



Robert F. McDonnell  
Governor

James S. Cheng  
Secretary of Commerce  
and Trade

# COMMONWEALTH of VIRGINIA

DEPARTMENT OF  
HOUSING AND COMMUNITY DEVELOPMENT

William C. Shelton  
Director

## MEMORANDUM

To: All stakeholders, including VBCOA, VPMIA, Va-IAEI, Elevator Inspectors Association, VFPA/FSBCC

From: Emory Rodgers *ER*

Date: June 24, 2013

Subject: List of New and Carry-over Code Changes and Issues

Here are some code issues, carry-over and new code changes for you to review. A workgroup meeting is scheduled for August 22, 2013 at 9:30 at the Virginia Housing Center. The agenda will be sent at the end of July, 2013. A 2<sup>nd</sup> workgroup meeting will be held October 11, 2013 to complete work on final code changes for consensus and prepare the final 2012 regulations for the BHCD's CDC and the FSB/BHCD SFPC CDC board to consider on October 28<sup>th</sup>.

So we are now sending out these code changes and issues ahead of time as it is of critical importance that all stakeholders review now and develop comments or amendments. DHCD/BFRD staff will be glad to review with any stakeholder or code change proponents possible issues. Vernon Hodge, Emory Rodgers and Cindy Davis are all available to discuss any of the code changes or issues still on-the-table. DHCD staff will have only a few days to prepare the agenda and board packet after the October 11<sup>th</sup> meeting to then prepare the packets for the CDC's for their October 28<sup>th</sup> meeting. The 2<sup>nd</sup> public hearing is September 23<sup>rd</sup>. There is still the possibility of additional code changes being submitted by July 1<sup>st</sup>; by public comments on the proposed regulations at the September 23<sup>rd</sup> public hearing; and, by the BHCD's directives.

**PART ONE: New & Carry-over Code Changes/Issues (PAGES 8 – 162)**

VBCOA Administrative - Note: These code changes should be reviewed in particular by impacted stakeholders and the VBCOA Administrative Committee (John Catlett).

DESCRIPTION	Page #
1. USBC 103.10 IECC 101.7. Carry-over.	8
2. 108.2 – Exemptions – exempts flagpoles 30 feet or less in height from a permit –but gives the ability to require one.	12
3. 108.2 – Exemptions – ramps no more than 30" above grade (R3 and R5). (includes one for footings).	14
4. USBC 108.1 and 3411.9.5 - Accessible parking spaces restriping latest code change attached sub-group reviewing. Carry-over.	15
5. USBC R311.2.1 - Interior door openings. 1 <sup>st</sup> floor door widths 32 or 34 inches for accessible route. IRC committee should review. Clarify too bathroom relationship to bedroom and accessibility from other spaces and rooms. Two code changes	17
6. USBC 1106.3. - Parking outpatient clinics, doctors and dentist offices. This is the latest code changes for sub-group. Also review with IBC committee. Carry-over. Two code changes.	19
7. USBC 107.1.3 and VADR – Fees for generators. Two code changes.	21
8. VADR New Part VIII – Zip lines	23
9. A75D – Amusement device certificate of inspection (displaying).	24
10. A200 – Amusement device certificate of inspection (calendar year).	25
11. IBSR 13VAC5-91-260 - Clarify if manufacturer can purchase seals.	26
12. ISSUE. NO CODE CHANGES SUBMITTED:	
13. USBC VCC and VADR - 3 <sup>rd</sup> party liability insurance mandate.	N/A

USBC VCC Regulations - Note: These code changes should be reviewed in particular by impacted stakeholders and the VBCOA USBC IBC Committee (Rick Fortner) and the Amusement Device representatives.

DESCRIPTION	Page #
1. IBC 310 - move IRC sections into appendix.	27
2. IBC 408.2. and new section 427 - Short-term holding area. Three code changes attached. Carry-over.	28
3. 705.2 – Projections. Adds balcony as an exception.	35
4. 706.5.2 IBC – Adds exceptions to clarify extension of firewalls related to balconies and decks.	36
5. 712.1.3 – Exit stairways (relocate exemptions).	37
6. 903.2.3 – Group E. Delete state change and revert to IBC model code. This would delete the current 20,000 s.f. threshold for sprinklers and change it to 12,000 s.f. for E occupancy. This was denied in the last cycle based on private school opposition without justification and fire data.	39
7. 903.2.8 - R-2 delete technical amendment to not sprinkle two story, under 16 dwelling units. FSBCC believes public water supply and pressure should not be an issue today.	

Fire data needed along with cost impact.	41
8. DELETED	43
9. 908.7 – Group E. CO alarm requirement for E occupancies K-12 public schools or all E occupancies with fuel burning appliances. Two code changes.	44
10.USBC 1008.1.9.7 IBC – Delayed egress locks. Mostly impacts I-2 and changes name. Owners, healthcare and lock folks on board.	53
11.IBC 1008.1.9.8 – Access Controlled Locks.	57
12.IBC 1016.2.2 - Travel distance F and S.	62
13.1021.1 – Exit stairways. Adds Exceptions.	66
14.IBC 1403.2 - Air barriers.	68
15.IBC 1403.5 - Water resistance barrier. Four code changes/options.	72
16.IBC 1407.10.4 IBC – Full-scale tests. Two code changes/options.	84
17.IBC 2603.5.5 - IBC – Vertical and lateral fire propagation. Sprinkler exception. Three code changes/options.	89
18.IBC 2902.1 - Fixture calculations (allows portable toilets). Confer with VPMIA.	100
19.IBC 3006.4 - Elevator control rooms rating. Rating OK over 4 stories but the issue was 4 or less allowed to be zero. Carry over.	103
20.IBC 3412.2.2 – Exception. Partial change of occupancy.	105
21.IBC SWCB 415.1.1 - UST removal discuss possible code changes from sub-group. Need for link to the SFPC 5704.2.13 and new sections for DEQ UST's only leaving current text for all other UST tanks. SFPC can apply operational testing if closure or abandonment has more than 1 inch of fuel. Need code changes. In SFPC code too for operational matters.	106
22.IBC/IFC 2306.7.1- E-85 UL listing.	107
23.IBC Tables for Southern Pine lumber.	108
24. IBC nightclub 202 definition how to determine if it is main use with issue being sprinklers if 100 or if A-2 restaurant at 300. See attached Track B IFC code change.	132
25. IBC/IFC T307.1, IFC 5003.1.1 and T2703.1.1 - Storage of 1.4G decrease amount before building or area has to be H-3. Retain or delete footnote "d" at 250 where sprinkled. Needs to be in USBC. Also, need to deal then with permissible fireworks that in the USBC would be and is a separate type of fireworks from all other 1.4G fireworks, so what should be the storage limits? Is it the current 1.4G in the 2009 USBC/IBC/IFC, the proposed 2012 code change or another limit.	135
26. IBC 1203.6 - Smoking in restaurants. Moves language from DSS MOA smoking lounges into USBC construction requirements.	138
27.IBC Chapter 30 – Elevators. IPC 1003.4 – Delete exception separators in hydraulic elevator pits.	143
28. USBC/SFPC 5001.3 - NFPA 45 SFM to reference in SFPC only for laboratories operating with no control areas. Issues include: <ul style="list-style-type: none"> <li>• What code it was built under (so how does it violate the SFPC)?</li> <li>• Can this work in the SFPC only without conflicting with the USBC VCC or VRC and outside the SFPC's scope?</li> <li>• What is the impact on a certificate of occupancy issued?</li> <li>• If there isn't a CO, does this issue violate the CO for occupancy quantity limits so the lab is an H-3?</li> <li>• Is this code change considered a retrofit measure?</li> <li>• Should the code change be in the SFPC and the USBC VCC and VRC/IEBC?</li> </ul>	

Should there be an appeal to the STRB? • NOTE #28: THIS CODE CHANGE IS ALSO LISTED IN SFPC SECTION.	149
29. ISSUES (NO CODE CHANGES SUBMITTED):	
• IECC delete building commissioning chapter? Issue only for now see emails.	
• IBC emergency power for ALF's and nursing homes study VDH and DSS may have code changes issue only.	154
• USBC and SFPC delete all IFC construction requirements and where not in the IBC insert. Large project for us to do next 4 months maybe do part and rest 2015. See email. Issue only	157
• IEBC VCC and VRC I-2 and I-3.	159

**NOTE: The remaining new & carry-over code changes/issues are in the Part Two document.**

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information (Check one):  Individual  Government Entity  Company

Name: Michael Redifer Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3<sup>rd</sup> flr Newport News, VA 23607

Email Address: mredifer@nngov.com Telephone Number: 757-926-8861

Proposal Information

Code(s) and Section(s): Virginia Construction Code Section 103.10

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

Add Item 7 to 103.10 as follows (no changes to existing text)

7. Sections C101.4, C101.5, R101.4 and R101.5 of the IECC

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

Section 101.7 deletes administrative provisions of the referenced model codes in order to reduce potential conflict with Chapter 1 of the VCC. Specific administrative and testing provisions contained within the model codes are incorporated by reference through Section 103.10. Important scoping provisions are contained within Chapter 1 of the IECC. Among them are exemptions for historic and low energy buildings. Without this proposed change, applying these exemptions is questionable and without the exemptions the VCC becomes significantly more restrictive than the model code and results in increased costs.

**NOTE:**

Although referencing only the section numbers of the IECC is in keeping with the structure of VCC 103.10, the following full text from IECC Sections C101.4, C101.5, R101.4 and R101.5 is provided in an effort to eliminate the need to refer to another document while considering this proposal.

**C101.4 Applicability.** Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between the general requirement and a specific requirement, the specific requirement shall govern.

**C101.4.1 Existing buildings.** Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

**C101.4.2 Historic buildings.** Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or Keeper of the National Register of Historic Places, are exempt from this code.

**C101.4.3 Additions, alterations, renovations or repairs.** Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

**Exception:** The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Glass only replacements in an existing sash and frame.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
4. Construction where the existing roof, wall or floor cavity is not exposed.
5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Replacement of existing doors that separate *conditioned space* from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed.
7. Alterations that replace less than 50 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.
8. Alterations that replace only the bulb and ballast within existing luminaires in a space provided that the *alteration* does not increase the installed interior lighting power.

**C101.4.4 Change in occupancy or use.** Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code. Where the use in a space changes from one use in Table C405.5.2 (1) or (2) to another use in Table C405.5.2 (1) or (2), the installed lighting wattage shall comply with Section C405.5.

**C101.4.5 Change in space conditioning.** Any nonconditioned space that is altered to become *conditioned space* shall be required to be brought into full compliance with this code.

**C101.4.6 Mixed occupancy.** Where a building includes both *residential* and *commercial* occupancies, each occupancy shall be separately considered and meet the applicable provisions of IECC – Commercial Provisions or IECC – Residential Provisions.

**C101.5 Compliance.** *Residential buildings* shall meet the provisions of IECC – Residential Provisions. *Commercial buildings* shall meet the provisions of IECC – Commercial Provisions.

**C101.5.1 Compliance materials.** The *code official* shall be permitted to approve specific computer software, working sheets, compliance manuals and other similar materials that meet the intent of this code.

**C101.5.2 Low energy buildings.** The following buildings, or portions thereof, separated from the remainder of

the building by *building thermal envelope* assemblies complying with this code shall be exempt from the *building thermal envelope* provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h-ft<sup>2</sup> (10.7 W/m<sup>2</sup>) or 1.0 watt/ft<sup>2</sup> (10.7 W/m<sup>2</sup>) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.

**R101.4 Applicability.** Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between the general requirement and a specific requirement, the specific requirement shall govern.

**R101.4.1 Existing buildings.** Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

**R101.4.2 Historic buildings.** Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or Keeper of the National Register of Historic Places, are exempt from this code.

**R101.4.3 Additions, alterations, renovations or repairs.** Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

**Exception:** The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Glass only replacements in an existing sash and frame.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
4. Construction where the existing roof, wall or floor cavity is not exposed.
5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Replacement of existing doors that separate *conditioned space* from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed.
7. Alterations that replace less than 50 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.
8. Alterations that replace only the bulb and ballast within existing luminaires in a space provided that the *alteration* does not increase the installed interior lighting power.

**R101.4.4 Change in occupancy or use.** Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code.

**R101.4.5 Change in space conditioning.** Any nonconditioned space that is altered to become *conditioned space* shall be required to be brought into full compliance with this code.

**R101.4.6 Mixed occupancy.** Where a building includes both *residential* and *commercial* occupancies, each occupancy shall be separately considered and meet the applicable provisions of IECC – Commercial Provisions or IECC – Residential Provisions.

**R101.5 Compliance.** *Residential buildings* shall meet the provisions of IECC – Residential Provisions. *Commercial buildings* shall meet the provisions of IECC – Commercial Provisions.

**R101.5.1 Compliance materials.** The *code official* shall be permitted to approve specific computer software, working sheets, compliance manuals and other similar materials that meet the intent of this code.

**R101.5.2 Low energy buildings.** The following buildings, or portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this code shall be exempt from the *building thermal envelope* provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h-ft<sup>2</sup> (10.7 W/m<sup>2</sup>) or 1.0 watt/ft<sup>2</sup> (10.7 W/m<sup>2</sup>) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.

#### Submittal Information

Date Submitted: November 29, 2012 (revised January 3, 2013)

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Frank Castelvechi, III PE

Representing: County of Henrico Building Inspections

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): VCC 108.2 new section

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

**108.2 Exemptions from application for permit.** Notwithstanding the requirements of Section 108.1, application for a permit and any related inspections shall not be required for the following; however, this section shall not be construed to exempt such activities from other applicable requirements of this code. In addition, when an owner or an owner's agent requests that a permit be issued for any of the following, then a permit shall be issued and any related inspections shall be required.

Add new section

x. Flagpoles 30 feet or less in height.

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

This exemption is to exclude from permit requirements shorter flagpoles that present a minimal hazard in the event of failure while still requiring permits for the large and giant flagpoles that may present a significant hazard. The 30 ft height limit will exempt most common residential flagpoles.

This issue recently came up in our jurisdiction as the result of a citizen inquiry

Most of these are installed without permits anyway.

Submittal Information

Date Submitted: 3/21/2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

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

DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Gregory Revels

Representing: Henrico County

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

Email Address: rev04@co.henrico.va.us

Telephone Number: 804-501-4374

Proposal Information

Code(s) and Section(s): 108.2

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

**108.2 Exemptions from application for permit.** Notwithstanding the requirements of Section 108.1, application for a permit and any related inspections shall not be required for the following; however, this section shall not be construed to exempt such activities from other applicable requirements of this code. In addition, when an owner or an owner's agent requests that a permit be issued for any of the following, then a permit shall be issued and any related inspections shall be required.

Items 1-9 no proposed change to current text.....

Add new item 10 to read: Ramps serving dwelling units in Group R-3 and R-5 occupancies where the height of the entrance served by the ramp is no more than 30 inches above grade.

Re-number the current item 10 to item 11, etc.

Supporting Statement:

Ramps that provide access to the entrance door of a single family dwelling that is 30 inches or less above grade require no guardrails, and typically no handrails, per Section R311.8. These ramps are frequently erected, without permits or inspections, by volunteers to provide temporary access for the elderly and disabled, and pose minimal risk to the public. The proposed exception also clarifies that permits are required for ramps when guardrails would be required to prevent falls from walking surfaces that exceed 30 inches above the adjoining grade.

Please submit the proposal to:

DHCD DBFR SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name (Representing):

*Ken Fredgren*, Chairman, Reston Accessibility Committee of Reston Citizens Association, 703-391-9019, fredgren.k@gmail.com. (Lead contact.)

John Catlett, MCP – Director, Alexandria Dept. of Code Administration. 703.746.4182, john.catlett@alexandriava.gov

*Teri Barker-Morgan*, Program Manager, Virginia Board for People with Disabilities, Richmond, 804-786-9381, Teri.Barker@vbpd.virginia.gov.

*Gayl Brunk*, Executive Director, Valley Associates for Independent Living (VAIL), Harrisonburg, 540-433-6513, gayl@govail.org.

*Marcia DuBois*, Program Coordinator, Community Based Services-Field Rehabilitative Services, Department for Aging and Rehabilitative Services, Richmond, 804-662-7083, Marcia.DuBois@dars.virginia.gov.

*Karen Michalski-Karney*, Executive Director, Blue Ridge Independent Living Center, Roanoke, 540-342-1231, kmichalski@brilc.org.

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Sections 3411.1 , 3411.6

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

Modify as shown:

**.ACCESSIBILITY FOR EXISTING BUILDINGS**

**3411.1 Scope.** The provisions of Sections 3411.1 through 3411.9 apply to maintenance, change of occupancy, *addition* and *alterations* to existing buildings and site conditions, including those identified as *historic buildings*.

**3411.6 Alterations.** A facility that is altered shall comply with the applicable provisions in Chapter 11 of this code, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible. When restriping an existing parking facility that does not contain accessible parking, at least one van accessible parking space shall be provided in facilities serving use groups A, B, E, M, R1, and I. When existing parking facilities in these use groups contain 100 or more spaces, the number of accessible parking spaces shall be in accordance with Section 1106 (a). Restriping of existing parking facilities shall require an accessible route from existing and newly created accessible parking space(s) to an entrance.

**Exceptions:**

1. The altered element or space is not required to be on an *accessible* route, unless required by Section 3411.7.
2. *Accessible means of egress* required by Chapter 10 are not required to be provided in existing facilities.
3. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a *Type B dwelling unit*.
4. *Type B dwelling* or *sleeping units* required by Section 1107 of this code are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with alterations where the work area is 50 percent or less of the aggregate area of the building.
5. When restriping existing parking facilities and full compliance with Section 1106 would create a violation of local ordinances establishing a minimum number of parking spaces, compliance with Section 1106 shall be achieved to the maximum extent possible as approved by the building official.
6. The costs of providing access from existing or newly created accessible parking spaces to an *accessible* route are not required to exceed 20 percent of the costs of the parking restriping *alterations*.

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

This proposal results from the initial review by DHCD workgroups of proposals submitted by a legislative study group (the HJR 648 Study Group). This proposal is offered as an additional compromise submitted by the HJR 648 study group and is being submitted by groups involved in the HJR 648 study.

The compromise builds on previous proposals and addresses concerns expressed by the Codes and Standards Committee.

Interestingly enough, the building code already establishes that when a parking lot is altered it must comply with accessibility requirements. 3411.6 states that *facilities* that are altered must comply with Chapter 11 unless technically infeasible.

**3411.6 Alterations.** A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of this code, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible...

Facilities are defined to include site improvements, which includes parking lots

**FACILITY.** All or any portion of buildings, structures, *site* improvements, elements and pedestrian or vehicular routes located on a *site*.

The proposed change actually proposes lower overall requirements for smaller parking facilities while recognizing the need to add accessible parking to facilities that do not have them. For parking lots in use groups that house places of public accommodation, the change establishes necessary guidance regarding how many spaces to provide and what to do if full compliance causes violations of existing local parking space regulations. In these cases, the number of spaces provided can be less than required by 3411.6 if full compliance cannot be achieved.

The provision also recognizes that lots with greater than 100 spaces have a greater need and requirement for the number of accessible parking spaces.

Since a lot alteration is not generally associated with a primary function space alteration and 3411.6 requires altered facilities (site improvements) to be made in accordance with Chapter 11, the proposed language adopts a disproportional amount provision typically found with primary function alterations which limits the cost exposure to the building owner beyond the parking space striping and signage.

The issue of permitting and inspection, like many other provisions in this code, can be determined by the local building official. Section 108.2 would allow the building official to determine if a permit is needed since this is not a direct health and safety issue.

108.2 Exemption from Permit.

10.11. Other repair work deemed by the building official to be minor and ordinary which does not adversely affect public health or general safety.

Submittal Information

Date Submitted: February 20, 2013

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

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

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Names: Ken Fredgren/Karen Michalski/Matthew Barkley/Teri Barker-Morgan/Marcia DuBois, from HJR 648 Workgroup

Representing: Reston Accessibility Committee/Building For All Committee/Blue Ridge Independent Living Center/Virginia Board for People with Disabilities/Virginia Department for Aging and Rehabilitative Services

Email Addresses: [matthew.barkley@fairfaxcounty.gov](mailto:matthew.barkley@fairfaxcounty.gov), [fredgren.k@gmail.com](mailto:fredgren.k@gmail.com), [KMichalski@brilc.org](mailto:KMichalski@brilc.org), [teri.barker@vbpd.virginia.gov](mailto:teri.barker@vbpd.virginia.gov), [Marcia.DuBois@dars.virginia.gov](mailto:Marcia.DuBois@dars.virginia.gov)

Telephone Numbers: 703-324-5868, 703-391-9019, 540-342-1231, 804-786-9381, (804) 662-7083

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Section 310.6 (IRC Section R311.2.1)

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

Add new Section R311.2.1 to the International Residential Code to read as follows:

R311.2.1 Interior passage: If provided on the main living level, one bedroom, a kitchen, entertainment areas and at least one full bathroom shall be provided with a minimum "nominally" 34" door.

Exceptions:

1. Above listed rooms located at the end of hallways
2. "Jack and Jill" Bathrooms
3. Closet or Pantry Doors

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

This proposal provides a minimum passage for certain areas on the main living level of new dwellings. The language is borrowed from the Easy Living criteria, but does not include all of the criteria in that standard.

Submittal Information

Date Submitted: 6/21/2013

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 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: HBAV

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

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

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

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

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Section 310.6 (IRC Section R311.2.1)

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

R311.2.1 Interior door openings. Where door openings are provided to the following spaces on the main living level, such door openings shall be sized to accommodate the use of minimum 34-inch nominally sized door.

1. One bedroom.
2. Entertainment areas.
3. At least one full bathroom.

Exception: A door opening at the end of a hallway.

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

This proposal provides a minimum passage for certain areas on the main living level of new dwellings. The language is borrowed from the Easy Living criteria, but does not include all of the criteria in that standard.

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: [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 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: 2011 HJR 648 Workgroup

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

Email Address: teri.barker@vbpd.virginia.gov

Telephone Number: 804-786-9381

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Section 1106.3

**Option 1**

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

Change Section 1106.3 to read as follows:

1106.3 ~~Hospital-outpatient~~ Outpatient clinics, ambulatory health care and medical facilities/offices. At least 10 percent, but not less than one, of care recipient and visitor parking spaces provided to serve ~~hospital outpatient~~ clinics, ambulatory health care facilities and medical facilities/offices shall be accessible parking spaces.

**Exemption: for those medical facilities/offices located within strip malls, or sharing a common parking area with non-medical commercial businesses.**

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

This proposal would require slightly more accessible parking spaces at newly constructed outpatient clinics, ambulatory surgery centers and medical facilities/offices. The IBC already requires the additional spaces for medical facilities which are on hospital campuses. **An exemption for those medical facilities/offices located within strip malls, or sharing a common parking area with non-medical commercial businesses will be made.**

Examples: An office would provide 2 accessible parking spaces if it had 20 parking spaces or 3 accessible parking spaces if it had 30 parking spaces. Minimal but efficacious changes.

Doctors and dentists, their associations and health insurance companies all repeatedly stress the critical importance of preventive health care. This proposal makes it more feasible for people with mobility limitations to participate in the preventive health care imperative, the purposes of which are to enhance people's quality of life, keep people out of hospitals insofar as possible and reduce health care costs.

Submittal Information

Date Submitted: 4/29/2013

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

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: 2011 HJR 648 Workgroup

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

Email Address: teri.barker@vbpd.virginia.gov

Telephone Number: 804-786-9381

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Section 1106.3 **Option 2**

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

Change Section 1106.3 to read as follows:

**1106.3 ~~Hospital-outpatient~~ Outpatient clinics, ambulatory health care and medical facilities/offices.** At least 10 percent, but not less than one, of care recipient and visitor parking spaces provided to serve ~~hospital outpatient clinics, ambulatory health care facilities and medical facilities/offices~~ shall be accessible parking spaces. **When medical facilities/offices are present in a mall, office building, office park or similar development where one parking lot is shared by several lessees, accessible parking spaces shall be apportioned by the property owners to provide at least two accessible parking spaces on the shortest accessible route to each medical office.**

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

This proposal would require slightly more accessible parking spaces at newly constructed outpatient clinics, ambulatory surgery centers **and medical facilities/offices**. The IBC already requires the additional spaces for medical facilities which are on hospital campuses.

Examples: An office would provide 2 accessible parking spaces if it had 20 parking spaces or 3 accessible parking spaces if it had 30 parking spaces. Minimal but efficacious changes. **When medical facilities/offices are present in a mall, office building, office park or similar development where one parking lot is shared by several lessees, accessible parking spaces shall be apportioned by the property owners to provide at least two accessible parking spaces on the shortest accessible route to each medical office.**

Doctors and dentists, their associations and health insurance companies all repeatedly stress the critical importance of preventive health care. This proposal makes it more feasible for people with mobility limitations to participate in the preventive health care imperative, the purposes of which are to enhance people's quality of life, keep people out of hospitals insofar as possible and reduce health care costs.

Submittal Information

Date Submitted: 4/29/2013

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)

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one): X Individual     Government Entity     Company

Name: Casey Littlefield

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

Mailing Address: 1003 Rock Spring Rd Bumpass, VA 23024

Email Address: caseylittlefieldmcp@gmail.com

Telephone Number: 804-387-9107

Proposal Information

Code(s) and Section(s): VADR Part 2 13VAC5-31-75 Section "A"

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

1 through 4 under fees to stay unchanged by this proposal.

5. Generator Electrical Fee- a fee as set forth by the local building official but not to exceed \$165.00 for each event shall be charged for inspection of all associated electrical components for the event.

Exception- a generator that complies with NFPA 70 Article 250.34 (A) where the generator does not feed any other service equipment shall be excluded from this fee.

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

This proposal will bring more uniformity to fees charged throughout the state and makes it clear that small portable generators that do not feed any other service equipment (panels, other generators, etc.) will not incur a cost for inspection.

This fee also would also link the VADR and USBC together for the electrical inspection that is required for larger carnivals and fairs held throughout the state where the generators and associated wiring are already part of the inspection process but where a fee for this inspection is currently not allowed by current regulations as the VADR is a stand-alone document.

Submittal Information

Date Submitted: 6-22-2013

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 SBCO (State Building Codes Office)

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Amusement Device Technical Advisory Comm. Representing: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): VCC and VADR

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

Add new Section 107.1.3 to the VCC to read:

107.1.3 Fees for generators used with amusement devices. Fees for generators and associated wiring used with amusement devices shall be only charged under the Virginia Amusement Device Regulations (13VAC5-31).

Change Section 13VAC5-31-75 of the VADR to read:

13VAC5-31-75. Local building department.

A. In accordance with §§ 36-98.3 and 36-105 of the Code of Virginia, the local building department shall be responsible for the enforcement of this chapter and may charge fees for such enforcement activity. The total amount charged for any one permit to operate an amusement device or devices or the renewal of such permit shall not exceed the following, except that when a private inspector is used, the fees shall be reduced by 50%:

1. \$25 for each kiddie ride covered by the permit;
2. \$35 for each circular ride or flat-ride less than 20 feet in height covered by the permit;
3. \$55 for each spectacular ride covered by the permit that cannot be inspected as a circular ride or flat-ride in subdivision 2 of this subsection due to complexity or height; and
4. \$150 for each coaster covered by the permit that exceeds 30 feet in height.

5. When a private inspector is not used, the local building department may charge an additional fee per permit for inspecting 6500 watt or larger generators and associated wiring when such generators are used with amusement devices. The fee shall not exceed \$25 per generator, or \$150 total if more than six generators are covered by the permit.

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

This proposal addresses the concern of operators of amusement devices that some local building departments are requiring electrical permits under the VCC for generators used with amusement devices and are using the fee schedule established by the local government for electrical permits to charge separate fees for such permits. This proposal only addresses the fee aspect of this situation and clarifies that fees may not be charged under the VCC for any electrical permits issued by the local building department for generators and associated wiring used with amusement devices. The proposal does however establish a new fee under the VADR for inspecting such generators when the local building department does the inspection.

Submittal Information

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Amusement Device Technical Advisory Comm. Representing: \_\_\_\_\_

Proposal Information

Code(s) and Section(s): VADR (New Part VIII – Zip Lines)

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

Add ASTM Standard F2959-12 to Section 13VAC5-31-40.  
Create new Part VIII (move existing Part VIII to be Part IX and existing Part IX to be Part X) to read:  
Part VIII  
Zip Lines  
13VAC5-31-217. General requirements.  
In addition to other applicable requirements of this chapter, zip lines shall be operated, maintained and inspected in accordance with ASTM F2959.

Supporting Statement (including intent, need, and cost impact of the proposal):  
This proposal would incorporate a new ASTM standard on zip lines (called aerial adventure courses) to give specific requirements for those zip lines that fall under the VADR.

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Michael Redifer

Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3<sup>rd</sup> flr Newport News, VA 23607

Email Address: mredifer@nngov.com

Telephone Number: 757-926-8861

Proposal Information

Code(s) and Section(s): 13 VAC 5-31-75.D

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

D. Notwithstanding the provisions of subsection C of this section, a permit application ~~is shall~~ not be required for a kiddie ride displaying that has an unexpired a certificate of inspection issued within the same calendar year by any local building department in this Commonwealth. In such cases, the information required on a permit application as listed in subsection C of this section ~~the local building department shall be notified prior to the operation of the kiddie ride and the information required on the permit application as listed in subsection C of this section~~ shall be provided to the local building department at least 5 days prior to operation.

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

This revision intends to provide a more easily discernible timeframe for which the kiddie ride inspection is valid. The required certificates provided by DHCD prominently display the year whereas the issue date is applied in the field and subject to fading by time and the elements. Additional clarification is provided to correct flawed language regarding the currently required notification, identification and insurance information even though no permit or fees are applicable. As currently written the section states a permit application is not needed however the operator must provide all of the information required on the permit application.

Submittal Information

Date Submitted: 2-25-13

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Michael Redifer

Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3<sup>rd</sup> flr Newport News, VA 23607

Email Address: mredifer@nngov.com

Telephone Number: 757-926-8861

Proposal Information

Code(s) and Section(s): 13 VAC 5-31-200

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

In addition to other applicable requirements of this chapter, inflatable amusement devices shall be operated, maintained and inspected in accordance with ASTM F2374.

Notwithstanding any requirements of this chapter to the contrary, a permit to operate an inflatable amusement device that is less than 150 square feet and in which the height of the patron containment area is less than 10 feet ~~need not be obtained~~ shall not be required if the device ~~has an unexpired~~ displays a certificate of inspection issued within the same calendar year by a local building department in this Commonwealth, regardless of whether the device has been disassembled or moved to a new site.

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

This revision intends to provide a more easily discernible timeframe for which the inspection is valid. The required certificates provided by DHCD prominently display the year whereas the issue date is applied in the field and subject to fading by time and the elements.

Submittal Information

Date Submitted: 2-25-13

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Staff

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

Proposal Information

Code(s) and Section(s): IBSR, 13VAC5-91-260

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

13VAC5-91-260. Registration seal for industrialized buildings.

(Subsections A and B unchanged)

Change subsection C to read as follows (differences between the proposed regulations already approved by the board and the new proposed changes are shown with the use of brackets):

C. Approved registration seals ~~may~~ shall be purchased [ by the compliance assurance agency ] from the ~~SBCAO~~ SBCO in advance of use. The fee for each registration seal shall be \$75, except that the fee for each registration seal for buildings constructed as Group R-5 under Part I of the USBC shall be \$50. Fees shall be submitted by checks made payable to "Treasurer of Virginia" or shall be submitted by electronic means. Payment for the seals must be received by the ~~SBCAO~~ SBCO before the seals can be sent to the user. [ The compliance assurance agency shall maintain permanent records of seals purchased, including a record of any manufacturers receiving such seals. ]

(Subsection D unchanged)

[ ~~E. The compliance assurance agency or the manufacturer under the supervision of the compliance assurance agency shall maintain permanent records of the disposition of all Virginia registration seals obtained by the compliance assurance agency or manufacturer.~~ ]

[ ~~F. E.~~ ] Refunds of seals shall be in accordance with § 36-85.1 of the Code of Virginia. An administrative and processing fee of 25% of the amount of the refund due shall be deducted from the refund; however, such deduction shall not exceed \$250.00.

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

This change reflects an internal policy decision made over two years ago to restrict the sale of Virginia seals to the Compliance Assurance Agencies. The requirement to maintain permanent records of the seals has been combined with subsection C.

Submittal Information

Date Submitted: June 21, 2013

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 SBCO (State Building Codes Office)

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual       Government Entity       Company

Name: Paul A. Sweet

Representing: Paul A. Sweet, Architect & Engineer

Mailing Address: 2633 Wyndham Dr., Richmond, Va. 23235

Email Address: psweet@bonair.net

Telephone Number: 804-323-9527

Proposal Information

Code(s) and Section(s): IBC 310

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

Move IRC changes out of IBC Chapter 3 into an appendix.

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

IRC revisions don't apply to the IBC. It is presently necessary to thumb through 30 some pages of IRC revisions to get from Group M to S. If there is a reason for printing IRC changes in the IBC, it would be better to put them in an appendix where they wouldn't be in the way.

There is no cost impact.

Submittal Information

Date Submitted: March 11, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): 2012 IBC, Section 202; Section 408.2.1, and new Section 427

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

Add new definition in Section 202 as follows:

**SHORT-TERM HOLDING AREA.** An area located in an occupancy other than I-3, containing holding cells or rooms, and associated rooms or spaces, where occupants are restrained or detained by the use of security measures not under the occupant's control, and where holding cells and associated such rooms or spaces are not intended for overnight accommodations use.

Add new subsection 408.2.1 as follows:

**408.2.1 Short-term holding areas.** For short-term holding areas, refer to Section 427.

Add new Section 427 as follows:

**SECTION 427**  
**SHORT-TERM HOLDING AREAS**

**427.1 Applicability.** The provisions of Sections 427.1 through 427.3 shall apply to all parts of buildings and structures that contain a *short-term holding area*.

**427.2 Classification.** Short-term holding areas shall be permitted to be classified as the main occupancy, provided all of the following are met:

1. Aggregate area of short-term holding areas shall not occupy more than 10 percent of the building area of the story in which they are located and shall not exceed the tabular value for building area in Table 503, without building area increases.
2. Detainee occupant load of each *short-term holding area* shall not exceed 20.
3. Aggregate detainee occupant load in short-term holding areas per building shall not exceed 80.
4. Compliance with the following:
  - a. Section 408.3.7.
  - b. Section 408.3.8.
  - c. Section 408.4.
  - d. Section 408.7.

5. Requirements of the main occupancy in which the *short-term holding area* is located shall be met.
6. Building or structure in which the *short-term holding area* is located shall be provided throughout with a *fire alarm system* in accordance with Section 907.2.6.3.
7. Building or structure in which the *short-term holding area* is located shall be fully sprinklered in accordance with Section 903.3.1.1.

427.3 Separation. Each *short-term holding area* shall be separated from each other and adjacent spaces by smoke partitions in accordance with Section 710.

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

Refer to Option 1 for additional supporting statement and cost impact.

Differences from Option 1:

- Capacities have been lowered from 30 to 20 per *area*
- Capacities have been lowered from 120 to 80 per *building*

It is important to note these holding areas:

- Are temporary / short term
- Are limited to no more than 10% of the area within a story
- Cannot exceed tabular areas, without increases
- Are allowed only when the entire building is fully sprinklered with an NFPA 13 system only
- Are allowed only when the entire building is provided throughout with a fire alarm system as required for I-3 occupancies
- Are separated from other areas with smoke partitions
- Must still comply with various I-3 requirements, so if located within other occupancies (which is allowed under current code, e.g., a school), these areas are in some ways still required to comply with I-3 requirements for:
  - Means of egress
  - Sallyports
  - Exit stairway and ramp construction
  - Locking arrangements, including redundant operations
  - Security glazing

### Submittal Information

Date Submitted: ~~January 9, 2013~~ ~~February 22, 2013~~ ~~March 5, 2013~~ April 1, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): 2012 IBC, Section 202; Section 408.2.1, and new Section 427

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

Add new definition in Section 202 as follows:

**SHORT-TERM HOLDING AREA.** An area located in an occupancy other than I-3, containing holding cells or rooms, and associated rooms or spaces, where occupants are restrained or detained by the use of security measures not under the occupant's control, and where holding cells and associated such rooms or spaces are not intended for overnight accommodations use.

Add new subsection 408.2.1 as follows:

**408.2.1 Short-term holding areas.** For short-term holding areas, refer to Section 427.

Add new Section 427 as follows:

**SECTION 427**  
**SHORT-TERM HOLDING AREAS**

**427.1 Applicability.** The provisions of Sections 427.1 through 427.3 shall apply to all parts of buildings and structures that contain a *short-term holding area*. Short-term holding areas are not permitted in educational occupancies.

**427.2 Classification.** Short-term holding areas shall be permitted to be classified as the main occupancy, provided all of the following are met:

1. Aggregate area of short-term holding areas shall not occupy more than 10 percent of the building area of the story in which they are located and shall not exceed the tabular value for building area in Table 503, without building area increases.
2. Detainee occupant load of each short-term holding area shall not exceed 20.
3. Aggregate detainee occupant load in short-term holding areas per building shall not exceed 80.
4. Compliance with the following:
  - a. Section 408.3.7.
  - b. Section 408.3.8.
  - c. Section 408.4.
  - d. Section 408.7.

5. Requirements of the main occupancy in which the *short-term holding area* is located shall be met.
6. Building or structure in which the *short-term holding area* is located shall be provided throughout with a *fire alarm system* in accordance with Section 907.2.6.3.
7. Building or structure in which the *short-term holding area* is located shall be fully sprinklered in accordance with Section 903.3.1.1.

