rafters or roof trusses shall be provided above the braced wall panel in accordance with Figure R602.10.8.1(1).
2. For wind speeds of 100 mph (45 m/s) or greater, where the distance from the top of the braced wall panel to the top of the rafters or roof trusses is 15.25 inches (387 mm) or less, blocking between rafters or roof trusses shall be provided above the braced wall panel in accordance with Figure R602.10.8.1(1).
3. Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses exceeds 15.25 inches (387 mm), the top plate of the braced wall panel shall be connected to perpendicular rafters or roof trusses above in accordance with one or more of the following methods:
  - 3.1. Soffit blocking panels constructed per Figure R602.10.8.1(2).
  - 3.2. Vertical blocking panels constructed per Figure R602.10.8.1(3).
  - 3.3. Full-height engineered blocking panels designed per the AF&PA WFCM.
  - 3.4. Blocking, blocking panels, or other methods of lateral load transfer designed in accordance with accepted engineering practice.



For SI: 1 inch = 25.4 mm

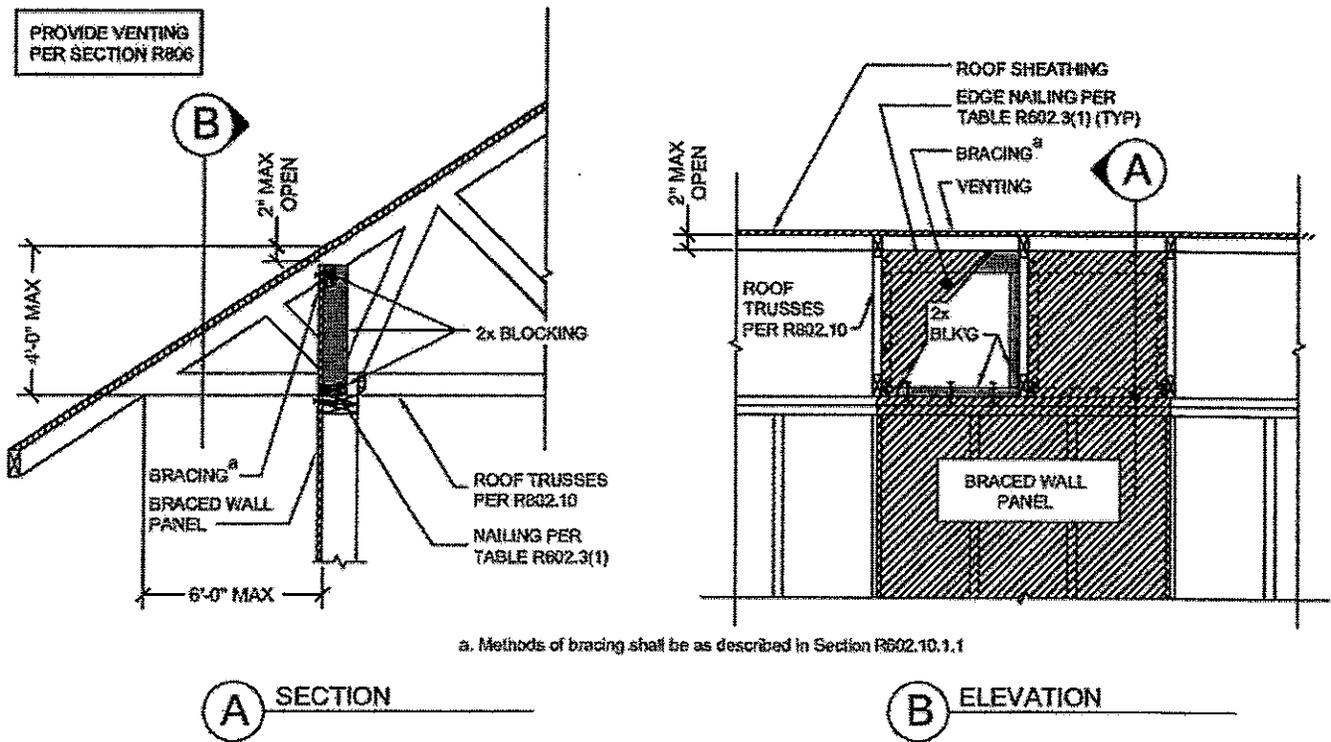
**FIGURE R602.10.8.1(1)**  
**BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS**



For SI: 1 inch = 25.4 mm

- a. Methods of bracing shall be as described in Section R602.10.4
- b. Provide ventilation (not shown) per Section R806.

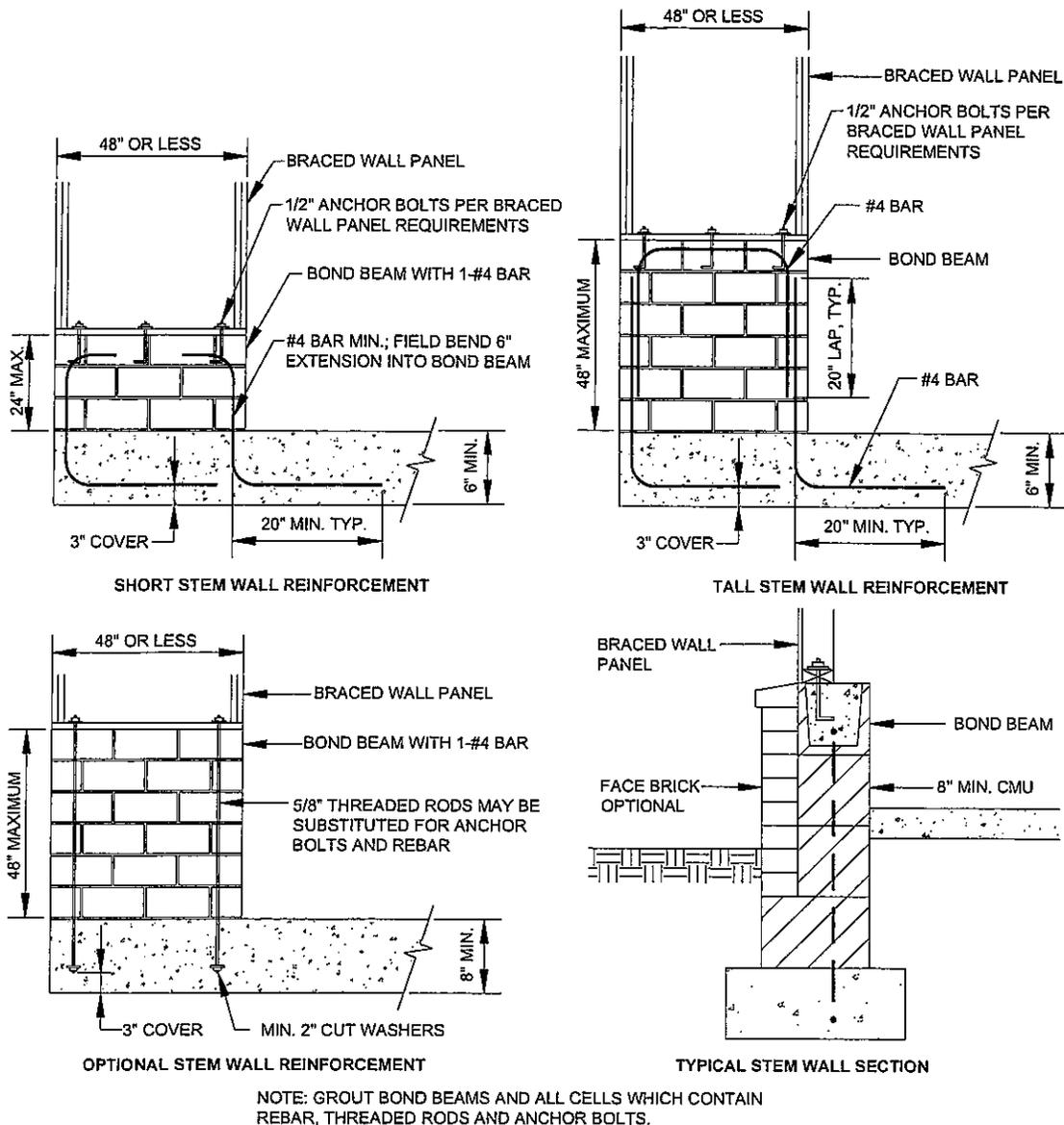
**FIGURE R602.10.8.1(2)**  
**BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES**



**FIGURE R602.10.8.1(3)**  
**BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES**

**R602.10.9 Braced wall panel support.** Braced wall panel support shall be provided as follows:

1. Cantilevered floor joists complying with Section R502.3.3 shall be permitted to support braced wall panels.
2. Elevated post or pier foundations supporting braced wall panels shall be designed in accordance with accepted engineering practice.
3. Masonry stem walls with a length of 48 inches (1220 mm) or less supporting braced wall panels shall be reinforced in accordance with Figure R602.10.9. Masonry stem walls with a length greater than 48 inches (1220 mm) supporting braced wall panels shall be constructed in accordance with Section R403.1. Methods ABW and PFH shall not be permitted to attach to masonry stem walls.
4. Concrete stem walls with a length of 48 inches (1220 mm) or less, greater than 12 inches (305 mm) tall and less than 6 inches (152 mm) thick shall have reinforcement sized and located in accordance with Figure R602.10.9.



