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Director

DEPARTMENT OF
HOUSING AND COMMUNITY DEVELOPMENT

MEMORANDUM

TO: Board of Housing and Community Development's –
Codes and Standards Committee (CSC)
Statewide Fire Prevention Code Development Committee (SFPCDC)

FROM: Emory Rodgers, Deputy Director
Division of Building and Fire Regulation

DATE: September 13, 2013

The attached Book 5 is being sent to the BHCD's CSC with the consensus and non-consensus code changes for the USBC, VADR and IBSR regulations. These code changes were reviewed by the stakeholders at our DHCD Workgroup Meeting on August 22, 2013. Also attached is the summary from that meeting.

We have included the October 11, 2013 agenda for our last DHCD Workgroup Meeting. The entire package is posted on the DHCD website (Code Change Process, 2012 Code Change Cycle page). There you will find the code changes to be heard and presented on that day. There are 31 code changes for the SFPC and 49 code changes for the USBC.

On October 16, 2013 the BHCD's CSC and the SFPCDC will receive their packets on the consensus and non-consensus code changes and a summary of the October 11, 2013 meeting.

If you have any questions, please feel free to contact me at 804-371-7151 or by email at emory.rodgers@dhcd.virginia.gov.

Date: 9/13/13

BHCD CODES AND STANDARDS COMMITTEE
2012 CODE CHANGE CYCLE – BOOK 5
October 28, 2013

Opening Statement

TAB 1 – 2012 Proposed USBC

TAB 2 - Consensus USBC Code Changes

Recommended action: vote as block to approve as submitted/amended or to deny from the stakeholder meeting results (listed below); or, vote to approve, amend or deny individually.

From the August 22nd Stakeholder's Code Change Meeting

Sumary of 8/22/13 Stakeholders Meeting

Proposal	Description of Change	Page No.
USBC 108.2	Exempt flag poles under 30 feet from a permit-#1 (F. Castelvecchi) - AS	1
USBC IBC 712.1.3	Exit stairways exemption-D	3
USBC IBC 903.2.3	E occupancy sprinklers at 12,000 s.f. - AS	5
USBC IBC 1016.2.2	F and S travel distance-AS	7
USBC IBC 1021.1	Exit stairways exception-D	11
USBC IBC 1403.5	Water resistance barrier - Option 1-AS	13
USBC IBC 1407.10.4	Full-scale testing - Option #1-AS	15
USBC IBC 2603.5.5	Vertical/Lateral fire propagation - Option #1-AS	17
USBC IBC 3006.4	Elevator control room rating-AS	21
USBC IBC tables	Southern Pine spans-AS	23
IBC/IFC T307.1, IFC 5003.1.1 and T2703.1.1	Storage of 1.4G (removes footnote "d")	47
USBC IBC 1203.6	Smoking lounges-AS	49
USBC IBC chapter 30 IPC 1003.4	Oil separator - D	51
USBC IRC R311.3.1	Exterior landing-AS	57
USBC IRC R602.3.1	Tall walls-AS	59
USBC IRC tables	Southern Pine spans-AS	61
USBC IRC R403.2.2	Sealing/Visual Inspection – D (two proposals)	93

Date: 9/13/13

TAB 3 - Non-Consensus USBC Code Changes.

Recommended action: vote to approve, amend or deny individually.

From the August 22nd Stakeholder's Code Change Meeting

Proposal	Description of Change	Page No.
USBC 108.2	Exempt flag poles under 30 feet from a permit-#2 (VBCOA Administrative Committee)	1
USBC IBC 705.2	Balcony projections	3
USBC IBC 706.5.2	Horizontal projections	5
USBC IBC 903.2.8	R-2 delete exception	7
USBC IBC 1407.10.4	Full-scale testing - Option #2	9
USBC IBC 2603.5.5	Vertical/Lateral fire propagation - Option #3	11
USBC IBC/IPC 2902.1	Portable toilets E occupancies	15
USBC IRC R402.2.13	Mechanical Room ventilation	19
IRC E3902.2	Garage GFCI	21

TAB 4 – Proposed Industrialized Building Safety Regulations

TAB 5 - Consensus Industrialized Building Safety Regulations

Recommended action: vote to approve, amend or deny individually.

Proposal	Description of Change	Page No.
IBSR 13VAC5-91-260	Seal purchase-AS	1

TAB 6 – Proposed Virginia Amusement Device Regulations

TAB 7 - Consensus Virginia Amusement Device Regulations

Recommended action: vote to approve, amend or deny individually.

Proposal	Description of Change	Page No.
VADR Part VIII	Zip Line standards-AS	1
VADR A75D	Certificate of inspection display-D	2
VADR A200	Certificate of display calendar year-D	3

Note: The SFPC code changes as well as any other code changes vetted at the October 11th stakeholders meeting will be sent out on October 15th. A copy of the agenda for the October 11th meeting is attached. The entire package is posted on the DHCD website (Code Change Process, 2012 Code Change Cycle page).

TAB 1 – 2012 Proposed USBC

13VAC5-51-155. IFC Chapter ~~47~~ 80. Referenced Standards.

Change the referenced standards as follows (standards not shown remain the same):

Standard reference number	Title	Referenced in code section number
CGA C-6 (2001)	Standards for Visual Inspection of Steel Compressed Gas Cylinders	~~3806.4~~ 6106.4
~~UL 1037-99~~	~~Standard for Antitheft Alarms and Devices~~	~~506.1~~
UL 1278-00	Standard for Movable and Wall- or Ceiling-Hung Electric Room Heaters	605.10.1

DOCUMENTS INCORPORATED BY REFERENCE (13VAC5-51)

The International Fire Code – ~~2009~~ 2012 Edition, International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070

CGA C-6 – 2001, Standards for Visual Inspection of Steel Compressed Gas Cylinders, Eighth Edition, Compressed Gas Association, 1725 Jefferson Davis Highway, 5th Floor, Arlington, VA 22202-4102

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471 (http://www.nfpa.org):

NFPA ~~58-04~~ 58-11, Liquefied Petroleum Gas Code~~, 2004 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA ~~70-08~~ 70-11, National Electrical Code~~, 2008 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA ~~72-07~~ 72-10, National Fire Alarm and Signaling Code~~, 2007 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 495-10, Explosives Materials Code

NFPA 701-10, Standard Methods of Fire Tests for Flame - Propagation of Textiles and Films

NFPA ~~1123-06~~ 1123-10, Code for Fireworks Display~~, 2006 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 1124-06, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles

NFPA ~~1126-06~~ 1126-11, Standard for the Use of Pyrotechnics Before a Proximate Audience~~, 2006 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

~~UL 1037-99, Standard for Antitheft Alarms and Devices, Fifth Edition, February 24, 1999, Underwriters Laboratories, Inc., Northbrook, IL 60062~~

UL 1278–00, Standard for Movable and Wall- or Ceiling-Hung Electric Room Heaters, Third Edition, June 21, 2000, Underwriters Laboratories, Inc., Northbrook, IL 60062

VA.R. Doc. No. R12-3161; Filed June 27, 2013, 9:54 a.m.

Proposed Regulation

REGISTRAR'S NOTICE: The Board of Housing and Community Development is claiming an exemption from the Administrative Process Act pursuant to § 2.2-4006 A 12 of the Code of Virginia, which excludes regulations adopted by the Board of Housing and Community Development pursuant to the Uniform Statewide Building Code (§ 36-97 et seq. of the Code of Virginia).

Title of Regulation: **13VAC5-63. Virginia Uniform Statewide Building Code (amending 13VAC5-63-10, 13VAC5-63-20, 13VAC5-63-30, 13VAC5-63-40, 13VAC5-63-80, 13VAC5-63-110, 13VAC5-63-120, 13VAC5-63-130, 13VAC5-63-160, 13VAC5-63-170, 13VAC5-63-180, 13VAC5-63-190, 13VAC5-63-200, 13VAC5-63-210, 13VAC5-63-220, 13VAC5-63-230, 13VAC5-63-240, 13VAC5-63-245, 13VAC5-63-250, 13VAC5-63-260, 13VAC5-63-264, 13VAC5-63-270, 13VAC5-63-280, 13VAC5-63-300, 13VAC5-63-310, 13VAC5-63-320, 13VAC5-63-330, 13VAC5-63-350, 13VAC5-63-360, 13VAC5-63-390, 13VAC5-63-400, 13VAC5-63-410, 13VAC5-63-420, 13VAC5-63-430, 13VAC5-63-434, 13VAC5-63-438, 13VAC5-63-440, 13VAC5-63-450, 13VAC5-63-460, 13VAC5-63-470, 13VAC5-63-480, 13VAC5-63-490, 13VAC5-63-500, 13VAC5-63-510, 13VAC5-63-520, 13VAC5-63-530, 13VAC5-63-540; adding 13VAC5-63-225, 13VAC5-63-235, 13VAC5-63-295, 13VAC5-63-335, 13VAC5-63-445; repealing 13VAC5-63-267, 13VAC5-63-525).**

Statutory Authority: § 36-98 of the Code of Virginia.

Public Hearing Information:

September 23, 2013 - 10 a.m. - Virginia Housing Center, 4224 Cox Road, Glen Allen, VA

Public Comment Deadline: September 29, 2013.

Agency Contact: Stephen W. Calhoun, Regulatory Coordinator, Department of Housing and Community Development, Main Street Centre, 600 East Main Street, Suite 300, Richmond, VA 23219, telephone (804) 371-7000,

FAX (804) 371-7090, TTY (804) 371-7089, or email steve.calhoun@dhcd.virginia.gov.

Background: The Virginia Uniform Statewide Building Code (USBC) governs the construction, maintenance, and rehabilitation of new and existing buildings and structures. The USBC uses nationally recognized model building codes and standards produced by the International Code Council and other standard-writing groups as the basis for the technical provisions of the regulation. Every three years, new editions of the model codes become available. At that time, the Board of Housing and Community Development initiates a regulatory action to incorporate the newest editions of the model codes into regulation through the publishing of a proposed regulation. Those affected by the regulation review the proposed regulation to assure that the newest model codes and standards reflect the minimum requirements necessary for buildings and structures. After publication of the proposed regulation, the board establishes a comment period for the acceptance of comments on amendments reflected in the proposed regulation and a public hearing is held. The board then considers comments on all proposals and develops a final regulation to complete the regulatory process.

Summary:

The substantive amendments in this regulatory action include the following:

13VAC5-63-20 D (8): Adds "Off-site manufactured intermodal freight containers, moving containers, and storage containers placed on site temporarily or permanently for use as a storage container" to the exemptions from this code.

13VAC5-63-20 D (9): Adds "Automotive lifts" to the exemptions from this code.

13VAC5-63-30 G: Deletes existing language and adds language that requires compliance with the Virginia Rehabilitation Code (VRC) as related to reconstruction, alteration, and repairs in occupancies other than Group R-5.

13VAC5-63-80 B (12): Adds crypts, mausoleums, and columbaria structures to exemptions from application for permit.

13VAC5-63-120 A through X: These provisions were approved under a prior action of the board under special provisions for defective materials and were only effective for two years. This action will make the provisions a permanent part of the USBC.

13VAC5-63-170 B: Adds this subsection for temporary uses within existing buildings and structures; allows the building official to approve conditions or modifications for temporary use; and stipulates that the building official shall notify the fire official of the approved temporary use and is allowed to terminate the approval.

13VAC5-63-180 D (new E): Deletes some existing language applicable to vacating unsafe buildings or structures and clarifies that the building official is authorized to order the building or structure to be vacated immediately if there is imminent danger to the occupants or to the public.

13VAC5-63-210 E: Changes Section 308.2 to Section 308.3 of the IBC for Institutional Group I-1; excludes residing staff from the number of persons residing on a 24-hour basis who receive custodial care; specifies section to be referenced for Group I-1, other than assisted living facilities as Section 308.3.1; specifies assisted living facilities be classified as one of the occupancy conditions indicated in Section 308.3.1 or 308.3.2; clarifies the exception for Group I-1 occupancies as the occupancy condition indicated in Section 308.3.1; and deletes language that refers to a similar facility with five or fewer persons.

13VAC5-63-210 R 28 (new 27): Deletes the use of Appendix G for swimming pools, spas, and hot tubs. Swimming pools, as defined in the USBC, shall comply with the applicable provisions of the International Swimming Pool and Spa Code.

13VAC5-63-210 R 52 (new 43): Deletes all existing language and adds new language to Section R602.12 for practical wall bracing, which allows all buildings in Seismic Design Categories A and B and detached buildings in Category C to be permitted to be braced in accordance with this section as an alternative to Section R602.10. The revisions also add several sections relating to wall bracing requirements and procedures.

13VAC5-63-210 R (53): Changes Section N1102.4.1.2 (R402.4.1.2) for air sealing and requires compliance with either Section N1102.4.1.2.1 or Section N1102.4.1.2.2 and adds sections that (i) specify how the testing option shall be performed when testing for air leakage; (ii) provide that visual inspection is an option for air leakage compliance; and (iii) state that the air leakage rate shall not exceed five changes per hour.

13VAC5-63-210 R (56): Changes Section N1103.2.2.1 (R403.2.2.1) for testing options. Clarifies that the post-construction test shall be determined by the total leakage that is less than or equal to 6 cfm/100 square feet across the entire system; clarifies that the rough-in test shall be determined by the total leakage that is less than 5 cfm/100 square feet across the system; addresses the case where the air handler has yet to be installed, in this case the total leakage shall be less than or equal to 5 cfm/100 square feet; and revises the exception to indicate that the total leakage test not be required for ducts and air handlers located entirely within the building thermal envelope.

13VAC5-63-210 R (57): Adds Section N1103.2.2.2 (R403.2.2.2) for visual inspection option for compliance.

13VAC5-63-210 R (72): Adds Sections P2909.1 through P2909.18, including subsections for scope and design of

nonpotable water systems, makeup water, makeup water sources, makeup water supply valves, control valve alarms, sizing, required signage, potable water supply system connections, nonpotable water system connections, approved components and materials, insect and vermin control, freeze protection, nonpotable water storage tanks, inlets, outlets, materials and location, foundation and supports, ballasts, structural support, overflow, access, venting, drains, storage tank tests, structural strength, trenching requirements, outdoor outlet access, drainage and vent piping fittings, pumping and control systems, water-pressure reducing valves or regulators, distribution pipes, materials, joints, and connections, design, labeling and marking, backflow prevention, tests and inspections, drainage and vent pipe tests, storage tanks tests, water supply system tests, inspection and testing of backflow prevention assemblies, inspection of vermin and insect protection, and operation and maintenance manuals.

13VAC5-63-220 M: Adds Section 425.2.1 to the IBC for relocated manufactured homes, which specifies that installation, setup, and site work shall comply with the provisions of this code and shall include the option of using the manufacturer's installation instructions or the federal Model Manufactured Home Installation Standards (24 CFR Part 3285) for the technical requirements.

13VAC5-63-220 N: Adds Section 425.2.2 to the IBC for alterations and repairs to manufactured homes, which specifies that alterations and repairs shall be in accordance with federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280) or in accordance with the alteration and repair provisions of this code.

13VAC5-63-310 D (3), (4), and (5): Amends the IMC to permit residential-type electric stoves to be used in commercial buildings without the need of a commercial exhaust hood.

13VAC5-63-310 D (6) and (7): Modifies the IMC to permit water quality for cooling towers to be in accordance with the equipment manufacturer's recommendations to safely permit the use of rainwater or other nonpotable water sources in air-conditioning systems.

13VAC5-63-330 B: Amends the elevator chapter of the IBC to correlate with requirements for fire service elevator keys established in the IFC, which permit the use of either a standardized key or the use of a lock box for a non-standardized key.

13VAC5-63-350: Addresses existing buildings and contained provisions to be used for alterations, additions, and change of occupancy to existing buildings as well as setting out special retrofit requirements for existing buildings when required by state law. All requirements in this section have been moved to Part II of the regulation (the VRC) so there remains a provision that deletes all of Chapter 34 of the IBC, as it is no longer used.

13VAC5-63-410 B: Changes the scope of the VRC to include mandatory requirements for the alteration and repair of buildings and for changes of occupancy in existing buildings, except for buildings in the Institutional grouping, where Part I of the regulation still applies and clarifies that the VRC may be used for alterations to residential buildings as an acceptable alternative to the use of Part I of the regulation.

Part I
Construction

13VAC5-63-10. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part I, Construction, may be cited as the Virginia Construction Code or as the VCC. The term "USBC" shall mean the ~~Virginia Construction Code~~ VCC unless the context in which the term is used clearly indicates it to be an abbreviation for the entire Virginia Uniform Statewide Building Code or for a different part of the Virginia Uniform Statewide Building Code.

Note: This code is also known as the ~~2009~~ 2012 edition of the USBC due to the use of the ~~2009~~ 2012 editions of the model codes.

B. Section 101.2 Incorporation by reference. Chapters 2 - 35 of the ~~2009~~ 2012 International Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the USBC. The term "IBC" means the ~~2009~~ 2012 International Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference. In addition, any provisions of the appendices of the IBC specifically identified to be part of the USBC are also considered to be part of the incorporation by reference.

Note 1: The IBC references ~~the whole family of~~ other International Codes and standards including the following major codes:

~~2009~~ 2012 International Plumbing Code (IPC)

~~2009~~ 2012 International Mechanical Code (IMC)

~~2008~~ 2011 NFPA 70

~~2009~~ 2012 International Fuel Gas Code (IFGC)

~~2009~~ 2012 International Energy Conservation Code (IECC)

~~2009~~ 2012 International Residential Code (IRC)

Note 2: The ~~International Residential Code~~ IRC is applicable to the construction of detached one- and two-family dwellings and townhouses as set out in Section 310.

C. Section 101.3 Numbering system. A dual numbering system is used in the USBC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IBC. IBC numbering system designations are provided in the catchlines of the Virginia Administrative Code sections. Cross references between sections or chapters of the USBC use only the IBC numbering system designations. The term "chapter" is used in the context of the numbering system of the IBC and may mean a chapter in the USBC, a chapter in the IBC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The USBC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - 35 of the IBC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IBC that are specifically identified. The terminology "changes to the text of the incorporated chapters of the IBC that are specifically identified" shall also be referred to as the "state amendments to the IBC." Such state amendments to the IBC are set out using corresponding chapter and section numbers of the IBC numbering system. In addition, since Chapter 1 of the IBC is not incorporated as part of the USBC, any reference to a provision of Chapter 1 of the IBC in the provisions of Chapters 2 - 35 of the IBC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established herein, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

E. Section 101.5 Use of terminology and notes. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - 35 of the IBC or in the state amendments to the IBC means the USBC, unless the context clearly indicates otherwise. The term "this code" or "the code" where used in a code or standard referenced in the IBC means that code or standard, unless the context clearly indicates otherwise. The use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision. Notes in the IBC, in the codes and standards referenced in the IBC and in the state amendments to the IBC may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of Chapters 2 - 35 of the IBC ~~and~~ that address the same subject matter and impose differing requirements.

2. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements. ~~In addition, the~~

3. The state amendments to the IBC supersede any ~~conflicting~~ provisions of Chapters 2 - 35 of the IBC ~~and~~ that address the same subject matter and impose differing requirements.

4. The state amendments to the IBC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements. ~~Further, the~~

5. The provisions of Chapters 2 - 35 of the IBC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements.

G. Section 101.7 Administrative provisions. The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope of the code, enforcement, fees, permits, inspections and disputes. Any provisions of Chapters 2 - 35 of the IBC or any provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IBC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the above, where administrative requirements of Chapters 2 - 35 of the IBC or of the codes and standards referenced in the IBC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IBC, then such requirements are not deleted and replaced.

Note: The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

H. Section 101.8 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

Note: The order of precedence outlined in Section 101.6 may be determinative in establishing how to apply the definitions in the IBC and in the referenced codes and standards.

13VAC5-63-20. Section 102 Purpose and scope.

A. Section 102.1 Purpose. In accordance with § 36-99 of the Code of Virginia, the purpose of the USBC is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and

structures should be permitted to be constructed at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

B. Section 102.2 Scope. This section establishes the scope of the USBC in accordance with § 36-98 of the Code of Virginia. The USBC shall supersede the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies. This code also shall supersede the provisions of local ordinances applicable to single-family residential construction that (i) regulate dwelling foundations or crawl spaces, (ii) require the use of specific building materials or finishes in construction, or (iii) require minimum surface area or numbers of windows; however, this code shall not supersede proffered conditions accepted as a part of a rezoning application, conditions imposed upon the grant of special exceptions, special or conditional use permits or variances, conditions imposed upon a clustering of single-family homes and preservation of open space development through standards, conditions, and criteria established by a locality pursuant to subdivision 8 of § 15.2-2242 of the Code of Virginia or subdivision A 12 of § 15.2-2286 of the Code of Virginia, or land use requirements in airport or highway overlay districts, or historic districts created pursuant to § 15.2-2306 of the Code of Virginia, or local flood plain regulations adopted as a condition of participation in the National Flood Insurance Program.

Note: Requirements relating to functional design are contained in Section 103.11 of this code.

C. Section 102.2.1 Invalidity of provisions. To the extent that any provisions of this code are in conflict with Chapter 6 (§ 36-97 et seq.) of Title 36 of the Code of Virginia or in conflict with the scope of the USBC, those provisions are considered to be invalid to the extent of such conflict.

D. Section 102.3 Exemptions. The following are exempt from this code:

1. Equipment, related wiring, and poles and towers supporting the related wiring installed by a provider of publicly regulated utility service or a franchised cable television operator and electrical equipment and related wiring used for radio, broadcast or cable television, telecommunications or information service transmission. The exemption shall apply only if under applicable federal and state law the ownership and control of the equipment and wiring is by the service provider or its affiliates. Such exempt equipment and wiring shall be located on either rights-of-way or property for which the service provider has rights of occupancy and entry; however, the structures, including their service equipment, housing or supporting such exempt equipment and wiring shall be subject to the USBC. The installation of equipment and wiring exempted by this section shall not create an unsafe condition prohibited by the USBC.

2. Manufacturing and processing machines that do not produce or process hazardous materials regulated by this code, including all of the following service equipment associated with the manufacturing or processing machines.

2.1. Electrical equipment connected after the last disconnecting means.

2.2. Plumbing piping and equipment connected after the last shutoff valve or backflow device and before the equipment drain trap.

2.3. Gas piping and equipment connected after the outlet shutoff valve.

Manufacturing and processing machines that produce or process hazardous materials regulated by this code are only required to comply with the code provisions regulating the hazardous materials.

3. Parking lots and sidewalks, ~~which~~ that are not part of an accessible route.

4. Nonmechanized playground or recreational equipment such as swing sets, sliding boards, climbing bars, jungle gyms, skateboard ramps, and similar equipment where no admission fee is charged for its use or for admittance to areas where the equipment is located.

5. Industrialized buildings subject to the Virginia Industrialized Building Safety Regulations (13VAC5-91) and manufactured homes subject to the Virginia Manufactured Home Safety Regulations (13VAC5-95); except as provided for in Section ~~424~~ 425.

6. Farm buildings and structures, except for a building or a portion of a building located on a farm that is operated as a restaurant as defined in § 35.1-1 of the Code of Virginia and licensed as such by the Virginia Board of Health pursuant to Chapter 2 (§ 35.1-11 et seq.) of Title 35.1 of the Code of Virginia. However, farm buildings and structures lying within a flood plain or in a mudslide-prone area shall be subject to flood-proofing regulations or mudslide regulations, as applicable.

7. Federally owned buildings and structures unless federal law specifically requires a permit from the locality. Underground storage tank installations, modifications and removals shall comply with this code in accordance with federal law.

8. Off-site manufactured intermodal freight containers, moving containers, and storage containers placed on site temporarily or permanently for use as a storage container.

9. Automotive lifts.

13VAC5-63-30. Section 103 Application of code.

A. Section 103.1 General. In accordance with § 36-99 of the Code of Virginia, the USBC shall prescribe building regulations to be complied with in the construction and

rehabilitation of buildings and structures, and the equipment therein.

B. Section 103.2 When applicable to new construction. Construction for which a permit application is submitted to the local building department on or after the effective date of the ~~2009~~ 2012 edition of the code shall comply with the provisions of this code, except for permit applications submitted during a one-year period ~~after~~ beginning on the effective date of the ~~2009~~ 2012 edition of the code. The applicant for a permit during such one-year period shall be permitted to choose whether to comply with the provisions of this code or the provisions of the edition of the code in effect immediately prior to the ~~2009~~ 2012 edition. This provision shall also apply to subsequent amendments to this code based on the effective date of such amendments. In addition, when a permit has been properly issued under a previous edition of this code, this code shall not require changes to the approved construction documents, design or construction of such a building or structure, provided the permit has not been suspended or revoked.

C. Section 103.3 Change of occupancy. No change of occupancy shall be made in any structure when the current USBC requires a greater degree of accessibility, structural strength, fire protection, means of egress, ventilation or sanitation. When such a greater degree is required, the owner or the owner's agent shall ~~make~~ comply with the following:

1. When involving Group I-2 or I-3, written application shall be made to the local building department for a new certificate of occupancy and ~~shall obtain~~ the new certificate of occupancy shall be obtained prior to the new use of the structure. When impractical to achieve compliance with this code for the new occupancy classification, the building official shall consider modifications upon application and as provided for in Section 106.3. In addition, the applicable accessibility provisions of Section 1012.8 of Part II of the Virginia Uniform Statewide Building Code, also known as the "Virginia Rehabilitation Code," or the "VRC" shall be met.

Exception: This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of this code.

2. In other than Group I-2 or I-3, the provisions of the VRC for change of occupancy shall be met.

D. Section 103.4 Additions. Additions to buildings and structures shall comply with the requirements of this code for new construction ~~and an~~ or shall comply with the VRC. An existing building or structure plus additions shall comply with the height and area provisions of Chapter 5 and the applicable provisions of Chapter 9. Further, this code shall not require changes to the design or construction of any portions of the building or structure not altered or affected by an addition, unless the addition has the effect of lowering the current level of safety.

~~Exception~~ Exceptions:

1. This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of this code.

2. When this code is used for compliance, existing structural elements carrying gravity loads shall be permitted to comply with Section 1103 of the International Existing Building Code.

E. Section 103.5 Reconstruction, alteration or repair in Group R-5 occupancies. The following criteria is applicable to reconstruction, alteration or repair of Group R-5 buildings or structures:

1. Any reconstruction, alteration or repair shall not adversely affect the performance of the building or structure, or cause the building or structure to become unsafe or lower existing levels of health and safety.

2. Parts of the building or structure not being reconstructed, altered or repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures.

3. The installation of material or equipment, or both, that is neither required nor prohibited shall only be required to comply with the provisions of this code relating to the safe installation of such material or equipment.

4. Material or equipment, or both, may be replaced in the same location with material or equipment of a similar kind or capacity.

Exceptions:

1. This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of this code.

2. Reconstructed decks, balconies, porches and similar structures located 30 inches (762 mm) or more above grade shall meet the current code provisions for structural loading capacity, connections and structural attachment. This requirement excludes the configuration and height of handrails and guardrails.

3. Compliance with the VRC shall be an acceptable alternative to compliance with this section at the discretion of the owner or owner's agent.

F. Section 103.5.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing Group R-5 occupancies, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with the IRC.

2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration, and are in operable condition. Where not inspected by the local building department, persons performing such changes or

installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

~~F.~~ G. Section 103.6. ~~Use of rehabilitation code~~ Reconstruction, alteration, and repair in other occupancies. ~~Compliance with Part II of the Virginia Uniform Statewide Building Code, also known as the "Virginia Rehabilitation Code," shall be an acceptable alternative to compliance with this code for the rehabilitation of such existing buildings and structures within the scope of that code. For the purposes of this section, the term "rehabilitation" shall be as defined in the Virginia Rehabilitation Code~~ Reconstruction, alteration, and repair in occupancies other than Group R-5 shall comply with the VRC.

~~G.~~ H. Section 103.7. Retrofit requirements. The local building department shall enforce the provisions of Section ~~3413~~ 1701 of the VRC, which require certain existing buildings to be retrofitted with fire protection systems and other safety equipment. Retroactive fire protection system requirements contained in the International Fire Code (IFC) shall not be applicable unless required for compliance with the provisions of Section ~~3413~~ 1701 of the VRC.

~~H.~~ I. Section 103.8 Nonrequired equipment. The following criteria for nonrequired equipment is in accordance with § 36-103 of the Code of Virginia. Building owners may elect to install partial or full fire alarms or other safety equipment that was not required by the edition of the USBC in effect at the time a building was constructed without meeting current requirements of the code, provided the installation does not create a hazardous condition. Permits for installation shall be obtained in accordance with this code. In addition, as a requirement of this code, when such nonrequired equipment is to be installed, the building official shall notify the appropriate fire official or fire chief.

~~I.~~ J. Section 103.8.1 Reduction in function or discontinuance of nonrequired fire protection systems. When a nonrequired fire protection system is to be reduced in function or discontinued, it shall be done in such a manner so as not to create a false sense of protection. Generally, in such cases, any features visible from interior areas shall be removed, such as sprinkler heads, smoke detectors or alarm panels or devices, but any wiring or piping hidden within the construction of the building may remain. Approval of the proposed method of reduction or discontinuance shall be obtained from the building official.

~~J. Section 103.9 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:~~

~~1. Vent or chimney systems are sized in accordance with either the International Residential Code, the International Mechanical Code or the International Fuel Gas Code, depending on which is applicable based on the fuel source and the occupancy classification of the structure.~~

~~2. Vent or chimney systems are clean, free of any obstruction or blockages, defects or deterioration and are in operable condition.~~

~~Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.~~

K. Section ~~103.10~~ 103.8 Use of certain provisions of referenced codes. The following provisions of the IBC and of other indicated codes or standards are to be considered valid provisions of this code. Where any such provisions have been modified by the state amendments to the IBC, then the modified provisions apply.

1. Special inspection requirements in Chapters 2 - 35.

~~2. Chapter 34, Existing Structures, except that Section 3412, Compliance Alternatives, shall not be used to comply with the retrofit requirements identified in Section 103.7 and shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of this code.~~

~~3.~~ 2. Testing requirements and requirements for the submittal of construction documents in any of the ICC codes referenced in Chapter 35 and in the IRC.

~~4.~~ 3. Section R301.2 of the ~~International Residential Code~~ IRC authorizing localities to determine climatic and geographic design criteria.

~~5.~~ 4. Flood load or flood-resistant construction requirements in the IBC or the ~~International Residential Code~~ IRC, including, but not limited to, any such provisions pertaining to flood elevation certificates that are located in Chapter 1 of those codes. Any required flood elevation certificate pursuant to such provisions shall be prepared by a land surveyor licensed in Virginia or an RDP.

~~6.~~ 5. Section R101.2 of the IRC.

L. Section 103.11 Functional design. The following criteria for functional design is in accordance with § 36-98 of the Code of Virginia. The USBC shall not supersede the regulations of other state agencies that require and govern the functional design and operation of building related activities not covered by the USBC, including but not limited to (i) public water supply systems, (ii) waste water treatment and disposal systems, and (iii) solid waste facilities~~, nor~~. Nor shall state agencies be prohibited from requiring, pursuant to other state law, that buildings and equipment be maintained in accordance with provisions of this code. In addition, as established by this code, the building official may refuse to issue a permit until the applicant has supplied certificates of functional design approval from the appropriate state agency or agencies. For purposes of coordination, the locality may require reports to the building official by other departments or agencies indicating compliance with their regulations applicable to the functional design of a building or structure

as a condition for issuance of a building permit or certificate of occupancy. Such reports shall be based upon review of the plans or inspection of the project as determined by the locality. All enforcement of these conditions shall not be the responsibility of the building official, but rather the agency imposing the condition.

Note: Identified state agencies with functional design approval are listed in the "Related Laws Package," which is available from DHCD.

M. Section 103.12 Amusement devices and inspections. In accordance with § 36-98.3 of the Code of Virginia, to the extent they are not superseded by the provisions of § 36-98.3 of the Code of Virginia and the VADR, the provisions of the USBC shall apply to amusement devices. In addition, as a requirement of this code, inspections for compliance with the VADR shall be conducted either by local building department personnel or private inspectors provided such persons are certified as amusement device inspectors under the VCS.

N. Section 103.13 State buildings and structures. This section establishes the application of the USBC to state-owned buildings and structures in accordance with § 36-98.1 of the Code of Virginia. The USBC shall be applicable to all state-owned buildings and structures, with the exception that §§ 2.2-1159, 2.2-1160 and 2.2-1161 of the Code of Virginia shall provide the standards for ready access to and use of state-owned buildings by the physically handicapped.

Any state-owned building or structure for which preliminary plans were prepared or on which construction commenced after the initial effective date of the USBC, shall remain subject to the provisions of the USBC that were in effect at the time such plans were completed or such construction commenced. Subsequent reconstruction, renovation or demolition of such building or structure shall be subject to the pertinent provisions of this code.

Acting through the Division of Engineering and Buildings, the Virginia Department of General Services shall function as the building official for state-owned buildings. The department shall review and approve plans and specifications, grant modifications, and establish such rules and regulations as may be necessary to implement this section. It shall provide for the inspection of state-owned buildings and enforcement of the USBC and standards for access by the physically handicapped by delegating inspection and USBC enforcement duties to the State Fire Marshal's Office, to other appropriate state agencies having needed expertise, and to local building departments, all of which shall provide such assistance within a reasonable time and in the manner requested. State agencies and institutions occupying buildings shall pay to the local building department the same fees as would be paid by a private citizen for the services rendered when such services are requested by the department. The department may alter or overrule any decision of the local building department after having first considered the local building department's report or other rationale given for its decision. When altering or overruling any decision of a local building department, the department shall provide the local building department with a written summary of its reasons for doing so.

Notwithstanding any provision of this code to the contrary, roadway tunnels and bridges owned by the Virginia Department of Transportation shall be exempt from this code. The Virginia Department of General Services shall not have jurisdiction over such roadway tunnels, bridges and other limited access highways; provided, however, that the Department of General Services shall have jurisdiction over any occupied buildings within any Department of Transportation rights-of-way that are subject to this code.

Except as provided in subdivision D of § 23-38.109 ~~D~~ of the Code of Virginia, and notwithstanding any provision of this code to the contrary, at the request of a public institution of higher education, the Virginia Department of General Services, as further set forth in this provision, shall authorize that institution of higher education to contract with a building official of the locality in which the construction is taking place to perform any inspection and certifications required for the purpose of complying with this code. The department shall publish administrative procedures that shall be followed in contracting with a building official of the locality. The authority granted to a public institution of higher education under this provision to contract with a building official of the locality shall be subject to the institution meeting the conditions prescribed in subdivision B of § 23-38.88 ~~B~~ of the Code of Virginia.

Note: In accordance with § 36-98.1 of the Code of Virginia, roadway tunnels and bridges shall be designed, constructed and operated to comply with fire safety standards based on nationally recognized model codes and standards to be developed by the Virginia Department of Transportation in consultation with the State Fire Marshal and approved by the Virginia Commonwealth Transportation Board. Emergency response planning and activities related to the standards approved by the Commonwealth Transportation Board shall be developed by the Department of Transportation and coordinated with the appropriate local officials and emergency service providers. On an annual basis, the Department of Transportation shall provide a report on the maintenance and operability of installed fire protection and detection systems in roadway tunnels and bridges to the State Fire Marshal.

O. Section 103.13.1 Certification of state enforcement personnel. State enforcement personnel shall comply with the applicable requirements of Section 105 for certification, periodic maintenance training, and continuing education.

13VAC5-63-40. Section 104 Enforcement, generally.

A. Section 104.1 Scope of enforcement. This section establishes the requirements for enforcement of the USBC in accordance with § 36-105 of the Code of Virginia. Enforcement of the provisions of the USBC for construction

and rehabilitation shall be the responsibility of the local building department. Whenever a county or municipality does not have such a building department, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such enforcement. For the purposes of this section, towns with a population of less than 3,500 may elect to administer and enforce the USBC; however, where the town does not elect to administer and enforce the code, the county in which the town is situated shall administer and enforce the code for the town. In the event such town is situated in two or more counties, those counties shall administer and enforce the USBC for that portion of the town situated within their respective boundaries.

~~Upon~~ However, upon a finding by the local building department, following a complaint by a tenant of a residential ~~rental~~ dwelling unit that is the subject of such complaint, that there may be a violation of the unsafe structures provisions of Part III of the Virginia Uniform Statewide Building Code, also known as the "Virginia Maintenance Code," or the "VMC," the local building department shall enforce such provisions.

If the local building department receives a complaint that a violation of the ~~Virginia Maintenance Code~~ VMC exists that is an immediate and imminent threat to the health or safety of the owner ~~or~~, tenant, or occupants of ~~a residential dwelling unit or a nearby residential dwelling unit, and~~ any building or structure, or the owner, occupant, or tenant or any nearby building or structure, and the owner, occupant, or tenant of the ~~residential dwelling unit~~ building or structure that is the subject of the complaint has refused to allow the local building official or his agent to have access to the subject ~~dwelling~~ building or structure, the local building official or his agent may present sworn testimony to a magistrate or a court of competent jurisdiction and request that the magistrate or court grant the local building official or his agent an inspection warrant to enable the building official or his agent to enter the subject ~~dwelling~~ building or structure for the purpose of determining whether violations of the ~~Virginia Maintenance Code~~ VMC exist. The local building official or his agent shall make a reasonable effort to obtain consent from the owner, occupant, or tenant of the subject ~~dwelling~~ building or structure prior to seeking the issuance of an inspection warrant under this section.

The local governing body shall, however, inspect and enforce the provisions of the ~~Virginia Maintenance Code~~ VMC for elevators, escalators, and related conveyances, except for elevators in single-family and two-family homes and townhouses. Such inspection and enforcement shall be carried out by an agency or department designated by the local governing body.

B. Section 104.2 Interagency coordination. When any inspection functions under this code are assigned to a local agency other than the local building department, such agency shall coordinate its reports of inspection with the local building department.

~~C. 104.3 Transfer of ownership. If the local building department has initiated an enforcement action against the owner of a building or structure and such owner subsequently transfers the ownership of the building or structure to an entity in which the owner holds an ownership interest greater than 50%, the pending enforcement action shall continue to be enforced against the owner.~~

13VAC5-63-80. Section 108 Application for permit.

A. Section 108.1 When applications are required. Application for a permit shall be made to the building official and a permit shall be obtained prior to the commencement of any of the following activities, except that applications for emergency construction, alterations or equipment replacement shall be submitted by the end of the first working day that follows the day such work commences. In addition, the building official may authorize work to commence pending the receipt of an application or the issuance of a permit.

1. Construction or demolition of a building or structure. Installations or alterations involving (i) the removal or addition of any wall, partition or portion thereof, (ii) any structural component, (iii) the repair or replacement of any required component of a fire or smoke rated assembly, (iv) the alteration of any required means of egress system, (v) water supply and distribution system, sanitary drainage system or vent system, (vi) electric wiring, (vii) fire protection system, mechanical systems, or fuel supply systems, or (viii) any equipment regulated by the USBC.

2. For change of occupancy, application for a permit shall be made when a new certificate of occupancy is required under Section 103.3.

3. Movement of a lot line that increases the hazard to or decreases the level of safety of an existing building or structure in comparison to the building code under which such building or structure was constructed.

4. Removal or disturbing of any asbestos containing materials during the construction or demolition of a building or structure, including additions.

B. Section 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.

1. Installation of wiring and equipment that (i) operates at less than 50 volts, (ii) is for network powered broadband communications systems, or (iii) is exempt under Section

102.3(1), except when any such installations are located in a plenum, penetrate fire rated or smoke protected construction or are a component of any of the following:

1.1. Fire alarm system.

1.2. Fire detection system.

1.3. Fire suppression system.

1.4. Smoke control system.

1.5. Fire protection supervisory system.

1.6. Elevator fire safety control system.

1.7. Access or egress control system or delayed egress locking or latching system.

1.8. Fire damper.

1.9. Door control system.

2. One story detached ~~accessory~~ structures used as tool and storage sheds, playhouses or similar uses, provided the ~~floor~~ building area does not exceed ~~200~~ 256 square feet ~~(18 m^2~~ (23.78 m^2) and the structures are not classified as a Group F-1 or H occupancy.

3. Detached prefabricated buildings housing the equipment of a publicly regulated utility service, provided the floor area does not exceed 150 square feet (14 m^2).

4. Tents or air-supported structures, or both, that cover an area of 900 square feet (84 m^2) or less, including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant load of 50 or less persons.

5. Fences ~~and privacy walls not part of a building, structure or~~ of any height unless required for pedestrian safety as provided for by Section 3306, or used for the barrier for a swimming pool;.

6. Concrete or masonry walls, provided such ~~fences and privacy~~ walls do not exceed six feet in height above the finished grade. Ornamental ~~post~~ column caps shall not be considered to contribute to the height of the ~~fence or privacy~~ wall and shall be permitted to extend above the six feet height measurement.

~~6.~~ 7. Retaining walls supporting less than ~~two~~ three feet of unbalanced fill. ~~This exemption shall not apply to any wall~~ that are not constructed for the purpose of impounding Class I, II or III-A liquids or supporting a surcharge other than ordinary unbalanced fill.

~~7.~~ 8. Swimming pools that have a surface area not greater than 150 square feet (13.95 m^2), do not exceed 5,000 gallons (19 000 L) and are less than 24 inches (610 mm) deep.

~~8.~~ 9. Signs under the conditions in Section H101.2 of Appendix H.

~~9.~~ 10. Replacement of above-ground existing LP-gas containers of the same capacity in the same location and associated regulators when installed by the serving gas supplier.

~~10.~~ 11. Ordinary repairs that include the following:

~~10.1.~~ 11.1. Replacement of windows and doors with windows and doors of similar operation and opening dimensions that do not require changes to the existing framed opening and that are not required to be fire rated in Group R-2 where serving a single dwelling unit and in Groups R-3, R-4 and R-5.

~~10.2.~~ 11.2. Replacement of plumbing fixtures and well pumps in all groups without alteration of the water supply and distribution systems, sanitary drainage systems or vent systems.

~~10.3.~~ 11.3. Replacement of general use snap switches, dimmer and control switches, 125 volt-15 or 20 ampere receptacles, luminaries (lighting fixtures) and ceiling (paddle) fans in Group R-2 where serving a single dwelling unit and in Groups R-3, R-4 and R-5.

~~10.4.~~ 11.4. Replacement of mechanical appliances provided such equipment is not fueled by gas or oil in Group R-2 where serving a single family dwelling and in Groups R-3, R-4 and R-5.

~~10.5.~~ 11.5. Replacement of an unlimited amount of roof covering or siding in Groups R-3, R-4 or R-5 provided the building or structure is not in an area where the design (3 second gust) wind speed is greater than 100 miles per hour (160 km/hr) and replacement of 100 square feet (9.29 m^2) or less of roof covering in all groups and all wind zones.

~~10.6.~~ 11.6. Replacement of 100 square feet (9.29 m^2) or less of roof decking in Groups R-3, R-4 or R-5 unless the decking to be replaced was required at the time or original construction to be fire-retardant-treated or protected in some other way to form a fire-rated wall termination.

~~10.7.~~ 11.7. Installation or replacement of floor finishes in all occupancies.

~~10.8.~~ 11.8. Replacement of Class C interior wall or ceiling finishes installed in Groups A, E and I and replacement of all classes of interior wall or ceiling finishes in other groups.

~~10.9.~~ 11.9. Installation ~~of~~ or replacement of cabinetry or trim.

~~10.10.~~ 11.10 Application of paint or wallpaper.

~~10.11.~~ 11.11. Other repair work deemed by the building official to be minor and ordinary which does not adversely affect public health or general safety.

12. Crypts, mausoleums, and columbaria structures not exceeding 1500 square feet (139.35 m^2) in area if the building or structure is not for occupancy and used solely for the interment of human or animal remains and is not subject to special inspections.

Exception: Application for a permit may be required by the building official for the installation of replacement siding,

roofing and windows in buildings within a historic district designated by a locality pursuant to § 15.2-2306 of the Code of Virginia.

C. Section 108.3 Applicant information, processing by mail. Application for a permit shall be made by the owner or lessee of the relevant property or the agent of either or by the RDP, contractor or subcontractor associated with the work or any of their agents. The full name and address of the owner, lessee and applicant shall be provided in the application. If the owner or lessee is a corporate body, when and to the extent determined necessary by the building official, the full name and address of the responsible officers shall also be provided.

A permit application may be submitted by mail and such permit applications shall be processed by mail, unless the permit applicant voluntarily chooses otherwise. In no case shall an applicant be required to appear in person.

The building official may accept applications for a permit through electronic submissions provided the information required by this section is obtained.

D. Section 108.4 Prerequisites to obtaining permit. In accordance with § 54.1-1111 of the Code of Virginia, any person applying to the building department for the construction, removal or improvement of any structure shall furnish prior to the issuance of the permit either (i) satisfactory proof to the building official that he is duly licensed or certified under the terms or Chapter 11 (§ 54.1-1000 et seq.) of Title 54.1 of the Code of Virginia to carry out or superintend the same or (ii) file a written statement, supported by an affidavit, that he is not subject to licensure or certification as a contractor or subcontractor pursuant to Chapter 11 of Title 54.1 of the Code of Virginia. The applicant shall also furnish satisfactory proof that the taxes or license fees required by any county, city, or town have been paid so as to be qualified to bid upon or contract for the work for which the permit has been applied.

E. Section 108.5 Mechanics' lien agent designation. In accordance with § 36-98.01 of the Code of Virginia, a building permit issued for any one-family or two-family residential dwelling shall at the time of issuance contain, at the request of the applicant, the name, mailing address, and telephone number of the mechanics' lien agent as defined in § 43-1 of the Code of Virginia. If the designation of a mechanics' lien agent is not so requested by the applicant, the building permit shall at the time of issuance state that none has been designated with the words "None Designated."

Note: In accordance with § 43-4.01A of the Code of Virginia, a permit may be amended after it has been initially issued to name a mechanics' lien agent or a new mechanics' lien agent.

F. Section 108.6 Application form, description of work. The application for a permit shall be submitted on a form or forms supplied by the local building department. The application shall contain a general description and location of the proposed work and such other information as determined necessary by the building official.

G. Section 108.7 Amendments to application. An application for a permit may be amended at any time prior to the completion of the work governed by the permit. Additional construction documents or other records may also be submitted in a like manner. All such submittals shall have the same effect as if filed with the original application for a permit and shall be retained in a like manner as the original filings.

H. Section 108.8 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned six months after the date of filing unless such application has been pursued in good faith or a permit has been issued, except that the building official is authorized to grant one or more extensions of time if a justifiable cause is demonstrated.

13VAC5-63-110. Section 111 RDP services.

A. Section 111.1 When required. In accordance with § 54.1-410 of the Code of Virginia and under the general authority of this code, the local building department shall establish a procedure to ensure that construction documents under Section 109 are prepared by an RDP in any case in which the exemptions contained in § 54.1-401, 54.1-402 or 54.1-402.1 of the Code of Virginia are not applicable or in any case where the building official determines it necessary. When required under § 54.1-402 of the Code of Virginia or when required by the building official, or both, construction documents shall bear the name and address of the author and his occupation.

Note: Information on the types of construction required to be designed by an RDP is included in the "Related Laws Package" available from DHCD.

B. Section 111.2 Special inspection requirements. Special inspections shall be conducted when required by Section 1704. Individuals or agencies, or both, conducting special inspections shall meet the qualification requirements of Sections 1703 and ~~1704.1~~ 1704.2.1. The permit applicant shall submit a completed statement of special inspections with the permit application. The building official shall review, and if satisfied that the requirements have been met, approve the statement of special inspections as required in Sections ~~1704.1.1~~ 1704.2.3 and 1705 as a requisite to the issuance of a building permit. The building official may require interim inspection reports. The building official shall receive, and if satisfied that the requirements have been met, approve a final report of special inspections as specified in Section ~~1704.1.2~~ 1704.2.4. All fees and costs related to the special inspections shall be the responsibility of the building owner.

13VAC5-63-120. Section 112 Workmanship, materials and equipment.

A. Section 112.1 General. It shall be the duty of any person performing work covered by this code to comply with all applicable provisions of this code and to perform and complete such work so as to secure the results intended by the USBC. Damage to regulated building components caused by violations of this code or by the use of faulty materials or installations shall be considered as separate violations of this code and shall be subject to the applicable provisions of Section 115.