**427.3 Separation.** Each *short-term holding area* shall be separated from each other and adjacent spaces by smoke partitions in accordance with Section 710.

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

Refer to Option 1 for additional supporting statement and cost impact.

Differences from Option 1 and 2:

- Short-term holding areas are not allowed in educational occupancies
- Capacities have been lowered from 30 to 20 per *area*
- Capacities have been lowered from 120 to 80 per *building*

It is important to note these holding areas:

- Are temporary/short term
- Are limited to no more than 10% of the area within a story
- Cannot exceed tabular areas, without increases
- Are allowed only when the entire building is fully sprinklered with an NFPA 13 system only
- Are allowed only when the entire building is provided throughout with a fire alarm system as required for I-3 occupancies
- Are separated from other areas with smoke partitions
- Must still comply with various I-3 requirements, so if located within other occupancies (which is allowed under current code, e.g., a school), these areas are in some ways still required to comply with I-3 requirements for:
  - Means of egress
  - Sallyports
  - Exit stairway and ramp construction
  - Locking arrangements, including redundant operations
  - Security glazing

### Submittal Information

Date Submitted: ~~January 9, 2013~~ ~~February 22, 2013~~ ~~March 5, 2013~~ April 1, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): 2012 IBC, Section 202; Section 408.2.1, and new Section 427

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

Add new definition in Section 202 as follows:

**SHORT-TERM HOLDING AREA.** An area located in an occupancy other than I-3, containing holding cells or rooms, and associated rooms or spaces, where occupants are restrained or detained by the use of security measures not under the occupant's control, and where holding cells and associated such rooms or spaces are not intended for overnight accommodations use.

Add new subsection 408.2.1 as follows:

**408.2.1 Short-term holding areas.** For short-term holding areas, refer to Section 427.

Add new Section 427 as follows:

**SECTION 427**  
**SHORT-TERM HOLDING AREAS**

**427.1 Applicability.** The provisions of Sections 427.1 through 427.3 shall apply to all parts of buildings and structures that contain a *short-term holding area*.

**427.2 Classification.** Short-term holding areas shall be permitted to be classified as the main occupancy, provided all of the following are met:

1. Aggregate area of short-term holding areas shall not occupy more than 10 percent of the building area of the story in which they are located and shall not exceed the tabular value for building area in Table 503, without building area increases.
2. Detainee occupant load of each short-term holding area shall not exceed 30.
3. Aggregate detainee occupant load in short-term holding areas per building shall not exceed 120.
4. Compliance with the following:
  - a. Section 408.3.7.
  - b. Section 408.3.8.
  - c. Section 408.4.
  - d. Section 408.7.

5. Requirements of the main occupancy in which the *short-term holding area* is located shall be met.
6. Building or structure in which the *short-term holding area* is located shall be provided throughout with a *fire alarm system* in accordance with Section 907.2.6.3.
7. Building or structure in which the *short-term holding area* is located shall be fully sprinklered in accordance with Section 903.3.1.1.

**427.3 Separation.** Each *short-term holding area* shall be separated from each other and adjacent spaces by smoke partitions in accordance with Section 710.

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

The goal is to allow *short-term holding* (lockup) areas in occupancies other than I-3, without applying I-3 provisions to the entire building (including, height limitations and smoke control system). This code change would address those situations where you have short-term holding areas located within *other* occupancies such as: courthouses, police stations, security offices (arenas, stadiums, airports, shopping mall, etc.), customs facilities, immigration facilities, and similar types of facilities, where the detainees are there for a limited time, do not inhabit or sleep in the holding cell, and the occupant load and aggregate area is limited.

I-3 is defined, in part, as buildings "that are *inhabited*" which must then be further defined as one of 5 conditions – where each condition refers to *sleeping* areas. Thus, it appears areas where detainees do not sleep and are held for a limited time do not meet the definition of an I-3 occupancy. However, I-3 is the closest occupancy classification (occupants under restraint or security and are generally incapable of self-preservation) and is almost always applied to such short-term holding cell / lockup areas – which creates ambiguities, including Section 408.2 (Other occupancies), and onerous requirements for the rest of the occupancies within the main building.

Section 408.2 has been interpreted and enforced differently by building officials throughout Virginia, and by locating short-term holding areas in its own "special detailed requirements" Section 427 – its potential to be classified as an I-3 occupancy is avoided and consistency should result.

This code change proposal takes some portions of two code change proposals (G33-12 and G37-12) that were "Disapproved" by the General Code Committee at the 2012 ICC Code Development Hearing in Dallas. Some of the reasons for disapproval of G33-12 and/or G37-12 included the following:

1. Confusion with psychiatric, neonatal, and dementia wards.
2. Occupant load of 50 seems too high and inconsistent with other IBC criteria and further coordination with I-3 occupant loads should be made.
3. No limitations on how many lockup facilities could be located within a building (could be used to replace I-3 occupancies).
4. Built-in systems were preferred over contacting the fire department.
5. Concerned with use of terms "trained and practiced."
6. Smoke barriers may make observation difficult.
7. Sprinklers were not required throughout the building, and only within the lockup facility.
8. A time limit needs to be placed upon the use of such facilities.

This code change proposal attempts to address the above reasons/concerns as follows (numbers correspond to above):

1. The new term *short-term holding area* would have its own definition and the requirements would be located under a new section, thus avoiding any potential for confusion with other I-related requirements except those specifically identified.

2. The proposed occupant load of 30 is a compromise between 10 (identified in Tables 1015.1 and 1021.2(2)) which would be too low; and 50 which was deemed by the General Code Committee to be too high.
3. Limitations are established by the following:
  - a. Limited to 10% of the building area per story.
  - b. Detainee occupant loads would be limited to 120 per *building*.
4. Short-term holding areas would still be required to meet *selected* requirements of I-3, including automatic alarm and detection systems, means of egress, glazing, sprinkler system throughout entire building, and locks.
5. The terms "trained and practiced" are not used in this code change proposal.
6. Smoke barriers would not be required since short-term holding areas are not sleeping areas, and the short-term holding areas are not "in" an I-3 occupancy. However, smoke partitions would be required.
7. An NFPA-13 sprinkler system and fire alarm system would be required throughout the building or structure.
8. No detainee shall occupy a short-term holding area "overnight" – thus avoiding the potential for the need to "sleep" within the holding area.

NFPA 5000 recognizes the need for such an approach, and includes provisions for such "lockup" areas.

To avoid potential issues with the Virginia Department of Corrections and their requirement to certify "lockups," the term "lockups" is not used in this code change proposal.

Construction costs should be reduced (no smoke control system, no need for Type I or IIA construction if short-term holding areas are on a 3<sup>rd</sup> floor or higher, and no need to fire-rate the enclosing and supporting construction) - compared to if I-3 requirements were applied to these holding areas and/or the rest of the building in which short-term holding areas are located.

### Submittal Information

Date Submitted: ~~January 9, 2013~~ ~~February 22, 2013~~ March 5, 2013

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

Please submit the proposal to:

DHCD  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: CHRIS SNIDOW Representing: MYSELF

Mailing Address: P.O. BOX 90775, HENRICO, VA. 23273-0775

Email Address: snic@co.henrico.va.us Telephone Number: (804) 501-4363

Proposal Information

Code(s) and Section(s): 705.2 (IBC)

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

705.2 Projections. Except for decks, ~~and~~ open porches, and balconies of buildings in Groups R-3 and R-4, cornices, eave overhangs, // and similar projections extending beyond the exterior wall...

Supporting Statement (including intent, need, and cost impact of the proposal):  
Brings USBC language into compliance with current enforcement policies in Virginia

Submittal Information

Date Submitted: MARCH 1, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: CHRIS SNIDOW

Representing: MYSELF

Mailing Address: P.O. BOX 90776, HENRICO, VA. 23273-0776

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

Telephone Number: (804) 501-4363

Proposal Information

Code(s) and Section(s): 706.5.2 (IBC)

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

706.5.2 HORIZONTAL PROJECTING ELEMENTS. FIRE WALLS SHALL  
EXTEND TO THE OUTER EDGE OF HORIZONTAL PROJECTING ELEMENTS  
SUCH AS // ROOF OVERHANGS, CANOPIES, MARQUEES AND...  
EXCEPTIONS: 4. DECKS, OPEN PORCHES, AND BALCONIES OF BUILDINGS  
IN GROUPS R-3 AND R-4.

Supporting Statement (including intent, need, and cost impact of the proposal):  
BRINGS USBC LANGUAGE INTO COMPLIANCE WITH CURRENT  
ENFORCEMENT POLICIES IN VIRGINIA.

Submittal Information

Date Submitted: MARCH 1, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Andrew Milliken, P.E.

Representing: Stafford County

Mailing Address: P.O. Box 339, Stafford, VA 22555

Email Address: amilliken@staffordcountyva.gov

Telephone Number: 5406588558

Proposal Information

Code(s) and Section(s): VCC and VSFPC 1009.3 Exception 3 and 4; VCC 712.1.3

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

Delete exceptions 3 and 4 from 1009.3 of the VCC and VSFPC and retain the original location and intent of those exceptions with the following addition to VCC Chapter 7:

712.1.3 Escalator or stairway openings.

Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, an escalator opening or stairway that is not a portion of the means of egress shall be protected according to Section 712.1.3.1 or 712.1.3.2.

712.1.3.1 Opening size. Protection by a draft curtain and closely spaced sprinklers in accordance with NFPA 13 shall be permitted where the area of the vertical opening between stores does not exceed twice the horizontal projected area of the escalator or stairway. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.

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

This proposed change would not add or modify anything beyond what already exists in the 2009 VCC and VSFPC. It would simply relocate the exceptions for unenclosed exit access stairways back to Chapter 7 with the appropriate context from their original location in the previous VCC editions [see 2009 VCC 708.2 Exception 2(2.1)].

During the substantial reorganization of shaft and egress requirements from the 2009 IBC to the 2012 IBC, these exceptions which previously applied solely to unenclosed stairways that were not a part of the means of egress, were relocated to a section specifically for egress stairway requirements. The impact of the reorganization from 2009 to 2012 is fundamental and significant as it opens the way for at least one of the critical egress/emergency access stairwells in a multiple story building to hold no fire resistance rating whatsoever. If not corrected, this 2009 to 2012 IBC change will not only reduce the number of protected exits available for building occupants, but will create tremendous new and unjustified difficulty on first responders. First responders depend on and utilize the protection provided by fire resistance rated exit stairways for safe fire department standpipe operations, evacuation, ventilation and access to floors during an emergency within multiple story buildings. In addition, it appears that this fundamental omission was

not clearly identified during the ICC code change process as even the 2012 IBC Significant Code Changes reference book states that “all stairways that are permitted to be open, or are not required stairways for egress purposes, are exit access stairways” (p173). Furthermore, for decades it has been well documented and reflected in the codes that vertical egress is not simply equivalent to horizontal egress (travel distance) and the protection of occupants vertically egressing through multiple floors is critical to their survival during an emergency incident.

The solution proposed here is simply to retain how the current 2009 codes are written on this issue and place these exceptions back to their current location, context and intent. Lastly, as this proposal would be to simply retain the current language in the 2009 VCC, there would be no additional cost impact to this proposed change.

### Submittal Information

Date Submitted: 6/11/13

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Ed Altizer

Representing: State Fire Marshal's Office

Mailing Address: 1005 Technology Park Drive, Glen Allen, VA 23059

Email Address: ed.altizer@vdfp.virginia.gov

Telephone Number: 804-371-0220

Proposal Information

Code(s) and Section(s): USBC 903.2.3

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

**Delete state change made to Section 903.2.3 and revert to IBC model code language:**

- ~~903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:~~
- ~~1. Throughout all Group E fire areas greater than 20,000 square feet (1858 m<sup>2</sup>) in area.~~
  - ~~2. Throughout every portion of educational buildings below the lowest level of exit discharge serving that portion of the building.~~
- ~~**Exception:** An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.~~

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

The 20,000 square foot threshold for requiring sprinkler systems in Group E occupancies has been in place for at least the past 5 code cycles in Virginia. Starting with the '09 edition, the IBC model code has progressed to requiring such systems in buildings of 12,000 square feet or more. Aside from subscribing to the notion that *this is the way we've always done it*, the time has arrived to progress along with the national model code for protecting a occupancy within which is found one of our most vulnerable segments of population, and in the event of fire, to reduce the fiscal impact suffered by a locality for the most costly infrastructure a locality invests in – its schools.

The supporting statement of the model code change, which the ICC code committee and final action hearing accepted "As submitted", stated in part,

*"The continuity of mission is important for educational occupancies. If a community loses a school, that community cannot quickly recover to resume normal school activities. There are several similarities between educational and several other occupancies, therefore sprinkler requirements should also be similar. Reducing the fire area from 20,000 s.f. to 12,000 s.f. will aid in fire fighter rescue, smaller area of damage, and a quicker recovery to school programs if a sprinkler system is not chosen. Although through consistent fire drills, deaths are rare, but the possibility exists for a large loss of life in educational occupancies. A threshold of 20,000 square feet is one of the highest minimum sprinkler thresholds in the code and exists without good reason. Some states have already mandated complete sprinkler protection in educational occupancies.*

*In most cases it is not economically feasible to build a school without sprinkler protection. The cost savings for a community to build a school is introduced when the decision to install sprinklers is done at the early stages of the project where they can take advantage of the sprinkler trade ups for building construction. Another factor to consider is federal, state, and local tax monies available to build and repair schools. A fire sprinkled school will cost less to insure, less to rebuild, less liability to the school system, less injuries, less taxes, and less downtime. According to statistics only 24% of the nation's schools have fire sprinklers. However the average fire loss when sprinklers are present are \$2,800 versus \$12,900 having no sprinklers, resulting in a 78% reduction in damage.*

*Fires during lockdowns, hostage, or terrorist events are now a concern than during the legacy codes where the 20,000 s.f. threshold evolved from. A fire during a lockdown is a lose-lose event for the administrators' and children. (FSBCC informational note: Through the passage of HB2346 in the 2013 General Assembly session, all schools are required to conduct security audits and drill twice a year for a lockdown.) Fire sprinklers can control the fire during the lockdown in lieu of endangering the children exiting during the lockdown or prohibiting egress caused by the fire.*

*Statistics from a four year period of 1999-2002, there were an estimated average of 7,070 structure fires in educational occupancies along with 113 injuries and \$112 million in property damage. K-12 schools make up 5,230 fires, 88 injuries, and \$74 million in fire damage. This is money from the taxes we pay, and these are our children getting burned and injured. Fire sprinklers can reduce the cost while increasing fire protection. Including fire sprinklers during the design process can significantly reduce the construction cost."*

In comparison, using the Virginia Fire Incident Reporting System (VFRIS) for the 5 year period of 2007 to 2011 Virginia suffered a total of 444 fires in educational occupancies along with 14 injuries, one (1) fatality and \$10,483,547 in property damage. (The single fatality fire occurred in 2007 in a Lynchburg day care facility that may have been conducted in a Group R setting.) Although the compared time frames differ, it is readily evident the fire loss in Virginia outpaces the national loss in terms of property loss and fatalities.

On May 30, 2013 the FSBCC expressed support for this proposed changed.

### Submittal Information

Date Submitted: 6/3/13 by GAD for SFMO

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Robby Dawson

Representing: Fire Services Board Code Committee

Mailing Address: 1005 Technology Park Drive, Glen Allen, VA 23059

Email Address: dawsonj@chesterfield.gov

Telephone Number: 804-748-1426

Proposal Information

Code(s) and Section(s): USBC Section 903.2.8

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

**903.2.8 Group R.** An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area, ~~except in the following Group R-2 occupancies when the necessary water pressure or volume, or both, for the system is not available:-~~

**Exceptions:**

- ~~1. Buildings which do not exceed two stories, including basements which are not considered as a story above grade, and with a maximum of 16 dwelling units per fire area. Each dwelling unit shall have at least one door opening to an exterior exit access that leads directly to the exits required to serve that dwelling unit.~~
- ~~2. Buildings where all dwelling units are not more than two stories above the lowest level of exit discharge and not more than one story below the highest level of exit discharge of exits serving the dwelling unit and a two-hour fire barrier is provided between each pair of dwelling units. Each bedroom of a dormitory or boarding house shall be considered a dwelling unit under this exception.~~

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

When the water supply language first made its appearance in the '93 edition of the USBC, the original reasoning behind the exceptions as it relates to a Group R-2 building was based on a supposition there could be a lack of water volume and pressure to support systems thereby preventing the building's construction. Even though technology and installation techniques were adequate at the time, advancements since then have more than rendered the supposition mute.

Basically if a building has enough potable (domestic) water supplies to allow residents to cook, clean and bathe, then by default there's enough water volume and pressure to support NFPA 13-R automatic sprinkler systems. To date there's a lack of documentation, past, present or future, to support the original contention behind the water supply exception. When discussions were taking place during public input that led to the water supply exception, there was only one anecdotal case in which an R-2 was not able to be built because of inadequate water supply. Subsequently, after the adoption of the language, it was found the water supply was inadequate to supply the needed domestic (potable) demand. With that, by default, the water supply to support a 13-R system would also been insufficient.

On the exceptions to providing automatic fire suppression systems within Group R-1 and R-2, beginning with the '03 edition of the IBC model building code, the exceptions based on the number of stories and/or level of exit discharge for disappeared from the model code. These exceptions have continued through the USBC based on nothing much more than an attitude of "we've always done it this way."

Submittal Information

Date Submitted: 6/3/2013

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual     Government Entity     Company

Name: Frank Castelvechi, III PE

Representing: County of Henrico Building Inspections

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 and IFC [F] 908.7 New VCC IBC section 3415.17

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

### **[F] 908.7 Carbon monoxide alarms.**

#### **908.7.1 Use Group I and R**

Group I or R occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the *International Mechanical Code* shall not be considered an attached garage.

**Exception:** *Sleeping units or dwelling units* which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit or dwelling unit* is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The *sleeping unit or dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

#### **907.2 Use Group E**

Classrooms in E occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage or small engine or vehicle shop shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

**Exception:** Classrooms which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The classroom is located more than 100 feet from the fuel burning appliance or attached garage or located more than one story above or below any story which contains a fuel-burning appliance or attached garage or; and
2. The classroom is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance

#### **908.7.3 Carbon monoxide detection systems.**

Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be *listed* as complying with UL 2075.

Add

**Section 3415.17 Carbon Monoxide Detectors.** Classrooms in E occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage or small engine or vehicle shop shall be equipped with single-station carbon monoxide alarms by August 1, 2015 regardless of when constructed. For existing buildings, in classrooms not undergoing renovation, these may be battery or plug in type. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the *International Mechanical Code* shall not be considered an attached garage.

**Exception:** Classrooms which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The classroom is located more than 100 feet from the fuel burning appliance or attached garage or located more than one story above or below any story which contains a fuel-burning appliance or attached garage or; and
2. The classroom is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance

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

This proposal is to meet the concern of the legislature about the potential for carbon monoxide poisoning in public schools and extends this requirement to all E use groups including private schools and daycare centers as the hazard does not know the difference between public and private schools. Often the signs and symptoms of carbon monoxide poisoning are mistake for the onset of influenza.

There are recent out of state news reports of multiple students being poisoned by carbon monoxide from faulty heating systems in both public and private schools.

In January 2013 dozens of Nashville's Drexel Preparatory Academy students and staff were hospitalized with carbon monoxide poisoning.

In December 2012 dozens of student and staff from Finch Elementary school in Atlanta were sent to the hospital with carbon monoxide poisoning.

Both of these incidents faulty heating appliances were to blame and it was initially thought to be influenza .

In that these incidents are more likely in existing building with aging heating systems and the plug in or battery single station detectors are quite inexpensive, starting under \$20 each, it is appropriate to add this as a retrofit provision in the Virginia USBC to protect the children..

This proposal will result in a minimal increase in cost of construction.

### Submittal Information

Date Submitted: 3/1/13

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Placeholder

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

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

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

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

Proposal Information

Code(s) and Section(s): 908.7 CO alarms

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

See attached 2015 IBC for E occupancies for CO alarms.

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

Submittal Information

Date Submitted: 6/25/13

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

Please submit the proposal to:

DHCD DEBAR State Building Codes Office  
600 East Main Street,  
Suite 300  
Richmond, VA 23219

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



Committee: AS

## F182 – 13

908.7 (IBC[F] 908.7) , 908.7.1 (New) [IBC [F] 908.7.1 (New)], 908.7.1.1 (New) [IBC [F] 908.7.1.1 (New)], 908.7.1.2 (New) [IBC [F] 908.7.1.2 (New)]

**Proponent:** Roger Evans, Park City Municipal Corporation, representing the Utah Chapter of ICC (revans@parkcity.org)

Revise as follows:

**908.7 (IBC[F] 908.7) Carbon monoxide alarms detection.** Group I or R and E occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage shall be equipped with single-station carbon monoxide alarms detection. The Group I and R occupancies shall be equipped with single-station carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. Group E occupancies shall be equipped with carbon monoxide detection in accordance with 907.1 and 907.2. An open parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

**Exception:** *Sleeping units or dwelling units* which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit or dwelling unit* is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The *sleeping unit or dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

**908.7.1 (IBC[F] 908.7.1) Group E Occupancy Locations.** Where required by Section 908.7, carbon monoxide detectors in Group E occupancies shall be installed in the locations specified in Sections 908.7.2 through 908.7.2.2.

**908.7.1.1 (IBC[F] 908.7.1.1) Fuel-burning appliances and fuel burning fireplaces.** Carbon monoxide detectors shall be installed on the ceiling of a room containing a fuel-burning appliance or a fuel burning fireplace. The carbon monoxide alarm signal shall be automatically transmitted to a constantly attended on site location.

**908.7.1.2 (IBC[F] 908.7.1.2) Forced air furnaces.** Carbon monoxide detectors shall be installed on the ceiling of a room containing a fuel-burning forced air furnace or in occupied rooms served by a fuel-burning, forced air furnace. The carbon monoxide alarm signal shall be automatically transmitted to a constantly attended on site location.

**908.7.1 (IBC[F] 908.7.1) 908.7.2 (IBC[F] 908.7.2) Carbon monoxide detection systems.** Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

**Reason:** This proposal is intended to protect students and faculty from serious injury or possibly death from unintentional non-fire related carbon monoxide (CO) exposure by mandating the installation of CO detection devices in education occupancies. In the absence of a model code for the installation of CO detection in education occupancies each jurisdiction is developing its own regulations with varying installation requirements. For example, after several CO incidents in Connecticut (Public Act 11-248) and in Maryland (SB 173), the Governors signed bills into law for the installation CO detection in education occupancies and left the location, performance, inspection, testing and maintenance of CO detection and

warning equipment up to the Building Commission or the State Fire Marshal. Section 610 of the 2010 Fire Code New York State (FCNYS) requires CO detection in Group E occupancies. Also a result of the national publicity generated from an incident at an Atlanta school (ABC News) that sent 42 students to hospitals, three states have introduced legislation requiring CO detection in schools.

**Pennsylvania:**

<http://www.legis.state.pa.us/cfdocs/Legis/CSM/showMemoPublic.cfm?chamber=H&SPick=20130&cosponId=9878>

Florida: <http://www.flsenate.gov/Session/Bill/20130116/BillText/Filed/HTML>

Georgia: [HB 23](#)

Attached are fifty three (53) reports of CO incidents in schools from 2005 through 2012. Thirty (30) of these incidents were caused by problems with a permanently installed fuel burning appliance.

This proposal models the location requirements for schools after the current requirements in the 2012 edition of the IFC for detection in hotels, dormitories and apartment buildings as a basis.

The efficacy of voluntary national consensus codes, such as the IFC, ensures a collaborative, balanced and consensus-based process.

**Cost Impact:** Minimal cost as a percentage of the building valuation.

10/2  
WMC

## F182 – 13

908.7 (IBC[F] 908.7) , 908.7.1 (New) [IBC [F] 908.7.1 (New)], 908.7.1.1 (New) [IBC [F] 908.7.1.1 (New)], 908.7.1.2 (New) [IBC [F] 908.7.1.2 (New)]

**Proponent:** Roger Evans, Park City Municipal Corporation, representing the Utah Chapter of ICC (revans@parkcity.org)

Revise as follows:

**908.7 (IBC[F] 908.7) Carbon monoxide alarms detection.** Group I or R and E occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage shall be equipped with single-station carbon monoxide alarms detection. The Group I and R occupancies shall be equipped with single-station carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. Group E occupancies shall be equipped with carbon monoxide detection in accordance with 907.1 and 907.2. An open parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

**Exception:** *Sleeping units or dwelling units* which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit or dwelling unit* is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The *sleeping unit or dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

**908.7.1 (IBC[F] 908.7.1) Group E Occupancy Locations.** Where required by Section 908.7, carbon monoxide detectors in Group E occupancies shall be installed in the locations specified in Sections 908.7.2 through 908.7.2.2.

**908.7.1.1 (IBC[F] 908.7.1.1) Fuel-burning appliances and fuel burning fireplaces.** Carbon monoxide detectors shall be installed on the ceiling of a room containing a fuel-burning appliance or a fuel burning fireplace. The carbon monoxide alarm signal shall be automatically transmitted to a constantly attended on site location.

**908.7.1.2 (IBC[F] 908.7.1.2) Forced air furnaces.** Carbon monoxide detectors shall be installed on the ceiling of a room containing a fuel-burning forced air furnace or in occupied rooms served by a fuel-burning, forced air furnace. The carbon monoxide alarm signal shall be automatically transmitted to a constantly attended on site location.

**908.7.1 (IBC[F] 908.7.1) 908.7.2 (IBC[F] 908.7.2) Carbon monoxide detection systems.** Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

**Reason:** This proposal is intended to protect students and faculty from serious injury or possibly death from unintentional non-fire related carbon monoxide (CO) exposure by mandating the installation of CO detection devices in education occupancies. In the absence of a model code for the installation of CO detection in education occupancies each jurisdiction is developing its own regulations with varying installation requirements. For example, after several CO incidents in Connecticut (Public Act 11-248) and in Maryland (SB 173), the Governors signed bills into law for the installation CO detection in education occupancies and left the location, performance, inspection, testing and maintenance of CO detection and warning equipment up to the Building Commission or the State Fire Marshal. Section 610 of the 2010 Fire Code New York State (FCNYS) requires CO detection in Group E occupancies.

Also a result of the national publicity generated from an incident at an Atlanta school (ABC News) that sent 42 students to hospitals, three states have introduced legislation requiring CO detection in schools.



COMMONWEALTH OF VIRGINIA  
HOUSE OF DELEGATES  
RICHMOND

EILEEN FILLER-CORN  
POST OFFICE BOX 523082  
SPRINGFIELD, VIRGINIA 22152

COMMITTEE ASSIGNMENTS:  
TRANSPORTATION  
MILITIA, POLICE AND PUBLIC SAFETY

FORTY-FIRST DISTRICT

February 14, 2013

Mr. Bill Shelton, Director  
Virginia Department of Housing and Community Development  
600 East Main Street  
Richmond, Virginia 23219

Dear Bill:

It was a pleasure to meet and speak with Emory Rodgers, Deputy Director of DHCD a couple of weeks ago. As you are aware, we discussed my bill, HB 2201. He provided advice on how best to proceed with regard to the regulatory process for the 2012 Uniform Statewide Building Code (USBC), promulgated by the Board of Housing and Community Development. We discussed adopting requirements to have carbon monoxide alarms to be installed in public K-12 schools. I understand the USBC regulatory process is most inclusive and brings together the diverse stakeholders that might be impacted by any new building code requirements, and is the best way to deal with the many technical procedures required to be implemented in an uniform and effective manner.

I am hopeful this can serve as an official request to the Department of Housing and Community Development to consider adopting requirements to have carbon monoxide alarms to be installed in public K-12 schools for new constructions, additions and alterations. I would also like to request the DHCD assist in preparing draft regulatory code changes and keep my office updated on the progress of your efforts. In light of my discussion with Emory and DHCD's efforts to accomplish this through regulation, I will no longer pursue this course of action through the legislative process.

I believe that this is an important issue and addressing the alarming trend of carbon monoxide leaks in schools is an issue worthy of our concern. This past year we witnessed a frightening incident in an Atlanta school, where a carbon monoxide leak forced over 500 people be evaluated and 40 to be hospitalized. There have been many other similar incidents of carbon monoxide leaks in schools, including in Tennessee, California, New Hampshire, and Kansas. At the moment, Connecticut and Maryland are the only two states that require carbon monoxide detectors in schools, although several other states are considering legislation similar to mine.

Thank you, Bill for your consideration of this matter and please do not hesitate to reach out to me for any further clarification or comments.

Sincerely yours,

Eileen Filler-Corn  
Member, House of Delegates

CC: Emory Rodgers, Deputy Director, DHC

2013 SESSION  
13102886D

**HOUSE BILL NO. 2201**  
Offered January 10, 2013

*A BILL to amend and reenact § 22.1-138 of the Code of Virginia, relating to public school buildings; carbon monoxide detectors.*

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Patron-- Filler-Corn  
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Referred to Committee on Education  
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Be it enacted by the General Assembly of Virginia:

1. That § 22.1-138 of the Code of Virginia is amended and reenacted as follows:

§ 22.1-138. Minimum standards for public school buildings.

A. The Board of Education shall prescribe by regulation minimum standards for the erection of or addition to public school buildings governing instructional, operational, health and maintenance facilities where these are not specifically addressed in the Uniform Statewide Building Code.

*B. The regulations established pursuant to subsection A shall include a provision requiring that all new construction of, additions to, and alterations of public school buildings include the installation of at least one carbon monoxide detector.*

C. By July 1, 1994, every school building in operation in the Commonwealth shall be tested for radon pursuant to procedures established by the United States Environmental Protection Agency (EPA) for radon measurements in schools.

School buildings and additions opened for operation after July 1, 1994, shall be tested for radon pursuant to such EPA procedures and regulations prescribed by the Board of Education pursuant to subsection A of this section. Each school shall maintain files of its radon test results and make such files available for review. The division superintendent shall report radon test results to the Department of Health.

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA and Keith P. Nelson, AIA Representing: VSAIA and BETEC, respectively

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **Draft 2012 VCC, Section 1008.1.9.7**

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

**1008.1.9.7 Delayed egress locks.** *Approved, listed,* delayed egress locks shall be permitted to be installed on doors serving any occupancy including Group A-3, airport facilities, ~~except Group A, E and H occupancies~~ in buildings which are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.

**Exception:** Delayed egress locks are not permitted in occupancies of Groups A, other than A-3 airport facilities, E, and H.

[Items 1-6 below remain unchanged]

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.  
**Exception:** Where *approved*, a delay of not more than 30 seconds is permitted
5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 SECONDS.  
**Exception:** Where *approved*, such sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 30 SECONDS.
6. Emergency lighting shall be provided at the door.

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

As currently written, the draft 2012 VCC syntax is confusing and could possibly be interpreted in a manner which is not consistent with the intent (as described in the 2012 IBC Commentary). For example, it appears to allow delayed egress locks in Groups A, E, and H, if you do not have a sprinkler, smoke, or heat detection system. The 2012 IBC syntax is also confusing. It appears the only difference between the IBC and VCC versions is that airport facilities (which are normally considered A-3) are allowed to have delayed egress locks under the VCC. When Virginia tried to exempt airport facilities from the original IBC version (which already had confusing syntax), it expanded upon the questionable syntax.

The proposed code change attempts to clarify the intent.

**Cost Impact:**

No cost impact. Proposed code change is for grammatical purposes only.

**Submittal Information**

Date Submitted: May 17, 2013



Thank you.

Kenney

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**From:** Pruitt, Tim  
**Sent:** Tuesday, May 14, 2013 1:31 PM  
**To:** Payne, Kenney  
**Subject:** RE: Code Question

Kenney:

It's not a matter of misreading, but poor writing this time. The IBC version needs some commas, but cannot reasonably be interpreted backwards. ☺

IBC version with comma added:

**1008.1.9.7 Delayed egress locks.** *Approved, listed,* delayed egress locks shall be permitted to be installed on doors serving any occupancy, except Group A, E and H occupancies, in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

The VUSBC version needs rewrite. English does like to not have no double negatives [an attempt at humor]. A little better maybe:

**1008.1.9.7 Delayed egress locks.** Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy, except Groups A other than A-3 airport facilities, E, and H, in buildings which are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

**Better still?**

**1008.1.9.7 Delayed egress locks.** Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy including Group A-3, airport facilities, except Group A, E and H occupancies in buildings which are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.

**Exception:** Delayed egress locks are not permitted in occupancies of Groups E, H, and A, other than A-3 airport facilities.

1. Items 1-6 unchanged.

Thanks,

Tim

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**From:** Hodge, Vernon (DHCD) [<mailto:Vernon.Hodge@dhcd.virginia.gov>]  
**Sent:** Tuesday, May 14, 2013 12:07 PM  
**To:** Payne, Kenney  
**Cc:** Davis, Cindy (DHCD); Brock, Larry (DHCD)  
**Subject:** RE: Code Question

Kenney, you can misread the IBC language the same way, so that is clearly not how it is supposed to be read. The correct reading is that you can use a delayed egress lock in any sprinklered building in any occupancy other than Group A, E or H and notwithstanding the prohibition in Group A, you can use them in a sprinklered A-3 airport facility building.

Vernon

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**From:** Payne, Kenney [<mailto:kpayne@moseleyarchitects.com>]  
**Sent:** Tuesday, May 14, 2013 10:26 AM  
**To:** Hodge, Vernon (DHCD)  
**Subject:** FW: Code Question

Vernon,

Please note question below. I checked the DRAFT 2012 VCC, and there do not appear to be any revisions planned. Your thoughts?

Thank you.

Kenney

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**From:** Pruitt, Tim  
**Sent:** Tuesday, May 14, 2013 10:12 AM  
**To:** Payne, Kenney  
**Subject:** Code Question

Kenney:

The following section of VUSBC seems confusing:

**1008.1.9.7 Delayed egress locks.** Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy including Group A-3, airport facilities, except Group A, E and H occupancies in buildings which are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

It appears to allow delayed egress in A Use IF you do NOT have a sprinkler system, reversing the IBC.

I believe they intended to add all Group A-3, including airport facilities, to what is allowed by the IBC, but the change appears to revise the sense of the sentence.

Not sure why airport facilities were specifically mentioned.

Any idea of intent? How it is interpreted?

I see these all the time in A-2 restaurants. I wonder how they get past the local officials.

Thanks,

**Tim Pruitt**  
Quality Control Manager

**MOSELEY ARCHITECTS**

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Company

Name: Ed Altizer Representing: State Fire Marshal's Office

Mailing Address: 1005 Technology Park Drive, Glen Allen, VA 23059

Email Address: ed.altizer@vdfp.virginia.gov Telephone Number: 804-371-0220

Proposal Information

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

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

**1008.1.9.8 (IFC [B] 1008.1.9.8) Access-controlled Sensor release of electrically locked egress doors.**

~~Electromagnetically locked~~ The entrance doors located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are permitted ~~to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be~~ where installed and operated in accordance with all of the following criteria:

1. A motion sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to ~~that the lock part of the access control system which locks the doors~~ shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016mm to 1219mm) vertically above the floor and within 5 feet (1524mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—~~independent of the access control system other electronics~~—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. ~~Entrance doors in buildings with an occupancy in Group A, B, E, or M shall not be secured from the egress side during periods that the building is open to the general public.~~ All components of the door locking system shall be listed in accordance with UL 294.

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

This change is a combination of ICC code changes E78-12 and E80-12. E79-12 was withdrawn by the proponent due to the successful action to modify E78. Below are copies of the proposed changes to the IBC, the supporting reasons, and the IBC Egress Committee reason statements.

This change is also supported by the FSBC at its May 30, 2013 meeting.

## E78-12

### 1008.1.9.8 (IFC [B] 1008.1.9.8)

**Proponent:** John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

**Revise as follows:**

**1008.1.9.8 (IFC [B] 1008.1.9.8) Access-controlled Motion sensor release of electromagnetically locked egress doors.** ~~Electromagnetically locked~~ The entrance doors located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are permitted ~~to be equipped with an approved entrance and egress access control system, listed in accordance with UL-294, which shall be where installed and operated in accordance with all of the following criteria:~~

1. A motion sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to ~~that the lock part of the access control system which locks the doors shall automatically unlock the doors.~~
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016mm to 1219mm) vertically above the floor and within 5 feet (1524mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—~~independent of the access control system other electronics—and the doors shall remain unlocked for a minimum of 30 seconds.~~
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. Entrance doors in buildings with an occupancy in Group A, B, E, or M shall ~~not be secured from the~~ always allow immediate free egress side during periods that the building is open to the general public.
7. All components of the door locking system shall be listed in accordance with UL 294.

**Reason:** This code was originally proposed to NFPA, UBC/UFC, and BOCA as an **alternative** way to release electromagnetic locks. It came from Washington, D.C. security contractors in the early 1980s when faced with installing electromagnetic locks on hundreds of all glass doors on defense contractors' facilities. There was no way to install bars with switches and no way to conceal the wiring. The title, Access Controlled Egress Doors, **meant** that access to free egress was controlled. It had nothing to do with the (then) new *electronic access control systems*.

The code addressed fire safety by taking aspects of devices not allowed and making them safer when used together. Buttons, once special knowledge, were given specific placement parameters and requirements to break the power to the lock, directly; the somewhat unreliable motion sensor was backed up by the button; the 30 second re-triggerable and independent timer attached to the button protected against CPU failure and allowed 30 seconds before relocking so the disabled could get through the door; and the connection to the fire system meant that the door would unlock upon alarm. It was an alternate code, designed to be used sparingly and in certain situations.