For SI: 1 in=305 mm

**FIGURE R602.10.9**  
**MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS**

**R602.10.10 Panel joints.** All vertical joints of panel sheathing shall occur over, and be fastened to common studs. Horizontal joints in braced wall panels shall occur over, and be fastened to common blocking of a minimum 1-1/2 inch (38 mm) thickness.

**Exceptions:**

1. Vertical joints of panel sheathing shall be permitted to occur over double studs, where adjoining panel edges are attached to separate studs with the required panel edge fastening schedule, and the adjacent studs are attached together with 2 rows of 10d box nails (3 in. long x 0.128 in. dia.) at 10 inches (254 mm) o.c.
2. Blocking at horizontal joints shall not be required in wall segments that are not counted as braced wall panels.
3. Where the length of bracing provided is at least twice the required length of bracing from Tables R602.10.3(1) and R602.10.3(3) blocking at horizontal joints shall not be required in braced wall panels constructed using Methods WSP, SFB, GB, PBS or HPS.
4. When Method GB panels are installed horizontally, blocking of horizontal joints is not required.

**R602.10.11 Cripple wall bracing.** Cripple walls shall be constructed in accordance with Section R602.9 and braced in accordance with this section. Cripple walls shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1) and R602.10.3(3), except that the length of cripple wall bracing shall be multiplied by a factor of 1.15.

**R602.10.11.1 Cripple wall bracing for townhouses in Seismic Design Category C.** In addition to the requirements in Section R602.10.11, the distance between adjacent edges of braced wall panels shall be 14 feet (4267 mm) maximum.

Where braced wall lines at interior walls are not supported on a continuous foundation below, the adjacent parallel cripple walls, where provided, shall be braced with Method WSP or CS-WSP per Section R602.10.4. The length of bracing required per Table R602.10.3(3) for the cripple walls shall be multiplied by 1.5. Where the cripple walls do not have sufficient length to provide the required bracing, the spacing of panel edge fasteners shall be reduced to 4 inches (102 mm) on center and the required bracing length adjusted by 0.7. If the required length can still not be provided, the cripple wall shall be designed in accordance with accepted engineering practice.

**R602.10.11.2 Redesignation of cripple walls.** Where all cripple wall segments along a braced wall line do not exceed 48 inches (1220 mm) in height, the cripple wall shall be permitted to be redesignated as a first story wall for purposes of determining wall bracing requirements. Where any cripple wall segment in a braced wall line exceeds 48 inches (1220 mm) in height, the entire cripple wall shall be counted as an additional story. If the cripple walls are redesignated, the stories above the redesignated story shall be counted as the second and third stories respectively.

**11. Edit Section R602.11 as follows.**

**R602.11 Wall anchorage.** Braced wall line sills shall be anchored to concrete or masonry foundations in accordance with Sections R403.1.6 and R602.11.1.

**~~R602.11.1 Wall anchorage for all buildings in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub> and townhouses in Seismic Design Category C.~~** Plate washers, a minimum of 0.229 inches by 3 inches by 3 inches (5.8 mm by 76 mm by 76 mm) in size, shall be provided between the foundation sill plate and the nut except where approved anchor straps are used. The hole in the plate washer is permitted to be diagonally slotted with a width of up to  $\frac{3}{16}$  inch (5 mm) larger than the bolt diameter and a slot length not to exceed  $1\frac{3}{4}$  inches (44 mm) provided a standard cut washer is placed between the plate washer and the nut.

**~~R602.11.2 Stepped foundations in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub>.~~** ~~In all buildings located in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> or D<sub>2</sub>, where the height of a required braced wall line that extends from foundation to floor above varies more than 4 feet (1220 mm), the braced wall line shall be constructed in accordance with the following:~~

- ~~1. Where the lowest floor framing rests directly on a sill bolted to a foundation not less than 8 feet (2440 mm) in length along a line of bracing, the line shall be considered as braced. The double plate of the cripple stud wall beyond the segment of footing that extends to the lowest framed floor shall be spliced by extending the upper top plate a minimum of 4 feet (1219 mm) along the foundation. Anchor bolts shall be located a maximum of 4 feet and 3 feet (305 and 914 mm) from the step in the foundation. See Figure R602.11.2.~~
- ~~2. Where cripple walls occur between the top of the foundation and the lowest floor framing, the bracing requirements of Sections R602.10.9 and R602.10.9.1 shall apply.~~
- ~~3. Where only the bottom of the foundation is stepped and the lowest floor framing rests directly on a sill bolted to the foundations, the requirements of Sections R403.1.6 and R602.11.1 shall apply.~~

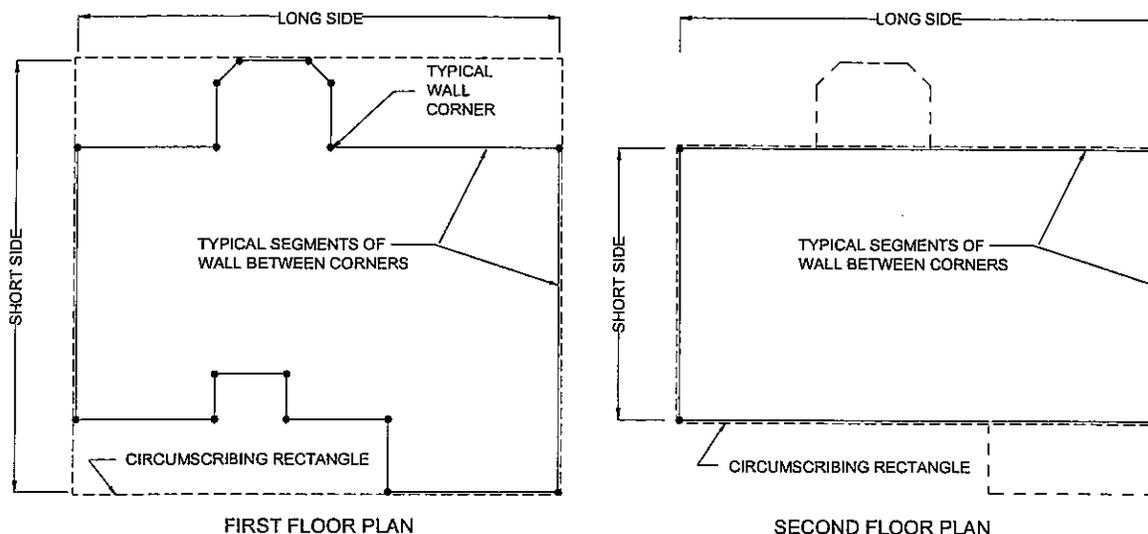
**12. Add new Section R602.12 as follows. Renumber remaining sections.**

**R602.12 Simplified wall bracing.** Buildings meeting all of the conditions listed below shall be permitted to be braced in accordance with this section as an alternate to the requirements of Section R602.10. The entire building shall be braced in accordance with this section; the use of other bracing provisions of R602.10, except as specified herein, shall not be permitted.

1. There shall be no more than two stories above the top of a concrete or masonry foundation or basement wall. Permanent wood foundations shall not be permitted.
2. Floors shall not cantilever more than 24 inches (607 mm) beyond the foundation or bearing wall below.
3. Wall height shall not be greater than 10 feet (2743 mm).

4. The building shall have a roof eave-to-ridge height of 15 feet (4572 mm) or less.
5. All exterior walls shall have gypsum board with a minimum thickness of  $\frac{1}{2}$  inches (12.7 mm) installed on the interior side fastened in accordance with Table R702.3.5.
6. The structure shall be located where the basic wind speed is less than or equal to 90 mph (40 m/s), and the Exposure Category is A or B.
7. The structure shall be located in Seismic Design Category of A, B or C for detached one- and two-family dwellings or Seismic Design Category A or B for townhouses.
8. Cripple walls shall not be permitted in two-story buildings.

**R602.12.1 Circumscribed rectangle.** Required bracing shall be determined by circumscribing a rectangle around the entire building on each floor as shown in Figure R602.12.1. The rectangle shall surround all enclosed offsets and projections such as sunrooms and attached garages. Open structures, such as carports and decks shall be permitted to be excluded. The rectangle shall have no side greater than 60 feet (18 288 mm), and the ratio between the long side and short side shall be a maximum of 3:1.



**FIGURE R602.12.1**  
**RECTANGLE CIRCUMSCRIBING AN ENCLOSED BUILDING**

**R602.12.2 Sheathing materials.** The following sheathing materials installed on the exterior side of exterior walls shall be used to construct a bracing unit as defined in Section R602.12.3. Mixing materials is prohibited.

1. Wood structural panels with a minimum thickness of  $\frac{3}{8}$  inch (9.5 mm) fastened in accordance with Table R602.3(3).
2. Structural fiberboard sheathing with a minimum thickness of  $\frac{1}{2}$  inch (12.7 mm) fastened in accordance with Table R602.3(1).