B. Section 112.2 Alternative methods or materials. In accordance with § 36-99 of the Code of Virginia, where practical, the provisions of this code are stated in terms of required level of performance so as to facilitate the prompt acceptance of new building materials and methods. When generally recognized standards of performance are not available, this section and other applicable requirements of this code provide for acceptance of materials and methods whose performance is substantially equal in safety to those specified on the basis of reliable test and evaluation data presented by the proponent. In addition, as a requirement of this code, the building official shall require that sufficient technical data be submitted to substantiate the proposed use of any material, equipment, device, assembly or method of construction.

C. Section 112.3 Documentation and approval. In determining whether any material, equipment, device, assembly or method of construction complies with this code, the building official shall approve items listed by nationally recognized testing laboratories ~~(NRTL)~~, when such items are listed for the intended use and application, and in addition, may consider the recommendations of RDPs. Approval shall be issued when the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code and that the material, equipment, device, assembly or method of construction offered is, for the purpose intended, at least the equivalent of that prescribed by the code. Such approval is subject to all applicable requirements of this code and the material, equipment, device, assembly or method of construction shall be installed in accordance with the conditions of the approval and their listings. In addition, the building official may revoke such approval whenever it is discovered that such approval was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC.

D. Section 112.3.1 Conditions of listings. Where conflicts between this code and conditions of the listing or the manufacturer's installation instructions occur, the provisions of this code shall apply.

Exception: Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.

E. Section 112.4 Used material and equipment. Used materials, equipment and devices may be approved provided they have been reconditioned, tested or examined and found to be in good and proper working condition and acceptable for use by the building official.

~~F. Section 112.5 Defective materials. Notwithstanding any provision of this code to the contrary, where action has been taken and completed by the BHCD under § 36-99 D of the Code of Virginia establishing new performance standards for identified defective materials, this section sets forth the new performance standards addressing the prospective use of such materials and establishes remediation standards for the removal of any defective materials already installed, which, when complied with, enables the building official to certify that the building is deemed to comply with the edition of the USBC under which the building was originally constructed with respect to the remediation of the defective materials. Subsections F through X of this section expire on August 29, 2013.~~

~~G. Section 112.5.1 Drywall, performance standard. All newly installed gypsum wallboard shall not be defective drywall as defined in Section 112.5.1.1.1.~~

~~H. Section 112.5.1.1 Remediation standards. The following provisions establish remediation standards where defective drywall was installed in buildings.~~

~~I. Section 112.5.1.1.1 Definition. For the purposes of this section the term "defective drywall" shall mean gypsum wallboard that (i) contains elemental sulfur exceeding 10 parts per million that when exposed to heat or humidity, or both, emits volatile sulfur compounds in quantities that cause observable corrosion on electrical wiring, plumbing pipes, fuel gas lines, or HVAC equipment, or any components of the foregoing or (ii) has been designated by the U.S. Consumer Product Safety Commission as a product with a product defect that constitutes a substantial product hazard within the meaning of § 15(a)(2) of the Consumer Product Safety Act (15 USC § 2064(a)(2)).~~

~~J. Section 112.5.1.1.2 Permit. Application for a permit shall be made to the building official and a permit shall be obtained prior to the commencement of remediation work undertaken to remove defective drywall from a building and for the removal, replacement, or repair of corroded electrical, plumbing, mechanical, or fuel gas equipment and components.~~

~~K. Section 112.5.1.1.3 Protocol. Where remediation of defective drywall is undertaken, the following standards shall be met. The building official shall be permitted to consider and approve modifications to these standards in accordance with Section 106.3.~~

L. Section 112.5.1.1.3.1 Drywall. Drywall in the building, whether defective or nondefective, shall be removed and discarded, including fasteners that held any defective drywall to prevent small pieces of drywall from remaining under fasteners.

Exceptions:

1. Nondefective drywall not subject to the corrosive effects of any defective drywall shall be permitted to be left in place in buildings where the defective drywall is limited to a defined room or space or isolated from the rest of the building and the defective drywall can be positively identified. If the room or space containing the defective drywall also contains any nondefective drywall, the nondefective drywall in that room or space shall also be removed.

2. In multi-family buildings where defective drywall was not used in the firewalls between units and there are no affected building systems behind the firewalls, the firewalls shall be permitted to be left in place.

M. Section 112.5.1.1.3.2 Insulation and other building components. Insulation in walls and ceilings shall be removed and discarded. Carpet and vinyl flooring shall be removed and discarded. Woodwork, trim, cabinets, and tile or wood floors may be left in place or may be reused.

Exceptions:

1. Closed-cell foam insulation is permitted to be left in place if testing for off-gassing from defective drywall is negative, unless its removal is required to gain access.

2. Insulation, carpet, or vinyl flooring in areas not exposed to defective drywall or to the effects of defective drywall, may be left in place or reused.

N. Section 112.5.1.1.3.3 Electrical wiring, equipment, devices, and components. All electrical wiring regulated by this code shall be permitted to be left in place, but removal or cleaning of exposed ends of the wiring to reveal clean or uncorroded surfaces is required. All electrical equipment, devices, and components of the electrical system of the building regulated by this code shall be removed and discarded. This shall include all smoke detectors.

Exceptions:

1. Electrical equipment, devices, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused. Electrical equipment, devices, or components in areas exposed to the corrosive effects of defective drywall shall be cleaned, repaired, or replaced.

2. Cord and plug connected appliances are not subject to this code and, therefore, cannot be required to be removed or replaced.

Note: All low voltage wiring associated with security systems, door bells, elevator controls, and other such components shall be removed and replaced or repaired.

O. Section 112.5.1.1.3.4 Plumbing and fuel gas piping, fittings, fixtures, and equipment. All copper fuel gas piping and all equipment utilizing fuel gas with copper, silver, or aluminum components shall be removed and discarded. All copper plumbing pipes and fittings shall be removed and discarded. Plumbing fixtures with copper, silver, or aluminum components shall be removed and discarded.

Exception: Plumbing or fuel gas piping, fittings, fixtures, equipment, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

P. Section 112.5.1.1.3.5 Mechanical systems. All heating, air conditioning, and ventilation system components, including, but not limited to, ductwork, air handling units, furnaces, heat pumps, refrigerant lines, and thermostats and associated wiring, shall be removed and discarded.

Exception: Mechanical system components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

Q. Section 112.5.1.1.3.6 Cleaning. Following the removal of all materials and components in accordance with Sections 112.5.1.1.3.1 through 112.5.1.1.3.5, the building shall be thoroughly cleaned to remove any particulate matter and dust.

R. Section 112.5.1.1.3.7 Airing out. Following cleaning in accordance with Section 112.5.1.1.3.6, the building shall be thoroughly aired out with the use of open windows and doors and fans.

S. Section 112.5.1.1.3.8 Pre-rebuilding clearance testing. Following the steps outlined above for removal of all materials and components, cleaning and airing out, a pre-rebuilding clearance test shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and the Department of Housing and Urban Development entitled "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report, certifying compliance, shall be submitted to the building official.

Notes:

1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.

2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.

T. Section 112.5.1.1.3.9 Testing agencies and personnel. Agencies and personnel performing pre-rebuilding or post-rebuilding clearance testing shall be independent of those responsible for all other remediation work and the agencies

~~and personnel shall be appropriately certified or accredited by the Council of Engineering and Scientific Specialty Boards, the American Indoor Air Quality Council, or the World Safety Organization.~~

~~Exception: Testing agencies and personnel shall be accepted if certified by an RDP or if the agency employs an RDP to be in responsible charge of the work.~~

~~U. Section 112.5.1.1.3.10 Rebuilding standards. The rebuilding of the building shall comply with the edition of the USBC that was in effect when the building was originally built.~~

~~V. Section 112.5.1.1.3.11 Post rebuilding clearance testing. A post rebuilding clearance test prior to reoccupancy of the building or structure shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and by the Department of Housing and Urban Development entitled "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.~~

~~Notes:~~

~~1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.~~

~~2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.~~

~~W. Section 112.5.1.1.4 Final approval by the building official. Once remediation has been completed in accordance with this section, a certificate or letter of approval shall be issued by the building official. The certificate or letter shall state that the remediation and rebuilding is deemed to comply with this code.~~

~~X. Section 112.5.1.1.4.1 Approval of remediation occurring prior to these standards. The building official shall issue a certificate or letter of approval for remediation of defective drywall that occurred prior to the effective date of these standards provided post rebuilding clearance testing has been performed in accordance with Section 112.5.1.1.3.11, by agencies and personnel complying with Section 112.5.1.1.3.9, and the clearance testing confirms that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.~~

F. Section 112.5 Defective materials. Notwithstanding any provision of this code to the contrary, where action has been taken and completed by the BHCD under subsection D of § 36-99 of the Code of Virginia establishing new performance standards for identified defective materials, this section sets forth the new performance standards addressing the prospective use of such materials and establishes remediation standards for the removal of any defective materials already installed, which when complied with enables the building official to certify that the building is deemed to comply with the edition of the USBC under which the building was originally constructed with respect to the remediation of the defective materials.

G. Section 112.5.1 Drywall, performance standard. All newly installed gypsum wallboard shall not be defective drywall as defined in Section 112.5.1.1.1.

H. Section 112.5.1.1 Remediation standards. The following provisions establish remediation standards where defective drywall was installed in buildings.

I. Section 112.5.1.1.1 Definition. For the purposes of this section the term "defective drywall" means gypsum wallboard that (i) contains elemental sulfur exceeding 10 parts per million that when exposed to heat or humidity, or both, emits volatile sulfur compounds in quantities that cause observable corrosion on electrical wiring, plumbing pipes, fuel gas lines, or HVAC equipment, or any components of the foregoing or (ii) has been designated by the U.S. Consumer Product Safety Commission as a product with a product defect that constitutes a substantial product hazard within the meaning of § 15(a)(2) of the Consumer Product Safety Act (15 USC § 2064(a)(2)).

J. Section 112.5.1.1.2 Permit. Application for a permit shall be made to the building official, and a permit shall be obtained prior to the commencement of remediation work undertaken to remove defective drywall from a building and for the removal, replacement, or repair of corroded electrical, plumbing, mechanical, or fuel gas equipment and components.

K. Section 112.5.1.1.3 Protocol. Where remediation of defective drywall is undertaken, the following standards shall be met. The building official shall be permitted to consider and approve modifications to these standards in accordance with Section 106.3.

L. Section 112.5.1.1.3.1 Drywall. Drywall in the building, whether defective or nondefective, shall be removed and discarded, including fasteners that held any defective drywall to prevent small pieces of drywall from remaining under fasteners.

Exceptions:

1. Nondefective drywall not subject to the corrosive effects of any defective drywall shall be permitted to be left in place in buildings where the defective drywall is limited to a defined room or space or isolated from the rest of the building and the defective drywall can be positively identified. If the room or space containing the defective drywall also contains any nondefective drywall, the

nondefective drywall in that room or space shall also be removed.

2. In multifamily buildings where defective drywall was not used in the firewalls between units and there are no affected building systems behind the firewalls, the firewalls shall be permitted to be left in place.

M. Section 112.5.1.1.3.2 Insulation and other building components. Insulation in walls and ceilings shall be removed and discarded. Carpet and vinyl flooring shall be removed and discarded. Woodwork, trim, cabinets, and tile or wood floors may be left in place or may be reused.

Exceptions:

1. Closed-cell foam insulation is permitted to be left in place if testing for off-gassing from defective drywall is negative, unless its removal is required to gain access.

2. Insulation, carpet, or vinyl flooring in areas not exposed to defective drywall or to the effects of defective drywall, may be left in place or reused.

N. Section 112.5.1.1.3.3 Electrical wiring, equipment, devices, and components. All electrical wiring regulated by this code shall be permitted to be left in place, but removal or cleaning of exposed ends of the wiring to reveal clean or uncorroded surfaces is required. All electrical equipment, devices, and components of the electrical system of the building regulated by this code shall be removed and discarded. This shall include all smoke detectors.

Exceptions:

1. Electrical equipment, devices, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused. Electrical equipment, devices, or components in areas exposed to the corrosive effects of defective drywall shall be cleaned, repaired, or replaced.

2. Cord and plug connected appliances are not subject to this code and, therefore, cannot be required to be removed or replaced.

Note: All low-voltage wiring associated with security systems, door bells, elevator controls, and other such components shall be removed and replaced or repaired.

O. Section 112.5.1.1.3.4 Plumbing and fuel gas piping, fittings, fixtures, and equipment. All copper fuel gas piping and all equipment utilizing fuel gas with copper, silver, or aluminum components shall be removed and discarded. All copper plumbing pipes and fittings shall be removed and discarded. Plumbing fixtures with copper, silver, or aluminum components shall be removed and discarded.

Exception: Plumbing or fuel gas piping, fittings, fixtures, equipment, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

P. Section 112.5.1.1.3.5 Mechanical systems. All heating, air-conditioning, and ventilation system components, including but not limited to ductwork, air-handling units, furnaces, heat pumps, refrigerant lines, and thermostats and associated wiring, shall be removed and discarded.

Exception: Mechanical system components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

Q. Section 112.5.1.1.3.6 Cleaning. Following the removal of all materials and components in accordance with Sections 112.5.1.1.3.1 through 112.5.1.1.3.5, the building shall be thoroughly cleaned to remove any particulate matter and dust.

R. Section 112.5.1.1.3.7 Airing out. Following cleaning in accordance with Section 112.5.1.1.3.6, the building shall be thoroughly aired out with the use of open windows and doors and fans.

S. Section 112.5.1.1.3.8 Pre-rebuilding clearance testing. Following the steps outlined above for removal of all materials and components, cleaning and airing out, a pre-rebuilding clearance test shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and the Department of Housing and Urban Development "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report, certifying compliance, shall be submitted to the building official.

Notes:

1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.

2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.

T. Section 112.5.1.1.3.9 Testing agencies and personnel. Agencies and personnel performing pre-rebuilding or post-rebuilding clearance testing shall be independent of those responsible for all other remediation work and the agencies and personnel shall be appropriately certified or accredited by the Council of Engineering and Scientific Specialty Boards, the American Indoor Air Quality Council, or the World Safety Organization.

Exception: Testing agencies and personnel shall be accepted if certified by an RDP or if the agency employs an RDP to be in responsible charge of the work.

U. Section 112.5.1.1.3.10 Rebuilding standards. The rebuilding of the building shall comply with the edition of the USBC that was in effect when the building was originally built.

V. Section 112.5.1.1.3.11 Post-rebuilding clearance testing. A post-rebuilding clearance test prior to reoccupancy of the

building or structure shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and by the Department of Housing and Urban Development "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.

Notes:

1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.

2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.

W. Section 112.5.1.1.4 Final approval by the building official. Once remediation has been completed in accordance with this section, a certificate or letter of approval shall be issued by the building official. The certificate or letter shall state that the remediation and rebuilding is deemed to comply with this code.

X. Section 112.5.1.1.4.1 Approval of remediation occurring prior to these standards. The building official shall issue a certificate or letter of approval for remediation of defective drywall that occurred prior to the effective date of these standards provided post-rebuilding clearance testing has been performed in accordance with Section 112.5.1.1.3.11, by agencies and personnel complying with Section 112.5.1.1.3.9, and the clearance testing confirms that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.

13VAC5-63-130. Section 113 Inspections.

A. Section 113.1 General. In accordance with § 36-105 of the Code of Virginia, any building or structure may be inspected at any time before completion, and shall not be deemed in compliance until approved by the inspecting authority. Where the construction cost is less than $2,500, however, the inspection may, in the discretion of the inspecting authority, be waived. The building official shall coordinate all reports of inspections for compliance with the USBC, with inspections of fire and health officials delegated such authority, prior to the issuance of an occupancy permit.

B. Section 113.1.1 Equipment required. Any ladder, scaffolding or test equipment necessary to conduct or witness a requested inspection shall be provided by the permit holder.

C. Section 113.1.2 Duty to notify. When construction reaches a stage of completion that requires an inspection, the permit holder shall notify the building official.

D. Section 113.1.3 Duty to inspect. Except as provided for in Section 113.7, the building official shall perform the requested inspection in accordance with Section 113.6 when notified in accordance with Section 113.1.2.

E. Section 113.2 Prerequisites. The building official may conduct a site inspection prior to issuing a permit. When conducting inspections pursuant to this code, all personnel shall carry proper credentials.

F. Section 113.3 Minimum inspections. The following minimum inspections shall be conducted by the building official when applicable to the construction or permit:

1. Inspection of footing excavations and reinforcement material for concrete footings prior to the placement of concrete.

2. Inspection of foundation systems during phases of construction necessary to assure compliance with this code.

3. Inspection of preparatory work prior to the placement of concrete.

4. Inspection of structural members and fasteners prior to concealment.

5. Inspection of electrical, mechanical and plumbing materials, equipment and systems prior to concealment.

6. Inspection of energy conservation material prior to concealment.

7. Final inspection.

G. Section 113.4 Additional inspections. The building official may designate additional inspections and tests to be conducted during the construction of a building or structure and shall so notify the permit holder.

H. Section 113.5 In-plant and factory inspections. When required by the provisions of this code, materials, equipment or assemblies shall be inspected at the point of manufacture or fabrication. The building official shall require the submittal of an evaluation report of such materials, equipment or assemblies. The evaluation report shall indicate the complete details of the assembly including a description of the assembly and its components, and describe the basis upon which the assembly is being evaluated. In addition, test results and other data as necessary for the building official to determine conformance with the USBC shall be submitted. For factory inspections, an identifying label or stamp permanently affixed to materials, equipment or assemblies indicating that a factory inspection has been made shall be acceptable instead of a written inspection report, provided the intent or meaning of such identifying label or stamp is properly substantiated.

I. Section 113.6 Approval or notice of defective work. The building official shall either approve the work in writing or give written notice of defective work to the permit holder.

Upon request of the permit holder, the notice shall reference the USBC section that serves as the basis for the defects and such defects shall be corrected and reinspected before any work proceeds that would conceal such defects. A record of all reports of inspections, tests, examinations, discrepancies and approvals issued shall be maintained by the building official and shall be communicated promptly in writing to the permit holder. Approval issued under this section may be revoked whenever it is discovered that such approval was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC. Notices issued pursuant to this section shall be permitted to be communicated electronically, provided the notice is reasonably calculated to get to the permit holder.

J. Section 113.7 Approved inspection agencies. The building official may accept reports of inspections and tests from individuals or inspection agencies approved in accordance with the building official's written policy required by Section 113.7.1. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Under circumstances where the building official is unable to make the inspection or test required by Section 113.3 or 113.4 within two working days of a request or an agreed upon date or if authorized for other circumstances in the building official's written policy, the building official shall accept reports for review. The building official shall approve the report from such approved individuals or agencies unless there is cause to reject it. Failure to approve a report shall be in writing within two working days of receiving it stating the reason for the rejection. Reports of inspections conducted by approved third-party inspectors or agencies shall be in writing, shall indicate if compliance with the applicable provisions of the USBC have been met and shall be certified by the individual inspector or by the responsible officer when the report is from an agency.

Note: Photographs, videotapes or other sources of pertinent data or information may be considered as constituting such reports and tests.

K. Section 113.7.1 Third-party inspectors. Each building official charged with the enforcement of the USBC shall have a written policy establishing the minimum acceptable qualifications for third-party inspectors. The policy shall include the format and time frame required for submission of reports, any prequalification or preapproval requirements before conducting a third-party inspection and any other requirements and procedures established by the building official.

L. Section 113.7.2 Qualifications. In determining third-party inspector qualifications, the building official may consider such items as DHCD inspector certification, other state or national certifications, state professional registrations, related experience, education and any other factors that would demonstrate competency and reliability to conduct inspections.

M. Section 113.8 Final inspection. Upon completion of a building or structure and before the issuance of a certificate of occupancy, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been approved, including any work associated with modifications under Section 106.3. The building official shall be permitted to require the electrical service to a building or structure to be energized prior to conducting the final inspection. The approval of a final inspection shall be permitted to serve as the new certificate of occupancy required by Section 116.1 in the case of additions or alterations to existing buildings or structures that already have a certificate of occupancy.

13VAC5-63-160. Section 116 Certificates of occupancy.

A. Section 116.1 General; when to be issued. A certificate of occupancy indicating completion of the work for which a permit was issued shall be obtained prior to the occupancy of any building or structure, except as provided for in this section generally and as specifically provided for in Section 113.8 for additions or alterations. The certificate shall be issued after completion of the final inspection and when the building or structure is in compliance with this code and any pertinent laws or ordinances, or when otherwise entitled. The building official shall, however, issue a certificate of occupancy within five working days after being requested to do so, provided the building or structure meets all of the requirements for a certificate.

Exception: A certificate of occupancy is not required for an accessory structure as defined in the ~~International Residential Code~~ IRC.

B. Section 116.1.1 Temporary certificate of occupancy. Upon the request of a permit holder, a temporary certificate of occupancy may be issued before the completion of the work covered by a permit, provided that such portion or portions of a building of structure may be occupied safely prior to full completion of the building or structure without endangering life or public safety.

C. Section 116.2 Contents of certificate. A certificate of occupancy shall specify the following:

1. The edition of the USBC under which the permit is issued.

2. The group classification and occupancy in accordance with the provisions of Chapter 3.

3. The type of construction as defined in Chapter 6.

4. If an automatic sprinkler system is provided and whether or not such system was required.

5. Any special stipulations and conditions of the building permit and if any modifications were issued under the permit, there shall be a notation on the certificate that modifications were issued.

6. Group R-5 occupancies complying with Section R320.2 of the IRC shall have a notation of compliance with that section on the certificate.

D. Section 116.3 Suspension or revocation of certificate. A certificate of occupancy may be revoked or suspended whenever the building official discovers that such certificate was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC after the certificate has been issued or when requested by the code official under Section 105.7 of the ~~Virginia Maintenance Code~~ VMC. The revocation or suspension shall be in writing and shall state the necessary corrections or conditions for the certificate to be reissued or reinstated in accordance with Section 116.3.1.

E. Section 116.3.1 Reissuance of reinstatement of certificate of occupancy. When a certificate of occupancy has been revoked or suspended, it shall be reissued or reinstated upon correction of the specific condition or conditions cited as the cause of the revocation or suspension and the revocation or suspension of a certificate of occupancy shall not be used as justification for requiring a building or structure to be subject to a later edition of the code than that under which such building or structure was initially constructed.

F. Section 116.4 Issuance of certificate for pre-USBC buildings or structures. When a building or structure was constructed prior to being subject to the initial edition of the USBC and the local building department does not have a certificate of occupancy for the building or structure, the owner or owner's agent may submit a written request for a certificate to be created. The building official, after receipt of the request, shall issue a certificate provided a determination is made that there are no current violations of the ~~Virginia Maintenance Code~~ VMC or the Virginia Statewide Fire Prevention Code (13VAC5-51) and the occupancy classification of the building or structure has not changed. Such buildings and structures shall not be prevented from continued use.

Exception: When no certificate exists, but the local building department has records indicating that a certificate did exist, then the building official may either verify in writing that a certificate did exist or issue a certificate based upon the records.

13VAC5-63-170. Section 117 Temporary and moved buildings and structures; demolition.

A. Section 117.1 Temporary building and structures. The building official is authorized to issue a permit for temporary buildings or structures. Such permits shall be limited as to time of service, but shall not be permitted for more than one year, except that upon the permit holder's written request, the building official may grant one or more extensions of time, not to exceed one year per extension. The building official is authorized to terminate the approval and order the demolition or removal of temporary buildings or structures during the period authorized by the permit when determined necessary.

B. Section 117.1.1 Temporary uses within existing buildings and structures. The building official shall review and may approve conditions or modifications for temporary uses, including hypothermia and hyperthermia shelters, that may be necessary as long as the use meets the spirit and functional intent intended by this code. The building official is authorized to terminate the approval and order the discontinuance of the temporary use during the period authorized by the permit when determined necessary. The building official shall notify the appropriate fire official or fire chief of the approved temporary use.

~~B.~~ C. Section 117.2 Moved buildings and structures. Any building or structure moved into a locality or moved to a new location within a locality shall not be occupied or used until a certification of occupancy is issued for the new location. Such moved buildings or structures shall be required to comply with the requirements of this code for a newly constructed building or structure unless meeting all of the following requirements relative to the new location:

1. There is no change in the occupancy classification from its previous location.

2. The building or structure was in compliance with all state and local requirements applicable to it in its previous location and is in compliance with all state and local requirements applicable if originally constructed in the new location.

3. The building or structure did not become unsafe during the moving process due to structural damage or for other reasons.

4. Any alterations, reconstruction, renovations or repairs made pursuant to the move are in compliance with applicable requirements of ~~this code~~ the VRC.

~~C.~~ D. Section 117.3 Demolition of buildings and structures. Prior to the issuance of a permit for the demolition of any building or structure, the owner or the owner's agent shall provide certification to the building official that all service connections of utilities have been removed, sealed or plugged satisfactorily and a release has been obtained from the associated utility company. The certification shall further provide that written notice has been given to the owners of adjoining lots and any other lots that may be affected by the temporary removal of utility wires or the temporary disconnection or termination of other services or facilities relative to the demolition. In addition, the requirements of Chapter 33 of the IBC for any necessary retaining walls or fences during demolition shall be applicable and when a building or structure is demolished or removed, the established grades shall be restored.

13VAC5-63-180. Section 118 ~~Buildings and~~ Unsafe buildings or structures ~~becoming unsafe during construction.~~

A. Section 118.1 Applicability. This section applies to unsafe buildings ~~and~~ or structures ~~for which a construction~~

~~permit has been issued under this code and construction has not been completed or a certificate of occupancy has not been issued, or both. In addition, this section applies to any building or structure that is under construction or that was constructed without obtaining the required permits under this edition or any edition of the USBC.~~

Note: Existing buildings and structures other than those under construction or subject to this section are subject to the ~~Virginia Maintenance Code that~~ VMC, which also has requirements for unsafe conditions.

B. Section 118.2 Repair or removal of unsafe buildings or structures. Any unsafe building or structure ~~subject to this section that is either deteriorated, improperly maintained, of faulty construction, deficient in adequate exit facilities, a fire hazard or dangerous to life or the public welfare, or both, or any combination of the foregoing, is an unsafe building or structure and~~ shall be made safe through compliance with this code or shall be taken down and removed if determined necessary by the building official.

C. Section 118.3 Inspection report ~~and notice of unsafe building or structure~~. The building official shall inspect any reported unsafe building or structure ~~reported to be unsafe~~ and shall prepare a report to be filed in the records of the local building department. In addition to a description of any unsafe conditions found, the report shall include the occupancy classification of the building or structure and the nature and extent of any damages caused by collapse or failure of any building components. ~~If the~~

D. Section 118.4 Notice of unsafe building or structure. When a building or structure is determined by the building official to be an unsafe building or structure, a written notice of unsafe building or structure shall be issued ~~in person~~ by personal service to the owner ~~and any permit holder~~, the owner's agent, or the person in control of such building or structure. The notice shall ~~describe any unsafe conditions and~~ specify ~~any repairs or improvements~~ the corrections necessary to ~~make the building or structure safe, or alternatively, when determined necessary by the building official, require the unsafe building or structure, or any portion of it, to be taken down and removed. The notice shall stipulate a~~ comply with this code and specify the time period within which the repairs must occur, or if the notice specifies that the unsafe building or structure is required to be demolished, the notice shall specify the time period ~~for the repair or~~ within which demolition ~~of the unsafe building or structure and contain a statement requiring the person receiving the notice to determine whether to accept or reject the terms of the notice. If any persons to which the notice of unsafe building or structure is to be issued cannot be found after diligent search, as equivalent service, the notice shall be sent by registered or certified mail to the last known address of such persons and a copy of the notice posted in a conspicuous place on the premises~~ must occur.

Note: Whenever possible, the notice should also be given to any tenants or occupants of the unsafe building or structure.

~~D.~~ E. Section ~~118.4~~ 118.4.1 Vacating ~~the~~ unsafe building or structure. If ~~any portion of an unsafe building or structure has collapsed or fallen, or if~~ the building official determines there is actual and immediate danger ~~of any portion collapsing or falling, and~~ to the occupants or public, or when life is endangered by the occupancy of ~~the~~ an unsafe building or structure, the building official shall be authorized to order the occupants to immediately vacate the unsafe building or structure. When an unsafe building or structure is ordered to be vacated, the building official shall post a notice at each entrance that reads as follows:

"This Building (or Structure) is Unsafe and its Occupancy (or Use) is Prohibited by the Building Official."

After posting, occupancy or use of the unsafe building or structure shall be prohibited except when authorized to enter to conduct inspections, make required repairs, or as necessary to demolish the building or structure.

~~E.~~ F. Section 118.5 Posting of notice. If the notice is unable to be issued by personal service as required by Section 118.4, then the notice shall be sent by registered or certified mail to the last known address of the responsible party and a copy of the notice shall be posted in a conspicuous place on the premises.

G. Section 118.6 Posting of placard. In the case of an unsafe building or structure, if the notice is not complied with, a placard with the following wording shall be posted at the entrance to the building or structure:

"This Building (or Structure) is Unfit for Habitation and its Use or Occupancy has been Prohibited by the Building Official."

After an unsafe building or structure is placarded, entering the unsafe building or structure shall be prohibited except as authorized by the building official to make inspections, to perform required repairs, or to demolish the unsafe building or structure. In addition, the placard shall not be removed until the unsafe building or structure is determined by the building official to be safe to occupy. The placard shall not be defaced.

H. Section 118.7 Emergency repairs and demolition. To the extent permitted by the locality, the building official may authorize emergency repairs to unsafe buildings or structures when it is determined that there is an immediate danger of any portion of the unsafe building or structure collapsing or falling and when life is endangered. Emergency repairs may also be authorized when there is a code violation resulting in ~~the immediate,~~ a serious and imminent threat to the life and safety of the occupants or public. The building official shall be permitted to authorize the necessary work to make the unsafe building or structure temporarily safe whether or not legal action to compel compliance has been instituted.

In addition, whenever an owner of an unsafe building or structure fails to comply with a notice to demolish issued under Section ~~118.3~~ 118.4 in the time period stipulated, the building official shall be permitted to cause the unsafe building or structure to be demolished. In accordance with §§ 15.2-906 and 15.2-1115 of the Code of Virginia, the legal counsel of the locality may be requested to institute appropriate action against the property owner to recover the costs associated with any such emergency repairs or demolition and every such charge that remains unpaid shall constitute a lien against the property on which the emergency repairs or demolition were made and shall be enforceable in the same manner as provided in Articles 3 (§ 58.1-3940 et seq.) and 4 (§ 58.1-3965 et seq.) of Chapter 39 of Title 58.1 of the Code of Virginia.

Note: Building officials and local governing bodies should be aware that other statutes and court decisions may impact on matters relating to demolition, in particular whether newspaper publication is required if the owner cannot be located and whether the demolition order must be delayed until the owner has been given the opportunity for a hearing.

I. Section 118.8 Closing of streets. When necessary for public safety, the building official shall be permitted to order the temporary closing of sidewalks, streets, public ways, or premises adjacent to unsafe buildings or structures and prohibit the use of such spaces.

13VAC5-63-190. Section 119 Appeals.

A. Section 119.1 Establishment of appeals board. In accordance with § 36-105 of the Code of Virginia, there shall be established within each local building department a LBBCA. Whenever a county or a municipality does not have such a LBBCA, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such appeals resulting therefrom. Fees may be levied by the local governing body in order to defray the cost of such appeals. In addition, as an authorization in this code, separate LBBCAs may be established to hear appeals of different enforcement areas such as electrical, plumbing or mechanical requirements. Each such LBBCA shall comply with the requirements of this section. The locality is responsible for maintaining a duly constituted LBBCA prepared to hear appeals within the time limits established in this section. The LBBCA shall meet as necessary to assure a duly constituted board, appoint officers as necessary, and receive such training on the code as may be appropriate or necessary from staff of the locality.

B. Section 119.2 Membership of board. The LBBCA shall consist of at least five members appointed by the locality for a specific term of office established by written policy. Alternate members may be appointed to serve in the absence of any regular members and as such, shall have the full power and authority of the regular members. Regular and alternate members may be reappointed. Written records of current membership, including a record of the current chairman and secretary shall be maintained in the office of the locality. In order to provide continuity, the terms of the members may be of different length so that less than half will expire in any one-year period. ~~The LBBCA shall meet at least once annually to assure a duly constituted board, appoint officers as necessary, and receive such training on the code as may be appropriate or necessary from staff of the locality.~~

C. Section 119.3 Officers and qualifications of members. The LBBCA shall annually select one of its regular members to serve as chairman. When the chairman is not present at an appeal hearing, the members present shall select an acting chairman. The locality or the chief executive officer of the locality shall appoint a secretary to the LBBCA to maintain a detailed record of all proceedings. Members of the LBBCA shall be selected by the locality on the basis of their ability to render fair and competent decisions regarding application of the USBC and shall to the extent possible, represent different occupational or professional fields relating to the construction industry. At least one member should be an experienced builder; at least one member should be an RDP, and at least one member should be an experienced property manager. Employees or officials of the locality shall not serve as members of the LBBCA.

D. Section 119.4 Conduct of members. No member shall hear an appeal in which that member has a conflict of interest in accordance with the State and Local Government Conflict of Interests Act (§ 2.2-3100 et seq. of the Code of Virginia). Members shall not discuss the substance of an appeal with any other party or their representatives prior to any hearings.

E. Section 119.5 Right of appeal; filing of appeal application. Any person aggrieved by the local building department's application of the USBC or the refusal to grant a modification to the provisions of the USBC may appeal to the LBBCA. The applicant shall submit a written request for appeal to the LBBCA within 30 calendar days of the receipt of the decision being appealed. The application shall contain the name and address of the owner of the building or structure and in addition, the name and address of the person appealing, when the applicant is not the owner. A copy of the building official's decision shall be submitted along with the application for appeal and maintained as part of the record. The application shall be marked by the LBBCA to indicate the date received. Failure to submit an application for appeal within the time limit established by this section shall constitute acceptance of a building official's decision.

Note: To the extent that a decision of a building official pertains to amusement devices there may be a right of appeal under the VADR.

F. Section 119.6 Meetings and postponements. The LBBCA shall meet within 30 calendar days after the date of receipt of the application for appeal, except that a period of up to 45 calendar days shall be permitted where the LBBCA has regularly scheduled monthly meetings. A longer time period

shall be permitted if agreed to by all the parties involved in the appeal. A notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application at least 14 calendar days prior to the date of the hearing, except that a lesser time period shall be permitted if agreed to by all the parties involved in the appeal. When a quorum of the LBBCA is not present at a hearing to hear an appeal, any party involved in the appeal shall have the right to request a postponement of the hearing. The LBBCA shall reschedule the appeal within 30 calendar days of the postponement, except that a longer time period shall be permitted if agreed to by all the parties involved in the appeal.

G. Section 119.7 Hearings and decision. All hearings before the LBBCA shall be open meetings and the appellant, the appellant's representative, the locality's representative and any person whose interests are affected by the building official's decision in question shall be given an opportunity to be heard. The chairman shall have the power and duty to direct the hearing, rule upon the acceptance of evidence and oversee the record of all proceedings. The LBBCA shall have the power to uphold, reverse or modify the decision of the official by a concurring vote of a majority of those present. Decisions of the LBBCA shall be final if no further appeal is made. The decision of the LBBCA shall be by resolution signed by the chairman and retained as part of the record of the appeal. Copies of the resolution shall be sent to all parties by certified mail. In addition, the resolution shall contain the following wording:

"Any person who was a party to the appeal may appeal to the State Review Board by submitting an application to such Board within 21 calendar days upon receipt by certified mail of this resolution. Application forms are available from the Office of the State Review Board, 600 East Main Street, Richmond, Virginia 23219, (804) 371-7150."

H. Section 119.8 Appeals to the State Review Board. After final determination by the LBBCA in an appeal, any person who was a party to the appeal may further appeal to the State Review Board. In accordance with § 36-98.2 of the Code of Virginia for state-owned buildings and structures, appeals by an involved state agency from the decision of the building official for state-owned buildings or structures shall be made directly to the State Review Board. The application for appeal shall be made to the State Review Board within 21 calendar days of the receipt of the decision to be appealed. Failure to submit an application within that time limit shall constitute an acceptance of the building official's decision. For appeals from a LBBCA, a copy of the building official's decision and the resolution of the LBBCA shall be submitted with the application for appeal to the State Review Board. Upon request by the office of the State Review Board, the LBBCA shall submit a copy of all pertinent information from the record of the appeal. In the case of appeals involving state-owned buildings or structures, the involved state agency shall submit a copy of the building official's decision and other relevant information with the application for appeal to the State Review Board. Procedures of the State Review Board are in accordance with Article 2 (§ 36-108 et seq.) of Chapter 6 of Title 36 of the Code of Virginia. Decisions of the State Review Board shall be final if no further appeal is made.

13VAC5-63-200. Chapter 2 Definitions~~: Section 202 Definitions~~.

A. Add the following definitions to Section 202 of the IBC to read:

Aboveground liquid fertilizer storage tank (ALFST). A device that contains an accumulation of liquid fertilizer (i) constructed of nonearthen materials, such as concrete, steel or plastic, that provide structural support; (ii) having a capacity of 100,000 gallons (378 500 L) or greater; and (iii) the volume of which is more than 90% above the surface of the ground. The term does not include any wastewater treatment or wastewater storage tank, utility or industry pollution control equipment.

Building regulations. Any law, rule, resolution, regulation, ordinance or code, general or special, or compilation thereof, heretofore or hereafter enacted or adopted by the Commonwealth or any county or municipality, including departments, boards, bureaus, commissions, or other agencies thereof, relating to construction, reconstruction, alteration, conversion, repair, maintenance, or use of structures and buildings and installation of equipment therein. The term does not include zoning ordinances or other land use controls that do not affect the manner of construction or materials to be used in the erection, alteration or repair of a building or structure.

Change of occupancy. A change in the use or occupancy of any building or structure ~~which~~ that would place the building or structure in a different division of the same group of occupancies or in a different group of occupancies; or a change in the purpose or level of activity within a building or structure that involves a change in application of the requirements of this code.

Construction. The construction, reconstruction, alteration, repair, or conversion of buildings and structures.

Day-night average sound level (Ldn). ~~See Section 1202.1~~ A 24-hour energy average sound level expressed in dBA, with a 10 decibel penalty applied to noise occurring between 10 p.m. and 7 a.m.

DHCD. The Virginia Department of Housing and Community Development.

Emergency communication equipment. ~~See Section 902.1~~ Emergency communication equipment, includes but is not limited to two-way radio communications, signal booster, bi-directional amplifiers, radiating cable systems, or internal multiple antenna, or a combination of the foregoing.

Emergency public safety personnel. ~~See Section 902.1~~ Emergency public safety personnel includes firefighters,

emergency medical personnel, law-enforcement officers, and other emergency public safety personnel routinely called upon to provide emergency assistance to members of the public in a wide variety of emergency situations, including but not limited to fires, medical emergencies, violent crimes, and terrorist attacks.

Equipment. Plumbing, heating, electrical, ventilating, air-conditioning and refrigeration equipment, elevators, dumbwaiters, escalators, and other mechanical additions or installations.

Farm building or structure. A building or structure not used for residential purposes, located on property where farming operations take place, and used primarily for any of the following uses or combination thereof:

1. Storage, handling, production, display, sampling or sale of agricultural, horticultural, floricultural or silvicultural products produced in the farm.

2. Sheltering, raising, handling, processing or sale of agricultural animals or agricultural animal products.

3. Business or office uses relating to the farm operations.

4. Use of farm machinery or equipment or maintenance or storage of vehicles, machinery or equipment on the farm.

5. Storage or use of supplies and materials used on the farm.

6. Implementation of best management practices associated with farm operations.

Hospice facility. An institution, place, or building owned or operated by a hospice provider and licensed by the Virginia Department of Health as a hospice facility to provide room, board, and palliative and supportive medical and other health services to terminally ill patients and their families, including respite and symptom management, on a 24-hour basis to individuals requiring such care pursuant to the orders of a physician.

Industrialized building. A combination of one or more sections or modules, subject to state regulations and including the necessary electrical, plumbing, heating, ventilating and other service systems, manufactured off-site and transported to the point of use for installation or erection, with or without other specified components, to comprise a finished building. Manufactured homes shall not be considered industrialized buildings for the purpose of this code.

~~Hospice facility. See Section 308.3.1.~~

LBBCA. Local board of building code appeals.

Liquid fertilizer. A fluid in which a fertilizer is in true solution. This term does not include anhydrous ammonia or a solution used in pollution control.

Local building department. The agency or agencies of any local governing body charged with the administration, supervision, or enforcement of this code, approval of construction documents, inspection of buildings or structures, or issuance of permits, licenses, certificates or similar documents.

Local governing body. The governing body of any city, county or town in this Commonwealth.

Locality. A city, county or town in this Commonwealth.

Manufactured home. A structure subject to federal regulation, which is transportable in one or more sections; is eight body feet or more in width and 40 body feet or more in length in the traveling mode, or is 320 or more square feet when erected on site; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to the required utilities; and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure.

Marina. Any installation, operating under public or private ownership, that has a structure providing dockage or moorage for boats, other than paddleboats or rowboats, and provides, through sale, rental, fee, or on a free basis, any equipment, supply, or service, including fuel, electricity, or water, for the convenience of the public or its lessees, renters, or users of its facilities. A dock or pier with or without slips that exclusively serves a single-family residential lot for the use of the owner of the lot is not a marina.

Night club. Any building in which the main use is a place of public assembly that provides exhibition, performance or other forms of entertainment; serves alcoholic beverages; and provides music and space for dancing.

Skirting. A weather-resistant material used to enclose the space from the bottom of the manufactured home to grade.

Slip. A berth or space where a boat may be secured to a fixed or floating structure, including a dock, finger pier, boat lift, or mooring buoy.

Sound transmission class (STC) rating. ~~See Section 1202.1~~ A single number characterizing the sound reduction performance of a material tested in accordance with ASTM E90-90, "Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions."

State regulated care facility (SRCF). A building with an occupancy in Group R-2, R-3, R-4 or R-5 occupied by persons in the care of others where program oversight is provided by the Virginia Department of Social Services, the Virginia Department of Behavioral Health and Developmental Services, the Virginia Department of Education or the Virginia Department of Juvenile Justice.

State Review Board. The Virginia State Building Code Technical Review Board as established under § 36-108 of the Code of Virginia.

Technical assistant. Any person employed by or under an extended contract to a local building department or local enforcing agency for enforcing the USBC, including but

not limited to inspectors and plans reviewers. For the purpose of this definition, an extended contract shall be a contract with an aggregate term of 18 months or longer.

~~Technical production area. See Section 410.2.~~

Tenable environmental. An environment in which the products of combustion, including smoke, toxic gases, particulates, and heat, are limited or otherwise restricted in order to maintain the impact on occupants, including those in the area of fire origin, to a level that is not life threatening and permits the rescue of occupants for a limited time.

Unsafe building or structure. Any building or structure that is under construction and has not received a permanent certificate of occupancy, final inspection, or for which a permit was never issued or has expired and has been determined by the building official to be of faulty construction that is so damaged, decayed, dilapidated, structurally unsafe, or of such faulty construction or unstable foundation that partial or complete collapse is likely, or any unfinished construction that does not have a valid permit, or the permit has been revoked, and the condition of the unfinished construction presents an immediate serious and imminent threat to the life and safety of the occupants or the public.

VADR. The Virginia Amusement Device Regulations (13VAC5-31).

VCS. The Virginia Certification Standards (13VAC5-21).

Working day. A day other than Saturday, Sunday or a legal local, state or national holiday.

B. Change the following definitions in Section 202 of the IBC to read:

24-hour basis. The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours.

Ambulatory health care facility. Buildings or portions thereof that are licensed by the Virginia Department of Health as outpatient surgical hospitals.

Automatic fire-extinguishing system. An approved system of devices and equipment that automatically detects a fire and discharges an approved fire-extinguishing agent onto or in the area of a fire and includes among other systems an automatic sprinkler system, unless otherwise expressly stated.

Building. A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons, or property. The word "building" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Building" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

For application of this code, each portion of a building that is completely separated from other portions by fire walls complying with Section 706 shall be considered as a separate building (see Section 503.1).

Custodial care. Assistance with day-to-day living tasks, such as assistance with cooking, taking medication, bathing, using toilet facilities, and other tasks of daily living. In other than in hospice facilities, custodial care includes occupants that have the ability to respond to emergency situations and evacuate at a slower rate or who have mental and psychiatric complications, or both.

Group home. A facility for social rehabilitation or substance abuse or mental health problems that contains a group housing arrangement that provides custodial care but does not provide medical care.

Owner. The owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee or lessee in control of a building or structure.

Registered Design Professional (RDP). An architect or professional engineer, licensed to practice architecture or engineering, as defined under § 54.1-400 of the Code of Virginia.

Swimming pool. An aquatic vessel as defined in the International Swimming Pool and Spa Code (ISPSC).

Structure. An assembly of materials forming a construction for occupancy or use including stadiums, gospel and circus tents, reviewing stands, platforms, stagings, observation towers, radio towers, water tanks, storage tanks (underground and aboveground), trestles, piers, wharves, swimming pools, amusement devices, storage bins, and other structures of this general nature but excluding water wells. The word "structure" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Structure" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

C. Delete the following definitions from Section 202 of the IBC:

Agricultural, building.

Existing structure (For Chapter 34).

~~Fly gallery.~~

~~Gridiron.~~

13VAC5-63-210. Chapter 3 Use and occupancy classification.

A. Change Section 303.6 of the IBC to read:

303.6 Assembly Group A-5. Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures

Bleachers

Grandstands

Stadiums

Swimming pools

B. Change exception 13 of Section 307.1 of the IBC to read:

13. The storage of black powder, smokeless propellant and small arms primers in Groups M, R-3 and R-5 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the ~~International Fire Code~~ IFC, as amended in Section 307.9.

~~B.~~ C. Add Section 307.9 to the IBC to read:

307.9 Amendments. The following changes shall be made to the ~~International Fire Code~~ IFC for the use of Exception 13 in Section 307.1:

1. Change the following definition in Section 202 of the IFC to read:

Smokeless propellants. Solid propellants, commonly referred to as smokeless powders, or any propellants classified by DOTn as smokeless propellants in accordance with NA3178 (Smokeless Powder for Small Arms), used in small arms ammunition, firearms, cannons, rockets, propellant-actuated devices, and similar articles.

2. Change Section 314.1 of the IFC to read as follows:

314.1 General. Indoor displays constructed within any building or structure shall comply with Sections 314.2 through 314.5.

~~2.~~ 3. Add new Section 314.5 to the IFC to read as follows:

314.5 Smokeless powder and small arms primers. Vendors shall not store, display or sell smokeless powder or small arms primers during trade shows inside exhibition halls except as follows:

1. The amount of smokeless powder each vender may store is limited to the storage arrangements and storage amounts established in Section ~~3306.5.2.1~~ 5506.5.2.1.

2. Smokeless powder shall remain in the manufacturer's original sealed container and the container shall remain sealed while inside the building. The repackaging of smokeless powder shall not be performed inside the building. Damaged containers shall not be repackaged inside the building and shall be immediately removed from the building in such manner to avoid spilling any powder.

3. There shall be at least 50 feet separation between vendors and 20 feet from any exit.

4. Small arms primers shall be displayed and stored in the manufacturer's original packaging and in accordance with the requirements of Section ~~3306.5.2.3~~ 5506.5.2.3.

~~3.~~ 4. Change Exception 4 and add Exceptions 10 and 11 to Section ~~3301.1~~ 5501.1 of the IFC as follows:

4. The possession, storage and use of not more than 15 pounds (6.75 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and any amount of small arms primers for hand loading of small arms ammunition for personal consumption.

10. The display of small arms primers in Group M when in the original manufacturer's packaging.

11. The possession, storage and use of not more than 50 pounds (23 kg) of commercially manufactured sporting black powder, 100 pounds (45 kg) of smokeless powder, and small arms primers for hand loading of small arms ammunition for personal consumption in Group R-3 or R-5, or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5.