This code is used heavily in hospitals, but its application is often misunderstood. It is time to clean up this code by eliminating confusing references to *access control systems*, directly or implied. Access has never been an issue for the codes, except in high-rise stair towers.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the

proposed changes. All meeting materials and reports are posted on the AHC website at:  
<http://www.iccsafe.org/cs/AHC/Pages/default.aspx>

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/cc/ctc/index.html>. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

## E79 – 12

### 1008.1.9.8 (IFC [B] 1008.1.9.8)

**Proponent:** John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) ([jwoestman@kellencompany.com](mailto:jwoestman@kellencompany.com))

**Revise as follows:**

**1008.1.9.8 (IFC [B] 1008.1.9.8) Access-controlled Electrically locked egress doors. ~~Electrically locked The entrance doors without a door mounted manual lock release located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are shall be permitted to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be where installed and operated in accordance with all of the following criteria:~~**

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that the ~~lock part of the access control system which locks the doors~~ shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016mm to 1219mm) vertically above the floor and within 5 feet (1524mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock— independent of the access-control ~~locking system electronics~~—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. Entrance doors in buildings with an occupancy in Group A, B, E, or M shall ~~not be secured from the~~ always allow immediate free egress side during periods that the building is open to the general public.
7. The components of the door locking system shall be listed in accordance with UL 294.

**Reason:** Changes above illustrate BHMA's suggested revisions from the 2012 IBC incorporating the ICC AHC MOE work group's proposed revisions, and further BHMA revisions. Revisions are to the main paragraph, Items 1, 3 and 7.

The doors included in this section utilize electrical components in their locking systems to help ensure egress. These systems use a sensor to recognized the presence of a pedestrian, and then unlock the electrical lock (such as an electromagnetic lock) but these electrical locking systems are also required to be unlockable by a manually operated button mounted on the wall on the egress side of the door (Item 3 of the criteria). Regarding the sensors, the sensor technologies used with these doors may not technically be a motion sensor.

Access-controlled egress doors are commonly configured without a door-mounted manual lock release on the egress side such as panic hardware. These doors usually require a magnetic card or similar instrument for authorized entry, and the absence of the door-mounted manual lock release on the egress side prevents a person on the outside from inserting a wire or similar tool between the gaps in the door edges to release the lock.

The other revisions are essentially editorial or help to clarify the intent.

Background: the Builders Hardware Manufacturers Association (BHMA) members have been observing the AHC and CTC meetings and activities with most interest in the potential code proposals that may have implications to the means of egress, and to doors and door hardware requirements.

The BHMA Codes and Government Affairs (CGA) committee met immediately after the Orlando ICC AHC meeting for a final look-see at the proposed language. Many of the BHMA CGA members had reviewed the draft AHC MOE language individually without identifying concern or opportunities for improvement. But when together in Orlando, the BHMA members identified several opportunities for further revision to the AHC proposals.

We've captured our suggestions for additional considerations in this proposal. We're not wanting to circumvent the work of the AHC and CTC; that's why several of us have been attending the AHC and CTC meetings and phone calls. We just did not recognize some of the opportunities while reviewing the language individually, and only when the BHMA CGA committee got together for – what we thought would be – a quick final review, did we realize several concerns and opportunities for revisions

## E80 – 12

### 1008.1.9.8 (IFC [B] 1008.1.9.8)

**Proponent:** Robert Trotter, representing Tennessee Code Development Committee (bobtrotter1023@aol.com)

**Revise as follows:**

**1008.1.9.8 (IFC [B] 1008.1.9.8) Access-controlled egress doors.** The entrance doors in a means of egress in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in Groups A, B, E, M, R-1 and R-2 are permitted to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be installed in accordance with all of the following criteria:

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—~~independent of the access control system electronics~~—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. ~~Entrance doors in buildings with an occupancy in Group A, B, E or M shall not be secured from the egress side during periods that the building is open to the general public.~~

**Reason:** The sixth criterion is redundant and should be removed from the code. The first five requirements satisfactorily meet the needs for access-controlled egress doors. The doors are not secured from the egress side when the first five criteria are met.

## E78-12

**Committee Action:** Approved as Modified

**Modify proposal as follows:**

**1008.1.9.8 (IFC [B] 1008.1.9.8) Motion-Sensor release of electromagnetically ~~electrically~~ locked egress doors.**

~~Electromagnetically-locked~~ The electric locks on sensor released doors located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are permitted where installed and operated in accordance with all of the following criteria:

1. ~~A motion~~ The sensor shall be provided installed on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to the lock or locking system shall automatically unlock the doors.
- 3 through 6 (no change)
7. ~~All components of~~ The door locking system units shall be listed in accordance with UL 294.

**Committee Reason:** The modification coordinates with the terminology used in the referenced standard, UL 294 and recognizes that locks are part of a system. The modification also coordinates with the suggested language clarifications brought up in E79. The revision to the title and the start of the section allows for a variety of types of sensors and electric locks. The updated language will improve consistency between the code and the industry. The reference to UL294 would provide consistency between the different types of access control systems.

**Assembly Action:** None

## E79-12

**Committee Action:** Disapproved

**Committee Reason:** The issues are addressed and coordinated in E78 with the modifications.

**Assembly Action:** None

## E80-12

**Committee Action:** Approved as Submitted

**Committee Reason:** Deletion of Item 6 removes redundant language in this section. The committee agreed

that the doors are effectively open for egress if Items 1 through 5 are met.

**Assembly Action: None**

Submittal Information

Date Submitted: 6/3/13 by GAD for SFMO

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Amy Light Feltner

Representing: VBCOA Region III, Means of Egress Committee

Mailing Address: 107 N Kent Street, Winchester, Virginia 22601

Email Address: alight@co.frederick.va.us

Telephone Number: 540 665-5650

Proposal Information

Code(s) and Section(s): 2012 USBC, Table 1016, Section 1016.2.2 [New] (IFC Table 1016.2 & 1016.2.2[New])

Add new Section 1016.2.2 (IFC [B] 1016.2.2)

Group F-1 and S-1 increase. The maximum exit access travel distance shall be 400 feet (122m) in Group F-1 and S-1 occupancies where all of the following are met:

1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height;
2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm); and
3. The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1

Add an additional line under footnote a

- a. See the following sections for modification to exit access travel distance requirements  
*{new} Section 1016.2.2 for increase distance limitation in Group F-1 & Group S-1*

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

This was presented and approved at the June 8<sup>th</sup> code hearings for the upcoming 2015 ICC IBC/IFC. [E117-12]  
This language which once was in the code language and was removed for the 2009 & 2012 but has been approved to be placed back in the 2015 edition.

Submittal Information

Date Submitted: 2/25/13

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



E117 – 12

Table 1016.2, 1016.2.2(New) [IFC [B] Table 1016.2, 1016.2.2(New)]

June 8  
Submitted

Proponent: Carl F. Baldassarra, P.E., FSFPE, Rolf Jensen and Associates, Inc. representing Rolf Jensen and Associates (cbaldassarra@rjagroup.com); Tonya L. Hoover, California State Fire Marshal representing same

Revise as follows:

**1016.2.2 (IFC [B] 1016.2.2) Group F-1 and S-1 increase.** The maximum exit access travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following are met:

1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height;
2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm); and
3. The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1.

TABLE 1016.2 (IFC [B] TABLE 1016.2)  
EXIT ACCESS TRAVEL DISTANCE<sup>a</sup>

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250 <sup>b</sup>
I-1	Not Permitted	250 <sup>b</sup>
B	200	300 <sup>c</sup>
F-2, S-2, U	300	400 <sup>d</sup>
H-1	Not Permitted	75 <sup>c</sup>
H-2	Not Permitted	100 <sup>c</sup>
H-3	Not Permitted	150 <sup>c</sup>
H-4	Not Permitted	175 <sup>c</sup>
H-5	Not Permitted	200 <sup>c</sup>
I-2, I-3, I-4	150	200 <sup>c</sup>

For SI: 1 foot = 304.8 mm.

- a. See the following sections for modifications to exit access travel distance requirements:
  - Section 402.8: For the distance limitation in *malls*.
  - Section 404.9: For the distance limitation through an *atrium space*.
  - Section 407.4: For the distance limitation in Group I-2.
  - Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
  - Section 411.4: For the distance limitation in special amusement buildings.
  - Section 1014.2.2: For the distance limitation in Group I-2 Hospital Suites.
  - Section 1015.4: For the distance limitation in refrigeration machinery rooms.
  - Section 1015.5: For the distance limitation in refrigerated rooms and spaces.
  - Section 1016.2.2: For increased distance limitation in Group F-1 and Group S-1.
  - Section 1021.2: For buildings with *one exit*.
  - Section 1028.7: For increased limitation in assembly seating.
  - Section 1028.7: For increased limitation for assembly open-air seating.
  - Section 3103.4: For temporary structures.
  - Section 3104.9: For pedestrian walkways.
- b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.
- c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason:

**BALDASSARA:** This proposed change is intended to allow a 400-foot exit access travel distance for F-1 and S-1 buildings meeting certain criteria. The 2009/2012 editions of the International Building Code were revised to eliminate the 400-foot exit travel distance for large Group S-1 warehouse and large Group F-1 factory facilities equipped with smoke and heat vents. This change was made because thermally-activated vents were judged not to warrant such an increase. A companion change to allow such an increase was not approved, yet there remains a need to have extended exit travel distances in such buildings because of the nature of their function. The allowance of an exit travel distance of 400 feet has existed in the IBC and Legacy codes for warehouses and factories

with non-combustible products since the early 1960s without any adverse experience, both in buildings with and without smoke and heat vents.

The California State Fire Marshal's Office (CSFM) has reviewed this subject because of the pressing need to find a solution for large F-1 and S-1 buildings. A study was commissioned and published, "Report to the California State Fire Marshal on Exit Access Travel Distance of 400 Feet by Task Group 400, December 20, 2010," and subsequent "Fire Modeling Analysis Report," revised July 20, 2011, provide the technically-based rationale for increased exit travel distance without any special protection. That is the basis for this change. [NOTE TO ICC STAFF: PROVIDE LINKS TO THE REPORTS FOR INTERESTED PARTIES.] Future work by both the ICC Code Technology Committee and the CSFM in the next year will further improve the protection for such facilities; such provisions will be proposed for the IFC in the Group B Code Change cycle next year.

This proposal amends the above sections and add additional criteria necessary to reinstate a 400 foot travel distances for large warehouse and large factory facilities. An addition to Footnote a in Table 1016.2 is added and makes a reference to a new Section 1016.2.2.

Section 1016.2.2 is added to provide the criteria for an increased exit access travel distance of 400 feet in Group F-1 and S-1 occupancies. The criteria for application of this section, based upon the criteria in the reports, includes:

1. The travel distance increase is only applicable to portions of the building which are one story in height. The allowance for a travel distance of 400 feet in the 2006 IBC is limited to buildings which are one story in height, so this concept is carried forward. This would not preclude a building with a one story storage warehouses or factory area and a two story office or a mezzanine from also utilizing this section. The section is written so that the one story limitation is only applicable to the area where the 400 foot travel distance is utilized.
2. The minimum height from floor, ceiling, or roof deck above, must be 24 feet. The 24 feet of clearance is based on the "Fire Modeling Analysis Report" by Aon Fire Protection Engineering. The 24 feet ceiling height is used to provide a volume for the smoke to accumulate during the fire and provide time for egress, much like the concept used for smoke-protected seating. Control mode sprinklers were utilized in the fire modeling to demonstrate the more conservative approach. Certainly, ESFR or specialty sprinklers would be more effective.

**HOOVER:** The 2009/2012 International Building Code (IBC) and International Fire Code (IFC) revised the allowable exit travel distance for large Group F-1 factory facilities and large Group S-1 warehouses from that of the 2006 IBC and IFC and prior Legacy codes. In the 2009/2012 IBC/IFC, warehouses and factories with non-combustible products are allowed an exit access travel distance of 400 feet; however, when those same buildings contain combustible materials, the maximum exit access travel distance is reduced to 250 feet.

The allowance of an exit travel distance of 400 feet has existed in the IBC/IFC and Legacy codes for warehouses and factories with non-combustible products since the early 1960s. The allowance of an exit travel distance of 400 feet for all warehouses and factories has existed for well over a decade.

The California State Fire Marshal and the Task Group 400 recognized that the item was deleted from the 2009 IBC/IFC, which has been carried forward to the 2012 IBC/IFC. The ultimate goal was to revise the IBC/IFC, however a revision processed through the International Code Council Code change process would not appear in the code until the 2015 edition making adoption not possible until 2015 or later due to the regulatory adoption process. This proposal will re-instate the travel distance allowance of 400 for F-1 and S-1 occupancies, but it is not based on the installation of smoke/heat vents, it is based on fire modeling and egress times.

This proposal amends Table 1016.2 and adds a new section 1016.2.2 that contains additional criteria necessary to reinstate a 400 foot travel distances for large factory facilities and large warehouses. The report, "Report to the California State Fire Marshal on Exit Access Travel Distance of 400 Feet by Task Group 400 December 20, 2010" ("report"), and subsequent "Fire Modeling Analysis Report" (Appendix A to the report) provide the complete rationale. Initially, a simple addition to Footnote a in Table 1016.2 is added to make a reference to a new Section 1016.2.2.

Section 1016.2.2 is added to provide the criteria for an increased exit access travel distance of 400 feet in certain large Group F-1 and S-1 occupancies. The criterion for application of this section includes:

1. The travel distance increase is only applicable to portions of the building which are one story in height. The allowance for a travel distance of 400 feet in the 2006 IBC was also limited to buildings which are one story in height, so this concept is carried forward. This would not preclude a building with a one story storage warehouses or factory area and a two story office or a mezzanine from also utilizing this section. The section is written so that the one story limitation is only applicable to the area where the 400 foot travel distance is utilized. The two story office building would still be limited to 300 feet as indicated in Table 1016.1.

2. The minimum height from floor to ceiling above, or the underside of the roof deck, must be 24 feet. The 24 feet is measured to the bottom of the roof or ceiling above. The height is specified as 'minimum.' It is not intended to be applied to an 'average' height; it is the minimum. It is assumed that beams and purlins will extend down below this height of 24 feet.

The 24 feet of clearance is based on the "Fire Modeling Analysis Report" by Aon Fire Protection Engineering. The 24 feet ceiling height is used to provide a volume for the smoke to accumulate during the fire event and provide time for egress. The report evaluated various size buildings and through fire modeling established safe egress times in those facilities. The report provides the basis and justification to the 400 foot exit access travel distance. Control mode sprinklers were utilized in the fire modeling to demonstrate the more conservative approach. Certainly, ESFR or specialty sprinklers would be more effective.

The complete report can be found on the California State Fire Marshal's website at:

[http://osfm.fire.ca.gov/codedevelopment/pdf/2010interimcodeadoption/Part-9\\_ISOR\\_Attachment\\_A\\_rev20110720comp.pdf](http://osfm.fire.ca.gov/codedevelopment/pdf/2010interimcodeadoption/Part-9_ISOR_Attachment_A_rev20110720comp.pdf)

This code change is the first of two proposals being submitted by the California State Fire Marshal regarding large factory facilities and large warehouses. This code change provides a sound solution to allowing an exit travel distance of 400 feet. The next code change proposal considers the fact that firefighting operations are impacted when larger buildings are constructed where the exit

access travel distance is allowed to be 400 feet. As a result, mitigation to the firefighting impact is to be proposed to the IFC in the 2013 ICC Group B code development schedule.

**Cost Impact:**  
**BALDASSARA:** None.

**HOOVER:** This code change will likely decrease the cost of construction for F-1 and S-1 buildings with a travel distance in excess of 250 feet because strict compliance would require more exits unless a performance-based alternate method of design was approved.

**E117-12**

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

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1016.2.2 (new)-E-Baldassarra-T1016.2-E-HOOVER.doc

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Andrew Milliken, P.E.

Representing: Stafford County

Mailing Address: P.O. Box 339, Stafford, VA 22555

Email Address: amilliken@staffordcountyva.gov

Telephone Number: 5406588558

Proposal Information

Code(s) and Section(s): VCC and VSFPC 1021.1

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

Delete the last two sentences from 1021.1 of the VCC and VSFPC and retain the original intent of that information by adding them as new exceptions 3 and 4 in the manner that they were included in the 2009 editions [2009 VCC and VSFPC 1016.1 Exceptions 3 and 4]:

1021.1 General. Each story and occupied roof shall have the minimum number of exits, or access to exits, as specified in this section. The required number of exits, or exit access stairways or ramps providing access to exits, from any story shall be maintained until arrival at grade or a public way. Exits or access to exits from any story shall be configured in accordance with this section. ~~Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit ramp. At each story above the second story that requires a minimum of three or more exits, or access to exits, a minimum of 50 percent of the required exits shall be interior or exterior exit stairways, or interior or exterior exit ramps.~~

Exceptions:

.....

3) In other than occupancy Groups H and I, a maximum of 50 percent of the exits are permitted to use unenclosed exit access stairways or ramps when connecting a maximum of two stories. The two connected stories shall be provided with at least two means of egress. Such interconnected stories shall not be open to other stories.

4) In other than occupancy Groups H and I, exits are permitted to use unenclosed exit access stairways or ramps in the first and second stories above grade plane in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The first and second stories above grade plane shall be provided with at least two means of egress. Such interconnected stories shall not be open to other stories.

Submittal Information

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

This proposed change would not add or modify anything beyond what already exists in the 2009 VCC and VSFPC. It would simply retain the proper context and limitations provided in previous code editions regarding the ability to have 50 percent of the means of egress using unenclosed exit access stairways.

The last two sentences of section 1021.1 were part of a large and significant reorganization of egress requirements from the 2009 to the 2012 IBC that removed the context and limitations applied by previous code editions to this particular requirement [see 2009 VCC 1016.1 Exception 3 and 4]. These exceptions, which previously applied to travel distance, limited their application to either exits connecting only two stories or two story buildings respectively. The proposed change is simply to revise the new section such that it reflects all of the intent and context from where the information was relocated during the 2009 to 2012 IBC change.

The impact of the reorganization from 2009 to 2012 is fundamental and significant as it opens the way for at least one, or in many cases half, of the critical egress/emergency access stairwells in a multiple story building to hold no fire resistance rating whatsoever. If left as currently written in the 2012 codes, this will not only reduce the number of protected exits available for building occupants, but will create tremendous new and unjustified difficulty on first responders who depend on and utilize the protection provided by fire resistance rated exit stairways for safe fire department standpipe operations, evacuation, ventilation and access to floors during an emergency within a multiple story building. If adopted as currently written in the 2012 codes, first responders can no longer count on more than one protected stairway in a three, four, five or greater story building even if two "exits" are required. Furthermore, for decades it has been well documented and reflected in the codes that vertical egress is not simply equivalent to horizontal egress (travel distance) and the protection of occupants vertically egressing through multiple floors is critical to their survival during an emergency incident. Although it is noted that travel distances would likely limit this code section's application to mid or low-rise buildings, it remains a dramatic and unjustified reduction to the level of safety and protection available to occupants and first responders in buildings of more than two stories in height. Lastly, as this proposal would be to simply retain the language and intent of the current 2009 VCC/VSFPC, there would be no additional cost impact to this proposed change.

Date Submitted: 6/11/2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 1403.2**

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

Add the following subsection to 1403.2 as follows:

**1403.2 Weather protection.** Exterior walls shall provide the building with a weather-resistant *exterior wall envelope*. The *exterior wall envelope* shall include flashing, as described in Section 1405.4. The *exterior wall envelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2, and a means for draining water that enters the assembly to the exterior. Protection against condensation in the *exterior wall* assembly shall be provided in accordance with Section 1405.3.

**Exceptions:** [no changes]

**1403.2.1 Air barriers.** The *exterior wall envelope* shall be designed and constructed in such a manner as to prevent the infiltration and exfiltration of air through the wall assembly by providing air barriers which comply with Section C402.4.1 of the *International Energy Conservation Code*.

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

Although Section [E] 1301.1.1.1 requires buildings to be designed and constructed in accordance with the IECC, something as critical as air barriers should not be left to a reference in Chapter 13 – especially since it is a critical component of the thermal **exterior wall** envelope, thus at least a reference to air barriers should be considered in Chapter 14.

An attempt was made to include **all** of the air barrier language within Chapter 14 of the 2012 IBC; however, it was "Disapproved" by the Fire Safety Code Committee at the 2012 ICC Code Development Hearing in Dallas, because they felt it belonged in the IECC. We concur. However, a reference should be considered.

2012 IBC Chapter 14 includes references to other exterior wall assembly components such as, flashings, water resistive barriers, and vapor retarders. Certainly, an air barrier should warrant at least a nominal mention in IBC Chapter 14. By limiting this code change proposal to just a reference to the IECC requirements within Chapter 14, it still addresses the reason for disapproval by keeping everything in the IECC.

Air barriers have just as much, if not more, to do with moisture and water control, than vapor retarders; therefore, should be included in Chapter 14 along with vapor barriers/retarders.

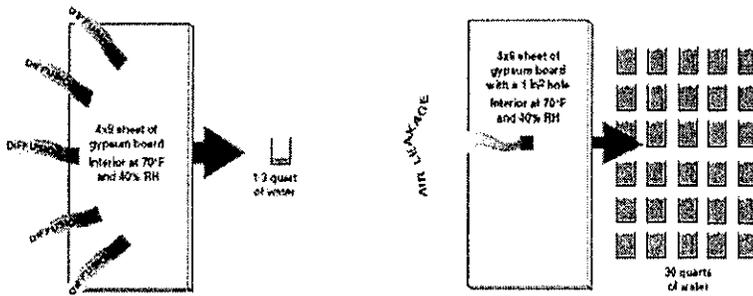
The ranking based on the amount of moisture damage (per NIBS) is as follows – note “air” is ranked 2<sup>nd</sup>, ahead of vapor:

1. Water – direct leaks: Addressed in IBC Chapter 14 via flashing requirements
2. Air – moisture carried via air flow: Addressed in IECC via air barriers (no direct mention in IBC)
3. Vapor – vapor diffusion: Addressed in IBC Chapter 14 via vapor retarder requirements
4. Thermal bridging – condensation: Addressed in IECC via continuous insulation requirements

Air flow into and out of the exterior thermal envelope is not just an “energy” concern, but also can cause concentrated condensation, mold, mildew, corrosion, and premature failure of the building assembly.

Estimates range between 30-200 times more moisture is transported via air flow than vapor diffusion – yet vapor retarders are included in IBC Chapter 14 and air barriers are not?

**Substantially more moisture will enter a building through an air leak than from vapor diffusion through wall components.**



**100 Times more water gets through a 1 square inch hole through Air Transport in a 4x8 sheet of gypsum board than Vapor Diffusion.**

Source: [http://www.buildingscience.com/resources/walls/insulation\\_sheathings.pdf](http://www.buildingscience.com/resources/walls/insulation_sheathings.pdf)

233 Perm-A-View  
3/4/08

CDACE

Exterior: 20°F, 80% RH

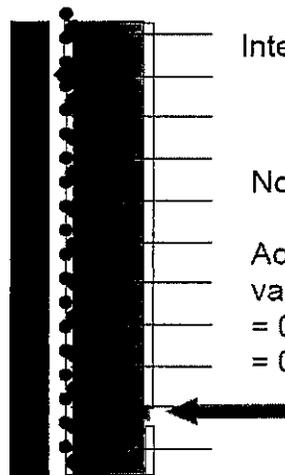
Interior: 70°F, 30% RH

Exfiltration @ 2 cfm  
electrical outlet (1 sq. in.)  
0.2 psf (9 mph wind)

No Vapor Retarder

Accumulation due to  
air flow  
= 0.0364 lb/hr  
= 26.2 lb/month

Accumulation due to  
vapor diffusion  
= 0.0006 lb/hr  
= 0.43 lb/sf/month



Although it may have been more logical to locate this reference elsewhere in Chapter 14 (e.g., Section 1403.3 or Section 1404.3), that would have involved renumbering the entire sections and cross referencing other locations within all of the I-Codes. It was not located within Section 1403.2, because then the exceptions would apply, and it does not appear the exceptions are supposed to apply to air barrier assemblies.

Cost Impact: None, since air barriers are already required per 2012 IECC. This code change just provides a reference to the air barrier requirements in Chapter 14 of the IBC.

Submittal Information

Date Submitted: May 17, 2013



## Rodgers, Emory (DHCD)

---

**From:** Fortner, Richard [Richard.Fortner@norfolk.gov]  
**Sent:** Tuesday, May 28, 2013 11:17 AM  
**To:** 'Clements, Ron'; Davis, Cindy (DHCD)  
**Cc:** Rodgers, Emory (DHCD); Hodge, Vernon (DHCD); Reeves, Jennifer (DHCD)  
**Subject:** RE: Carryover code changes - revised air barriers

Ron,

The air barrier requirement is *mandatory* in the IECC for residential applications. The air barrier is a *mandatory* requirement in the IECC on commercial buildings as well.

I'm not an ASHRAE expert by any means but I do know that it only applies to commercial buildings. I researched ASHRAE with respect to an air barrier and only found that ASHRAE has requirements for *air leakage* but does not specifically say anything one way or another about an air barrier. Air barrier isn't even listed as a definition in ASHRAE like it is in the IECC.

I don't think the code change would be a problem however since it is for the IBC. ASHRAE 90.1 can only be used in it's entirety for commercial building energy efficiency as an alternative design.

*Rick Fortner*

VBCOA, IBC Chair  
VBCOA Region VIII Sec/Treas  
Building Safety  
City of Norfolk  
Mechanical/Plumbing Team Leader  
757 664-6542  
757 664-6897 fax

---

**From:** Clements, Ron [mailto:ClementsRo@chesterfield.gov]  
**Sent:** Tuesday, May 28, 2013 10:17 AM  
**To:** 'Davis, Cindy (DHCD)'; Fortner, Richard  
**Cc:** Rodgers, Emory (DHCD); Hodge, Vernon (DHCD); Reeves, Jennifer (DHCD)  
**Subject:** RE: Carryover code changes - revised air barriers

I am not an energy code expert so I don't know the answer to this question. Is there an allowance in the energy code or ASRAE standard 90 where an air barrier is not required? If so then this change would be in conflict with that. The way I read this the air barrier would be required in all buildings without exception. Is that correct?

Ron

Ron Clements  
Assistant Director  
Building Inspection Department  
Chesterfield County, Virginia  
9800 Government Center Parkway, PO Box 40  
Chesterfield, VA 23832-0040  
Phone: (804) 751-4163  
[Building Inspection Web site link](#)  
[Permit status and inspection results link](#)

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA and Keith P. Nelson, AIA Representing: VSAIA and BETEC, respectively

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 1403.5 – OPTION #1**

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

Delete the section in its entirety without substitution:

~~**1403.5 Vertical and Lateral Flame Propagation.** Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.~~

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

There are materials that are available, tried and tested and have a long-term proven history of performance as weather barriers, **without demonstrated empirical data suggesting these materials are responsible for personal loss of life, injuries, and/or property damage.** Many of these materials that are traditionally used and have proven their value as water-resistive barriers, if installed in most buildings over 40 feet, would now need to meet the NFPA 285 test. However, the 2012 NFPA 285 test does not address how such barriers are to be tested nor does it address them in its performance or acceptance criteria.

The 40-foot requirement will affect all 3-story and taller buildings. So, this added test requirement will affect a large portion of buildings constructed in Virginia each year.

It is our understanding, based on recent ICC testimony, 1403.5 was an over-reaching **reaction to laboratory test results - not actual construction fires and/or documented data.** The addition of this requirement will have unanticipated consequences, including severe cost implications (refer below).

NFPA 285 is an "assembly" test, not a "component" test. Therefore, any assembly design with combustible WRBs would have to comply exactly as the assembly that was tested and passed, with only those manufacturers (proprietary) utilized in the test, thus limiting design and manufacture choices and options – all of which will lead to *decreased* competition (which is contrary to the Virginia Procurement Act) and *increased* costs. A new test would need to be performed every time the WRB material and/or manufacturer changes within an exterior wall assembly, if not previously tested.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

Cost Impact:

The proposed code change could *reduce* the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA and Keith P. Nelson, AIA Representing: VSAIA and BETEC, respectively

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Sections 718.2.6 and 1403.5 – OPTION #2**

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

Revise Section 718.2.6 as follows:

**718.2.6 Exterior wall coverings.** Fireblocking shall be installed within concealed spaces of exterior wall coverings and other exterior architectural elements where permitted to be of combustible construction as specified in Section 1406, Section 1403.5, or where erected with combustible frames. [rest of paragraph and exceptions remain unchanged].

Revise Section 1403.5 as follows:

**1403.5 Vertical and Lateral Flame Propagation.** Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, flashing installed in accordance with Section 1405.4 shall not be considered part of the water-resistive barrier. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

Exceptions:

1. Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Where the combustible water-resistive barrier has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.
3. Where exterior walls are constructed with noncombustible exterior finishes, coverings, or steel with minimum thicknesses in accordance with Table 1405.2. Joints in these materials shall have joint protection conforming with Section 715.
4. Where the combustible water-resistive barrier has a Peak Heat Release Rate of less than 150 kW/m<sup>2</sup>, a Total Heat release of less than 20 MJ/m<sup>2</sup>, and an Effective Heat of Combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m<sup>2</sup>.
5. Where concealed spaces within exterior walls are fireblocked in accordance with Section 718.2.6.

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

Differences between this Option #2 and Option #1:

- Keeps the requirement for the NFPA 285 test.
- Offers exceptions to when the NFPA 285 test would not be required.
- Omitted flashing complying with Section 1405.4.
- Omitted requirement for the NFPA 285 test for multiple assemblies meeting certain criteria

Omitted flashing:

Recognizes that flashing for windows, doors, intersections, penetrations, shelf angles, and terminations are generally limited in area and do not appear to present a significant path for flame propagation. It is our understanding the intent of the new 2012 code change was to address barriers applied over the *opaque* exterior wall assembly, not to capture all of the other "flashing" components within the exterior wall assembly.

Flashings are not included in the NFPA 285 test protocols, nor does the test provide criteria as to how to address or locate such flashings within the assembly for proper testing and measurement.

Regarding multiple assemblies per building:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would need to be performed every time a single component/material changes within an exterior wall assembly (e.g., insulation, WRB, air barrier, structure, sheathing, interior finishes, and/or thicknesses of any material).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials may change or vary within or from an assembly throughout the building appears to run contrary to the purpose and scope of the test.
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test, since that combustible material was already allowed to be in the wall assembly without a test.
- The proposed code change includes text addressing the above. In other words, if a building has two exterior wall assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are considered noncombustible materials), a second NFPA 285 test would not be required since the components that changed were noncombustible components.
- The 2012 Code Commentary says, "***The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.***"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing). Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

Regarding the exceptions:

1. NFPA 285 A1.1.2 states, "NFPA 285 addresses fire exposures from **interior** fires that reach flashover, break exterior windows, and expose the building façade. It is not intended to address fire exposures that originate from the building's exterior." Per the criteria of the test, the exterior burner (representing flashover) is turned on 5 minutes into the test. Therefore, an NFPA 13 sprinkler system should be capable of extinguishing a fire prior to potential flashover which per the performance criteria of NFPA 285 would occur after 5 minutes (the external burner is not turned on until after the internal burner has been on for 5 minutes).
2. This exception is *similar* to that which was approved in Dallas for the 2015 code change cycle. This proposal exempts walls in which the combustible water-resistive barrier has a low flame spread and low mass so that it will have an insignificant or limited contribution to the total fuel load of the wall system.
3. Recognizes that noncombustible coverings offer a level of protection for WRBs that are *within* the exterior wall assembly.
4. Recognizes combustible materials that exhibit limited heat release and/or combustion properties.
5. Recognizes that other parts of the code allow fireblocking when combustible materials are located within concealed spaces (e.g., 2012 IBC Sections 718.5 and 1406.2.3).

Cost Impact:

The proposed code change could reduce the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per affected building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

The below is repeated from the "Supporting Statement" for Option #1:

There are materials that are available, tried and tested and have a long-term proven history of performance as weather barriers, **without demonstrated empirical data suggesting these materials are responsible for personal loss of life, injuries, and/or property damage**. Many of these materials that are traditionally used and have proven their value as water-resistive barriers, if installed in most buildings over 40 feet, would now need to meet the NFPA 285 test. However, the 2012 NFPA 285 test does not address how such barriers are to be tested nor does it address them in its performance or acceptance criteria.

The 40-foot requirement will affect all 3-story and taller buildings. So, this added test requirement will affect a large portion of buildings constructed in Virginia each year.

It is our understanding, based on recent ICC testimony, 1403.5 was an over-reaching **reaction to laboratory test results - not actual construction fires and/or documented data**. The addition of this requirement will have unanticipated consequences, including severe cost implications (refer below).

NFPA 285 is an "assembly" test, not a "component" test. Therefore, any assembly design with combustible WRBs would have to comply exactly as the assembly that was tested and passed, with only those manufacturers (proprietary) utilized in the test, thus limiting design and manufacture choices and options – all of which will lead to *decreased* competition (which is contrary to the Virginia Procurement Act) and *increased* costs. A new test would need to be performed every time the WRB material and/or manufacturer changes within an exterior wall assembly, if not previously tested.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA and Keith P. Nelson, AIA Representing: VSAIA and BETEC, respectively

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Sections 718.2.6 and 1403.5 – OPTION #3**

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

Revise Section 718.2.6 as follows:

**718.2.6 Exterior wall coverings.** Fireblocking shall be installed within concealed spaces of exterior wall coverings and other exterior architectural elements where permitted to be of combustible construction as specified in Section 1406, Section 1403.5, or where erected with combustible frames. [rest of paragraph and exceptions are unchanged].

Revise Section 1403.5 as follows:

**1403.5 Vertical and Lateral Flame Propagation.** Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 55 feet (12 192 16 764 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, flashing installed in accordance with Section 1405.4 shall not be considered part of the water-resistive barrier. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

Exceptions:

1. Where the combustible water-resistive barrier has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.
2. Where exterior walls are constructed with noncombustible exterior finishes, coverings, or steel with minimum thicknesses in accordance with Table 1405.2. Joints in these materials shall have joint protection conforming with Section 715.
3. Where the combustible water-resistive barrier has a Peak Heat Release Rate of less than 150 kW/m<sup>2</sup>, a Total Heat release of less than 20 MJ/m<sup>2</sup>, and an Effective Heat of Combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m<sup>2</sup>.
4. Where concealed spaces within exterior walls are fireblocked in accordance with Section 718.2.6.

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

Difference between this Option #3 and Option #2:

- Increases height of building from 40 feet to 55 feet.

As currently written, 3-story and other "low-rise" buildings would require NFPA 285 testing of their exterior wall assemblies. The IBC basically exempts up to 2-story buildings (up to 40 feet), so this code change would basically remove 3-story buildings (and some 4-story buildings) from the need to conduct NFPA 285 testing on their exterior wall assemblies due to combustible WRBs.

Unless certain exceptions are met (e.g., airport control towers, open parking garages, and group F-2) or the highest occupied story has less than 30 occupants, generally all buildings 55 feet or higher would require an automatic sprinkler system throughout the building. Therefore, this exception from Option #2 was removed.

This code change is similar to other areas within the IBC that recognize "low-rise" buildings can pose reduced risks:

- 2012 IBC 1407.11.2 allow MCM with plastic cores up to 55 feet, and up to 75 feet under certain conditions
- 2012 IBC 1406.2.1.3 allows combustible exterior wall coverings up to 60 feet, under certain conditions

#### Omitted flashing:

Recognizes that flashing for windows, doors, intersections, penetrations, shelf angles, and terminations are generally limited in area and do not appear to present a significant path for flame propagation. It is our understanding the intent of the new 2012 code change was to address barriers applied over the *opaque* exterior wall assembly, not to capture all of the other "flashing" components within the exterior wall assembly.

Flashings are not included in the NFPA 285 test protocols, nor does the test provide criteria as to how to address or locate such flashings within the assembly for proper testing and measurement.

#### Regarding multiple assemblies per building:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would need to be performed every time a single component/material changes within an exterior wall assembly (e.g., insulation, WRB, air barrier, structure, sheathing, interior finishes, and/or thicknesses of any material).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials may change or vary within or from an assembly throughout the building appears to run contrary to the purpose and scope of the test.
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test, since that combustible material was already allowed to be in the wall assembly without a test.
- The proposed code change includes text addressing the above. In other words, if a building has two exterior wall assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are considered noncombustible materials), a second NFPA 285 test would not be required since the components that changed were noncombustible components.

- The 2012 Code Commentary says, "**The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.**"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing). Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test

Regarding the exceptions:

1. This exception is *similar* to that which was approved in Dallas for the 2015 code change cycle. This proposal exempts walls in which the combustible water-resistive barrier has a low flame spread and low mass so that it will have an insignificant or limited contribution to the total fuel load of the wall system.
2. Recognizes that noncombustible coverings offer a level of protection for WRBs that are *within* the exterior wall assembly.
3. Recognizes combustible materials that exhibit limited heat release and/or combustion properties.
4. Recognizes that other parts of the code allow fireblocking when combustible materials are located within concealed spaces (e.g., 2012 IBC Sections 718.5 and 1406.2.3).