**R602.12.3 Bracing unit.** A bracing unit shall be a full-height sheathed segment of the exterior wall with no openings or vertical or horizontal offsets and a minimum length as specified below. Interior walls shall not contribute toward the amount of required bracing. Mixing of Items 1 and 2 below is prohibited on the same story.

1. Where all framed portions of all exterior walls are sheathed in accordance with Section R602.12.2, including wall areas between bracing units, above and below openings and on gable end walls, the minimum length of a bracing unit shall be 3 feet (914 mm).
2. Where the exterior walls are braced with sheathing panels in accordance with Section R602.12.2 and areas between bracing units are covered with other materials, the minimum length of a bracing unit shall be 4 feet (1219 mm).

**R602.12.3.1 Multiple bracing units.** Segments of wall compliant with Section R602.12.3 and longer than the minimum bracing unit length shall be considered as multiple bracing units. The number of bracing units shall be determined by dividing the wall segment length by the minimum bracing unit length. Full-height sheathed segments of

wall narrower than the minimum bracing unit length shall not contribute toward a bracing unit except as specified in Section R602.12.6.

**R602.12.4 Number of bracing units.** Each side of the circumscribed rectangle, as shown in Figure R602.12.1, shall have, at a minimum, the number of bracing units per Table R602.12.4 placed on the parallel exterior walls facing the side of the rectangle. Bracing units shall then be placed using the distribution requirements specified in Section R602.12.5.

**TABLE R602.12.4**  
**MINIMUM NUMBER OF BRACING UNITS ON EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE**

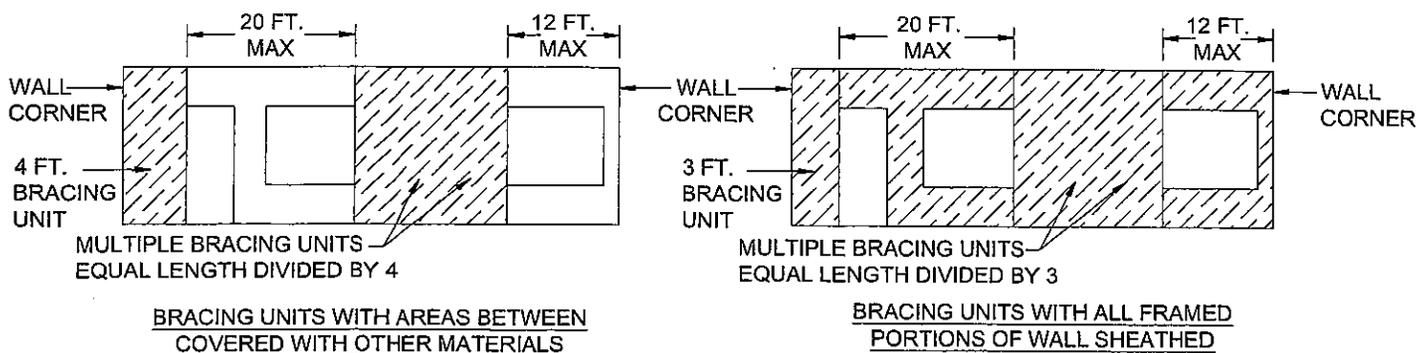
STORY LEVEL	EAVE-TO RIDGE HEIGHT (FEET)	MINIMUM NUMBER OF BRACING UNITS ON EACH LONG SIDE <sup>a,b</sup>						MINIMUM NUMBER OF BRACING UNITS ON EACH SHORT SIDE <sup>a,b</sup>					
		Length of short side (ft) <sup>c</sup>						Length of long side (ft) <sup>c</sup>					
		10	20	30	40	50	60	10	20	30	40	50	60
	10	1	2	2	2	3	3	1	2	2	2	3	3
		2	3	3	4	5	6	2	3	3	4	5	6
	15	1	2	3	3	4	4	1	2	3	3	4	4
		2	3	4	5	6	7	2	3	4	5	6	7

For SI: 1 ft = 304.8 mm

- Interpolation shall not be permitted.
- Cripple walls or wood-framed basement walls in a walk-out condition of a one-story structure shall be designed as the first floor of a two-story house.
- Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.

**R602.12.5 Distribution of bracing units.** The placement of bracing units on exterior walls shall meet all of the following requirements as shown in Figure R602.12.5.

- A bracing unit shall begin no more than 12 feet (3658 mm) from any wall corner.
- The distance between adjacent edges of bracing units shall be no greater than 20 feet (6096 mm).
- Segments of wall greater than 8 feet (2438 mm) in length shall have a minimum of one bracing unit.



**FIGURE R602.12.5**  
**BRACING UNIT DISTRIBUTION**

**R602.12.6 Narrow panels.** The bracing methods referenced in Section R602.10 and specified in Sections R602.12.6.1 through R602.12.6.3 shall be permitted when using simplified wall bracing.

**R602.12.6.1 Method CS-G.** Braced wall panels constructed as Method CS-G in accordance with Tables R602.10.4.1 and R602.10.5 shall be permitted for one-story garages when all framed portions of all exterior walls are sheathed with wood structural panels. Each CS-G panel shall be equivalent to 0.5 bracing units.

**R602.12.6.2 Method CS-PF.** Braced wall panels constructed as Method CS-PF in accordance with Section R602.10.6.4 shall be permitted when all framed portions of all exterior walls are sheathed with wood structural panels. Each CS-PF panel shall equal 0.5 bracing units. A maximum of four CS-PF panels shall be permitted on all the segments of walls parallel to each side of the circumscribed rectangle.

**R602.12.6.3 Methods PFH and PFG.** Braced wall panels constructed as Method PFH, in accordance with Section R602.10.6.2, and PFG, in accordance with Section R602.10.6.3, shall be permitted when bracing units are constructed using wood structural panels. Each PFH panel shall equal one bracing unit, and each PFG shall equal 0.75 bracing units.

**R602.12.7 Lateral support.** For bracing units located along the eaves, the vertical distance from the outside edge of the top wall plate to the roof sheathing above shall not exceed 9.25 inches (235 mm) at the location of a bracing unit unless lateral support is provided in accordance with Section R602.10.8.1.

**R602.12.8 Stem walls.** Masonry stem walls with a height and length of 48 inches (1219 mm) or less supporting a bracing unit or a Method CS-G, CS-PF or PFG braced wall panel shall be constructed in accordance with Figure R602.10.9. Concrete stem walls greater than 12 inches (305 mm) tall and less than 6 inches (152 mm) thick shall have reinforcement sized and located in accordance with Figure R602.10.9.

**13. Delete Section R602.12.**

**14. Edit Section R703.7 as follows:**

**R703.7 Stone and masonry veneer, general.** Stone and masonry veneer shall be installed in accordance with this chapter, Table R703.4 and Figure R703.7. These veneers installed over a backing of wood or cold-formed steel shall be limited to the first story above-grade and shall not exceed 5 inches (127 mm) in thickness. See Section Tables R602.10.3(3) and R602.10.3(4) for wall bracing requirements for masonry veneer for wood framed construction and Section R603.9.5 for wall bracing requirements for masonry veneer for cold formed steel construction.

**15. Edit Table R802.11 as follows:**

**TABLE R802.11**  
**REQUIRED STRENGTH OF TRUSS OR RAFTER CONNECTIONS TO RESIST WIND UPLIFT FORCES<sup>a, b, c, e, f</sup>**  
**(Pounds per connection)**

(No change to table values.)

a. through e. (no change)

f. ~~For wall to wall and wall to foundation connections, the capacity of the uplift connector is permitted to be reduced by 100 pounds for each full wall above. (For example, if a 600 pound rated connector is used on the roof framing, a 500 pound rated connector is permitted at the next floor level down.)~~

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(R602.10.6)**

**Nature of Change:**

To add a prescriptive method for the construction of stem walls under the IRC using anchors in lieu of reinforcing steel in the footings.

**Proponent:** Chris Snidow, representing the Henrico County Building Department

**Staff Comments:**

The proposal was not received in time to be vetted through the workgroup process, but was reviewed by the proponents of the braced wall code change to make sure no conflict was present between the two proposals. While no conflict is present, it was noted that this proposal did not appear to be based on any engineering studies to substantiate the methodology used is equivalent to that prescribed by the wall bracing provisions. This type of alternative is typically approved through the modification process or with the use of an ICC Evaluation Services Report.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6 (R602.10.6)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: L. Christian Snidow, P. E.

Representing: Henrico County Building Inspections Dept.,  
Plan Review Office

Mailing Address: P O Box 90775 Henrico, VA 23273-0775

Email Address: sni@co.henrico.va.us

Telephone Number: 804-501-4363

Proposal Information

Code(s) and Section(s): Virginia New Construction Code (IRC) R602.10.6

Proposed Change (including all relevant section numbers, if multiple sections):

R602.10.6 Braced wall panel support. Braced wall panels shall be supported as follows:

1. Braced wall panels shall be permitted to be supported on cantilevered floor joists meeting the cantilever limits of Section R502.3.3 provided joists are blocked at the nearest bearing wall location.
2. Elevated post or pier foundations supporting braced wall panels shall be designed in accordance with accepted engineering practice.
3. Masonry stem walls supporting braced wall panels with a length of less than 48 inches (1220 mm) ~~or less~~ shall be reinforced in accordance with Figure R602.10.6. Masonry stem walls supporting braced wall panels with a length equal to or greater than 48 inches (1220 mm) shall be constructed in accordance with Section R403.1. Braced wall panels constructed in accordance with Methods ABW and IPF shall not be permitted to attach to masonry stem walls.