~~4. Change the definition of Smokeless Propellants in Section 3302.1 of the IFC as follows:~~

~~SMOKELESS PROPELLANTS. Solid propellants, commonly referred to as smokeless powders, or any propellants classified by DOTn as smokeless propellants in accordance with NA3178 (Smokeless Powder for Small Arms), used in small arms ammunition, firearms, cannons, rockets, propellant-actuated devices and similar articles.~~

5. Change Section ~~3306.4~~ 5506.4 of the IFC to read as follows:

~~3306.4~~ 5506.4 Storage in residences. Propellants for personal use in quantities not exceeding 50 pounds (23 kg) of black powder or 100 pounds (45 kg) of smokeless powder shall be stored in original containers in occupancies limited to Group R-3 and R-5 or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5. In other than Group R-3 or R-5, smokeless powder in quantities exceeding 20 pounds (9 kg) but not exceeding 50 pounds (23 kg) shall be kept in a wooden box or cabinet having walls of at least one inch (25 mm) nominal thickness or equivalent.

6. Delete Sections ~~3306.4.1~~ 5506.4.1 and ~~3306.4.2~~ 5506.4.2 of the IFC.

7. Change Section ~~3306.5.1.1~~ 5506.5.1.1 of the IFC to read as follows:

~~3306.5.1.1~~ 5506.5.1.1 Smokeless propellant. No more than 100 pounds (45 kg) of smokeless propellants in

containers of eight pounds (3.6 kg) or less capacity shall be displayed in Group M occupancies.

8. Delete Section ~~3306.5.1.3~~ 5506.5.1.3 of the IFC.

9. Change Section ~~3306.5.2.1~~ 5506.5.2.1 of the IFC as follows:

~~3306.5.2.1~~ 5506.5.2.1 Smokeless propellant. Commercial stocks of smokeless propellants shall be stored as follows:

1. Quantities exceeding 20 pounds (9 kg), but not exceeding 100 pounds (45 kg) shall be stored in portable wooden boxes having walls of at least one inch (25 mm) nominal thickness or equivalent.

2. Quantities exceeding 100 pounds (45 kg), but not exceeding 800 pounds (363 kg), shall be stored in storage cabinets having walls at least one inch (25 mm) nominal thickness or equivalent. Not more than 400 pounds (182 kg) shall be stored in any one cabinet, and cabinets shall be separated by a distance of at least 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of at least one hour.

3. Storage of quantities exceeding 800 pounds (363 kg), but not exceeding 5,000 pounds (2270 kg) in a building shall comply with all of the following:

3.1. The storage is inaccessible to unauthorized personnel.

3.2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least one inch (25 mm) nominal thickness or equivalent and having shelves with no more than 3 feet (914 mm) of vertical separation between shelves.

3.3. No more than 400 pounds (182 kg) is stored in any one cabinet.

3.4. Cabinets shall be located against walls with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets may be reduced to 20 feet (6096 mm) provided that barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades must extend a minimum of 10 feet (3048 mm) outward, be firmly attached to the wall, and be constructed of steel not less than 0.25 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick, or concrete block.

3.5. Smokeless propellant shall be separated from materials classified as combustible liquids, flammable liquids, flammable solids, or oxidizing materials by a distance of 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of 1 hour.

3.6. The building shall be equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

4. Smokeless propellants not stored according to Item 1, 2, or 3 above shall be stored in a Type 2 or 4 magazine in accordance with Section 3304 and NFPA 495.

~~C. Change~~ D. Add the following to the list of terms in Section 308.2 of the IBC ~~to read~~:

Hospice facility

E. Change Section 308.3 of the IBC to read:

~~308.2~~ 308.3 Institutional Group I-1. This occupancy shall include buildings, structures or ~~parts~~ portions thereof ~~housing~~ for more than 16 persons, excluding staff, who reside on a 24-hour basis~~, who because of age, mental disability or other reasons, live~~ in a supervised ~~residential~~ environment ~~that provides personal~~ and receive custodial care ~~services~~. ~~The occupants are capable of responding to an emergency situation without physical assistance from staff.~~ Buildings of Group I-1, other than assisted living facilities licensed by the Virginia Department of Social Services, shall be classified as the occupancy condition indicated in Section 308.3.1. Assisted living facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancy conditions indicated in Section 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

Exception: In Group I-1 occupancies classified as the occupancy condition indicated in Section 308.3.1, not more than five of the residents may require physical assistance from staff to respond to an emergency situation when all residents that may require the physical assistance reside on a single level of exit discharge.

~~A facility such as the above with five or fewer persons shall be classified as a Group R-3 or shall comply with the International Residential Code in accordance with Section 101.2. A facility such as above, housing at least six and not more than 16 persons, shall be classified as Group R-4.~~

F. Change Sections 308.3.1 and 308.3.2 of the IBC to read:

308.3.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

308.3.2 Condition 2. This occupancy condition shall include buildings in which there are persons receiving custodial care who require assistance by not more than one

staff member while responding to an emergency situation to complete building evacuation.

G. Add Sections 308.3.3 and 308.3.4 to the IBC to read:

308.3.3 Six to 16 persons receiving custodial care. A facility housing not fewer than six and not more than 16 persons receiving custodial care shall be classified as Group R-4.

308.3.4 Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving custodial care shall be classified as Group R-3 or shall comply with the IRC provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or with Section P2904 of the IRC.

~~D.~~ H. Change Section ~~308.3~~ 308.4 of the IBC to read:

~~308.3~~ 308.4 Group I-2. This occupancy shall include buildings and structures used for medical~~, surgical, psychiatric, nursing or custodial~~ care on a 24-hour basis for more than five persons who are ~~not capable~~ incapable of self-preservation. This group shall include, but not be limited to, the following:

~~Child care facilities~~

Convalescent facilities

Detoxification facilities

Foster care facilities

Hospice facilities

Hospitals

~~Mental hospitals~~

Nursing homes

Psychiatric hospitals

Exception: Hospice facilities occupied by 16 or less occupants, excluding staff, are permitted to be classified as Group R-4.

~~E. Add the following definition to Section 308.3.1 of the IBC:~~

~~Hospice facility. An institution, place, or building owned or operated by a hospice provider and licensed by the Virginia Department of Health as a hospice facility to provide room, board, and palliative and supportive medical and other health services to terminally ill patients and their families, including respite and symptom management, on a 24-hour basis to individuals requiring such care pursuant to the orders of a physician.~~

~~F. Change~~ I. Add an exception to Section ~~308.5.2~~ 308.6 of the IBC to read:

~~308.5.2 Child care facility. A facility other than family day homes under Section 310.4 that provides supervision and personal care on less than a 24-hour basis for more than five children 2 1/2 years of age or less shall be classified as Group I-4.~~

Exception: ~~A child day care facility that provides care for more than five but no more than 100 children 2 1/2 years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E~~ Family day homes under Section 310.9.

~~G.~~ J. Change ~~occupancy classifications "R-1" and "R-4" and add new occupancy classification "R-5" to~~ Section ~~310~~ 310.3 of the IBC to read:

310.3 Residential Group R-1. Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants

Congregate living facilities (transient) with more than 10 occupants

Hotels (transient)

Motels (transient)

~~Congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.~~

Exceptions:

1. Nonproprietor occupied bed and breakfast and other transient boarding facilities not more than three stories above grade plane in height with a maximum of 10 occupants total are permitted to be classified as either Group R-3 or ~~Group~~ R-5 provided that smoke alarms are installed in compliance with Section ~~907.2.10.1.2~~ 907.2.11.2 for Group R-3 or Section ~~313.1~~ R314 of the ~~International Residential Code~~ IRC for Group R-5.

2. Proprietor occupied bed and breakfast and other transient boarding facilities not more than three stories above grade plane in height, that are also occupied as the residence of the proprietor, with a maximum of five guest room sleeping units provided for the transient occupants are permitted to be classified as either Group R-3 or R-5 provided that smoke alarms are installed in compliance with Section ~~907.2.10.1.2~~ 907.2.11.2 for Group R-3 or Section ~~313.1~~ R314 of the ~~International Residential Code~~ IRC for Group R-5.

K. Change Section 310.6 of the IBC to read:

310.6 Residential Group R-4 ~~Residential occupancies~~. This occupancy shall include buildings ~~arranged for occupancy as residential care/assisted living facilities including~~ structures or portions thereof for more than five but not more than 16 ~~occupants~~ persons, excluding staff ~~and buildings arranged for occupancy as~~, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group R-4, other than assisted living facilities licensed by the Virginia Department of Social Services, shall be classified as the occupancy condition indicated in Section 310.6.1. Assisted living

facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancy conditions indicated in Sections 310.6.1 or 310.6.2. This group shall include, but not be limited to the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

This occupancy shall also include hospice facilities with not more than 16 occupants, excluding staff.

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code~~, or shall comply with the IRC provided the building is protected by an automatic sprinkler system installed in accordance with Section 903.2.7~~.

Exceptions:

1. Group homes licensed by the Virginia Department of Behavioral Health and Developmental Services that house no more than eight persons with one or more resident counselors shall be classified as Group R-2, R-3, R-4 or R-5. Not more than five of the persons may require physical assistance from staff to respond to an emergency situation.

2. In Group R-4 occupancies classified as the occupancy condition indicated in Section 310.6.1, other than in hospice facilities, not more than five of the residents may require physical assistance from staff to respond to an emergency situation when all residents who may require the physical assistance from staff reside on a single level of exit discharge and other than using a ramp, a change of elevation using steps or stairs is not within the path of egress to an exit door.

3. Assisted living facilities licensed by the Virginia Department of Social Services that house no more than eight persons, with one or more resident counselors, and all of the residents are capable of responding to an emergency situation without physical assistance from staff, may be classified as Group R-2, R-3 or R-5.

4. Assisted living facilities licensed by the Virginia Department of Social Services that house no more than eight persons, with one or more resident counselors, may be classified as Group R-5 when in compliance with all of the following:

4.1. The building is protected by an automatic sprinkler system installed in accordance with Section 903.3 or Section P2904 of the IRC.

4.2. Not more than five of the residents may require physical assistance from staff to respond to an emergency situation.

4.3. All residents who may require physical assistance from staff to respond to an emergency situation reside on a single level of exit discharge and other than using a ramp, a change in elevation using steps or stairs is not within the path of egress to an exit door.

5. Hospice facilities with five or fewer occupants are permitted to comply with the IRC provided the building is protected by an automatic sprinkler system in accordance with IRC Section P2904 or IBC Section 903.3.

L. Add Sections 310.6.1 and 310.6.2 to the IBC to read:

310.6.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation and hospice facilities.

310.6.2 Condition 2. This occupancy condition shall include buildings in which there are persons receiving custodial care who require assistance by not more than one staff member while responding to an emergency situation to complete building evacuation.

M. Add Section 310.7 to the IBC to read:

310.7 Residential Group R-5. Residential occupancies in detached ~~one-~~ single-family and two-family dwellings, townhouses and accessory structures within the scope of the ~~International Residential Code, also referred to as the~~ "IRC."

~~H. Change the definition of "Residential care/assisted living facilities" in Section 310.2 of the IBC to read:~~

~~Residential care/assisted living facilities. Any congregate residential setting that provides or coordinates personal and health care services, 24-hour supervision and assistance for the maintenance or care of four or more adults who are aged, infirm or disabled and who are cared for in a primarily residential setting, and provides for the protection, general supervision and oversight of the physical and mental well-being of aged, infirmed or disabled individuals. Residents are capable of self-evacuation.~~

~~I.~~ N. Add Section ~~310.3~~ 310.8 to the IBC to read:

~~310.3~~ 310.8 Group R-5. The construction of Group R-5 structures shall comply with the IRC. The amendments to the IRC set out in Section ~~310.6~~ 310.11 shall be made to the IRC for its use as part of this code. In addition, all references to ~~Section 101.2 in the IBC relating to the construction of such structures subject to~~ the IRC in the IBC shall be considered to be references to this section.

~~J.~~ O. Add Section ~~310.3.1~~ 310.8.1 to the IBC to read:

~~310.3.1~~ 310.8.1 Additional requirements. Methods of construction, materials, systems, equipment or components for Group R-5 structures not addressed by prescriptive or performance provisions of the IRC shall comply with applicable IBC requirements.

~~K.~~ P. Add Section ~~310.4~~ 310.9 to the IBC to read:

~~310.4~~ 310.9 Family day homes. Family day homes where program oversight is provided by the Virginia Department of Social Services shall be classified as Group R-2, R-3 or R-5.

Note: Family day homes may generally care for up to 12 children. See the DHCD Related Laws Package for additional information.

~~L.~~ Q. Add Section ~~310.5~~ 310.10 to the IBC to read:

~~310.5~~ 310.10 Radon-resistant construction in ~~Group~~ Groups R-3 and R-4 structures. ~~Group~~ Groups R-3 and R-4 structures shall be subject to the radon-resistant construction requirements in Appendix F of the IRC in localities enforcing such requirements pursuant to Section ~~R325~~ R324 of the IRC.

~~M.~~ R. Add Section ~~310.6~~ 310.11 to the IBC to read:

~~310.6~~ 310.11 Amendments to the IRC. The following changes shall be made to the IRC for its use as part of this code:

1. Add the following definitions to read:

Nonpotable fixtures and outlets. Fixtures and outlets that are not dependent on potable water for the safe operation to perform their intended use. Such fixtures and outlets may include, but are not limited to water closets, urinals, irrigation, mechanical equipment, and hose connections to perform operations, such as vehicle washing and lawn maintenance.

Nonpotable water systems. Water systems for the collection, treatment, storage, distribution, and use or reuse of nonpotable water. Nonpotable systems include reclaimed water, rainwater, and gray water systems.

Rainwater. Natural precipitation, including snow melt, from roof surfaces only.

Stormwater. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

2. Change the following definition to read:

Gray water. Water discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays.

3. Change Section R301.2.1 to read:

R301.2.1 Wind ~~limitations~~ design criteria. Buildings and portions thereof shall be ~~limited by~~ constructed in accordance with the wind provisions of this code using the basic wind speed~~, as defined~~ in Table R301.2(1)~~, and construction methods in accordance with this code. Basic wind speeds shall be determined from Figure R301.2(4). Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where loads for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.6~~ as determined from Figure R301.2(4)A. The structural provisions of this code for wind loads are not permitted where wind design is required as specified in Section R301.2.1.1. Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where not otherwise specified, the wind loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors, and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.4. A continuous load path shall be provided to transmit the applicable uplift forces in Section R802.11.1 from the roof assembly to the foundation. Wind speeds for localities in special wind regions, near mountainous terrain, and near gorges shall be based on elevation. Areas at 4,000 feet in elevation or higher shall use 110 V mph (48.4 m/s) and areas under 4,000 feet in elevation shall use 90 V mph (39.6 m/s). Gorge areas shall be based on the highest recorded speed per locality or in accordance with local jurisdiction requirements determined in accordance with Section ~~6.5.4~~ 26.5.1 of ASCE 7.

~~2. Change Section R301.2.1.1 to read:~~

~~R301.2.1.1 Design criteria. Construction in regions where the basic wind speeds from Figure R301.2(4) equal or exceed 110 miles per hour (49 m/s) shall be designed in accordance with one of the following methods. The elements of design not addressed by those documents in items 1 through 4 shall be in accordance with this code.~~

~~1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual for One and Two Family Dwellings (WFCM); or~~

~~2. International Code Council (ICC) Standard for Residential Construction in High Wind Regions (ICC 600); or~~

~~3. Minimum Design Loads for Buildings and Other Structures (ASCE 7); or~~

~~4. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing-Prescriptive Method for One and Two Family Dwellings (AISI S230).~~

~~5. Concrete construction shall be designed in accordance with the provisions of this code.~~

~~6. Structural insulated panel (SIP) walls shall be designed in accordance with the provisions of this code.~~

~~3. Change Section R301.2.2.1.1 to read:~~

~~R301.2.2.1.1 Alternate determination of seismic design category. The Seismic Design Categories and corresponding Short Period Design Spectral Response Accelerations, S_{DS} shown in Figure R301.2(2) are based on soil Site Class D, as defined in Section 1613.5.2 of the International Building Code. If soil conditions are other than Site Class D, the Short Period Design Spectral Response Accelerations, S_{DS}, for a site can be determined according to Section 1613.5 of the International Building Code. The value of S_{DS} determined according to Section 1613.5 of the International Building Code is permitted to be used to set the seismic design category according to Table R301.2.2.1.1, and to interpolate between values in Tables R602.10.3(3), R603.7 and other seismic design requirements of this code.~~

~~4. Delete Section R301.2.2.3 and all subsections.~~

~~5. Delete Section R301.2.2.4.~~

~~6. Change the exception to Item 1 of Section R301.3 to read:~~

~~Exception: For wood framed wall buildings with bracing in accordance with Section R602.10, the wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet (3658 mm) without requiring an engineered design for the building wind and seismic force resisting systems.~~

~~7.~~ 4. Add Exception 6 to Section R302.1 to read:

6. Decks and open porches.

~~8. Change the last column and add footnote "a" to Table R302.1 as shown:~~

~~Minimum Fire Separation Distance~~
~~<5 feet[a]~~
~~≥5 feet[a]~~
~~≥2 feet to 5 feet[a]~~
~~5 feet[a]~~
~~<3 feet~~
~~3 feet~~
~~5 feet[a]~~
~~<5 feet[a]~~
~~5 feet[a]~~

~~[a]The minimum fire separation distance shall be reduced to three feet in developments which are fully sprinklered as provided for in Sections R313.1 or R313.2.~~

~~9.~~ 5. Change the exception in Section R302.2 to require a common two-hour fire-resistance-rated wall instead of a one-hour fire-resistance-rated wall, unless the townhouse development is fully sprinklered as provided for in Section R313.1, in which case a common one-hour fire-resistive-rated wall shall be permitted between townhouses.

~~10.~~ 6. Add the following sentence to the end of Section R302.3 to read:

Dwelling unit separation wall assemblies that are constructed on a lot line shall be constructed as required in Section R302.2 for townhouses.

7. Change Section R302.5.1 to read:

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1-3/8 inches (35 mm) thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches (35 mm) thick, or 20-minute fire-rated doors.

~~11.~~ 8. Add an exception to Section ~~R303.8~~ R303.9 to read:

Exception: Seasonal structures not used as a primary residence for more than 90 days per year, unless rented, leased or let on terms expressed or implied to furnish heat, shall not be required to comply with this section.

~~12.~~ 9. Add Section ~~R303.8.1~~ R303.9.1 to read:

~~R303.8.1~~ R303.9.1 Nonowner occupied required heating. Every dwelling unit or portion thereof which is to be rented, leased or let on terms either expressed or implied to furnish heat to the occupants thereof shall be provided with facilities in accordance with Section ~~R303.8~~ R303.9 during the period from October 15 to May 1.

~~13.~~ 10. Add Section ~~R303.9~~ R303.10 to read:

~~R303.9~~ R303.10 Insect screens. Every door, window and other outside opening required for ventilation purposes shall be supplied with approved tightly fitted screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

~~14.~~ 11. Add Section R306.5 to read:

R306.5 Water supply sources and sewage disposal systems. The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.11 of Part I of the Virginia Uniform Statewide Building Code (13VAC5-63), for functional

design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

~~15.~~ 12. Change Section R310.1 to read:

R310.1 Emergency escape and rescue required. Basements, habitable attics, and ~~each~~ every sleeping room designated on the construction documents shall have at least one ~~openable~~ operable emergency escape and rescue opening. ~~Such opening shall be directly to the exterior of the building or to a deck, screen porch or egress court, all of which shall provide access to a public street, public alley or yard.~~ Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided, they shall have a sill height of not more than 44 inches (1118 mm) ~~above~~ measured from the finished floor to the bottom of the clear opening. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside, except that tilt-out or removable sash designed windows shall be permitted to be used. Emergency escape and rescue openings with a finished height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exceptions:

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

2. Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m^2).

~~16.~~ 13. Change Section R310.1.1 to read:

R310.1.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 m^2), including the tilting or removal of the sash as the normal operation to comply with ~~sections~~ Sections R310.1.2 and R310.1.3.

Exception: Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465 m^2).

~~17.~~ 14. Change Section ~~R311.7.4.1~~ R311.7.5.1 to read:

~~R311.7.4.1 Riser height~~ R311.7.5.1 Risers. The maximum riser height shall be 8-1/4 inches (210 mm). The riser shall be measured vertically between the leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the opening between treads does not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exception: The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less.

~~18.~~ 15. Change Section ~~R311.7.4.2~~ R311.7.5.2 to read:

~~R311.7.4.2 Tread depth~~ R311.7.5.2 Treads. The minimum tread depth shall be 9 inches (229 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). ~~Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth. Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersection with the walkline. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm).~~

~~19.~~ 16. Change Section ~~R311.7.6~~ R311.7.7 to read:

~~R311.7.6~~ R311.7.7 Stairway walking surface. The walking surface of treads and landings of stairways shall be level or sloped no steeper than one unit vertical in 48 inches horizontal (~~two percent~~ 2.0% slope).

17. Change Section R312.2.1 to read:

R312.2.1 Window sills. In dwelling units, where the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 18 inches (457 mm) above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch-diameter (102 mm) sphere where such openings are located within 18 inches (457 mm) of the finished floor.

Exceptions:

1. Windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.

2. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.

3.Windows that are provided with window opening control devices that comply with Section R312.2.2.

~~20.~~ 18. Replace Section R313 with the following:

Section R313.

Automatic Fire Sprinkler Systems.

R313.1 Townhouse automatic fire sprinkler systems. Notwithstanding the requirements of Section 103.8, where installed, an automatic residential fire sprinkler system for townhouses shall be designed and installed in accordance with NFPA 13D or Section P2904.

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

R313.2 One-family and two-family dwellings automatic fire sprinkler systems. Notwithstanding the requirements of Section 103.8, where installed, an automatic residential fire sprinkler system shall be designed and installed in accordance with NFPA 13D or Section P2904.

Exception: An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential fire sprinkler system.

~~21.~~ 19. Change Section R314.2 to read:

R314.2 Smoke detection systems. Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms. Where a household fire warning system is installed using a combination of smoke detector and audible notification device(s), the system shall become a permanent fixture of the dwelling unit.

Exception: Where smoke alarms are provided meeting the requirements of Section R314.4.

~~22.~~ 20. Delete Section R314.3.1.

~~23.~~ 21. Delete Section ~~R315.2~~ R315.3.

~~24.~~ 22. Change Section ~~R315.2~~ R315.4 to read:

~~R315.3~~ R315.4 Alarm requirements. Single station carbon monoxide alarms shall be hard wired, plug-in or battery type; listed as complying with UL 2034; and installed in accordance with this code and the manufacturer's installation instructions.

23. Add Section R320.2 to read:

R320.2 Universal design features for accessibility in dwellings. Dwellings constructed under the IRC not subject to Section R320.1 may comply with Section 1109.16 of the USBC and be approved by the local building department as dwellings containing universal design features for accessibility.

~~25.~~ 24. Add Section R324 Radon-Resistant Construction.

~~26.~~ 25. Add Section R324.1 to read:

R324.1 Local enforcement of radon requirements. Following official action under Article 7 (§ 15.2-2280 et seq.) of Chapter 22 of Title 15.2 of the Code of Virginia by a locality in areas of high radon potential, as indicated by Zone 1 on the U.S. EPA Map of Radon Zones (IRC Figure AF101), such locality shall enforce the provisions contained in Appendix F.

Exception: Buildings or portions thereof with crawl space foundations which are ventilated to the exterior, shall not be required to provide radon-resistant construction.

~~27.~~ 26. Add Section R325 Swimming Pools~~, Spas and Hot Tubs~~.

~~28.~~ 27. Add Section R325.1 to read:

R325.1 ~~Use of Appendix G for swimming~~ Swimming pools~~, spas and hot tubs~~. In addition to other applicable provisions of this code, swimming pools, ~~spas and hot tubs~~ as defined in the USBC, shall comply with the applicable provisions ~~in Appendix G~~ of the ISPSC.

~~29.~~ 28. Add Section R326 Patio Covers.

~~30.~~ 29. Add Section R326.1 to read:

R326.1 Use of Appendix H for patio covers. Patio covers shall comply with the provisions in Appendix H.

~~31.~~ 30. Add Section R327 Sound Transmission.

~~32.~~ 31. Add Section R327.1 to read:

R327.1 Sound transmission between dwelling units. Construction assemblies separating dwelling units shall provide airborne sound insulation as required in Appendix K.

~~33.~~ 32. Add Section R327.2 to read:

R327.2 Airport noise attenuation. This section applies to the construction of the exterior envelope of detached one-family and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means or egress within airport noise zones when enforced by a locality pursuant to § 15.2-2295 of the Code of Virginia. The exterior envelope of such structures shall comply with Section 1207.4 of the state amendments to the IBC.

~~34. Add Section R328 Gray Water and Rain Water Recycling Systems.~~

~~35. Add Section R328.1 to read:~~

~~R328.1 Use of Appendix O for gray water and rain water recycling systems. In addition to other applicable provisions of this code, gray water recycling systems and rain water recycling systems shall comply with the provisions in Appendix O. In the use of Appendix O for rain water recycling systems, the term "rain water" shall be substituted for the term "gray water." Gray water recycling systems and rain water recycling systems shall be separate systems and shall not be interconnected.~~

~~36.~~ 33. Add Section R329 Fire Extinguishers.

~~37.~~ 34. Add Section R329.1 to read:

R329.1 Kitchen areas. Other than where the dwelling is equipped with an approved sprinkler system in accordance with Section R313, a fire extinguisher having a rating of 2-A:10-B:C or an approved equivalent type of fire extinguisher shall be installed in the kitchen area.

~~38.~~ 35. Change Section R401.3 to read:

R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard to the dwelling unit. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of six inches (152 mm) within the first 10 feet (3048 mm).

Exception: Where lot lines, walls, slopes or other physical barriers prohibit six inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2.0% away from the building.

~~39.~~ 36. Change Section R403.1 to read:

R403.1 General. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, wood foundations, or other approved structural systems ~~which~~ that shall be of sufficient design to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill.

Exception: One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, not exceeding 256 square feet (23.7824 m^2) of building area, provided all of the following conditions are met:

1. The building eave height is 10 feet or less.

2. The maximum height from the finished floor level to grade does not exceed 18 inches.

3. The supporting structural elements in direct contact with the ground shall be placed level on firm soil and when such elements are wood they shall be approved pressure preservative treated suitable for ground contact use.

4. The structure is anchored to withstand wind loads as required by this code.

5. The structure shall be of light-frame construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or light gauge steel framing members, with walls and roof of light weight material, not slate, tile, brick or masonry.

~~40. Change Exceptions 2 and 3 in Section R403.1.6 to read:~~

~~2. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section.~~

~~3. Connection of walls 12 inches (305 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted.~~

~~41. Delete Item 5 of Section R403.1.6.1.~~

~~42.~~ 37. Add Section R408.3.1 to read:

R408.3.1 Termite inspection. Where an unvented crawl space is installed and meets the criteria in Section R408, the vertical face of the sill plate shall be clear and unobstructed and an inspection gap shall be provided below the sill plate along the top of any interior foundation wall covering. The gap shall be a minimum of one inch (25.4 mm) and a maximum of two inches (50.8 mm) in width and shall extend throughout all parts of any foundation that is enclosed. Joints between the sill plate and the top of any interior wall covering may be sealed.

Exceptions:

1. In areas not subject to damage by termites as indicated by Table R301.2(1).

2. Where other approved means are provided to inspect for potential damage.

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

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

~~43. Change Section R502.2.1 to read:~~

~~R502.2.1 Framing at braced wall panels. A load path for lateral forces shall be provided between floor framing and braced wall panels located above or below a floor, as specified in Sections R602.3.5 and R602.10.8.~~

38. Change Section R502.5 and add Table R502.5(3) to read:

R502.5 Allowable girder and header spans. The allowable spans of girders and headers fabricated of

dimension lumber shall not exceed the values set forth in Tables R502.5(1) through R502.5(3).

Table R502.5(3)
Girder and Header Spans for Porches[a,b] (Maximum span for southern pine)

Header Supporting	Header Size	Porch Width (ft)	
		8	14
Roof	2-2x4	6'-11"	5'-3"
	2-2x6	9'-11"	7'-6"
	2-2x8	12'-10"	9'-8"
	2-2x10	16'-8"	12'-7"
	2-2x12	19'-6"	14'-9"
Floor	2-2x4	5'-1"	3'-10"
	2-2x6	7'-4"	5'-6"
	2-2x8	9'-5"	7'-1"
	2-2x10	12'-2"	9'-3"
	2-2x12	14'-4"	10'-10"

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

a. Tabulated values based on 30 psf ground snow load, L/240 deflection and #2 grade lumber.

b. The values of this table shall be equivalent to a roof live load of 20 psf.

~~44.~~ 39. Change Section R506.2.1 to read:

R506.2.1 Fill. Fill material shall be free of vegetation and foreign material and shall be natural nonorganic material that is not susceptible to swelling when exposed to moisture. The fill shall be compacted to assure uniform support of the slab, and except where approved, the fill depth shall not exceed 24 inches (610 mm) for clean sand or gravel and 8 inches (203 mm) for earth.

Exception: Material other than natural material may be used as fill material when accompanied by a certification from an RDP and approved by the building official.

~~45.~~ 40. Change Section R506.2.2 to read:

R506.2.2 Base. A 4-inch-thick (102 mm) base course consisting of clean graded sand, gravel or crushed stone passing a 2-inch (51 mm) sieve shall be placed on the prepared subgrade when the slab is below grade.

Exception: A base course is not required when the concrete slab is installed on well drained or sand-gravel mixture soils classified as Group I according to the United Soil Classification System in accordance with Table R405.1. Material other than natural material may be used as base course material when accompanied by a certification from an RDP and approved by the building official.

~~46. Modify Table R602.3(1) to change and add items as shown:~~

~~7~~	~~Built-up studs, face nail~~	~~10d (3"x0.128")~~	~~24" o.c.~~
~~7a~~	~~Abutting studs at intersecting wall corners, face nail~~	~~16d (3½"x0.135")~~	~~12" o.c.~~
~~26a~~	~~Rim joist or blocking to sill plate, toe nail~~	~~8d (2½"x0.113")~~	~~6" o.c.~~

~~47. Add Section R602.3.5 to read:~~

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

~~1. Fastening in accordance with Table R602.3(1) where:~~

~~1.1. The basic wind speed does not exceed 90 mph (40 m/s), the wind exposure category is B, the roof pitch is 5:12 or greater, and the roof span is 32 feet (9754 mm) or less, or~~

~~1.2. The net uplift value at the top of a wall does not exceed 100 plf (146 N/mm). The net uplift value shall be determined in accordance with Section R802.11 and shall be permitted to be reduced by 60 plf (57 N/mm) for each full wall above.~~

~~2. Where the net uplift value at the top of a wall exceeds 100 plf (146 N/mm), installing approved uplift framing connectors to provide a continuous load path from the top of the wall to the foundation or to a point where the uplift force is 100 plf (146 N/mm) or less. The net uplift value shall be as determined in Item 1.2 above.~~

~~3. Wall sheathing and fasteners designed in accordance with accepted engineering practice to resist combined uplift and shear forces.~~

41. Change Figure R602.3(2) to read:

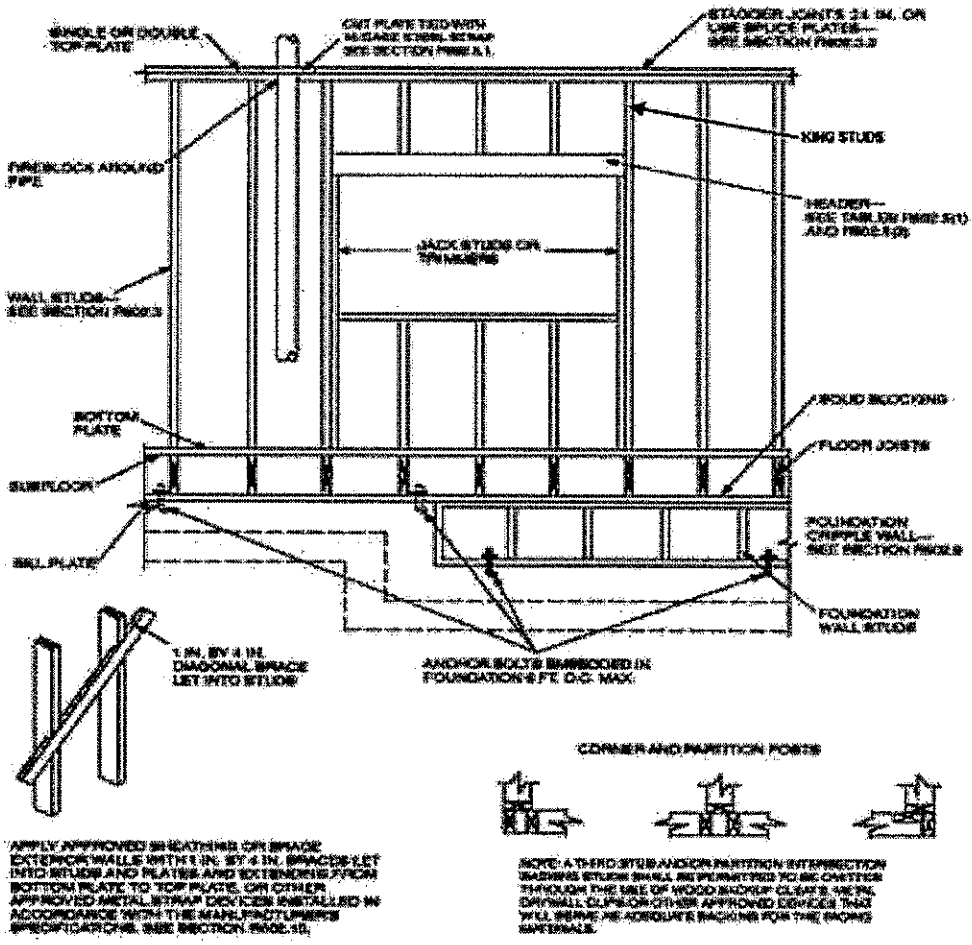


FIGURE R602.3(3)
FRAMING DETAILS

42. Add Section R602.7.4 to read:

R602.7.4 Supports for headers. Headers shall be supported on each end with one or more jack studs in accordance with Table R505.5(1) or Table R502.5(2). A king stud shall be adjacent to the jack stud on each end of the header and nailed at each end of the header with 4-12d nails.

~~48. Change Section R602.9 to read:~~

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

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

~~49. Replace Section R602.10, including all subsections, with the following:~~

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

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

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

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

Editor's Note - Figures R602.10.1.1, R602.10.1.4, R602.10.2.2, R602.10.5, R602.10.6.1, R602.10.6.2, R602.10.6.3, R602.10.6.4, R602.10.7, R602.10.8(1), R602.10.8(2), R602.10.8.1(1), R602.10.8.1(2), R602.10.8.1(3), R602.10.9, R602.10.12.1, and R602.10.12.5 in this section shown below this note are being stricken in the final action.

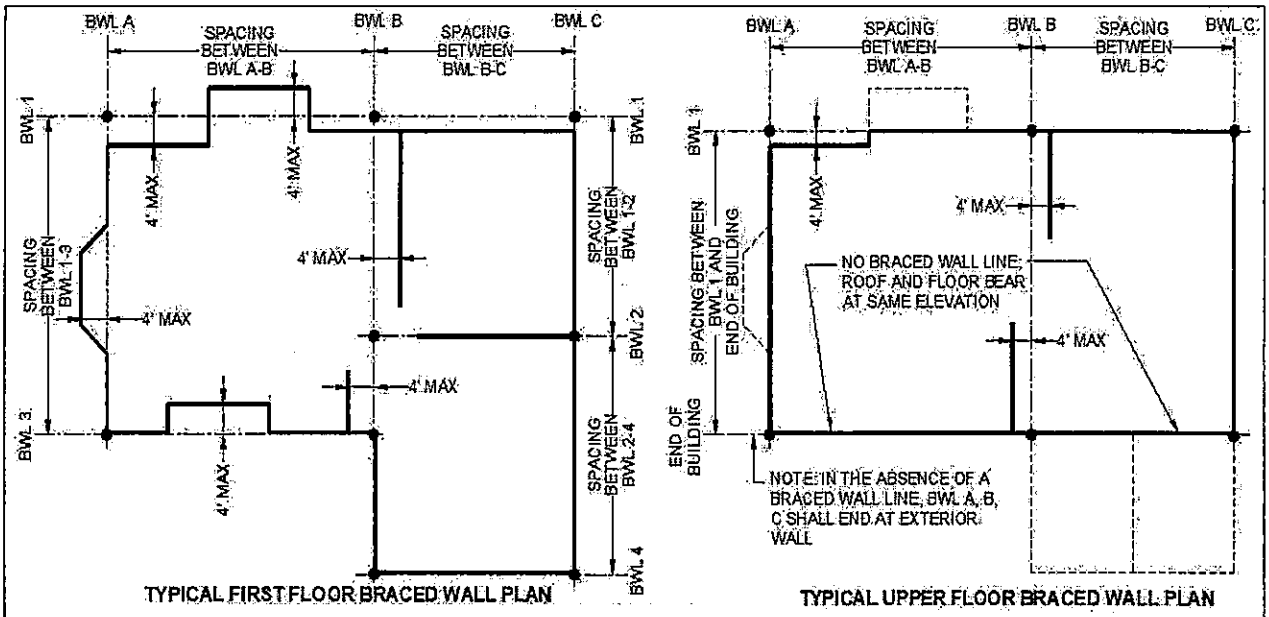


FIGURE R602.10.1.1
BRACED WALL LINES

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

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

~~Table R602.10.1.3~~
~~Braced Wall Line Spacing~~

~~APPLICATION~~	~~CONDITION~~	~~BUILDING TYPE~~	~~BRACED WALL LINE SPACING CRITERIA~~	
			~~Maximum Spacing~~	~~Exception to Maximum Spacing~~

Wind bracing	85 mph to <110 mph	Detached, townhouse	60 feet	None
Seismic bracing	SDC A—C	Detached	Use wind bracing	
	SDC A—B	Townhouse	Use wind bracing	
	SDC C	Townhouse	35 feet	Up to 50 feet when length of required bracing per Table R602.10.3(3) is adjusted in accordance with Table R602.10.3(4)
For SI: 1 foot=304.8 mm				

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

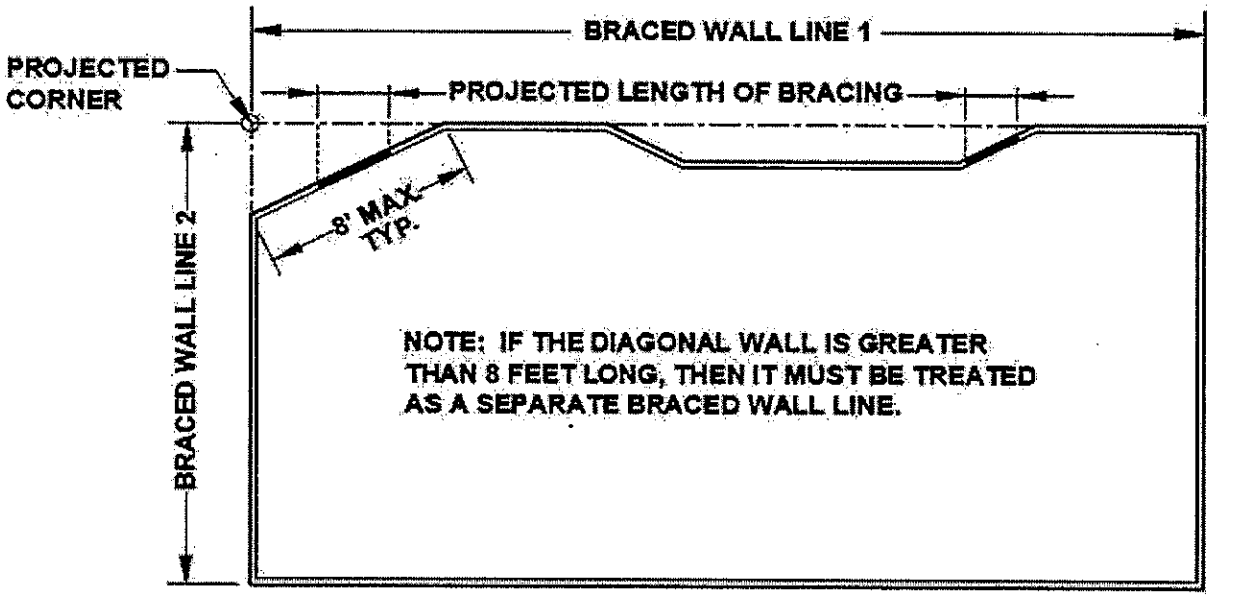


FIGURE R602.10.1.4
ANGLED WALLS

R602.10.2 Braced wall panels. Braced wall panels shall be full height sections of wall that shall have no vertical or horizontal offsets. Braced wall panels shall be constructed and placed along a braced wall line in accordance with this section and the bracing methods specified in Section R602.10.4.

R602.10.2.1 Braced wall panel uplift load path. The bracing lengths in Table R602.10.3(1) apply only when uplift loads are resisted per Section R602.3.5.

R602.10.2.2 Locations of braced wall panels. A braced wall panel shall begin within 10 feet (3810 mm) from each end of a braced wall line as determined in accordance with Section R602.10.1.1. The distance between adjacent edges of braced wall panels along a braced wall line shall be no greater than 20 feet (6096 mm) as shown in Figure R602.10.2.2.