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

Cost Impact:

The proposed code change could *reduce* the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per affected building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA and Keith P. Nelson, AIA Representing: VSAIA and BETEC, respectively

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 1403.5 – OPTION #4**

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

**1403.5 Vertical and Lateral Flame Propagation.** Exterior walls on high-rise buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, flashing installed in accordance with Section 1405.4 shall not be considered part of the water-resistive barrier. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

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

Differences between this Option #4 and Options #2 and #3:

- Applicable to high-rise buildings only
- Deletes all exceptions

As currently written, 3-story or higher buildings with combustible WRBs would require NFPA 285 testing of their assemblies. High-rise buildings (75 feet) generally capture five (5) stories or higher. The IBC currently exempts up to 40 feet, so this code change would basically remove 3-4 story buildings that contain combustible WRBs from the need to conduct NFPA 285 testing on their exterior wall assemblies.

This code change is similar to other areas within the IBC that recognize "low-rise" buildings can pose reduced risks:

- 2012 IBC 1407.11.2 allow MCM with plastic cores up to 75 feet under certain conditions
- 2012 IBC 1406.2.1.3 allows combustible exterior wall coverings up to 60 feet, under certain conditions

This proposed code change still retains the requirement to test per NFPA 285 on those exterior wall assemblies with combustible WRBs (except for flashings) of a high-rise building.

### Omitted flashing:

Recognizes that flashing for windows, doors, intersections, penetrations, shelf angles, and terminations are generally limited in area and do not appear to present a significant path for flame propagation. It is our understanding the intent of the new 2012 code change was to address barriers applied over the *opaque* exterior wall assembly, not to capture all of the other "flashing" components within the exterior wall assembly.

Flashings are not included in the NFPA 285 test protocols, nor does the test provide criteria as to how to address or locate such flashings within the assembly for proper testing and measurement.

### Regarding multiple assemblies per building:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would need to be performed every time a single component/material changes within an exterior wall assembly (e.g., insulation, WRB, air barrier, structure, sheathing, interior finishes, and/or thicknesses of any material).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials may change or vary within or from an assembly throughout the building appears to run contrary to the purpose and scope of the test.
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test, since that combustible material was already allowed to be in the wall assembly without a test.
- The proposed code change includes text addressing the above. In other words, if a building has two exterior wall assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are considered noncombustible materials), a second NFPA 285 test would not be required since the components that changed were noncombustible components.
- The 2012 Code Commentary says, "***The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.***"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing). Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

### Cost Impact:

The proposed code change could reduce the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per affected building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 1407.10.4 – OPTION #1**

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

**1407.10.4 Full-scale tests.** The MCM system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

**Exception:** Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

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

**All other applicable requirements of Section 1407.10 for MCM systems would still be in effect, including surface-burning characteristics and thermal barriers.**

Regarding the exception:

NFPA 285 A1.1.2 states, "NFPA 285 addresses fire exposures from *interior* fires that reach flashover, break exterior windows, and expose the building façade. It is *not* intended to address fire exposures that originate from the building's exterior." Per the criteria of the test, the exterior burner (representing flashover) is turned on 5 minutes into the test.

- Therefore, an NFPA 13 sprinkler system should be capable of extinguishing a fire prior to potential flashover which per the performance criteria of NFPA 285 would occur *after* 5 minutes (the external burner is not turned on until after the internal burner has been on for 5 minutes).
- Section 1407.11.1 already allows MCM systems to be installed on buildings up to 40 feet in height, provided it complies with the other referenced sections. The proposed exception would address those buildings *over* 40 feet in height.

#### Regarding 1407.10.4:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would technically need to be performed every time a single component/material changes within an exterior wall assembly (e.g., insulation, WRB, air barriers, structure, sheathing, interior finishes, and/or thicknesses of all those materials listed).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials are changed or varied within an assembly appears to run contrary to the purpose and scope of the test.
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test, since that combustible material was already allowed to be in the wall assembly without a test.
- The 2012 Code Commentary says, "***The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.***"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing). Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.
- The proposed code change includes text addressing the above. In other words, if a building has two exterior wall assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are considered noncombustible materials), a second NFPA 285 test would not be required since the components that changed were noncombustible components.

To the best of our knowledge and belief, there is no empirical data proving loss of life and/or property was the result of MCM systems on exterior walls in a fully sprinklered building (when operational) where the fire originated on the interior of the building.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

#### Cost Impact:

The proposed code change could reduce the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 1407.10.4 – OPTION #2**

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

**1407.10.4 Full-scale tests.** The MCM system installed on high-rise buildings shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

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

Difference between this Option #2 and Option #1:

- The NFPA 285 test would be required for MCM systems for high rise buildings only

As currently written, 3-story and other "low-rise" buildings would require NFPA 285 testing of their MCM systems. The IBC basically exempts up to 2-story buildings (up to 40 feet) if it complies with Section 1407.11.1, so this code change would basically remove 3- and 4--story buildings (from the need to conduct NFPA 285 testing on their MCM systems (high rise buildings typically are 5-stories or higher). Unless certain exceptions are met (airport control towers, open parking garages, and group F-2) or the highest occupied story has less than 30 occupants, generally all buildings 55 feet or higher would require an automatic sprinkler system throughout the building.

This code change is similar to other areas within the IBC that recognize "low-rise" buildings can pose reduced risks:

- 2012 IBC 1407.11.2 allow MCM up to 55 feet, and up to 75 feet under certain conditions
- 2012 IBC 1406.2.1.3 allows combustible exterior wall coverings up to 60 feet, under certain conditions

This proposed code change still retains the requirement to test per NFPA 285 on those MCM systems on a high-rise building. **All other applicable requirements of Section 1407.10 for MCM systems would still be in effect, including surface-burning characteristics and thermal barriers.**

#### Regarding 1407.10.4:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would technically need to be performed every time a single component/material changes within an exterior wall assembly (e.g., insulation, WRB, air barriers, structure, sheathing, interior finishes, and/or thicknesses of all those materials listed).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials are changed or varied within an assembly appears to run contrary to the purpose and scope of the test.
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test, since that combustible material was already allowed to be in the wall assembly without a test.
- The 2012 Code Commentary says, "***The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.***"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing). Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.
- The proposed code change includes text addressing the above. In other words, if a building has two exterior wall assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are considered noncombustible materials), a second NFPA 285 test would not be required since the components that changed were noncombustible components.

To the best of our knowledge and belief, there is no empirical data proving loss of life and/or property was the result of MCM systems on exterior walls in a fully sprinklered building (when operational) where the fire originated on the interior of the building.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

#### Cost Impact:

The proposed code change could reduce the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

#### Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 2603.5.5 – OPTION #1**

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

**2603.5.5 Vertical and lateral fire propagation.** The exterior wall assembly shall be tested in accordance with and comply with acceptance criteria of NFPA 285. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

**Exceptions:** ~~One-story buildings complying with Section 2603.4.1.4.~~

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
  - a. there is no air space between the insulation and the concrete or masonry; or
  - b. the insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum air space between the insulation and the concrete or masonry is not more than 1 inch (25 mm).
3. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

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

**All other applicable requirements of Section 2603.5 for foam plastic insulation would still be in effect, including thermal barriers, heat limitations, flame spread and smoke-developed indexes, labels, and/or ignition criteria.**

Regarding Exception #3:

NFPA 285 A1.1.2 states, "NFPA 285 addresses fire exposures from **interior** fires that reach flashover, break exterior windows, and expose the building façade. It is not intended to address fire exposures that originate from the building's exterior." Per the criteria of the test, the exterior burner (representing flashover) is turned on 5 minutes into the test.

- Therefore, an NFPA 13 sprinkler system should be capable of extinguishing a fire prior to potential flashover which per the performance criteria of NFPA 285 would occur *after* 5 minutes (the external burner is not turned on until after the internal burner has been on for 5 minutes).

Regarding Exception #2:

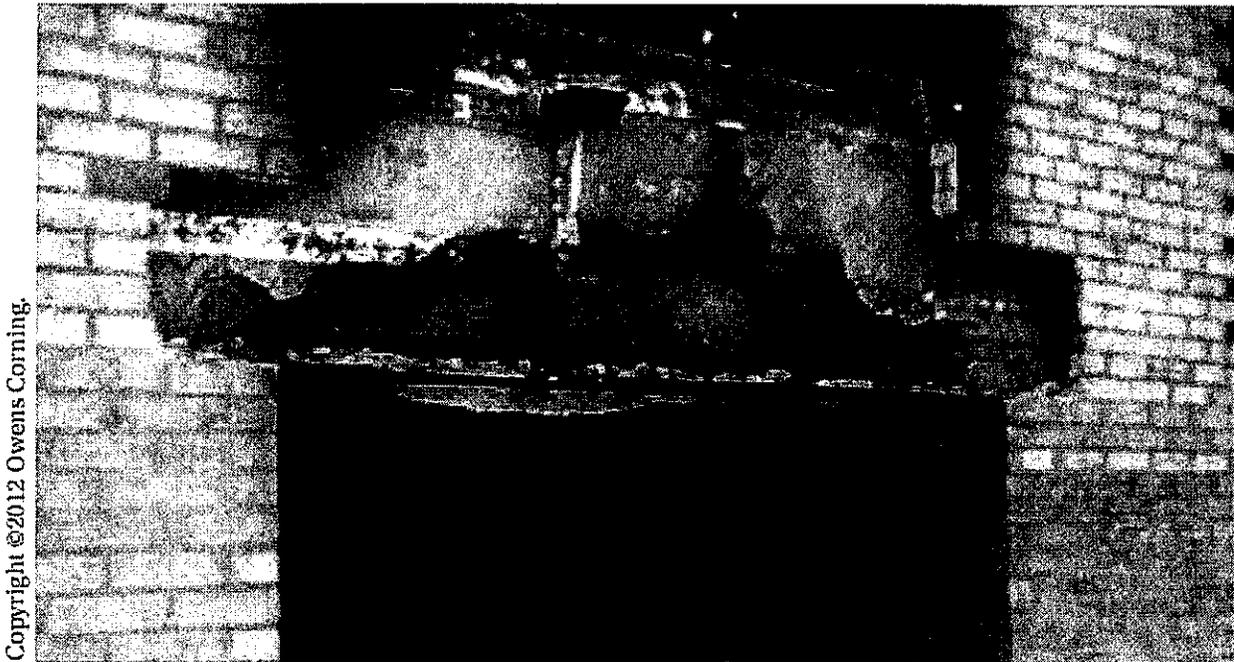
It is our understanding that Exception #2 is the same language that was approved during the ICC final action hearings for the 2015 IBC.

Regarding 2603.5.5:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would technically need to be performed every time a single component/material changes within an exterior wall assembly (e.g., veneers, insulation, WRB, air barriers, structure, sheathing, interior finishes, and/or thicknesses of all those materials listed).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

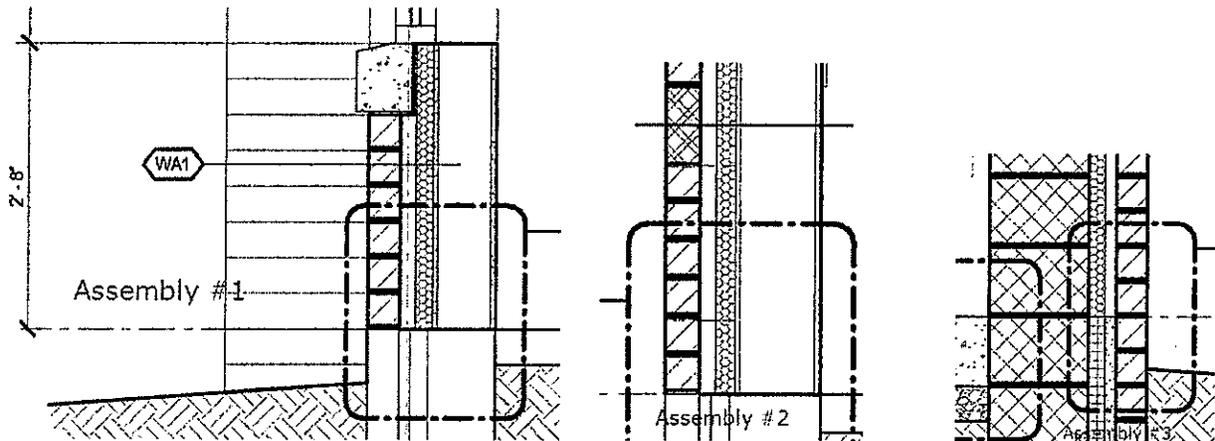
- Therefore, requiring multiple tests because noncombustible materials are changed or varied within an assembly appears to run contrary to the purpose and scope of the test. In photos of tests with noncombustible materials, they remove the noncombustible materials so they can determine the scope of propagation of the *combustible* component(s).



*Figure 2. Post-test condition of an exterior wall assembly.*

- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.
- The 2012 Code Commentary says, "***The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.***"
  - It would appear the emphasis is not on the "structural" component of the exterior wall (e.g., CMU or steel stud framing) or an exterior finish (e.g., facebrick or, precast), especially if those materials were noncombustible. Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

- The proposed code change includes text addressing the above. In other words, if a building has two assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are noncombustible materials), a second NFPA 285 test would not be required. Or, if the only difference was one assembly had facebrick and the other had split-face CMU as the covering/veneer, a second NFPA 285 test would not be required.
  - Refer to the examples below: The accent band of split-face CMU in Assembly #2 would require a second NFPA 285 test, and the change from steel studs/gypsum to CMU in Assembly #3 would require a third NFPA 285 test.



An apparent disconnect appears to exist where the IBC requires **all** exterior walls of any height (except Type V construction) to be tested in accordance with NFPA 28; however, the scope and purpose of NFPA 285 is for "exterior **non-load-bearing** wall assemblies and **panels used as components of curtain wall assemblies.**" Therefore, it appears NFPA 285 was not intended to test **all** walls – only non-load-bearing walls and panels used as components of curtain wall assemblies.

To the best of our knowledge and belief, there is no empirical data proving loss of life and/or property was the result of foam plastic insulation *in or on* exterior walls in a fully sprinklered building (when operational), or a building whose exterior covering was noncombustible - where the fire originated on the interior of the building.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

#### Cost Impact:

The proposed code change could *reduce* the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

#### Submittal Information

Date Submitted: May 17, 2013

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): 2012 IBC, Section 2603.5.5 – OPTION #2

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

**2603.5.5 Vertical and lateral fire propagation.** The exterior wall assembly shall be tested in accordance with and comply with acceptance criteria of NFPA 285. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

**Exceptions:** ~~One-story buildings complying with Section 2603.4.1.4.~~

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
  - a. there is no air space between the insulation and the concrete or masonry; or
  - b. the insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum air space between the insulation and the concrete or masonry is not more than 1 inch (25 mm).
3. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the foam plastic insulation is located within the airspace or cavity between the exterior wall covering and exterior wall envelope.

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

Difference between this Option #2 and Option #1:

- Added where foam insulation must be located within the exterior wall cavity before utilizing the sprinkler exception

**All other applicable requirements of Section 2603.5 for foam plastic insulation would still be in effect, including thermal barriers, heat limitations, flame spread and smoke-developed indexes, labels, and/or ignition criteria.**

Regarding Exception #3:

As an added measure of protection, Exception #3 would apply when the foam plastic insulation is within the exterior cavity of the exterior wall (i.e., air space), and thus, the exception would not apply when the exterior wall covering or interior wall cavity (i.e., inside studs) consists of foam plastic insulation.

NFPA 285 A1.1.2 states, "NFPA 285 addresses fire exposures from **interior** fires that reach flashover, break exterior windows, and expose the building façade. It is not intended to address fire exposures that originate from the building's exterior." Per the criteria of the test, the exterior burner (representing flashover) is turned on 5 minutes into the test.

- Therefore, an NFPA 13 sprinkler system should be capable of extinguishing a fire prior to potential flashover which per the performance criteria of NFPA 285 would occur *after* 5 minutes (the external burner is not turned on until after the internal burner has been on for 5 minutes).

Regarding Exception #2:

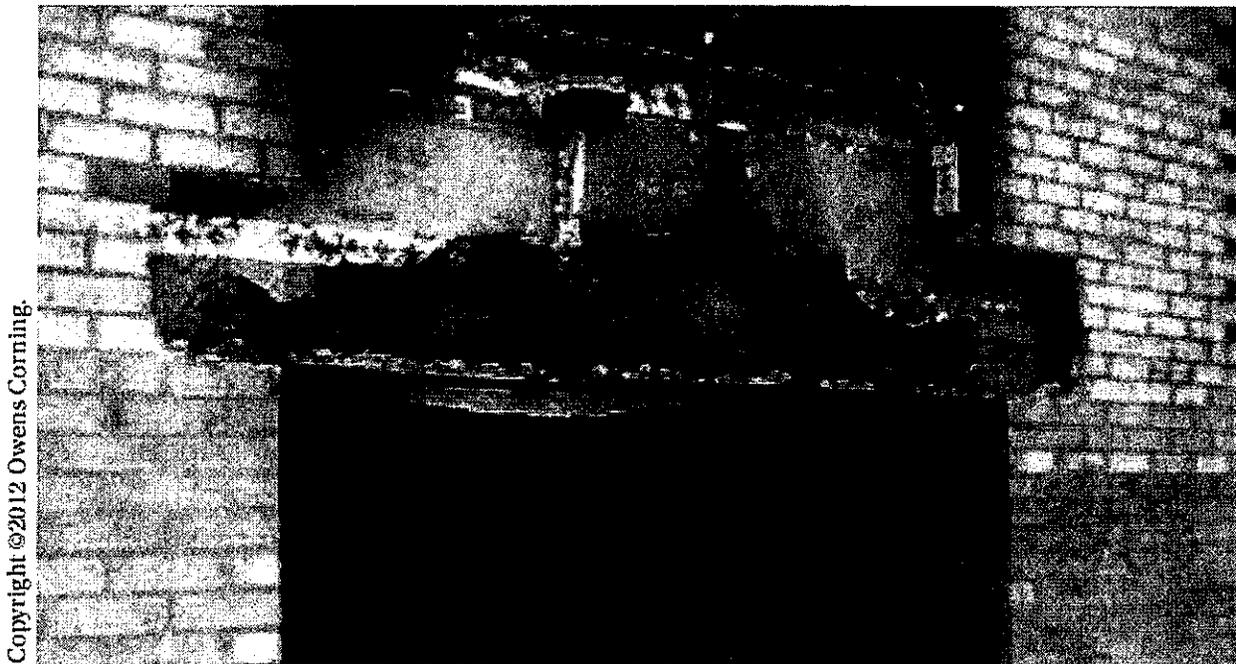
It is our understanding that Exception #2 is the same language that was approved during the ICC final action hearings for the 2015 IBC.

Regarding 2603.5.5:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would technically need to be performed every time a single component/material changes within an exterior wall assembly (e.g., veneers, insulation, WRB, air barriers, structure, sheathing, interior finishes, and/or thicknesses of all those materials listed).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials are changed or varied within an assembly appears to run contrary to the purpose and scope of the test. In photos of tests with noncombustible materials, they remove the noncombustible materials so they can determine the scope of propagation of the *combustible* component(s).

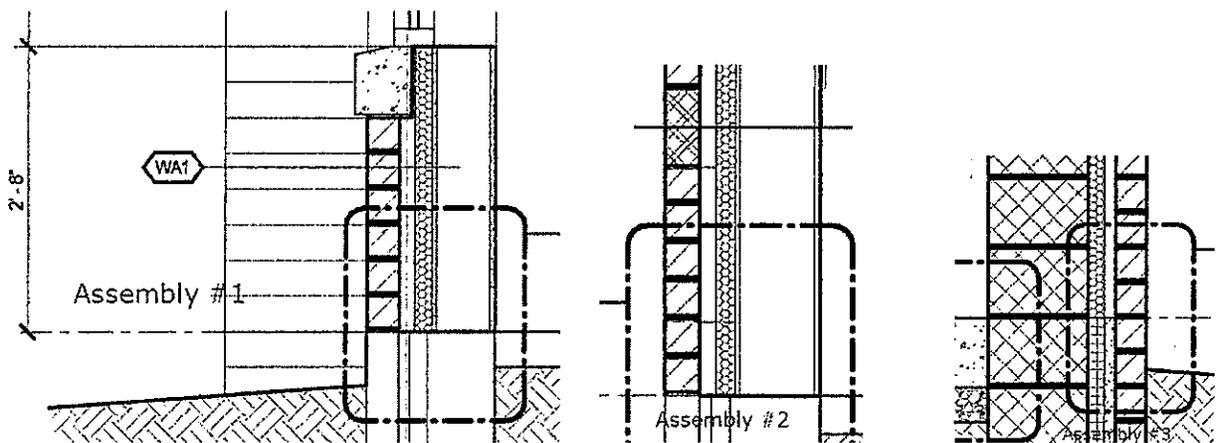


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*Figure 2. Post-test condition of an exterior wall assembly.*

- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

- The 2012 Code Commentary says, ***“The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.”***
  - It would appear the emphasis is not on the “structural” component of the exterior wall (e.g., CMU or steel stud framing) or an exterior finish (e.g., facebrick or, precast), especially if those materials were noncombustible. Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.
- The proposed code change includes text addressing the above. In other words, if a building has two assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are noncombustible materials), a second NFPA 285 test would not be required. Or, if the only difference was one assembly had facebrick and the other had split-face CMU as the covering/veneer, a second NFPA 285 test would not be required.
  - Refer to the examples below: The accent band of split-face CMU in Assembly #2 would require a second NFPA 285 test, and the change from steel studs/gypsum to CMU in Assembly #3 would require a third NFPA 285 test.



An apparent disconnect appears to exist where the IBC requires **all** exterior walls of any height (except Type V construction) to be tested in accordance with NFPA 28; however, the scope and purpose of NFPA 285 is for “exterior **non-load-bearing** wall assemblies and **panels used as components of curtain wall assemblies.**” Therefore, it appears NFPA 285 was not intended to test all walls – only non-load-bearing walls and panels used as components of curtain wall assemblies.

To the best of our knowledge and belief, there is no empirical data proving loss of life and/or property was the result of foam plastic insulation *in or on* exterior walls in a fully sprinklered building (when operational), or a building whose exterior covering was noncombustible - where the fire originated on the interior of the building.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

Cost Impact:

The proposed code change could *reduce* the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 2603.5.5 – OPTION #3**

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

**2603.5.5 Vertical and lateral fire propagation.** The exterior wall assembly of high-rise buildings shall be tested in accordance with and comply with acceptance criteria of NFPA 285. Where there are multiple exterior wall assemblies per building or structure, and where noncombustible materials, or combustible materials allowed per Sections 603, 803, 806, or 1406, vary from or within one exterior wall assembly to another assembly, additional NFPA 285 tests are not required.

~~Exception: One-story buildings complying with Section 2603.4.1.4.~~

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

Difference between this Option #3 and Options #1 and #2:

- The NFPA 285 test would be required for exterior wall assemblies for high rise buildings only (making the one story exception unnecessary).

**All other applicable requirements of Section 2603.5 for foam plastic insulation would still be in effect, including thermal barriers, heat limitations, flame spread and smoke-developed indexes, labels, and/or ignition criteria.**

As currently written, 2-story and other "low-rise" buildings would require NFPA 285 testing of their assemblies. High-rise buildings (75 feet) generally capture five (5) stories or higher. The IBC currently exempts 1-story buildings, so this code change would basically remove 2-4 story buildings from the need to conduct NFPA 285 testing on their exterior wall assemblies. This code change is similar to other areas within the IBC that recognize "low-rise" buildings can pose reduced risks:

- 2012 IBC 1403.5 allows combustible WRBs up to 40 feet
- 2012 IBC 1407.11.1 and 1407.11.2 allow MCM up to 40 feet or 55 feet, and up to 75 feet under certain conditions
- 2012 IBC 1406.2.1.2 allows combustible exterior wall coverings up to 40 feet
- 2012 IBC 1406.2.1.3 allows combustible exterior wall coverings up to 60 feet, under certain conditions

This proposed code change still retains the requirement to test per NFPA 285 on those exterior wall assemblies of a high-rise building, without any exceptions.

NFPA 285 A1.1.2 states, "NFPA 285 addresses fire exposures from **interior** fires that reach flashover, break exterior windows, and expose the building façade. It is not intended to address fire exposures that originate from the building's exterior." Per the criteria of the test, the exterior burner (representing flashover) is turned on 5 minutes into the test.

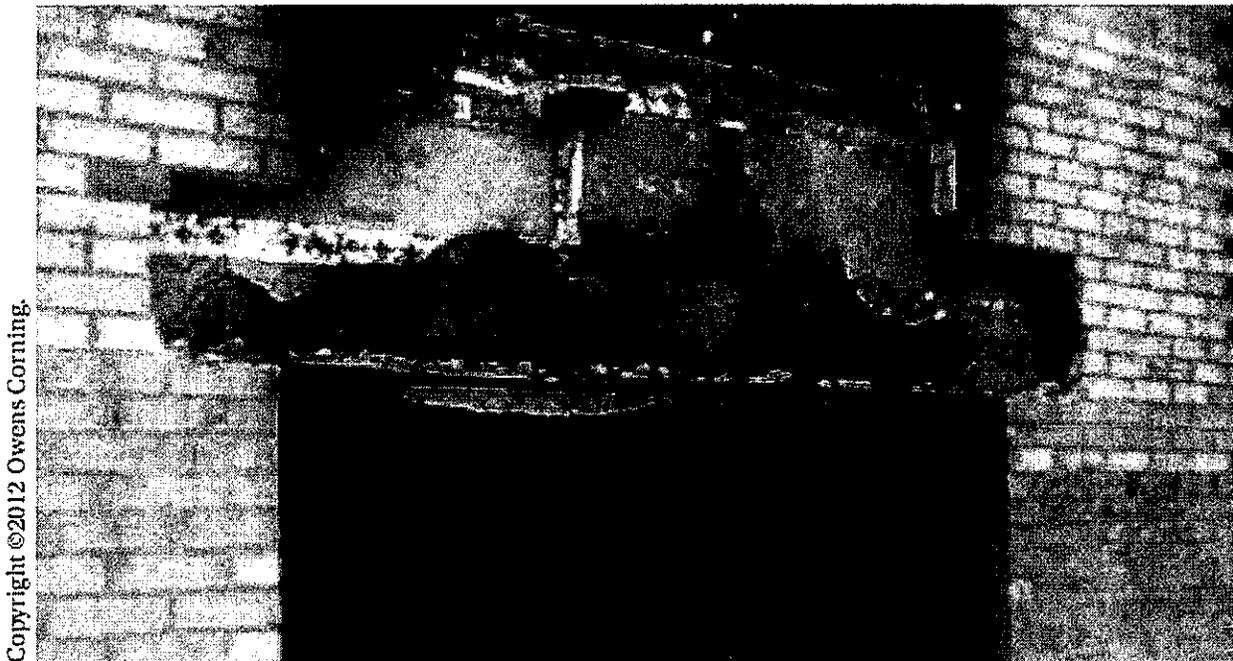
- Since all high rise buildings must be sprinkled, an NFPA 13 sprinkler system should be capable of extinguishing a fire prior to potential flashover which per the performance criteria of NFPA 285 would occur *after* 5 minutes (the external burner is not turned on until after the internal burner has been on for 5 minutes).

Regarding 2603.5.5:

Because the NFPA 285 test is for an "assembly" and not just components or materials, a test would technically need to be performed every time a single component/material changes within an exterior wall assembly (e.g., veneers, insulation, WRB, air barriers, structure, sheathing, interior finishes, and/or thicknesses of all those materials listed).

However, NFPA 285 1.1.1 - Scope states, "This standard provides a test method for determining the fire propagation characteristics of exterior non-load-bearing wall assemblies and panels used as components of curtain wall assemblies, **constructed using combustible materials or that incorporate combustible components**, that are intended to be installed on buildings required to have exterior walls of noncombustible construction."

- Therefore, requiring multiple tests because noncombustible materials are changed or varied within an assembly appears to run contrary to the purpose and scope of the test. In photos of tests with noncombustible materials, they remove the noncombustible materials so they can determine the scope of propagation of the *combustible* component(s).

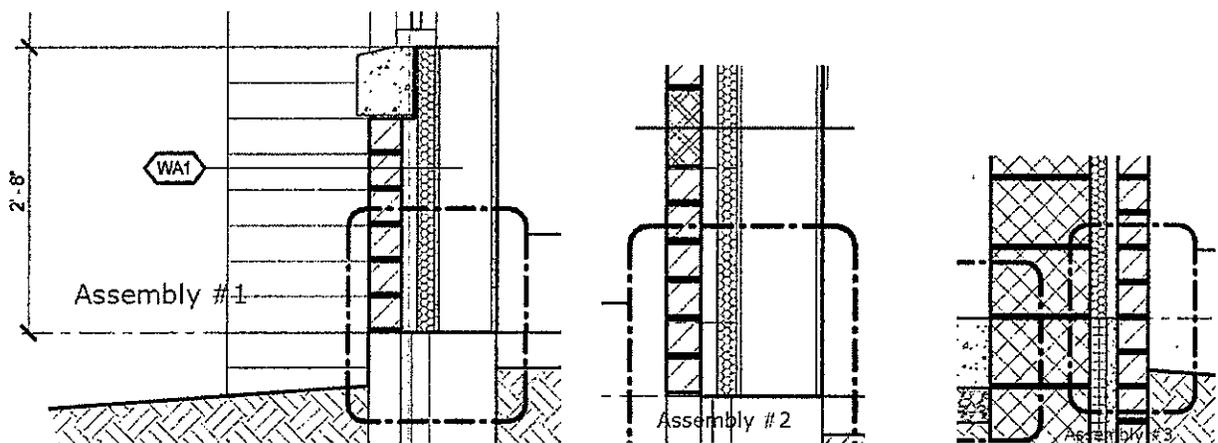


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*Figure 2. Post-test condition of an exterior wall assembly.*

- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

- The 2012 Code Commentary says, ***“The intent is to regulate the use of an insulating envelope over the exterior of a structure when the envelope provides no structural support other than the transfer of wind loads. It is recognized that some envelopes will be constructed in place by installing a rigid foam plastic and covering it with an exterior finish while others will be installed as prefabricated panels complete with exterior finish.”***
  - It would appear the emphasis is not on the “structural” component of the exterior wall (e.g., CMU or steel stud framing) or an exterior finish (e.g., facebrick or, precast), especially if those materials were noncombustible. Therefore, if one of those materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.
- The proposed code change includes text addressing the above. In other words, if a building has two assemblies, and the only difference is that one has CMU backup wythe and the other has gypsum sheathing + steel studs + gypsum drywall backup wythe (all are noncombustible materials), a second NFPA 285 test would not be required. Or, if the only difference was one assembly had facebrick and the other had split-face CMU as the covering/veneer, a second NFPA 285 test would not be required.
  - Refer to the examples below: The accent band of split-face CMU in Assembly #2 would require a second NFPA 285 test, and the change from steel studs/gypsum to CMU in Assembly #3 would require a third NFPA 285 test.



An apparent disconnect appears to exist where the IBC requires all exterior walls of any height (except Type V construction) to be tested in accordance with NFPA 28; however, the scope and purpose of NFPA 285 is for “exterior **non-load-bearing** wall assemblies and **panels used as components of curtain wall assemblies.**” Therefore, it appears NFPA 285 was not intended to test all walls – only non-load-bearing walls and panels used as components of curtain wall assemblies.

To the best of our knowledge and belief, there is no empirical data proving loss of life and/or property was the result of foam plastic insulation *in or on* exterior walls in a fully sprinklered building (when operational), or a building whose exterior covering was noncombustible - where the fire originated on the interior of the building.

Refer to the attached document for information on the 2006 and 2012 NFPA 285 test criteria.

Cost Impact:

The proposed code change could *reduce* the cost of construction approximately \$25,000 - \$35,000 per exterior wall assembly when compared to the current 2012 code requirements. On average, there are at least two or more different exterior wall assemblies per building; thus, equaling a minimum of approximately \$50-70,000 or more of potential cost savings per building. Increased savings would be realized the more assemblies there are per building.

Some have suggested Engineering Judgments (which still costs approximately \$3,500 - \$5,000 per exterior wall assembly, per judgment) and/or ICC Evaluation Reports could be submitted in lieu of the NFPA 285 assembly tests. However, the IBC makes no mention of these as an alternative approach, and would be subject to the discretion of each LAHJ (we assume as a code modification request). This could result in inconsistent enforcement.

Submittal Information

Date Submitted: May 17, 2013



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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information (Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC [P] Table 2902.1 and equivalent Table in the 2012 IPC**

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

Add Footnote 'h' to Table 2902.1 as follows:

A-5 <sup>h</sup>	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	-	1 per 1,000	1 service sink
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h. See Section 2902.1.1 for allowable reduction in minimum number of required water closets and lavatories for Group E buildings and structures.

Revise 2902.1.1 and add subsection 2902.1.1 as follows:

**[P] 2902.1.1 Fixture calculations.** To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

**Exceptions:**

1. The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.
2. For outdoor sporting events and activities at Group E buildings or structures, the minimum number of required water closets and lavatories may be reduced by no more than 50% provided all of the following are met:
  - a. Approval is granted by the building official.
  - b. Approved statistical data indicating an occupant load less than the occupant load determined by this code.
  - c. The remaining minimum number of required water closets, based on the anticipated actual occupant load in attendance at the time of the event or activity, shall be provided by portable toilets equipped with hand sanitizers or hand-washing capabilities.

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

This code change proposal addresses those situations where a high, middle, or elementary school has provided spectator seating (e.g., bleachers), but having to provide the minimum number of plumbing fixtures becomes cost prohibitive and becomes a burdensome task – especially in localities where the water must be supplied by a well and/or pump.

Historically, the fixed seating facilities are at capacity no more than a handful of times per year; yet, the minimum plumbing fixtures factors result in a vast number of plumbing fixtures that remain unused for 6 months or more out of a year. Oftentimes, draining of the water lines is required to avoid freezing, or traps must be continually primed, or the heat must be run in an unoccupied building to avoid the freezing of pipes, or a combination of all of the above and other maintenance related procedures.

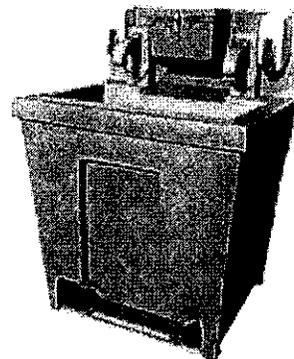
On those occasions where the occupant load does exceed the number of plumbing fixtures provided, portable toilets would be allowed to make up the difference – but for no more than 50%. For example, say a high school would like to provide bleacher seating for 3,000 people, per Table 2902.1 (A-5) the following minimum number of plumbing fixtures must be provided:

- Per Section 2902.1.1, divide occupant load by half = 1,500 male and 1,500 female
  - 1,500 male: 20 water closets + 8 lavatories
  - 1,500 female: 38 water closets + 10 lavatories
- Per the proposed code change, allow for up to a 50% reduction in water closets and lavatories
  - Male: 10 water closets + 4 lavatories
  - Female: 19 water closets + 5 lavatories
- Portable toilets would need to make up the difference in water closets *only* (hand washing would be handled by sanitizers or washing stations)
  - 29 portable toilets would be required when the occupant load reaches 3,000 occupants
  - If more than 3,000 people attended the outdoor event, then more portable toilets would be required to make up the difference.
  - Conversely, if only 2,000 people attended, then only 10 portable toilets would be required
    - 1,000 male: 14 water closets + 5 lavatories
    - 1,000 female: 25 water closets + 7 lavatories

Portable toilets are allowed for numerous outdoor events and activities. It seems only reasonable that similar accommodations could be allowed for schools. The cost savings could be substantial in both initial and life cycle (maintenance) costs.



Portable toilets



Hand washing station

Submittal Information

Date Submitted: August 3, 2012

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)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Michael D Redifer

Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3<sup>rd</sup> flr Newport News, VA 23607

Email Address: mredifer@nngov.com

Telephone Number: 757-926-8861

Proposal Information

Code(s) and Section(s): IBC Section 3006.4

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

Change IBC Section 3006.4 as follows:

**3006.4 Machine rooms and machinery spaces, control rooms and spaces.** Elevator machine rooms and machinery spaces and control rooms and spaces shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors.

Delete exception 1 and renumber exception 2

**Exceptions:**

- ~~1. Where machine rooms and machinery spaces do not abut and have no openings to the hoistway enclosure they serve the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fire-resistance rating*.~~
- 2 1. In buildings four stories or less above *grade plane* where machine room and machinery spaces do not abut and have no openings to the hoistway enclosure they serve, the machine room and machinery spaces are not required to be fire-resistance rated.

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

Additional terminology has been introduced into the ASME A17.1 Standard which relates primarily to controls for machine-room-less elevators. Although not machines, these devices are crucial components of the elevator operating system and are defined in the standard. Because this equipment and these devices are critical to the continued operation of the elevator during fire service, they should be afforded the same protection as the elevator hoistway in taller buildings (over 4 stories). There will be some additional cost impact related to providing increased fire resistance ratings in some circumstances.

**Note: The original proposal has been revised to delete only exception 1 based on discussion in 3/25 Codes and Standards Committee meeting.**

Submittal Information

Date Submitted: 05-03-2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Organization

Name: J. Kenneth Payne, Jr., AIA

Representing: VSAIA

Mailing Address: 3200 Norfolk Street, Richmond, VA 23230

Email Address: kpayne@moseleyarchitects.com

Telephone Number: 804.794.7555

Proposal Information

Code(s) and Section(s): **2012 IBC, Section 3412.2.2**

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

Add an exception to Section 3412.2.2 of the IBC to read:

**Exception: Plumbing, mechanical and electrical systems in buildings undergoing a partial change of occupancy shall be subject to any applicable requirements of Section 103.3 of this code.**

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

This exception was added to Section 3412.2.1 for a change of occupancy as part of the VCC. It would appear the same exception should also be considered for a *partial* change of occupancy if it is allowed for a *complete* change of occupancy.