**Exception: As an alternative to the Optional Stem Wall Reinforcement in Fig. R602.10.6, a post-installed adhesive anchoring system shall be permitted to be installed in accordance with the manufacturer's instructions. Not fewer than two anchors shall be installed. Anchors shall be located within 12 inches of each end of the stem wall. Each anchor shall be rated for an allowable tension load of not less than 1,000 pounds (4,448 N). The top course of masonry units shall form a bond beam reinforced with not less than 1- #4 rebar. Masonry cells containing anchors and the bond beam shall be filled solid with concrete grout.**

Supporting Statement (including intent, need, and impact of the proposal):

The stem wall reinforcement details provided in Figure R602.10.6 present a variety of obstacles in terms of execution and coordination of work that will be extremely difficult, if not impossible, for most residential footing and masonry contractors to execute successfully. This is because the anchors shown in every illustration in the figure would be installed when the concrete for the

footing is initially poured. At that stage of construction, it is unlikely that the installer would be able to precisely locate the rebar or threaded rod to position it where it would align with the cores of the hollow masonry stem wall constructed at a later time. The proposed exception provides a prescribed alternative that would allow the footings to be poured, the masonry wall laid out and the exact position of the cmu cores located. Several manufacturers (Hilti, Simpson, USP) produce post-installed adhesive anchoring systems that consist of threaded rod bolts of various sizes and proprietary adhesives. These systems typically involve drilling a hole into the cured concrete to a specified depth and injecting a given quantity of epoxy or other proprietary adhesive compound. The threaded rod is inserted into the adhesive, which is then allowed to cure. The obvious advantage to this approach is the masonry contractor would be able to install an effective anchor in the precise location where it is needed. This stem wall reinforcement will occur most frequently at portal frame openings. Therefore, the minimum tension load rating for the anchoring system is specified to be 1,000 pounds to be consistent with the requirement for the hold down strap installed at the header of a portal frame opening.

The minimum braced wall panel length in traditional wood-framed construction is 48 inches. With regard to the continuously sheathed bracing methods, no valid reason has been put forth as to justify the need for stem wall reinforcement when a braced wall panel is 48 inches in length but not if the panel were 48-1/32 inches in length. The submitter is not attempting to argue against stem wall reinforcement, only that the stem wall reinforcement called for in R602.10.6 should be limited to panels that are **less** than 48 inches. This change relieves the builder of a substantial burden in terms of not having to execute a complicated anchoring detail where a 4' panel is installed. Moving the line for this requirement from exactly 48 inches to slightly less than 48 inches does not change the foundation loading to the degree that the structural strength of the building would be adversely affected.

#### Submittal Information

Date Submitted: \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-310.6(E3902.11)**

**Nature of Change:**

To retain the arc-fault circuits requirements of the 2006 IRC just limited to bedroom installations rather than use the 2009 IRC requirements of through-out the house.

**Proponent:** Mike Toalson, Home Builders Association of Virginia

**Staff Comments:**

The proposal was not received in time to be considered by the workgroups, however, the issue was identified as a significant change between the 2006 IRC and 2009 IRC at the workgroup meetings and was debated. Representatives of the International Association of Electrical Inspectors suggested that the cost increase was minimal and was warranted by the extra safety provided. The home builder representatives indicated that now is not the time to increase housing costs given the current economic situation.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6(E3902.11)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Mike Toalson

Representing: HBAV

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): 2009 USBC VCC IRC E3902.11 and 2008 NEC 210.12(B0)

Proposed Change (including all relevant section numbers, if multiple sections):

**Amend to read: All branch circuits that supply 120 volt, single-phase, 15- and 20-ampere outlets installed in bedrooms shall be protected by a combination type arc-fault interrupter installed to provide protection of the branch circuit.**

Supporting Statement (including intent, need, and impact of the proposal):  
The 2009 IRC and the 2008 NEC have expanded the use of arc-fault devices to all habitable rooms of a dwelling unit. We prefer to leave them required for bedrooms as currently is done in the 2006 USBC and the 2005 NEC. We do dispute the estimated cost of these additional devices in other habitable rooms of only a few hundred dollars and believe it is closer to twice that estimate when you have to include the cost of the devices, installation and overhead. Arc-fault devices were just required in bedrooms in the 2006 USBC/2005 NEC and it might be prudent to see if there are technical issues with their effectiveness as they are now just being widely used and prior to their mandate to be being required, there were issues where the devices were making false reads from the operation of some appliances.

Submittal Information

Date Submitted: 1-25-10

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change Nos. C-310.6(Appendix O)(a) and (b)**

**Nature of Change:**

Two proposals to use Appendix O of the International Residential Code, the first for gray water recycling systems and the second for both gray water recycling systems and rain water re-use.

**Proponent:** Guy Tomberlin, Fairfax County Building Department, representing VPMIA and VBCOA's Plumbing/Mechanical/Fuel Gas Committees for (a) and representing only himself for (b)

**Staff Comments:**

Appendix O of the IRC, for gray water recycling systems, was added to the IRC in the 2006 edition. Virginia did not make it part of the USBC. This issue has been discussed at the workgroup meetings and the first proposal is to provide standards for the voluntary use of gray water recycling systems. The second proposal is to also use the appendix for rain water re-use, which essentially uses the same technology as gray water systems. The Department has formed a sub-workgroup of state agency representatives from the Department of Environmental Quality, the Department of Conservation and Recreation and the Department of Health and other interested parties to determine whether functional design issues are present and need to be addressed, such as protection of the potable water supply outside of a building or structure and the disposal of re-used gray water or rain water. The sub-workgroup is still meeting to develop recommendations concerning these proposals.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-310.6 (Appendix O)(a)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Guy Tomberlin

Representing: VA Plumbing and Mechanical Inspectors Association and VA Building and Code Officials Association Plumbing/Mechanical/Fuel Gas Committees

Mailing Address: 12055 Government Center Parkway, Suite 630  
Fairfax, VA 22035

Email Address: guy.tomberlin@fairfaxcounty.gov

Telephone Number: 703-324-1611

Proposal Information Include Appendix

Code(s) and Section(s): Incorporate Appendix O of the IRC into the body of the code.

Proposed Change (including all relevant section numbers, if multiple sections):

New USBC/IRC Section R329.1 Use of Appendix O for Gray water recycling systems. In addition to the other applicable provisions of this code, gray water recycling systems shall comply with the provisions in Appendix O.

Supporting Statement (including intent, need, and impact of the proposal): This technology has developed into a system that results in a safe installation with a huge energy conserving advantage. In today's "Green" environment this is a much needed step in the right direction for plumbing systems. Currently being located in an Appendix results in the requirements for a code modification review each time one of these systems is proposed. Once this option is inserted into the body of the code it becomes a designers choice whether to take advantage of recycling or not. This proposal has also been submitted on the National level. The impact is this creates another option for industry to utilize, enabling greater energy/water savings.

Submittal Information

Date Submitted: July 2, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: E-310.6 (Appendix O)(b)

Proponent Information

(Check one):  Individual       Government Entity       Company

Name: Guy Tomberlin

Representing: Myself

Mailing Address: 12055 Government Center Parkway, Suite 630  
Fairfax, VA 22035

Email Address: guy.tomberlin@fairfaxcounty.gov

Telephone Number: 703-324-1611

Proposal Information Include Appendix into the main body of the code

Code(s) and Section(s): Incorporate Appendix O of the IRC into the body of the code.

Proposed Change (including all relevant section numbers, if multiple sections):

New USBC/IPC

**Section R329.1 Use of Appendix C for Gray water recycling systems.** In addition to the other applicable provisions of this code, gray water recycling systems shall comply with the provisions in Appendix C of the IPC.

**329.1.2 Rain water re-use.** Where approved rainwater re-use shall be permitted when installed in accordance with the IPC Appendix C provisions for gray water recycling systems. Rainwater and gray water systems shall not be interconnected.

Note to staff – renumber existing sections accordingly.

Supporting Statement (including intent, need, and impact of the proposal): This technology has developed into a system that results in a safe installation with a huge energy conserving advantage. In today's "Green" environment this is a much needed step in the right direction for plumbing systems. Currently being located in an Appendix results in the requirements for a code modification review each time one of these systems is proposed. Once this option is inserted into the body of the code it becomes a designers choice whether to take advantage of recycling or not. The words "where approved" are incorporated into the text due to the facts that other agencies may be involved in the decision making process such as Health Dept or Department of Environmental Quality. The impact is this creates another option for industry to utilize, enabling greater energy/water savings.

Submittal Information

Date Submitted: July 2, 2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: tsu@dhcd.virginia.gov  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-403.3.5**

**Nature of Change:**

To retain the current dimensions for fire command rooms in high-rise buildings and in other buildings subject to the requirement.