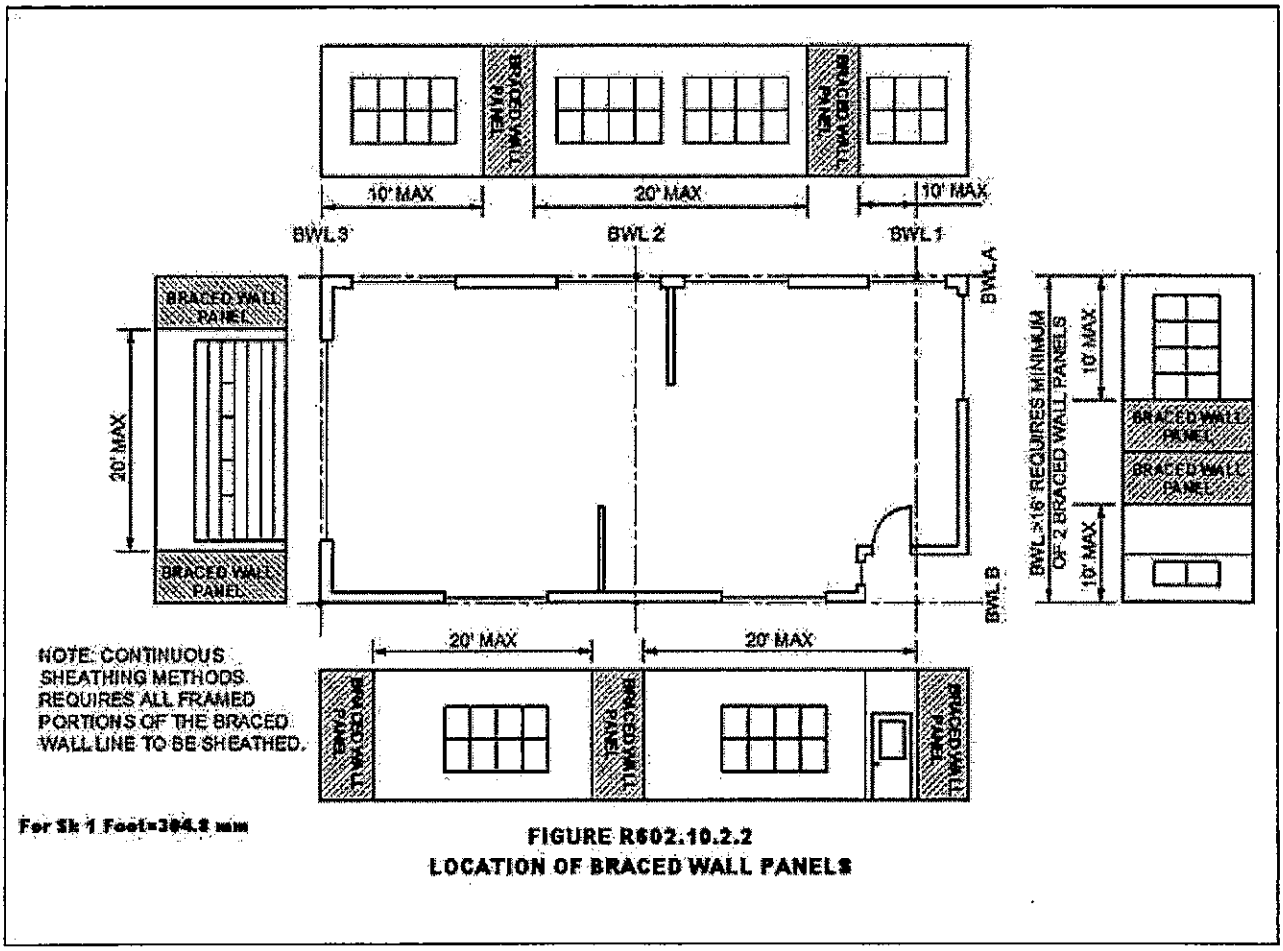


FIGURE R602.10.2.2
LOCATION OF BRACED WALL PANELS

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

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

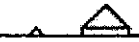
~~1. All buildings in Seismic Design Categories A and B shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).~~

~~2. Detached buildings in Seismic Design Category C shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).~~

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

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

~~Table R602.10.3(1)~~
~~Bracing Requirements Based on Wind Speed~~

~~EXPOSURE CATEGORY B~~ ~~30 FT MEAN ROOF HEIGHT~~ ~~10 FT EAVE TO RIDGE HEIGHT~~ ~~10 FT WALL HEIGHT~~ ~~2 BRACED WALL LINES~~			~~MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[a]~~			
~~Basic Wind Speed (mph)~~	~~Story Location~~	~~Braced Wall Line Spacing (feet)~~	~~Method LIB[b]~~	~~Method GB~~	~~Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB[c]~~	~~Methods CS-WSP, CS-G, CS-PF~~
~~≤85~~		~~10~~	~~3.5~~	~~3.5~~	~~2.0~~	~~1.5~~
		~~20~~	~~6.0~~	~~6.0~~	~~3.5~~	~~3.0~~
		~~30~~	~~8.5~~	~~8.5~~	~~5.0~~	~~4.5~~
		~~40~~	~~11.5~~	~~11.5~~	~~6.5~~	~~5.5~~
		~~50~~	~~14.0~~	~~14.0~~	~~8.0~~	~~7.0~~
		~~60~~	~~16.5~~	~~16.5~~	~~9.5~~	~~8.0~~
		~~10~~	~~6.5~~	~~6.5~~	~~3.5~~	~~3.0~~
		~~20~~	~~11.5~~	~~11.5~~	~~6.5~~	~~5.5~~
		~~30~~	~~16.5~~	~~16.5~~	~~9.5~~	~~8.0~~
		~~40~~	~~21.5~~	~~21.5~~	~~12.5~~	~~10.5~~
		~~50~~	~~26.5~~	~~26.5~~	~~15.0~~	~~13.0~~
		~~60~~	~~31.5~~	~~31.5~~	~~18.0~~	~~15.5~~
		~~10~~	~~NP~~	~~9.0~~	~~5.5~~	~~4.5~~
		~~20~~	~~NP~~	~~17.0~~	~~10.0~~	~~8.5~~
		~~30~~	~~NP~~	~~24.5~~	~~14.0~~	~~12.0~~
		~~40~~	~~NP~~	~~32.0~~	~~18.0~~	~~15.5~~
		~~50~~	~~NP~~	~~39.0~~	~~22.5~~	~~19.0~~
		~~60~~	~~NP~~	~~46.5~~	~~26.5~~	~~22.5~~
~~≤90~~		~~10~~	~~3.5~~	~~3.5~~	~~2.0~~	~~2.0~~
		~~20~~	~~7.0~~	~~7.0~~	~~4.0~~	~~3.5~~
		~~30~~	~~9.5~~	~~9.5~~	~~5.5~~	~~5.0~~
		~~40~~	~~12.5~~	~~12.5~~	~~7.5~~	~~6.0~~
		~~50~~	~~15.5~~	~~15.5~~	~~9.0~~	~~7.5~~
		~~60~~	~~18.5~~	~~18.5~~	~~10.5~~	~~9.0~~
		~~10~~	~~7.0~~	~~7.0~~	~~4.0~~	~~3.5~~

~~Table R602.10.3(1)~~
~~Bracing Requirements Based on Wind Speed~~

~~EXPOSURE CATEGORY B~~ ~~30 FT MEAN ROOF HEIGHT~~ ~~10 FT EAVE TO RIDGE HEIGHT~~ ~~10 FT WALL HEIGHT~~ ~~2 BRACED WALL LINES~~			~~MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[a]~~			
~~Basic Wind Speed (mph)~~	~~Story Location~~	~~Braced Wall Line Spacing (feet)~~	~~Method LIB[b]~~	~~Method GB~~	~~Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB[c]~~	~~Methods CS-WSP, CS-G, CS-PF~~
~~≤100~~		~~20~~	~~13.0~~	~~13.0~~	~~7.5~~	~~6.5~~
		~~30~~	~~18.5~~	~~18.5~~	~~10.5~~	~~9.0~~
		~~40~~	~~24.0~~	~~24.0~~	~~14.0~~	~~12.0~~
		~~50~~	~~29.5~~	~~29.5~~	~~17.0~~	~~14.5~~
		~~60~~	~~35.0~~	~~35.0~~	~~20.0~~	~~17.0~~
		~~10~~	~~NP~~	~~10.5~~	~~6.0~~	~~5.0~~
		~~20~~	~~NP~~	~~19.0~~	~~11.0~~	~~9.5~~
		~~30~~	~~NP~~	~~27.5~~	~~15.5~~	~~13.5~~
		~~40~~	~~NP~~	~~35.5~~	~~20.5~~	~~17.5~~
		~~50~~	~~NP~~	~~44.0~~	~~25.0~~	~~21.5~~
		~~60~~	~~NP~~	~~52.0~~	~~30.0~~	~~25.5~~
		~~10~~	~~4.5~~	~~4.5~~	~~2.5~~	~~2.5~~
		~~20~~	~~8.5~~	~~8.5~~	~~5.0~~	~~4.0~~
		~~30~~	~~12.0~~	~~12.0~~	~~7.0~~	~~6.0~~
		~~40~~	~~15.5~~	~~15.5~~	~~9.0~~	~~7.5~~
		~~50~~	~~19.0~~	~~19.0~~	~~11.0~~	~~9.5~~
		~~60~~	~~22.5~~	~~22.5~~	~~13.0~~	~~11.0~~
		~~10~~	~~8.5~~	~~8.5~~	~~5.0~~	~~4.5~~
		~~20~~	~~16.0~~	~~16.0~~	~~9.0~~	~~8.0~~
		~~30~~	~~23.0~~	~~23.0~~	~~13.0~~	~~11.0~~
		~~40~~	~~29.5~~	~~29.5~~	~~17.0~~	~~14.5~~
		~~50~~	~~36.5~~	~~36.5~~	~~21.0~~	~~18.0~~
		~~60~~	~~43.5~~	~~43.5~~	~~25.0~~	~~21.0~~
		~~10~~	~~NP~~	~~12.5~~	~~7.5~~	~~6.0~~
		~~20~~	~~NP~~	~~23.5~~	~~13.5~~	~~11.5~~

~~Table R602.10.3(1)~~
~~Bracing Requirements Based on Wind Speed~~

~~EXPOSURE CATEGORY B~~ ~~30 FT MEAN ROOF HEIGHT~~ ~~10 FT EAVE TO RIDGE HEIGHT~~ ~~10 FT WALL HEIGHT~~ ~~2 BRACED WALL LINES~~			~~MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[a]~~			
~~Basic Wind Speed (mph)~~	~~Story Location~~	~~Braced Wall Line Spacing (feet)~~	~~Method LIB[b]~~	~~Method GB~~	~~Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB[c]~~	~~Methods CS-WSP, CS-G, CS-PF~~
		~~30~~	~~NP~~	~~34.0~~	~~19.5~~	~~16.5~~
		~~40~~	~~NP~~	~~44.0~~	~~25.0~~	~~21.5~~
		~~50~~	~~NP~~	~~54.0~~	~~31.0~~	~~26.5~~
		~~60~~	~~NP~~	~~64.0~~	~~36.5~~	~~31.0~~
~~<110~~		~~10~~	~~5.5~~	~~5.5~~	~~3.0~~	~~3.0~~
		~~20~~	~~10.0~~	~~10.0~~	~~6.0~~	~~5.0~~
		~~30~~	~~14.5~~	~~14.5~~	~~8.5~~	~~7.0~~
		~~40~~	~~18.5~~	~~18.5~~	~~11.0~~	~~9.0~~
		~~50~~	~~23.0~~	~~23.0~~	~~13.0~~	~~11.5~~
		~~60~~	~~27.5~~	~~27.5~~	~~15.5~~	~~13.5~~
		~~10~~	~~10.5~~	~~10.5~~	~~6.0~~	~~5.0~~
		~~20~~	~~19.0~~	~~19.0~~	~~11.0~~	~~9.5~~
		~~30~~	~~27.5~~	~~27.5~~	~~16.0~~	~~13.5~~
		~~40~~	~~36.0~~	~~36.0~~	~~20.5~~	~~17.5~~
		~~50~~	~~44.0~~	~~44.0~~	~~25.5~~	~~21.5~~
		~~60~~	~~52.5~~	~~52.5~~	~~30.0~~	~~25.5~~
		~~10~~	~~0~~	~~15.5~~	~~9.0~~	~~7.5~~
		~~20~~	~~NP~~	~~28.5~~	~~16.5~~	~~14.0~~
		~~30~~	~~NP~~	~~41.0~~	~~23.5~~	~~20.0~~
		~~40~~	~~NP~~	~~53.0~~	~~30.5~~	~~26.0~~
		~~50~~	~~NP~~	~~65.5~~	~~37.5~~	~~32.0~~
		~~60~~	~~NP~~	~~77.5~~	~~44.5~~	~~37.5~~

~~Table R602.10.3(1)~~
~~Bracing Requirements Based on Wind Speed~~

~~EXPOSURE CATEGORY B~~ ~~30 FT MEAN ROOF HEIGHT~~ ~~10 FT EAVE TO RIDGE HEIGHT~~ ~~10 FT WALL HEIGHT~~ ~~2 BRACED WALL LINES~~			~~MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[a]~~			
~~Basic Wind Speed (mph)~~	~~Story Location~~	~~Braced Wall Line Spacing (feet)~~	~~Method LIB[b]~~	~~Method GB~~	~~Methods DWB, WSP, SFB, PBS, PCP, HPS, CS-SFB[c]~~	~~Methods CS-WSP, CS-G, CS-PF~~

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

~~[a]Linear interpolation shall be permitted.~~

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

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

~~Table R602.10.3(2)~~
~~Wind Adjustment Factors to the Required Length of Wall Bracing~~

~~ADJUSTMENT BASED ON~~	~~STORY/ SUPPORTING~~	~~CONDITION~~	~~ADJUSTMENT FACTOR[a,b]~~ (~~multiply length from Table R602.10.3(1) by this factor~~)	~~APPLICABLE METHODS~~
~~Exposure category~~	~~One story structure~~	~~B~~	~~1.00~~	~~All methods~~
		~~C~~	~~1.20~~	
		~~D~~	~~1.50~~	
	~~Two story structure~~	~~B~~	~~1.00~~	
		~~C~~	~~1.30~~	
		~~D~~	~~1.60~~	
	~~Three story structure~~	~~B~~	~~1.00~~	
		~~C~~	~~1.40~~	
		~~D~~	~~1.70~~	
~~Roof eave to ridge height~~	~~Roof only~~	~~≤5 ft~~	~~0.70~~	
		~~10 ft~~	~~1.00~~	
		~~15 ft~~	~~1.30~~	
		~~20 ft~~	~~1.60~~	

	Roof + 1 floor	≤5 ft	0.85	
		10 ft	1.00	
		15 ft	1.15	
		20 ft	1.30	
	Roof + 2 floors	≤5 ft	0.90	
		10 ft	1.00	
		15 ft	1.10	
		20 ft	Not permitted	
Wall height adjustment	Any story	8 ft	0.90	
		9 ft	0.95	
		10 ft	1.00	
		11 ft	1.05	
		12 ft	1.10	
Number of braced wall lines (per plan direction)[c]	Any story	2	1.00	
		3	1.30	
		4	1.45	
		≥5	1.60	
Additional 800 lb hold-down device	Top story only	Fastened to the end studs of each braced wall panel and to the foundation or framing below	0.80	DWB, WSP, SFB, PBS, PCP, HPS
Interior gypsum board finish (or equivalent)	Any story	Omitted from inside face of braced wall panels	1.40	DWB, WSP, SFB,PBS, PCP, HPS, CS-WSP, CS-G, CS-SFB
Gypsum board fastening	Any story	4 in. o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked	0.7	GB

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

[a]Linear interpolation shall be permitted.

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

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

Table R602.10.3(3)

Bracing Requirements Based on Seismic Design Category

SOIL CLASS D[b] WALL HEIGHT = 10 FT 10 PSF FLOOR DEAD LOAD 15 PSF ROOF/CEILING DEAD LOAD BRACED WALL LINE SPACING ≤ 25 FT		MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[a]					
Seismic Design Category	Story Location	Braced Wall Line Length (ft)	Method LIB[c]	Method GB	Methods DWB, SFB, PBS, PCP, HPS, CS-SFB	Method WSP	Methods CS-WSP, CS-G
C (townhouses only)		10	2.5	2.5	2.5	1.6	1.4
		20	5.0	5.0	5.0	3.2	2.7
		30	7.5	7.5	7.5	4.8	4.1
		40	10.0	10.0	10.0	6.4	5.4
		50	12.5	12.5	12.5	8.0	6.8
		10	NP	4.5	4.5	3.0	2.6
		20	NP	9.0	9.0	6.0	5.1
		30	NP	13.5	13.5	9.0	7.7
		40	NP	18.0	18.0	12.0	10.2
		50	NP	22.5	22.5	15.0	12.8
		10	NP	6.0	6.0	4.5	3.8
		20	NP	12.0	12.0	9.0	7.7
		30	NP	18.0	18.0	13.5	11.5
		40	NP	24.0	24.0	18.0	15.3
		50	NP	30.0	30.0	22.5	19.1

For SI: 1 foot=305 mm

[a]Linear interpolation shall be permitted.

[b]Wall bracing lengths are based on a soil site class "D." Interpolation of bracing length between the S_{ds} values associated with the Seismic Design Categories shall be permitted when a site-specific S_{ds} value is determined in accordance with Section 1613.5 of the International Building Code.

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

~~Table R602.10.3(4)~~

~~Seismic Adjustment Factors to the Required Length of Wall Bracing~~

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

~~For SI: 1 psf=47.8 N/m^2.~~

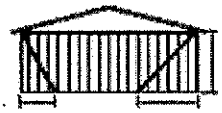
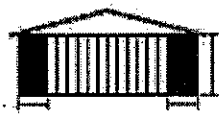
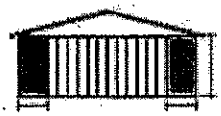
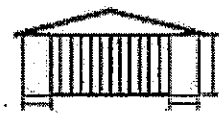
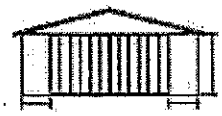
~~[a]Linear interpolation shall be permitted.~~

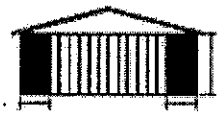
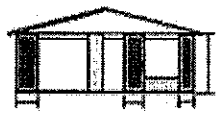
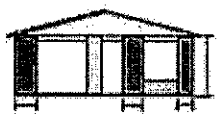
~~[b]The total length of bracing required for a given wall line is the product of all applicable adjustment factors.~~

~~[c]The length-to-width ratio for the floor/roof diaphragm shall not exceed 3:1. The top plate lap splice nailing shall be a minimum of 12-16d nails on each side of the splice.~~

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

Table R602.10.4
Bracing Methods

METHODS, MATERIAL		MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA[a]	
				Fasteners	Spacing
Intermittent Bracing Methods	LIB Let-in-bracing	1x4 wood or approved metal straps at 45° to 60° angles for maximum 16" stud spacing		Wood: 2-8d common nails or 3-8d (2 ½" long x 0.113" dia.) nails	Wood: per stud and top and bottom plates
				Metal: per manufacturer	Metal: per manufacturer
	DWB Diagonal wood boards	¾" (1" nominal) for maximum 24" stud spacing		2-8d (2½" long x 0.113" dia.) nails or 2-1¾" long staples	Per stud
	WSP Wood structural panel (See Section R604)	3/8"		Exterior sheathing per Table R602.3(3)	6" edges 12" field
				Interior sheathing per Table R602.3(1) or R602.3(2)	Varies by fastener
	SFB Structural fiberboard sheathing	1/2" or 25/32" for maximum 16" stud spacing		1½" long x 0.12" dia. (for ½" thick sheathing) 1 3/4" long x 0.12" dia. (for 25/32" thick sheathing) galvanized roofing nails or 8d common (2½" long x 0.131" dia.) nails	3" edges 6" field
	GB Gypsum board	1/2"		Nails or screws per Table R602.3(1) for exterior locations	For all braced wall panel locations: 7" edges (including top and bottom plates) 7" field
				Nails or screws per Table R702.3.5 for interior locations	
	PBS Particleboard sheathing (See Section R605)	3/8" or 1/2" For maximum16" stud spacing		For 3/8", 6d common (2" long x 0.113" dia.) nails For ½", 8d common (2½" long x 0.131" dia.) nails	3" edges 6" field
	PCP Portland cement plaster	See Section R703.6 for maximum 16" stud spacing		1½" long, 11 gage, 7/16" dia. head nails or 7/8" long, 16 gage	6" o.c. on all framing members

				staples	
	HPS Hardboard panel siding	7/16" for maximum 16" stud spacing		0.092" dia., 0.225" dia. head nails with length to accommodate 1½" penetration into studs	4" edges 8" field
	ABW Alternate braced wall	3/8"		See Section R602.10.6.1	See Section R602.10.6.1
	PFH Portal frame with hold-downs	3/8		See Section R602.10.6.2	See Section R602.10.6.2
	PFG Portal frame at garage	7/16"		See Section R602.10.6.3	See Section R602.10.6.3
Continuous Sheathing Methods	CS-WSP Continuously sheathed wood structural panel	3/8"		Exterior sheathing per Table R602.3(3)	6" edges 12" field
				Interior sheathing per Table R602.3(1) or R602.3(2)	Varies by fastener
	CS-G[b,e] Continuously sheathed wood structural panel adjacent to garage openings	3/8"		See Method CS-WSP	See Method CS-WSP
	CS-PF Continuously sheathed portal frame	7/16"		See Section R602.10.6.4	See Section R602.10.6.4
	CS-SFB[d] Continuously sheathed structural fiberboard	1/2" or 25/32" for maximum 16" stud spacing		1½" long x 0.12" dia. (for ½" thick sheathing) 1¾" long x 0.12" dia. (for 25/32" thick sheathing) galvanized roofing nails or 8d common (2½" long x 0.131 dia.) nails	3" edges 6" field

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

[a]Adhesive attachment of wall sheathing, including Method GB, shall not be permitted in townhouses in Seismic Design Category C.

[b]Applies to panels next to garage door opening when supporting gable end wall or roof load only. May only be used on one

~~wall of the garage.~~

~~[c]Garage openings adjacent to a Method CS-G panel shall be provided with a header in accordance with Table R502.5(1). A full height clear opening shall not be permitted adjacent to a Method CS-G panel.~~

~~[d]Method CS-SFB does not apply in areas where the wind speed exceeds 100 mph.~~

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

~~1. Mixing intermittent bracing and continuous sheathing methods from story to story shall be permitted.~~

~~2. Mixing intermittent bracing methods from braced wall line to braced wall line within a story shall be permitted. In regions where the basic wind speed is less than or equal to 100 mph, mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.~~

~~3. Mixing intermittent bracing methods along a braced wall line shall be permitted in Seismic Design Categories A and B, and detached dwellings in Seismic Design Category C provided the length of required bracing in accordance with Table R602.10.3(1) or R602.10.3(3) is the highest value of all intermittent bracing methods used.~~

~~4. Mixing of continuous sheathing methods CS-WSP, CS-G and CS-PF along a braced wall line shall be permitted.~~

~~5. In Seismic Design Categories A and B, and for detached one family and two family dwellings in Seismic Design Category C, mixing of intermittent bracing methods along the interior portion of a braced wall line with continuous sheathing methods CS-WSP, CS-G and CS-PF along the exterior portion of the same braced wall line shall be permitted. The length of required bracing shall be the highest value of all intermittent bracing methods used in accordance with Table R602.10.3(1) or R602.10.3(3) as adjusted by Tables R602.10.3(2) and R602.10.3(4), respectively. The requirements of Section R602.10.7 shall apply to each end of the continuously sheathed portion of the braced wall line.~~

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

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

~~Exceptions:~~

~~1. Interior finish material is not required opposite wall panels that are braced in accordance with Method GB, ABW, PFH, PFG and CS-PF, unless otherwise required by Section R302.6.~~

~~2. An approved interior finish material with an in-plane shear resistance equivalent to gypsum board shall be permitted to be substituted, unless otherwise required by Section R302.6.~~

~~3. Except for Method LIB, gypsum wall board is permitted to be omitted provided the required length of bracing in Tables R602.10.3(1) and R602.10.3(3) is multiplied by the appropriate adjustment factor in Tables R602.10.3(2) and R602.10.3(4) respectively, unless otherwise required by Section R302.6.~~

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

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

~~Table R602.10.5~~
~~Minimum Length of Braced Wall Panels~~

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

120			60	52	48
124				56	51
128				61	54
132				66	58
136					62
140					66
144					72

For SI: 1 inch=25.4 mm

NP=Not permitted

[a]Linear interpolation shall be permitted.

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

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

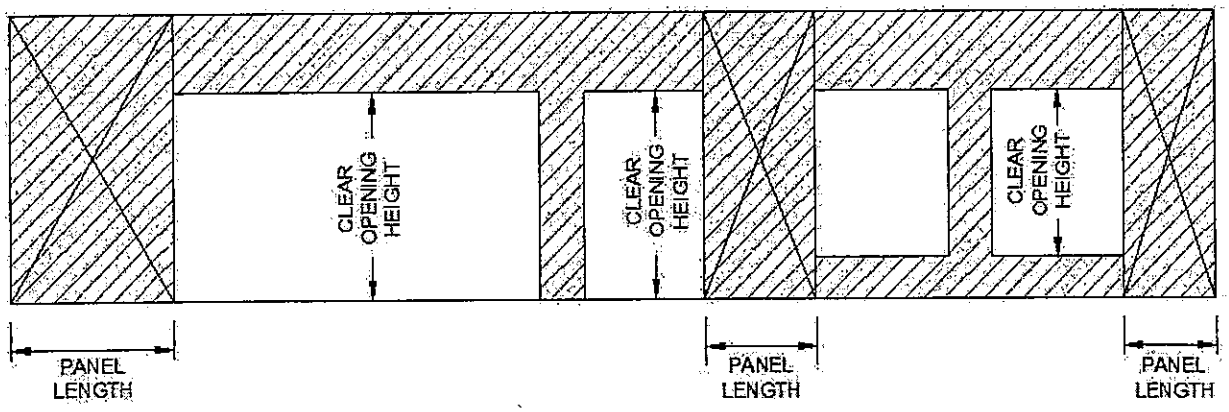


FIGURE R602.10.5
BRACED WALL PANELS WITH CONTINUOUS SHEATHING

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

Table R602.10.5.2
Partial Credit for Braced Wall Panels Less than 48 Inches in Actual Length

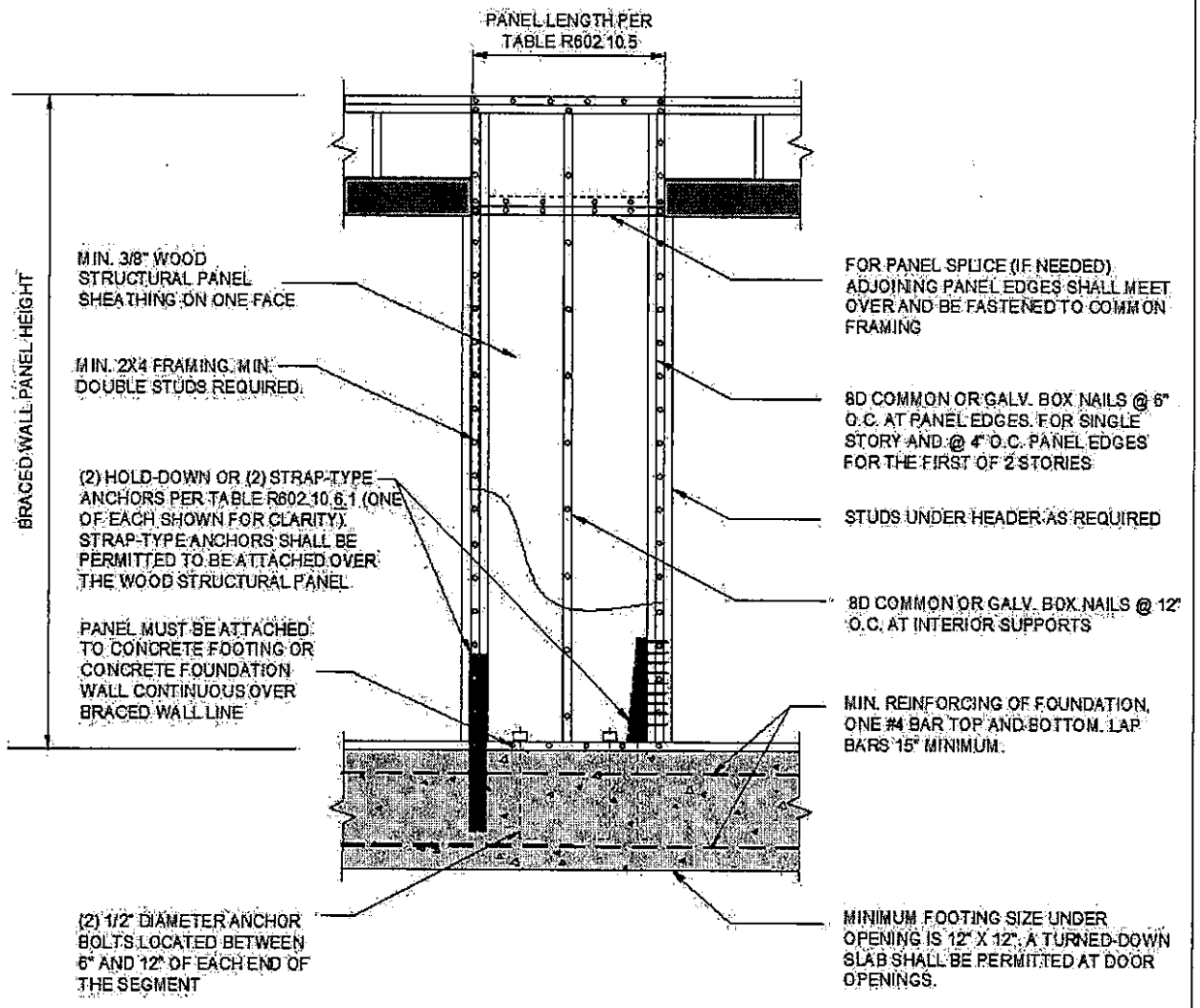
Actual Length of Braced Wall Panel (in)	Contributing Length of Braced Wall Panel (in)[a]	
	8 ft Wall Height	9 ft Wall Height
48	48	48
42	36	36
36	27	N/A

~~For SI: 1 inch=25.4mm~~

~~[a]Linear interpolation shall be permitted.~~

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

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



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

FIGURE R602.10.6.1
METHOD ABW: ALTERNATE BRACED WALL PANEL

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

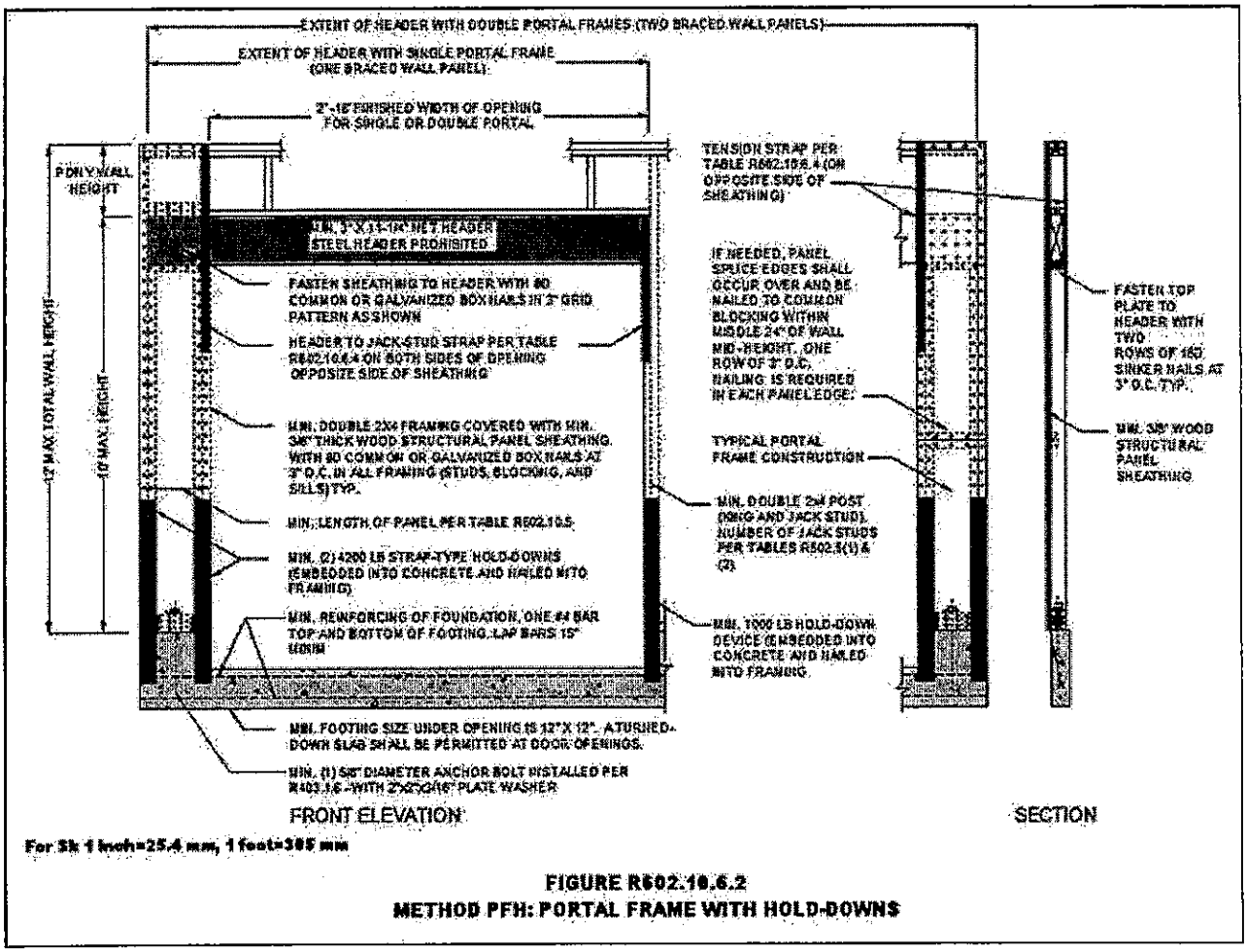


FIGURE R602.10.6.2
METHOD PFH: PORTAL FRAME WITH HOLD-DOWNS

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

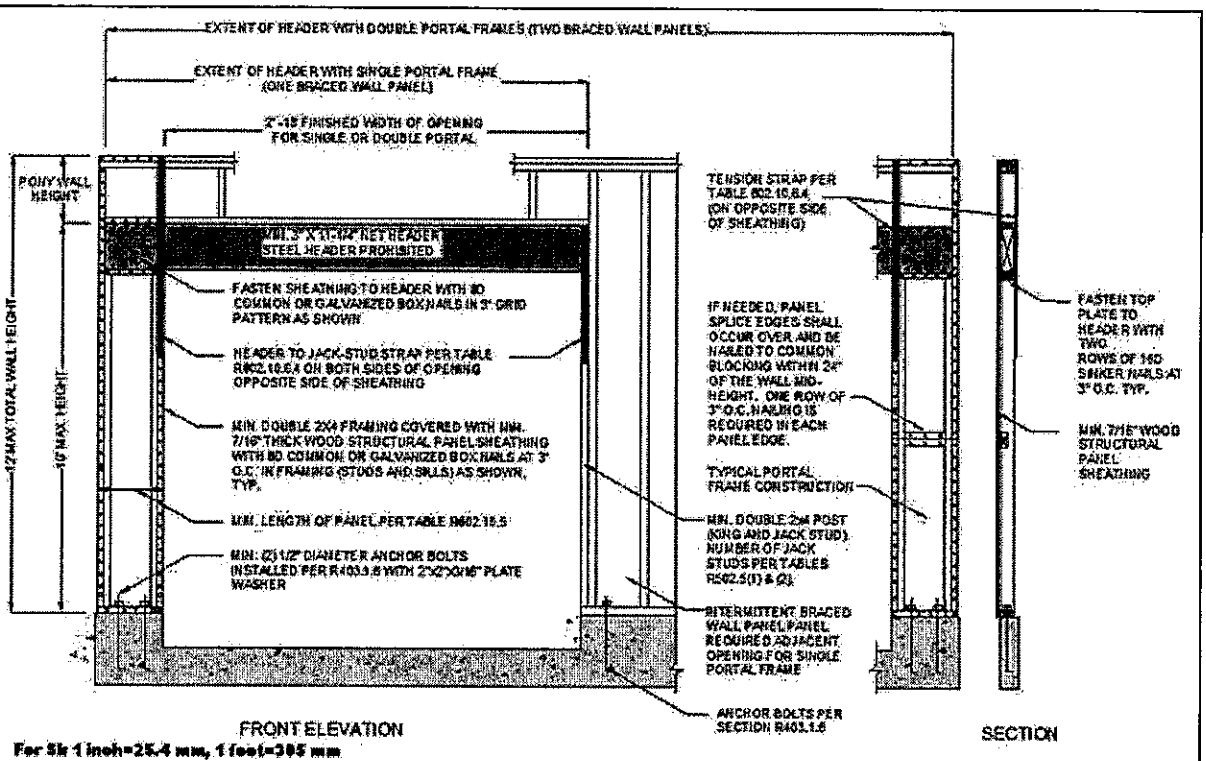


FIGURE R602.10.6.3
METHOD PFG: PORTAL FRAME AT GARAGE DOOR OPENINGS IN SEISMIC DESIGN CATEGORIES A, B AND C

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

~~Table R602.10.6.4~~
~~Tension Strap Capacity Required for Resisting Wind Pressures~~
~~Perpendicular to Method PFH, PFG and CS-PF Braced Wall Panels~~

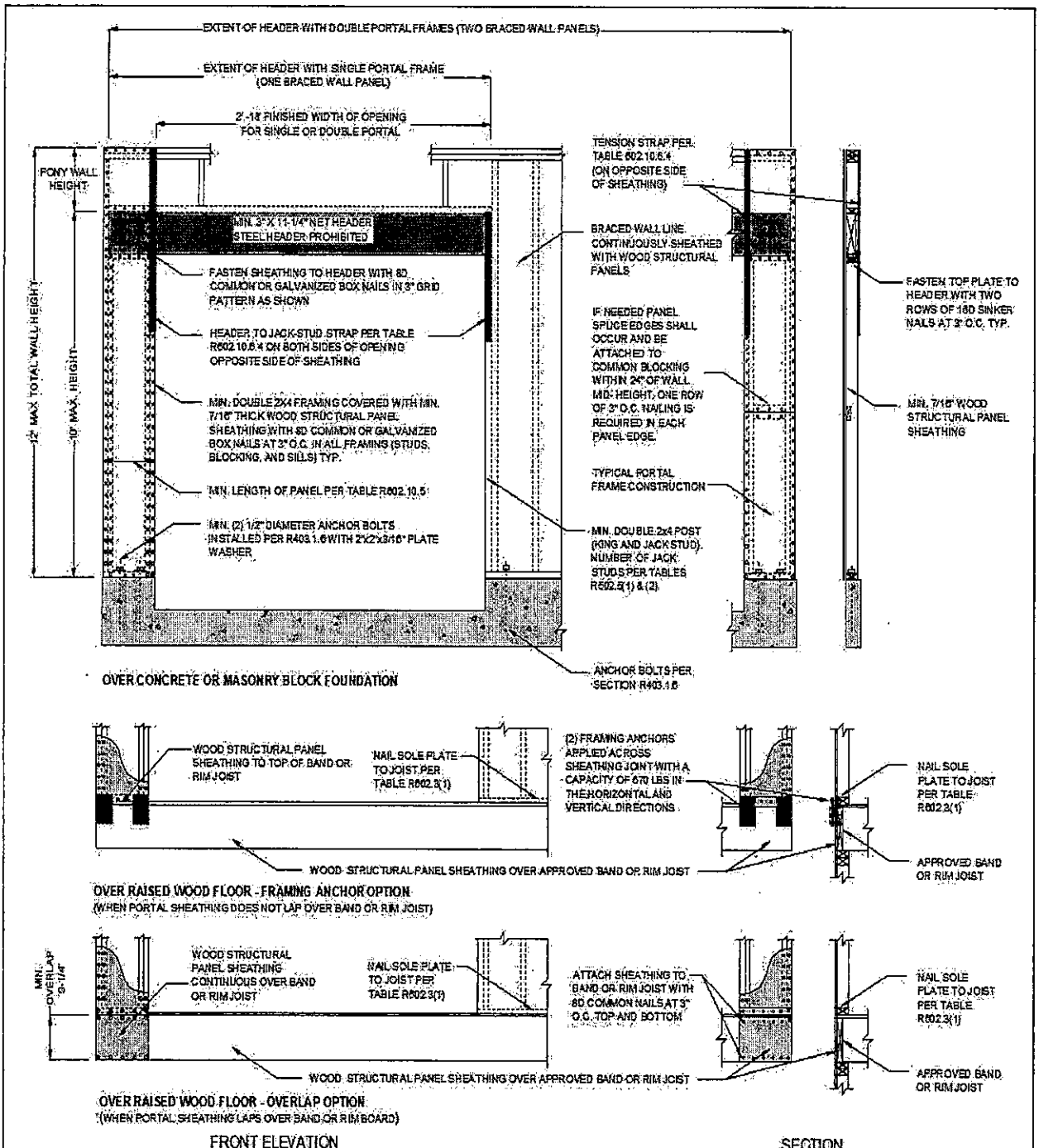
~~MINIMUM WALL STUD FRAMING NOMINAL SIZE AND GRADE~~	~~MAXIMUM PONY WALL HEIGHT (ft)~~	~~MAXIMUM TOTAL WALL HEIGHT (ft)~~	~~MAXIMUM OPENING WIDTH (ft)~~	~~TENSION STRAP CAPACITY REQUIRED (lb)[a]~~					
				~~Basic Wind Speed (mph)~~					
				~~85~~	~~90~~	~~100~~	~~85~~	~~90~~	~~100~~
				~~Exposure B~~			~~Exposure C~~		
~~2x4 No. 2 Grade~~	~~0~~	~~10~~	~~18~~	~~1000~~	~~1000~~	~~1000~~	~~1000~~	~~1000~~	~~1000~~
	~~1~~	~~10~~	~~9~~	~~1000~~	~~1000~~	~~1000~~	~~1000~~	~~1000~~	~~1275~~
			~~16~~	~~1000~~	~~1000~~	~~1750~~	~~1800~~	~~2325~~	~~3500~~
			~~18~~	~~1000~~	~~1200~~	~~2100~~	~~2175~~	~~2725~~	~~DR~~
	~~2~~	~~10~~	~~9~~	~~1000~~	~~1000~~	~~1025~~	~~1075~~	~~1550~~	~~2500~~
			~~16~~	~~1525~~	~~2025~~	~~3125~~	~~3200~~	~~3900~~	~~DR~~
			~~18~~	~~1875~~	~~2400~~	~~3575~~	~~3700~~	~~DR~~	~~DR~~
	~~2~~	~~12~~	~~9~~	~~1000~~	~~1200~~	~~2075~~	~~2125~~	~~2750~~	4000

			16	2600	3200	DR	DR	DR	DR
			18	3175	3850	DR	DR	DR	DR
	4	12	9	1775	2350	3500	3550	DR	DR
			16	4175	DR	DR	DR	DR	DR
2x6 Stud Grade	2	12	9	1000	1000	1325	1375	1750	2550
			16	1650	2050	2925	3000	3550	DR
			18	2025	2450	3425	3500	4100	DR
	4	12	9	1125	1500	2225	2275	2775	3800
			16	2650	3150	DR	DR	DR	DR
			18	3125	3675	DR	DR	DR	DR

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

DR = design required

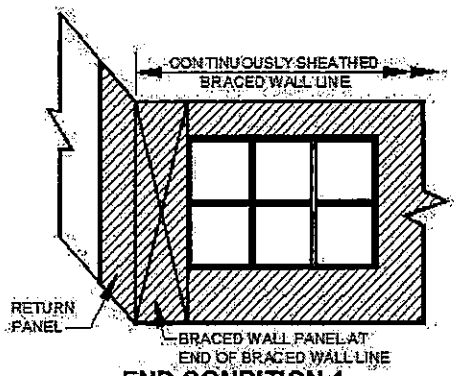
[a]Strap shall be installed in accordance with manufacturer's recommendations.



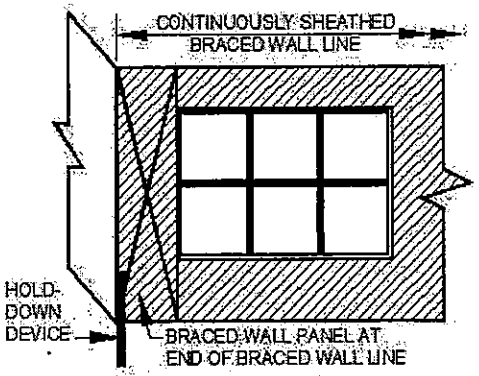
For SI: 1 inch=25.4 mm, 1 foot=305 mm, 1lb=4.45N

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

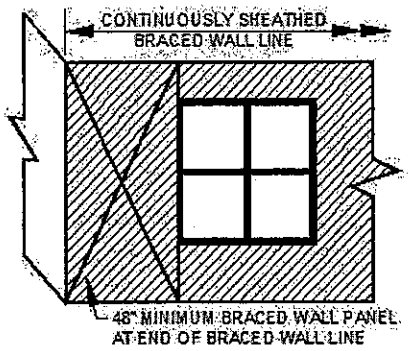
~~R602.10.7 Ends of braced wall lines with continuous sheathing. Each end of a braced wall line with continuous sheathing shall be in accordance with one of the end conditions shown in Figure R602.10.7.~~



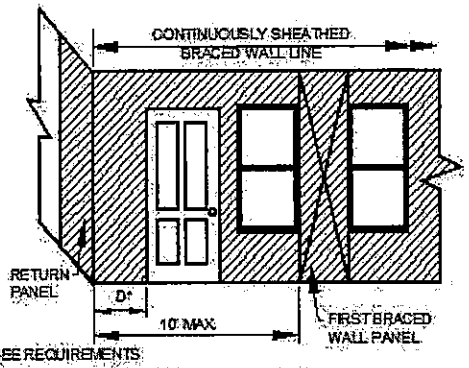
END CONDITION 1



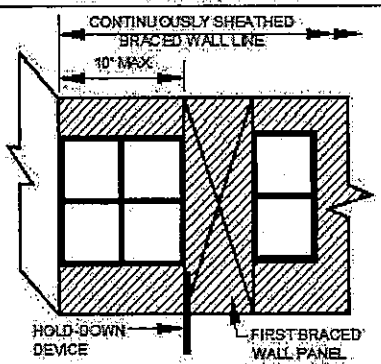
END CONDITION 2



END CONDITION 3



END CONDITION 4



END CONDITION 5

REQUIREMENTS

Return panel: 24" for braced wall lines sheathed with wood structural panels
32" for braced wall lines sheathed with structural fiberboard

Distance D: 24" for braced wall lines sheathed with wood structural panels
32" for braced wall lines sheathed with structural fiberboard

Hold-down device: 800 lbs capacity fastened to the edge of the braced wall panel closest to the corner and to the foundation or floor framing below

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

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

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

~~1. Where joists are perpendicular to a braced wall panel above or below, a rim joist, band joist or blocking shall be provided along the entire length of the braced wall panel in accordance with Figure R602.10.8(1). Fastening of top and bottom wall plates to framing, rim joist, band joist and/or blocking shall be in accordance with Table R602.3(1).~~

~~2. Where joists are parallel to a braced wall panel above or below, a rim joist, end joist or other parallel framing member shall be provided directly above and below the braced wall panel in accordance with Figure R602.10.8(2). Where a parallel framing member cannot be located directly above and below the panel, full-depth blocking at 16-inch (406 mm) spacing shall be provided between the parallel framing members to each side of the braced wall panel in accordance with Figure R602.10.8(2). Fastening of blocking and wall plates shall be in accordance with Table R602.3(1) and Figure R602.10.8(2).~~

~~3. Connections of braced wall panels to concrete or masonry shall be in accordance with Section R403.1.6.~~

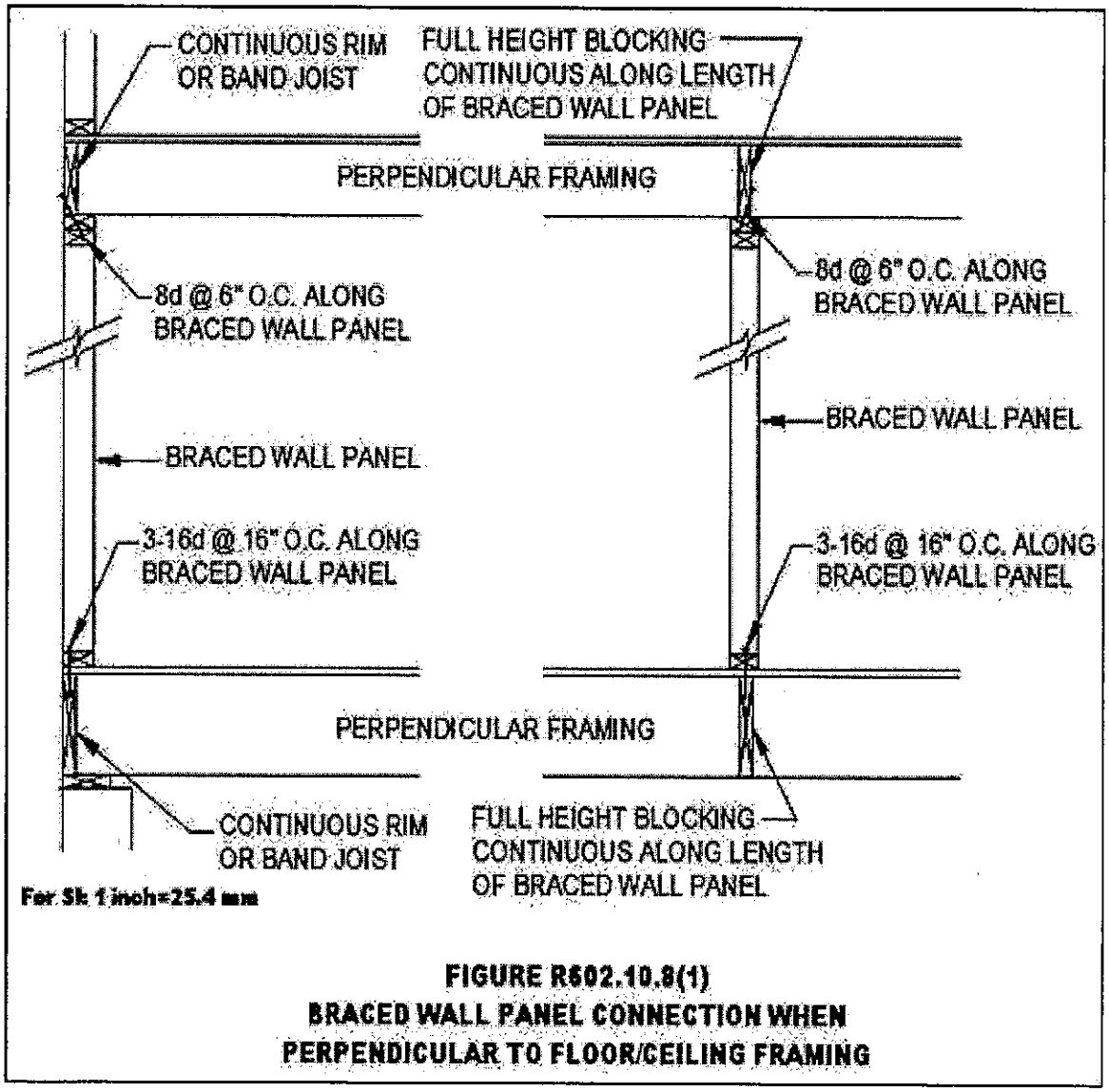


FIGURE R602.10.8(1)
BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

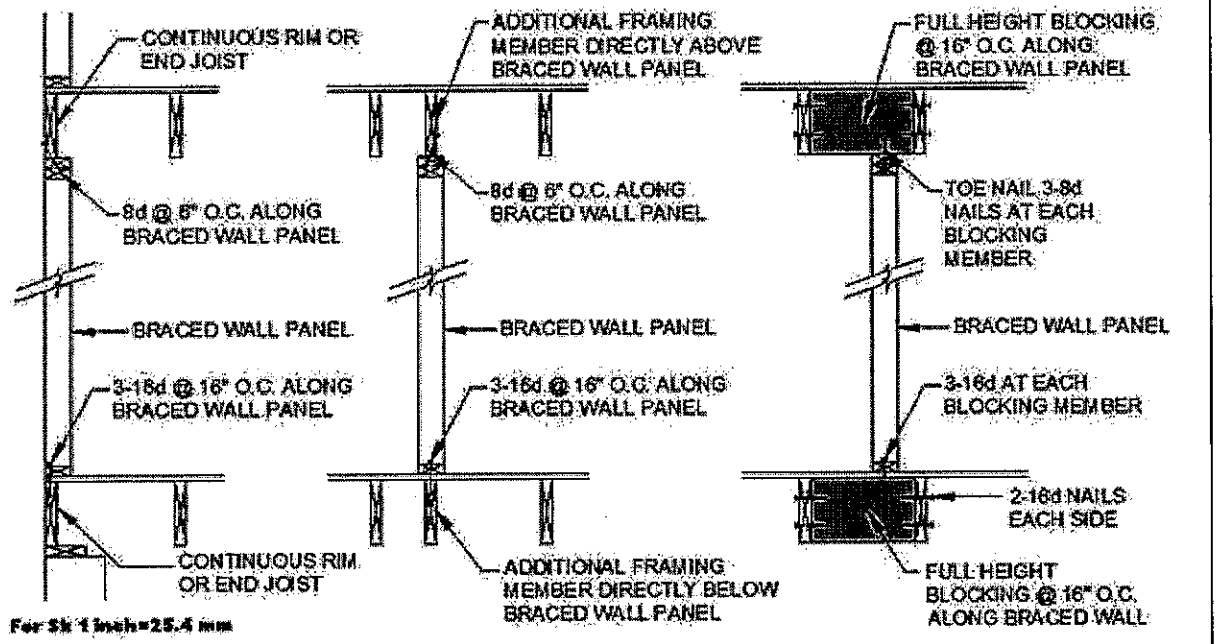


FIGURE R602.10.8(2)
BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

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

~~1. For wind speeds less than 100 mph (45 m/s):~~

~~1.1. Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses above is 9.25 inches (235 mm) or less, blocking between rafters or roof trusses shall not be required.~~

~~1.2. Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses above is between 9.25 inches (235 mm) and 15.25 inches (387 mm) blocking between rafters or roof trusses shall be provided above the braced wall panel in accordance with Figure R602.10.8.1(1).~~

~~2. For wind speeds of 100 mph (45 m/s) or greater, where the distance from the top of the braced wall panel to the top of the rafters or roof trusses is 15.25 inches (387 mm) or less, blocking between rafters or roof trusses shall be provided above the braced wall panel in accordance with Figure R602.10.8.1(1).~~

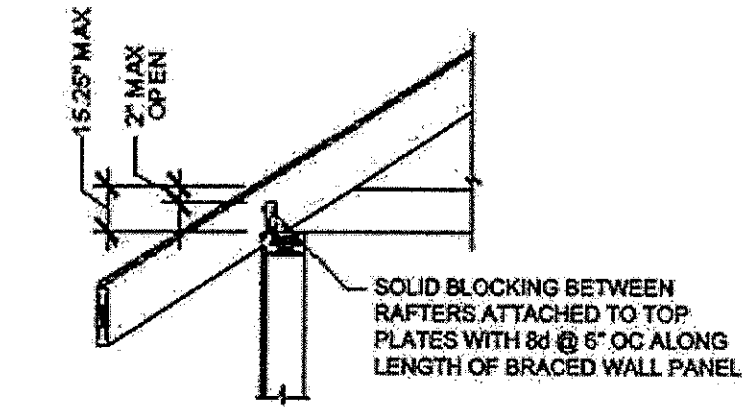
~~3. Where the distance from the top of the braced wall panel to the top of the rafters or roof trusses exceeds 15.25 inches (387 mm), the top plate of the braced wall panel shall be connected to perpendicular rafters or roof trusses above in accordance with one or more of the following methods:~~

~~3.1. Soffit blocking panels constructed per Figure R602.10.8.1(2).~~

~~3.2. Vertical blocking panels constructed per Figure R602.10.8.1(3).~~

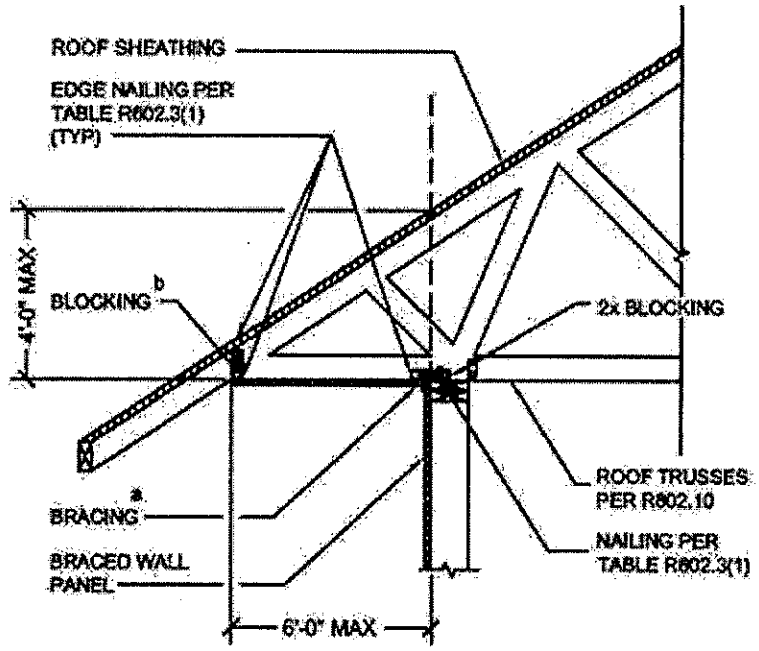
~~3.3. Full height engineered blocking panels designed per the AF&PA WFCM.~~

~~3.4. Blocking, blocking panels, or other methods of lateral load transfer designed in accordance with accepted engineering practice.~~



For SI: 1 inch=25.4 mm

FIGURE R602.10.8.1(1)
BRACED WALL PANEL CONNECTION TO PERPENDICULAR ROOF FRAMING



For SI: 1 inch = 25.4 mm
a. Methods of bracing shall be as described in Section R602.10.4.
b. Provide ventilation (not shown) per Section R806.