Although one may suggest a *partial* change of occupancy is still a change of occupancy and therefore, is already covered by Section 3412.2.1, this proposed code change would, in that case, clarify the same exception would apply to just a *partial* change of occupancy and there would be no ambiguity as to its enforcement or interpretation. However, if it was the intent that Section 3412.2.1 also covers Section 3412.2.2, then Section 3412.2.2 should be renumbered 3412.2.1.1 – thus becoming a subsection of Section 3412.2.1. If this were renumbered, then this code change could be modified as such and the existing exception would then clearly apply to both a complete or *partial* change in occupancy.

Submittal Information

Date Submitted: August 3, 2012

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)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Placeholder

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

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

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

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

Proposal Information

Code(s) and Sections (s): USBC VCC IBC 415.1 and SFPC 5704.2.13

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

Sub group to clarify SWCB governs designated UST's. Shariar Amiri was working on a code change. Need 2<sup>nd</sup> code change separating out closure requirements for SWCB UST's.

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

Submittal Information

Date Submitted: 6/25/13

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

Please submit the proposal to:

DHCD DEBAR State Building Codes Office  
600 East Main Street,  
Suite 300  
Richmond, VA 23219

Email Address: vernnon.hodge@dhcd.virginia.gov

Fax Number: (804) 371-7092

Phone Numbers: (804) 371-7150



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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Placeholder \_\_\_\_\_

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

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

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

Proposal Information

Code(s) and Section(s): USBC IFC 2306.7.1 \_\_\_\_\_

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

E85 dispensing systems now U.L. listed.

Supporting Statement (including intent, need, and impact of the proposal):  
Enable building officials to approve these E85 systems without a modification. 2015 IFC code change was approved.

Submittal Information

Date Submitted: 6/25/13 \_\_\_\_\_

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

Please submit the proposal to:

DHCD DEBAR State Building Codes Office  
600 East Main Street,  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Sam Francis

Representing: American Wood Council

Mailing Address: 1 Dutton Farm Lane; West Grove, PA 19390

Email Address: sfrancis@awc.org

Telephone Number: 610-869-4774

Proposal Information

Code(s) and Section(s): Virginia Construction Code Building:

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

Revisions to the following tables to reflect new Southern Pine design values.  
Table 2308.8(1), Table 2308.8(2), Table 2308.9.5, Table 2308.9.6, Table 2308.10.2(1), Table 2308.10.2(2), Table  
2308.10.3(1), Table 2308.10.3(2), Table 2308.10.3(3), Table 2308.10.3(4), Table 2308.10.3(5), Table  
2308.10.3(6)

Tables are attached in a separate file.

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

The American Lumber Standard Committee, Board of Review, approved new design values for Southern Pine lumber to become effective June 1, 2013. In order for the USBC to reflect the most current data, these tables in the IBC portion of the USBC need to be amended to reflect the new values.

Submittal Information

Date Submitted: May 1, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

Email Address: Vernon.hodge@dhcd.virginia.gov  
Fax Number: (804) 371-7092  
Phone Numbers: (804) 371-7150



**TABLE 2308.8(1)**  
**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**  
(Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	12-6	16-6	21-0	25-7	12-6	16-6	21-0	25-7
	Douglas Fir-Larch	#1	12-0	15-10	20-3	24-8	12-0	15-7	19-0	22-0
	Douglas Fir-Larch	#2	11-10	15-7	19-10	23-0	11-6	14-7	17-9	20-7
	Douglas Fir-Larch	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Hem-Fir	SS	11-10	15-7	19-10	24-2	11-10	15-7	19-10	24-2
	Hem-Fir	#1	11-7	15-3	19-5	23-7	11-7	15-2	18-6	21-6
	Hem-Fir	#2	11-0	14-6	18-6	22-6	11-0	14-4	17-6	20-4
	Hem-Fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Southern Pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern Pine	#1	<del>12-0-11-10</del>	<del>15-10-15-7</del>	<del>20-3-19-10</del>	<del>24-8-24-2</del>	<del>12-0-11-10</del>	<del>15-10-15-7</del>	<del>20-3-18-7</del>	<del>24-8-22-0</del>
	Southern Pine	#2	<del>11-10-11-3</del>	<del>15-7-14-11</del>	<del>19-10-18-1</del>	<del>24-2-21-4</del>	<del>11-10-10-9</del>	<del>15-7-13-8</del>	<del>18-7-16-2</del>	<del>21-9-19-1</del>
	Southern Pine	#3	<del>10-5-9-2</del>	<del>13-3-11-6</del>	<del>15-8-14-0</del>	<del>18-8-16-6</del>	<del>9-4-8-2</del>	<del>11-11-10-3</del>	<del>14-0-12-6</del>	<del>16-8-14-9</del>
	Spruce-Pine-Fir	SS	11-7	15-3	19-5	23-7	11-7	15-3	19-5	23-7
	Spruce-Pine-Fir	#1	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-Pine-Fir	#2	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-Pine-Fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
16	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-0
	Douglas Fir-Larch	#1	10-11	14-5	18-5	21-4	10-8	13-6	16-5	19-1
	Douglas Fir-Larch	#2	10-9	14-1	17-2	19-11	9-11	12-7	15-5	17-10
	Douglas Fir-Larch	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	20-9	10-4	13-1	16-0	18-7
	Hem-Fir	#2	10-0	13-2	16-10	19-8	9-10	12-5	15-2	17-7
	Hem-Fir	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	<del>10-11-10-9</del>	<del>14-5-14-2</del>	<del>18-5-18-0</del>	<del>22-5-21-4</del>	<del>10-11-10-9</del>	<del>14-5-13-9</del>	<del>17-11-16-1</del>	<del>21-4-19-1</del>
	Southern Pine	#2	<del>10-9-10-3</del>	<del>14-2-13-3</del>	<del>18-0-15-8</del>	<del>21-1-18-6</del>	<del>10-5-9-4</del>	<del>13-6-11-10</del>	<del>16-1-14-0</del>	<del>18-10-16-6</del>
	Southern Pine	#3	<del>9-0-7-11</del>	████████	<del>13-7-12-1</del>	<del>16-2-14-4</del>	<del>8-1-7-1</del>	<del>10-3-8-11</del>	<del>12-2-10-10</del>	<del>14-6-12-10</del>
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-4
	Spruce-Pine-Fir	#1	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-Pine-Fir	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
19.2	Douglas Fir-Larch	SS	10-8	14-1	18-0	21-10	10-8	14-1	18-0	21-0
	Douglas Fir-Larch	#1	10-4	13-7	16-9	19-6	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	10-1	12-10	15-8	18-3	9-1	11-6	14-1	16-3
	Douglas Fir-Larch	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
	Hem-Fir	SS	10-1	13-4	17-0	20-8	10-1	13-4	17-0	20-7
	Hem-Fir	#1	9-10	13-0	16-4	19-0	9-6	12-0	14-8	17-0
	Hem-Fir	#2	9-5	12-5	15-6	17-1	8-11	11-4	13-10	16-1
	Hem-Fir	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4

(continued)

**TABLE 2308.8(1)—continued**  
**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**  
 (Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern Pine	#1	<del>10-4-10-1</del>	<del>13-7-13-4</del>	<del>17-4-16-5</del>	<del>21-1-19-6</del>	<del>10-4-9-11</del>	<del>13-7-12-7</del>	<del>16-4-14-8</del>	<del>19-6-17-5</del>
	Southern Pine	#2	<del>10-1-9-6</del>	<del>13-4-12-1</del>	<del>16-5-14-4</del>	<del>19-3-16-10</del>	<del>9-6-8-6</del>	<del>12-4-10-10</del>	<del>14-8-12-10</del>	<del>17-2-15-1</del>
	Southern Pine	#3	<del>8-3-7-3</del>	<del>10-6-9-1</del>	<del>12-5-11-0</del>	<del>14-9-13-1</del>	<del>7-4-6-5</del>	<del>9-5-8-2</del>	<del>11-1-9-10</del>	<del>13-2-11-8</del>
	Spruce-Pine-Fir	SS	9-10	13-0	16-7	20-2	9-10	13-0	16-7	19-6
	Spruce-Pine-Fir	#1	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
24	Douglas Fir-Larch	SS	9-11	13-1	16-8	20-3	9-11	13-1	16-2	18-9
	Douglas Fir-Larch	#1	9-7	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Douglas Fir-Larch	#2	9-1	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Douglas Fir-Larch	#3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0
	Hem-Fir	SS	9-4	12-4	15-9	19-2	9-4	12-4	15-9	18-5
	Hem-Fir	#1	9-2	12-0	14-8	17-0	8-6	10-9	13-1	15-2
	Hem-Fir	#2	8-9	11-4	13-10	16-1	8-0	10-2	12-5	14-4
	Hem-Fir	#3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0
	Southern Pine	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	<del>19-11-19-8</del>
	Southern Pine	#1	<del>9-7-9-4</del>	<del>12-7-12-4</del>	<del>16-1-14-8</del>	<del>19-6-17-5</del>	<del>9-7-8-10</del>	<del>12-4-11-3</del>	<del>14-7-13-1</del>	<del>17-5-15-7</del>
	Southern Pine	#2	<del>9-4-8-6</del>	<del>12-4-10-10</del>	<del>14-8-12-10</del>	<del>17-2-15-1</del>	<del>8-6-7-7</del>	<del>11-0-9-8</del>	<del>13-1-11-5</del>	<del>15-5-13-6</del>
	Southern Pine	#3	<del>7-4-6-5</del>	<del>9-5-8-2</del>	<del>11-1-9-10</del>	<del>13-2-11-8</del>	<del>6-7-5-9</del>	<del>8-5-7-3</del>	<del>9-11-8-10</del>	<del>11-10-10-5</del>
	Spruce-Pine-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-0	17-5
	Spruce-Pine-Fir	#1	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-Pine-Fir	#2	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-Pine-Fir	#3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m<sup>2</sup>.

**TABLE 2308.8(2)**  
**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**  
 (Residential Living Areas, Live Load = 40 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas Fir-Larch	#1	10-11	14-5	18-5	22-0	10-11	14-2	17-4	20-1
	Douglas Fir-Larch	#2	10-9	14-2	17-9	20-7	10-6	13-3	16-3	18-10
	Douglas Fir-Larch	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	21-6	10-6	13-10	16-11	19-7
	Hem-Fir	#2	10-0	13-2	16-10	20-4	10-0	13-1	16-0	18-6
	Hem-Fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	<del>10-11-10-9</del>	<del>14-5-14-2</del>	<del>18-5-18-0</del>	<del>22-5-21-11</del>	<del>10-11-10-9</del>	<del>14-5-14-2</del>	<del>18-5-16-11</del>	<del>22-5-20-1</del>
	Southern Pine	#2	<del>10-9-10-3</del>	<del>14-2-13-6</del>	<del>18-0-16-2</del>	<del>21-9-19-1</del>	<del>10-9-9-10</del>	<del>14-2-12-6</del>	<del>16-11-14-9</del>	<del>19-10-17-5</del>
	Southern Pine	#3	<del>9-4-8-2</del>	<del>11-11-10-3</del>	<del>14-0-12-6</del>	<del>16-8-14-9</del>	<del>8-6-7-5</del>	<del>10-10-9-5</del>	<del>12-10-11-5</del>	<del>15-3-13-6</del>
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Spruce-Pine-Fir	#1	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-Pine-Fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
16	Douglas Fir-Larch	SS	10-4	13-7	17-4	21-1	10-4	13-7	17-4	21-0
	Douglas Fir-Larch	#1	9-11	13-1	16-5	19-1	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	9-9	12-7	15-5	17-10	9-1	11-6	14-1	16-3
	Douglas Fir-Larch	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
	Hem-Fir	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
	Hem-Fir	#1	9-6	12-7	16-0	18-7	9-6	12-0	14-8	17-0
	Hem-Fir	#2	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
	Hem-Fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
	Southern Pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
	Southern Pine	#1	<del>9-11-9-9</del>	<del>13-1-12-10</del>	<del>16-9-16-1</del>	<del>20-4-19-1</del>	<del>9-11-9-9</del>	<del>13-1-12-7</del>	<del>16-4-14-8</del>	<del>19-6-17-5</del>
	Southern Pine	#2	<del>9-9-9-4</del>	<del>12-10-11-10</del>	<del>16-1-14-0</del>	<del>18-10-16-6</del>	<del>9-6-8-6</del>	<del>12-4-10-10</del>	<del>14-8-12-10</del>	<del>17-2-15-1</del>
	Southern Pine	#3	<del>8-1-7-1</del>	<del>10-3-8-11</del>	<del>12-2-10-10</del>	<del>14-6-12-10</del>	<del>7-4-6-5</del>	<del>9-5-8-2</del>	<del>11-1-9-10</del>	<del>13-2-11-8</del>
	Spruce-Pine-Fir	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Spruce-Pine-Fir	#1	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
19.2	Douglas Fir-Larch	SS	9-8	12-10	16-4	19-10	9-8	12-10	16-4	19-2
	Douglas Fir-Larch	#1	9-4	12-4	15-0	17-5	8-10	11-3	13-8	15-11
	Douglas Fir-Larch	#2	9-1	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Douglas Fir-Larch	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
	Hem-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-5	18-9
	Hem-Fir	#1	9-0	11-10	14-8	17-0	8-8	10-11	13-4	15-6
	Hem-Fir	#2	8-7	11-3	13-10	16-1	8-2	10-4	12-8	14-8
	Hem-Fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
	Southern Pine	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Southern Pine	#1	<del>9-4-9-2</del>	<del>12-4-12-1</del>	<del>15-9-14-8</del>	<del>19-2-17-5</del>	<del>9-4-9-0</del>	<del>12-4-11-5</del>	<del>14-11-13-5</del>	<del>17-9-15-11</del>
	Southern Pine	#2	<del>9-2-8-6</del>	<del>12-1-10-10</del>	<del>14-8-12-10</del>	<del>17-2-15-1</del>	<del>8-8-7-9</del>	<del>11-3-9-10</del>	<del>13-5-11-8</del>	<del>15-8-13-9</del>
	Southern Pine	#3	<del>7-4-6-5</del>	<del>9-5-8-2</del>	<del>11-1-9-10</del>	<del>13-2-11-8</del>	<del>6-9-5-11</del>	<del>8-7-7-5</del>	<del>10-1-9-0</del>	<del>12-1-10-8</del>
	Spruce-Pine-Fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-Pine-Fir	#1	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-Pine-Fir	#2	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-Pine-Fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3

(continued)

**TABLE 2308.8(2)—continued**  
**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**  
 (Residential Living Areas, Live Load = 40 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE	DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
		2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
		Maximum floor joist spans							
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
24	Douglas Fir-Larch SS	9-0	11-11	15-2	18-5	9-0	11-11	14-9	17-1
	Douglas Fir-Larch #1	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Douglas Fir-Larch #2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Douglas Fir-Larch #3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
	Hem-Fir SS	8-6	11-3	14-4	17-5	8-6	11-3	14-4	16-10 <sup>a</sup>
	Hem-Fir #1	8-4	10-9	13-1	15-2	7-9	9-9	11-11	13-10
	Hem-Fir #2	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
	Hem-Fir #3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
	Southern Pine SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	<del>18-1</del> 18-0
	Southern Pine #1	<del>8-8</del> 8-6	<del>11-5</del> 11-3	<del>14-7</del> 13-1	<del>17-5</del> 15-7	<del>8-8</del> 8-1	<del>11-3</del> 10-3	<del>13-4</del> 12-0	<del>15-11</del> 14-3
	Southern Pine #2	<del>8-6</del> 7-7	<del>11-0</del> 9-8	<del>13-1</del> 11-5	<del>15-5</del> 13-6	<del>7-9</del> 7-0	<del>10-0</del> 8-10	<del>12-0</del> 10-5	<del>14-0</del> 12-4
	Southern Pine #3	<del>6-7</del> 5-9	<del>8-5</del> 7-3	<del>9-11</del> 8-10	<del>11-10</del> 10-5	<del>6-0</del> 5-3	<del>7-8</del> 6-8	<del>9-1</del> 8-1	<del>10-9</del> 9-6
	Spruce-Pine-Fir SS	8-4	11-0	14-0	17-0	8-4	11-0	13-8	15-11
	Spruce-Pine-Fir #1	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-Pine-Fir #2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-Pine-Fir #3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m<sup>2</sup>.

- a. End bearing length shall be increased to 2 inches.

**TABLE 2308.9.5  
 HEADER AND GIRDER SPANS<sup>a,b</sup> FOR EXTERIOR BEARING WALLS  
 (Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir<sup>b</sup> and Required Number of Jack Studs)**

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf) <sup>e</sup>											
		30						50					
		Building width <sup>c</sup> (feet)											
		20		28		36		20		28		36	
Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>		
Roof & Ceiling	2-2x4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-6	1
	2-2x6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2
	2-2x8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2
	2-2x10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2
	2-2x12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2
	3-2x8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	2	5-9	2
	3-2x10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2
	3-2x12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2
	4-2x8	9-2	1	8-4	1	7-8	1	8-4	1	7-5	1	6-8	1
	4-2x10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2
4-2x12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2	
Roof, Ceiling & 1 Center-Bearing Floor	2-2x4	3-1	1	2-9	1	2-5	1	2-9	1	2-5	1	2-2	1
	2-2x6	4-6	1	4-0	1	3-7	2	4-1	1	3-7	2	3-3	2
	2-2x8	5-9	2	5-0	2	4-6	2	5-2	2	4-6	2	4-1	2
	2-2x10	7-0	2	6-2	2	5-6	2	6-4	2	5-6	2	5-0	2
	2-2x12	8-1	2	7-1	2	6-5	2	7-4	2	6-5	2	5-9	3
	3-2x8	7-2	1	6-3	2	5-8	2	6-5	2	5-8	2	5-1	2
	3-2x10	8-9	2	7-8	2	6-11	2	7-11	2	6-11	2	6-3	2
	3-2x12	10-2	2	8-11	2	8-0	2	9-2	2	8-0	2	7-3	2
	4-2x8	8-1	1	7-3	1	6-7	1	7-5	1	6-6	1	5-11	2
	4-2x10	10-1	1	8-10	2	8-0	2	9-1	2	8-0	2	7-2	2
4-2x12	11-9	2	10-3	2	9-3	2	10-7	2	9-3	2	8-4	2	
Roof, Ceiling & 1 Clear Span Floor	2-2x4	2-8	1	2-4	1	2-1	1	2-7	1	2-3	1	2-0	1
	2-2x6	3-11	1	3-5	2	3-0	2	3-10	2	3-4	2	3-0	2
	2-2x8	5-0	2	4-4	2	3-10	2	4-10	2	4-2	2	3-9	2
	2-2x10	6-1	2	5-3	2	4-8	2	5-11	2	5-1	2	4-7	3
	2-2x12	7-1	2	6-1	3	5-5	3	6-10	2	5-11	3	5-4	3
	3-2x8	6-3	2	5-5	2	4-10	2	6-1	2	5-3	2	4-8	2
	3-2x10	7-7	2	6-7	2	5-11	2	7-5	2	6-5	2	5-9	2
	3-2x12	8-10	2	7-8	2	6-10	2	8-7	2	7-5	2	6-8	2
	4-2x8	7-2	1	6-3	2	5-7	2	7-0	1	6-1	2	5-5	2
	4-2x10	8-9	2	7-7	2	6-10	2	8-7	2	7-5	2	6-7	2
4-2x12	10-2	2	8-10	2	7-11	2	9-11	2	8-7	2	7-8	2	

(continued)

**TABLE 2308.9.5—continued**  
**HEADER AND GIRDER SPANS<sup>a,b</sup> FOR EXTERIOR BEARING WALLS**  
**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir<sup>b</sup> and Required Number of Jack Studs)**

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf) <sup>e</sup>											
		30						50					
		Building width <sup>c</sup> (feet)											
		20		28		36		20		28		36	
Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>
Roof, Ceiling & 2 Center-Bearing Floors	2-2×4	2-7	1	2-3	1	2-0	1	2-6	1	2-2	1	1-11	1
	2-2×6	3-9	2	3-3	2	2-11	2	3-8	2	3-2	2	2-10	2
	2-2×8	4-9	2	4-2	2	3-9	2	4-7	2	4-0	2	3-8	2
	2-2×10	5-9	2	5-1	2	4-7	3	5-8	2	4-11	2	4-5	3
	2-2×12	6-8	2	5-10	3	5-3	3	6-6	2	5-9	3	5-2	3
	3-2×8	5-11	2	5-2	2	4-8	2	5-9	2	5-1	2	4-7	2
	3-2×10	7-3	2	6-4	2	5-8	2	7-1	2	6-2	2	5-7	2
	3-2×12	8-5	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	3
	4-2×8	6-10	1	6-0	2	5-5	2	6-8	1	5-10	2	5-3	2
	4-2×10	8-4	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	2
4-2×12	9-8	2	8-6	2	7-8	2	9-5	2	8-3	2	7-5	2	
Roof, Ceiling & 2 Clear Span Floors	2-2×4	2-1	1	1-8	1	1-6	2	2-0	1	1-8	1	1-5	2
	2-2×6	3-1	2	2-8	2	2-4	2	3-0	2	2-7	2	2-3	2
	2-2×8	3-10	2	3-4	2	3-0	3	3-10	2	3-4	2	2-11	3
	2-2×10	4-9	2	4-1	3	3-8	3	4-8	2	4-0	3	3-7	3
	2-2×12	5-6	3	4-9	3	4-3	3	5-5	3	4-8	3	4-2	3
	3-2×8	4-10	2	4-2	2	3-9	2	4-9	2	4-1	2	3-8	2
	3-2×10	5-11	2	5-1	2	4-7	3	5-10	2	5-0	2	4-6	3
	3-2×12	6-10	2	5-11	3	5-4	3	6-9	2	5-10	3	5-3	3
	4-2×8	5-7	2	4-10	2	4-4	2	5-6	2	4-9	2	4-3	2
	4-2×10	6-10	2	5-11	2	5-3	2	6-9	2	5-10	2	5-2	2
4-2×12	7-11	2	6-10	2	6-2	3	7-9	2	6-9	2	6-0	3	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m<sup>2</sup>.

- Spans are given in feet and inches (ft-in).
- Tabulated values are for No. 2 grade lumber. Spans are based on minimum design properties for No. 2 Grade lumber of Douglas fir-larch, hem-fir, and spruce-pine-fir. No. 1 or better grade lumber shall be used for southern pine.
- Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.
- NJ - Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.
- Use 30 pounds per square foot ground snow load for cases in which ground snow load is less than 30 pounds per square foot and the roof live load is equal to or less than 20 pounds per square foot.

**TABLE 2308.9.6**  
**HEADER AND GIRDER SPANS<sup>a,b</sup> FOR INTERIOR BEARING WALLS**  
**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir<sup>p</sup> and Required Number of Jack Studs)**

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING width <sup>c</sup> (feet)					
		20		28		36	
		Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>	Span	NJ <sup>d</sup>
One Floor Only	2-2×4	3-1	1	2-8	1	2-5	1
	2-2×6	4-6	1	3-11	1	3-6	1
	2-2×8	5-9	1	5-0	2	4-5	2
	2-2×10	7-0	2	6-1	2	5-5	2
	2-2×12	8-1	2	7-0	2	6-3	2
	3-2×8	7-2	1	6-3	1	5-7	2
	3-2×10	8-9	1	7-7	2	6-9	2
	3-2×12	10-2	2	8-10	2	7-10	2
	4-2×8	9-0	1	7-8	1	6-9	1
	4-2×10	10-1	1	8-9	1	7-10	2
	4-2×12	11-9	1	10-2	2	9-1	2
Two Floors	2-2×4	2-2	1	1-10	1	1-7	1
	2-2×6	3-2	2	2-9	2	2-5	2
	2-2×8	4-1	2	3-6	2	3-2	2
	2-2×10	4-11	2	4-3	2	3-10	3
	2-2×12	5-9	2	5-0	3	4-5	3
	3-2×8	5-1	2	4-5	2	3-11	2
	3-2×10	6-2	2	5-4	2	4-10	2
	3-2×12	7-2	2	6-3	2	5-7	3
	4-2×8	6-1	1	5-3	2	4-8	2
	4-2×10	7-2	2	6-2	2	5-6	2
	4-2×12	8-4	2	7-2	2	6-5	2

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

a. Spans are given in feet and inches (ft-in).

b. ~~Tabulated values are for No. 2 grade lumber. Spans are based on minimum design properties for No. 2 Grade lumber of Douglas fir-larch, hem-fir, and spruce-pine-fir. No. 1 or better grade lumber shall be used for southern pine.~~

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ - Number of jack studs required to support each end. Where the number of required jack studs equals one, the headers are permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

**TABLE 2308.10.2(1)**  
**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**  
(Uninhabitable Attics Without Storage, Live Load = 10 pounds psf, L/Δ = 240)

CEILING JOIST SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 5 pounds per square foot			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	13-2	20-8	26-0	26-0
	Douglas Fir-Larch	#1	12-8	19-11	26-0	26-0
	Douglas Fir-Larch	#2	12-5	19-6	25-8	26-0
	Douglas Fir-Larch	#3	10-10	15-10	20-1	24-6
	Hem-Fir	SS	12-5	19-6	25-8	26-0
	Hem-Fir	#1	12-2	19-1	25-2	26-0
	Hem-Fir	#2	11-7	18-2	24-0	26-0
	Hem-Fir	#3	10-10	15-10	20-1	24-6
	Southern Pine	SS	12-11	20-3	26-0	26-0
	Southern Pine	#1	<del>12-8</del> <u>12-5</u>	<del>19-11</del> <u>19-6</u>	<del>26-0</del> <u>25-8</u>	26-0
	Southern Pine	#2	<del>12-5</del> <u>11-10</u>	<del>19-6</del> <u>18-8</u>	<del>25-8</del> <u>24-7</u>	26-0
	Southern Pine	#3	<del>11-6</del> <u>10-1</u>	<del>17-0</del> <u>14-11</u>	<del>21-8</del> <u>18-9</u>	<del>25-7</del> <u>22-9</u>
	Spruce-Pine-Fir	SS	12-2	19-1	25-2	26-0
	Spruce-Pine-Fir	#1	11-10	18-8	24-7	26-0
	Spruce-Pine-Fir	#2	11-10	18-8	24-7	26-0
	Spruce-Pine-Fir	#3	10-10	15-10	20-1	24-6
16	Douglas Fir-Larch	SS	11-11	18-9	24-8	26-0
	Douglas Fir-Larch	#1	11-6	18-1	23-10	26-0
	Douglas Fir-Larch	#2	11-3	17-8	23-0	26-0
	Douglas Fir-Larch	#3	9-5	13-9	17-5	21-3
	Hem-Fir	SS	11-3	17-8	23-4	26-0
	Hem-Fir	#1	11-0	17-4	22-10	26-0
	Hem-Fir	#2	10-6	16-6	21-9	26-0
	Hem-Fir	#3	9-5	13-9	17-5	21-3
	Southern Pine	SS	11-9	18-5	24-3	26-0
	Southern Pine	#1	<del>11-6</del> <u>11-3</u>	<del>18-1</del> <u>17-8</u>	<del>23-10</del> <u>23-4</u>	26-0
	Southern Pine	#2	<del>11-3</del> <u>10-9</u>	<del>17-8</del> <u>16-11</u>	<del>23-4</del> <u>21-7</u>	<del>26-0</del> <u>25-7</u>
	Southern Pine	#3	<del>10-0</del> <u>8-9</u>	<del>14-9</del> <u>12-11</u>	<del>18-9</del> <u>16-3</u>	<del>22-2</del> <u>19-9</u>
	Spruce-Pine-Fir	SS	11-0	17-4	22-10	26-0
	Spruce-Pine-Fir	#1	10-9	16-11	22-4	26-0
	Spruce-Pine-Fir	#2	10-9	16-11	22-4	26-0
	Spruce-Pine-Fir	#3	9-5	13-9	17-5	21-3

(continued)

**TABLE 2308.10.2(1)—continued**  
**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**  
(Uninhabitable Attics Without Storage, Live Load = 10 pounds psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 pounds per square foot			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	11-3	17-8	23-3	26-0
	Douglas Fir-Larch	#1	10-10	17-0	22-5	26-0
	Douglas Fir-Larch	#2	10-7	16-7	21-0	25-8
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5
	Hem-Fir	SS	10-7	16-8	21-11	26-0
	Hem-Fir	#1	10-4	16-4	21-6	26-0
	Hem-Fir	#2	9-11	15-7	20-6	25-3
	Hem-Fir	#3	8-7	12-6	15-10	19-5
	Southern Pine	SS	11-0	17-4	22-10	26-0
	Southern Pine	#1	<del>10-10</del> 10-7	<del>17-0</del> 16-8	<del>22-5</del> 22-0	26-0
	Southern Pine	#2	<del>10-7</del> 10-2	<del>16-8</del> 15-7	<del>21-11</del> 19-8	<del>26-0</del> 23-5
	Southern Pine	#3	<del>9-1</del> 8-0	<del>13-6</del> 11-9	<del>17-2</del> 14-10	<del>20-3</del> 18-0
	Spruce-Pine-Fir	SS	10-4	16-4	21-6	26-0
	Spruce-Pine-Fir	#1	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir	#2	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5
24	Douglas Fir-Larch	SS	10-5	16-4	21-7	26-0
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Douglas Fir-Larch	#3	7-8	11-2	14-2	17-4
	Hem-Fir	SS	9-10	15-6	20-5	26-0
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Hem-Fir	#3	7-8	11-2	14-2	17-4
	Southern Pine	SS	10-3	16-1	21-2	26-0
	Southern Pine	#1	<del>10-0</del> 9-10	<del>15-9</del> 15-6	<del>20-10</del> 20-5	<del>26-0</del> 24-0
	Southern Pine	#2	<del>9-10</del> 9-3	<del>15-6</del> 13-11	<del>20-1</del> 17-7	<del>23-11</del> 20-11
	Southern Pine	#3	<del>8-2</del> 7-2	<del>12-0</del> 10-6	<del>15-4</del> 13-3	<del>18-1</del> 16-1
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#3	7-8	11-2	14-2	17-4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m<sup>2</sup>.

**TABLE 2308.10.2(2)**  
**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**  
(Uninhabitable Attics With Limited Storage, Live Load = 20 pounds per square foot, L/Δ = 240)

CEILING JOIST SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	26-0
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Douglas Fir-Larch	#3	7-8	11-2	14-2	17-4
	Hem-Fir	SS	9-10	15-6	20-5	26-0
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Hem-Fir	#3	7-8	11-2	14-2	17-4
	Southern Pine	SS	10-3	16-1	21-2	26-0
	Southern Pine	#1	<del>10-0</del> <u>9-10</u>	<del>15-9</del> <u>15-6</u>	<del>20-10</del> <u>20-5</u>	<del>26-0</del> <u>24-0</u>
	Southern Pine	#2	<del>9-10</del> <u>9-3</u>	<del>15-6</del> <u>13-11</u>	<del>20-1</del> <u>17-7</u>	<del>23-11</del> <u>20-11</u>
	Southern Pine	#3	<del>8-2</del> <u>7-2</u>	<del>12-0</del> <u>10-6</u>	<del>15-4</del> <u>13-3</u>	<del>18-1</del> <u>16-1</u>
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#3	7-8	11-2	14-2	17-4
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0
	Douglas Fir-Larch	#1	9-1	13-9	17-5	21-3
	Douglas Fir-Larch	#2	8-9	12-10	16-3	19-10
	Douglas Fir-Larch	#3	6-8	9-8	12-4	15-0
	Hem-Fir	SS	8-11	14-1	18-6	23-8
	Hem-Fir	#1	8-9	13-5	16-10	20-8
	Hem-Fir	#2	8-4	12-8	16-0	19-7
	Hem-Fir	#3	6-8	9-8	12-4	15-0
	Southern Pine	SS	9-4	14-7	19-3	24-7
	Southern Pine	#1	<del>9-1</del> <u>8-11</u>	<del>14-4</del> <u>14-0</u>	<del>18-11</del> <u>17-9</u>	<del>23-1</del> <u>20-9</u>
	Southern Pine	#2	<del>8-11</del> <u>8-0</u>	<del>13-6</del> <u>12-0</u>	<del>17-5</del> <u>15-3</u>	<del>20-9</del> <u>18-1</u>
	Southern Pine	#3	<del>7-1</del> <u>6-2</u>	<del>10-5</del> <u>9-2</u>	<del>13-3</del> <u>11-6</u>	<del>15-8</del> <u>14-0</u>
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1
	Spruce-Pine-Fir	#1	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir	#2	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir	#3	6-8	9-8	12-4	15-0

(continued)

**TABLE 2308.10.2(2)—continued**  
**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**  
(Uninhabitable Attics With Limited Storage, Live Load = 20 pounds per square foot, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-4
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8
	Hem-Fir	SS	8-5	13-3	17-5	22-3
	Hem-Fir	#1	8-3	12-3	15-6	18-11
	Hem-Fir	#2	7-10	11-7	14-8	17-10
	Hem-Fir	#3	6-1	8-10	11-3	13-8
	Southern Pine	SS	8-9	13-9	<del>18-1</del> 18-2	23-1
	Southern Pine	#1	<del>8-7</del> 8-5	<del>13-6</del> 12-9	<del>17-9</del> 16-2	<del>21-1</del> 18-11
	Southern Pine	#2	<del>8-5</del> 7-4	<del>12-3</del> 11-0	<del>15-10</del> 13-11	<del>18-11</del> 16-6
	Southern Pine	#3	<del>6-5</del> 5-8	<del>9-6</del> 8-4	<del>12-1</del> 10-6	<del>14-4</del> 12-9
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-8
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8
24	Douglas Fir-Larch	SS	8-3	13-0	17-1	20-11
	Douglas Fir-Larch	#1	7-8	11-2	14-2	17-4
	Douglas Fir-Larch	#2	7-2	10-6	13-3	16-3
	Douglas Fir-Larch	#3	5-5	7-11	10-0	12-3
	Hem-Fir	SS	7-10	12-3	16-2	20-6
	Hem-Fir	#1	7-6	10-11	13-10	16-11
	Hem-Fir	#2	7-1	10-4	13-1	16-0
	Hem-Fir	#3	5-5	7-11	10-0	12-3
	Southern Pine	SS	8-1	12-9	16-10	21-6
	Southern Pine	#1	<del>8-0</del> 7-8	<del>12-6</del> 11-5	<del>15-10</del> 14-6	<del>18-10</del> 16-11
	Southern Pine	#2	<del>7-8</del> 6-7	<del>11-0</del> 9-10	<del>14-2</del> 12-6	<del>16-11</del> 14-9
	Southern Pine	#3	<del>5-9</del> 5-1	<del>8-6</del> 7-5	<del>10-10</del> 9-5	<del>12-10</del> 11-5
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	19-5
	Spruce-Pine-Fir	#1	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir	#2	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir	#3	5-5	7-11	10-0	12-3

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m<sup>2</sup>.