**Proponent:** Shaun Pharr, representing the Apartment and Office Building Association of Metropolitan Washington DC and the Virginia Apartment Management Association

**Staff Comments:**

While the proposal was not submitted early during the workgroup process, this was an issue identified as a significant difference between the 2006 and 2009 International Building Code and it was discussed at the workgroup meetings. Some pros and cons identified were that the larger rooms were necessary as command centers now serve multiple functions and larger rooms could tend to be used for storage, which could be a hazard.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-403.3.5

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: W. Shaun Pharr

Representing: The Apartment and Office Building Assn. of Metropolitan Washington DC and the Virginia Apartment Management Association

Mailing Address: 1050 17<sup>th</sup> Street NW Suite 300 Washington, DC 20036

Email Address: spharr@aoba-metro.org

Telephone Number: (202) 296-3390

Proposal Information

Code(s) and Section(s): IBC/IFC 403.3.5, 911.1.3

Proposed Change (including all relevant section numbers, if multiple sections):  
Change 200 square feet to 96 square feet and 10 feet to 8 feet

Supporting Statement (including intent, need, and impact of the proposal):

No evidence has been presented to show that the size of fire command rooms in Virginia buildings built under current and previous codes has been so inadequate as to now be more than doubled from what the USBC has previously required. For various reasons, the use of fire command centers has arguably diminished in recent years (e.g. use of portable radios/phones rather than in-building telephone system, active smoke control/management systems not required; continued miniaturization of panel circuitry etc. reducing equipment space needs). Fire command centers' location in street-front space on exterior of buildings means they occupy space that is often the most expensive leased space on a per square foot basis in the building. Absent compelling evidence that fire command centers in Virginia buildings must be made significantly larger, current VSBC size requirements should be maintained.

Submittal Information

Date Submitted: January 25, 2010

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change Nos. C-403.4.4(a) and C-403.4.4(b)**

**Nature of Change:**

Two proposals to coordinate the emergency communication requirements in the 2006 USBC with the 2009 IBC.

**Proponent:** J. Kenneth Payne, Jr., AIA, representing VSAIA (C-403.4.4(a)) and Shaun Pharr, representing the Apartment and Office Building Association of Metropolitan Washington DC and the Virginia Apartment Management Association (C-403.4.4(b))

**Staff Comments:**

While staff did coordinate the 2006 emergency communication requirements with the 2009 IBC in the proposed regulations, Section 403.4.4 in the IBC was inadvertently overlooked, so Mr. Payne's proposal is appropriate except that there is no need to renumber the subsequent subsections as that would cause problems with cross-references. Mr. Pharr's proposal is identical except that he recommends deleting Section 510 in the IFC in addition to Section 403.4.4 of the IBC. That is unnecessary as the proposed regulations already renumber the IFC provision to keep the 2006 requirements of the Virginia Statewide Fire Prevention Code for emergency communications.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-403.4.4(a)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, Virginia 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804-794-7555

Proposal Information

Code(s) and Section(s): 2009 IBC Section 403.4.4 – Emergency responder radio coverage

Proposed Change (including all relevant section numbers, if multiple sections):

**[F] 403.4.4 Emergency responder radio coverage.** ~~Emergency responder radio coverage shall be provided in accordance with Section 510 of the International Fire Code.~~

Renumber subsequent 403.4 subsection numbers and coordinate with cross references throughout the IBC.

Supporting Statement (including intent, need, and impact of the proposal):

Per 2006 VCC Section 913.1 and the definition of *emergency communication equipment*, emergency responder radio coverage is not included in the VCC requirements. Therefore, the above referenced section in the IBC does not comport with the VCC.

Submittal Information

Date Submitted: January 19, 2010 (revised)

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [taso@dhcd.virginia.gov](mailto:taso@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-403.4.4(b)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: W. Shaun Pharr

Representing: The Apartment and Office Building Assn. of Metropolitan Washington DC and the Virginia Apartment Management Association

Mailing Address: 1050 17<sup>th</sup> Street NW Suite 300 Washington, DC 20036

Email Address: spharr@aoba-metro.org

Telephone Number: (202) 296-3390

Proposal Information

Code(s) and Section(s): IBC Sec. 403.4.4, IFC 510

Proposed Change (including all relevant section numbers, if multiple sections):  
Delete both sections

Supporting Statement (including intent, need, and impact of the proposal):

The provisions currently found in the VSBC are the product of extensive negotiations and compromises engaged in by all key Virginia stakeholders in a previous code cycle-- something which cannot be said for the provisions in the new IBC/IFC. The current VSBC provisions should be retained to avoid confusion and maintain continuity.

Submittal Information

Date Submitted: January 25, 2010

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

Main Street Center  
600 E. Main St., Suite 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-420.4**

**Nature of Change:**

To require Group I-1 buildings used as Assisted Living Facilities to provide at least one smoke compartment.

**Proponent:** DHCD Staff

**Staff Comments:**

The proposal stems from discussions at a sub-workgroup for assisted living facilities and is intended to address both the fact that in reality many occupants of assisted living facilities need assistance in evacuating and that an inexpensive alternative should be provided to move such residents to a safe part of the building in the event of an emergency. This proposal could affect the implementation of fire drills also by permitting the movement of occupants to the smoke compartment instead of having to exit the building. The proposal is more of a place-holder as an incomplete proposal to provide an alternative to other more problematic options of either reclassifying assisted living facilities or changing the provisions of the code for assisted living facilities. Provisions would have to be added to this proposal to specify under what circumstances the compartmentation would be available as an alternative to exiting and language would have to be added to address the capability of the occupants in needing assistance in exiting rather than being able to exit without assistance.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-420.4

Proponent Information

(Check one):  Individual  Government Entity  Company

Name Emory Rodgers, DHCD

Representing: Workgroup 2 - 12/1/09

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): USBC VCC 419.4 Smoke Compartments – New Section for Group I-1 Assisted Living Facilities

Proposed Change (including all relevant section numbers, if multiple sections):  
Add Section 419.4 Smoke Compartments.

**420.4: Smoke Compartments. At least one unrated smoke compartment per floor having a maximum fire area of 20,000 square feet and a maximum travel distance of 150 feet shall be constructed of smoke partitions in accordance with Section 710, and openings shall be protected in accordance with Section 710.5. Doors within such smoke compartments shall be smoke and draft controlled doors in accordance with Section 710.5.2, having self- or automatic-smoke activated closers in accordance with Section 715.4.7.3.**

Supporting Statement (including intent, need, and impact of the proposal):

This proposal addresses the primary life safety issue/concern of smoke migration, including in sprinkled buildings, as discussed in past work group meetings and at the ICC. Sprinkled I-1 and R-4/assisted living occupancies continue to achieve an excellent fire record that may pose a valid argument in favor of no additional action. This code change proposal coincides with the code change proposals in definitions that finally recognize the practical reality of residents needing limited assistance when they are not chronically ill or mentally disabled, but require some assistance with daily living functions and are generally slower in mobility and evacuation. In addition, the smoke compartments would offer an internal area of refuge; the existing requirement for external evacuation during fire drills under the SFPC could be revised to permit internal evacuation during fire drills to reduce the risks of injury to and health of the residents.

Submittal Information

Date Submitted: 12/18/09

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Center  
600 E. Main St., Suite 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change Nos. C-422(a) and C-422(b)**

**Nature of Change:**

Two proposals to permit the typical doctor and dentist offices to be exempt from the new requirements in the 2009 IBC for ambulatory health care facilities, which would require a sprinkler system and other safeguards.

**Proponent:** Jerry Canaan/Karah Gunther, representing the Medical Society of Virginia (C-422(a)) and Shaun Pharr, representing the Apartment and Office Building Association of Metropolitan Washington DC and the Virginia Apartment Management Association (C-422(b))

**Staff Comments:**

While the proposals were not received in time to be vetted through the workgroup process, the issue was identified as a significant difference between the 2006 and 2009 IBC and was discussed at the workgroup meetings with the fire services representatives generally supporting the new 2009 IBC requirements. The Canaan/Gunther proposal adds specific language and is more of a complete proposal while Mr. Pharr's proposal was more of a placeholder to keep the issue on the table.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-422(a)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Jerry Canaan/Karah Gunther

Representing: Medical Society of Virginia

Mailing Address: 4701 Cox Road, Suite 400, Glen Allen, VA 23060

Email Address: jcanaan@hdjn.com

Telephone Number: 804.967.9604

Proposal Information

Code(s) and Section(s): 2009 IBC Section 202 (Definition of Ambulatory Health Care Facility)

Proposed Change (including all relevant section numbers, if multiple sections):

Change the definition to read as shown:

Ambulatory Health Care Facility. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation other than doctor and dentist offices where procedures will incapacitate patients for less than a four-hour period and adequate staffing is provided to assist in evacuation if necessary.

Supporting Statement (including intent, need, and impact of the proposal):

This proposal would leave the typical doctor and dentist office as a Group B occupancy without the added requirements for Ambulatory Health Care Facilities, which are more for hospital-like surgical procedures. The safety record for Group B doctor and dentist offices is excellent and staffing levels are adequate assist patients undergoing minor procedures should the need to evacuate arise.