FIGURE R602.10.8.1(2)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR ROOF FRAMING - SOFFIT BLOCKING PANELS

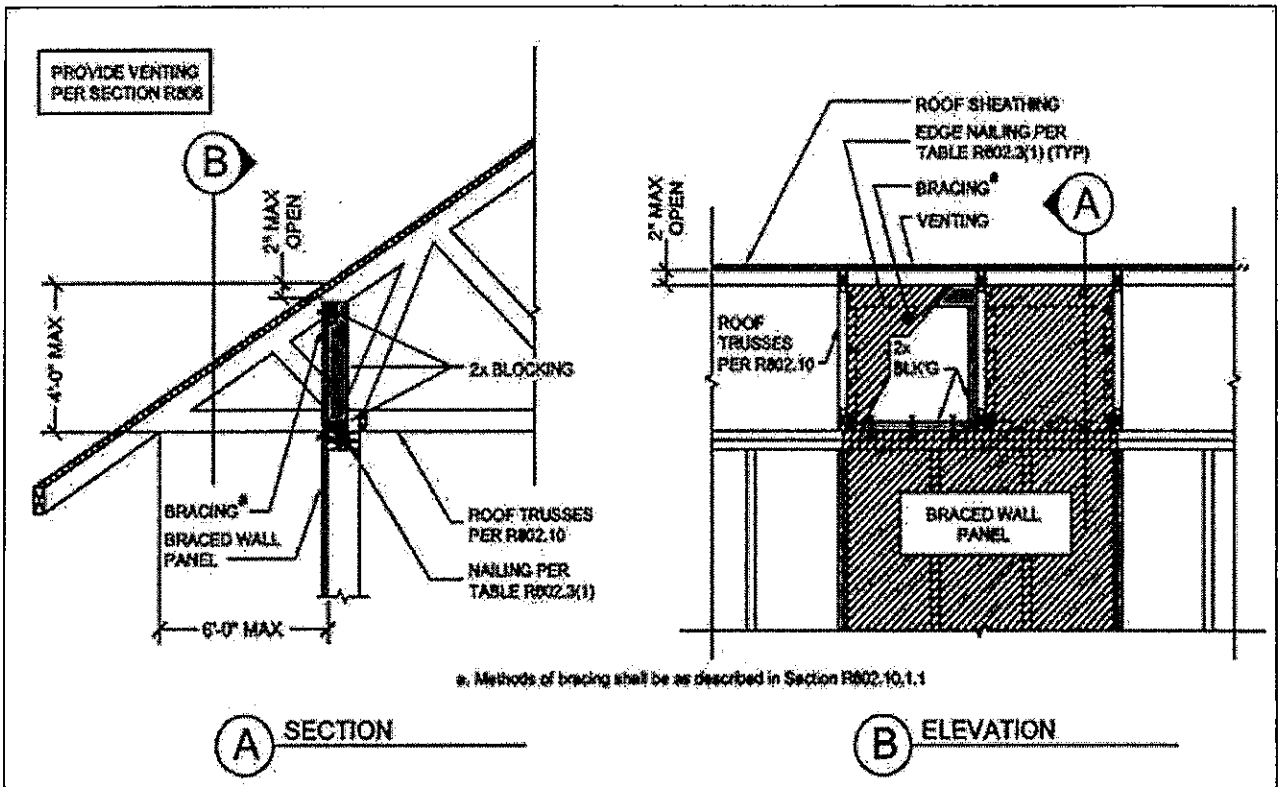


FIGURE R602.10.8.1(3)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR ROOF FRAMING - VERTICAL BLOCKING PANELS

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

~~1. Cantilevered floor joists complying with Section R502.3.3 shall be permitted to support braced wall panels.~~

~~2. Elevated post or pier foundations supporting braced wall panels shall be designed in accordance with accepted engineering practice.~~

~~3. Masonry stem walls less than 48 inches (1220 mm) in length that support braced wall panels shall be reinforced in accordance with Figure R602.10.9. Masonry stem walls with a length greater than or equal to 48 inches (1220 mm) supporting braced wall panels shall be constructed in accordance with Section R403.1 Methods ABW and PFH shall not be permitted to attach to masonry stem walls.~~

~~4. Concrete stem walls less than 48 inches (1220 mm) in length, greater than 12 inches (305 mm) tall and less than six inches (152 mm) thick shall have reinforcement sized and located in accordance with Figure R602.10.9.~~

~~Exception: As an alternative to the Optional Stem Wall Reinforcement in Fig. R602.10.9, an approved post installed adhesive anchoring system shall be permitted. A minimum of two anchors shall be installed as indicated in Figure R602.10.9. Anchors shall be located not more than four inches (102 mm) from each end of the stem wall. Anchors shall be installed into the concrete footing as follows:~~

~~1. 5/8 inch (16 mm) threaded rod - 3/4 inch (19 mm) diameter hole with a minimum embedment of six inches (152 mm).~~

~~2. No. 4 reinforcing bar - 5/8 inch (16 mm) diameter hole with a minimum embedment of 4 1/2 inches (114 mm).~~

~~A minimum footing thickness of eight inches (203 mm) is required and the minimum distance from each anchor to the edge of the footing shall be 3 3/4 (95 mm).~~

~~The anchoring adhesive and anchors shall be installed in accordance with the manufactures instructions and have a minimum tensile capacity of 5,000 lbs (22 kN).~~

~~The reinforcement of the masonry stem wall and attachment of the braced wall panel to the stem wall shall be as shown in Figure R602.10.9.~~

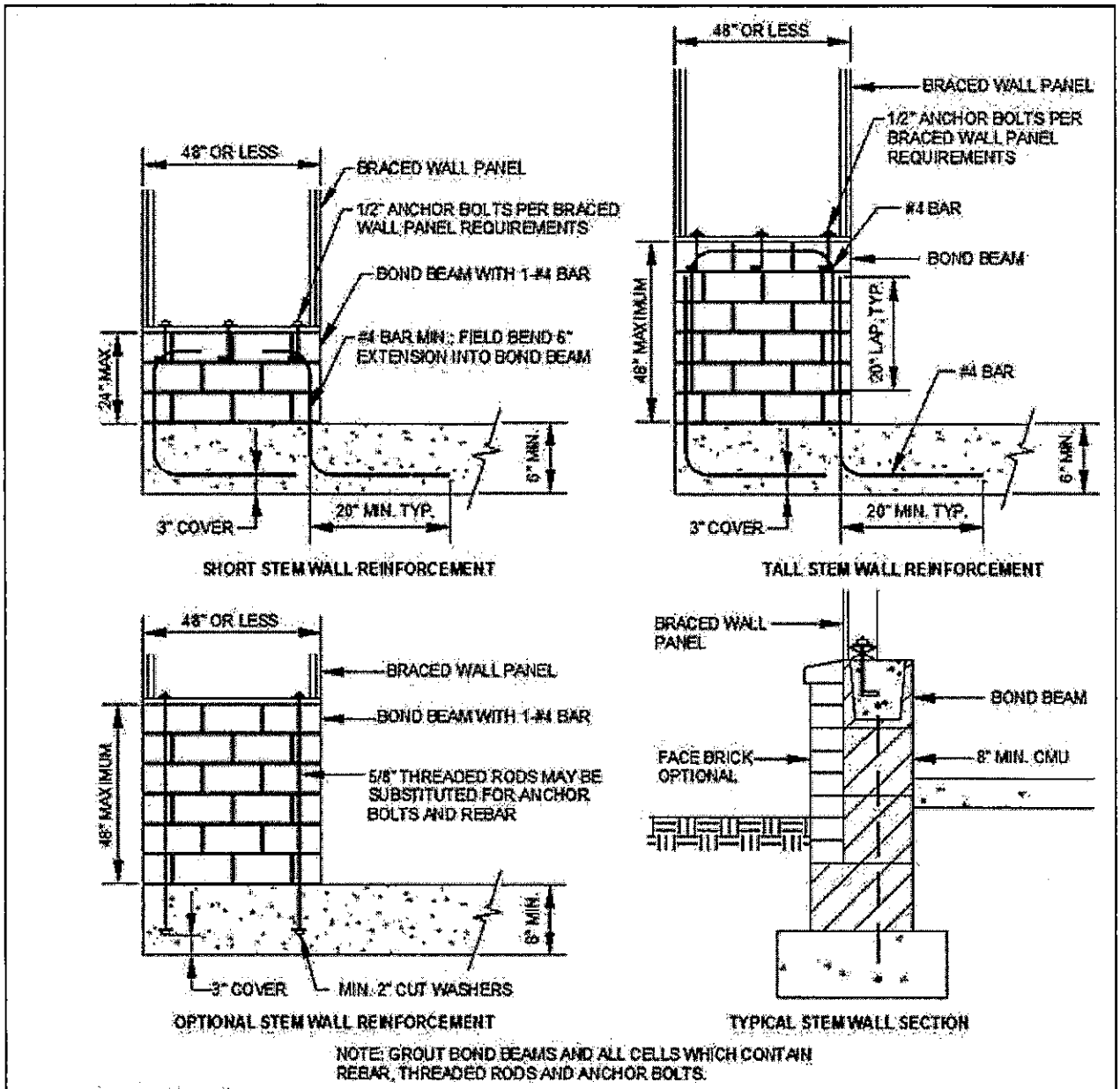


FIGURE R602.10.9
MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS

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

~~Exceptions:~~

~~1. Vertical joints of panel sheathing shall be permitted to occur over double studs where adjoining panel edges are attached to separate studs with the required panel edge fastening schedule and the adjacent studs are attached together with two rows of 10d box nails (3 inches long x 0.128 inch diameter) at 10 inches (254 mm) o.c.~~

~~2. Blocking at horizontal joints shall not be required in wall segments that are not counted as braced wall panels.~~

~~3. Where the length of bracing provided is at least twice the required length of bracing from Tables R602.10.3(1) and R602.10.3(3) blocking at horizontal joints shall not be required in braced wall panels constructed using Methods WSP, SFB, GB, PBS or HPS.~~

~~4. When Method GB panels are installed horizontally, blocking of horizontal joints is not required.~~

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

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

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

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

~~50. Change Section R602.11.1 to read:~~

~~602.11.1 Wall anchorage for townhouses in Seismic Design Category C. Plate washers, a minimum of 0.229 inch by 3 inches by 3 inches (5.8 mm by 76 mm by 76 mm) in size, shall be provided between the foundation sill plate and the nut except where approved anchor straps are used. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (5 mm) larger than the bolt diameter and a slot length not to exceed 1 3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and the nut.~~

~~51. Delete Section R602.11.2.~~

~~52.~~ 43. Replace Section R602.12, including all subsections, with the following:

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

~~1. There shall be no more than two stories above the top of a concrete or masonry foundation or basement wall. Permanent wood foundations shall not be permitted.~~

~~2. Floors shall not cantilever more than 24 inches (607 mm) beyond the foundation or bearing wall below.~~

~~3. Wall height shall not be greater than 10 feet (2743 mm).~~

~~4. The building shall have a roof eave to ridge height of 15 feet (4572 mm) or less.~~

~~5. All exterior walls shall have gypsum board with a minimum thickness of 1/2 inch (12.7 mm) installed on the interior side fastened in accordance with Table R702.3.5.~~

~~6. The structure shall be located where the basic wind speed is less than or equal to 90 mph (40 m/s) and the Exposure Category is A or B.~~

~~7. The structure shall be located in Seismic Design Category of A, B or C for detached one family and two family dwellings or Seismic Design Category A or B for townhouses.~~

~~8. Cripple walls shall not be permitted in two story buildings.~~

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

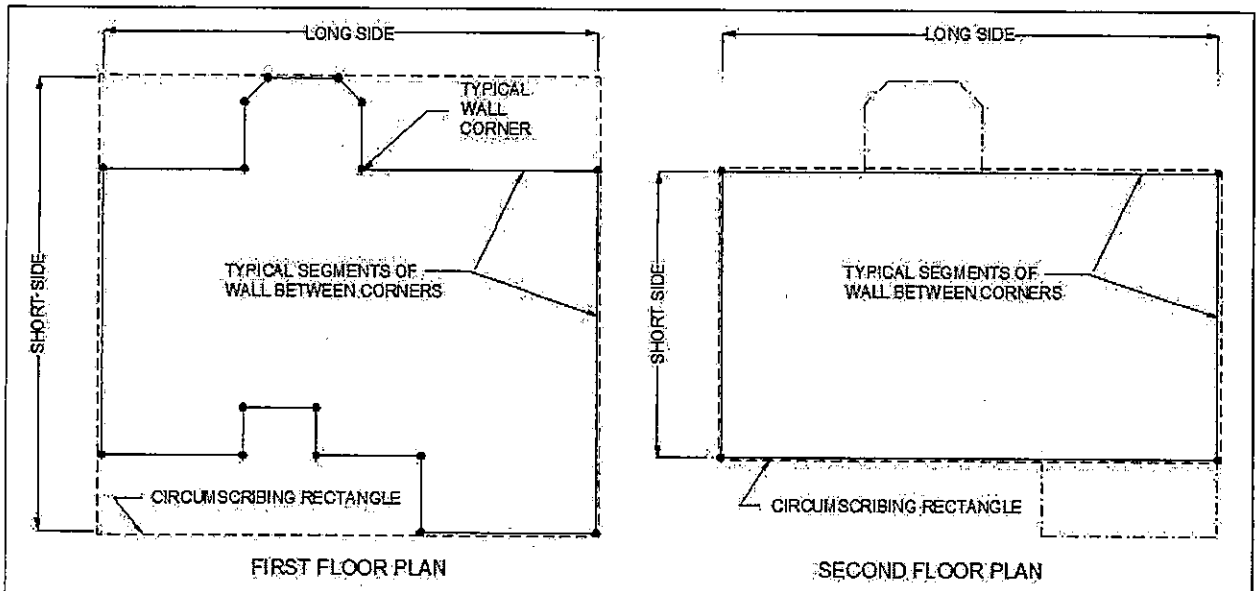


FIGURE R602.10.12.1
RECTANGLE CIRCUMSCRIBING AN ENCLOSED BUILDING

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

~~1. Wood structural panels with a minimum thickness of 3/8 inch (9.5 mm) fastened in accordance with Table R602.3(3).~~

~~2. Structural fiberboard sheathing with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R602.3(1).~~

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

~~1. Where all framed portions of all exterior walls are sheathed in accordance with Section R602.12.2, including wall areas between bracing units, above and below openings and on gable end walls, the minimum length of a bracing unit shall be three feet (914 mm).~~

~~2. Where the exterior walls are braced with sheathing panels in accordance with Section R602.12.2 and areas between bracing units are covered with other materials, the minimum length of a bracing unit shall be four feet (1219 mm).~~

~~R602.12.3.1 Multiple bracing units. Segments of wall compliant with Section R602.12.3 and longer than the minimum bracing unit length shall be considered as multiple bracing units. The number of bracing units shall be determined by dividing the wall segment length by the minimum bracing unit length. Full height sheathed segments of wall narrower than the minimum bracing unit length shall not contribute toward a bracing unit except as specified in Section R602.12.6.~~

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

~~Table R602.12.4~~
~~Minimum Number of Bracing Units on Each Side of the Circumscribed Rectangle~~

~~Story Level~~	~~Eave to ridge height (feet)~~	~~Minimum number of bracing units on each long side[a,b]~~						~~Minimum number of bracing units on each short side[a,b]~~					
		~~Length of short side (ft)[c]~~						~~Length of long side (ft)[c]~~					
		~~10~~	~~20~~	~~30~~	~~40~~	~~50~~	~~60~~	~~10~~	~~20~~	~~30~~	~~40~~	~~50~~	~~60~~

	10	1	2	2	2	3	3	1	2	2	2	3	3
		2	3	3	4	5	6	2	3	3	4	5	6
	15	1	2	3	3	4	4	1	2	3	3	4	4
		2	3	4	5	6	7	2	3	4	5	6	7

For SI: 1 ft=304.8 mm

[a]Interpolation shall not be permitted.

[b]Cripple walls or wood framed basement walls in a walk-out condition of a one-story structure shall be designed as the first floor of a two-story house.

[c]Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.

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

1. A bracing unit shall begin no more than 12 feet (3658 mm) from any wall corner.

2. The distance between adjacent edges of bracing units shall be no greater than 20 feet (6096 mm).

3. Segments of wall greater than eight feet (2438 mm) in length shall have a minimum of one bracing unit.

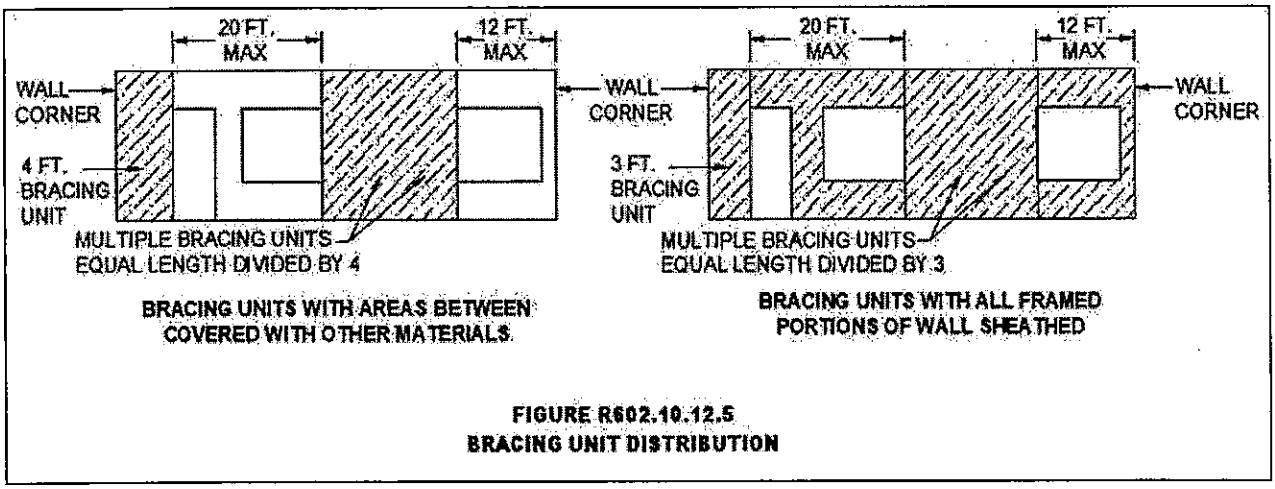


FIGURE R602.10.12.5
BRACING UNIT DISTRIBUTION

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

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

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

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

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

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

R602.12 Practical wall bracing. All buildings in Seismic Design Categories A and B and detached buildings in Seismic Design Category C shall be permitted to be braced in accordance with this section as an alternative to the requirements of Section R602.10. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1. The use of other bracing provisions of Section R602.10, except as specified herein, shall not be permitted.

The building official shall be permitted to require the permit applicant to identify bracing on the construction documents and provide associated analysis. The building official shall be permitted to waive the analysis of the upper floors where the cumulative length of wall openings of each upper floor wall is less than or equal to the length of the openings of the wall directly below.

R602.12.1 Sheathing materials. The following materials shall be permitted for use as sheathing for wall bracing. Exterior walls shall be sheathed on all sheathable surfaces, including infill areas between bracing locations, above and below wall openings, and on gable end walls.

1. Wood structural panels with a minimum thickness of 7/16 inch (9.5 mm) fastened in accordance with Table R602.3(3).

2. Structural fiberboard sheathing with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R602.3(1).

3. Gypsum board with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R702.3.5 on interior walls only.

R602.12.2 Braced wall panels. Braced wall panels shall be full-height wall sections sheathed with the materials listed in Section R602.12.1 and complying with the following:

1. Exterior braced wall panels shall have a minimum length based on the height of the adjacent opening as specified in Table R602.12.2. Panels with openings on both sides of differing heights shall be governed by the taller opening when determining panel length.

2. Interior braced wall panels shall have a minimum length of 48 inches (1220 mm) when sheathing material is applied to one side. Doubled-sided applications shall be permitted to be considered two braced wall panels.

3. Braced wall panels shall be permitted to be constructed of Methods ABW, PFH, PFG, and CS-PF in accordance with Section R602.10.4.

4. Exterior braced wall panels, other than the methods listed in Item 3 above shall have a finish material installed on the interior. The finish material shall consist of 1/2 inch (12.7 mm) gypsum board or equivalent and shall be permitted to be omitted where the required length of bracing, as determined in Section R602.12.4, is multiplied by 1.40, unless otherwise required by Section R302.6.

5. Vertical sheathing joints shall occur over and be fastened to common studs.

6. Horizontal sheathing joints shall be edge nailed to 1-1/2 inch (38 mm) minimum thick common blocking.

Table R602.12.2
Braced Wall Panel Lengths[a]

Adjacent opening or clear opening height (inches)	Minimum Panel Length (inches)				
	Wall Height (feet)				
	8	9	10	11	12
Garage door opening[b]	24	27	30	33	36

≤ 64	24	27	30	33	36
≤ 72	27	27	30	33	36
≤ 80	30	30	30	33	36
> 80	36	36	36	40	40

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

a. Interpolation shall be permitted for openings greater than 64 inches (1626 mm) and less than 80 inches (2032 mm); extrapolation shall be prohibited.

b. Braced wall panels of a one-story garage located on each side of the garage door opening and supporting a gable end wall or roof load only.

R602.12.3 Circumscribed rectangle. Required length of bracing shall be determined by circumscribing one or more rectangles around the entire building or portions thereof as shown in Figure R602.12.3. Rectangles shall surround all enclosed offsets and projections such as sunrooms and attached garages. Chimneys, partial height projections, and open structures, such as carports and decks, shall be excluded from the rectangle. Each rectangle shall have no side greater than 80 feet (24 384 mm) with a maximum 3:1 ratio between the long and short side. Rectangles shall be permitted to be skewed to accommodate angled projections as shown in Figure R602.12.4.3.

Editor's Note - Figures R602.12.3, R602.12.4.1, R602.12.4.1, R602.12.4.3, and R602.12.6 in this section shown below this note are new text.

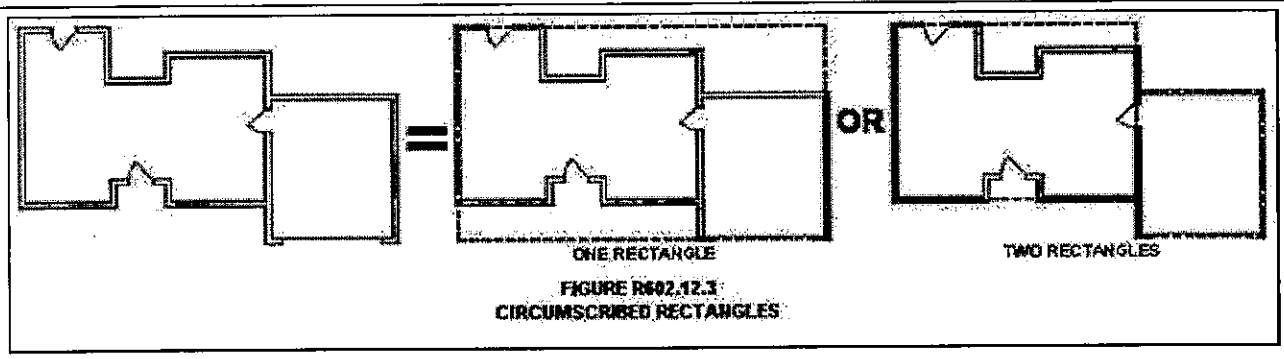


FIGURE R602.12.3
CIRCUMSCRIBED RECTANGLES

R602.12.3.1 Townhouses. Rectangles shall be circumscribed around individual townhouses.

R602.12.4 Required length of bracing. The required length of bracing for each side of a circumscribed rectangle shall be determined using Table R602.12.4. Where multiple rectangles share a common side or sides, the required length of bracing shall equal the sum of the required lengths from all shared rectangle sides.

Table R602.12.4
Required Length of Bracing Along Each Side of a Circumscribed Rectangle[a,b,c,d]

Wind Speed	Eave-to-Ridge Height (feet)	Number of Floor Levels Above[e,f]	Required Length of Bracing on Front/Rear Side (feet)								Required Length of Bracing on Left/Right Side (feet)							
			Length of Left/Right Side (feet)								Length of Front/Rear Side (feet)							
			10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80
90	10	0	2.0	3.5	5.0	6.0	7.5	9.0	10.5	12.0	2.0	3.5	5.0	6.0	7.5	9.0	10.5	12.0
		1	3.5	6.5	9.0	12.0	14.5	17.0	19.8	22.6	3.5	6.5	9.0	12.0	14.5	17.0	19.8	22.6
		2	5.0	9.5	13.5	17.5	21.5	25.0	29.2	33.4	5.0	9.5	13.5	17.5	21.5	25.0	29.2	33.4
	15	0	2.6	4.6	6.5	7.8	9.8	11.7	13.7	15.7	2.6	4.6	6.5	7.8	9.8	11.7	13.7	15.7
		1	4.0	7.5	10.4	13.8	16.7	19.6	22.9	26.2	4.0	7.5	10.4	13.8	16.7	19.6	22.9	26.2

		2	5.5	10.5	14.9	19.3	23.7	27.5	32.1	36.7	5.5	10.5	14.9	19.3	23.7	27.5	32.1	36.7
	20	0	2.9	5.2	7.3	8.8	11.1	13.2	15.4	17.6	2.9	5.2	7.3	8.8	11.1	13.2	15.4	17.6
		1	4.5	8.5	11.8	15.6	18.9	22.1	25.8	29.5	4.5	8.5	11.8	15.6	18.9	22.1	25.8	29.5
		2	6.2	11.9	16.8	21.8	27.3	31.1	36.3	41.5	6.2	11.9	16.8	21.8	27.3	31.1	36.3	41.5
100	10	0	2.5	4.0	6.0	7.5	9.5	11.0	12.8	14.6	2.5	4.0	6.0	7.5	9.5	11.0	12.8	14.6
		1	4.5	8.0	11.0	14.5	18.0	21.0	24.5	28.0	4.5	8.0	11.0	14.5	18.0	21.0	24.5	28.0
		2	6.0	11.5	16.5	21.5	26.5	31.0	36.2	41.4	6.0	11.5	16.5	21.5	26.5	31.0	36.2	41.4
	15	0	3.4	5.2	7.8	9.8	12.4	14.3	16.7	19.1	3.4	5.2	7.8	9.8	12.4	14.3	16.7	19.1
		1	5.2	9.2	12.7	16.7	20.7	24.2	28.2	32.2	5.2	9.2	12.7	16.7	20.7	24.2	28.2	32.2
		2	6.6	12.7	18.2	23.7	29.2	34.1	39.8	45.5	6.6	12.7	18.2	23.7	29.2	34.1	39.8	45.5
	20	0	3.8	5.9	8.8	11.1	14.0	16.2	18.9	21.6	3.8	5.9	8.8	11.1	14.0	16.2	18.9	21.6
		1	5.9	10.4	14.4	18.9	23.4	27.3	31.8	36.3	5.9	10.4	14.4	18.9	23.4	27.3	31.8	36.3
		2	7.5	14.4	20.6	26.8	33.0	38.5	44.9	51.3	7.5	14.4	20.6	26.8	33.0	38.5	44.9	51.3

For SI: 1 ft = 304.8 mm.

a. Interpolation shall be permitted; extrapolation shall be prohibited.

b. For Exposure Category C, multiply the required length of bracing by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building.

c. For wall height adjustments multiply the required length of bracing by the following factors: 0.90 for 8 feet (2438 mm), 0.95 for 9 feet (2743 mm), 1.0 for 10 feet (3048 mm), 1.05 for 11 feet (3353 mm), and 1.10 for 12 feet (3658 mm).

d. Where braced wall panels have been sheathed in wood structural panels with edge fasteners spaced at 4 inches (102 mm) on center, multiply the required length of bracing by 0.83.

e. A floor level, habitable or otherwise, contained wholly within the roof rafters or trusses shall not be considered a floor level for purposes of determining the required length of bracing.

f. A rectangle side with differing number of floor levels above shall use the greatest number when determining the required length of bracing.

R602.12.4.1 Braced wall panel assignment to rectangle sides. Braced wall panels shall be assigned to the applicable rectangle side and contribute to its required length of bracing. Panels shall be assigned as specified below and as shown in Figure R602.12.4.1.

1. Exterior braced wall panels shall be assigned to the parallel rectangle side on which they are located or in which they face.

2. Interior braced wall panels shall be assigned to the parallel rectangle side on which they are located or in which they face up to 4 feet (1220 mm) away. Interior braced wall panels more than 4 feet (1220 mm) away from a parallel rectangle side shall not contribute.

3. The projections of angled braced wall panels shall be assigned to the adjacent rectangle sides.

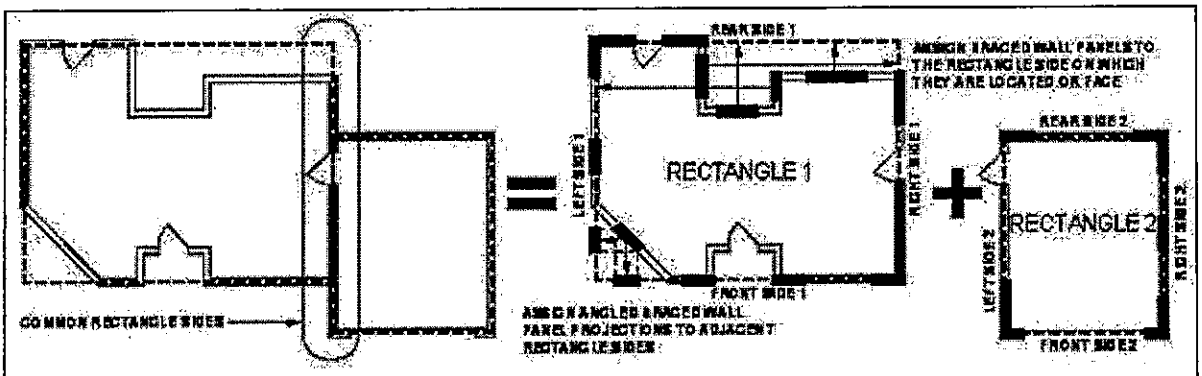


FIGURE R602.12.4.1
BRACED WALL PANEL ASSIGNMENT TO RECTANGLE SIDES

R602.12.4.2 Contributing length. The cumulative contributing length of braced wall panels assigned to a rectangle side shall be greater than or equal to the required length of bracing as determined in Section R602.12.4. The contributing length of a braced wall panel shall be as specified below. When applying contributing length to angled braced wall panels, apply the requirements below to each projection:

1. Exterior braced wall panels shall contribute their actual length.

2. Interior braced wall panels shall contribute one-half of their actual length.

3. The contributing length of Methods ABW, PFH, PFG, and CS-PF shall be in accordance with Table R602.10.5.

R602.12.4.3 Common sides with skewed rectangles. Braced wall panels located on a common wall where skewed rectangles intersect, as shown in Figure R602.12.4.3, shall be permitted to be assigned to the parallel rectangle side, and their projections shall be permitted to be assigned to the adjacent skewed rectangle sides.

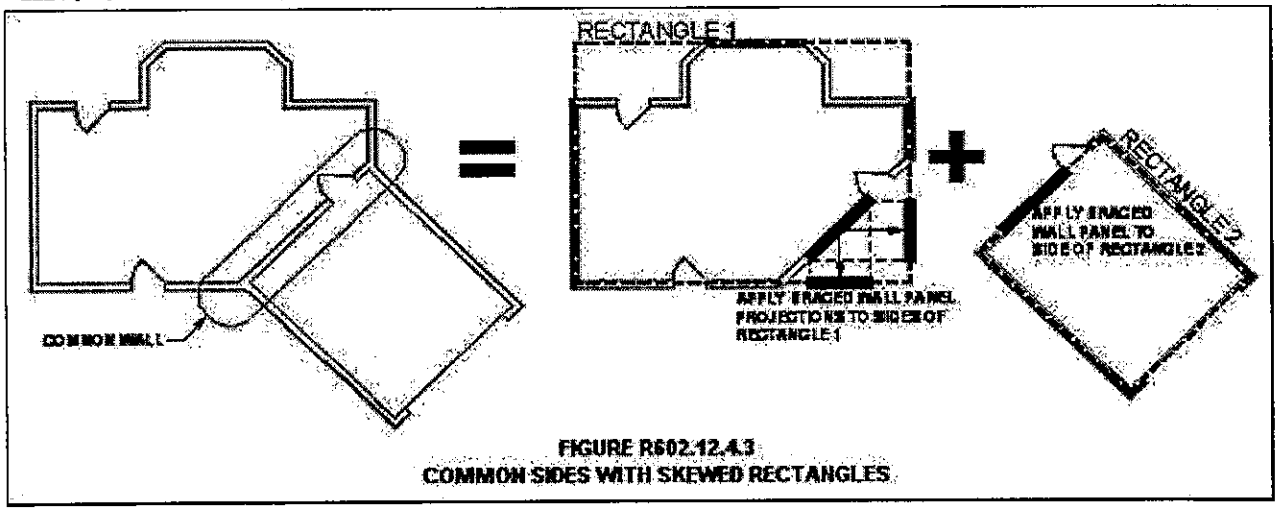


FIGURE R602.12.4.3
COMMON SIDES WITH SKEWED RECTANGLES

R602.12.5 Cripple walls and framed walls of walk-out basements. For rectangle sides with cripple walls having a maximum height of 48 inches (1220 mm), the required length of bracing shall be as determined in Section R602.12.4. For rectangle sides with cripple walls having a height greater than 48 inches (1220 mm) at any location or framed walls of a walk-out basement, the required length of bracing shall be determined using Table R602.12.4. Braced wall panels within cripple walls and walls of walk-out basements shall comply with Item 4 of Section R602.12.2.

R602.12.6 Distribution of braced wall panels. Braced wall panels shall be distributed in accordance with the following requirements as shown in Figure R602.12.6.

1. The edge of a braced wall panel shall be no more than 12 feet (3658 mm) from any building corner or rectangle corner.

2. The distance between adjacent edges of braced wall panels shall be no more than 20 feet (6096 mm).

3. Segments of exterior walls greater than 8 feet (2438 mm) in length shall have a minimum of one braced wall panel.

4. Segments of exterior wall 8 feet (2438 mm) or less in length shall be permitted to have no braced wall panels.

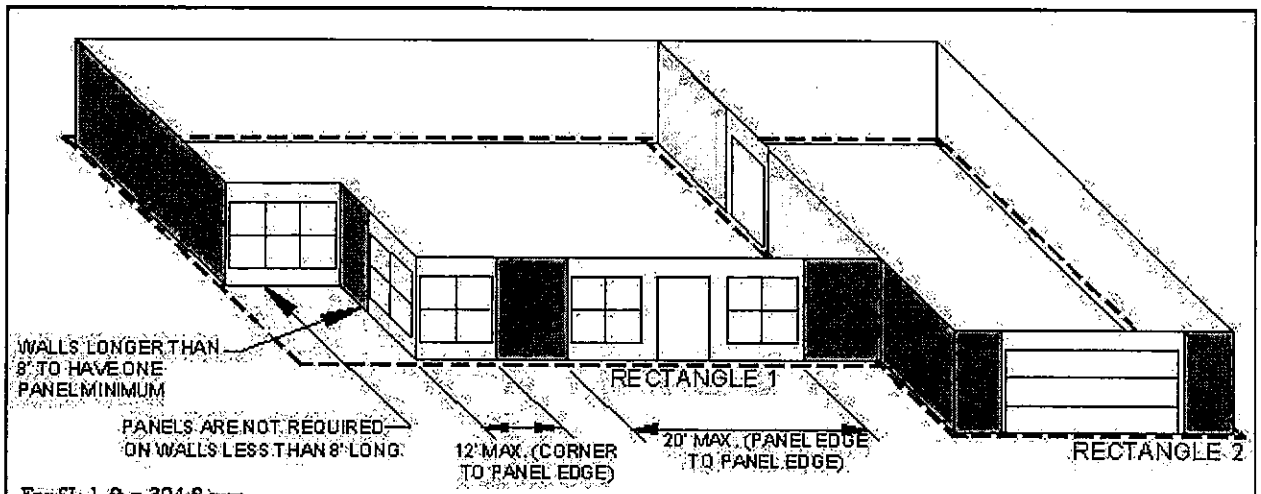


FIGURE R602.12.6
PANEL DISTRIBUTION

R602.12.6.1 Panels adjacent to balloon framed walls. Braced wall panels shall be placed on each side of each story adjacent to balloon framed walls designed in accordance with Section R602.3 with a maximum height of two stories.

R602.12.7 Braced wall panel connection. Braced wall panels shall be connected to other structural elements in accordance with Section R602.10.8.

R602.12.8 Braced wall panel support. Braced wall panels shall be supported in accordance with Section R602.10.9.

~~53. Change Section R612.2 to read:~~

~~R612.2 Window sills. In dwelling units, where the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 18 inches (457 mm) above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4 inch diameter (102 mm) sphere where such openings are located within 18 inches (457 mm) of the finished floor.~~

~~Exceptions:~~

~~1. Windows whose openings will not allow a 4 inch diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.~~

~~2. Openings that are provided with window fall prevention devices that comply with Section R612.3.~~

~~3. Openings that are provided with fall protection devices that comply with ASTM F 2090.~~

~~4. Windows that are provided with opening limiting devices that comply with Section R612.4.~~

~~54. Change Section R703.7 to read:~~

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

~~Exceptions:~~

~~1. For all buildings in Seismic Design Categories A, B and C, exterior stone or masonry veneer, as specified in Table R703.7(1), with a backing of wood or steel framing shall be permitted to the height specified in Table R703.7(1) above a noncombustible foundation.~~

~~2. For detached one family or two family dwellings in Seismic Design Categories D_0, D_1 and D_2, exterior stone or masonry veneer, as specified in Table R703.7(2), with a backing of wood framing shall be permitted to the height specified in Table R703.7(2) above a noncombustible foundation.~~

~~55. Delete the reference to footnote "f" and the footnote itself in Figure R802.11.~~

44. Change Section R807.1 to read:

R807.1 Attic access. Buildings with combustible ceiling or roof construction shall have an attic access opening to attic areas 30 square feet (2.8 m^2) or larger having a vertical height of not less than 30 inches (762 mm). The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

The rough-framed opening shall not be less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other readily accessible location. When located in a wall, the opening shall be a minimum of 22 inches wide by 30 inches high (559 mm wide by 762 mm high). When the access is located in a ceiling, minimum unobstructed headroom in the attic space shall be 30 inches (762 mm) at some point above the access measured vertically from the bottom of ceiling framing members. See Section M1305.1.3 for access requirements where mechanical equipment is located in attics.

45. Delete Section R905.2.8.5.

46. Change Section R1001.8 to read:

R1001.8 Smoke chamber. Smoke chamber walls shall be constructed of solid masonry units, hollow masonry units grouted solid, stone, or concrete. The total minimum thickness of front, back, and side walls shall be 8 inches (203 mm) of solid masonry. When the inside surface of the smoke chamber is formed by corbelled masonry, the inside surface shall be parged smooth. When a lining of firebrick at least 2 inches (51 mm) thick, or a lining of vitrified clay at least 5/8 inch (16 mm) thick, is provided, the total minimum thickness of front, back, and side walls shall be 6 inches (152 mm) of solid masonry, including the lining. Firebrick shall conform to ASTM C 1261 and shall be laid with medium duty refractory mortar conforming to ASTM C 199. Vitrified clay linings shall conform to ASTM C 315.

~~56.~~ 47. Delete Section ~~N1101.9~~ N1101.16 (R401.16).

48. Change the ceiling R-value and wood frame wall R-value categories for climate zone "4 except Marine" in Table N1102.1.1 (R402.1.1) to read:

Ceiling R-Value	Wood Frame Wall R-Value
38	15 or 13 + 1[h]

49. Change the ceiling U-factor and frame wall U-factor categories for climate zone "4 except Marine" in Table N1102.1.3 (R402.1.3) to read:

Ceiling U-Factor	Frame Wall U-Factor
0.030	0.079

50. Change Sections N1102.2.1 (R402.2.1) and N1102.2.4 (R402.2.4) to read:

N1102.2.1 (R402.2.1) Ceilings with attic spaces. When Section N1102.1.1 would require R-38 in the ceiling, installing R-30 over 100% of the ceiling area shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Similarly, when Section N1102.1.1 would require R-49 in the ceiling, installing R-38 over 100% of the ceiling area shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the U-factor alternative approach in Section N1102.1.3 and the total UA alternative in Section N1102.1.4.

N1102.2.4 (R402.2.4) Access hatches and doors. Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated in accordance with the following values:

1. Hinged vertical doors shall have a minimum overall R-5 insulation value;

2. Hatches and scuttle hole covers shall be insulated to a level equivalent to the insulation on the surrounding surfaces; and

3. Pull down stairs shall have a minimum of 75% of the panel area having R-5 rigid insulation.

Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose fill insulation.

51. Delete Section N1102.3.6 (R402.3.6) and change Sections N1102.4 (R402.4) and N1102.4.1.1 (R402.4.1.1) to read:

N1102.4 (R402.4) Air leakage. The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections N1102.4.1 through N1102.4.4.

N1102.4.1.1 (R402.4.1.1) Installation (Mandatory). The components of the building thermal envelope as listed in Table N1102.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table N1102.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

52. Change the title of the "Criteria" category of Table N1102.4.1.1 (R402.4.1.1); change the "Walls," "Shower/tub on exterior wall," and "Fireplace" categories of Table N1102.4.1.1 (R402.4.1.1), and add footnotes "b" and "c" to Table N1102.4.1.1 (R402.4.1.1) to read:

Component	Criteria[a,b]
Walls	Cavities within corners and headers shall be insulated by completely filling the cavity with a material having a minimum thermal resistance of R-3 per inch.

	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.
Shower/tub on exterior wall[c]	Exterior walls adjacent to showers and tubs shall be insulated, and an air barrier shall be installed on the interior side of the exterior wall, adjacent to the shower or tub.
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors or tight-fitting flue dampers.

b. Structural integrity of headers shall be in accordance with the applicable building code.

c. Air barriers used behind showers and tubs on exterior walls shall be of a permeable material that does not cause the entrapment of moisture in the stud cavity.

53. Change Section N1102.4.1.2 (R402.4.1.2) and add Sections N1102.4.1.2.1 (R402.4.1.2.1), N1102.4.1.2.2 (R402.4.1.2.2), and N1102.4.1.3 (R402.4.1.3) to read:

N1102.4.1.2 (R402.4.1.2) Air sealing. Building envelope air tightness shall be demonstrated to comply with either Section N1102.4.1.2.1 or N1102.4.1.2.2.

N1102.4.1.2.1 (R402.4.1.2.1) Testing option. The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches water gauge (w.g.) (50 Pascals (Pa)). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;

2. Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;

3. Interior doors, if installed at the time of the test, shall be open;

4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;

5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and

6. Supply and return registers, if installed at the time of the test, shall be fully open.

N1102.4.1.2.2 (R402.4.1.2.2) Visual inspection option. Building envelope tightness shall be considered acceptable when the items listed in Table N1102.4.1.1, applicable to the method of construction, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier.

N1102.4.1.3 (R402.4.1.3) Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate not exceeding 5 changes per hour as verified in accordance with Section N1102.4.1.2.

54. Change Section N1103.1.1 (R403.1.1) to read:

N1103.1.1 (R403.1.1) Programmable thermostat. The thermostat controlling the primary heating or cooling system of the dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C).

~~57.~~ 55. Change Section N1103.2.2 (R403.2.2) to read:

N1103.2.2 (R403.2.2) Sealing (Mandatory). ~~All ducts~~ Ducts, air handlers, and filter boxes ~~and building cavities used as ducts~~ shall be sealed. Joints and seams shall comply with Section M1601.4.1 of the ~~International Residential Code~~ this code. Verification of compliance with this section shall be in accordance with either Section N1103.2.2.1 or ~~Section~~ N1103.2.2.2.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.

2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

~~58. Add~~ 56. Change Section N1103.2.2.1 (R403.2.2.1) to read:

N1103.2.2.1 (R403.2.2.1) Testing option. Duct tightness shall be verified by either of the following:

1. Post-construction test: ~~Leakage to outdoors~~ Total leakage shall be less than or equal to ~~eight~~ 6 cfm ~~(3.78 L/s)~~ (169.9 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area ~~or a total leakage less than or equal to 12 cfm (5.66 L/s) per 100 ft² (9.29m²) of conditioned floor area~~ when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler ~~end closure~~ enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Rough-in test: Total leakage shall be less than or equal to ~~six~~ 5 cfm ~~(2.83 L/s)~~ (141.5 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the ~~roughed in~~ system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 5 cfm ~~(1.89 L/s)~~ (141.5 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area.

Exception: ~~Duct tightness~~ The total leakage test is not required ~~if the~~ for ducts and air ~~handler and all ducts are~~ handlers located entirely within ~~conditioned space~~ the building thermal envelope.

When this option is chosen, testing shall be performed by approved qualified individuals, testing agencies or contractors. Testing and results shall be as prescribed in Section N1103.2.2 and approved recognized industry standards.