**TABLE 2308.10.3(1)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
(Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 x 4	2 x 6	2 x 8	2 x 10	2 x 12	2 x 4	2 x 6	2 x 8	2 x 10	2 x 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	11-6	18-0	23-9	26-0	26-0	11-6	18-0	23-5	26-0	26-0
	Douglas Fir-Larch	#1	11-1	17-4	22-5	26-0	26-0	10-6	15-4	19-5	23-9	26-0
	Douglas Fir-Larch	#2	10-10	16-7	21-0	25-8	26-0	9-10	14-4	18-2	22-3	25-9
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Hem-Fir	SS	10-10	17-0	22-5	26-0	26-0	10-10	17-0	22-5	26-0	26-0
	Hem-Fir	#1	10-7	16-8	21-10	26-0	26-0	10-3	14-11	18-11	23-2	26-0
	Hem-Fir	#2	10-1	15-11	20-8	25-3	26-0	9-8	14-2	17-11	21-11	25-5
	Hem-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern Pine	SS	11-3	17-8	23-4	26-0	26-0	11-3	17-8	23-4	26-0	26-0
	Southern Pine	#1	<del>11-1</del> 10-10	<del>17-4</del> 17-0	<del>22-11</del> 22-5	26-0	26-0	<del>11-1</del> 10-6	<del>17-3</del> 15-8	<del>21-9</del> 19-10	<del>25-10</del> 23-2	26-0
	Southern Pine	#2	<del>10-10</del> 10-4	<del>17-0</del> 15-7	<del>22-5</del> 19-8	26-0	26-0	<del>10-6</del> 9-0	<del>15-1</del> 13-6	<del>19-5</del> 17-1	<del>23-2</del> 20-3	<del>26-0</del> 23-10
	Southern Pine	#3	9-1 <u>8-0</u>	13-6 <u>11-9</u>	17-2 <u>14-10</u>	20-3 <u>18-0</u>	24-1 <u>21-4</u>	7-11 <u>6-11</u>	11-8 <u>10-2</u>	14-10 <u>12-10</u>	17-6 <u>15-7</u>	20-11 <u>18-6</u>
	Spruce-Pine-Fir	SS	10-7	16-8	21-11	26-0	26-0	10-7	16-8	21-9	26-0	26-0
	Spruce-Pine-Fir	#1	10-4	16-3	21-0	25-8	26-0	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	10-4	16-3	21-0	25-8	26-0	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas Fir-Larch	SS	10-5	16-4	21-7	26-0	26-0	10-5	16-0	20-3	24-9	26-0
	Douglas Fir-Larch	#1	10-0	15-4	19-5	23-9	26-0	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	9-10	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Douglas Fir-Larch	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	SS	9-10	15-6	20-5	26-0	26-0	9-10	15-6	19-11	24-4	26-0
	Hem-Fir	#1	9-8	14-11	18-11	23-2	26-0	8-10	12-11	16-5	20-0	23-3
	Hem-Fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Hem-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern Pine	SS	10-3	16-1	21-2	26-0	26-0	10-3	16-1	21-2	<del>26-0</del> <u>25-7</u>	26-0
	Southern Pine	#1	<del>10-0</del> <u>9-10</u>	<del>15-9</del> <u>15-6</u>	<del>20-10</del> <u>19-10</u>	<del>25-10</del> <u>23-2</u>	26-0	<del>10-0</del> <u>9-1</u>	<del>15-0</del> <u>13-7</u>	<del>18-10</del> <u>17-2</u>	<del>22-4</del> <u>20-1</u>	<del>26-0</del> <u>23-10</u>
	Southern Pine	#2	<del>9-10</del> <u>9-0</u>	<del>15-1</del> <u>13-6</u>	<del>19-5</del> <u>17-1</u>	<del>23-2</del> <u>20-3</u>	26-0	<del>9-1</del> <u>7-9</u>	<del>13-0</del> <u>11-8</u>	<del>16-10</del> <u>14-9</u>	<del>20-1</del> <u>17-6</u>	<del>23-7</del> <u>20-8</u>
	Southern Pine	#3	<del>7-11</del> <u>6-11</u>	<del>11-8</del> <u>10-2</u>	<del>14-10</del> <u>12-10</u>	<del>17-6</del> <u>15-7</u>	<del>20-11</del> <u>18-6</u>	<del>6-10</del> <u>6-0</u>	<del>10-1</del> <u>8-10</u>	<del>12-10</del> <u>11-2</u>	<del>15-2</del> <u>13-6</u>	<del>18-1</del> <u>16-0</u>
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	26-0	9-8	14-10	18-10	23-0	26-0
	Spruce-Pine-Fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10

(continued)

**TABLE 2308.10.3(1)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	9-10	15-5	20-4	25-11	26-0	9-10	14-7	18-6	22-7	26-0
	Douglas Fir-Larch	#1	9-5	14-0	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-11	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Douglas Fir-Larch	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	SS	9-3	14-7	19-2	24-6	26-0	9-3	14-4	18-2	22-3	25-9
	Hem-Fir	#1	9-1	13-8	17-4	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	9-8	15-2	19-11	25-5	26-0	9-8	15-2	<del>19-11</del> 19-7	<del>25-5</del> 23-4	26-0
	Southern Pine	#1	<del>9-5</del> 9-3	<del>14-10</del> 14-3	<del>19-7</del> 18-1	<del>23-7</del> 21-2	<del>26-0</del> 25-2	9-3	<del>13-8</del> 12-4	<del>17-2</del> 15-8	<del>20-5</del> 18-4	24-4
	Southern Pine	#2	<del>9-3</del> 8-2	<del>13-9</del> 12-3	<del>17-9</del> 15-7	<del>21-2</del> 18-6	<del>24-10</del> 21-9	8-4	<del>11-11</del> 10-8	<del>15-4</del> 13-6	<del>18-4</del> 16-0	<del>21-6</del> 18-10
	Southern Pine	#3	<del>7-3</del> 6-4	<del>10-8</del> 9-4	<del>13-7</del> 11-9	<del>16-0</del> 14-3	<del>19-1</del> 16-10	6-3	9-3	<del>11-9</del> 10-2	<del>13-10</del> 12-4	<del>16-6</del> 14-7
	Spruce-Pine-Fir	SS	9-1	14-3	18-9	23-11	26-0	9-1	13-7	17-2	21-0	24-4
	Spruce-Pine-Fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
24	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-4	26-0	8-11	13-1	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	SS	8-7	13-6	17-10	22-9	26-0	8-7	12-10	16-3	19-10	23-0
	Hem-Fir	#1	8-4	12-3	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-11	11-7	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern Pine	SS	8-11	14-1	18-6	23-8	26-0	8-11	<del>14-1</del> 13-10	<del>18-6</del> 17-6	<del>22-11</del> 20-10	<del>26-0</del> 24-8
	Southern Pine	#1	<del>8-9</del> 8-7	<del>13-9</del> 12-9	<del>17-9</del> 16-2	<del>21-1</del> 18-11	<del>25-2</del> 22-6	8-3	<del>12-3</del> 11-1	<del>15-4</del> 14-0	<del>18-3</del> 16-5	<del>21-9</del> 19-6
	Southern Pine	#2	<del>8-7</del> 7-4	<del>12-3</del> 11-0	<del>15-10</del> 13-11	<del>18-11</del> 16-6	<del>22-2</del> 19-6	7-5	<del>10-8</del> 9-6	<del>13-9</del> 12-1	<del>16-5</del> 14-4	<del>19-3</del> 16-10
	Southern Pine	#3	<del>6-5</del> 5-8	<del>9-6</del> 8-4	<del>12-1</del> 10-6	<del>14-4</del> 12-9	<del>17-1</del> 15-1	5-7	8-3	<del>10-6</del> 9-1	<del>12-5</del> 11-0	<del>14-9</del> 13-1
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>.

**TABLE 2308.10.3(2)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Roof Live Load = 20 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	26-0	26-0	10-5	16-4	21-7	26-0	26-0
	Douglas Fir-Larch	#1	10-0	15-9	20-10	26-0	26-0	10-0	15-4	19-5	23-9	26-0
	Douglas Fir-Larch	#2	9-10	15-6	20-5	25-8	26-0	9-10	14-4	18-2	22-3	25-9
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Hem-Fir	SS	9-10	15-6	20-5	26-0	26-0	9-10	15-6	20-5	26-0	26-0
	Hem-Fir	#1	9-8	15-2	19-11	25-5	26-0	9-8	14-11	18-11	23-2	26-0
	Hem-Fir	#2	9-2	14-5	19-0	24-3	26-0	9-2	14-2	17-11	21-11	25-5
	Hem-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern Pine	SS	10-3	16-1	21-2	26-0	26-0	10-3	16-1	21-2	26-0	26-0
	Southern Pine	#1	<del>10-0</del> 9-10	<del>15-9</del> 15-6	<del>20-10</del> 20-5	26-0	26-0	<del>10-0</del> 9-10	<del>15-9</del> 15-6	<del>20-10</del> 19-10	<del>25-10</del> 23-2	26-0
	Southern Pine	#2	<del>9-10</del> 9-5	<del>15-6</del> 14-9	<del>20-5</del> 19-6	26-0	26-0	<del>9-10</del> 9-0	<del>15-1</del> 13-6	<del>19-5</del> 17-1	<del>23-2</del> 20-3	<del>26-0</del> 23-10
	Southern Pine	#3	<del>9-1</del> 8-0	<del>13-6</del> 11-9	<del>17-2</del> 14-10	<del>20-3</del> 18-0	<del>24-1</del> 21-4	<del>7-11</del> 6-11	<del>11-8</del> 10-2	<del>14-10</del> 12-10	<del>17-6</del> 15-7	<del>20-11</del> 18-6
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	26-0	9-8	15-2	19-11	25-5	26-0
	Spruce-Pine-Fir	#1	9-5	14-9	19-6	24-10	26-0	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	9-5	14-9	19-6	24-10	26-0	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0	26-0	9-6	14-11	19-7	24-9	26-0
	Douglas Fir-Larch	#1	9-1	14-4	18-11	23-9	26-0	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	8-11	14-1	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Douglas Fir-Larch	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	SS	8-11	14-1	18-6	23-8	26-0	8-11	14-1	18-6	23-8	26-0
	Hem-Fir	#1	8-9	13-9	18-1	23-1	26-0	8-9	12-11	16-5	20-0	23-3
	Hem-Fir	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
	Hem-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern Pine	SS	9-4	14-7	19-3	24-7	26-0	9-4	14-7	19-3	24-7	26-0
	Southern Pine	#1	<del>9-1</del> 8-11	<del>14-4</del> 14-1	<del>18-11</del> 18-6	<del>24-1</del> 23-2	26-0	<del>9-1</del> 8-11	<del>14-4</del> 13-7	<del>18-10</del> 17-2	<del>22-4</del> 20-1	<del>26-0</del> 23-10
	Southern Pine	#2	<del>8-11</del> 8-7	<del>14-1</del> 13-5	<del>18-6</del> 17-1	<del>23-2</del> 20-3	26-0	<del>8-11</del> 7-9	<del>13-0</del> 11-8	<del>16-10</del> 14-9	<del>20-1</del> 17-6	<del>23-7</del> 20-8
	Southern Pine	#3	<del>7-11</del> 6-11	<del>11-8</del> 10-2	<del>14-10</del> 12-10	<del>17-6</del> 15-7	<del>20-11</del> 18-6	<del>6-10</del> 6-0	<del>10-1</del> 8-10	<del>12-10</del> 11-2	<del>15-2</del> 13-6	<del>18-1</del> 16-0
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1	26-0	8-9	13-9	18-1	23-0	26-0
	Spruce-Pine-Fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10

(continued)

**TABLE 2308.10.3(2)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Roof Live Load = 20 pounds per square foot, Ceiling Attached to Rafters, L/A = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-7	26-0	8-11	14-0	18-5	22-7	26-0
	Douglas Fir-Larch	#1	8-7	13-6	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-5	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Douglas Fir-Larch	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	SS	8-5	13-3	17-5	22-3	26-0	8-5	13-3	17-5	22-3	25-9
	Hem-Fir	#1	8-3	12-11	17-1	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	7-10	12-4	16-3	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	8-9	13-9	<del>18-1</del> <u>18-2</u>	23-1	26-0	8-9	13-9	<del>18-1</del> <u>18-2</u>	23-1	26-0
	Southern Pine	#1	<del>8-7</del> <u>8-5</u>	<del>13-6</del> <u>13-3</u>	<del>17-9</del> <u>17-5</u>	<del>22-8</del> <u>21-2</u>	Note b <u>25-2</u>	8-7	<del>13-6</del> <u>12-4</u>	<del>17-2</del> <u>15-8</u>	<del>20-5</del> <u>18-4</u>	<del>24-4</del> <u>21-9</u>
	Southern Pine	#2	<del>8-5</del> <u>8-1</u>	<del>13-3</del> <u>12-3</u>	<del>17-5</del> <u>15-7</u>	<del>21-2</del> <u>18-6</u>	<del>24-10</del> <u>21-9</u>	8-4	<del>11-11</del> <u>10-8</u>	<del>15-4</del> <u>13-6</u>	<del>18-4</del> <u>16-0</u>	<del>21-6</del> <u>18-10</u>
	Southern Pine	#3	<del>7-3</del> <u>6-4</u>	<del>10-8</del> <u>9-4</u>	<del>13-7</del> <u>11-9</u>	<del>16-0</del> <u>14-3</u>	<del>19-1</del> <u>16-10</u>	6-3	<del>9-3</del> <u>8-1</u>	<del>11-9</del> <u>10-2</u>	<del>13-10</del> <u>12-4</u>	<del>16-6</del> <u>14-7</u>
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-9	26-0	8-3	12-11	17-1	21-0	24-4
	Spruce-Pine-Fir	#1	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
24	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	26-0	8-3	13-0	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-0	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	7-10	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-10	23-0
	Hem-Fir	#1	7-8	12-0	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-3	11-5	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern Pine	SS	8-1	12-9	16-10	21-6	26-0	8-1	12-9	16-10	<del>21-6</del> <u>20-10</u>	<del>26-0</del> <u>24-8</u>
	Southern Pine	#1	<del>8-0</del> <u>7-10</u>	<del>12-6</del> <u>12-3</u>	<del>16-6</del> <u>16-2</u>	<del>21-1</del> <u>18-11</u>	<del>25-2</del> <u>22-6</u>	8-0	<del>12-3</del> <u>11-1</u>	<del>15-4</del> <u>14-0</u>	<del>18-3</del> <u>16-5</u>	<del>21-9</del> <u>19-6</u>
	Southern Pine	#2	<del>7-10</del> <u>7-4</u>	<del>12-3</del> <u>11-0</u>	<del>15-10</del> <u>13-11</u>	<del>18-11</del> <u>16-6</u>	<del>22-2</del> <u>19-6</u>	7-5	<del>10-8</del> <u>9-6</u>	<del>13-9</del> <u>12-1</u>	<del>16-5</del> <u>14-4</u>	<del>19-3</del> <u>16-10</u>
	Southern Pine	#3	<del>6-5</del> <u>5-8</u>	<del>9-6</del> <u>8-4</u>	<del>12-1</del> <u>10-6</u>	<del>14-4</del> <u>12-9</u>	<del>17-1</del> <u>15-1</u>	5-7	<del>8-3</del> <u>7-3</u>	<del>10-6</del> <u>9-1</u>	<del>12-5</del> <u>11-0</u>	<del>14-9</del> <u>13-1</u>
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>.

**TABLE 2308.10.3(3)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 30 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	10-0	15-9	20-9	26-0	26-0	10-0	15-9	20-1	24-6	26-0
	Douglas Fir-Larch	#1	9-8	14-9	18-8	22-9	26-0	9-0	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	9-5	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Douglas Fir-Larch	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	9-6	14-10	19-7	25-0	26-0	9-6	14-10	19-7	24-1	26-0
	Hem-Fir	#1	9-3	14-4	18-2	22-2	25-9	8-9	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-10	13-7	17-2	21-0	24-4	8-4	12-2	15-4	18-9	21-9
	Hem-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern Pine	SS	9-10	15-6	20-5	26-0	26-0	9-10	15-6	20-5	<del>26-0</del> 25-4	26-0
	Southern Pine	#1	<del>9-8</del> 9-6	<del>15-2</del> 14-10	<del>20-0</del> 19-0	<del>24-9</del> 22-3	26-0	<del>9-8</del> 9-0	<del>14-10</del> 13-5	<del>18-8</del> 17-0	<del>22-2</del> 19-11	<del>26-0</del> 23-7
	Southern Pine	#2	9-6	14-5	18-8	22-3	26-0	9-0	12-11	16-8	19-11	23-4
	Southern Pine	#3	<del>7-7</del> 6-7	<del>11-2</del> 9-9	<del>14-3</del> 12-4	<del>16-10</del> 15-0	<del>20-0</del> 17-9	<del>6-9</del> 5-11	<del>10-0</del> 8-9	<del>12-9</del> 11-0	<del>15-1</del> 13-5	<del>17-11</del> 15-10
	Spruce-Pine-Fir	SS	9-3	14-7	19-2	24-6	26-0	9-3	14-7	18-8	22-9	26-0
	Spruce-Pine-Fir	#1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-9	26-0	9-1	13-9	17-5	21-3	24-8
	Douglas Fir-Larch	#1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Douglas Fir-Larch	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	8-7	13-6	17-10	22-9	26-0	8-7	13-6	17-1	20-10	24-2
	Hem-Fir	#1	8-5	12-5	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern Pine	SS	8-11	14-1	18-6	23-8	26-0	8-11	14-1	<del>18-6</del> 18-5	<del>23-8</del> 21-11	<del>26-0</del> 25-11
	Southern Pine	#1	<del>8-9</del> 8-7	<del>13-9</del> 13-0	<del>18-1</del> 16-6	<del>21-5</del> 19-3	<del>25-7</del> 22-10	<del>8-8</del> 7-10	<del>12-10</del> 11-7	<del>16-2</del> 14-9	<del>19-2</del> 17-3	<del>22-10</del> 20-5
	Southern Pine	#2	8-7	12-6	16-2	19-3	22-7	7-10	11-2	14-5	17-3	20-2
	Southern Pine	#3	<del>7-6</del> 6-7	<del>11-2</del> 9-8	<del>14-2</del> 12-4	<del>16-10</del> 14-7	<del>19-10</del> 17-4	<del>6-8</del> 5-10	<del>10-0</del> 8-8	<del>12-8</del> 11-0	<del>15-1</del> 13-0	<del>17-9</del> 15-6
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10
	Spruce-Pine-Fir	#1	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6

(continued)

**TABLE 2308.10.3(3)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 30 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	8-7	13-6	17-9	21-8	25-2	8-7	12-6	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Douglas Fir-Larch	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1
	Hem-Fir	#1	7-9	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Southern Pine	SS	8-5	13-3	17-5	22-3	26-0	8-5	13-3	<del>17-5</del> 16-10	<del>22-0</del> 20-0	<del>25-9</del> 23-7
	Southern Pine	#1	<del>8-3</del> 8-0	<del>13-0</del> 11-10	<del>16-6</del> 15-1	<del>19-7</del> 17-7	<del>23-4</del> 20-11	<del>7-11</del> 7-1	<del>11-9</del> 10-7	<del>14-9</del> 13-5	<del>17-6</del> 15-9	<del>20-11</del> 18-8
	Southern Pine	#2	<del>7-11</del> 6-10	<del>11-5</del> 10-2	<del>14-9</del> 12-11	<del>17-7</del> 15-4	<del>20-7</del> 18-1	<del>7-1</del> 6-1	<del>10-2</del> 9-2	<del>13-2</del> 11-7	<del>15-9</del> 13-9	<del>18-5</del> 16-2
	Southern Pine	#3	<del>6-0</del> 5-3	<del>8-10</del> 7-9	<del>11-3</del> 9-9	<del>13-4</del> 11-10	<del>15-10</del> 14-0	<del>5-4</del> 4-8	<del>7-11</del> 6-11	<del>10-1</del> 8-9	<del>11-11</del> 10-7	<del>14-2</del> 12-6
	Spruce-Pine-Fir	SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
24	Douglas Fir-Larch	SS	7-11	12-6	15-10	19-5	22-6	7-8	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern Pine	SS	7-10	12-3	16-2	<del>20-8</del> 20-0	<del>25-1</del> 23-7	7-10	<del>12-3</del> 11-10	<del>16-2</del> 15-0	<del>19-8</del> 17-11	<del>23-0</del> 21-2
	Southern Pine	#1	<del>7-8</del> 7-1	<del>11-9</del> 10-7	<del>14-9</del> 13-5	<del>17-6</del> 15-9	<del>20-11</del> 18-8	<del>7-1</del> 6-4	<del>10-6</del> 9-6	<del>13-2</del> 12-0	<del>15-8</del> 14-1	<del>18-8</del> 16-8
	Southern Pine	#2	<del>7-1</del> 6-1	<del>10-2</del> 9-2	<del>13-2</del> 11-7	<del>15-9</del> 13-9	<del>18-5</del> 16-2	<del>6-4</del> 5-5	<del>9-2</del> 8-2	<del>11-9</del> 10-4	<del>14-1</del> 12-3	<del>16-6</del> 14-6
	Southern Pine	#3	<del>5-4</del> 4-8	<del>7-11</del> 6-11	<del>10-1</del> 8-9	<del>11-11</del> 10-7	<del>14-2</del> 12-6	<del>4-9</del> 4-2	<del>7-1</del> 6-2	<del>9-0</del> 7-10	<del>10-8</del> 9-6	<del>12-8</del> 11-2
	Spruce-Pine-Fir	SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>.

**TABLE 2308.10.3(4)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 50 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-0	20-9	24-10
	Douglas Fir-Larch	#1	8-2	12-0	15-3	18-7	21-7	7-7	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Hem-Fir	SS	8-0	12-6	16-6	21-1	25-6	8-0	12-6	16-6	20-4	23-7
	Hem-Fir	#1	7-10	11-9	14-10	18-1	21-0	7-5	10-10	13-9	16-9	19-5
	Hem-Fir	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Hem-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern Pine	SS	8-4	<del>13-0</del> 13-1	17-2	21-11	26-0	8-4	<del>13-0</del> 13-1	17-2	<del>21-11</del> 21-5	<del>26-0</del> 25-3
	Southern Pine	#1	<del>8-2</del> 8-0	<del>12-10</del> 12-3	<del>16-10</del> 15-6	<del>20-3</del> 18-2	<del>24-1</del> 21-7	<del>8-2</del> 7-7	<del>12-6</del> 11-4	<del>15-9</del> 14-5	<del>18-9</del> 16-10	<del>22-4</del> 20-0
	Southern Pine	#2	<del>8-0</del> 7-0	<del>11-9</del> 10-6	<del>15-3</del> 13-4	<del>18-2</del> 15-10	<del>21-3</del> 18-8	<del>7-7</del> 6-6	<del>10-11</del> 9-9	<del>14-1</del> 12-4	<del>16-10</del> 14-8	<del>19-9</del> 17-3
	Southern Pine	#3	<del>6-2</del> 5-5	<del>9-2</del> 8-0	<del>11-8</del> 10-1	<del>13-9</del> 12-3	<del>16-4</del> 14-6	<del>5-9</del> 5-0	<del>8-5</del> 7-5	<del>10-9</del> 9-4	<del>12-9</del> 11-4	<del>15-2</del> 13-5
	Spruce-Pine-Fir	SS	7-10	12-3	16-2	20-8	24-1	7-10	12-3	15-9	19-3	22-4
	Spruce-Pine-Fir	#1	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas Fir-Larch	SS	7-8	12-1	15-10	19-5	22-6	7-8	11-7	14-8	17-11	20-10
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Hem-Fir	SS	7-3	11-5	15-0	19-1	22-1	7-3	11-5	14-5	17-8	20-5
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Southern Pine	SS	7-6	11-10	15-7	19-11	<del>24-3</del> 23-7	7-6	11-10	15-7	<del>19-11</del> 18-6	<del>23-10</del> 21-10
	Southern Pine	#1	<del>7-5</del> 7-1	<del>11-7</del> 10-7	<del>14-9</del> 13-5	<del>17-6</del> 15-9	<del>20-11</del> 18-8	<del>7-4</del> 6-7	<del>10-10</del> 9-10	<del>13-8</del> 12-5	<del>16-2</del> 14-7	<del>19-4</del> 17-3
	Southern Pine	#2	<del>7-1</del> 6-1	<del>10-2</del> 9-2	<del>13-2</del> 11-7	<del>15-9</del> 13-9	<del>18-5</del> 16-2	<del>6-7</del> 5-8	<del>9-5</del> 8-5	<del>12-2</del> 10-9	<del>14-7</del> 12-9	<del>17-1</del> 15-0
	Southern Pine	#3	<del>5-4</del> 4-8	<del>7-11</del> 6-11	<del>10-1</del> 8-9	<del>11-11</del> 10-7	<del>14-2</del> 12-6	<del>4-11</del> 4-4	<del>7-4</del> 6-5	<del>9-4</del> 8-1	<del>11-0</del> 9-10	<del>13-1</del> 11-7
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	16-8	19-4
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3

(continued)

**TABLE 2308.10.3(4)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 50 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot					
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	
			Maximum rafter spans										
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)		
19.2	Douglas Fir-Larch	SS	7-3	11-4	14-6	17-8	20-6	7-3	10-7	13-5	16-5	19-0	
	Douglas Fir-Larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9	
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9	
	Douglas Fir-Larch	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2	
	Hem-Fir	SS	6-10	10-9	14-2	17-5	20-2	6-10	10-5	13-2	16-1	18-8	
	Hem-Fir	#1	6-4	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5	
	Hem-Fir	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7	
	Hem-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2	
	Southern Pine	SS	7-1	11-2	14-8	<del>18-9</del> 18-3	<del>22-10</del> 21-7	7-1	11-2	14-8	<del>18-7</del> 14-2	<del>21-9</del> 16-11	<del>20-0</del> 20-0
	Southern Pine	#1	<del>7-0</del> 6-6	<del>10-8</del> 9-8	<del>13-5</del> 12-3	<del>16-0</del> 14-4	<del>19-1</del> 17-1	6-8	9-11	12-5	<del>14-10</del> 11-4	<del>17-8</del> 13-4	<del>15-9</del> 15-9
	Southern Pine	#2	<del>6-6</del> 5-7	<del>9-4</del> 8-4	<del>12-0</del> 10-7	<del>14-4</del> 12-6	<del>16-10</del> 14-9	6-0	8-8	11-2	<del>13-4</del> 9-9	<del>15-7</del> 11-7	<del>13-8</del> 13-8
	Southern Pine	#3	<del>4-11</del> 4-3	<del>7-3</del> 6-4	<del>9-2</del> 8-0	<del>10-10</del> 9-8	<del>12-11</del> 11-5	4-6	6-8	8-6	<del>10-4</del> 8-11	<del>12-0</del> 10-7	
	Spruce-Pine-Fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8	
	Spruce-Pine-Fir	#1	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9	
	Spruce-Pine-Fir	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9	
	Spruce-Pine-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2	
24	Douglas Fir-Larch	SS	6-8	10-3	13-0	15-10	18-4	6-6	9-6	12-0	14-8	17-0	
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1	
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2	
	Douglas Fir-Larch	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0	
	Hem-Fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8	
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9	
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0	
	Hem-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0	
	Southern Pine	SS	6-7	10-4	13-8	<del>17-5</del> 16-4	<del>21-0</del> 19-3	6-7	10-4	13-8	<del>16-7</del> 12-8	<del>19-5</del> 15-2	<del>17-10</del> 17-10
	Southern Pine	#1	<del>6-5</del> 5-10	<del>9-7</del> 8-8	<del>12-0</del> 11-0	<del>14-4</del> 12-10	<del>17-1</del> 15-3	6-0	8-10	11-2	<del>13-3</del> 10-2	<del>15-9</del> 11-11	<del>14-1</del> 14-1
	Southern Pine	#2	<del>5-10</del> 5-0	<del>8-4</del> 7-5	<del>10-9</del> 9-5	<del>12-10</del> 11-3	<del>15-1</del> 13-2	5-5	7-9	10-0	<del>11-11</del> 8-9	<del>13-11</del> 10-5	<del>12-3</del> 12-3
	Southern Pine	#3	<del>4-4</del> 3-10	<del>6-5</del> 5-8	<del>8-3</del> 7-1	<del>9-9</del> 8-8	<del>11-7</del> 10-3	4-1	6-0	7-7	<del>9-0</del> 8-0	<del>10-8</del> 9-6	
	Spruce-Pine-Fir	SS	6-2	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9	
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2	
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2	
	Spruce-Pine-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>.

**TABLE 2308.10.3(5)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 30 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	
12	Douglas Fir-Larch	SS	9-1	14-4	18-10	24-1	26-0	9-1	14-4	18-10	24-1	26-0
	Douglas Fir-Larch	#1	8-9	13-9	18-2	22-9	26-0	8-9	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	8-7	13-6	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Douglas Fir-Larch	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	8-7	13-6	17-10	22-9	26-0	8-7	13-6	17-10	22-9	26-0
	Hem-Fir	#1	8-5	13-3	17-5	22-2	25-9	8-5	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-0	12-7	16-7	21-0	24-4	8-0	12-2	15-4	18-9	21-9
	Hem-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern Pine	SS	8-11	14-1	18-6	23-8	26-0	8-11	14-1	18-6	23-8	26-0
	Southern Pine	#1	<del>8-9</del> <u>8-7</u>	<del>13-9</del> <u>13-6</u>	<del>18-2</del> <u>17-10</u>	<del>23-2</del> <u>22-3</u>	26-0	<del>8-9</del> <u>8-7</u>	<del>13-9</del> <u>13-5</u>	<del>18-2</del> <u>17-0</u>	<del>22-2</del> <u>19-11</u>	<del>26-0</del> <u>23-7</u>
	Southern Pine	#2	<del>8-7</del> <u>8-3</u>	<del>13-6</del> <u>12-11</u>	<del>17-10</del> <u>16-4</u>	<del>22-3</del> <u>19-5</u>	<del>26-0</del> <u>22-10</u>	<del>8-7</del> <u>7-8</u>	<del>12-11</del> <u>11-7</u>	<del>16-8</del> <u>14-8</u>	<del>19-11</del> <u>17-4</u>	<del>23-4</del> <u>20-5</u>
	Southern Pine	#3	<del>7-7</del> <u>6-7</u>	<del>11-2</del> <u>9-9</u>	<del>14-3</del> <u>12-4</u>	<del>16-10</del> <u>15-0</u>	<del>20-0</del> <u>17-9</u>	<del>6-9</del> <u>5-11</u>	<del>10-0</del> <u>8-9</u>	<del>12-9</del> <u>11-0</u>	<del>15-1</del> <u>13-5</u>	<del>17-11</del> <u>15-10</u>
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-3	26-0	8-5	13-3	17-5	22-3	26-0
	Spruce-Pine-Fir	#1	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	26-0	8-3	13-0	17-2	21-3	24-8
	Douglas Fir-Larch	#1	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	7-10	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Douglas Fir-Larch	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	20-8	24-2
	Hem-Fir	#1	7-8	12-0	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	7-3	11-5	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern Pine	SS	8-1	12-9	16-10	21-6	26-0	8-1	12-9	16-10	21-6	<del>26-0</del> <u>25-11</u>
	Southern Pine	#1	<del>8-0</del> <u>7-10</u>	<del>12-6</del> <u>12-3</u>	<del>16-6</del> <u>16-2</u>	<del>21-1</del> <u>19-3</u>	<del>25-7</del> <u>22-10</u>	<del>8-0</del> <u>7-10</u>	<del>12-6</del> <u>11-7</u>	<del>16-2</del> <u>14-9</u>	<del>19-2</del> <u>17-3</u>	<del>22-10</del> <u>20-5</u>
	Southern Pine	#2	<del>7-10</del> <u>7-6</u>	<del>12-3</del> <u>11-2</u>	<del>16-2</del> <u>14-2</u>	<del>19-3</del> <u>16-10</u>	<del>22-7</del> <u>19-10</u>	<del>7-10</del> <u>6-8</u>	<del>11-2</del> <u>10-0</u>	<del>14-5</del> <u>12-8</u>	<del>17-3</del> <u>15-1</u>	<del>20-2</del> <u>17-9</u>
	Southern Pine	#3	<del>6-7</del> <u>5-9</u>	<del>9-8</del> <u>8-6</u>	<del>12-4</del> <u>10-8</u>	<del>14-7</del> <u>13-0</u>	<del>17-4</del> <u>15-4</u>	<del>5-10</del> <u>5-2</u>	<del>8-8</del> <u>7-7</u>	<del>11-0</del> <u>9-7</u>	<del>13-0</del> <u>11-7</u>	<del>15-6</del> <u>13-9</u>
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	19-9	22-10
	Spruce-Pine-Fir	#1	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6

(continued)

**TABLE 2308.10.3(5)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
**(Ground Snow Load = 30 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)**

RAFTER SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	7-9	12-3	16-1	20-7	25-0	7-9	12-3	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-6	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-4	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Douglas Fir-Larch	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	7-4	11-7	15-3	19-5	23-7	7-4	11-7	15-3	19-1	22-1
	Hem-Fir	#1	7-2	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Southern Pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	<del>20-2</del> 20-0	<del>24-7</del> 23-7
	Southern Pine	#1	7-6	11-9	15-6	19-7	23-4	7-6	11-9	14-9	17-6	20-11
	Southern Pine	#2	7-4	11-7	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#3	7-4	11-5	14-9	17-7	20-7	7-1	10-2	13-2	15-9	18-5
	Southern Pine	#3	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern Pine	#3	6-0	8-10	11-3	13-4	15-10	5-4	7-11	10-1	11-11	14-2
	Southern Pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-Pine-Fir	SS	7-2	11-4	14-11	19-0	23-1	7-2	11-4	14-9	18-0	20-11
Spruce-Pine-Fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6	
Spruce-Pine-Fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6	
Spruce-Pine-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2	
24	Douglas Fir-Larch	SS	7-3	11-4	15-0	19-1	22-6	7-3	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	6-10	10-9	14-2	18-0	21-11	6-10	10-9	13-11	17-0	19-9
	Hem-Fir	#1	6-8	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern Pine	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	<del>18-9</del> 17-11	<del>22-10</del> 21-2
	Southern Pine	#1	7-0	10-11	14-5	17-6	20-11	7-0	10-6	13-2	15-8	18-8
	Southern Pine	#2	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#3	6-10	10-2	13-2	15-9	18-5	6-4	9-2	11-9	14-1	16-6
	Southern Pine	#3	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern Pine	#3	5-4	7-11	10-1	11-11	14-2	4-9	7-1	9-0	10-8	12-8
	Southern Pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-Pine-Fir	SS	6-8	10-6	13-10	17-8	20-11	6-8	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>.

**TABLE 2308.10.3(6)**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 50 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	7-8	12-1	15-11	20-3	24-8	7-8	12-1	15-11	20-3	24-0
	Douglas Fir-Larch	#1	7-5	11-7	15-3	18-7	21-7	7-5	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-3	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Hem-Fir	SS	7-3	11-5	15-0	19-2	23-4	7-3	11-5	15-0	19-2	23-4
	Hem-Fir	#1	7-1	11-2	14-8	18-1	21-0	7-1	10-10	13-9	16-9	19-5
	Hem-Fir	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Hem-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern Pine	SS	7-6	11-0	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern Pine	#1	7-5	11-7	15-4	19-7	23-9	7-5	11-7	15-4	18-9	22-4
			<u>7-3</u>	<u>11-5</u>	<u>15-0</u>	<u>18-2</u>	<u>21-7</u>	<u>7-3</u>	<u>11-4</u>	<u>14-5</u>	<u>16-10</u>	<u>20-0</u>
	Southern Pine	#2	7-3	11-5	15-0	18-2	21-3	7-3	10-11	14-1	16-10	19-9
			<u>6-11</u>	<u>10-6</u>	<u>13-4</u>	<u>15-10</u>	<u>18-8</u>	<u>6-6</u>	<u>9-9</u>	<u>12-4</u>	<u>14-8</u>	<u>17-3</u>
	Southern Pine	#3	6-2	9-2	11-8	13-9	16-4	5-9	8-5	10-9	12-9	15-2
			<u>5-5</u>	<u>8-0</u>	<u>10-1</u>	<u>12-3</u>	<u>14-6</u>	<u>5-0</u>	<u>7-5</u>	<u>9-4</u>	<u>11-4</u>	<u>13-5</u>
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	18-9	22-4
Spruce-Pine-Fir	#1	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8	
Spruce-Pine-Fir	#2	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8	
Spruce-Pine-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1	
16	Douglas Fir-Larch	SS	7-0	11-0	14-5	18-5	22-5	7-0	11-0	14-5	17-11	20-10
	Douglas Fir-Larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-7	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Hem-Fir	SS	6-7	10-4	13-8	17-5	21-2	6-7	10-4	13-8	17-5	20-5
	Hem-Fir	#1	6-5	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Southern Pine	SS	6-10	10-9	14-2	18-1	22-0	6-10	10-9	14-2	18-1	<del>22-0</del> 21-10
	Southern Pine	#1	6-9	10-7	13-11	17-6	20-11	6-9	10-7	13-8	16-2	19-4
			<u>6-7</u>	<u>10-4</u>	<u>13-5</u>	<u>15-9</u>	<u>18-8</u>	<u>6-7</u>	<u>9-10</u>	<u>12-5</u>	<u>14-7</u>	<u>17-3</u>
	Southern Pine	#2	6-7	10-2	13-2	15-9	18-5	6-7	9-5	12-2	14-7	17-1
			<u>6-1</u>	<u>9-2</u>	<u>11-7</u>	<u>13-9</u>	<u>16-2</u>	<u>5-8</u>	<u>8-5</u>	<u>10-9</u>	<u>12-9</u>	<u>15-0</u>
	Southern Pine	#3	5-4	7-11	10-1	11-11	14-2	4-11	7-4	9-4	11-0	13-1
			<u>4-8</u>	<u>6-11</u>	<u>8-9</u>	<u>10-7</u>	<u>12-6</u>	<u>4-4</u>	<u>6-5</u>	<u>8-1</u>	<u>9-10</u>	<u>11-7</u>
	Spruce-Pine-Fir	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-8	19-4
Spruce-Pine-Fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2	
Spruce-Pine-Fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2	
Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3	

(continued)

**TABLE 2308.10.3(6)—continued**  
**RAFTER SPANS FOR COMMON LUMBER SPECIES**  
 (Ground Snow Load = 50 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 pounds per square foot					DEAD LOAD = 20 pounds per square foot				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	6-7	10-4	13-7	17-4	20-6	6-7	10-4	13-5	16-5	19-0
	Douglas Fir-Larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Douglas Fir-Larch	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Hem-Fir	SS	6-2	9-9	12-10	16-5	19-11	6-2	9-9	12-10	16-1	18-8
	Hem-Fir	#1	6-1	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#2	5-9	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Southern Pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	<del>17-0</del> 16-11	<del>20-9</del> 20-0
	Southern Pine	#1	6-4	<del>9-11</del> 9-8	<del>13-1</del> 12-3	<del>16-0</del> 14-4	<del>19-1</del> 17-1	6-4	<del>9-11</del> 9-0	<del>12-5</del> 11-4	<del>14-10</del> 13-4	<del>17-8</del> 15-9
	Southern Pine	#2	6-2	9-4	<del>12-0</del> 10-7	<del>14-4</del> 12-6	<del>16-10</del> 14-9	6-0	8-8	<del>11-2</del> 9-9	<del>13-4</del> 11-7	<del>15-7</del> 13-8
	Southern Pine	#3	<del>4-11</del> 4-3	7-3	9-2	<del>10-10</del> 9-8	<del>12-11</del> 11-5	4-6	6-8	8-6	<del>10-1</del> 8-11	<del>12-0</del> 10-7
	Spruce-Pine-Fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Douglas Fir-Larch	SS	6-1	9-7	12-7	15-10	18-4	6-1	9-6	12-0	14-8	17-0
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Douglas Fir-Larch	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Hem-Fir	SS	5-9	9-1	11-11	15-12	18-0	5-9	9-1	11-9	14-5	16-8
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Hem-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Southern Pine	SS	6-0	9-5	12-5	15-10	19-3	6-0	9-5	12-5	<del>15-10</del> 15-2	<del>19-3</del> 17-10
	Southern Pine	#1	<del>5-10</del> 5-9	9-3	<del>12-0</del> 11-0	<del>14-4</del> 12-10	<del>17-1</del> 15-3	<del>5-10</del> 5-5	<del>8-10</del> 8-0	<del>11-2</del> 10-2	<del>13-3</del> 11-11	<del>15-9</del> 14-1
	Southern Pine	#2	<del>5-9</del> 5-0	8-4	<del>10-9</del> 9-5	<del>12-10</del> 11-3	<del>15-1</del> 13-2	<del>5-5</del> 4-7	<del>7-9</del> 6-11	<del>10-0</del> 8-9	<del>11-11</del> 10-5	<del>13-11</del> 12-3
	Southern Pine	#3	<del>4-4</del> 3-10	6-5	8-3	9-9	<del>11-7</del> 10-3	<del>4-1</del> 3-6	6-0	7-7	9-0	<del>10-8</del> 9-6
	Spruce-Pine-Fir	SS	5-8	8-10	11-8	14-8	17-1	5-8	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m<sup>2</sup>

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Placeholder \_\_\_\_\_

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

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

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

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

Proposal Information

Code(s) and Section(s): Section 202 \_\_\_\_\_

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

See attached 2015 code changes. USBC definition uses "main use" that appears problematic. Should accessory use be used if 10% is used for dancing?