Submittal Information

Date Submitted: January 25, 2010

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

The Jackson Center

501 N. 2nd Street

Richmond, VA 23219-1321

Email Address: [taso@dhcd.virginia.gov](mailto:taso@dhcd.virginia.gov)

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

**Code Change Form for the 2009 Code Change Cycle**

Code Change Number: C - 422(b)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: W. Shaun Pharr

Representing: The Apartment and Office Building Assn. of Metropolitan Washington DC and the Virginia Apartment Management Association

Mailing Address: 1050 17<sup>th</sup> Street NW Suite 300 Washington, DC 20036

Email Address: spharr@aoba-metro.org

Telephone Number: (202) 296-3390

Proposal Information

Code(s) and Section(s): IBC Secs. 202, 304.2 Definition of AHCFs; 304.1 or 903.2.2 B Occupancy

Proposed Change (including all relevant section numbers, if multiple sections):  
Relocate from 202 to 304.2 Ambulatory Health Care Facility: Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation by the services provided.

Amend 304.1 Exception. Professional Services

Amend 903.2.2 Exception. Professional Services

Supporting Statement (including intent, need, and impact of the proposal):  
This change will clarify that medical office buildings or tenant spaces in an office or apartment building would not be considered as AHCFs and thus require sprinklering because four or more patients might be momentarily under sedation. The intent of the section as currently written appears ambiguous; if it is intended to require sprinklering of doctors' and dentists' offices, for example, no record has been presented as to frequency of fires in such spaces and difficulties in effecting patient evacuation, etc. that would justify such a requirement in Virginia.

Submittal Information

Date Submitted: January 25, 2010

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The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Center  
600 E. Main St., Suite 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-424(a) through (d)**

**Nature of Change:**

To establish specific requirements for the installation of large above-ground liquid fertilizer storage tanks.

**Proponent:** DHCD Staff, sub-workgroup on fertilizer tanks

**Staff Comments:**

The proposals are a placeholder while a sub-workgroup works on more detailed language. This issue was raised through legislation just introduced to the 2010 General Assembly. Staff is attempting to work with all interested parties to see if a regulatory change will resolve the concerns.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

**Code Change Form for the 2009 Code Change Cycle**

Code Change Number: C-424 (a)

Proponent Information (Check one):  Individual  Government Entity  Company

Name: DHCD Staff/sub-workgroup fert. tanks Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): USBC VCC/IBC 422 - NEW SECTION - ALFST & USBC VMC - NEW SECTION - 309 - ALFST

Proposed Change (including all relevant section numbers, if multiple sections):

USBC Section 422.0 Above ground liquid fertilizer storage tanks. (WHAT ABOUT BELOW GROUND).

This section shall regulate the installation, retrofitting, repair, abandonment and removal of ALFST's as defined in this chapter in order to prevent discharge and when a discharge occurs to provide for the detection and remediation at the earliest possible stage. This minimizes fertilizer displacement into surface and ground water protecting human health and safety.

422.1 Definitions. Add: ALFST, API 653, Capacity, Discharge, Fertilizer, Liquid Fertilizer, Operator, Owner, Secondary Containment Tank.

422.2 ALFST Construction and Installation Standards. Each ALFST container and appurtenances shall be constructed and installed to prevent the discharge of liquid fertilizer. Each ALFST container and appurtenances shall be constructed of materials that are resistant to corrosion, puncture or cracking.

422.2.1 All ALFST's shall be built, installed, altered, repaired, retrofitted and removed in accordance with API 653. All ALFST's shall be strength tested in accordance with the applicable code or standard under which they were built before being placed into use. (DEQ REGULATIONS)

422.2.2 Converting Existing Tanks to ALFST's. Construction documents shall be submitted for approval to the building official prior to use of a tank for liquid fertilizer storage in accordance with API 653. (WOULD API 653 BE THE APPLICABLE STANDARD?) WHAT IS TO BE IN USBC VMC 309 ALFST NEW SECTION?

Supporting Statement (including intent, need, and impact of the proposal):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

**Code Change Form for the 2009 Code Change Cycle**

Code Change Number: C-424(b)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Staff/sub-workgroup fert. tanks Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): USBC VCC Chapter 35 and VMC

Proposed Change (including all relevant section numbers, if multiple sections):

Add for IBC 35 reference standards the API 650 and 653 standards for ALFST's.

Supporting Statement (including intent, need, and impact of the proposal): Now not listed for ALFST in the IBC. Provides construction standard. Is in the IFC for refineries only. There maybe other standards to reference or regulations can prescribe standards. This responds to the Chesapeake spill and HB 206, 1211 and SB198.

Submittal Information

Date Submitted: \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-424(C)

Proponent Information (Check one):  Individual  Government Entity  Company

Name: DHCD Staff/sub-workgroup fert. tanks Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): SFPC 107.2, T107.2

Proposed Change (including all relevant section numbers, if multiple sections):

Add for Operational Permits: Above-ground Liquid Fertilizer Storage Tanks. An operational permit is required for storage of liquid fertilizer of 100,000 gallons or more.

Supporting Statement (including intent, need, and impact of the proposal): Now not listed for an operational permit. Would allow fire official to issue annual operational permit or for longer periods, to inspect and to charge a fee. Would be done under APR 653 standards. There maybe other standards to reference or regulations can prescribe standards. The SFPC and law allows already for localities to do these ordinances and they can be more stringent except for construction matters. This responds to the Chesapeake spill and HB 206, 1211 and SB198.

Submittal Information

Date Submitted: \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
The Jackson Center  
501 N. 2nd Street  
Richmond, VA 23219-1321

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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-424(d)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Staff/sub-workgroup fert. tanks

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): SFPC CHAPTER 22, NEW SECTION - 2212

Proposed Change (including all relevant section numbers, if multiple sections):

2212 Definitions: Add all the definitions for ALFST, API 653, Capacity, Discharge, Fertilizer, Liquid fertilizer, operator, owner, secondary containment, tank.

2212.1 ALFST Operational permits. A fee may be assessed on each newly installed ALFST, on the conversion to an ALFST, on an ALFST returned to service after temporary or permanent closure or on transferred of ownership. The amount of the fee shall be reasonable and used solely to cover the costs of administering the program. Renewal of the operational permit shall be as provided for in the ordinance. Where an operational permit is required, the owner, operator or duly authorized representative shall have 30/60 days to obtain the operational permit.

2212.1.2 Operational permit application to include as a minimum:

1. ALFST owner, operator and duly authorized representative name, address, phone number and email.
2. Facility information name, address, contact person, phone number, email, type.
3. ALFST and piping information for storage capacity, type of liquid fertilizer, tank design and construction standards
4. Other information as maybe reasonable required by the fire official.
5. Owner certification of the information.

Existing ALFST tanks shall have an inspection for compliance in accordance with the code under which they were built or deemed to be safe to operate by the building official for safe construction and the fire official for safe operating conditions. (New)

2212.2 ALFST Discharge Contingency Plan. A locality by ordinance shall require a discharge liquid fertilizer contingency plan by the owner or operator that the owner or operator can take such steps as necessary to (i) protect the public health and the environment, (ii) respond to the threat of a discharge from the ALFST, (iii) contain, and (iv) clean up and mitigate a liquid fertilizer release within the shortest feasible time. The plan shall contain the following information, submitted to the locality as requested and available for inspection by the fire official:

1. Describe the storage, handling, disposal and incident handling practices. ( are there standards in API653)
2. Name of the facility. Access roads from land and water, if appropriate.
3. Name and addresses along with contact information for the owner and operator who are authorized to act to implement containment and clean-up operations..
4. A physical description of the facility identifying the liquid fertilizer storage area, transfer location, control station and the above and below ground liquid fertilizer transfer piping within the facility.
5. An inventory and location of natural resources at risk.

6. An inventory of the facility's containment equipment and inventory control procedures.
7. Procedures to be followed upon detection of a discharge, for testing and inspection of all ALFST's and piping that could be expected to be a source of discharge; and,
8. Description of the security procedures used by the operator to avoid intentional or unintentional damage to the ALFST.

#### 2212.3 Pollution Prevention Standards and Procedures, Inventory Control, and Inspections.

1. Each operator shall institute inventory control procedures capable of detecting a significant variation of inventory. A significant variation shall be considered a gain or loss of one percent of the individual ALFST's storage capacity. Inventory records shall be kept of incoming and outgoing volumes of liquid fertilizer from each ALFST. Each ALFST shall undergo an internal and external inspection. Inspections shall be conducted in accordance with the API Standard 653. Existing ALFST's shall undergo an internal and external inspection within two years (?) from the effective date of this code. Each new ALFST will have an inspection prior to filling the ALFST with liquid fertilizer. Thereafter, each ALFST will have an external inspection every five years and an internal inspection every ten years in accordance with API 653.
2. The operator or duly authorized representative shall conduct daily visual inspections (IS THIS NECESSARY ?). The person conducting the inspection shall document completion of the inspection and sign the ALFST records.
3. The operator shall establish a training program for those persons conducting the daily inspections. (STANDARD - HOW OFTEN TRAINED).
4. Secondary containment apparatus shall be maintained and certified to perform its function. The secondary containment area shall be adequate for the containment of the ALFST discharges, inspected and certified by a person complying with the qualifications required under API 653 or a design professional. (HOW OFTEN?)
5. Each owner or operator should institute safe fill, full shut down and transfer procedures that will ensure discharges resulting from ALFST refills or other product transfer operations do not occur. (HOW CAN THIS BE 100%?).