~~59.~~ 57. Add Section N1103.2.2.2 (R403.2.2.2) to read:

N1103.2.2.2 (R403.2.2.2) Visual inspection option. In addition to the inspection of ducts otherwise required by this code, when the air handler and all ducts are not within conditioned space and this option is chosen to verify duct tightness, duct tightness shall be considered acceptable when the requirements of Section N1103.2.2 are field verified.

58. Add Section N1103.2.2.3 (R403.2.2.3) to read:

N1103.2.2.3 (R403.2.2.1) Sealed air handler. Air handlers shall have a manufacturer's designation for an air leakage of no more than 2.0% of the design air flow rate when tested in accordance with ASHRAE 193.

59. Change Section N1103.4.2 (R403.4.2) to read:

N1103.4.2 (R403.4.2) Hot water pipe insulation (Prescriptive). Insulation for hot water pipe with a minimum thermal resistance (R-value) of R-3 shall be applied to the following:

1. Piping larger than 3/4 inch nominal diameter.

2. Piping serving more than one dwelling unit.

3. Piping located outside the conditioned space.

4. Piping from the water heater to a distribution manifold.

5. Piping located under a floor slab.

6. Buried piping.

7. Supply and return piping in recirculation systems other than demand recirculation systems.

60. Delete Table N1103.4.2 (R403.4.2).

61. Change Section N1104.1 (R404.1) to read:

N1104.1 (R404.1) Lighting equipment (Mandatory). A minimum of 50% of the lamps in permanently installed luminaires shall be high-efficacy lamps, or a minimum of 50% of the permanently installed luminaires shall contain only high-efficacy lamps.

Exception: Low-voltage lighting shall not be required to utilize high-efficiency lamps.

62. Change the "Glazing" and "Air exchange rate" categories of Table N1105.5.2(1) (Table R405.5.2(1)) and add footnote "b-1" to read:

Building Component	Standard Reference Design	Proposed Design
Glazing[a]	Total area[b] is 15% of the conditioned floor area.	As proposed
Glazing[a]	Orientation: equally distributed to four cardinal compass orientations (North, East, South & West).	As proposed
Glazing[a]	U-factor: from Table R402.1.3.	As proposed
Glazing[a]	SHGC: From Table R402.1.1 except that for climates with no requirement (NR) SHGC = 0.40 shall be used.	As proposed
Glazing[a]	Interior shade fraction: Summer (all hours when cooling is required) = 0.70. Winter (all hours when heating is required) = 0.85[b-1].	Same as standard referenced design[b-1]

Glazing[a]	External shading: none.	As proposed
Air exchange rate	Air leakage rate of 5 air changes per hour at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA + 7.5 \times (N_{br} + 1)$ where: CFA = conditioned floor area N_{br} = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate[c]. The mechanical ventilation rate[d] shall be in addition to the air leakage rate and shall be as proposed.
b-1. For fenestrations facing within 15 degrees (0.26 rad) of true south that are directly coupled to thermal storage mass, the winter interior shade fraction shall be permitted to be increased to .095 in the proposed design.		

~~60. Change Section M1502.4.4.1 to read:~~

~~M1502.4.4.1 Specified length. The maximum length of the exhaust duct shall be 35 feet (10 668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.4.1.~~

~~61.~~ 63. Add Section M1801.1.1 to read:

M1801.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with this code.

2. Vent or chimney systems are clean, free of any obstruction or blockages, defects or deterioration and are in operable condition.

Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

~~62.~~ 64. Add Section G2425.1.1 to read:

G2425.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with this code.

2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration and are in operable condition.

Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

~~63.~~ 65. Change Section P2601.2 to read:

P2601.2 Connections. Plumbing fixtures, drains and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems.

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays ~~are~~ shall not be required to discharge to the sanitary drainage system where ~~those~~ such fixtures discharge to an approved nonpotable gray water ~~or rain water recycling~~ system in accordance with the applicable provisions of Sections P2909, P2910, and P2911.

~~64.~~ 66. Change Section P2602.1 to read:

P2602.1 General. The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.11 of Part I of the Virginia Uniform Statewide Building Code (13VAC5-63) for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

67. Add Section P2901.1 to read:

P2901.1 Nonpotable fixtures and outlets. Nonpotable water shall be permitted to serve nonpotable type fixtures and outlets in accordance with the applicable provisions of Sections P2909, P2910, and P2911.

~~65.~~ 68. Change Section P2903.5 to read:

P2903.5 Water hammer. The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. A water-hammer arrestor shall be installed where quick-closing valves are utilized, unless otherwise approved. Water hammer arrestors shall be installed in accordance with manufacturer's specifications. Water hammer arrestors shall conform to ASSE 1010.

~~66.~~ 69. Add Section P3002.2.1 to read:

P3002.2.1 Tracer wire. Nonmetallic sanitary sewer piping that discharges to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the sewer within 12 inches (305 mm) of the pipe and shall be installed from within five feet of the building wall to the point where the building sewer intersects with the public system. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a cleanout or at the building wall.

70. Add an exception to Section P3301.1 to read:

Exception: Rainwater nonpotable water systems shall be permitted in accordance with the applicable provisions of Sections P2909 and 2911.

71. Add Section P2909 Nonpotable Water Systems.

72. Add Sections P2909.1 through P2909.18, including subsections, to read:

P2909.1 Scope. The provisions of this section shall govern the materials, design, construction, and installation of nonpotable water systems subject to this code.

P2909.1.1 Design of nonpotable water systems. All portions of nonpotable water systems subject to this code shall be constructed using the same standards and requirements for the potable water systems or drainage systems as provided for in this code unless otherwise specified in this section or Section P2910 or P2911, as applicable.

P2909.2 Makeup water. Makeup water shall be provided for all nonpotable water supply systems. The makeup water system shall be designed and installed to provide supply of water in the amounts and at the pressures specified in this code. The makeup water supply shall be potable and be protected against backflow in accordance with the applicable requirements of Section P2902.

P2909.2.1 Makeup water sources. Nonpotable water shall be permitted to serve as makeup water for gray water and rainwater systems.

P2909.2.2 Makeup water supply valve. A full-open valve shall be provided on the makeup water supply line.

P2909.2.3 Control valve alarm. Makeup water systems shall be fitted with a warning mechanism that alerts the user to a failure of the inlet control valve to close correctly. The alarm shall activate before the water within the storage tank begins to discharge into the overflow system.

P2909.3 Sizing. Nonpotable water distribution systems shall be designed and sized for peak demand in accordance with approved engineering practice methods that comply with the applicable provisions of this chapter.

P2909.4 Signage required. All nonpotable water outlets, other than water closets and urinals, such as hose connections, open ended pipes, and faucets shall be identified at the point of use for each outlet with signage that reads as follows: "Nonpotable water is utilized for (insert application name). Caution: nonpotable water. DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and in colors in contrast to the background on which they are applied. The pictograph shown in Figure P2909.4 shall appear on the signage required by this section.

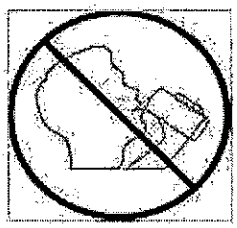


Figure P2909.4
Pictograph DO NOT DRINK

P2909.5 Potable water supply system connections. Where a potable water supply system is connected to a nonpotable water system, the potable water supply shall be protected against backflow in accordance with the applicable provisions of Section P2902.

P2909.6 Nonpotable water system connections. Where a nonpotable water system is connected and supplies water to another nonpotable water system, the nonpotable water system that supplies water shall be protected against backflow in accordance with the applicable provisions of Section P2902.

P2909.7 Approved components and materials. Piping, plumbing components, and materials used in the nonpotable water drainage and distribution systems shall be approved for the intended application and compatible

with the water and any disinfection or treatment systems used.

P2909.8 Insect and vermin control. Nonpotable water systems shall be protected to prevent the entrance of insects and vermin into storage and piping systems. Screen materials shall be compatible with system material and shall not promote corrosion of system components.

P2909.9 Freeze protection. Nonpotable water systems shall be protected from freezing in accordance with the applicable provisions of Chapter 26.

P2909.10 Nonpotable water storage tanks. Nonpotable water storage tanks shall be approved for the intended application and comply with Sections P2909.10.1 through P2909.10.12.

P2909.10.1 Sizing. The holding capacity of storage tanks shall be sized for the intended use.

P2909.10.2 Inlets. Storage tank inlets shall be designed to introduce water into the tank and avoid agitating the contents of the storage tank. The water supply to storage tanks shall be controlled by fill valves or other automatic supply valves designed to stop the flow of incoming water before the tank contents reach the overflow pipes.

P2909.10.3 Outlets. Outlets shall be located at least 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.

P2909.10.4 Materials and location. Storage tanks shall be constructed of material compatible with treatment systems used to treat water. Above grade storage vessels shall be constructed using opaque, UV-resistant materials such as tinted plastic, lined metal, concrete, or wood or painted to prevent algae growth. Above grade storage tanks shall be protected from direct sunlight unless their design specifically incorporates the use of the sunlight heat transfer. Wooden storage tanks shall be provided with a flexible liner. Storage tanks and their manholes shall not be located directly under soil or waste piping or sources of contamination.

P2909.10.5 Foundation and supports. Storage tanks shall be supported on a firm base capable of withstanding the storage tank's weight when filled to capacity. Storage tanks shall be supported in accordance with the applicable provisions of the IBC.

P2909.10.5.1 Ballast. Where the soil can become saturated, an underground storage tank shall be ballasted, or otherwise secured, to prevent the effects of buoyancy. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the storage tank weight when full, consistent with the bearing capability of adjacent soil.

P2909.10.5.2 Structural support. Where installed below grade, storage tank installations shall be designed to withstand earth and surface structural loads without damage.

P2909.10.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table P2909.10.6. The overflow outlet shall discharge at a point not less than 6 inches (152 mm) above the roof or roof drain, floor or floor drain, or over an open water-supplied fixture. The overflow outlet shall terminate through a check valve. Overflow pipes shall not be directed on walkways. The overflow drain shall not be equipped with a shutoff valve. A minimum of one cleanout shall be provided on each overflow pipe in accordance with the applicable provisions of Section P3005.2.

Table P2909.10.6
Size of Drain Pipes for Water Tanks

Tank Capacity (gallons)	Drain Pipe (inches)
Up to 750	1
751-1500	1-1/2
1501-3000	2
3001-5000	2-1/2
5001-7500	3
Over 7500	4

P2909.10.7 Access. A minimum of one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an approved locking device or other approved method of securing access. Below grade storage tanks, located outside of the building, shall be provided with either a manhole not less than 24 inches (610 mm) square or a manhole with an inside diameter not less than 24 inches (610 mm). The design and installation of access openings shall prohibit surface water from entering the tank. Each manhole cover shall have an approved locking device or other approved method of securing access.

Exception: Storage tanks under 800 gallons (3028 L) in volume installed below grade shall not be required to be equipped with a manhole, but shall have an access opening not less than 8 inches (203 mm) in diameter to allow inspection and cleaning of the tank interior.

P2909.10.8 Venting. Storage tanks shall be vented. Vents shall not be connected to the sanitary drainage system. Vents shall be at least equal in size to the internal diameter of the drainage inlet pipe or pipes connected to the tank. Where installed at grade, vents shall be protected from contamination by means of a U-bend

installed with the opening directed downward. Vent outlets shall extend a minimum of 12 inches (304.8 mm) above grade, or as necessary to prevent surface water from entering the storage tank. Vent openings shall be protected against the entrance of vermin and insects. Vents serving gray water tanks shall terminate in accordance with the applicable provisions of Sections P3103 and P2909.8.

P2909.10.9 Drain. Where drains are provided, they shall be located at the lowest point of the storage tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table P2909.10.6. A minimum of one cleanout shall be provided on each drain pipe in accordance with Section P3005.2.

P2909.10.10 Labeling and signage. Each nonpotable water storage tank shall be labeled with its rated capacity and the location of the upstream bypass valve. Underground and otherwise concealed storage tanks shall be labeled at all access points. The label shall read: "CAUTION: NONPOTABLE WATER – DO NOT DRINK." Where an opening is provided that could allow the entry of personnel, the opening shall be marked with the words: "DANGER – CONFINED SPACE." Markings shall be indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material mounted on the tank or shall be indelibly printed on the tank. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and shall be of a color in contrast with the background on which they are applied.

P2909.10.11 Storage tank tests. Storage tanks shall be tested in accordance with the following:

1. Storage tanks shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain water tight without leakage for a period of 24 hours.

2. After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and verify that there are no leaks.

3. Following a successful test of the overflow system, the water level in the tank shall be reduced to a level that is at 2 inches (50.8 mm) below the makeup water offset point. The tank drain shall be observed for proper operation. The makeup water system shall be observed for proper operation, and successful automatic shutoff of the system at the refill threshold shall be verified. Water shall not be drained from the overflow at any time during the refill test.

4. Air tests shall be permitted in lieu of water testing as recommended by the tank manufacturer or the tank standard.

P2909.10.12 Structural strength. Storage tanks shall meet the applicable structural strength requirements of the IBC.

P2909.11 Trenching requirements for nonpotable water system piping. Underground nonpotable water system piping shall be horizontally separated from the building sewer and potable water piping by 5 feet (1524 m) of undisturbed or compacted earth. Nonpotable water system piping shall not be located in, under, or above sewage systems cesspools, septic tanks, septic tank drainage fields, or seepage pits. Buried nonpotable water system piping shall comply with the requirements of this code for the piping material installed.

Exceptions:

1. The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the sewer is equal to or greater than 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials conforms to Table P3002.2.

2. The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is a minimum of 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table P2905.5.

3. Nonpotable water pipe is permitted to be located in the same trench with building sewer piping, provided that such sewer piping is constructed of materials that comply with the requirements of Table P3002.1(2).

4. The required separation distance shall not apply where a nonpotable water pipe crosses a sewer pipe, provided that the pipe is sleeved to at least 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing with pipe materials that comply with Table P3002.1(2).

5. The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe provided that the potable water service pipe is sleeved for a distance of at least 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing with pipe materials that comply with Table P3002.1(2).

P2909.12 Outdoor outlet access. Sillcocks, hose bibs, wall hydrants, yard hydrants, and other outdoor outlets that are supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.

P2909.13 Drainage and vent piping and fittings. Nonpotable drainage and vent pipe and fittings shall comply with the applicable material standards and installation requirements in accordance with provisions of Chapter 30.

P2909.13.1. Labeling and marking. Identification of nonpotable drainage and vent piping shall not be required.

P2909.14 Pumping and control system. Mechanical equipment, including pumps, valves, and filters, shall be accessible and removable in order to perform repair, maintenance, and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be designed for the intended application in accordance with the applicable provisions of Section P2903.

P2909.15 Water-pressure reducing valve or regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the nonpotable water distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with the applicable provisions of Section P2903.3.1.

P2909.16 Distribution pipe. Distribution piping utilized in nonpotable water stems shall comply with Sections P2909.16.1 through P2909.16.4.

P2909.16.1 Materials, joints, and connections. Distribution piping and fittings shall comply with the applicable material standards and installation requirements in accordance with applicable provisions of Chapter 29.

P2909.16.2 Design. Distribution piping shall be designed and sized in accordance with the applicable provisions of Chapter 29.

P2909.16.3 Labeling and marking. Distribution piping labeling and marking shall comply with Section P2901.1.

P2909.16.4 Backflow prevention. Backflow preventers shall be installed in accordance with the applicable provisions of Section P2902.

P2909.17 Tests and inspections. Tests and inspections shall be performed in accordance with Sections P2909.17.1 through P2909.17.5.

P2909.17.1 Drainage and vent pipe test. Drain, waste, and vent piping used for gray water and rainwater nonpotable water systems shall be tested in accordance with the applicable provisions of Section P2503.

P2909.17.2 Storage tank test. Storage tanks shall be tested in accordance with the Section P2909.10.11.

P2909.17.3 Water supply system test. Nonpotable distribution piping shall be tested in accordance with Section P2503.7.

P2909.17.4 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and backwater valves shall be conducted in accordance with Section P2503.8.

P2909.17.5 Inspection of vermin and insect protection. Inlets and vent terminations shall be visually inspected to verify that each termination is installed in accordance with Section P2909.10.8.

P2909.18 Operation and maintenance manuals. Operations and maintenance materials for nonpotable water systems shall be provided as prescribed by the system component manufacturers and supplied to the owner to be kept in a readily accessible location.

73. Add Section P2910 Gray Water Nonpotable Water Systems.

74. Add Sections P2910.1 through P2910.6, including subsections, to read:

P2910.1 Gray water nonpotable water systems. This code is applicable to the plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for gray water within buildings and to storage tanks and associated piping that are part of the distribution system for gray water outside of buildings. This code does not regulate equipment used for, or the methods of, processing, filtering, or treating gray water, which may be regulated by the Virginia Department of Health or the Virginia Department of Environmental Quality.

P2910.1.1 Separate systems. Gray water nonpotable water systems, unless approved otherwise under the permit from the Virginia Department of Health, shall be separate from the potable water system of a building with no cross connections between the two systems except as permitted by the Virginia Department of Health.

P2910.2 Water quality. Each application of gray water reuse shall meet the minimum water quality requirements set forth in Sections P2910.2.1 through P2910.2.4 unless otherwise superseded by other state agencies.

P2910.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

P2910.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

P2910.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

P2910.2.4 Filtration required. Gray water utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

P2910.3 Storage tanks. Storage tanks utilized in gray water nonpotable water systems shall comply with Section P2909.10.

P2910.4 Retention time limits. Untreated gray water shall be retained in storage tanks for a maximum of 24 hours.

P2910.5 Tank Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table P2910.5.1.

Table P2910.5.1
Location of Nonpotable Gray Water Reuse Storage Tanks

Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5
Water wells	50
Streams and lakes	50
Water service	5
Public water main	10

P2910.6 Valves. Valves shall be supplied on gray water nonpotable water drainage systems in accordance with Sections P2910.6.1 and P2910.6.2.

P2910.6.1 Bypass valve. One three-way diverter valve certified to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated gray water to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be labeled to indicate the direction of flow, connection, and storage tank or drainfield connection. Bypass valves shall be provided with access for operation and maintenance. Two shutoff valves shall not be installed to serve as a bypass valve.

P2910.6.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section P3008.

75. Add Section P2911 Rainwater Nonpotable Water Systems.

76. Add Sections P2911.1 through P2911.10, including subsections, to read:

P2911.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of rainwater nonpotable water systems for the collection, storage, treatment, and distribution of rainwater for nonpotable applications.

P2911.2 Water quality. Each application of rainwater reuse shall meet the minimum water quality requirements set forth in Sections P2911.2.1 through P2911.2.4 unless otherwise superseded by other state agencies.

P2911.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

P2911.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

P2911.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

P2911.2.4 Filtration required. Rainwater utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

P2911.3 Collection surface. Rainwater shall be collected only from aboveground impervious roofing surfaces constructed from approved materials. Overflow or discharge piping from appliances or equipment or both, including but not limited to evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection surfaces.

P2911.4 Collection surface diversion. At a minimum, the first 0.04 inches (1.016 mm) of each rain event of 25 gallons (94.6 L) per 1000 square feet (92.9 m^2) shall be diverted from the storage tank by automatic means and not require the operation of manually operated valves or devices. Diverted water shall not drain onto other collection surfaces that are discharging to the rainwater system or to the sanitary sewer. Such water shall be diverted from the storage tank and discharged in an approved location.

P2911.5 Pre-tank filtration. Downspouts, conductors, and leaders shall be connected to a pre-tank filtration device. The filtration device shall not permit materials larger than 0.015 inches (0.4 mm).

P2911.6 Roof gutters and downspouts. Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be made watertight.

P2911.6.1 Slope. Roof gutters, leaders, and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than 1 unit in 96 units along their entire length, and shall not permit the collection or pooling of water at any point.

P2911.6.2 Size. Gutters and downspouts shall be installed and sized in accordance with local rainfall rates.

P2911.6.3 Cleanouts. Cleanouts or other approved openings shall be provided to permit access to all filters, flushes, pipes, and downspouts.

P2911.7 Storage tanks. Storage tanks utilized in rainwater nonpotable water systems shall comply with Section P2909.10.

P2911.8 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table P2911.8.1.

Table P2911.8.1
Location of Rainwater Storage Tanks

Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5

P2911.9 Valves. Valves shall be installed in collection and conveyance drainage piping of rainwater nonpotable water systems in accordance with Sections P2911.9.1 and P2911.9.2.

P2911.9.1 Influent diversion. A means shall be provided to divert storage tank influent to allow maintenance and repair of the storage tank system.

P2911.9.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section P3008.

P2911.10 Tests and inspections. Tests and inspections shall be performed in accordance with Sections P2911.10.1 through P2911.10.2.

P2911.10.1 Roof gutter inspection and test. Roof gutters shall be inspected to verify that the installation and slope is in accordance with Section P2911.6.1. Gutters shall be tested by pouring a minimum of one gallon of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.

P2911.10.2 Collection surface diversion test. A collection surface diversion test shall be performed by introducing water into the gutters or onto the collection surface area. Diversion of the first quantity of water in accordance with the requirements of Section P2911.4 shall be verified.

~~67.~~ 77. Add Section E3601.8 to read:

E3601.8 Energizing service equipment. The building official shall give permission to energize the electrical service equipment of a one- or two-family dwelling unit when all of the following requirements have been approved:

1. The service wiring and equipment, including the meter socket enclosure, shall be installed and the service wiring terminated.

2. The grounding electrode system shall be installed and terminated.

3. At least one receptacle outlet on a ground fault protected circuit shall be installed and the circuit wiring terminated.

4. Service equipment covers shall be installed.

5. The building roof covering shall be installed.

6. Temporary electrical service equipment shall be suitable for wet locations unless the interior is dry and protected from the weather.

~~68.~~ 78. Change Section E3802.4 to read:

E3802.4 In unfinished basements. Where ~~type~~ Type SE or NM cable is run at angles with joists in unfinished basements, cable assemblies containing two or more conductors of sizes 6 AWG and larger and assemblies containing three or more conductors of sizes 8 AWG and larger shall not require additional protection where attached directly to the bottom of the joists. Smaller cables shall be run either through bored holes in joists or on running boards. Type NM or SE cable installed on the wall of an unfinished basement shall be permitted to be installed in a listed conduit or tubing or shall be protected in accordance with Table E3802.1. Conduit or tubing shall be provided with a suitable insulating bushing or adapter at the point the where cable enters the raceway.

The sheath of the Type NM or SE cable ~~sheath~~ shall extend through the conduit or tubing and into the outlet or device box not less than 1/4 inch (6.4 mm). The cable shall be secured within 12 inches (305 mm) of the point where the cable enters the conduit or tubing. Metal conduit, tubing, and metal outlet boxes shall be connected to an equipment grounding conductor complying with Section E3908.13.

~~69.~~ 79. Change Section ~~E3902.11~~ E3902.12 to read:

~~E3902.11~~ E3902.12 Arc-fault protection of bedroom outlets. All branch circuits that supply 120-volt, single phase, 15-ampere and 20-ampere outlets installed in bedrooms shall be protected by a combination type arc-fault circuit interrupter installed to provide protection of the branch circuit.

Exceptions:

1. Where ~~a combination~~ an outlet branch-circuit Type AFCI is installed at the first outlet to provide protection for the remaining portion of the branch circuit, the portion of the branch circuit between the branch-circuit overcurrent device and ~~such~~ the first outlet shall be ~~wired~~ installed with metal outlet and junction boxes and RMC, IMC, EMT, Type MC or steel armored ~~cable,~~ Type AC cables meeting the requirements of Section E3908.8.

2. Where an outlet branch-circuit Type AFCI is installed at the first outlet to provide protection for the remaining portion of the branch circuit, the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet shall be installed with metal or nonmetallic conduit or tubing that is encased in not less than 2 inches (51 mm) of concrete.

3. AFCI protection is not required for ~~a~~ an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or ~~steel~~ steel-sheathed armored cable Type AC, or Type MC meeting the requirements of Section E3908.8.

80. Add the following referenced standards to Chapter 44:

Standard Reference Number	Title	Referenced in Code Section Number
ICC ISPSC-12	International Swimming Pool and Spa Code	R325.1
NFPA 13R-10	Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height	R310.1
NSF/ANSI 50-09	Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities	P2910.6.1

S. Add "Marinas" to the list of occupancies in Section 312.1 of the IBC.

13VAC5-63-220. Chapter 4 Special detailed requirements based on use and occupancy.

A. Delete Section 403.4.4 of the IBC.

B. ~~Add~~ Change Section ~~407.10 to~~ 407.4.1.1 of the IBC to read:

~~407.10~~ 407.4.1.1 Special locking arrangement. Means of egress doors shall be permitted to contain locking devices restricting the means of egress in areas in which the clinical needs of the patients require restraint of movement, where all of the following conditions are met:

1. The locks release upon activation of the fire alarm system or the loss of power.

2. The building is equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

3. A manual release device is provided at a nursing station responsible for the area.

4. A key-operated switch or other manual device is provided adjacent to each door equipped with the locking device. Such switch or other device, when operated, shall result in direct interruption of power to the lock -- independent of the control system electronics.

5. All staff shall have keys or other means to unlock the switch or other device or each door provided with the locking device.

C. Add Section 407.11 to the IBC to read:

407.11 Emergency power systems. Emergency power shall be provided for medical life support equipment, operating, recovery, intensive care, emergency rooms, fire detection and alarm systems in any Group I-2 occupancy licensed by the Virginia Department of Health as a hospital, nursing home or hospice facility.

D. Change ~~the title~~ Section 408.6 of the IBC ~~Section 410~~ to read:

~~Stages, Platforms and Technical Production Areas.~~

~~E. Delete the following definitions in IBC Section 410.2:~~

~~Fly gallery.~~

~~Gridiron.~~

~~F. Add the following definition to IBC Section 410.2 to read:~~

~~Technical production area. Open elevated areas or spaces intended for entertainment technicians to walk on and occupy for servicing and operating entertainment technology systems and equipment. Galleries, including fly~~

~~and lighting galleries, gridirons, catwalks and similar areas are designed for these purposes.~~

~~G. Delete Section 410.5.3 of the IBC, add new Section 410.6 to the IBC and renumber Sections 410.6 and 410.7 of the IBC to Sections 410.7 and 410.8 respectively.~~

~~410.6 Means of egress. Except as modified or as provided for in this section, the provisions of Chapter 10 shall apply.~~

~~410.6.1 Arrangement. Where two or more exits or exit access doorways are required per Section 1015.1 from the stage, at least one exit or exit access doorway shall be provided on each side of the stage.~~

~~410.6.2 Stairway and ramp enclosure. Stairways and ramps provided from stages, platforms and technical production areas are not required to be enclosed.~~

~~410.6.3 Technical production areas. Technical production areas shall be provided with means of egress and means of escape in accordance with Section 410.6.3.1 through 410.6.3.5.~~

~~410.6.3.1 Means of egress. At least one means of egress shall be provided from technical production areas.~~

~~410.6.3.2 Travel distance. The maximum length of exit access travel shall not exceed 300 feet (91 440 mm) for buildings without a sprinkler system and 400 feet (121 920 mm) for buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

~~410.6.3.3 Two means of egress. Where two means of egress are required, the common path of travel shall not exceed 100 feet (30 480 mm).~~

~~Exception: A means of egress to a roof in place of a second means of egress is permitted.~~

~~410.6.3.4 Path of egress travel. The following exit access components are permitted when serving technical production areas:~~

~~1. Stairways.~~

~~2. Ramps.~~

~~3. Spiral stairways.~~

~~4. Catwalks.~~

~~5. Alternating tread devices.~~

~~6. Permanent ladders.~~

~~410.6.3.5 Width. The path of egress travel within and from technical production areas shall be a minimum of 22 inches (559 mm).~~

408.6 Smoke barrier. Occupancies classified as Group I-3 shall have smoke barriers complying with Sections 408.8 and 709 to divide every story occupied by residents for sleeping, or any other story having an occupant load of 50 or more persons, into no fewer than two smoke compartments.

E. Change Section 408.9 of the IBC and add Sections 408.9.1 through 408.9.3 to the IBC to read:

408.9 Smoke control. Smoke control for each smoke compartment shall be in accordance with Sections 408.9.1 through 408.9.3.

Exception: Smoke compartments with operable windows or windows that are readily breakable.

408.9.1 Locations. An engineered smoke control system shall comply with Section 909 and shall be provided in the following locations:

1. Dormitory areas.

2. Celled areas.

3. General housing areas.

4. Intake areas.

5. Medical celled or medical dormitory areas.

6. Interior recreation areas.

408.9.2 Compliance. The engineered smoke control system shall provide and maintain a tenable environment in the area of origin and shall comply with all of the following:

1. Shall facilitate the timely evacuation and relocation of occupants from the area of origin.

2. Shall be independent of exhaust systems under Chapter 5 of the IMC.

3. Duration of operation in accordance with Section 909.4.6.

4. The pressurization method shall be permitted and shall provide a minimum of 24 air changes per hour of exhaust, and 20 air changes per hour of makeup, and shall comply with Section 909.6. If the pressurization method is not utilized, the exhaust method shall be provided and shall comply with Section 909.8.

408.9.3 Corridors. Egress corridors within smoke compartments shall be kept free and clear of smoke.

~~H.~~ F. Add Section 415.1.1 to the IBC to read:

415.1.1 Flammable and combustible liquids. ~~Notwithstanding the provisions of this chapter,~~ Construction associated with the storage, handling, processing, and transporting of flammable and combustible liquids shall be in accordance with the mechanical code and the fire code listed in Chapter 35 of this code. ~~Regulations~~ and regulations governing the installation, repair, upgrade, and closure of underground and aboveground storage tanks under the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580, which are hereby adopted and incorporated by reference to be an enforceable part of this code. Where differences occur between the provisions of this code and the ~~incorporated~~ provisions of ~~the~~ such State Water Control Board regulations, the provisions of the State Water Control Board regulations shall apply.

G. Change the title of Section 420 and change Sections 420.1 and 420.4 of the IBC to read:

Section 420 Groups I-1, R-1, R-2, R-3, and R-4.

420.1 General. Occupancies in Groups I-1, R-1, R-2, R-3, and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.

420.4 Smoke barriers in Group I-1 Condition 2. Smoke barriers shall be provided in Group I-1 Condition 2 to subdivide every story used by persons receiving care or treatment or sleeping and to divide other stories, with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

H. Add Section 420.4.1 to the IBC to read:

420.4.1 Refuge area. Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 15 net square feet (1.4 m^2) for each care recipient.

2. Not less than 6 net square feet (0.56 m^2) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge, or dining areas and other low hazard areas.

I. Change Section 420.5 of the IBC and add Section 420.6 to the IBC to read:

420.5 Automatic sprinkler system. Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.8. Group I-1 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.6. Quick response or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

420.6 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Groups I-1, R-1, R-2, and R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, 907.2.9, and 907.2.10, respectively. Single-station or multiple-station smoke alarms shall be provided in Groups I-1, R-2, R-3, and R-4 in accordance with Section 907.2.11.

~~I.~~ J. Add IBC Section ~~424~~ 425 Manufactured Homes and Industrialized Buildings.

~~J.~~ K. Add Section ~~424.1~~ 425.1 to the IBC to read:

~~424.1~~ 425.1 General. The provisions of this section shall apply to the installation or erection of manufactured homes subject to the Virginia Manufactured Home Safety Regulations (13VAC5-95) and industrialized buildings subject to the Virginia Industrialized Building Safety Regulations (13VAC5-91).

~~K.~~ L. Add Section ~~424.2~~ 425.2 to the IBC to read:

~~424.2~~ 425.2 Site work for manufactured homes. ~~The aspects for the installation and set up of a new manufactured home covered by this code rather than the Virginia Manufactured Home Safety Regulations (13VAC5-95) include, but are not limited to, footings, foundations systems, anchoring of the home, exterior, interior close up, and additions and alterations done during initial installation. Such aspects shall be subject to and shall comply with the manufacturer's installation instructions provided by the manufacturer of the home. To the extent that the manufacturer's installation instructions do not address any aspect enumerated above or when the manufacturer's installation instructions are not available, such aspects shall be subject to and comply with 24 CFR Part 3285 Model Manufactured Home Installation Standards. To the extent that the manufacturer's installation instructions and 24 CFR Part 3285 do not address any aspect enumerated above, the installer must first attempt to obtain Design Approval Primary Inspection Agency (DAPIA) as defined in 24 CFR Part 3285.5, approved designs and instructions prepared by the manufacturer; or if designs and instructions are not available from the manufacturer, obtain an alternate design prepared and certified by an RDP that is consistent with the manufactured home design, conforms to the requirements of the Manufactured Housing Consensus Committee (MHCSS) as defined in 24 CFR Part 3285.5, and has been approved by the manufacturer and the DAPIA. Stoops, decks, porches and used manufactured homes~~ Footing design, basements, grading, drainage, decks, stoops, porches and utility connections shall comply with the applicable provisions of this code~~, which shall include the option of using the IRC for the technical requirements for the installation and set up of the home and the use of Appendix E of the IRC for additions, alterations and repairs to the home~~. Additionally, all applicable provisions of Chapter 1 of this code, including but not limited to requirements for permits, inspections, certificates of occupancy and requiring compliance, are applicable to the installation and ~~set up~~ set-up of a manufactured home. Where the installation or erection of a manufactured home utilizes components that are to be concealed, the installer shall notify the building official that an inspection is necessary and assure that an inspection is performed and approved prior to concealment of such components, unless the building official has agreed to an alternative method of verification.

M. Add Section 425.2.1 to the IBC to read:

425.2.1 Relocated manufactured homes. Installation, set-up, and site work for relocated manufactured homes shall comply with the provisions of this code and shall include the option of using the manufacturer's installations instructions or the federal Model Manufactured Home Installation Standards (24 CFR Part 3285) for the technical requirements.

N. Add Section 425.2.2 to the IBC to read:

425.2.2 Alterations and repairs to manufactured homes. Alterations and repairs to manufactured homes shall either be in accordance with federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280) or in accordance with the alteration and repair provisions this code.

O. Add Section 425.2.3 to the IBC to read:

425.2.3 Additions to manufactured homes. Additions to manufactured homes shall comply with this code and shall be structurally independent of the manufactured home, or when not structurally independent, shall be evaluated by an RDP to determine that the addition does not cause the manufactured home to become out of compliance with federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280).

~~L.~~ P. Add Section ~~424.3~~ 425.3 to the IBC to read:

~~424.3~~ 425.3 Wind load requirements for manufactured homes. Manufactured homes shall be anchored to withstand the wind loads established by the federal regulation for the area in which the manufactured home is installed. For the purpose of this code, Wind Zone II of the federal regulation shall include the cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach.

~~M.~~ Q. Add Section ~~424.4~~ 425.4 to the IBC to read:

~~424.4~~ 425.4 Skirting requirements for manufactured homes. As used in this section, "skirting" means a weather-resistant material used to enclose the space from the bottom of the manufactured home to grade. In accordance with § 36-99.8 of the Code of Virginia, manufactured homes installed or relocated shall have skirting installed within 60 days of occupancy of the home. Skirting materials shall be durable, suitable for exterior exposures and installed in accordance with the manufacturer's installation instructions. Skirting shall be secured as necessary to ensure stability, to minimize vibrations, to minimize susceptibility to wind damage and to compensate for possible frost heave. Each manufactured home shall have a minimum of one opening in the skirting providing access to any water supply or sewer drain connections under the home. Such openings shall be a minimum of 18 inches (457 mm) in any dimension and not less than three square feet (.28 m^2) in area. The access panel or door shall not be fastened in a manner requiring the use of a special tool to open or remove the panel or door. On-site fabrication of the skirting by the owner or installer of the home shall be acceptable, provided that the material meets the requirements of this code. In addition, as a requirement of this code, skirting for the installation and set-up of a new manufactured home shall also comply with the requirements of 24 CFR Part 3285 – Model Manufactured Home Installation Standards.

~~N.~~ R. Add Section ~~424.5~~ 425.5 to the IBC to read:

~~424.5~~ 425.5 Site work for industrialized buildings. Site work for the erection and installation of an industrialized building shall comply with the manufacturer's installation instructions. To the extent that any aspect of the erection or installation of an industrialized building is not covered by the manufacturer's installation instructions, this code shall be applicable, including the use of the IRC for any construction work where the industrialized building would be classified as a Group R-5 building. In addition, all administrative requirements of this code for permits, inspections, and certificates of occupancy are also applicable. Further, the building official may require the submission of plans and specifications for details of items needed to comprise the finished building that are not included or specified in the manufacturer's instructions, including, but not limited to, footings, foundations, supporting structures, proper anchorage, and the completion of the plumbing, mechanical, and electrical systems. Where the installation or erection of an industrialized building utilizes components that are to be concealed, the installer shall notify the building official that an inspection is necessary and assure that an inspection is performed and approved prior to concealment of such components, unless the building official has agreed to an alternative method of verification.

Exception: Temporary family health care structures installed pursuant to § 15.2-2292.1 of the Code of Virginia shall not be required or permitted to be placed on a permanent foundation, but shall otherwise remain subject to all pertinent provisions of this section.

~~O.~~ S. Add Section ~~424.6~~ 425.6 to the IBC to read:

~~424.6~~ 425.6 Relocated industrialized buildings; alterations and additions. Industrialized buildings constructed prior to January 1, 1972, shall be subject to Section 117 when relocated. Alterations and additions to any existing industrialized buildings shall be subject to pertinent provisions of this code. Building officials shall be permitted to require the submission of plans and specifications for the model to aid in the evaluation of the proposed alteration or addition. Such plans and specifications shall be permitted to be submitted in electronic or other available format acceptable to the building official.

T. Add Section 425.7 to the IBC to read:

425.7 Change of occupancy of industrialized buildings. Change of occupancy of industrialized buildings is

regulated by the Virginia Industrialized Building Safety Regulations (13VAC5-91). When the industrialized building complies with those regulations for the new occupancy, the building official shall issue a new certificate of occupancy under the USBC.

~~P.~~ U. Add IBC Section ~~425~~ 426 Aboveground Liquid Fertilizer Tanks.

~~Q.~~ V. Add Sections ~~425.1~~ 426.1 through ~~425.6~~ 426.6 to the IBC to read:

~~425.1~~ 426.1 General. This section shall apply to the construction of ALFSTs and shall supersede any conflicting requirements in other provisions of this code. ALFSTs shall also comply with any applicable ~~non-conflicting~~ nonconflicting requirements of this code.

~~425.1.1~~ 426.1.1 When change of occupancy rules apply. A change of occupancy to use a tank as an ALFST occurs when there is a change in the use of a tank from storing liquids other than liquid fertilizers to a use of storing liquid fertilizer and when the type of liquid fertilizer being stored has a difference of at least 20% of the specific gravity or operating temperature, or both, or a significant change in the material's compatibility.

~~425.2~~ 426.2 Standards. Newly constructed welded steel ALFSTs shall comply with API 650 and TFI RMIP, as applicable. Newly constructed ALFSTs constructed of materials other than welded steel shall be constructed in accordance with accepted engineering practice to prevent the discharge of liquid fertilizer and shall be constructed of materials that are resistant to corrosion, puncture or cracking. In addition, newly constructed ALFSTs constructed of materials other than welded steel shall comply with TFI RMIP, as applicable. For the purposes of this code, the use of TFI RMIP shall be construed as mandatory and any language in TFI RMIP, such as, but not limited to, the terms "should" or "may" which indicate that a provision is only a recommendation or a guideline shall be taken as a requirement. ALFSTs shall be placarded in accordance with NFPA 704.

Exception: Sections 4.1.4, 4.2.5, 5.1.2, 5.2.8, 5.3 and 8.1(d)(i) of TFI RMIP shall not be construed as mandatory.

~~425.3~~ 426.3 Secondary containment. When ALFSTs are newly constructed and when there is a change of occupancy to use a tank as an ALFST, a secondary containment system designed and constructed to prevent any liquid fertilizer from reaching the surface water, groundwater or adjacent land before cleanup occurs shall be provided. The secondary containment system may include dikes, berms or retaining walls, curbing, diversion ponds, holding tanks, sumps, vaults, double-walled tanks, liners external to the tank, or other approved means and shall be capable of holding up to 110% of the capacity of the ALFST as certified by an RDP.

~~425.4~~ 426.4 Repair, alteration and reconstruction of ALFSTs. Repair, alteration and reconstruction of ALFSTs shall comply with applicable provisions of API 653 and TFI RMIP.

~~425.5~~ 426.5 Inspection. Applicable inspections as required by and in accordance with API 653 and TFI RMIP shall be performed for repairs and alterations to ALFSTS, the reconstruction of ALFSTs and when there is a change of occupancy to use a tank as an ALFST. When required by API 653 or TFI RMIP, such inspections shall occur prior to the use of the ALFST.

~~425.6~~ 426.6 Abandoned ALFSTs. Abandoned ALFSTs shall comply with applicable provisions of Section ~~3404.2.13.2~~ 5704.2.13.2 of the IFC.

13VAC5-63-225. Chapter 5 General building heights and areas.

A. Change Section 504.2 of the IBC to read:

504.2 Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one. These increases are permitted in addition to the building area increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one, but shall not exceed 60 feet (18 288 mm) or four stories, respectively.

Exception: The use of an automatic sprinkler system to increase building heights shall not be permitted for the following conditions:

1. Buildings, or portions of buildings, classified as Group I-1 Condition 2, of Type IIB, III, IV, or V construction or Group I-2 occupancies of Type IIB, III, IV, or V construction.

2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3, or H-5 occupancy.

3. Buildings where an automatic sprinkler system is substituted for fire-resistance rated construction in accordance with Table 601, Note d.

B. Change Section 508.2.3 of the IBC to read:

508.2.3 Allowable building area and height. The allowable building area and height of the building containing accessory occupancies shall be based on the allowable building area and height for the main occupancy in accordance with Section 503.1. The building area of the accessory occupancies shall be in accordance with Section 508.2.1.

13VAC5-63-230. Chapter 7 ~~Fire-resistant-rated construction~~ Fire and smoke protection features.

A. Change Section ~~703.6~~ 703.7 of the IBC to read:

~~703.6~~ 703.7 Fire-resistance assembly marking. ~~Concealed~~ Where there is a concealed floor, floor-ceiling, or attic space, the fire walls~~, vertical fire separation assemblies~~, fire barriers, fire partitions ~~and~~, smoke barriers, or any other wall required to have protected openings or penetrations shall be designated above ceilings and on the inside of all ceiling access doors ~~which~~ that provide access to such fire rated assemblies by signage having letters no smaller than one inch (25.4 mm) in height. Such signage shall indicate the fire-resistance rating of the assembly and the type of assembly and be provided at horizontal intervals of no more than eight feet (2438 mm).

Note: An example of suggested formatting for the signage would be "ONE HOUR FIRE PARTITION."

B. Change the exceptions to Section 705.2 of the IBC to read:

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

~~1. A point one-third the distance from the exterior face of the wall to the lot line where protected openings or a combination of protected and unprotected openings are required in the exterior wall.~~

~~2. A point one-half the distance from the exterior face of the wall to the lot line where all openings in the exterior wall are permitted to be unprotected or the building is equipped throughout with an automatic sprinkler system installed under the provisions of Section 705.8.2.~~

~~3. More than 12 inches (305 mm) into areas where openings are prohibited.~~

Exceptions:

1. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.

2. Decks and open porches of buildings of Groups R-3 and R-4.

C. Add Exception 4 to Section 706.5.2 of the IBC to read:

4. Decks and open porches of buildings in Groups R-3 and R-4.

D. Change Section 709.5 of the IBC to read:

709.5 Openings. Openings in a smoke barrier shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1 Condition 2, Group I-2, and ambulatory care facilities where doors are installed across corridors, a pair of opposite-swinging doors without a center mullion shall be installed having vision panels with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested. The doors shall be close fitting within operational tolerances and shall not have undercuts in excess of 3/4-inch, louvers, or grilles. The doors shall have head and jamb stops, astragals, or rabbets at meeting edges and shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3. Where permitted by the door manufacturer's listing, positive-latching devices are not required.

2. In Group I-1 Condition 2, Group I-2, and ambulatory care facilities, horizontal sliding doors installed in accordance with Section 1008.1.4.3 and protected in accordance with Section 716.

E. Delete Sections ~~708.14.1 through 708.14.2.11~~ 713.14.1 and 713.14.1.1.

~~E.~~ F. Change Section ~~716.5.3~~ 716.5.3.1 of the IBC to read:

~~716.5.3 Penetrations of shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.~~

~~Exceptions:~~

~~1. Fire and smoke dampers are not required where steel exhaust subducts extend at least 22 inches (559 mm) vertically in exhaust shafts provided there is a continuous airflow upward to the outside.~~

~~2. Fire dampers are not required where penetrations are tested in accordance with ASTM E 119 as part of the fire resistance rated assembly.~~

~~3. Fire and smoke dampers are not required where ducts are used as part of an approved smoke control system in accordance with Section 909.~~

~~4. Fire and smoke dampers are not required where the penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than two hour fire resistance rated construction.~~

~~5. Smoke dampers are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

716.5.3.1 Smoke and draft control. Fire door assemblies located in smoke barrier walls shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/s \cdot m^2$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall

be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

13VAC5-63-235. Chapter 8 Interior finishes.

Change Section 806.1.2 of the IBC to read:

806.1.2 Combustible decorative materials. The permissible amount of decorative materials meeting the flame propagation performance criteria of NFPA 701 shall not exceed 10% of the specific wall or ceiling area to which it is attached.

Exceptions:

1. In auditoriums or similar types of spaces in Group A, the permissible amount of decorative material meeting the flame propagation performance criteria of NFPA 701 shall not exceed 75% of the aggregate wall area where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and where the material is installed in accordance with Section 803.11.

2. In auditoriums or similar types of spaces in Group A, the permissible amount of decorative materials suspended from the ceiling, located no more than 12 inches (305 mm) from the wall, not supported by the floor, and meeting the flame propagation performance criteria of NFPA 701, shall not exceed 75% of the aggregate wall area when the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

3. The amount of fabric partitions suspended from the ceiling and not supported by the floor in Groups B and M occupancies shall not be limited.

13VAC5-63-240. Chapter 9 Fire protection systems.

A. Add the following ~~definitions~~ to the list of terms in Section ~~902~~ 902.1 of the IBC ~~to read~~:

Emergency communication equipment. ~~Emergency communication equipment, includes but is not limited to, two-way radio communications, signal booster, bi-directional amplifiers, radiating cable systems or internal multiple-antenna, or a combination of the foregoing.~~

Emergency public safety personnel. ~~Emergency public safety personnel includes firefighters, emergency medical personnel, law enforcement officers and other emergency public safety personnel routinely called upon to provide emergency assistance to members of the public in a wide variety of emergency situations, including, but not limited to, fires, medical emergencies, violent crimes and terrorist attacks.~~

~~B. Change the following definition in Section 902 of the IBC to read:~~

~~Automatic fire extinguishing system. An approved system of devices and equipment which automatically detects a fire and discharges an approved fire extinguishing agent onto or in the area of a fire and shall include among other systems an automatic sprinkler system, unless otherwise expressly stated.~~

~~C.~~ B. Change Section 903.2.1.2 of the IBC to read:

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464.5m^2);

2. The fire area has an occupant load of 100 or more in night clubs or 300 or more in other Group A-2 occupancies; or

3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

~~D.~~ C. Change Item 2 of Section 903.2.1.3 of the IBC to read:

2. In Group A-3 occupancies other than ~~churches~~ places of religious worship, the fire area has an occupant load of 300 or more; or

~~E.~~ D. Change Section 903.2.3 of the IBC to read:

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^2) 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.

~~F.~~ E. Change Section 903.2.7 of the IBC to read:

903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 m^2).

2. A Group M fire area is located more than three stories above grade plane.

3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).

~~G.~~ F. Change ~~Section~~ Sections 903.2.8, 903.2.8.1, and 908.2.8.2 of the IBC to read:

~~903.2.7~~ 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~~ for Group R-2 occupancies listed in the exceptions to this section when the necessary water pressure or volume, or both, for the system is not available:

Exceptions:

1. ~~Buildings which~~ Group R-2 occupancies that do not exceed two stories, including basements ~~which~~ that 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~~ Group R-2 occupancies 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.