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

Submittal Information

Date Submitted: 6/25/13 \_\_\_\_\_

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

Please submit the proposal to:

DHCD DEBAR State Building Codes Office  
600 East Main Street,  
Suite 300  
Richmond, VA 23219

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



SRWG... agrees with Western Work Group's suggestion but footnote "a" should be changed to read "only applies to group A2 occupancies with a dance floor, where alcohol is consumed and live or recorded entertainment is provided".

Committee: AS

WRWG: Revise proposal as follows. Better reflects the NIST recommendation. Addresses concerns raised retrofitting sprinklers in restaurants and other non-nightclub type A-2s. This retains sprinklering of A-2 portion only.

## F222 – 13

1103.5.3 (New), Table 1103.1

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

**1103.5.3 Group A-2.** An automatic sprinkler system shall be installed in accordance with Section 903.3.1.1 throughout existing nightclubs, bars or taverns buildings or portions thereof used classified as Group A-2 occupancies with an occupant load of 300 or more.

Section	Use			Occupancy Classification																					
				A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S			
1103.5.3	-	-	-	R <sup>a</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a. Only applies to Group A-2 occupancies.

### REASON:

This requirement implements the Recommendation #1 included in the NIST Report of the Technical Investigation of The Station Nightclub Fire (NIST NCSTAR 2: Vol. I). *Recommendation 1* of the NIST report states: "Model codes should require sprinkler systems for all new and existing nightclubs regardless of size."

There is a list of fires in Group A-2 occupancies. This list includes the Station Nightclub, Beverly Hill Supper Club, the Coconut Grove and others. Each of these fires have resulted in a significant loss of life.

Group A-2 occupancies involve conditions such as large occupant loads, high occupant density, significant fuel loading and moveable furnishings and decorations. Group A-2 occupancies also include the potential for reduced lighting levels, high noise levels, combustible decorations, strobe and flashing lights, alcohol consumption, and confusing egress paths. Each of these alone can be a significant issue, but when combined they lead to the inability of the occupants to promptly and safely exit the building under fire conditions.

This proposal considers the arrangement of the IBC occupancy classifications and the inclusion of other uses in addition to nightclubs within the Group A-2 classification. Therefore, this proposal does not reach as far as the recommendation from NIST. While the NIST proposal recommends fire sprinklers in ALL

## **Rodgers, Emory (DHCD)**

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**From:** Bruce E. Johnson [bejohnson@iccsafe.org]  
**Sent:** Wednesday, June 05, 2013 7:05 PM  
**To:** Andy King; Bill Rehr; Bruce Swiecicki; Adolf Zubia; Chief Perdue Alan, Ret.; Daniel P. Finnegan, CFPS ; Earl Valois; Rodgers, Emory (DHCD); Fire Chief Michael O'Brian, CFO; Dean, Glenn (VDFP); Hopper Howard; J. Kendal Kraus; Jeff Hugo, CBO; Kenneth Bush; Kevin Quinn; Marc Sampson, FPE  
**Subject:** Fire-CAC: NJ Nightclub Definition

*This e-mail is being sent to you at the request of Chairman Zubia.*

**Bruce E. Johnson**  
***International Code Council***  
PO Box 655  
Jamesport, New York 11947

Toll-free: 888-422-7233 Ext. 7276  
Cell: 631-220-8135  
Fax: 631-722-5656  
[BEJohnson@iccsafe.org](mailto:BEJohnson@iccsafe.org)

----- Forwarded Message -----

**From:** Robert J Davidson <[rjd@davidsoncodeconcepts.com](mailto:rjd@davidsoncodeconcepts.com)>  
**To:** 'Bruce E. Johnson' <[bejohnson@iccsafe.org](mailto:bejohnson@iccsafe.org)>; 'Hopper, Howard D.' <[Howard.D.Hopper@ul.com](mailto:Howard.D.Hopper@ul.com)>; 'Adolf Zubia' <[azubiamia@yahoo.com](mailto:azubiamia@yahoo.com)>; [Glenn.Dean@vdfp.virginia.gov](mailto:Glenn.Dean@vdfp.virginia.gov)  
**Sent:** Wednesday, June 5, 2013 1:58 PM  
**Subject:** NJ Nightclub Definition

For distribution

"Use Group A-2 (nightclubs)": This Use Group shall include all buildings and places of public assembly, designed for use as dance halls, nightclubs, eating and/or drinking establishments, and similar occupancies, in which the established maximum permitted occupant load exceeds the number of seats provided by more than 30 percent or which affords less than 12 square feet net area per occupant. For purposes of determining the net area per occupant, only the actual public assembly room or rooms shall be considered. For purposes of applying the requirements of this chapter, the nightclub shall include all rooms, lobbies and other spaces connected thereto with a common means of egress and entrance. "

Robert J Davidson  
Davidson Code Concepts, LLC  
311 Camperdown Ct.  
Easley, SC 29642  
732-643-1799 Phone  
732-982-1001 Fax  
732-489-0264 Cell  
[www.davidsoncodeconcepts.com](http://www.davidsoncodeconcepts.com)  
[rjd@davidsoncodeconcepts.com](mailto:rjd@davidsoncodeconcepts.com)

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

**Code Change Form for the 2012 Code Change Cycle**

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

Proponent Information (Check one):  Individual  Government Entity  Company

Name: Robby Dawson Representing: Fire Services Board Code Committee

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

Email Address: Dawsonj@chesterfield.gov Telephone Number: 804-717-6838

Proposal Information

Code(s) and Section(s): Table 5003.1.1(1)

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

**Revise as follows:**

**Table 5003.1.1(1)**  
**Maximum Allowable Quantity Per Control Area of Hazardous Materials Posing a Physical Hazard**

Material	Class	Group When the Maximum Allowable Quantity is Exceeded	Storage			Use-Closed Systems			Use-Open Systems	
			Solid Pounds	Liquid Gallons	Gas Cubic feet At NTP	Solid Pounds	Liquid Gallons	Gas Cubic feet At NTP	Solid Pounds	Liquid gallons
Consumer fireworks	1.4G	H-3	125 <sup>d,e,f</sup>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

(Deletion of reference to footnote "d" - Remainder of table unchanged.)

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

This is a replication of ICC/IFC Code Change F289-13 that was recommended for approval at the Dallas CAH with a 8-6 committee vote.

In an October 2007 report, the NFPA Standards Council has called into question the appropriateness and reasoning of an increase based on sprinkler protection in the absence of test data justifying the increase. Because of the lack of test data to determine at what level or quantity of consumer fireworks above 125 pounds (500 pounds gross) could or should have the benefit of sprinkler protection, the Standards Council has ordered the issuance of a Tentative Interim Amendment (TIA). This action effectively eliminated the option of an increase for sprinkler protection until such time as acceptable test data is submitted to justify an increase and to what level of increase it could be. Therefore, due to the TIA, the maximum amount of consumer fireworks in the NFPA standard for retail establishments is limited to 125 pounds net (500 pounds gross). In addition, with the TIA the maximum size of consumer firework storage buildings will be limited to 12,000ft<sup>2</sup> in area. Full background information may be found at the document information tab at [www.nfpa.org/1124](http://www.nfpa.org/1124)

For the same reasons, until such time as testing is completed, or if ever completed, this change is to delete the reference to footnote "d" that provided a 100% increase to the amount of consumer fireworks allowed if sprinkler protection is provided, when it has been revealed that the original increase was not based on a credible, verifiable series of tests to determine what the appropriate sprinkler design density should be for what may be typical of the quantities of consumer fireworks present in retail establishments and still not become a Group H-3 building.

Additionally, there is movement in the General Assembly with tentative endorsement of the fire service in Virginia to expand the types of consumer fireworks permitted under Virginia Title 27 which would increase the quantity and types of consumer fireworks available for retail sale in Virginia.

Considering these developments – 1. The national standards organization eliminating sprinkler increases; 2. The national model codes eliminating the sprinkler increases; and 3. The seemingly inevitable expansion of types of consumer fireworks being offered for sale in Virginia, in the absence of the credible evidence these products do not adversely impact the built in fire protection systems in non H use groups, it is wise to adopt the model code in Virginia as soon as possible to ensure the safety of the public.

### Submittal Information

Date Submitted: 6/3/2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Placeholder \_\_\_\_\_

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

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

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

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

Proposal Information

Code(s) and Sections (s): USBC IBC T307.1(1), IFC Section Table 2703.1.1(1)

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

Add under each table cited after 1.4G a new category for permissible fireworks:

**Consumer fireworks:**

**(Permissible fireworks) H-3 solid pounds cubic feet 250 (with footnotes – 1.4G remains at 125 pounds and up to 250 if sprinkled unless Glen Dean code change is approved; then 125 pounds prevails) to 500 where sprinkled.**

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

There has been no demonstrated problem that the storage of permissible fireworks for retail sales in retail stores and at outdoor stands, especially near the 4<sup>th</sup> of July, presents a fire hazard or would negatively impact the building construction or fire safety systems required to M, A or B occupancies. Certainly, the 125 solid pounds for 1.4G fireworks is appropriate before the H occupancy requirements are mandated. The Virginia laws that carved out permissible fireworks did so appropriately because of the limit on the explosive/burning materials are highly restricted to .25 grams. In fact, one could say there is not storage or display limit on permissible fireworks. However, it is also reasonable for other reasons from supervision, security and display distances that a limit should be set that is reasonable and allows the businesses and wholesalers to have the amounts and area to display or store on the premises adequate product of permissible fireworks. The amount recommended for approval satisfies all aspects of building and fire safety and the ability to display the product in a store for meeting customer's demands that is general during a very short time frame of several months per year. There are other requirements dealing with separation from other products, storage on or out of the building on-site found in the USBC and the SFPC the amount recommended to be listed in the two IBC and IFC tables is clearly a USBC occupancy, construction type and fire safety systems matter. The SFPC would then handle maintenance of these requirements and operational issues in the SFPC.

Submittal Information

Date Submitted: 6/25/13 \_\_\_\_\_

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: DHCD Staff

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

Proposal Information

Code(s) and Section(s): VCC, IBC Section 1203.6

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

Add Section 1203.6 to the IBC to read:

1203.6 Smoking areas in restaurants. Smoking areas in restaurants, as defined in § 15.2-2820 of the Code of Virginia, shall comply with the following:

1. The area where smoking may be permitted shall be structurally separated from the portion of the restaurant in which smoking is prohibited. For the purposes of this section, structurally separated means a stud wall covered with drywall or other building material or like barrier, which, when completed, extends from the floor to the ceiling, resulting in a physically separated room. Such wall or barrier may include portions that are glass or other gas-impervious building material and shall be permitted to have a door leading to areas in which smoking is prohibited, provided the door is capable of being closed at all times.

2. The area where smoking may be permitted shall be separately vented to prevent the recirculation of air from such area to the area of the restaurant where smoking is prohibited.

Exception: The above requirements do not apply if a restaurant is exempt from, or meets any of the exceptions to, the Virginia Indoor Clean Air Act (Chapter 28.2 of Title 15.2 (§ 15.2-2820 et seq.) of the Code of Virginia).

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

This proposal is based on the Memorandum of Agreement between DHCD, VDH and VDACS which focuses on the section of the Virginia Indoor Clean Air Act that addresses smoking in restaurants. The proposal adds the construction requirements of the regulation to the IBC.

Submittal Information

Date Submitted: June 20, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



Memorandum of Agreement Between  
The Virginia Department of Health The  
Virginia Department of Housing and Community Development and  
The Virginia Department of Agriculture Consumer Services  
October 2009

Statutory Authority

This agreement is established with reference to the Virginia Indoor Clean Air Act (Title 15.2 §2820-2833), Virginia Food Regulations (12 VAC 5-421), Virginia Retail Food Establishment Regulations (2 VAC 5-585) and the Virginia Uniform Statewide Building Code (USBC), (13 VAC 5-63) regarding the policies and procedures pursuant to these Acts and regulations.

Purpose

With the Governor's signing of House Bill 1703, smoking in restaurants will be prohibited effective December 1, 2009, with limited exceptions. One of these exceptions includes the construction of an area inside a restaurant where smoking may occur provided it is:

*"...(i) structurally separated from the portion of the restaurant in which smoking is prohibited and to which ingress and egress is through a door and (ii) is separately vented to prevent the recirculation of air from such area to the area of the restaurant where smoking is prohibited. At least one public entrance to the restaurant shall be into an area of the restaurant where smoking is prohibited."*

Statutory authority has been granted to the Virginia Department of Health to inspect for compliance with this section. The Virginia Department of Health (VDH), the Virginia Department of Housing and Community Development (VDHCD), and the Virginia Department of Agriculture Consumer Services (VDACS) have regulatory authority to review the construction and renovation of restaurants. Additionally, VDACS and VDH share responsibility for inspecting certain types of restaurants. To eliminate as much overlap, conflict, or duplication as possible, an agreement between VDH, VDHCD, and VDACS is established by this Memorandum of Agreement.

In order to assure this agreement can be implemented, VDH, VDHCD, and VDACS recognize that there are major areas of regulatory responsibility with respect to the review of construction and renovation in restaurants. These are identified in Part I of this agreement and relate to the responsibilities that VDH, VDHCD, and VDACS each have with respect to this new law. Additionally, both VDH and VDACS share responsibility for inspecting restaurants in Virginia. Gas stations and convenience stores with fifteen or fewer seats are inspected by

VDACS whereas all other restaurants are inspected by VDH. Responsibility for compliance with this law at all restaurants across the state is described in Part II of this agreement. The following agreement outlines the responsibilities assigned to each agency in accordance with these areas.

## I. Restaurant Construction and Renovation

### a. Permits and Plan Review Services – Local Building Official

When a permit applicant for a new restaurant submits plans, which include a separate area for smoking; or plans for the renovation of an existing restaurant that include a separate area for smoking, to the local building official for review and approval, the building official will evaluate the restaurant design for:

- i. Compliance with the USBC-Virginia Construction Code for separately vented requirements applicable to smoking areas; for separation of the smoking area from the non-smoking area with a structural component of materials constructed from the floor to the ceiling; for means of egress, accessibility and occupant load; and, all other applicable USBC requirements to prevent recirculation of air and the migration of smoke. The ingress/egress door to the smoking area is required to be capable of remaining in the closed position and is not required to be self-closing.
- ii. Upon completion of the review, the building official will issue an approved building permit to the permit applicant that verifies the area designated a smoking area is in compliance with all applicable provisions of the USBC.

### b. Permits and Plan Review Services – Local Health Department

When a permit applicant for a new restaurant submits plans, which include a separate area for smoking; or plans for the renovation of an existing restaurant that include a separate area for smoking, to the Local Health Department (LHD) as required by 12 VAC 5-421-3600, the LHD, upon receipt of written verification from the local building official that the area designated as a smoking area is in compliance with the USBC, will evaluate the restaurant plans for:

- i. Ingress and egress into the area through a door that remains closed when not being actively used for ingress or egress.

- ii. At least one public entrance to the restaurant in the area of the restaurant where smoking is prohibited.
- iii. Posted signs stating "No Smoking" or signs containing the international "No Smoking" symbol, consisting of a pictorial representation of a burning cigarette enclosed in a red circle with a bar across it clearly and conspicuously in the restaurant where smoking is prohibited.

#### c. Plan Review Services—VDACS

When a new restaurant gas station or convenience store with fifteen or fewer seats submits plans, which include a separate area for smoking: or plans for the renovation of an existing restaurant gas station or convenience store with fifteen or fewer seats that include a separate area for smoking, to VDACS as required by 2 VAC 5-585-3600, VDACS, upon receipt of written verification from the local building official that the area designated as a smoking area is in compliance with the USBC, will evaluate the restaurant gas station or convenience store plans with fifteen or fewer seats for:

- i. Ingress and egress into the area through a door that remains closed when not being actively used for ingress or egress.
- ii. At least one public entrance to the restaurant in the area of the restaurant where smoking is prohibited.
- iii. Posted signs stating "No Smoking" or signs containing the international "No Smoking" symbol, consisting of a pictorial representation of a burning cigarette enclosed in a red circle with a bar across it clearly and conspicuously in the restaurant where smoking is prohibited.

## II. Restaurant Inspections

Whereas VDACS has regulatory authority to inspect restaurant gas stations and convenience stores with fifteen or fewer seats and VDH has regulatory authority to inspect all other restaurants in Virginia, both agencies will inspect for compliance with this law as follows:

- i. Verify that the proprietor posts signs stating "No Smoking" or containing the international "No Smoking" symbol, consisting of a pictorial representation of a burning cigarette enclosed in a red circle with a bar across it, clearly and conspicuously in every restaurant where smoking is prohibited
- ii. Verify that the proprietor has removed all ashtrays and other smoking paraphernalia from any area in the restaurant smoking is prohibited

If alleged non-compliance is observed during restaurant inspections conducted by VDACS at gas stations or convenience stores with fifteen or fewer seats, VDACS will notify the local health department of their observations after informing the proprietor of the standards listed above.

### III. Agreement and Consent

This agreement shall be effective upon the signature of the State Commissioner of Health, the Director of Housing and Community Development, and the State Commissioner of Agriculture, and shall remain in effect until modified or terminated by mutual agreement of the agency heads. Any agency may terminate their participation in this agreement by notifying the other of their intent thirty-days prior to such termination.

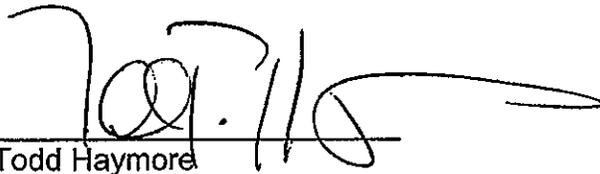
This memorandum of agreement is for the purpose of facilitating cooperation between three agencies of the Commonwealth. It does not intend to create, nor does it create any rights in any fourth party.



Karen Remley, MD, MBA, EAAP  
Commissioner  
Virginia Department of Health



Bill Shelton  
Director  
Virginia Department of Housing  
And Community Development



Todd Haymore  
Commissioner  
Virginia Department of Agriculture

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Charles E. Gerber & Dale Powers

Representing: County of Henrico

Mailing Address: P. O. Box 90775 Henrico, VA 23273

Email Address: ger02@co.henrico.va.us  
pow02@co.henrico.va.us

Telephone Number: (804) 501-4369 (804) 501-5493

Proposal Information

Code(s) and Section(s): 2009 IPC 1003.4

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

*(6 pages)*

**1003.4 Oil Separators Required.** At repair garages, car-washing facilities, at factories where oily and flammable liquid wastes are produced, ~~and in hydraulic elevator pits,~~ separators shall be installed into which all oil-bearing, grease-bearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.

~~Exception: An oil separator is not required in hydraulic elevator pits where an approved alarm system is installed.~~

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

The requirement for an elevator pit to discharge into an oil separator and the Exception were added to the 2006 IPC. The proponent's reason is to prevent oil from discharging into the sanitary sewer. The problem is there is no oil present for this requirement to kick in. The addition of hydraulic elevators to this requirement was to contain a leak in the system if and when it happens. This is a preventative requirement that should be a maintenance issue! If there is a problem or leak in the elevator's hydraulic system, it needs to be taken care of immediately. Here are the problems; there is no oil present when the job is complete and the required separator is increasing the cost of construction. There are other requirements in the fire code and the elevator code that are not compatible with each other, in fact when putting all of these requirements together, it is dysfunctionall Here is an example; if there is a fire, the sprinklers required by section 903.3.1.1 in the 2009 International Building Code at the top and bottom of the elevator shaft is activated, the sump pump pumping 50 gallons per minute as required by the 2008 ASME A17.1 section 2.2.2.5 starts pumping 50 gallons per minute through the oil separator required by the 2009 IPC section 1003.4 and away goes trouble down the drain. Hence the problem. By deleting the oil separator requirement, at least whatever is in the separator will not be flushed down the drain circumventing the requirement. These three requirements do not work together! The easiest solution is to delete the oil separator requirement as well as the Exception. The issue of any oil going down the drain is the responsibility of the owner and their maintenance program. This deleted requirement will not affect the requirement for the sprinkler at the top and bottom of the shaft or the sump pump in the shaft. The cost impact will be a lowered cost of construction

*C.E. Gerber*

Submittal Information

Date Submitted: June 19, 2013

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



*C.E. Gerber*

## FIRE PROTECTION SYSTEMS

[F] TABLE 903.2.11.6  
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS

SECTION	SUBJECT
402.9	Covered malls
403.2, 403.3	High-rise buildings
404.3	Atriums
405.3	Underground structures
407.5	Group I-2
410.6	Stages
411.4	Special amusement buildings
412.4.6, 412.4.6.1, 412.6.5	Aircraft hangars
415.6.2.4	Group H-2
416.4	Flammable finishes
417.4	Drying rooms
507	Unlimited area buildings
508.2.5	Incidental accessory occupancies
1028.6.2.3	Smoke-protected assembly seating
IFC	Sprinkler system requirements as set forth in Section 903.2.11.6 of the <i>International Fire Code</i>

[F] 903.3.1 Standards. Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.

[F] 903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Section 903.3.1.1.1.

[F] 903.3.1.1.1 Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when *approved* by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a *fire-resistance rating* of not less than 2 hours.

4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.

5. Fire service access elevator machine rooms and machinery spaces.

[F] 903.3.1.2 NFPA 13R sprinkler systems. Where allowed in buildings of Group R, up to and including four stories in height, *automatic sprinkler systems* shall be installed throughout in accordance with NFPA 13R.

[F] 903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

[F] 903.3.1.3 NFPA 13D sprinkler systems. Where allowed, *automatic sprinkler systems* installed in one- and two-family *dwelling*s and *townhouses* shall be installed throughout in accordance with NFPA 13D.

[F] 903.3.2 Quick-response and residential sprinklers. Where automatic sprinkler systems are required by this code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing patient sleeping units in Group I-2 in accordance with this code.
2. *Dwelling units*, and *sleeping units* in Group R and I-1 occupancies.
3. Light-hazard occupancies as defined in NFPA 13.

[F] 903.3.3 Obstructed locations. Automatic sprinklers shall be installed with due regard to obstructions that will delay activation or obstruct the water distribution pattern. Automatic sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers.

Exception: Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904.

[F] 903.3.4 Actuation. *Automatic sprinkler systems* shall be automatically actuated unless specifically provided for in this code.

[F] 903.3.5 Water supplies. Water supplies for *automatic sprinkler systems* shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the *International Plumbing Code*.

in each joist channel, on each side, adjacent to the heat-producing device.

**8.15.1.5 Localized Protection of Exposed Combustible Construction or Exposed Combustibles.** In concealed spaces having exposed combustible construction, or containing exposed combustibles, in localized areas, the combustibles shall be protected as follows:

- (1) If the exposed combustibles are in the vertical partitions or walls around all or a portion of the enclosure, a single row of sprinklers spaced not over 12 ft (3.7 m) apart nor more than 6 ft (1.8 m) from the inside of the partition shall be permitted to protect the surface. The first and last sprinklers in such a row shall not be over 5 ft (1.5 m) from the ends of the partitions.
- (2) If the exposed combustibles are in the horizontal plane, the area of the combustibles shall be permitted to be protected with sprinklers on a light hazard spacing. Additional sprinklers shall be installed no more than 6 ft (1.8 m) outside the outline of the area and not more than 12 ft (3.7 m) on center along the outline. When the outline returns to a wall or other obstruction, the last sprinkler shall not be more than 6 ft (1.8 m) from the wall or obstruction.

**8.15.1.6** Sprinklers used in horizontal combustible concealed spaces (with a slope not exceeding 2 in 12) with combustible wood truss or wood joist construction having a combustible upper surface and where the depth of the space is less than 36 in. (914 mm) from deck to deck or with double wood joist construction with a maximum of 36 in. (914 mm) between the top of the bottom joist and the bottom of the upper joist shall be listed for such use.

**8.15.1.7** Sprinklers specifically listed to provide protection of combustible concealed spaces described in 8.15.1.6 shall be permitted to protect composite wood joist construction with a maximum of 36 in. (914 mm) between the top of the bottom joist and the bottom of the upper joist.

#### 8.15.2 Vertical Shafts.

**8.15.2.1 General.** Unless the requirements of 8.15.2.1.1 or 8.15.2.1.2 are met, one sprinkler shall be installed at the top of shafts.

**8.15.2.1.1** Noncombustible or limited-combustible, nonaccessible vertical duct shafts shall not require sprinkler protection.

**8.15.2.1.2** Noncombustible or limited-combustible, nonaccessible vertical electrical or mechanical shafts shall not require sprinkler protection.

#### 8.15.2.2\* Shafts with Combustible Surfaces.

**8.15.2.2.1** Where vertical shafts have combustible surfaces, one sprinkler shall be installed at each alternate floor level.

**8.15.2.2.2** Where a shaft having combustible surfaces is trapped, an additional sprinkler shall be installed at the top of each trapped section.

**8.15.2.3 Accessible Shafts with Noncombustible Surfaces.** Where accessible vertical shafts have noncombustible surfaces, one sprinkler shall be installed near the bottom.

#### 8.15.3 Stairways.

**8.15.3.1 Combustible Construction.** Sprinklers shall be installed beneath all stairways of combustible construction.

#### 8.15.3.2 Noncombustible Construction.

**8.15.3.2.1** In noncombustible stair shafts having noncombustible stairs with noncombustible or limited combustible finishes, sprinklers shall be installed at the top of the shaft and under the first landing above the bottom of the shaft.

**8.15.3.2.2** Where noncombustible stair shafts are divided by walls or doors, sprinklers shall be provided on each side of the separation.

**8.15.3.2.3** Sprinklers shall be installed beneath landings or stairways where the area beneath is used for storage.

**8.15.3.2.4** Sprinklers shall be permitted to be omitted from exterior stair towers when the exterior walls of the stair tower are at least 50 percent open and when the stair tower is entirely of noncombustible construction.

**8.15.3.3\* Stairs Serving Two or More Fire Divisions.** Sprinklers shall be installed in the stair shaft at each floor landing where two or more doors open from that landing into separate fire divisions.

#### 8.15.4\* Vertical Openings.

**8.15.4.1\* General.** Unless the requirements of 8.15.4.4 are met, where moving stairways, staircases, or similar floor openings are unenclosed and where sprinkler protection is serving as the alternative to enclosure of the vertical opening, the floor openings involved shall be protected by closely spaced sprinklers in combination with draft stops in accordance with 8.15.4.2 and 8.15.4.3.

**8.15.4.2 Draft Stops.** Draft stops shall meet all of the following:

- (1) The draft stops shall be located immediately adjacent to the opening.
- (2) The draft stops shall be at least 18 in. (457 mm) deep.
- (3) The draft stops shall be of noncombustible or limited-combustible material that will stay in place before and during sprinkler operation.

#### 8.15.4.3 Sprinklers.

**8.15.4.3.1** Sprinklers shall be spaced not more than 6 ft (1.8 m) apart and placed 6 in. to 12 in. (152 mm to 305 mm) from the draft stop on the side away from the opening.

**8.15.4.3.2** Where sprinklers are closer than 6 ft (1.8 m), cross baffles shall be provided in accordance with 8.6.3.4.2.

**8.15.4.4 Large Openings.** Closely spaced sprinklers and draft stops are not required around large openings such as those found in shopping malls, atrium buildings, and similar structures where all adjoining levels and spaces are protected by automatic sprinklers in accordance with this standard and where the openings have all horizontal dimensions between opposite edges of 20 ft (6 m) or greater and an area of 1000 ft<sup>2</sup> (93 m<sup>2</sup>) or greater.

#### 8.15.5 Elevator Hoistways and Machine Rooms.

**8.15.5.1\* Sidewall spray sprinklers** shall be installed at the bottom of each elevator hoistway not more than 2 ft (0.61 m) above the floor of the pit.

**8.15.5.2** The sprinkler required at the bottom of the elevator hoistway by 8.15.5.1 shall not be required for enclosed, noncombustible elevator shafts that do not contain combustible hydraulic fluids.

## INSTALLATION REQUIREMENTS

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8.15.5.3\* Automatic sprinklers in elevator machine rooms or at the tops of hoistways shall be of ordinary- or intermediate-temperature rating.

8.15.5.4\* Upright, pendent, or sidewall spray sprinklers shall be installed at the top of elevator hoistways.

8.15.5.5 The sprinkler required at the top of the elevator hoistway by 8.15.5.4 shall not be required where the hoistway for passenger elevators is noncombustible and the car enclosure materials meet the requirements of ASME A17.1, *Safety Code for Elevators and Escalators*.

8.15.6 Spaces Under Ground Floors, Exterior Docks, and Platforms.

8.15.6.1 Unless the requirements of 8.15.6.2 are met, sprinklers shall be installed in spaces under all combustible ground floors, exterior docks, and platforms.

8.15.6.2 Sprinklers shall be permitted to be omitted from spaces under ground floors, exterior docks, and platforms where all of the following conditions prevail:

- (1) The space is not accessible for storage purposes and is protected against accumulation of wind-borne debris.
- (2) The space contains no equipment such as conveyors or fuel-fired heating units.
- (3) The floor over the space is of tight construction.
- (4) No combustible or flammable liquids or materials that under fire conditions would convert into combustible or flammable liquids are processed, handled, or stored on the floor above the space.

8.15.7\* Exterior Roofs, Canopies, or Porte-Cocheres.

8.15.7.1\* Unless the requirements of 8.15.7.2, 8.15.7.3, or 8.15.7.4 are met, sprinklers shall be installed under exterior roofs, canopies, or porte-cocheres exceeding 4 ft (1.2 m) in width.

8.15.7.2\* Sprinklers shall be permitted to be omitted where the canopy, roof, or porte-cochere is constructed with materials that are noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*.

8.15.7.3 Sprinklers shall be permitted to be omitted from below the canopy, roof, or porte-cochere of combustible construction, provided the exposed finish material on the roof, canopy, or porte-cochere is noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, and the roof, canopy, or porte-cochere contains only sprinklered concealed spaces or any of the following unsprinklered combustible concealed spaces:

- (1) Combustible concealed spaces filled entirely with non-combustible insulation
- (2) Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists so as to create enclosed joist spaces 160 ft<sup>3</sup> (4.5 m<sup>3</sup>) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered attic (See 11.2.3.1.4(4)(d)).
- (3) Concealed spaces over isolated small roofs, canopies, or porte-cocheres not exceeding 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area

8.15.7.4 Sprinklers shall be permitted to be omitted from exterior exit corridors when the exterior walls of the corridor are at least 50 percent open and when the corridor is entirely of noncombustible construction.

8.15.7.5\* Sprinklers shall be installed under roofs, canopies, or porte-cocheres over areas where combustibles are stored and handled.

8.15.8 Dwelling Units.

8.15.8.1 Bathrooms.

8.15.8.1.1 Unless sprinklers are required by 8.15.8.1.2 or 8.15.8.1.3, sprinklers shall not be required in bathrooms that are located within dwelling units, that do not exceed 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area, and that have walls and ceilings of noncombustible or limited-combustible materials with a 15-minute thermal barrier rating, including the walls and ceilings behind any shower enclosure or tub.

8.15.8.1.2 Sprinklers shall be required in bathrooms of limited care facilities and nursing homes, as defined in NFPA 101, *Life Safety Code*.

8.15.8.1.3 Sprinklers shall be required in bathrooms opening directly onto public corridors or exitways.

8.15.8.2\* Closets and Pantries. Sprinklers are not required in clothes closets, linen closets, and pantries within dwelling units in hotels and motels where the area of the space does not exceed 24 ft<sup>2</sup> (2.2 m<sup>2</sup>), the least dimension does not exceed 3 ft (0.9 m), and the walls and ceilings are surfaced with noncombustible or limited-combustible materials.

8.15.9\* Library Stack Areas and Medical Record Storage. Where books or medical records are stored in fixed open book shelves, sprinklers shall be installed in accordance with one of the following:

- (1) Sprinklers shall be permitted to be installed without regard to aisles where there is 18 in. (457 mm) or more clearance between sprinkler deflectors and tops of stacks.
- (2) Where the 18 in. (457 mm) clearance between sprinkler deflectors and tops of stacks cannot be maintained, sprinklers shall be installed in every aisle and at every tier of stacks with distance between sprinklers along aisles not to exceed 12 ft (3.7 m) in accordance with Figure 8.15.9(a).
- (3) Where the 18 in. (457 mm) clearance between sprinkler deflectors and tops of stacks cannot be maintained and where vertical shelf dividers are incomplete and allow water distribution to adjacent aisles, sprinklers shall be permitted to be omitted in alternate aisles on each tier, and where ventilation openings are also provided in tier floors, sprinklers shall be staggered vertically in accordance with Figure 8.15.9(b).

8.15.10 Electrical Equipment.

8.15.10.1 Unless the requirements of 8.15.10.3 are met, sprinkler protection shall be required in electrical equipment rooms.

8.15.10.2 Hoods or shields installed to protect important electrical equipment from sprinkler discharge shall be noncombustible.

8.15.10.3 Sprinklers shall not be required in electrical equipment rooms where all of the following conditions are met:

- (1) The room is dedicated to electrical equipment only.
- (2) Only dry-type electrical equipment is used.

C.E. Gerber

2007 Edition

ASME A17.1a-2008/CSA B44a-08

### 2.1.6 Projections, Recesses, and Setbacks in Hoistway Enclosures

Hoistway enclosures shall have flush surfaces on the hoistway side, subject to the requirements of 2.1.6.1 and 2.1.6.2.

**2.1.6.1** On sides for loading and unloading, landing sills, hoistway doors, door tracks, and hangers shall be permitted to project inside the hoistway enclosure. Sills shall be guarded as required by 2.11.10.1.

(07) **2.1.6.2** On sides not used for loading and unloading

(a) beams, floor slabs, or other building construction making an angle less than 75 deg with the horizontal shall not project more than 100 mm (4 in.) inside the hoistway enclosure unless the top surface of the projection is beveled at an angle not less than 75 deg with the horizontal

(b) separator beams between adjacent elevators are not required to have bevels

(c) where recesses or setbacks exceeding 100 mm (4 in.) occur in the enclosure wall, the top of the recess or setback shall be beveled at an angle of not less than 75 deg with the horizontal

(d) bevels are not required if the projections, recesses, and setbacks are covered with material conforming to the following:

(1) it shall be equal to or stronger than 1.110 mm (0.0437 in.) wire

(2) it shall have openings not exceeding 25 mm (1 in.)

(3) it shall be supported and braced such that it will not deflect more than 25 mm (1 in.) when subjected to a force of 4.79 kPa (100 lbf/ft<sup>2</sup>) applied horizontally at any point

## SECTION 2.2 PITS

### 2.2.1 General

A pit shall be provided for every elevator.

### 2.2.2 Design and Construction of Pits

**2.2.2.1** The construction of the pit walls, the pit floor, and any pit access doors (see 2.2.4) shall conform to 2.1.1 and 2.1.2.

**2.2.2.2** The floor of the pit shall be approximately level, except that

(a) trenches or depressions shall be permitted for the installation of buffers, compensating sheaves and frames, and vertically sliding biparting hoistway doors, where structural conditions make such trenches or depressions necessary

(b) in existing buildings, where new elevators are installed or existing elevators are altered, existing foundation footings extending above the general level of the

pit floor shall be permitted to remain in place, provided that the maximum encroachment of such footings does not exceed 15% of the cubic content of the pit, and further provided that it is impracticable to remove the footing

**2.2.2.3** Permanent provisions shall be made to prevent accumulation of ground water in the pit (see 2.1.2.2).

**2.2.2.4** Drains and sump pumps, where provided, shall comply with the applicable plumbing code, and they shall be provided with a positive means to prevent water, gases, and odors from entering the hoistway.

**2.2.2.5** In elevators provided with Firefighters' Emergency Operation, a drain or sump pump shall be provided. The sump pump/drain shall have the capacity to remove a minimum of 11.4 m<sup>3</sup>/h (3,000 gal/h) per elevator (07)

**2.2.2.6** Sumps and sump pumps in pits, where provided, shall be covered. The cover shall be secured and level with the pit floor.

**2.2.2.7** DELETED (a)

### 2.2.3 Guards Between Adjacent Pits

**2.2.3.1** Where there is a difference in level between the floors of adjacent pits, a metal guard, unperforated, or perforated with openings that will reject a ball 50 mm (2 in.) in diameter, shall be installed for separating such pits. Guards shall extend not less than 2 000 mm (79 in.) above the level of the higher pit floor and a self-closing access door shall be permitted.