#### 2212.4 Record Keeping. Each operator shall maintain the following ALFST records:

1. Records related to required measurements and inventory of liquid fertilizer in the ALFST.
2. Records related to the required tank and pipe testing and inspections.
3. Records related to discharge events and other discharge of liquid fertilizer for the ALFST.
4. Records related to the secondary containment tank and inspections.
5. Records implementing the monitoring of each discharge and the liquid discharge contingency plan.
6. Records related to the training of individuals.
7. Any other records required by the fire official to be kept by the owner or operator.
8. Records shall be retained for three years.

#### 2212.5 Notifications. An owner or operator shall notify the fire official at least 60 days prior to any ALFST:

1. retrofit and any repairs;
2. upgrades, replacements, relocating or repositioning of an existing ALFST;
3. Conversion of an existing storage tank to an ALFST;
4. Change in service and operation conditions that effect the ALFST's sustainability for service, such as gravity, corrosion or temperature.

2212.5.1 Temporary Closure and Out of Service. Any ALFST taken out of service and liquid fertilizer in the ALFST, connected piping and appurtenances shall be removed and thoroughly cleaned. The ALFST shall be clearly labeled "out of Service". Prior to placing back into service the ALFST shall be inspected and tested in accordance with API 653

2212.5.2 (NOTE REPLICATE IN USBC 422 AND 422.3) Permanent Closure of an ALFST. Unless removed, permanent closures of ALFST's shall be in accordance with API 653 and the following:

1. Liquid fertilizer vapors shall be removed from the ALFST and associated piping. All waste shall be removed in accordance with applicable state and federal regulations.
2. Adequate ventilation shall be provided in order to ensure the ALFST remains vapor free.
3. Vent lines shall remain open and maintained.

4. All access openings shall be secured against tampering and flooding.
5. Piping shall be disconnected.

2212.6 Reporting of Discharge. The owner, operator or employees shall report immediately to the fire official and the national response center a discharge from the ALFST and shall take measures for the prompt control, containment, and removal of liquid fertilizer that has been discharged.

2212.6.1 The locality may take measures for the prompt control, containment, and removal of liquid fertilizer when it determines the user, operator or responsible agent is not responding promptly or appropriately. The locality may seek reimbursement for costs incurred. (CHECK OAG)

Supporting Statement (including intent, need, and impact of the proposal):

Adds all definitions and will do the same for the USBC VCC. There may be other standards to reference or regulations can prescribe standards.

This responds to the Chesapeake spill and HB 206, 211 and SB 198.

### Submittal Information

Date Submitted: \_\_\_\_\_

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Center  
600 E. Main St., Suite 300  
Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-424.4**

**Nature of Change:**

To correlate skirting requirements for manufactured homes with new federal HUD requirements.

**Proponent:** DHCD Staff

**Staff Comments:**

While staff revised the USBC requirements for manufactured home installations to correlate the new HUD requirements in the proposed 2009 USBC, there is a requirement for skirting in state law which also needed to be correlated. This proposal simply recognizes the state law and makes it clear that the federal requirements also apply.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-424.4

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Staff

Representing: DHCD SBCAO

Mailing Address: Main Street Centre, 600 E. Main St., Suite 300, Richmond, VA 23219

Email Address: taso@dhcd.virginia.gov

Telephone Number: 804-371-7150

Proposal Information

Code(s) and Section(s): Virginia Construction Code Section 424.4.

Proposed Change (including all relevant section numbers, if multiple sections):

Change Section 424.4 of the IBC to read: Skirting requirements for manufactured homes. As used in this section, "skirting" means a weather-resistant material used to enclose the space from the bottom of the manufactured home to grade. In accordance with §36-99.8 of the Code of Virginia, manufactured homes installed or relocated shall have skirting installed within 60 days of occupancy of the home. Skirting materials shall be durable, suitable for exterior exposures and installed in accordance with the manufacturer's installation instructions. Skirting shall be secured as necessary to ensure stability, to minimize vibrations, to minimize susceptibility to wind damage and to compensate for possible frost heave. Each manufactured home shall have a minimum of one opening in the skirting providing access to any water supply or sewer drain connections under the home. Such openings shall be a minimum of 18 inches (457 mm) in any dimension and not less than three square feet (.28m<sup>2</sup>) in area. The access panel or door shall not be fastened in a manner requiring the use of a special tool to open or remove the panel or door. On-site fabrication of the skirting by the owner or installer of the home shall be acceptable, provided that the material meets the requirements of this code. In addition, as a requirement of this code, skirting for the installation and set-up of a new manufactured home shall also comply with the requirements of 24 CFR Part 3285 - Model Manufactured Home Installation Standards.

Supporting Statement (including intent, need, and impact of the proposal):

The purpose of this change is to add language that will bring the requirements for the installation of skirting, for new homes, in line with the requirements as set forth by the federal standards. This change is necessary in order to comply with §36-85.5 of the Code of Virginia, whereby, the Department of Housing and Community Development (DHCD), acting as the State Administrative Agency (SAA) for the U.S. Department of Housing and Urban Development (HUD), is required to enforce the Federal Standards with respect to manufactured homes in Virginia. This change provides for an installation that is in compliance with the federal standards and it will provide for cross-ventilation, in the crawl space areas, and the ability to control that ventilation which will reduce the possibility of moisture problems occurring under and within manufactured homes.

Submittal Information

Date Submitted: 1-5-2010

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change Nos. C-705.2(a) and C-705.2(b)**

**Nature of Change:**

Two proposals to clarify whether decks and porches extending off of the end walls of homes and townhouses close to a perpendicular property line need to have fire protection.

**Proponent:** Frank Castelvechi, representing Henrico County Building Department (C-705.2(a)) and Roger Robertson, representing Chesterfield County Building Department (C-705.2(b))

**Staff Comments:**

Mr. Castelvechi's proposal assumes that the 2009 IRC already requires decks and porches to have a fire wall constructed on the property line side of a porch or deck. This issue has been discussed at the workgroup meetings and there is no consensus that the IRC does in fact require porches and decks to be separated just because a perpendicular property line is present. The IRC only regulates the dwelling unit itself and the fire wall between units in townhouses or the exterior wall of a house built close to a property line does not include a deck or porch as a projection. Projections are typically only roof overhangs. Mr. Robertson's proposal is based on the IRC not requiring such extensions of the fire wall or exterior wall and modifies the IBC to be consistent. Staff would suggest that clarifying language also needs to be added to the IRC to make it clear whether porches and decks are considered projections.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-705.2(a)

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Frank G Castelvechi, III, PE

Representing: Henrico County

Mailing Address:

PO Box 90775  
Henrico VA 23273

Email Address: cas13@co.henrico.va.us

Telephone Number: 804 501 4375

Proposal Information

Code(s) and Section(s): IBC 705.2, 706.5.2 R-5 IRC 302.1 Exceptions

Proposed Change (including all relevant section numbers, if multiple sections):

IRC 302.1 and IBC 705.2—add exception

Decks and porches, not under a roof or other structure, where the walking surface is not more than 36 inches above the adjoining ground level.

Supporting Statement (including intent, need, and impact of the proposal):

Low decks are unlikely to direct venting flames and products of combustion to adjoining properties and present little more hazard than if the items on them were sitting on the grass. The 36 inch limiting height minimizes the potential fire hazard of storage under the deck and the amount of fuel package exposing the adjoining property.

In contrast high decks and roofed decks or porches can shelter occupancies and the fire underneath will direct flames onto the adjacent property. Adjoining porch roofs and upper or multi-level decks can and do lead to the spread of fire from one inside one building to another around the firewalls. Covered or enclosed porches are likely to have higher fire loads than open decks.

Submittal Information

Date Submitted: 12/8/2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

Main Street Centre  
600 E. Main St., Ste. 300  
Richmond, VA 23219

Email Address: tsu@dhcd.virginia.gov

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change Number: C-705.2(b)

Proponent Information (Check one):  Individual  Government Entity  Company

Name: Roger Robertson Representing: Chesterfield County

Mailing Address: P.O. Box 40, 9800 Government Center parkway, Chesterfield, VA 23832

Email Address: robertsonr@chesterfield.gov Telephone Number: 804-751-4749

Proposal Information

Code(s) and Section(s): Virginia Construction Code part I, section 705.2 and 706.5.2:

Proposed Change (including all relevant section numbers, if multiple sections):

705.2 Projections. Except for buildings and structures in R-3 and R-4 occupancy classifications, Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways shall also comply with Sections 1019 and 1026 respectively. Projections shall not extend beyond the distance determined by the following three methods, whichever results in the lesser projection:

(Remainder of section unchanged.)