903.2.8.1 Group R-3. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-3.

903.2.8.2 Group R-4 Condition 1. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-4 Condition 1.

G. Add Sections 903.2.8.3, 903.2.8.3.1, 903.2.8.3.2, and 903.2.8.4 to the IBC to read:

903.2.8.3 Group R-4 Condition 2. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group R-4 Condition 2. Attics shall be protected in accordance with Section 903.2.8.3.1 or 903.2.8.3.2.

903.2.8.3.1 Attics used for living purposes, storage, or fuel fired equipment. Attics used for living purposes, storage, or fuel fired equipment shall be protected throughout with automatic sprinkler system installed in accordance with Section 903.3.1.2.

903.2.8.3.2 Attics not used for living purposes, storage, or fuel fired equipment. Attics not used for living purposes, storage, or fuel fired equipment shall be protected in accordance with one of the following:

1. Attics protected throughout by a heat detector system arranged to activate the building fire alarm system in accordance with Section 907.2.10.

2. Attics constructed of noncombustible materials.

3. Attics constructed of fire-retardant-treated wood framing complying with Section 2303.2.

4. The automatic fire sprinkler system shall be extended to provide protection throughout the attic space.

903.2.8.4 Care facilities. An automatic sprinkler system installed in accordance with 903.3.1.3 shall be permitted in care facilities with 5 or fewer individuals in a single-family dwelling.

~~H. Add Item 6 to Section 903.3.1.1.1 of the IBC to read:~~

~~6. Elevator machine rooms and elevator machine spaces for occupant evacuation elevators.~~

~~I.~~ H. Add Section 903.3.1.2.2 to the IBC to read:

903.3.1.2.2 Attics. Sprinkler protection shall be provided for attics in buildings of Type III, IV or V construction in Group R-2 occupancies that are designed or developed and marketed to senior citizens 55 years of age or older and in Group I-1 occupancies in accordance with Section 6.7.2 of NFPA 13R.

I. Change Section 903.3.1.3 of the IBC to read:

903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one-family and two-family dwellings, Group R-3, Group R-4 Condition 1 and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D.

J. Change Section 903.4.2 of the IBC to read:

903.4.2 Alarms. Approved audible devices shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system. Group R-2 occupancies that contain 16 or more dwelling units or sleeping units, any dwelling unit or sleeping unit two or more stories above the lowest level of exit discharge, or any dwelling unit or sleeping unit more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit shall provide a manual fire alarm box at an approved location to activate the suppression system alarm.

K. Add an exception to Section 905.2 of the IBC to read:

Exception: The residual pressure of 100 psi for 2-1/2 inch hose connection and 65 psi for 1-1/2 inch hose connection is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and where the highest floor level is not more than 150 feet above the lowest level of fire department vehicle access.

L. Change Item 1 of Section 906.1 of the IBC to read:

1. In ~~Group~~ Groups A, B, E, F, H, I, M, R-1, R-4, and S occupancies.

Exceptions:

1. In ~~Group~~ Groups A, B, and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.

2. In Group I-3 occupancies, portable fire extinguishers shall be permitted to be located at staff locations and the access to such extinguishers shall be permitted to be locked.

M. Change Section 907.2.1.1 of the IBC to read:

907.2.1.1 System initiation in Group A occupancies with a occupant load of 1,000 or more and in certain night clubs. Activation of the fire alarm in Group A occupancies with an occupant load of 1,000 or more and in night clubs with an occupant load of 300 or more shall initiate a signal using an emergency voice and alarm communications system in accordance with Section 907.5.2.2.

Exception: Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed three minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

N. Change Section 907.2.3 of the IBC to read:

907.2.3 Group E. A manual fire alarm system that activates the occupant notification system meeting the requirements of Section 907.5 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.

2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:

2.1. Interior corridors are protected by smoke detectors.

2.2. Auditoriums, cafeterias, gymnasiums, and similar areas are protected by heat detectors or other approved detection devices.

2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.

3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the occupant notification system will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

O. Change Section 907.2.6.1 of the IBC to read:

907.2.6.1 Group I-1. In Group I-1 occupancies, an automatic smoke detection system shall be installed in corridors, waiting areas open to corridors, and habitable spaces other than sleeping units and kitchens. The system shall be activated in accordance with Section 907.5.

Exceptions:

1. For Group I-1 Condition 1, smoke detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

2. Smoke detection is not required for exterior balconies.

P. Add an exception to Section 907.5.2.1.1 of the IBC to read:

Exception: Sound pressure levels in Group I-3 occupancies shall be permitted to be limited to only the notification of occupants in the affected smoke compartment.

~~O. Add Sections 908.7, 908.7.1 and 908.7.2 to the IBC to read:~~

~~908.7 Carbon monoxide alarms. Carbon monoxide alarms shall be provided in new buildings and structures in accordance with this section.~~

~~908.7.1 Alarm requirements. Carbon monoxide alarms shall be single station, hard wired, plug in or battery type, listed as complying with UL 2034, and shall be installed in accordance with this code and the manufacturer's installation instructions.~~

~~908.7.2 Where required. Carbon monoxide alarms shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units and outside of, but in the immediate vicinity of, each sleeping unit in all Group R occupancies located within buildings containing fuel fired appliances or where a dwelling unit or sleeping unit in a Group R occupancy is attached to a Group U private garage.~~

~~P.~~ Q. Change Section 909.6 of the IBC to read:

909.6 Pressurization method. When approved by the building official, the means of controlling smoke shall be permitted by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke-control zone of fire origin.

~~Q.~~ R. Change Section 911.1.3 of the IBC to read:

911.1.3 Size. The fire command center shall be a minimum of 96 square feet (9 m^2) in area with a minimum dimension of eight feet (2438 mm).

Exception: Where it is determined by the building official, after consultation with the fire chief, that specific building characteristics require a larger fire command center, the building official may increase the minimum required size of the fire command center up to 200 square feet (19 m^2) in area with a minimum dimension of up to 10 feet (3048 mm).

~~R.~~ S. Change the title of IBC Section 915 to read:

In-Building Emergency Communications Coverage.

~~S.~~ T. Change Section 915.1 of the IBC to read:

915.1 General. For localities utilizing public safety wireless communications, dedicated infrastructure to accommodate and perpetuate continuous in-building emergency communication equipment to allow emergency public safety personnel to send and receive emergency communications shall be provided in new buildings and structures in accordance with this section.

Exceptions:

1. Buildings of Use Groups A-5, I-4, within dwelling units of R-2, R-3, R-4, R-5, and U.

2. Buildings of ~~Type~~ Types IV and V construction without basements, that are not considered unlimited area buildings in accordance with Section 507.

3. Above grade single story buildings of less than 20,000 square feet.

4. Buildings or leased spaces occupied by federal, state, or local governments, or the contractors thereof, with security requirements where the building official has approved an alternative method to provide emergency communication equipment for emergency public safety personnel.

5. Where the owner provides technological documentation from a qualified individual that the structure or portion thereof does not impede emergency communication signals.

~~T.~~ U. Add Sections 915.1.1, 915.1.2 and 915.1.3 to the IBC to read:

915.1.1 Installation. The building owner shall install radiating cable, such as coaxial cable or equivalent. The radiating cable shall be installed in dedicated conduits, raceways, plenums, attics, or roofs, compatible for these specific installations as well as other applicable provisions of this code. The locality shall be responsible for the installation of any additional communication equipment required for the operation of the system.

915.1.2 Operations. The locality will assume all responsibilities for the operation and maintenance of the emergency communication equipment. The building owner shall provide sufficient operational space within the building to allow the locality access to and the ability to operate in-building emergency communication equipment.

915.1.3 Inspection. In accordance with Section 113.3, all installations shall be inspected prior to concealment.

~~U.~~ V. Add Section 915.2 to the IBC to read:

915.2 Acceptance test. Upon completion of installation, after providing reasonable notice to the owner or their representative, emergency public safety personnel shall have the right during normal business hours, or other mutually agreed upon time, to enter onto the property to conduct field tests to verify that the required level of radio coverage is present at no cost to the owner. Any noted deficiencies in the installation of the radiating cable or operational space shall be provided in an inspection report to the owner or the owner's representative.

13VAC5-63-245. Chapter 10 Means of egress.

A. Delete Section 1001.4 of the IBC.

B. Change Section 1004.3 of the IBC to read:

1004.3 Posting of occupant load. Every room or space that is an assembly occupancy and where the occupant load of that room or space is 50 or more shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.

~~B.~~ C. Change the exception to Section ~~1005.1~~ 1005.3.1 of the IBC to read:

~~1005.1 Minimum required egress width. The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50% of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.~~

~~Exceptions~~ Exception:

~~1. Means of egress complying with Section 1028.~~

~~2.~~ For ~~occupancies~~ other than ~~Groups H-1, H-2, H-3, H-4~~ Groups H and I-2 occupancies, the capacity, in inches (mm), of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2~~, the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.2 inches (5.08 mm) per occupant for stairways and by 0.15 inches (3.81 mm) per occupant for other egress components~~.

~~C.~~ D. Change the exception to Section ~~1007.2~~ 1005.3.2 of the IBC to read:

~~1007.2 Continuity and components. Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:~~

~~1. Accessible routes complying with Section 1104.~~

~~2. Interior exit stairways complying with Sections 1007.3 and 1022.~~

~~3. Exterior exit stairways complying with Sections 1007.3 and 1026 and serving levels other than the level of exit discharge.~~

~~4. Elevators complying with Section 1007.4.~~

~~5. Platform lifts complying with Section 1007.5.~~

~~6. Horizontal exits complying with Section 1025.~~

~~7. Ramps complying with Section 1010.~~

~~8. Areas of refuge complying with Section 1007.6.~~

~~9. Exterior area for assisted rescue complying with Section 1007.7 serving exits at the level of exit discharge.~~

Exception: For other than Groups H and I-2 occupancies, the capacity, in inches (mm), of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

~~D.~~ E. Change Section 1007.6.2 of the IBC to read:

1007.6.2 Separation. Each area of refuge shall be separated from the remainder of the story by a smoke barrier complying with Section 709 or a horizontal exit complying with Section 1025. Each area of refuge shall be designed to minimize the intrusion of smoke.

Exceptions:

1. Areas of refuge located within an exit enclosure.

2. Areas of refuge where the area of refuge and areas served by the area of refuge are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

~~E. Change Section 1007.7, including subsections, of the IBC to read:~~

~~1007.7 Exterior area for assisted rescue. The exterior area for assisted rescue shall be an area provided on the exterior landing serving an exit door on an accessible route. The exterior area of assisted rescue shall meet the size and access requirements of Section 1007.6.1.~~

~~1007.7.1 Separation. Exterior walls separating the exterior area of assisted rescue from the interior of the building shall have a minimum fire resistance rating of one hour, rated for exposure to fire from the inside. The fire resistance rated exterior wall construction shall extend horizontally 10 feet (3048 mm) beyond the landing on either side of the landing or equivalent fire resistance rated construction is permitted to extend out perpendicular to the exterior wall four feet (1220 mm) minimum on the side of the landing. The fire resistance rated construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower. Openings within such fire resistance rated exterior walls shall be protected in accordance with Section 715.~~

~~1007.7.2 Openness. The exterior area for assisted rescue shall be at least 50% open, and the open area above the guards shall be so distributed as to minimize the accumulation of smoke or toxic gases.~~

~~1007.7.3 Exterior stairway. Exterior stairways that are part of the means of egress for the exterior area for assisted rescue shall provide a clear width of 48 inches (1219 mm) between handrails.~~

F. Change Item 2 of Section 1008.1.9.3 of the IBC to read:

2. In buildings in occupancy Groups B, F, M and S, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

2.1. The locking device is readily distinguishable as locked.

2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters one inch (25 mm) high on a contrasting background.

2.3. The use of the key-operated locking device is revokable by the building official for due cause.

G. Delete Section 1008.1.9.6 of the IBC.

H. Change Section 1008.1.9.7 of the IBC to read:

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.

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.

I. Delete the exception in Section 1008.1.10 of the IBC.

J. Add Section 1008.1.11 to the IBC to read:

1008.1.11 Locking certain residential sliding doors. In dwelling units of Group R-2 buildings, exterior sliding doors which are one story or less above grade, or shared by two dwelling units, or are otherwise accessible from the outside, shall be equipped with locks. The mounting screws for the lock case shall be inaccessible from the outside. The lock bolt shall engage the strike in a manner that will prevent it from being disengaged by movement of the door.

Exception: Exterior sliding doors which are equipped with removable metal pins or charlie bars.

K. Add Section 1008.1.12 to the IBC to read:

1008.1.12 Door viewers in certain residential buildings. Entrance doors to dwelling units of Group R-2 buildings shall be equipped with door viewers with a field of vision of not less than 180 degrees.

Exception: Entrance doors having a vision panel or side vision panels.

L. Change Exception 5 of Section ~~1009.4.2~~ 1009.7.2 of the IBC to read:

5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 8.25 inches (210 mm); the minimum tread depth shall be 9 inches (229 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).

M. ~~Add Exception 3 to~~ Change Section ~~1009.7~~ 1013.8 of the IBC to read:

~~3. Spiral stairways used as a means of egress from technical production areas.~~ 1013.8 Window sills. In Occupancy Groups R-2 and R-3, one-family and two-family and multiple-family dwellings, where the opening of the sill portion of an operable window is located more than 72 inches (1829 mm) above the finished grade or other surface below, the lowest part of the clear opening of the window shall be at a height not less than 18 inches (457 mm) above the finished floor surface of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch-diameter (102 mm) sphere where such openings are located within 18 inches (457 mm) of the finished floor.

Exceptions:

1. Operable windows where the sill portion of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F 2006.

2. Windows whose openings will not allow a 4-inch diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.

3. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.

4. Windows that are provided with window opening control devices that comply with Section 1013.8.1.

N. Add Exception 3 to Item 4 of Section 1014.2 of the IBC to read:

3. A maximum of one exit access is permitted to pass through kitchens, store rooms, closets or spaces used for similar purposes provided such a space is not the only means of exit access.

O. Change Exception 1 in Item 1 of Section 1015.1 of the IBC to read:

1. In Groups R-2 and R-3 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall also apply to Group R-2 occupancies where Section 903.2.8, Exception 1 or 2 is applicable.

P. Change Table 1015.1 of the IBC to read:

Table 1015.1
Spaces With One Exit or Exit Access Doorway

Occupancy	Maximum Occupant Load
A, B, E[a], F, M, U	50
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, I-4, R	10
S	29

a. Day care maximum occupant load is 10.

~~P.~~ Q. Change Exception 2 of Section 1015.2.1 of the IBC to read:

2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the exit doors or exit access doorways shall not be less than one-fourth of the length of the maximum overall diagonal dimension of the area served.

~~Q. Delete Sections 1015.6 and 1015.6.1 of the IBC.~~

R. Change Exception 2 of Section 1018.1 of the IBC to read:

2. A fire-resistance rating is not required for corridors contained within a dwelling or sleeping unit in an occupancy in Group I-1 and Group R.

S. Change Table 1018.1 of the IBC to read:

Table 1018.1
Corridor Fire-Resistance Rating

Occupancy	Occupant Load Served By Corridor	Required Fire-Resistance Rating (hours)	
		Without sprinkler system	With sprinkler system[b]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	1	0.5
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	0

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. Buildings equipped throughout with an automatic sprinkler system in accordance with ~~Sections~~ Section 903.3.1.1 or 903.3.1.2 where allowed.

~~S.~~ T. Add ~~Exception 7 to Section~~ an additional row to Table 1018.2 of the IBC to read:

~~7. Forty-four inches (1118 mm). In corridors of Group I-2 assisted living facilities serving areas with wheelchair, walker and gurney traffic where residents are capable of self-preservation or where resident rooms have a means of egress door leading directly to the outside.~~

Occupancy	Width (minimum)
In corridors of Group I-2 assisted living facilities licensed by the Virginia Department of Social Services serving areas with wheelchair, walker, and gurney traffic where residents are capable of self-preservation or where resident rooms have a means of egress, door leading directly to the outside.	44 inches

~~T.~~ U. Change the first row in Table ~~1021.2~~ 1021.2(2) to read:

~~Table 1021.2~~ Table 1021.2(2)
~~Stories With One Exit~~

~~Story~~	~~Occupancy~~	~~Maximum Occupants (or Dwelling Units) Per Floor and Travel Distance~~
~~First story or basement~~	~~A, B[d], E[e], F[d], M, U, S[d]~~	~~50 occupants and 75 feet travel distance~~
	~~H-2, H-3~~	~~3 occupants and 25 feet travel distance~~
	~~H-4, H-5, I, R~~	~~10 occupants and 75 feet travel distance~~
	~~S[a]~~	~~29 occupants and 100 feet travel distance~~
~~Second story~~	~~B[b], F, M, S[a]~~	~~29 occupants and 75 feet travel distance~~
	~~R-2~~	~~4 dwelling units and 50 feet travel distance~~
~~Third story~~	~~R-2[c]~~	~~4 dwelling units and 50 feet travel distance~~

~~For SI: 1 foot = 304.8 mm~~

~~a. For the required number of exits for parking structures, see Section 1021.1.2.~~

~~b. For the required number of exits for air traffic control towers, see Section 412.3.~~

~~c. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.~~

~~d. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.~~

~~e. Day care occupancies shall have a maximum occupant load of 10.~~

Story	Occupancy	Maximum Occupants per Story	Maximum Exit Access

			Travel Distance
First story or basement	A, B[b], E, F[b], M, U, S[b]	50 occupants	75 feet

~~U. Change Exception 6 of Section 1022.1 of the IBC to read:~~

~~6. Means of egress stairways as provided for in Section 410.6.2 are not required to be enclosed.~~

V. Change Section ~~1022.8~~ 1022.9 of the IBC to read:

~~1022.8~~ 1022.9 Floor identification signs. A sign shall be provided at each floor landing in exit enclosures connecting more than three stories designating the floor level, the terminus of the top and bottom of the exit enclosure and the identification of the stair or ramp by designation with a letter of the alphabet. The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the enclosure for the fire department. The sign shall be located five feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. Floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

W. Change Section 1024.1 of the IBC to read:

1024.1 General. Approved luminous egress path markings delineating the exit path shall be provided in buildings of Groups A, B, E, I, M and R-1 having occupied floors located more than 420 feet (128 016 mm) above the lowest level of fire department vehicle access in accordance with Sections 1024.1 through 1024.5.

~~Exceptions 1.~~ Exception: Luminous egress path markings shall not be required on the level of exit discharge in lobbies that serve as part of the exit path in accordance with Section 1027.1, Exception 1.

~~2. Luminous egress path markings shall not be required in areas of open parking garages that serve as part of the exit path in accordance with Section 1027.1, Exception 3.~~

13VAC5-63-250. Chapter 11 Accessibility.

A. Add an exception to Section 1101.2 of the IBC to read:

Exception: Wall-mounted visible alarm notification appliances in Group I-3 occupancies shall be permitted to be a maximum of 120 inches (3048 mm) above the floor or ground, measured to the bottom of the appliance. Such appliances shall otherwise comply with all applicable requirements.

B. Add Section 1103.2.16 to the IBC to read:

1103.2.16 Raised and lowered areas in places of religious worship. Raised or lowered areas in places of religious worship are not required to be accessible or to be served by an accessible route provided such areas are used exclusively for the performance of religious ceremonies and are located within an accessible story or mezzanine.

C. Change Section 1106.1 of the IBC and replace Table 1106.1 of the IBC with Tables 1106.1(1) and 1106.1(2) to read:

1106.1 Required. Where parking is provided, accessible parking spaces shall be provided in compliance with Tables 1106.1(1) and 1106.1(2), as applicable, except as required by Sections 1106.2 through 1106.4. Where more than one parking facility is provided on a site, the number of parking spaces required to be accessible shall be calculated separately for each parking facility.

Exception: This section does not apply to parking spaces used exclusively for buses, trucks, other delivery vehicles, law-enforcement vehicles, or vehicular impound and motor pools where lots accessed by the public are provided with an accessible passenger loading zone.

Table 1106.1(1)
Accessible Parking Spaces for Groups A, B, E, M, R-1, R-2, and I[a]

Total Parking Spaces Provided	Required Minimum Number of Accessible Spaces
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 125	5
126 - 150	6
151 - 200	7
201 - 300	8
301 - 400	9
401 - 500	10
501 - 1,000	2.33% of total
1,001 and over	23, plus one for each 100, or fraction thereof, over 1,000

a. Condominium parking in Group R-2 occupancies where parking is part of the unit purchase shall be in accordance with Table 1106.1(2).

Table 1106.1(2)
Accessible Parking Spaces for Groups F, S, H, R-3, R-4, and U

Total Parking Spaces Provided	Required Minimum Number of Accessible Spaces
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 150	5
151 - 200	6
201 - 300	7
301 - 400	8
401 - 500	9
501 - 1,000	2.0% of total
1,001 and over	20, plus one for each 100, or fraction thereof, over 1,000

D. Add Section 1106.8 to the IBC to read:

1106.8 Identification of accessible parking spaces. In addition to complying with applicable provisions of this chapter, all accessible parking spaces shall be identified by above grade signs. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. All above grade parking space signs shall have the bottom edge of the sign no lower than four feet (1219 mm) nor higher than seven feet (2133 mm) above the parking surface. All disabled parking signs shall include the following language: PENALTY, $100-500 Fine, TOW-AWAY ZONE. Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than four feet above the parking surface.

~~D.~~ E. Add Sections 1109.16 and 1109.16.1 to the IBC to read:

1109.16 Dwellings containing universal design features for accessibility. Group R-5 occupancies not subject to Section R320.1 of the IRC and Group R-3 occupancies not subject to Section 1107.6.3 may comply with this section and be approved by the local building department as dwellings containing universal design features for accessibility.

1109.16.1 Standards for dwellings containing universal design features for accessibility. When the following requirements are met, approval shall be issued by the local building department indicating that a dwelling has been constructed in accordance with these standards and is deemed to be a dwelling containing universal design features for accessibility.

1. The dwelling must comply with the requirements for Type C units under Section 1005 of ICC A117.1 with the following changes to the those requirements:

1.1. That at least one bedroom be added to the interior spaces required by Section 1005.4 of ICC A117.1.

1.2. In the toilet room or bathroom required by Section 1005 of ICC A117.1, in addition to the lavatory and water closet, a shower or bathtub complying with Section 1004.11.3.2.3 of ICC A117.1 shall be provided and shall include reinforcement for future installation of grab bars in accordance with Section 1004.11.1 of ICC A117.1.

1.3. That the exception to Section 1005.4 of ICC A117.1 is not applicable.

1.4. That there be a food preparation area complying with Section 1005.7 of ICC A117.1 on the entrance level.

1.5. That any thermostat for heating or cooling on the entrance level comply with Section 1005.8 of ICC A117.1.

F. Change Item 1 of Section 1110.1 of the IBC to read:

1. Accessible parking spaces required by Section 1106.1.

13VAC5-63-260. Chapter 12 Interior environment.

A. Add the following ~~definitions~~ to the list of terms in Section 1202.1 of the IBC:

Day-night average sound level (Ldn). ~~A 24 hour energy average sound level expressed in dBA, with a 10 decibel penalty applied to noise occurring between 10 p.m. and 7 a.m.~~

Sound transmission class (STC) rating. ~~A single number characterizing the sound reduction performance of a material tested in accordance with ASTM E90 90, "Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions."~~

B. Add Section 1203.4.4 to the IBC to read:

1203.4.4 Insect screens in occupancies other than Group R. Every door, window and other outside opening for natural ventilation serving structures classified as other than a residential group containing habitable rooms, food preparation areas, food service areas, or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged, or stored, shall be supplied with approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

Exception: Screen doors shall not be required for out swinging doors or other types of openings which make screening impractical, provided other approved means, such as air curtains or insect repellent fans are provided.

C. Add Section 1203.4.5 to the IBC to read:

1203.4.5 Insect screens in Group R occupancies. Every door, window and other outside opening required for natural ventilation purposes which serves a structure classified as a residential group shall be supplied with approved tightly fitted screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

D. Change Section 1207.1 of the IBC to read:

1207.1 Scope. Sections 1207.2 and 1207.3 shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public areas such as halls, corridors, stairs or service areas. Section 1207.4 applies to the construction of the exterior envelope of Group R occupancies within airport noise zones and to the exterior envelope of Group A, B, E, I and M occupancies in any locality in whose jurisdiction, or adjacent jurisdiction, is located a United States Master Jet Base, a licensed airport or United States government or military air facility, when such requirements are enforced by a locality pursuant to § 15.2-2295 of the Code of Virginia.

E. Add Section 1207.4 to the IBC to read:

1207.4 Airport noise attenuation standards. Where the Ldn is determined to be 65 dBA or greater, the minimum STC rating of structure components shall be provided in compliance with Table 1207.4. As an alternative to compliance with Table 1207.4, structures shall be permitted to be designed and constructed so as to limit the interior noise level to no greater than 45 Ldn. Exterior structures, terrain and permanent plantings shall be permitted to be included as part of the alternative design. The alternative design shall be certified by an RDP.

F. Add Table 1207.4 to the IBC to read:

Table 1207.4.
Airport Noise Attenuation Standards.

Ldn	STC of exterior walls and roof/ceiling assemblies	STC of doors and windows
65-69	39	25
70-74	44	33
75 or greater	49	38

13VAC5-63-264. Chapter 13 Energy efficiency.

Add Section 1301.1.1.1 to the IBC to read:

1301.1.1.1 Changes to the ~~International Energy Conservation Code (IECC)~~ IECC. The following ~~change~~ changes shall be made to the IECC:

1. Add Exception 3 to Section C402.4.5.2 to read:

3. Any grease duct serving a Type I hood installed in accordance with IMC Section 506.3 shall not be required to have a motorized or gravity damper.

2. Change Section C402.4.8 to read:

C402.4.8 Recessed lighting. Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate or not more 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires installed in the thermal envelope shall be sealed with a gasket or caulk between the housing and interior wall or ceiling covering.

3. Add Exception 4 to Section C403.2.4.4 to read:

4. Any grease duct serving a Type I hood installed in accordance with IMC Section 506.3 shall not be required to have a motorized or gravity damper.

4. Change the exception to Section C405.1 to read:

Exception: Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through C405.5, provided that not less than 75% of the permanently installed luminaires, other than low-voltage lighting, shall be fitted for, and contain only, high-efficacy lamps.

5. Change Section C405.6 to read:

C405.6 Exterior lighting (Mandatory). All exterior lighting, other than low-voltage landscape lighting, shall comply with Sections C405.6.1 and C405.6.2.

Exception: Where approved because of historical, safety, signage, or emergency considerations.

6. Delete Section ~~401.3~~ R401.3.

7. Change the ceiling R-value and wood frame wall R-value categories for climate zone "4 except Marine" in Table R402.1.1 to read:

Ceiling R-Value	Wood Frame Wall R-Value
38	15 or 13 + 1[h]

8. Change the ceiling U-factor and frame wall U-factor categories for climate zone "4 except Marine" in Table R402.1.3 to read:

Ceiling U-Factor	Frame Wall U-Factor
0.030	0.079

9. Change Sections R402.2.1 and R402.2.4 to read:

R402.2.1 Ceilings with attic spaces. When Section R402.1.1 would require R-38 in the ceiling, installing R-30 over 100% of the ceiling area shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Similarly, when Section R402.1.1

would require R-49 in the ceiling, installing R-38 over 100% of the ceiling area shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the U-factor alternative approach in Section R402.1.3 and the total UA alternative in Section R402.1.4.

R402.2.4 Access hatches and doors. Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated in accordance with the following values:

1. Hinged vertical doors shall have a minimum overall R-5 insulation value;

2. Hatches and scuttle hole covers shall be insulated to a level equivalent to the insulation on the surrounding surfaces; and

3. Pull down stairs shall have a minimum of 75% of the panel area having R-5 rigid insulation.

Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened and to provide a permanent means of maintaining the installed R-value of the loose fill insulation.

10. Delete Section R402.3.6 and change Sections R402.4 and R402.4.1.1 to read:

R402.4 Air leakage. The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

R402.4.1.1 Installation (Mandatory). The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

11. Change the title of the "Criteria" category of Table R402.4.1.1; change the "Walls," "Shower/tub on exterior wall" and "Fireplace" categories of Table R402.4.1.1, and add footnotes "b" and "c" to Table R402.4.1.1 to read:

Component	Criteria[a,b]
Walls	Cavities within corners and headers shall be insulated by completely filling the cavity with a material having a minimum thermal resistance of R-3 per inch. The junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.
Shower or tub on exterior wall[c]	Exterior walls adjacent to showers and tubs shall be insulated and an air barrier installed on the interior side of the exterior wall, adjacent to the shower or tub.
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors or tight-fitting flue dampers.

b. Structural integrity of headers shall be in accordance with the applicable building code.

c. Air barriers used behind showers and tubs on exterior walls shall be of a permeable material that does not cause the entrapment of moisture in the stud cavity.

12. Change Section R402.4.1.2 and add Sections R402.4.1.2.1, R402.4.1.2.2, and R402.4.1.3 to read:

R402.4.1.2 Air sealing. Building envelope air tightness shall be demonstrated to comply with either Section R402.4.1.2.1 or R402.4.1.2.2.

R402.4.1.2.1 Testing option. The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;

2. Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers, shall be closed, but not sealed beyond intended infiltration control measures;

3. Interior doors, if installed at the time of the test, shall be open;

4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;

5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and

6. Supply and return registers, if installed at the time of the test, shall be fully open.

R402.4.1.2.2 Visual inspection option. Building envelope tightness shall be considered acceptable when the items listed in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier.

R402.4.1.3 Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate not exceeding 5 changes per hour as verified in accordance with Section R402.4.1.2.

13. Change Section R403.1.1 to read:

R403.1.1 Programmable thermostat. The thermostat controlling the primary heating or cooling system of the dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C).

~~2.~~ 14. Change Section ~~403.2.2~~ R403.2.2 to read:

~~403.2.2~~ R403.2.2 Sealing (Mandatory). ~~All ducts~~ Ducts, air handlers, and filter boxes ~~and building cavities used as ducts~~ shall be sealed. Joints and seams shall comply with ~~Section M1601.4.1 of~~ either the IMC or the ~~International Residential Code~~ IRC, as applicable. Verification of compliance with this section shall be in accordance with either Section ~~403.2.2.1~~ R403.2.2.1 or Section ~~403.2.2.2~~ R403.2.2.2.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.

2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

~~3.~~ 15. ~~Add~~ Change Section ~~403.2.2.1~~ R403.2.2.1 to read:

~~403.2.2.1~~ R403.2.2.1 Testing option. Duct tightness shall be verified by either of the following:

1. Post-construction test: ~~Leakage to outdoors~~ Total leakage shall be less than or equal to ~~8~~ 6 cfm ~~(3.78 L/s)~~ (169.9 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area ~~or a total leakage less than or equal to 12 cfm (5.66 L/s) per 100 ft² (9.29m²) of conditioned floor area~~ when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler ~~and closure~~ enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Rough-in test: Total leakage shall be less than or equal to ~~6~~ 5 cfm ~~(2.83 L/s)~~ (141.5 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the ~~roughed in~~ system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 5 cfm ~~(1.89 L/s)~~ (141.5 L/min) per 100 ~~ft²~~ square feet (9.29 m^2) of conditioned floor area.

Exception: ~~Duct tightness~~ The total leakage test is not required ~~if the~~ for ducts and air ~~handler and all ducts are~~ handlers located entirely within ~~conditioned space~~ the building thermal envelope.

When this option is chosen, testing shall be performed by approved qualified individuals, testing agencies or contractors. Testing and results shall be as prescribed in Section ~~403.2.2~~ R403.2.2 and approved recognized industry standards.

~~4.~~ 16. Add Section ~~403.2.2.2~~ R403.2.2.2 to read:

~~403.2.2.2~~ R403.2.2.2 Visual inspection option. In addition to the inspection of ducts otherwise required by this code, when the air handler and all ducts are not within conditioned space and this option is chosen to verify duct tightness, duct tightness shall be considered acceptable when the requirements of Section ~~403.2.2~~ R403.2.2 are field verified.

17. Add Section R403.2.2.3 to read:

R403.2.2.3 Sealed air handler. Air handlers shall have a manufacturer's designation for an air leakage of no more than 2.0% of the design air flow rate when tested in accordance with ASHRAE 193.

18. Change Section R403.4.2 to read:

R403.4.2 Hot water pipe insulation (Prescriptive). Insulation for hot water pipe with a minimum thermal resistance (R-value) of R-3 shall be applied to the following:

1. Piping larger than 3/4 inch nominal diameter.

2. Piping serving more than one dwelling unit.

3. Piping located outside the conditioned space.

4. Piping from the water heater to a distribution manifold.

5. Piping located under a floor slab.

6. Buried piping.

7. Supply and return piping in recirculation systems other than demand recirculation systems.

19. Delete Table R403.4.2.

20. Change Section R404.1 to read:

R404.1 Lighting equipment (Mandatory). A minimum of 50% of the lamps in permanently installed luminaires shall be high-efficacy lamps or a minimum of 50% of the permanently installed luminaires shall contain only high-efficacy lamps.

Exception: Low-voltage lighting shall not be required to utilize high-efficiency lamps.

21. Change the "Glazing" and "Air exchange rate" categories of Table R405.5.2(1) and add footnote "b-1" to read:

Building Component	Standard Reference Design	Proposed Design
Glazing[a]	Total area[b] is 15% of the conditioned floor area.	As proposed
Glazing[a]	Orientation: equally distributed to four cardinal compass orientations (North, East, South & West).	As proposed
Glazing[a]	U-factor: from Table R402.1.3	As proposed
Glazing[a]	SHGC: From Table R402.1.1 except that for climates with no requirement (NR) SHGC = 0.40 shall be used.	As proposed
Glazing[a]	Interior shade fraction: Summer (all hours when cooling is required) = 0.70 Winter (all hours when heating is required) = 0.85[b-1]	Same as standard referenced design[b-1]
Glazing[a]	External shading: none.	As proposed
Air exchange rate	Air leakage rate of 5 air changes per hour at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than 0.01 × CFA + 7.5 × (N_{br} + 1) where: CFA = conditioned floor area N_{br} = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate[c]. The mechanical ventilation rate[d] shall be in addition to the air leakage rate and shall be as proposed.

b-1. For fenestrations facing within 15 degrees (0.26 rad) of true south that are directly coupled to thermal storage mass, the winter interior shade fraction shall be permitted to be increased to .095 in the proposed design.

13VAC5-63-267. ~~Chapter 14 Exterior walls.~~ (Repealed.)

~~Change Section 1405.13.2 of the IBC to read:~~

~~1405.13.2 Window sills. In Occupancy Groups R-2 and R-3, one- and two-family and multiple-family dwellings, where the opening of the sill portion of an operable window is located more than 72 inches (1829 mm) above the finished grade or other surface below, the lowest part of the clear opening of the window shall be at a height not less than 18 inches (457 mm) above the finished floor surface of the room in which the window is located. Glazing between the floor and a height of 18 inches (457 mm) shall be fixed or have openings through which a 4-inch (102 mm) diameter sphere cannot pass.~~

~~Exception: Openings that are provided with window guards that comply with ASTM F2006 or F2090.~~

13VAC5-63-270. Chapter 16 Structural design.

A. Change Section 1609.3 of the IBC to read:

1609.3 Basic wind speed. The ~~basic~~ ultimate design wind speed, V_{ult}, in miles per hour (mph), for the determination of the wind loads shall be determined by ~~Figure 1609~~ Figures 1609A, 1609B, and 1609C. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category II buildings and structures shall be obtained from Figure 1609A. The ultimate design wind speed, V_{ult}, for use in the design of Risk Categories III and IV buildings and structures shall be obtained from Figure 1609B. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category I buildings and structures shall be obtained from Figure 1609C. ~~Wind~~ The ultimate design wind speeds for localities in special wind regions, near mountainous terrains, and near gorges shall be based on elevation. Areas at 4,000 feet in elevation or higher shall use ~~110~~ 142 V

mph ~~(48.4 m/s)~~ (62.5 m/s) and areas under 4,000 feet in elevation shall use ~~90~~ 116 V mph ~~(39.6 m/s)~~ (51 m/s). Gorge areas shall be based on the highest recorded speed per locality or in accordance with local jurisdiction requirements determined in accordance with Section ~~6.5.4~~ 26.5.1 of ASCE 7.

In nonhurricane-prone regions, when the ~~basic~~ ultimate design wind speed, V_{ult}, is estimated from regional climatic data, the ~~basic~~ ultimate design wind speed, V_{ult}, shall be ~~not less than the wind speed associated with an annual probability of 0.02 (50-year mean recurrence interval), and the estimate shall be adjusted for equivalence to a three-second gust wind speed at 33 feet (10 m) above ground in exposure Category C. The data analysis shall be performed~~ determined in accordance with Section ~~6.5.4.2~~ 26.5.3 of ASCE 7.

B. Add Section 1612.1.1 to the IBC to read:

1612.1.1 Elevation of manufactured homes. New or replacement manufactured homes to be located in any flood hazard zone shall be placed in accordance with the applicable elevation requirements of this code.

Exception: Manufactured homes installed on sites in an existing manufactured home park or subdivision shall be permitted to be placed so that the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches (914 mm) above grade in lieu of being elevated at or above the base flood elevation provided no manufactured home at the same site has sustained flood damage exceeding 50% of the market value of the home before the damage occurred.

13VAC5-63-280. Chapter 17 Structural tests and special inspections.

A. Change Section 1703.1 of the IBC to read:

1703.1 Approved agency. An approved agency responsible for laboratory testing or special inspections, or both, must comply with the qualification, certification and experience requirements of ASTM E329 or the alternatives listed herein.

B. Change Section 1703.1.1 of the IBC to read:

1703.1.1 ~~Independent~~ Independence. An approved agency shall be objective and competent. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed. The special inspector and their agents shall be independent from the person, persons or contractor responsible for the physical construction of the project requiring special inspections.

C. Change Section 1703.1.3 of the IBC to read:

1703.1.3 Personnel. An approved agency shall employ experienced personnel educated in conducting, supervising and evaluating tests or inspections, or both. Upon request by the building official, documentation shall be provided demonstrating the applicable agency's accreditation as noted in ASTM E329 and individuals' resumes indicating pertinent training, certifications and other qualifications for special inspection personnel associated with the proposed construction requiring special inspections. The building official may prescribe the manner of qualification documentation and frequency of updating information regarding agency or individual inspector approval.

Firms providing special inspection services or individual inspectors seeking approval of alternative certifications or qualifications, or both, listed in ASTM E329 may submit documentation demonstrating equivalency. This documentation may include evidence of meeting other recognized standards or alternative certifications to demonstrate that the minimum qualifications, certification and experience intended by ASTM E329 have been met. The building official may, if satisfied that equivalency has been demonstrated, approve the credentials of the firm or individual.

D. Change Section ~~1704.1~~ 1704.2 of the IBC to read:

~~1704.1. General~~ 1704.2 Special inspections. Where application is made for construction as described in this section, the owner shall employ one or more special inspectors to provide inspections during construction on the types of work listed under Section 1704. All individuals or agents performing special inspection functions shall operate under the direct supervision of an RDP in responsible charge of special inspection activities, also known as the "special inspector." The special inspector shall ensure that the individuals under their charge are performing only those special inspections or laboratory testing that are consistent with their knowledge, training and certification for the specified inspection or laboratory testing.

Exceptions:

1. Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.

2. Special inspections are not required for building components unless the design involves the practice of professional engineering or architecture as defined by the laws of this Commonwealth and regulations governing the professional registration and certification of engineers and architects.

3. Unless otherwise required by the building official, special inspections are not required for occupancies in Groups R-3, R-4 or R-5 and occupancies in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

E. Change Section ~~1704.1.1~~ 1704.2.3 of the IBC to read:

~~1704.1.1~~ 1704.2.3 Statement of special inspections. The permit applicant shall submit a statement of special inspections prepared by the RDP in responsible charge in

accordance with Section 111.1. This statement shall be in accordance with Section ~~1705~~ 1704.3.

Exceptions:

1. A statement of special inspections is not required for structures designed and constructed in accordance with the conventional construction provisions of Section 2308.

2. The statement of special inspections is permitted to be prepared by a qualified person approved by the building official for construction not designed by a registered design professional.

F. Change category "12" of Table ~~1704.4~~ 1705.3 of the IBC to read:

Verification and inspection	Continuous	Periodic	Referenced Standard	IBC Reference
12. Inspect formwork for shape, location and dimensions of the concrete member being formed, shoring and reshoring.	--	X	ACI 318: ~~6.1, 6.2~~ 6.1.1	~~1906~~ --

13VAC5-63-295. Chapter 23 Wood.

Change Item 3.2 of Section 2308.2 of the IBC to read:

3.2. Live loads shall not exceed 40 psf (1916 N/m^2) for floors.

Exception: Concrete slab-on-grade live load limited only by allowable soil bearing pressure.

13VAC5-63-300. Chapter 27 Electrical.

A. Change Section 2701.1 of the IBC to read:

2701.1 Scope. This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of this code and NFPA 70.

B. Add Section 2701.1.1 to the IBC to read:

2701.1.1 Changes to NFPA 70. The following change shall be made to NFPA 70:

1. Change Sections 334.10(2) and 334.10(3) of NFPA 70 to read:

(2) Multifamily dwellings not exceeding four floors above grade and multifamily dwellings of any height permitted to be of Types III, IV and V construction except in any case as prohibited in 334.12.

(3) Other structures not exceeding four floors above grade and other structures of any height permitted to be of Types III, IV and V construction except in any case as prohibited in 334.12. In structures exceeding four floors above grade, cables shall be concealed within walls, floors or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

For the purpose of Items 2 and 3 above, the first floor of a building shall be that floor that has 50% or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage or similar use shall be permitted.

2. Change Exception 2 to Section 700.12(F) of NFPA 70 to read:

2. Where the normal power branch circuits that supply luminaries providing illumination immediately on the inside and outside of exit doors are supplied by the same service or feeder, the remote heads providing emergency illumination for the exterior of an exit door shall be permitted to be supplied by the unit equipment serving the area immediately inside the exit door.

C. Add Section 2701.1.2 to the IBC to read:

2701.1.2 Temporary connection to dwelling units. The building official shall give permission to energize the electrical service equipment of a one- or two-family dwelling unit when all of the following requirements have been approved:

1. The service wiring and equipment, including the meter socket enclosure, shall be installed and the service wiring terminated.

2. The grounding electrode system shall be installed and terminated.

3. At least one receptacle outlet on a ground fault protected circuit shall be installed and the circuit wiring terminated.

4. Service equipment covers shall be installed.

5. The building roof covering shall be installed.

6. Temporary electrical service equipment shall be suitable for wet locations unless the interior is dry and protected from the weather.

D. Add Section 2701.1.3 to the IBC to read:

2701.1.3 Assisted living facility generator requirements. Generators installed to comply with regulations for assisted living facilities licensed by the Virginia Department of Social Services shall be permitted to be optional standby systems.

E. Change Section 2702.2.17 of the IBC to read:

2702.2.17 Group I-2 and I-3 occupancies. Emergency power shall be provided in accordance with Section 407.11 for Group I-2 occupancies licensed by the Virginia

Department of Health as a hospital, nursing or hospice facility. Emergency power shall be provided for doors in Group I-3 occupancies in accordance with Section 408.4.2.

13VAC5-63-310. Chapter 28 Mechanical systems.

A. Change Section 2801.1 of the IBC to read:

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed and installed in accordance with this chapter, the ~~International Mechanical Code~~ IMC and the ~~International Fuel Gas Code~~ IFGC. Masonry chimneys, fireplaces and barbecues shall comply with the ~~International Mechanical Code~~ IMC and Chapter 21 of this code.

Exception: This code shall not govern the construction of water heaters, boilers and pressure vessels to the extent which they are regulated by the Virginia Boiler and Pressure Vessel Regulations (16VAC25-50). However, the building official may require the owner of a structure to submit documentation to substantiate compliance with those regulations.

B. Add Section 2801.1.1 to the IBC to read:

2801.1.1 Required heating in dwelling units. Heating facilities shall be required in every dwelling unit or portion thereof which is to be rented, leased or let on terms, either expressed or implied, to furnish heat to the occupants thereof. The heating facilities shall be capable of maintaining the room temperature at 65°F (18°C) during the period from October 15 to May 1 during the hours between 6:30 a.m. and 10:30 p.m. of each day and not less than 60°F (16°C) during other hours when measured at a point three feet (914 mm) above the floor and three feet (914 mm) from the exterior walls. The capability of the heating system shall be based on the outside design temperature required for the locality by this code.

C. Add Section 2801.1.2 to the IBC to read:

2801.1.2 Required heating in nonresidential structures. Heating facilities shall be required in every enclosed occupied space in nonresidential structures. The heating facilities shall be capable of producing sufficient heat during the period from October 1 to May 15 to maintain a temperature of not less than 65°F (18°C) during all working hours. The required room temperature shall be measured at a point three feet (914 mm) above the floor and three feet (914 mm) from the exterior walls.

Processing, storage and operation areas that require cooling or special temperature conditions and areas in which persons are primarily engaged in vigorous physical activities are exempt from these requirements.

D. Add Section 2801.1.3 to the IBC to read:

2801.1.3 Changes to the ~~International Mechanical Code (IMC)~~ IMC. The following changes shall be made to the IMC:

1. Change Section 403.3 of the IMC to read:

403.3 Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges and other designated areas where smoking is permitted, the ventilation rates in Table 403.3 are based on the absence of smoking in occupiable spaces.

Exception: The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.

2. Add the following areas to Table 403.3 of the IMC in the occupancy classifications shown:

OCCUPANCY CLASSIFICATION	~~People Outdoor Airflow Rate in Breathing Zone~~ ~~Cfm/ person~~ Occupant Density Number/ 1000 ft²	~~Area~~ People Outdoor Airflow Rate in Breathing Zone, R_p ~~cfm/ft²~~ cfm/person	~~Default Occupant Density~~ ~~#/1000 ft²~~ Area Outdoor Airflow Rate in Breathing Zone, R_a cfm/ft²	Exhaust Airflow Rate Cfm/ft²
Food and beverage service				
Bars or cocktail lounges designated as an area ~~when~~ where smoking is permitted[b]	~~30~~ 100	~~–~~30	~~100~~ –	
Cafeteria or fast food designated as an area ~~when~~ where smoking is permitted[b]	~~20~~ 100	~~–~~20	~~100~~ –	
Dining rooms	~~20~~ 70	~~–~~20	~~70~~ –	

designated as an area ~~when~~ where smoking is permitted[b]				
Public spaces				
Lounges designated as an area where smoking is permitted[b]	~~30~~ 100	~~–~~30	~~100~~ –	

3. ~~Add~~ Change Section 505.1 of the IMC to read:

505.1 Domestic systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are provided, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum, or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. In Group R buildings, where installed in accordance with the manufacturer's installation instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

2.1. The PVC duct shall be installed under a concrete slab poured on grade.

2.2. The underfloor trench in which the PVC duct is installed shall be completely backfilled with sand or gravel.

2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.

2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.

2.5. The PVC duct shall be solvent cemented.

4. Add Section 505.3 to the IMC to read:

505.3 Other than Group R. In other than Group R occupancies, where electric domestic cooking appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and exhaust systems for such electric domestic cooking appliances shall be in accordance with Sections 505.1 and 505.2. In other than Group R occupancies, where fuel-fired domestic cooking appliances are utilized for domestic purposes, a Type I or Type II hood shall be provided as required for the type of appliances and processes in accordance with Section 507.2.

5. Change Section 507.2.3 of the IMC to read:

507.2.3 Domestic cooking appliances used for commercial purposes. Domestic cooking appliances utilized for commercial purposes shall be provided with a Type I or Type II hood as required for the type of appliances and processes in accordance with Sections 507.2, 507.2.1, and 507.2.2. Domestic cooking appliances utilized for domestic purposes shall comply with Section 505.

6. Change Section ~~801.1.1 to~~ 908.5 of the IMC to read:

~~801.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:~~

~~1. Vent or chimney systems are sized in accordance with this code.~~

~~2. Vent or chimney systems are clean, free of any obstruction or blockages, defects or deterioration and are in operable condition.~~

~~Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.~~

908.5 Water supply. Cooling towers, evaporative coolers, and fluid coolers shall be provided with an approved water supply and sized for peak demand. The quality of the water shall be provided in accordance the equipment manufacturer's recommendations. The piping system and protection of the potable water supply shall be installed as required by the IPC.