**2.2.3.2** Where the difference in level is 600 mm (24 in.) or less, a standard railing conforming to 2.10.2 shall be permitted to be installed in lieu of the guard.

### 2.2.4 Pit Access (07)

Safe and convenient access shall be provided to all pits, and shall conform to 2.2.4.1 through 2.2.4.6.

**2.2.4.1** Access shall be by means of the lowest hoistway door or by means of a separate pit access door.

**2.2.4.2** There shall be installed in the pit of each elevator, where the pit extends more than 900 mm (35 in.) below the sill of the pit access door (lowest hoistway door or separate pit access door), a fixed vertical ladder of noncombustible material, located within reach of the access door. The ladder is permitted to be retractable or nonretractable. Nonretractable ladders, where provided, shall conform to 2.2.4.2.1 through 2.2.4.2.6. Retractable ladders, where provided, shall conform to 2.2.4.2.1 through 2.2.4.2.3 and 2.2.4.2.5 through 2.2.4.2.8. When in the extended position, retractable ladders shall conform to 2.2.4.2.4.

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

Code Change Form for the 2012 Code Change Cycle

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

Proponent Information

(Check one):  Individual  Government Entity  Company

Name: Ron Reynolds

Representing: SFMO

Mailing Address: 1005 Technology Park Drive, Glen Allen, VA 23059

Email Address: ron.reynolds@vdfp.virginia.gov

Telephone Number: 804-612-7268

Proposal Information

Code(s) and Section(s): SFPC 5001.3

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

**5001.3 Performance-based design alternatives.** When approved by the fire code official, buildings and facilities where hazardous materials are stored, used or handled shall be permitted to comply with ~~this section~~ NFPA 45 or Sections 5001.3.1 through 5001.3.3.17 as an alternative to compliance with the other requirements set forth in this chapter and Chapters 51 through 67.

Add the following standard to Chapter 80, Referenced Standards:  
NFPA 45-11, Standard on Fire Protection for Laboratories Using Chemicals

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

NFPA is a nationally recognized laboratory safety standard. Adding NFPA 45 gives laboratories a reliable means to secure the safety of laboratories in buildings built before the building codes addressed the "control area" concept. NFPA 45 allows for greater use of upper level floors by not limiting the number of laboratories, but by limiting the amount of combustible and flammable liquids on a per footage basis. NFPA 45 breaks down laboratories into four levels of "Fire Hazard Classes": A, B, C, or D. At higher level floors, the fire separation requirements become greater if the Fire Hazard Class increases. The concept allows the firefighter or inspector to quickly evaluate the level of hazard in each laboratory.

For example, a lab with an "A" Fire Hazard Classification could not be greater than 10,000 sq. ft., with a two hour separation on floors 1-3 only, and would not be allowed on higher floors. The maximum quantity of Class I liquids for use and storage would be 20 (twenty) gallons per 100 sq. ft.

A lab with a "D" classification could be any size, of any number, on any floor, and would not require any fire separation. The maximum gallons in use and storage of Class I liquids would be 2 (two) gallons per 100 sq. ft.

This proposal should result in lower costs to owners of research laboratories that are limited in fully utilizing their buildings.

Submittal Information

Date Submitted: 6-3-13  
\_\_\_\_\_

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 SBCO (State Building Codes Office)  
600 East Main Street  
Suite 300  
Richmond, VA 23219

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



**3.3.46 Open Plan Building.** A building having rooms, spaces, and corridors delineated by tables, chairs, desks, bookcases, counters, low-height partitions, floor patterns, or any similar finishes or furnishings.

**3.3.47 Organic Peroxide.** Any organic compound having a double oxygen or peroxy (-O-O-) group in its chemical structure.

**3.3.48\* Oxidizer.** Any material that readily yields oxygen or other oxidizing gas, or that readily reacts to promote or initiate combustion of combustible materials.

**3.3.49 Pilot Plant.** An experimental assembly of equipment for exploring process variables or for producing semicommercial quantities of materials.

**3.3.50 Pressurized Liquid Dispensing Container (PLDC).** DOT, United Nations- (UN-), or ASME-approved containers which are designed for the pressure dispensing of liquids at the specified maximum allowable working pressure of the container.

**3.3.51 Pyrophoric Gas.** A gas that will spontaneously ignite in air at or below a temperature of 54.4°C (130°F).

**3.3.52 Qualified Person.** A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to a particular subject matter, work, or project.

**3.3.53 Reactive Material.** A material that, by itself, is readily capable of detonation, explosive decomposition, or explosive reaction at normal or elevated temperatures and pressures. (See B.2.5 for definitions of Instability 2, 3, or 4.)

**3.3.54 Refrigerating Equipment.** Any mechanically operated equipment used for storing materials below normal ambient temperature, including refrigerators, freezers, and similar equipment. (See 12.2.2 and A.12.2.2.)

**3.3.55 Safety Can.** A listed container, of not more than 18.9 L (5 gal) capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

**3.3.56 Sash.** A movable panel or panels set in the hood entrance. (See C.5.1.)

**3.3.57\* Storage Cabinet.** A cabinet for the storage of flammable and combustible liquids constructed in accordance with Section 9.5 of NFPA 30, *Flammable and Combustible Liquids Code*.

**3.3.58 Street Floor.** A story or floor level accessible from the street or from outside the building at ground level, with the floor level at the main entrance located not more than three risers above or below ground level, and arranged and utilized to qualify as the main floor. [101, 2009]

**3.3.59\* Unattended Laboratory Operation.** A laboratory procedure or operation at which there is no person present who is knowledgeable regarding the operation and emergency shut-down procedures.

## Chapter 4 Laboratory Unit Hazard Classification

### 4.1 General.

**4.1.1** This chapter shall classify laboratory units based on the amount of flammable and combustible liquids in use within the unit.

**4.1.2** This chapter also shall define the existence of an explosion hazard in a laboratory unit or in a laboratory work area.

**4.1.3** This chapter shall further define limitations on instructional laboratory units.

### 4.2 Laboratory Unit Fire Hazard Classification.

#### 4.2.1\* Classifications.

**4.2.1.1** Laboratory units shall be classified as Class A (high fire hazard), Class B (moderate fire hazard), Class C (low fire hazard), or Class D (minimal fire hazard), according to the quantities of flammable and combustible liquids specified in Table 10.1.1(a) and Table 10.1.1(b).

#### 4.2.2 Additional Requirements for Educational and Instructional Laboratory Units.

**4.2.2.1** Instructional laboratory units shall be classified as Class C or Class D laboratory units.

**4.2.2.2** Educational laboratory units shall be classified as Class D or shall be limited to 50 percent of the flammable and combustible liquids quantity for Class C laboratory units presented in Table 10.1.1(a) and Table 10.1.1(b).

### 4.3 Laboratory Work Area and Laboratory Unit Explosion Hazard Classification.

**4.3.1\*** A laboratory work area shall be considered to contain an explosion hazard if an explosion of quantities or concentrations of materials could result in serious or fatal injuries to personnel within that laboratory work area. Such quantities or concentrations include, but are not limited to, the following (see Annex C):

- (1) Storage of greater than 0.45 kg (1 lb) of materials with an instability hazard rating of 4 (see B.2.5)
- (2) Use or formation of greater than 0.11 kg (0.25 lb) of materials with an instability hazard rating of 4 (see B.2.5)
- (3)\* Presence of highly exothermic reactions in glass or open reaction vessels involving more than 10 g (0.35 oz) of materials such as polymerizations, oxidations, nitrations, peroxidations, hydrogenations, or organo-metallic reactions
- (4) Use or formation in glass or open reaction vessels involving more than 10 g (0.35 oz) of materials whose chemical structures indicate a potential hazard, but whose properties have not been established, such as salts of alkenes, triple bonds, epoxy radicals, nitro and nitroso compounds, and peroxides
- (5) Presence of high-pressure reactions (see Figure C.4.5)
- (6) Other explosion hazards as determined by a qualified person

**4.3.2** A laboratory unit shall not be considered to contain an explosion hazard unless a laboratory work area within that unit contains an explosion hazard great enough to cause major property damage or serious injury outside that laboratory work area.

## Chapter 5 Laboratory Unit Design and Construction

### 5.1 Laboratory Unit Enclosure.

**5.1.1** The required construction of laboratory units shall be in accordance with Table 5.1.1.

**5.1.2** The construction requirements shall be the minimum permitted and shall not exclude the use of construction with greater fire resistance.

**Table 5.1.1 Separation Requirements and Height Allowances for Laboratory Units**

Laboratory Unit <sup>a</sup>	Area of Lab Unit	Fire Separation <sup>b</sup>	Permitted Stories Above Grade
A	≤929 m <sup>2</sup> (≤10,000 ft <sup>2</sup> )	2 hours	1-3 <sup>c</sup>
	>929 m <sup>2</sup> (>10,000 ft <sup>2</sup> )	Not permitted <sup>d</sup>	
B	≤929 m <sup>2</sup> (≤10,000 ft <sup>2</sup> )	1 hour	1-3 <sup>c</sup>
	≤929 m <sup>2</sup> (≤10,000 ft <sup>2</sup> )	2 hours	4-6 <sup>c</sup>
	>929 m <sup>2</sup> (>10,000 ft <sup>2</sup> )	Not permitted <sup>d</sup>	
C	Any size	Not required	1-3
	Any size	1 hour	4-6
	Any size	2 hours	Over 6
D	Any size	Not required	No limit

<sup>a</sup>Refer to Table 10.1.1 for laboratory unit classification.

<sup>b</sup>Separation in this table refers to separation from laboratory unit(s) to non-laboratory areas and/or separations from laboratory unit(s) of equal or lower hazard classification.

<sup>c</sup>Not allowed in structures below grade.

<sup>d</sup>Labs of this classification and size are not permitted.

**5.1.3** Regardless of the construction and fire protection requirements for laboratory units that are specified in Table 5.1.1, laboratory units in educational occupancies shall be separated from non-laboratory areas by 1-hour construction.

**5.1.4** Table 5.1.1 shall pertain to laboratory units protected by automatic sprinkler systems in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*. Where water will create a serious fire or personnel hazard, a suitable nonwater automatic extinguishing system shall be permitted to be an acceptable substitute for sprinklers.

**5.1.5** Penetrations through fire-rated floor/ceiling, floor, and wall assemblies shall be protected in accordance with NFPA 101, *Life Safety Code*.

**5.1.6** Floors shall be sealed to prevent liquid leakage to lower floors.

**5.1.7** Floor openings, floor penetrations, and floor firestop systems shall be sealed or curbed to prevent liquid leakage to lower floors.

**5.1.8** Door assemblies in required 1-hour-rated fire separations shall be ¾-hour rated. Door assemblies in required 2-hour-rated fire separations shall be 1½-hour rated.

**5.1.9** Window assemblies shall be permitted in fire-rated wall assemblies having a required fire resistance rating of 1 hour or less.

**5.1.9.1** Window assemblies shall be of an approved type and shall have a fire protection rating in accordance with NFPA 101, *Life Safety Code*.

**5.1.9.2** Fire window assemblies shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*.

**5.1.10\*** Openings in fire-rated floor/ceiling and wall assemblies for air-handling ductwork or air movement shall be protected in accordance with NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*.

**5.2 Maximum Area of Laboratory Units.** The maximum area of a laboratory unit shall be determined by the fire hazard classification and the construction of the laboratory unit, as shown in Table 5.1.1.

**5.3 Requirements for Life Safety.** Life safety features for laboratory buildings, laboratory units, and laboratory work areas shall comply with NFPA 101, *Life Safety Code*, unless otherwise modified by other provisions of this standard.

**5.3.1** Class A, B, and C laboratory units shall be classified as industrial occupancies in accordance with NFPA 101, *Life Safety Code*.

**5.3.2** Educational laboratory units shall be classified as educational occupancies in accordance with NFPA 101, *Life Safety Code*.

**5.3.3** Instructional laboratory units and Class D laboratories shall be classified as business occupancies in accordance with NFPA 101, *Life Safety Code*.

**5.3.4** Life safety requirements for instructional laboratory units for past the 12th grade, and for Class D laboratories located in facilities classified as business occupancies, shall be in accordance with the requirements for business occupancies of NFPA 101, *Life Safety Code*.

#### 5.4 Means of Access to an Exit.

**5.4.1\*** A second means of access to an exit shall be provided from a laboratory work area if any of the following situations exist:

- (1) A laboratory work area contains an explosion hazard located so that an incident would block escape from or access to the laboratory work area.
- (2) A laboratory work area within a Class A laboratory unit exceeds 46.5 m<sup>2</sup> (500 ft<sup>2</sup>).
- (3) A laboratory work area within a Class B, Class C, or Class D laboratory unit exceeds 93 m<sup>2</sup> (1000 ft<sup>2</sup>).
- (4) A hood in a laboratory work area is located adjacent to the primary means of exit access.
- (5) A compressed gas cylinder larger than lecture bottle size [approximately 5 cm × 33 cm (2 in. × 13 in.)] is located such that it could prevent safe egress in the event of accidental release of cylinder contents.
- (6) A cryogenic container is located such that it could prevent safe egress in the event of accidental release of container contents.

**5.4.2** The required exit access doors of all laboratory work areas within Class A or Class B laboratory units shall swing in the direction of exit travel.

**5.4.3\*** The required exit access doors of all laboratory work areas within Class C or Class D laboratory units shall be permitted to swing against the direction of exit travel or shall be permitted to be a horizontal sliding door complying with NFPA 101, *Life Safety Code*.

**5.4.4** Emergency lighting facilities shall be provided for any laboratory work area requiring a second means of access to an exit, in accordance with 5.4.1.

**5.4.5** Emergency lighting in laboratory work areas and exits shall be installed in accordance with Section 7.9, Emergency Lighting, of NFPA 101, *Life Safety Code*.

**5.5\* Furniture, Casework, and Equipment.** Furniture, casework, and equipment in laboratory units shall be arranged so that means of access to an exit can be reached easily from any point.

**5.6 Electrical Installation.** All electrical installations, including wiring and appurtenances, apparatus, lighting, signal systems, alarm systems, remote control systems, or parts thereof, shall comply with NFPA 70, *National Electrical Code*.

**5.6.1** Electrical receptacles, switches, and controls shall be located so as not to be subject to liquid spills.

**5.6.2** Laboratory work areas, laboratory units, and chemical fume hood interiors shall be considered as unclassified electrically with respect to Article 500 of NFPA 70, *National Electrical Code*.

*Exception: Under some conditions of hazard, it could be necessary to classify a laboratory work area, or a part thereof, as a hazardous location, for the purpose of designating the electrical installations. [See 10.5.5 (electric motors) and 12.2.2.2 (refrigerators).]*

## Chapter 6 Fire Protection

### 6.1 General.

**6.1.1** All laboratory units shall be provided with fire protection appropriate to the fire hazard, as follows:

- (1) Portable fire extinguishers (*see Section 6.4*)
- (2) Fire alarm systems (*see Section 6.5*)
- (3) Evacuation and emergency plans (*see 6.6.3*)

**6.1.2** In addition to the fire protection specified in 6.1.1, laboratory units under some conditions shall be provided with automatic extinguishing systems (*see Section 6.2*) and inside standpipe and hose systems (*see Section 6.3*).

### 6.2 Automatic Fire Extinguishing Systems.

#### 6.2.1 Automatic Sprinkler Systems.

**6.2.1.1** Automatic sprinkler system protection shall be required for all new laboratories in accordance with the following:

- (1) Automatic sprinkler system protection for Class A and Class B laboratories shall be in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, for ordinary hazard (Group 2) occupancies.
- (2) Automatic sprinkler system protection for Class C and Class D laboratories shall be in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, for ordinary hazard (Group 1) occupancies.

**6.2.1.2** Fire sprinklers in laboratory units shall be the quick-response (QR) sprinkler type installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

**6.2.1.3** Automatic sprinkler systems shall be regularly inspected, tested, and maintained in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*.

**6.2.2 Other Automatic Extinguishing Systems.** Where required or used in place of automatic sprinkler systems, special hazard extinguishing systems and nonwater automatic extinguishing systems shall be designed, installed, and maintained in accordance with the following standards, as applicable:

- (1) NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*
- (2) NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*
- (3) NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*
- (4) NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*
- (5) NFPA 17, *Standard for Dry Chemical Extinguishing Systems*
- (6) NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*
- (7) NFPA 69, *Standard on Explosion Prevention Systems*
- (8) NFPA 750, *Standard on Water Mist Fire Protection Systems*
- (9) NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*

**6.2.3\* Discharge.** The discharge of an automatic fire-extinguishing system shall activate an audible fire alarm system on the premises.

### 6.3 Standpipe and Hose Systems.

**6.3.1\*** In all laboratory buildings that are two or more stories above or below the grade level (level of exit discharge), standpipes shall be installed in accordance with NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

**6.3.2** Standpipe systems shall be regularly inspected, tested, and maintained in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*.

**6.3.3** Hose lines shall be of an approved type and shall be tested and maintained in accordance with NFPA 1962, *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.

### 6.4 Portable Fire Extinguishers.

**6.4.1** Portable fire extinguishers shall be installed, located, and maintained in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.

**6.4.2** For purposes of sizing and placement of fire extinguishers for Class B fires (*see Table 6.3.1.1 of NFPA 10, Standard for Portable Fire Extinguishers*), Class A laboratory units shall be rated as extra (high) hazard, and Class B, Class C, and Class D laboratory units shall be rated as ordinary (moderate) hazard.

### 6.5 Fire Alarm Systems.

**6.5.1** Fire alarm systems, where provided, shall be installed and maintained in accordance with NFPA 72, *National Fire Alarm and Signaling Code*.

**6.5.2** Class A and Class B laboratory units shall have a manual fire alarm system installed and maintained in accordance with NFPA 72, *National Fire Alarm and Signaling Code*.

**6.5.3** The fire alarm system, where provided, shall be designed so that all personnel endangered by the fire condition or a contingent condition shall be alerted.

**6.5.4** The fire alarm system shall alert local emergency responders or the public fire department.

### 6.6 Fire Prevention.

#### 6.6.1 Fire Prevention Procedures.

**6.6.1.1** Fire prevention procedures shall be established.

## **Firestone, Janice (DHCD)**

---

**From:** Davis, Cindy (DHCD)  
**Sent:** Wednesday, June 12, 2013 10:02 AM  
**To:** Firestone, Janice (DHCD)  
**Subject:** FW: Energy Code Commissioning

Another one for ~~#2~~

---

**From:** Rodgers, Emory (DHCD)  
**Sent:** Saturday, February 23, 2013 11:05 AM  
**To:** McCoy, Joseph (DHCD)  
**Cc:** Davis, Cindy (DHCD); Hodge, Vernon (DHCD)  
**Subject:** RE: Energy Code Commissioning

Take a look at this one for possible deletion and sending onto Matt for their opinion, thanks.

---

**From:** McCoy, Joseph (DHCD)  
**Sent:** Friday, February 22, 2013 3:06 PM  
**To:** Rodgers, Emory (DHCD)  
**Cc:** Davis, Cindy (DHCD)  
**Subject:** Energy Code Commissioning

Emory,

It is 503.2.9 – HVAC System Completion in the 2009 IECC. In the 2012 IECC it is changed to C403.2.9 – Mechanical Systems Commissioning and Completion Requirements which directs readers to the more extensive C408.2 – Mechanical Systems Commissioning and Completion Requirements.

Regards,

Joseph McCoy Jr., Ed.D.  
Senior Training & Development Specialist  
Virginia Department of Housing & Community Development  
Main Street Centre  
600 East Main Street, Suite 1100  
Richmond, VA 23219  
Phone: (804) 371-7185 Fax: (804) 371-7092  
email: [Joseph.McCoy@dhcd.virginia.gov](mailto:Joseph.McCoy@dhcd.virginia.gov) [www.dhcd.state.va.us](http://www.dhcd.state.va.us)  
Online registration system: <https://dmz1.dhcd.virginia.gov/TASO/TASOTCO/Default.aspx>  
VBCA Knowledge Center: <https://covkc.virginia.gov/dhcd/vbca>  
Energy Event Registration: <https://dmz1.dhcd.virginia.gov/dhcdevents/default.aspx>

## Firestone, Janice (DHCD)

---

**From:** Davis, Cindy (DHCD)  
**Sent:** Wednesday, June 12, 2013 10:02 AM  
**To:** Firestone, Janice (DHCD)  
**Subject:** FW: Energy Code Commissioning

Email for # 28.

---

**From:** Eggerton, Ellen N. [<mailto:Ellen.Eggerton@fairfaxcounty.gov>]  
**Sent:** Monday, February 25, 2013 9:53 AM  
**To:** Davis, Cindy (DHCD); 'mwest@williamsburgva.gov'; 'jwhitten@carrollcountyva.org'; 'slater@chesterfield.gov'; 'knightj@ci.winchester.va.us'; 'hastills@co.hanover.va.us'; 'rebartell@co.hanover.va.us'; 'bcornwall@culpepercounty.gov'; Turchen, Stephen; 'dick.meyer@gmail.com'; 'richard.fortner@norfolk.gov'; 'JZweig@seealliance.org'; 'rgreeson@seealliance.org'  
**Cc:** Hodge, Vernon (DHCD); Reeves, Jennifer (DHCD)  
**Subject:** RE: Energy Code Commissioning

There is a code change proposed already to move commissioning to the appendix. I will get a copy and share it.

Ellen Eggerton, P.E., LEED Green Associate  
Ombudsman for Religious and Community Groups and **Green Buildings**  
Department of Public Works and Environmental Services/Land Development Services  
703-324-1861, TTY 711  
*County website* [www.fairfaxcounty.gov](http://www.fairfaxcounty.gov)  
Ombudsman Web page  
<http://www.fairfaxcounty.gov/dpwes/construction/ombudsman.htm>

 Please consider the environment before printing this email

---

**From:** Davis, Cindy (DHCD) [<mailto:Cindy.Davis@dhcd.virginia.gov>]  
**Sent:** Monday, February 25, 2013 8:02 AM  
**To:** [mwest@williamsburgva.gov](mailto:mwest@williamsburgva.gov); [jwhitten@carrollcountyva.org](mailto:jwhitten@carrollcountyva.org); [slater@chesterfield.gov](mailto:slater@chesterfield.gov); [knightj@ci.winchester.va.us](mailto:knightj@ci.winchester.va.us); [hastills@co.hanover.va.us](mailto:hastills@co.hanover.va.us); [rebartell@co.hanover.va.us](mailto:rebartell@co.hanover.va.us); [bcornwall@culpepercounty.gov](mailto:bcornwall@culpepercounty.gov); Eggerton, Ellen N.; Turchen, Stephen; [dick.meyer@gmail.com](mailto:dick.meyer@gmail.com); [richard.fortner@norfolk.gov](mailto:richard.fortner@norfolk.gov); [JZweig@seealliance.org](mailto:JZweig@seealliance.org); [rgreeson@seealliance.org](mailto:rgreeson@seealliance.org)  
**Cc:** Hodge, Vernon (DHCD); Reeves, Jennifer (DHCD)  
**Subject:** FW: Energy Code Commissioning

Matt et al:

Please review the information below related to commissioning and let us know if you believe a code change is in order to delete??

Thanks!

Cindy

Cindy L. Davis, C.B.O., State Building Codes Director  
VA Dept. of Housing and Community Development  
600 E. Main Street - Suite 1100

Richmond, VA 23219  
PH: 804-371-7161  
FAX: 804-371-7092  
[Cindy.Davis@dhcd.virginia.gov](mailto:Cindy.Davis@dhcd.virginia.gov)

---

**From:** McCoy, Joseph (DHCD)  
**Sent:** Friday, February 22, 2013 3:06 PM  
**To:** Rodgers, Emory (DHCD)  
**Cc:** Davis, Cindy (DHCD)  
**Subject:** Energy Code Commissioning

Emory,

It is 503.2.9 – HVAC System Completion in the 2009 IECC. In the 2012 IECC it is changed to C403.2.9 – Mechanical Systems Commissioning and Completion Requirements which directs readers to the more extensive C408.2 – Mechanical Systems Commissioning and Completion Requirements.

Regards,

Joseph McCoy Jr., Ed.D.  
Senior Training & Development Specialist  
Virginia Department of Housing & Community Development  
Main Street Centre  
600 East Main Street, Suite 1100  
Richmond, VA 23219  
Phone: (804) 371-7185 Fax: (804) 371-7092  
email: [Joseph.McCoy@dhcd.virginia.gov](mailto:Joseph.McCoy@dhcd.virginia.gov) [www.dhcd.state.va.us](http://www.dhcd.state.va.us)  
Online registration system: <https://dmz1.dhcd.virginia.gov/TASO/TASOTCO/Default.aspx>  
VBCA Knowledge Center: <https://covkc.virginia.gov/dhcd/vbca>  
Energy Event Registration: <https://dmz1.dhcd.virginia.gov/dhcdevents/default.aspx>

2013 SESSION  
13101094D

**HOUSE BILL NO. 1511**  
Offered January 9, 2013  
Prefiled January 3, 2013

*A BILL to amend and reenact § 63.2-1732 of the Code of Virginia, relating to assisted living facilities; access to temporary emergency electrical power source.*

-----  
Patrons-- Hope, Krupicka and Plum  
-----

Referred to Committee on Health, Welfare and Institutions  
-----

Be it enacted by the General Assembly of Virginia:

1. That § 63.2-1732 of the Code of Virginia is amended and reenacted as follows:

§ 63.2-1732. Regulations for assisted living facilities.

A. The Board shall have the authority to adopt and enforce regulations to carry out the provisions of this subtitle and to protect the health, safety, welfare and individual rights of residents of assisted living facilities and to promote their highest level of functioning. Such regulations shall take into consideration cost constraints of smaller operations in complying with such regulations and shall provide a procedure whereby a licensee or applicant may request, and the Commissioner may grant, an allowable variance to a regulation pursuant to § 63.2-1703.

B. Regulations shall include standards for staff qualifications and training; facility design, functional design and equipment; services to be provided to residents; administration of medicine; allowable medical conditions for which care can be provided; and medical procedures to be followed by staff, including provisions for physicians' services, restorative care, and specialized rehabilitative services. The Board shall adopt regulations on qualifications and training for employees of an assisted living facility in a direct care position. "Direct care position" means supervisors, assistants, aides, or other employees of a facility who assist residents in their daily living activities.

C. Regulations for a Medication Management Plan in a licensed assisted living facility shall be developed by the Board, in consultation with the Board of Nursing and the Board of Pharmacy. Such regulations shall (i) establish the elements to be contained within a Medication Management Plan, including a demonstrated understanding of the responsibilities associated with medication management by the facility; standard operating and record-keeping procedures; staff qualifications, training and supervision; documentation of daily medication administration; and internal monitoring of plan conformance by the facility; (ii) include a requirement that each assisted living facility shall establish and maintain a written Medication Management Plan that has been approved by the Department; and (iii) provide that a facility's failure to conform to any approved Medication Management Plan shall be subject to the sanctions set forth in § 63.2-1709 or 63.2-1709.2.

D. Regulations shall require all licensed assisted living facilities with six or more residents to ~~be able to connect by July 1, 2007, to have~~ a temporary emergency electrical power source *available on-site and to be able to connect to and utilize such temporary emergency electrical power source* for the provision of electricity during an interruption of the normal electric power supply, *in order to protect the health, safety, and welfare of residents and ensure the continued delivery of vital services for residents. The installation* Such temporary emergency electrical power source shall be sufficient to provide power for continued operation of internal systems necessary for the safe operation of the facility including heating, ventilation and cooling systems; emergency lighting and fire protection systems; elevators; and refrigeration and cold storage facilities for the preservation of food. Installation of any temporary emergency electrical power source by a licensed assisted living facility shall be in compliance with the Uniform Statewide Building Code. ? wnt

E. Regulations for medical procedures in assisted living facilities shall be developed in consultation with the State Board of Health and adopted by the Board, and compliance with these regulations shall be determined by Department of Health or Department inspectors as provided by an interagency agreement between the Department and the Department of Health.

F. In developing regulations to determine the number of assisted living facilities for which an assisted living facility administrator may serve as administrator of record, the Board shall consider (i) the number of residents in each of the facilities,

(ii) the travel time between each of the facilities, and (iii) the qualifications of the on-site manager under the supervision of the administrator of record.

G. Regulations shall require that each assisted living facility register with the Department of State Police to receive notice of the registration or reregistration of any sex offender within the same or a contiguous zip code area in which the facility is located, pursuant to § 9.1-914.

H. Regulations shall require that each assisted living facility ascertain, prior to admission, whether a potential resident is a registered sex offender, if the facility anticipates the potential resident will have a length of stay greater than three days or in fact stays longer than three days.

## **Firestone, Janice (DHCD)**

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**Subject:** 2012 State fire code suggestion

**From:** Andrews, William - Fire [<mailto:William.Andrews@richmondgov.com>]

**Sent:** Friday, May 24, 2013 2:04 PM

**To:** Davis, Cindy (DHCD)

**Cc:** Dyer, Earl E. - Fire

**Subject:** 2012 State fire code suggestion

Thanks for inviting suggestions for improving state fire code. Since Virginia has ICC publish Virginia version of statewide fire code, please consider removing requirements which only are required for new construction under the Virginia statewide building code. Helpful for fire officials to not need to filter which requirements we can apply vs. requirements which only are applicable by building official for new construction. Section 102.6 of the VSFPC limits fire code to not impose requirements that exceed those of the USBC under which the building was constructed. If printed books are too expensive to so modify, please consider edited internet edition, and customers able to buy CD, DVD, or download revised state code.

Examples of fire code sections which should be deleted, due to construction features restricted to authority of building official on new construction:

507.1: The fire official is not authorized to require installation of water supply (permanently plumbed pipes, etc.).

508.1.2: Rating of fire separation of any construction is beyond fire official authority, since such is under building code.

508.1.3: Size of any room is outside fire official authorize, since regulated by building code.

508.1.5: Many features in fire command center are built-in components of systems, which fire officials are not allowed to require, since such systems are under building code.

604.2: Emergency power systems are under building code, thus beyond fire official to require customer to provide. Fire code can only require maintenance and testing of existing systems.

605.11 If referenced conduits, wiring systems and raceways are not portable, such permanently installed systems are under building official instead of fire official. Much of the fire code about placement of equipment is under building code, thus fire official cannot enforce, but merely refer to building official.

606.8: Refrigerant detector are up to building official, since doubt Virginia code intends fire official to require such portable devices in all existing buildings.

606.9 How is fire official suppose to know if remote controls are required, since under Mechanical code, and again section 102.6 would prevent fire official from requiring. Types of switches are not within fire official authority. Emergency pressure control system, crossover valves, and automatic emergency stop feature also beyond fire official authority.

606.12 Physical features of discharge pipes, approved treatment system, flaring system, and construction to meet 606.16 Class I, Division 2 hazardous classifications of NFPA 70 are under building code, beyond fire official to require.

607.1 Fire official cannot require elevators to be provided with recall operation, since such are construction features instead of purely procedural activity.

609.2: Requirement to install type 1 hood under building code, not fire code.

803 & 804: Since interior finishes and trim are part of structure, such under building code instead of fire code (which is limited to freely hung materials, such as curtains).

**Chapter 9:** Localities coordinate with fire officials about compatible hose threads, but most of chapter 9 are building code requirements, thus suggest remove from Virginia fire code and have in building code.

901.1: Fire code can not specify about fire protection system design nor installation, since such under building code. Fire code covers maintenance, inspection, operation, and testing.

901.4.4: Fire official may not require physical, built-in systems such as automatic alarm nor suppression.

901.5: Fire official is NOT authority having jurisdiction for acceptance of newly installed systems; those are under building, electrical, or mechanical officials.

903: Where sprinklers are required is building code, beyond fire official to require installation.

904: ALL automatic fire-extinguishing systems which are built-in are under building code, thus beyond fire official to apply.

905: Standpipe system are under building code, beyond fire official authority to require.

907: New or old buildings, installation of fire alarms are under building code. *PLEASE have codes allow fire officials to require single station battery smoke detectors in residences built prior to building code requiring such. Since devices can be hung as simply as hanging a picture or ceiling hook for plants or drapes, single station battery-only smoke detectors should not be restricted to building official, but also allow fire official to require, especially in older rental residences.*

**907.2.11.3** *Please allow exception for older existing dwellings to not need interconnected smoke detectors. Single station smoke detectors should be minimum for residences built prior to code requiring smoke detectors.*

**Chapter 10:** Most of Means of Egress chapter specifies construction, thus beyond fire official authority. Size of doors, number and placement of exits, etc. are construction, thus building code instead of fire code details.

1003.2: Fire official is unable to increase ceiling height where as built and allowed by building code.

1003.5: Floor slope is beyond fire official to change such construction.

1004: The occupant load is determined by the building official. Fire official has responsibility to preventing activity from exceeding capacity established by building official.

While information is helpful, code should clarify that capacities are set by building code.

1007.6.3: Built-in communication systems are building code features. I doubt code designers intend for such systems to be portable, which could be fire official jurisdiction to require installing.

1008: Size of doors, swing direction, landing width, space between doors, and hardware are construction, thus under building code instead of fire official ability to enforce installation. Helpful if fire code clearly states keeping egress easy to escape.

1009: Stairways are constructed per building code, thus fire official cannot require built feature differently (enclosed or open). Stair riser height and tread depth are as built, per building code; beyond fire official authority to change.

1010: Construction feature of ramps are building code details, thus what's in fire code should be limited to informational and maintenance (since fire official is not legally able to enforce changing construction).

1012 & 1013: Handrails' & Guards' physical features are under building code for dimensions, then fire official job to mandate maintenance.

1014: While exit access is good for fire official to discuss with customer for evacuation procedures, the construction of such is under building code.

1015 & 1016: Number and arrangement of exits (including travel distance) are under building code; as is establishing occupancy loads.

1018: Dead end constructed corridors are under building code; beyond fire official authority to shorten distance nor require installing additional exit.

1021: Number of exits and exit configuration is as constructed under building code, thus beyond fire official to change.

1024: Since attached to building, does Virginia authorize fire officials to require luminous egress path marking in new or existing high-rises? If code only for new construction, then this should be for building official to enforce instead of fire official (which usually is limited to maintenance requirement).

1026 & 1027: Up to building code if any exit or stairway is a required means of egress, and exterior ground grading. Fire official may help customer with evacuation process, but physical features, arrangements and construction of egress components are under building code official.

1028.6.2.1: Smoke control systems are typically "as built" features, thus more under building code, since Virginia limits fire code to mostly maintenance and procedural activities.

1028.6.2.3: Fire official cannot require sprinkler installation, merely maintenance, inspection & tests.

1028: Fixed-seating situations (including floor steps or slope, and handrails) are more under building official, while portable chairs & tables are fire official job to enforce adequate egress.

1029: Window sizes & permanently affixed ladders are under building code, beyond fire official to change construction.

2108.2: Fire official cannot require installation of sprinklers, for dry-cleaning nor any use or reason. Such construction is solely under building code.

2303, 2306.7, 2307.4, 2308.3, & 2309.3 : Fuel dispensing pumps are installed per mechanical, plumbing, and building codes; beyond authority of fire official to specify construction location, nor installation of switches. Fire official can regulate portable containers, but not construction of fixed systems, which are under building code.

2311.2.3: Fire official cannot require existing floor drains in garages to change construction so will go to oil separator or trap. Building and environmental codes address such construction features for new vs. old buildings. Fire official can regulate customer's procedures for proper disposal.

2404.4: Fire official cannot require automatic fire-extinguishing system; since code notes exhaust ducts, etc., such spray booths should be considered as requiring building & mechanical permits, thus installation details under those codes. Fire code regulates activities.

3103.8.2 Since tents or membrane structures are constructed via building permit, distances from fixed points (lot line or building) should be building code; while fire code can address distance to mobile concerns, such as portable heaters or generators, vehicles, open flames, etc..

3103.12.2: Similar to buildings, details on exits in tents and membrane structures should be building code issue; not for fire official to require changes in construction.

5003.8.4 Construction features of gas rooms are building code requirement, while fire official regulates portable gear and procedures.

5704.2.8.9: IF vaults are permanently installed, connected electrically by electrical permit instead of stand-alone units which plug into an electrical outlet, then ventilation and detection systems should come under building, electrical, and mechanical codes, with fire code focusing on maintenance, testing, and operational concerns.

5704.2.10: Since area surrounding fixed tanks are "built", physical features of ground or barriers should be regulated by building code, with fire code addressing maintenance and operational activities.

*Good if building & mechanical official were required to inform fire official when storage tanks are installed, so firefighting crews aware, and records for fire code permits.*

5704.3.8.4: Fire official cannot require sprinkler system; that is building code. 5704.3.8.5: Hard rubber hand hoses don't help where no standpipe, which is beyond fire official authority to require (that is building code issue).

5705.3.7.3: Fire official cannot require automatic fire-extinguishing system, however room or building is classified by IBC; since such is building code regulated.

The 2012 IFC has re-organized, leaving many chapters reserved for future. Maybe Virginia will also consider keeping chapters in sequence, and encouraging ICC to revert back for 2015 edition. Instead of code having up to a chapter 65, seems awkward when only 39 actual chapters (Virginia version merely 38 since state deletes chapter on existing buildings, under construction or renovations).

Sincerely,

William Andrews, City of Richmond, Fire Prevention, desk phone 646-0621, e-mail:  
[William.Andrews@RichmondGov.com](mailto:William.Andrews@RichmondGov.com)  
201 E. Franklin St., Richmond, VA 23219