706.5.2 Horizontal projecting elements.

Fire walls shall extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees and similar projections that are within 4 feet (1220 mm) of the fire wall.

Exceptions:

1. Horizontal projecting elements without concealed spaces, provided the exterior wall behind and below the projecting element has not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the projecting element on both sides of the fire wall. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than  $\frac{3}{4}$  hour.
2. Noncombustible horizontal projecting elements with concealed spaces, provided a minimum 1-hour fire-resistance-rated wall extends through the concealed space. The projecting element shall be separated from the building by a minimum of 1-hour fire-resistance-rated construction for a distance on each side of the fire wall equal to the depth of the projecting element. The wall is not required to extend under the projecting element where the building exterior wall is not less than 1-hour fire-resistance rated for a distance on each side of the fire wall equal to the depth of the projecting element. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than  $\frac{3}{4}$  hour.
3. For combustible horizontal projecting elements with concealed spaces, the fire wall need only extend through the concealed space to the outer edges of the projecting elements. The exterior wall behind and below the projecting element shall be of not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the

projecting elements on both sides of the fire wall. Openings within such exterior walls shall be protected by opening protectives having a fire-protection rating of not less than ¾ hour.

4. Buildings and structures in R-3 and R-4 occupancy classifications.

Supporting Statement (including intent, need, and impact of the proposal): The intent of this proposed change is to clarify that the building code does not intend that buildings of R-3 and R-4 occupancies be required to meet the provisions of Sections 705.2 or 706.5.2. The alternative for these structures when relatively adjacent would require construction of fire or separation walls between adjacent decks or porches. This change eliminates the misinterpretations and inconsistencies caused by the ambiguity of the current language.

Submittal Information

Date Submitted: January 25, 2010

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)

Main Street Centre

600 E. Main St., Ste. 300

Richmond, VA 23219

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7140 or (804) 371-7150



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

2009 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code  
Code Change No. C-708.14**

**Nature of Change:**

To add elevator lobby requirements back to the International Building Code to prevent the migration of smoke from floor to floor via the elevator shaft in fire conditions.

**Proponent:** Frank Hertzog, representing the Smoke Safety Council

**Staff Comments:**

When Virginia first began using the International Codes, the elevator lobby provisions contained in the International Building Code (IBC) were deleted as they had not been in the legacy code used in Virginia prior to the International Codes. This was largely due to the fact that most buildings needing elevator lobbies have sprinkler systems and there was an exception to the elevator lobby requirements for buildings with sprinkler systems. If the requirements are added back to the IBC, Group B or E buildings less than 55 feet in height, but more than three stories in height would have to have elevator lobbies or an equivalent alternative as they are not required to have sprinklers installed when constructed. Most other buildings are required to be sprinklered anyway and would not have to provide the lobbies or an alternative. The proposal would, however, require elevator lobbies or an alternative in all high-rise buildings, where the current USBC does not.

An identical proposal was submitted during the 2006 code change cycle and was considered by the appropriate workgroup without a recommendation for approval. The current proposal was not received in time to be fully vetted through the workgroup process.

**Codes and Standards Committee Action:**

\_\_\_\_\_ Approve as presented.

\_\_\_\_\_ Disapprove.

\_\_\_\_\_ Approve as modified (specify):

\_\_\_\_\_ Carry over to next cycle.

\_\_\_\_\_ Other (specify):

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2009 Code Change Cycle

Code Change

Number: C-708.14

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Frank Hertzog

Representing: Smoke Safety Council

Mailing Address: 6775 SW 111<sup>th</sup> Ave. Ste 10, Beaverton, OR 97008

Email Address: frank@smokeguard.com

Telephone Number: 208-639-7860

Proposal Information

Code(s) and Section(s): 708.14 Elevator, dumbwaiter and other hoistways

Proposed Change (including all relevant section numbers, if multiple sections):

To Add back into the Virginia State Uniform Building Code 2010 the provisions of the IBC 2009 Minimum Standard Building Code for hoistway protection:

**708.14 Elevator, dumbwaiter and other hoistways.** Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with Section 708 and Chapter 30.

**708.14.1 Elevator lobby.** An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 709 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 715.4.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 716.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

**Exceptions:**

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 708.2 are not required to have enclosed elevator lobbies.
3. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
  - 4.1. Group I-2 occupancies;
  - 4.2. Group I-3 occupancies; and
  - 4.3. High-rise buildings.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 711 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 711.5.2, 711.5.3, and 715.4.8 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 716.5.4.1.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 708.14.2.

7. Enclosed elevator lobbies are not required where the elevator serves only *open parking garages* in accordance with Section 406.3.

**708.14.1.1 Areas of refuge.** Areas of refuge shall be provided as required in Section 1007.

**708.14.2 Enclosed elevator lobby.** Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with this section.

**708.14.2.1 Pressurization requirements.** Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

**708.14.2.2 Rational analysis.** A rational analysis complying with Section 909.4 shall be submitted with the *construction documents*.

**708.14.2.3 Ducts for system.** Any duct system that is part of the pressurization system shall be protected with the same *fire-resistance rating* as required for the elevator shaft enclosure.

**708.14.2.4 Fan system.** The fan system provided for the pressurization system shall be as required by this section.

**708.14.2.4.1 Fire resistance.** When located within the building, the fan system that provides the pressurization shall be protected with the same *fire-resistance rating* required for the elevator shaft enclosure.

**708.14.2.4.2 Smoke detection.** The fan system shall be equipped with a smoke detector that will automatically shut down the fan system when smoke is detected within the system.

**708.14.2.4.3 Separate systems.** A separate fan system shall be used for each elevator hoistway.

**708.14.2.4.4 Fan capacity.** The supply fan shall either be adjustable with a capacity of at least 1,000 cfm (.4719 m<sup>3</sup>/s) per door, or that specified by a *registered design professional* to meet the requirements of a designed pressurization system.

**708.14.2.5 Standby power.** The pressurization system shall be provided with standby power from the same source as other required emergency systems for the building.

**708.14.2.6 Activation of pressurization system.** The elevator pressurization system shall be activated upon activation of the building fire alarm system or upon activation of the elevator lobby smoke detectors. Where both a building fire alarm system and elevator lobby smoke detectors are present, each shall be independently capable of activating the pressurization system.

**708.14.2.7 Special inspection.** *Special inspection* for performance shall be required in accordance with Section 909.18.8. System acceptance shall be in accordance with Section 909.19.

**708.14.2.8 Marking and identification.** Detection and control systems shall be marked in accordance with Section 909.14.

**708.14.2.9 Control diagrams.** Control diagrams shall be provided in accordance with Section 909.15.

**708.14.2.10 Control panel.** A control panel complying with Section 909.16 shall be provided.

**708.14.2.11 System response time.** Hoistway pressurization systems shall comply with the requirements for smoke control system response time in Section 909.17.

Supporting Statement (including intent, need, and impact of the proposal):

While the legacy BOCA code did not require elevator shaft protection, the IBC recognizes this life safety issue of protecting elevator shafts in highrise buildings for smoke migration and has since its inception with IBC 2000.

The IBC has incorporated over 200 trade-offs within the prescriptive requirements of the building code, including Exceptions 1 and 7 to Section 708.14.1. Exception 4 limits the requirement to provide elevator lobbies to buildings over 75 feet above fire department lowest access as long as they are sprinkled, I-2 and I-3 Occupancies and High Rise Buildings. The IBC recognizes the level of protection and life safety afforded in fully sprinkled buildings but protects buildings above 75 feet in height with additional requirements.

The IBC 2009 will again establish the MINIMUM national standards for life safety and work to discourage amendments to the IBC which create variations from state to state. Virginia should work to adopt their state MINIMUM building code to provide life safety standards equal to or better than the national MINIMUM IBC 2009.

Based on Virginia's 2008 (reported) Fire Statistics, 83% of all fire locations did not have sprinklers and only 28% had smoke detectors; there were 114 fires in buildings 5 stories or taller with over \$3.5 million in damage, with 7 civilian injuries, 3 firefighter injuries, and 2 civilian deaths. Based on Virginia's 2009 (reported) Fire Statistics for the first 6 months, there have already been 26 fires in buildings above 7 stories. With 83% of buildings not having sprinklers according to fire statistics, a change in the Virginia Building Code to support protection of Elevator Hoistways can only improve the Fire statistics and better protect the citizens of the state, be they building occupants or emergency responders.

New construction invariably incorporates automatic sprinkler systems, limiting the vast majority of the impact of this amendment to buildings that are renovated or buildings in institutional occupancies. Virginia, by adopting this amendment, will align the Virginia Building Code with the minimum fire and life safety standards established in the IBC 2009 for high rise buildings and institutional occupancies.

### Submittal Information

Date Submitted: 10/26/2009

The proposal may be submitted by email as an attachment, by fax, by mail, or by hand delivery.

Please submit the proposal to:

DHCD DBFR TASO (Technical Assistance and Services Office)  
Main Street Centre  
600 E. Main St., Ste. 300  
Richmond, VA 23219  
(804) 371-7150

Email Address: [tsu@dhcd.virginia.gov](mailto:tsu@dhcd.virginia.gov)  
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