~~4.~~ 7. Change Item 4 of Section ~~1101.10~~ 928.1 of the IMC to read:

~~1101.10 Locking access port caps. Refrigerant circuit access ports located outdoors shall be fitted with locking type tamper resistant caps or shall be otherwise secured to prevent unauthorized access.~~

4. Be provided with an approved water supply and sized for peak demand. The quality of the water shall be provided in accordance the equipment manufacturer's recommendations. The piping system and protection of the potable water supply shall be installed as required by the IPC.

E. Add Section 2801.1.4 to the IBC to read:

2801.1.4 Changes to the ~~International Fuel Gas Code~~ IFGC. The following changes shall be made to the ~~International Fuel Gas Code~~ IFGC:

1. Change Section 301.1 of the ~~International Fuel Gas Code~~ IFGC to read:

301.1 Scope. This code shall apply to the installation of fuel gas piping systems, fuel gas utilization equipment, and related accessories as follows:

1. Coverage of piping systems shall extend from the point of delivery to the connections with gas utilization equipment. (See "point of delivery.")

2. Systems with an operating pressure of 125 psig (862 kPa gauge) or less.

Piping systems for gas-air mixtures within the flammable range with an operating pressure of 10 psig (69 kPa gauge) or less.

LP-Gas piping systems with an operating pressure of 20 psig (140 kPa gauge) or less.

3. Piping systems requirements shall include design, materials, components, fabrication, assembly, installation, testing and inspection.

4. Requirements for gas utilization equipment and related accessories shall include installation, combustion and ventilation air and venting.

This code shall not apply to the following:

1. Portable LP-Gas equipment of all types that are not connected to a fixed fuel piping system.

2. Installation of farm equipment such as brooders, dehydrators, dryers, and irrigation equipment.

3. Raw material (feedstock) applications except for piping to special atmosphere generators.

4. Oxygen-fuel gas cutting and welding systems.

5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen, and nitrogen.

6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms, and natural gas processing plants.

7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by chemical reactions or used in chemical reactions.

8. LP-Gas installations at utility gas plants.

9. Liquefied natural gas (LNG) installations.

10. Fuel gas piping in power and atomic energy plants.

11. Proprietary items of equipment, apparatus, or instruments such as gas generating sets, compressors, and calorimeters.

12. LP-Gas equipment for vaporization, gas mixing, and gas manufacturing.

13. Temporary LP-Gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.

14. Installation of LP-Gas systems for railroad switch heating.

15. Installation of LP-Gas and compressed natural gas (CNG) systems on vehicles.

16. Except as provided in Section 401.1.1, gas piping, meters, gas pressure regulators, and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-Gas.

17. Building design and construction, except as specified herein.

2. Add Section ~~404.9.3~~ 404.11.3 to the ~~International Fuel Gas Code~~ IFGC to read:

~~404.9.3~~ 404.11.3 Coating application. Joints in gas piping systems shall not be coated prior to testing and approval.

~~3. Add Section 501.1.1 to the International Fuel Gas Code to read:~~

~~501.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:~~

~~1. Vent or chimney systems are sized in accordance with this code.~~

~~2. Vent or chimney systems are clean, free of any obstruction or blockages, defects or deterioration and are in operable condition.~~

~~Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.~~

13VAC5-63-320. Chapter 29 Plumbing systems.

A. Change Section 2901.1 of the IBC to read:

2901.1 Scope. The provisions of this chapter and the ~~International Plumbing Code (IPC)~~ IPC shall govern the design and installation of all plumbing systems and equipment, except that as provided for in Section 103.11 for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality. The approval of pumping and electrical equipment associated with such water supply sources and sewage disposal systems shall, however, be the responsibility of the building official.

Note: See also the Memorandum of Agreement in the "Related Laws Package," which is available from DHCD.

~~B. Add Section 2901.1.1 to the IBC to read:~~

~~2901.1.1 Use of Appendix C of the IPC for gray water and rain water recycling systems. In addition to other applicable provisions of the IPC, gray water recycling systems and rain water recycling systems shall comply~~

~~with the provisions in Appendix C of the IPC. In the use of Appendix C of the IPC for rain water recycling systems, the term "rain water" shall be substituted for the term "gray water." Gray water recycling systems and rain water recycling systems shall be separate systems and shall not be interconnected.~~

~~C.~~ B. Add Section ~~2901.1.2~~ 2901.1.1 to the IBC to read:

~~2901.1.2~~ 2901.1.1 Changes to the IPC. The following changes shall be made to the IPC:

1. Add the following definitions to the IPC to read:

Nonpotable fixtures and outlets. Fixtures and outlets that are not dependent on potable water for the safe operation to perform their intended use. Such fixtures and outlets may include, but are not limited to water closets, urinals, irrigation, mechanical equipment, and hose connections to perform operations, such as vehicle washing and lawn maintenance.

Nonpotable water systems. Water systems for the collection, treatment, storage, distribution, and use or reuse of nonpotable water. Nonpotable systems include reclaimed water, rainwater, and gray water systems.

Rainwater. Natural precipitation, including snow melt, from roof surfaces only.

Reclaimed water. Reclaimed water means water resulting from the treatment of domestic, municipal, or industrial wastewater that is suitable for a water reuse that would not otherwise occur. Specifically excluded from this definition is "gray water."

Stormwater. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

2. Change the following definition in the IPC to read:

Gray water. Water discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays.

3. Change the exception to Section 301.3 of the IPC to read:

~~301.3 Connections to drainage system. All plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems required by Chapter 8.~~

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved nonpotable gray water system ~~or rain water system for flushing of water closets and urinals or for subsurface landscape irrigation~~ in accordance with the applicable provisions of Chapter 13.

~~2.~~ 4. Delete Sections 311 and 311.1 of the IPC.

~~3. Change~~ 5. Modify the Group A-5 "Description" category of Table 403.1 of the IPC to read:

Stadiums, amusement parks, pools, bleachers, and grandstands for outdoor sporting events and activities[h]

6. Add footnote "h" to Table 403.1 of the IPC to read:

h. The occupant load for pools shall be in accordance with the "Skating rinks, swimming pools" category of Table 1004.1.2 of the IBC.

7. Add Section 403.1.3 and Table 403.1.3 to the IPC to read:

403.1.3 Marina fixtures. Notwithstanding any provision to the contrary, plumbing fixtures shall be provided for marinas in the minimum number shown in Table 403.1.3. Fixtures shall be located within 500 feet walking distance from the shore end of any dock they serve. Separate facilities shall be provided for each sex with an equal number of fixtures of each type in each facility, except that separate facilities are not required where the number of slips is less than 25. Urinals may be substituted for up to 50% of water closets.

Table 403.1.3
Minimum Number of Required Plumbing Fixtures for Marinas

Number of Slips	Plumbing Fixtures		
	Water Closets	Lavatories	Showers
1 - 24	1	1	1
25 - 49	4	4	2
50 - 99	6	4	2
100 - 149	8	6	4
150 - 199	10	8	4
200 - 249	12	10	6
250 or greater	Two additional fixtures of each type for each 100 additional slips.		

8. Change Section 403.3.3 of the IPC to read:

403.3.3 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

Exceptions:

1. The location and maximum travel distances to required employee facilities in factory and industrial occupancies

are permitted to exceed that required by this section, provided that the location and maximum travel distance are approved.

2. The location and maximum travel distances to the required public facilities located on cemetery property are permitted to exceed that required by this section, provided that the location and maximum travel distance are located on the same property and approved.

9. Change Section 405.3.2 of the IPC to read:

405.3.2 Public lavatories. In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet.

Exception: In educational use occupancies, the required lavatory shall be permitted to be located adjacent to the room or space containing the water closet provided that not more than one operational door is between the water closet and the lavatory.

10. Add Section ~~602.1 of~~ 602.2.1 the IPC to read:

~~602.1 General. Every structure equipped with plumbing fixtures and utilized for human occupancy or habitation shall be provided with a potable supply of water in the amounts and at the pressures specified in this chapter. This shall not prohibit the use of reclaimed water distribution systems installed in accordance with this code and the Virginia Water Reclamation and Reuse Regulation (9VAC25-740).~~

602.2.1 Nonpotable fixtures and outlets. Nonpotable water shall be permitted to serve nonpotable type fixtures and outlets in accordance with Chapter 13.

~~4. Change Section 604.1 of the IPC to read:~~

~~604.1 General. The design of the water distribution system, including any reclaimed water distribution systems governed by the Virginia Water Reclamation and Reuse Regulation (9VAC25-740), shall conform to accepted engineering practice. Methods utilized to determine pipe sizes shall be approved.~~

~~5. Add an exception to Section 608.8 of the IPC to read:~~

~~Exception: Reclaimed water supply systems shall be identified in accordance with the provisions of the Virginia Water Reclamation and Reuse Regulation (9VAC25-740).~~

~~6. Change Section 608.8.2 of the IPC to read:~~

~~608.8.2 Color. The color of the pipe identification shall be discernable and consistent throughout the building. The color purple shall be used to identify rain and gray water distribution systems.~~

~~7.~~ 11. Delete Section 701.9 of the IPC.

~~8.~~ 12. Add Section 703.6 of the IPC to read:

703.6 Tracer wire. Nonmetallic sanitary sewer piping that discharges to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the sewer within 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building sewer intersects with the public system. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a cleanout or at the building wall.

13. Add an exception to Section 1101.2 of the IPC to read:

Exception. Rainwater nonpotable water systems shall be permitted in accordance with Chapter 13.

14. Add Chapter 13 entitled "Nonpotable Water Systems" to the IPC.

15. Add Section 1301 entitled "General" to the IPC.

16. Add Sections 1301.1 through 1301.18, including subsections, to the IPC to read:

1301.1 Scope. The provisions of Chapter 13 shall govern the materials, design, construction, and installation of nonpotable water systems subject to this code. In addition to the applicable provision of this section, reclaimed water shall comply with the requirements of Section 1304.

1301.1.1 Design of nonpotable water systems. All portions of nonpotable water systems subject to this code shall be constructed using the same standards and requirements for the potable water systems or drainage systems as provided for in this code unless otherwise specified in this chapter.

1301.2 Makeup water. Makeup water shall be provided for all nonpotable water supply systems. The makeup water system shall be designed and installed to provide supply of water in the amounts and at the pressures specified in this code. The makeup water supply shall be potable and be protected against backflow in accordance with the applicable requirements of Section 608.

1301.2.1 Makeup water sources. Potable water shall be provided as makeup water for reclaimed water systems. Nonpotable water shall be permitted to serve as makeup water for gray water and rainwater systems.

1301.2.2 Makeup water supply valve. A full-open valve shall be provided on the makeup water supply line.

1301.2.3 Control valve alarm. Makeup water systems shall be fitted with a warning mechanism that alerts the user to a failure of the inlet control valve to close correctly. The alarm shall activate before the water within the storage tank begins to discharge into the overflow system.

1301.3 Sizing. Nonpotable water distribution systems shall be designed and sized for peak demand in accordance with approved engineering practice methods that comply with the applicable provisions of Chapter 6.

1301.4 Signage required. All nonpotable water outlets, other than water closets and urinals, such as hose connections, open-ended pipes, and faucets shall be identified at the point of use for each outlet with signage that reads as follows: "Nonpotable water is utilized for (insert application name). Caution: nonpotable water. DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and in colors in contrast to the background on which they are applied. The pictograph shown in Figure 1301.4 shall appear on the signage required by this section.

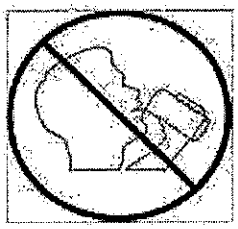


Figure 1301.4
Pictograph DO NOT DRINK

1301.5 Potable water supply system connections. Where a potable water supply system is connected to a nonpotable water system, the potable water supply shall be protected against backflow in accordance with the applicable provisions of Section 608.

1301.6 Nonpotable water system connections. Where a nonpotable water system is connected and supplies water to another nonpotable water system, the nonpotable water system that supplies water shall be protected against backflow in accordance with the applicable provisions of Section 608.

1301.7 Approved components and materials. Piping, plumbing components, and materials used in the nonpotable water drainage and distribution systems shall be approved for the intended application and compatible with the water and any disinfection or treatment systems used.

1301.8 Insect and vermin control. Nonpotable water systems shall be protected to prevent the entrance of insects and vermin into storage and piping systems. Screen materials shall be compatible with system material and shall not promote corrosion of system components.

1301.9 Freeze protection. Nonpotable water systems shall be protected from freezing in accordance with the applicable provisions of Chapter 3.

1301.10 Nonpotable water storage tanks. Nonpotable water storage tanks shall be approved for the intended application and comply with Sections 1301.10.1 through 1301.10.12.

1301.10.1 Sizing. The holding capacity of storage tanks shall be sized for the intended use.

1301.10.2 Inlets. Storage tank inlets shall be designed to introduce water into the tank and avoid agitating the contents of the storage tank. The water supply to storage tanks shall be controlled by fill valves or other automatic supply valves designed to stop the flow of incoming water before the tank contents reach the overflow pipes.

1301.10.3 Outlets. Outlets shall be located at least 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.

1301.10.4 Materials and location. Storage tanks shall be constructed of material compatible with treatment systems used to treat water. Above grade storage vessels shall be constructed using opaque, UV-resistant materials such as tinted plastic, lined metal, concrete, or wood or painted to prevent algae growth. Above grade storage tanks shall be protected from direct sunlight unless their design specifically incorporates the use of the sunlight heat transfer. Wooden storage tanks shall be provided with a flexible liner. Storage tanks and their manholes shall not be located directly under soil or waste piping or sources of contamination.

1301.10.5 Foundation and supports. Storage tanks shall be supported on a firm base capable of withstanding the storage tank's weight when filled to capacity. Storage tanks shall be supported in accordance with the applicable provisions of the IBC.

1301.10.5.1 Ballast. Where the soil can become saturated, an underground storage tank shall be ballasted, or otherwise secured, to prevent the effects of buoyancy. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the storage tank weight when full, consistent with the bearing capability of adjacent soil.

1301.10.5.2 Structural support. Where installed below grade, storage tank installations shall be designed to withstand earth and surface structural loads without damage.

1301.10.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table 606.5.4. The overflow outlet shall discharge at a point not less than 6 inches (152 mm) above the roof or roof drain, floor or floor drain, or over an open water-supplied fixture. The overflow outlet shall terminate through a check valve. Overflow pipes shall not be directed on walkways. The overflow drain shall

not be equipped with a shutoff valve. A minimum of one cleanout shall be provided on each overflow pipe in accordance with the applicable provisions of Section 708.

1301.10.7 Access. A minimum of one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an approved locking device or other approved method of securing access. Below grade storage tanks, located outside of the building, shall be provided with either a manhole not less than 24 inches (610 mm) square or a manhole with an inside diameter not less than 24 inches (610 mm). The design and installation of access openings shall prohibit surface water from entering the tank. Each manhole cover shall have an approved locking device or other approved method of securing access.

Exception: Storage tanks under 800 gallons (3028 L) in volume installed below grade shall not be required to be equipped with a manhole, but shall have an access opening not less than 8 inches (203 mm) in diameter to allow inspection and cleaning of the tank interior.

1301.10.8 Venting. Storage tanks shall be vented. Vents shall not be connected to sanitary drainage system. Vents shall be at least equal in size to the internal diameter of the drainage inlet pipe or pipes connected to the tank. Where installed at grade, vents shall be protected from contamination by means of a U-bend installed with the opening directed downward. Vent outlets shall extend a minimum of 12 inches (304.8 mm) above grade, or as necessary to prevent surface water from entering the storage tank. Vent openings shall be protected against the entrance of vermin and insects. Vents serving gray water tanks shall terminate in accordance with the applicable provisions of Sections 903 and 1301.8.

1301.10.9 Drain. Where drains are provided they shall be located at the lowest point of the storage tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7. A minimum of one cleanout shall be provided on each drain pipe in accordance with Section 708.

1301.10.10 Labeling and signage. Each nonpotable water storage tank shall be labeled with its rated capacity and the location of the upstream bypass valve. Underground and otherwise concealed storage tanks shall be labeled at all access points. The label shall read: "CAUTION: NONPOTABLE WATER – DO NOT DRINK." Where an opening is provided that could allow the entry of personnel, the opening shall be marked with the words: "DANGER – CONFINED SPACE." Markings shall be indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material mounted on the tank or shall be indelibly printed on the tank. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and shall be of a color in contrast with the background on which they are applied.

1301.10.11 Storage tank tests. Storage tanks shall be tested in accordance with the following:

1. Storage tanks shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain watertight without leakage for a period of 24 hours.

2. After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and verify that there are no leaks.

3. Following a successful test of the overflow, the water level in the tank shall be reduced to a level that is at 2 inches (50.8 mm) below the makeup water offset point. The tank drain shall be observed for proper operation. The makeup water system shall be observed for proper operation, and successful automatic shutoff of the system at the refill threshold shall be verified. Water shall not be drained from the overflow at any time during the refill test.

4. Air tests shall be permitted in lieu of water testing as recommended by the tank manufacturer or the tank standard.

1301.10.12 Structural strength. Storage tanks shall meet the applicable structural strength requirements of the IBC.

1301.11 Trenching requirements for nonpotable water system piping. Underground nonpotable water system piping shall be horizontally separated from the building sewer and potable water piping by 5 feet (1524 m) of undisturbed or compacted earth. Nonpotable water system piping shall not be located in, under, or above sewage systems cesspools, septic tanks, septic tank drainage fields, or seepage pits. Buried nonpotable system piping shall comply with the requirements of this code for the piping material installed.

Exceptions:

1. The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the sewer is equal to or greater than 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials conforms to Table 702.3.

2. The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is a minimum of 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table 605.4.

3. Nonpotable water pipe is permitted to be located in the same trench with building sewer piping, provided that such sewer piping is constructed of materials that comply with the requirements of Table 702.2.

4. The required separation distance shall not apply where a nonpotable water pipe crosses a sewer pipe, provided that the pipe is sleeved to at least 5 feet (1524 mm)

horizontally from the sewer pipe centerline on both sides of such crossing with pipe materials that comply with Table 702.2.

5. The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe provided that the potable water service pipe is sleeved for a distance of at least 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing with pipe materials that comply with Table 702.2.

1301.12 Outdoor outlet access. Sillcocks, hose bibs, wall hydrants, yard hydrants, and other outdoor outlets that are supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.

1301.13 Drainage and vent piping and fittings. Nonpotable drainage and vent pipe and fittings shall comply with the applicable material standards and installation requirements in accordance with provisions of Chapter 7.

1301.13.1. Labeling and marking. Identification of nonpotable drainage and vent piping shall not be required.

1301.14 Pumping and control system. Mechanical equipment, including pumps, valves, and filters, shall be accessible and removable in order to perform repair, maintenance, and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be designed for the intended application in accordance with the applicable provisions of Section 604.

1301.15 Water-pressure reducing valve or regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the nonpotable water distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with the applicable provisions of Section 604.8.

1301.16 Distribution pipe. Distribution piping utilized in nonpotable water stems shall comply with Sections 1301.16.1 through 1301.16.4.

1301.16.1 Materials, joints, and connections. Distribution piping and fittings shall comply with the applicable material standards and installation requirements in accordance with applicable provisions of Chapter 6.

1301.16.2 Design. Distribution piping shall be designed and sized in accordance with the applicable provisions of Chapter 6.

1301.16.3 Labeling and marking. Distribution piping labeling and marking shall comply with Section 608.8.

1301.16.4 Backflow prevention. Backflow preventers shall be installed in accordance with the applicable provisions of Section 608.

1301.17 Tests and inspections. Tests and inspections shall be performed in accordance with Sections 1301.17.1 through 1301.17.5.

1301.17.1 Drainage and vent pipe test. Drain, waste, and vent piping used for gray water and rainwater nonpotable water systems shall be tested in accordance with the applicable provisions of Section 312.

1301.17.2 Storage tank test. Storage tanks shall be tested in accordance with the Section 1301.10.11.

1301.17.3 Water supply system test. Nonpotable distribution piping shall be tested in accordance with Section 312.5.

1301.17.4 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and backwater valves shall be conducted in accordance with Section 312.10.

1301.17.5 Inspection of vermin and insect protection. Inlets and vent terminations shall be visually inspected to verify that each termination is installed in accordance with Section 1301.10.8.

1301.18 Operation and maintenance manuals. Operations and maintenance materials for nonpotable water systems shall be provided as prescribed by the system component manufacturers and supplied to the owner to be kept in a readily accessible location.

17. Add Section 1302 entitled "Gray Water Nonpotable Water Systems" to the IPC.

18. Add Sections 1302.1 through 1302.6, including subsections, to the IPC to read:

1302.1 Gray water nonpotable water systems. This code is applicable to the plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for gray water within buildings and to storage tanks and associated piping that are part of the distribution system for gray water outside of buildings. This code does not regulate equipment used for, or the methods of, processing, filtering, or treating gray water, that may be regulated by the Virginia Department of Health or the Virginia Department of Environmental Quality.

1302.1.1 Separate systems. Gray water nonpotable water systems, unless approved otherwise under the permit from the Virginia Department of Health, shall be separate from the potable water system of a building with no cross connections between the two systems except as permitted by the Virginia Department of Health.

1302.2 Water quality. Each application of gray water reuse shall meet the minimum water quality requirements set forth in Sections 1302.2.1 through 1302.2.4 unless otherwise superseded by other state agencies.

1302.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or

other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

1302.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

1302.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

1302.2.4 Filtration required. Gray water utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

1302.3 Storage tanks. Storage tanks utilized in gray water nonpotable water systems shall comply with Section 1301.10.

1302.4 Retention time limits. Untreated gray water shall be retained in storage tanks for a maximum of 24 hours.

1302.5 Tank Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1302.5.1.

Table 1302.5.1
Location of Nonpotable Gray Water Reuse Storage Tanks

Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5
Water wells	50
Streams and lakes	50
Water service	5
Public water main	10

1302.6 Valves. Valves shall be supplied on gray water nonpotable water drainage systems in accordance with Sections 1302.6.1 and 1302.6.2.

1302.6.1 Bypass valve. One three-way diverter valve certified to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated gray water to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be labeled to indicate the direction of flow, connection, and storage tank or drainfield connection. Bypass valves shall be provided with access for operation and maintenance. Two shutoff valves shall not be installed to serve as a bypass valve.

1302.6.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section 715.

19. Add Section 1303 entitled "Rainwater Nonpotable Water Systems" to the IPC.

20. Add Sections 1303.1 through 1303.10, including subsections, to the IPC to read:

1303.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of rainwater nonpotable water systems for the collection, storage, treatment, and distribution of rainwater for nonpotable applications.

1303.2 Water quality. Each application of rainwater reuse shall meet the minimum water quality requirements set forth in Sections 1303.2.1 through 1303.2.4 unless otherwise superseded by other state agencies.

1303.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

1303.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

1303.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

1303.2.4 Filtration required. Rainwater utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

1303.3 Collection surface. Rainwater shall be collected only from aboveground impervious roofing surfaces constructed from approved materials. Overflow or discharge piping from appliances or equipment, or both, including but not limited to evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection surfaces.

1303.4 Collection surface diversion. At a minimum, the first 0.04 inches (1.016 mm) of each rain event of 25 gallons (94.6 L) per 1000 square feet (92.9 m^2) shall be diverted from the storage tank by automatic means and not require the operation of manually operated valves or devices. Diverted water shall not drain onto other collection surfaces that are discharging to the rainwater system or to the sanitary sewer. Such water shall be diverted from the storage tank and discharged in an approved location.

1303.5 Pre-tank filtration. Downspouts, conductors, and leaders shall be connected to a pre-tank filtration device. The filtration device shall not permit materials larger than 0.015 inches (0.4 mm).

1303.6 Roof gutters and downspouts. Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be made watertight.

1303.6.1 Slope. Roof gutters, leaders, and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than 1 unit in 96 units along their entire length and shall not permit the collection or pooling of water at any point.

Exception: Siphonic roof drainage systems installed in accordance with Chapter 11 shall not be required to have slope.

1303.6.2 Size. Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 and local rainfall rates.

1303.6.3 Cleanouts. Cleanouts or other approved openings shall be provided to permit access to all filters, flushes, pipes, and downspouts.

1303.7 Storage tanks. Storage tanks utilized in rainwater nonpotable water systems shall comply with Section 1301.10.

1303.8 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.8.1.

Table 1303.8.1
Location of Rainwater Storage Tanks

Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5

1303.9 Valves. Valves shall be installed in collection and conveyance drainage piping of rainwater nonpotable water systems in accordance with Sections 1303.9.1 and 1303.9.2.

1303.9.1 Influent diversion. A means shall be provided to divert storage tank influent to allow maintenance and repair of the storage tank system.

1303.9.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section 715.

1303.10 Tests and inspections. Tests and inspections shall be performed in accordance with Sections 1303.10.1 through 1303.10.2.

1303.10.1 Roof gutter inspection and test. Roof gutters shall be inspected to verify that the installation and slope is in accordance with Section 1303.6.1. Gutters shall be tested by pouring a minimum of one gallon of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.

1303.10.2 Collection surface diversion test. A collection surface diversion test shall be performed by introducing water into the gutters or onto the collection surface area. Diversion of the first quantity of water in accordance with the requirements of Section 1303.4 shall be verified.

21. Add Section 1304 entitled "Reclaimed Water Systems" to the IPC.

22. Add Sections 1304.1 and 1304.2 to the IPC to read:

1304.1 General. Reclaimed water, water reclamation systems, reclaimed water distribution systems, and allowable nonpotable reuses of reclaimed water are as defined or specified in and governed by the Virginia Water Reclamation and Reuse Regulation (9VAC25-740). Permits from the Virginia State Water Control Board are required for such systems and reuses. The provisions of Section 1304 shall govern the design,

construction, installation, alterations, and repair of plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for reclaimed water within buildings and to storage tanks for reclaimed water as defined in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) and associated piping outside of buildings that deliver reclaimed water into buildings. Where conflicts occur between this code and the Virginia Water Reclamation and Reuse Regulation (9VAC25-740), the provisions of the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) shall apply unless determined otherwise by the Virginia Department of Environmental Quality and DHCD through a memorandum of agreement.

1304.2 Design of reclaimed water systems. The design of reclaimed water systems shall conform to applicable requirements of Section 1301.

Exception: The design of reclaimed water systems shall conform to applicable requirements of the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) for the following:

1. Identification, labeling, and posting of signage for reclaimed water systems in lieu of signage requirements described in Section 1301.4.

2. Sizing of system storage as defined in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740), in addition to storage sizing requirements described in Section 1301.10.1.

3. Signage and labeling for reclaimed water storage in addition to labeling and signage requirements described in Section 1301.10.10.

4. Minimum separation distances and configurations for in-ground reclaimed water distribution piping in lieu of trenching requirements for nonpotable water systems described in Section 1301.11.

23. Add the following referenced standard to Chapter 14 of the IPC:

Standard Reference Number	Title	Referenced in Code Section Number
NSF/ANSI 50-09	Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities	1302.6.1

C. Modify the Group A-5 "Description" category of Table 2902.1 of the IBC to read:

Stadiums, amusement parks, pools, bleachers, and grandstands for outdoor sporting events and activities[h]

D. Add footnote "h" to Table 2902.1 of the IBC to read:

h. The occupant load for pools shall be in accordance with the "Skating rinks, swimming pools" category of Table 1004.1.2.

13VAC5-63-330. Chapter 30 Elevators and conveying systems.

A. Change Section 3002.4 of the IBC to read:

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above, or four or more stories below, grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than five-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than three inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame on the designated and alternate landing floors required to be established by ASME A17.1.

Exception: Elevators in multistory dwelling units or guest rooms.

B. ~~Add~~ Change Section ~~3003.2.1 to~~ 3003.3 of the IBC to read:

~~3003.2.1 Standardized fire~~ 3003.3 Fire service elevator keys. ~~Where a key is required to operate the emergency function of an elevator, the key shall be~~ All elevators shall be equipped to operate with either a standardized or non-standardized fire service elevator key in accordance with the ~~Virginia Statewide Fire Prevention Code (13VAC5-51)~~ IFC.

C. Change Section 3006.4 of the IBC to read:

3006.4 Machine rooms and machinery spaces. Elevator machine rooms, rooms housing elevator controllers, and machinery spaces shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section ~~712~~ 711, or both. The fire-resistance rating shall not be 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.

Exceptions:

1. Where machine rooms, rooms housing elevator controllers, 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 ~~712~~ 711, or both, shall be permitted to be reduced to a one-hour fire-resistance rating.

2. In buildings four stories or less above grade plane when machine rooms, rooms housing elevator controllers, and machinery rooms do not abut and have no openings to the hoistway enclosure they serve, the machine room, room housing elevator controllers, and machinery spaces are not required to be fire-resistance rated.

D. Add Section 3006.7 to the IBC to read:

3006.7 Machine-room-less designs. Where machine-room-less designs are utilized they shall comply with the provisions of ASME A17.1 and incorporate the following:

1. Where the elevator car-top will be used as a work platform, it shall be equipped with permanently installed guards on all open sides. Guards shall be permitted to be of collapsible design, but otherwise must conform to all applicable requirements of this code for guards.

2. Where the equipment manufacturer's procedures for machinery removal and replacement depend on overhead structural support or lifting points, such supports or lifting points shall be permanently installed at the time of initial equipment installation.

3. Where the structure that the elevator will be located in is required to be fully sprinklered by this code, the hoistway that the elevator machine is located in shall be equipped with a fire suppression system as a machine room in accordance with NFPA 13. Smoke detectors for the automatic initiation of Phase I Emergency Recall Operation, and heat detectors or other approved devices that automatically disconnect the main line power supply to the elevators, shall be installed within the hoistway.

E. Change Section 3008.1 of the IBC to read:

3008.1 General. Where elevators in buildings greater than 420 feet (128 016 mm) in building height are to be used for occupant self-evacuation during fires, all passenger elevators for general public use shall comply with this section.

13VAC5-63-335. Special construction.

A. Change the title of IBC Section 3109 to read:

Swimming Pools, Swimming Pool Enclosures, and Aquatic Recreational Facilities.

B. Change Section 3109.1 of the IBC to read as follows: add Section 3109.1.1 to the IBC to read as follows and delete the remainder of Section 3109 of the IBC:

3109.1 General. Swimming pools, swimming pool enclosures, and aquatic recreational facilities, as that term is defined in the ISPSC, shall comply with applicable provisions of the ISPSC.

3109.1.1 Changes to the ISPSC. The following changes shall be made to the ISPSC:

1. Add Section 410.2 and related subsections to the ISPSC to read:

410.2 Showers. Showers shall be in accordance with Sections 410.2.1 through 410.2.5.

410.2.1 Deck hand shower or shower spray unit. Not less than one and not greater than half of the total number of showers required by Section 410.1 shall be a hand shower or spray shower unit located on the deck of or at the entrance of each pool.

410.2.2 Anti-scald device. Where heated water is provided to the showers, the shower water supply shall be controlled by an anti-scald device.

401.2.3 Water heater and mixing valve. Bather access to water heaters and thermostatically controlled mixing valves for showers shall be prohibited.

401.2.4 Flow rate. Each showerhead shall have a water flow of not less than 2 gallons per minute (7.6 lpm).

401.2.5 Temperature. At each showerhead, the heated shower water temperature shall not exceed 120°F (49°C) and shall not be less than 90°F (32°C).

2. Change the title of Section 609 of the ISPSC to read:

Dressing and Sanitary Facilities.

3. Change Section 609.3.1 of the ISPSC to read:

609.3.1 Deck hand shower or shower spray unit. Not less than one and not greater than half of the total number of showers required by Section 609.2 shall be a hand shower or shower spray unit located on the deck of or at the entrance of each pool.

13VAC5-63-350. Chapter 34 Existing structures.

~~A. Change Section 3401.1 of the IBC to read:~~ Delete Chapter 34 of the IBC in its entirety.

~~3401.1 Scope. The provisions of this chapter and the applicable requirements of Chapter 1 shall control the alteration, repair, addition and change of occupancy of existing structures.~~

~~B. Delete IBC Sections 3401.2, 3401.3, 3401.4, and 3401.5.~~

~~C. Delete IBC Sections 3403, 3404, 3405, and 3406.~~

~~D. Change Section 3407.1 of the IBC to read:~~

~~3407.1 Standards for replacement glass. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.~~

~~E. Delete IBC Section 3408.~~

~~F. Delete IBC Section 3410.~~

~~G. Change Section 3412.2 of the IBC to read:~~

~~3412.2 Applicability. When specifically requested by an owner or an owner's agent in structures where there is~~

work involving additions, alterations or changes of occupancy, the provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.

H. Add an exception to Section 3412.2.1 of the IBC to read:

Exception: Plumbing, mechanical and electrical systems in buildings undergoing a change of occupancy shall be subject to any applicable requirements of Section 103.3 of this code.

I. Change Section 3412.2.5 of the IBC to read:

3412.2.5 Accessibility requirements. All portions of the buildings proposed for change of occupancy and all alterations to existing buildings shall conform to the applicable accessibility provisions of Section 3411.

J. Add IBC Section 3413 Retrofit Requirements.

K. Add Section 3413.1 to the IBC to read:

3413.1 Scope. In accordance with Section 103.7 and as setout herein, the following buildings are required to be provided with certain fire protection equipment or systems or other retrofitted components.

L. Add Section 3413.2 to the IBC to read:

3413.2 Smoke detectors in colleges and universities. In accordance with Section 36-99.3 of the Code of Virginia, college and university buildings containing dormitories for sleeping purposes shall be provided with battery powered or AC powered smoke detector devices installed therein in accordance with this code in effect on July 1, 1982. All public and private college and university dormitories shall have installed such detectors regardless of when the building was constructed. The chief administrative office of the college or university shall obtain a certificate of compliance with the provisions of this subsection from the building official of the locality in which the college or university is located or in the case of state-owned buildings, from the Director of the Virginia Department of General Services. The provisions of this section shall not apply to any dormitory at a state supported military college or university which is patrolled 24 hours a day by military guards.

M. Add Section 3413.3 to the IBC to read:

3413.3 Smoke detectors in certain juvenile care facilities. In accordance with § 36-99.4 of the Code of Virginia, battery-powered or AC-powered smoke detectors shall be installed in all local and regional detention homes, group homes, and other residential care facilities for children and juveniles which are operated by or under the auspices of the Virginia Department of Juvenile Justice, regardless of when the building was constructed, by July 1, 1986, in accordance with the provisions of this code that were in effect on July 1, 1984. Administrators of such homes and facilities shall be responsible for the installation of the smoke detector devices.

N. Add Section 3413.4 to the IBC to read:

3413.4 Smoke detectors for the deaf and hearing impaired. In accordance with Section 36-99.5 of the Code of Virginia, smoke detectors providing an effective intensity of not less than 100 candela to warn a deaf or hearing impaired individual shall be provided, upon request by the occupant to the landlord or proprietor, to any deaf or hearing impaired occupant of any of the following occupancies, regardless of when constructed:

1. All dormitory buildings arranged for the shelter and sleeping accommodations of more than 20 individuals;

2. All multiple family dwellings having more than two dwelling units, including all dormitories, boarding and lodging houses arranged for shelter and sleeping accommodations of more than five individuals; or

3. All buildings arranged for use of one family or two family dwelling units.

A tenant shall be responsible for the maintenance and operation of the smoke detector in the tenant's unit.

A hotel or motel shall have available no fewer than one such smoke detector for each 70 units or portion thereof, except that this requirement shall not apply to any hotel or motel with fewer than 35 units. The proprietor of the hotel or motel shall post in a conspicuous place at the registration desk or counter a permanent sign stating the availability of smoke detectors for the hearing impaired. Visual detectors shall be provided for all meeting rooms for which an advance request has been made.

O. Add Sections 3413.5, 3413.5.1, and 3413.5.2 to the IBC to read:

3413.5 Assisted living facilities (formerly known as adult care residences or homes for adults). Existing assisted living facilities licensed by the Virginia Department of Social Services shall comply with this section.

3413.5.1 Fire protective signaling system and fire detection system. A fire protective signaling system and an automatic fire detection system meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

Exception: Assisted living facilities that are equipped throughout with a fire protective signaling system and an automatic fire detection system.

3413.5.2 Single and multiple station smoke detectors. Battery or AC powered single and multiple station smoke detectors meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

~~Exception: Assisted living facilities that are equipped throughout with single and multiple station smoke detectors.~~

~~P. Add Section 3413.6 to the IBC to read:~~

~~3413.6 Smoke detectors in buildings containing dwelling units. AC powered smoke detectors with battery backup or an equivalent device shall be required to be installed to replace a defective or inoperative battery powered smoke detector located in buildings containing one or more dwelling units or rooming houses offering to rent overnight sleeping accommodations, when it is determined by the building official that the responsible party of such building or dwelling unit fails to maintain battery powered smoke detectors in working condition.~~

~~Q. Add Section 3413.7 to the IBC to read:~~

~~3413.7 Fire suppression, fire alarm and fire detection systems in nursing homes and facilities. Fire suppression systems as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing facilities licensed by the Virginia Department of Health by January 1, 1993, regardless of when such facilities or institutions were constructed. Units consisting of certified long term care beds located on the ground floor of general hospitals shall be exempt from the requirements of this section.~~

~~Fire alarm or fire detector systems, or both, as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing homes and nursing facilities licensed by the Virginia Department of Health by August 1, 1994.~~

~~R. Add Section 3413.8 to the IBC to read:~~

~~3413.8 Fire suppression systems in hospitals. Fire suppression systems shall be installed in all hospitals licensed by the Virginia Department of Health as required by the edition of this code in effect on October 1, 1995, regardless of when such facilities were constructed.~~

~~S. Add Section 3413.9 to the IBC to read:~~

~~3413.9 Identification of handicapped parking spaces by above grade signs. All parking spaces reserved for the use of handicapped persons shall be identified by above grade signs, regardless of whether identification of such spaces by above grade signs was required when any particular space was reserved for the use of handicapped persons. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. Any parking space not identified by an above grade sign shall not be a parking space reserved for the handicapped within the meaning of this section. All above grade handicapped parking space signs shall have the bottom edge of the sign no lower than four feet (1219 mm) nor higher than seven feet (2133 mm) above the parking surface. Such signs shall be designed and constructed in accordance with the provisions of Chapter 11 of this code. All disabled parking signs shall include the following language: PENALTY, $100-500 Fine, TOW-AWAY ZONE. Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than four feet above the parking surface.~~

~~T. Add Section 3413.10 to the IBC to read:~~

~~3413.10 Smoke detectors in hotels and motels. Smoke detectors shall be installed in hotels and motels as required by the edition of VR 394 01 22, USBC, Volume II, in effect on March 1, 1990, by the dates indicated, regardless of when constructed.~~

~~U. Add Section 3413.11 to the IBC to read:~~

~~3413.11 Sprinkler systems in hotel and motels. By September 1, 1997, an automatic sprinkler system shall be installed in hotels and motels as required by the edition of VR 394 01 22, USBC, Volume II, in effect on March 1, 1990, regardless of when constructed.~~

~~V. Add Section 3413.12 to the IBC to read:~~

~~3413.12 Fire suppression systems in dormitories. An automatic fire suppression system shall be provided throughout all buildings having a Group R 2 fire area which are more than 75 feet (22,860 mm) or six stories above the lowest level of exit discharge and which are used, in whole or in part, as a dormitory to house students by any public or private institution of higher education, regardless of when such buildings were constructed, in accordance with the edition of this code in effect on August 20, 1997, and the requirements for sprinkler systems under the edition of the NFPA 13 standard referenced by that code. The automatic fire suppression system shall be installed by September 1, 1999. The chief administrative office of the college or university shall obtain a certificate of compliance from the building official of the locality in which the college or university is located or in the case of state owned buildings, from the Director of the Virginia Department of General Services.~~

~~Exceptions:~~

~~1. Buildings equipped with an automatic fire suppression system in accordance with Section 903.3.1.1 or the 1983 or later editions of NFPA 13.~~

~~2. Any dormitory at a state supported military college or university which is patrolled 24 hours a day by military guards.~~

~~3. Application of the requirements of this section shall be modified in accordance with the following:~~

~~3.1. Building systems, equipment or components other than the fire suppression system shall not be required to be added or upgraded except as necessary for the installation of the fire suppression system and shall only be required to be added or upgraded where the installation of the fire suppression system creates an unsafe condition.~~

~~3.2. Residential sprinklers shall be used in all sleeping rooms. Other sprinklers shall be quick response or residential unless deemed unsuitable for a space. Standard response sprinklers shall be used in elevator hoist ways and machine rooms.~~

~~3.3. Sprinklers shall not be required in wardrobes in sleeping rooms that are considered part of the building construction or in closets in sleeping rooms, when such wardrobes or closets (i) do not exceed 24 square feet (2.23 m^2) in area, (ii) have the smallest dimension less than 36 inches (914 mm), and (iii) comply with all of the following:~~

~~3.3.1. A single station smoke detector monitored by the building fire alarm system is installed in the room containing the wardrobe or closet that will activate the general alarm for the building if the single station smoke detector is not cleared within five minutes after activation.~~

~~3.3.2. The minimum number of sprinklers required for calculating the hydraulic demand of the system for the room shall be increased by two and the two additional sprinklers shall be corridor sprinklers where the wardrobe or closet is used to divide the room. Rooms divided by a wardrobe or closet shall be considered one room for the purpose of this requirement.~~

~~3.3.3. The ceiling of the wardrobe, closet or room shall have a fire resistance rating of not less than 1/2 hour.~~

~~3.4. Not more than one sprinkler shall be required in bathrooms within sleeping rooms or suites having a floor area between 55 square feet (5.12 m^2) and 120 square feet (11.16 m^2) provided the sprinkler is located to protect the lavatory area and the plumbing fixtures are of a noncombustible material.~~

~~3.5. Existing standpipe residual pressure shall be permitted to be reduced when the standpipe serves as the water supply for the fire suppression system provided the water supply requirements of NFPA 13-94 are met.~~

~~3.6. Limited service controllers shall be permitted for fire pumps when used in accordance with their listing.~~

~~3.7. Where a standby power system is required, a source of power in accordance with Section 701-11 (d) or 701-11 (e) of NFPA 70 96 shall be permitted.~~

~~W. Add Section 3413.13 to the IBC to read:~~

~~3413.13 Fire extinguishers and smoke detectors in SRCF's. SRCF's shall be provided with at least one approved type ABC portable fire extinguisher with a minimum rating of 2A10BC installed in each kitchen. In addition, SRCF's shall provide at least one approved and properly installed battery operated smoke detector outside of each sleeping area in the vicinity of bedrooms and bedroom hallways and on each additional floor.~~

~~X. Add Section 3413.14 to the IBC to read:~~

~~3413.14 Smoke detectors in adult day care centers. Battery powered or AC powered smoke detector devices shall be installed in all adult day care centers licensed by the Virginia Department of Social Services, regardless of when the building was constructed. The location and installation of the smoke detectors shall be determined by the provisions of this code in effect on October 1, 1990. The licensee shall obtain a certificate of compliance from the building official of the locality in which the center is located, or in the case of state owned buildings, from the Director of the Virginia Department of General Services.~~

~~Y. Add Section 3413.15 to the IBC to read:~~

~~3413.15 Posting of occupant load. Every room or space that is an assembly occupancy, and where the occupant load of that room or space is 50 or more, shall have the occupant load of the room or space as determined by the building official posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.~~

~~Z. Add Section 3413.16 to the IBC to read:~~

~~3413.16 ALFSTs. Existing ALFSTs, regardless of when constructed, shall by October 1, 2011, meet the applicable requirements of API 653 and TFI RMIP for suitability for service and inspections and shall provide a secondary containment system complying with Section 425.3.~~

13VAC5-63-360. Chapter 35 Referenced standards.

Change the referenced standards in Chapter 35 of the IBC as follows (standards not shown remain the same):

Standard reference number	Title	Referenced in code section number
ASTM E329-02	Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction	1703.1, 1703.1.3
API 650-09	Welded Steel Tanks for Oil Storage	~~425.2~~ 426.2
API 653-09	Tank Inspection, Repair, Alteration and Reconstruction	~~425.4, 425.5, 3413.16~~ 426.4, 426.5
~~ASME A17.1/CSA B44-2007~~ ASME A17.1-2010/CSA B44-10	Safety Code for Elevators and Escalators ~~with 2008 and 2009 Addenda~~	907.3.3, 911.1.5, 1007.4, ~~1607.8.1, 1613.6.5,~~ 1607.9.1, 3001.2, 3001.4, 3002.5, 3003.2, 3007.1, ~~3008.3, 3008.12,~~

		~~3008.14.1, 3411.8.2~~ 3007.2, 3008.2, 3008.2.1, 3008.7.6m, 3008.8.1
ASME A18.1-2011	Safety Standard for Platform Lifts and Stairway Chairlifts	1109.8, 2702.2.6
~~NFPA 704-07~~	~~Identification of the Hazards of Materials for Emergency Response~~	~~425.2~~
ISPSC-12	International Swimming Pool and Spa Code	202, 3109.1, 3109.1.1
TFI RMIP-09	Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices	~~425.2, 425.4, 425.5, 3413.16~~ 426.2, 426.4, 426.5
~~UL 2034-08~~	~~Standard for Single- and Multiple-station Carbon Monoxide Alarms~~	~~908.7.1~~

13VAC5-63-390. Appendix I Patio covers.

~~The following provisions from~~ Appendix I of the IBC ~~are~~ shall be part of this code~~:~~.

~~I101 through I104 (Includes all provisions.)~~

Part II
Rehabilitation

13VAC5-63-400. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part II, Rehabilitation, may be cited as the "Virginia Rehabilitation Code," or as the "VRC."

B. Section 101.2 Incorporation by reference. Chapters 2 - ~~15~~ 16 of the ~~2009~~ 2012 International Existing Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the ~~Virginia Rehabilitation Code~~ VRC. The term "IEBC" means the ~~2009~~ 2012 International Existing Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IEBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference.

C. Section 101.3 Numbering system. A dual numbering system is used in the ~~Virginia Rehabilitation Code~~ VRC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IEBC. IEBC numbering system designations are provided in the catch-lines of the Virginia Administrative Code sections and cross references between sections or chapters of the ~~Virginia Rehabilitation Code~~ VRC use only the IEBC numbering system designations. The term "chapter" is used in the context of the numbering system of the IEBC and may mean a chapter in the ~~Virginia Rehabilitation Code~~ VRC, a chapter in the IEBC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The ~~Virginia Rehabilitation Code~~ VRC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - ~~15~~ 16 of the IEBC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added. The terminology "changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added" shall also be referred to as the "state amendments to the IEBC." Such state amendments to the IEBC are set out using corresponding chapter and section numbers of the IEBC numbering system. In addition, since Chapter 1 of the IEBC is not incorporated as part of the ~~Virginia Rehabilitation Code~~ VRC, any reference to a provision of Chapter 1 of the IEBC in the provisions of Chapters 2 - ~~15~~ 16 of the IEBC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established herein, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

E. Section 101.5 Use of terminology and notes. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - ~~15~~ 16 of the IEBC, or in the state amendments to the IEBC, means the ~~Virginia Rehabilitation Code~~ VRC, unless the context clearly indicates otherwise. The term "this code," or "the code," where used in a code or standard referenced in the IEBC, means that code or standard, unless the context clearly indicates otherwise. The term "USBC" where used in this code, means ~~Part I of~~ the ~~Virginia Uniform Statewide Building Code, also known as the "Virginia Construction Code~~ VCC," unless the context clearly indicates otherwise. In addition, where the phrase "of the International Building Code under which the building was constructed" is used in the IEBC, it shall be construed to mean the USBC or other code that was in effect when the building was built. Further, the use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision. Notes in the IEBC, in the codes and standards referenced in the IEBC and in the state amendments to the IEBC, may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of Chapters 2 - ~~15~~ 16 of the IEBC ~~and~~ that address the same subject matter and impose differing requirements.

2. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements. ~~In addition, the~~

3. The state amendments to the IEBC supersede any ~~conflicting~~ provisions of Chapters 2 - ~~15~~ 16 of the IEBC ~~and~~ that address the same subject matter and impose differing requirements.

4. The state amendments to the IEBC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements. ~~Further, the~~

5. The provisions of Chapters 2 - ~~15~~ 16 of the IEBC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.

G. Section 101.7 Administrative provisions. The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope and enforcement of the code. Any provisions of Chapters 2 - ~~15~~ 16 of the IEBC or any provisions of the codes and standards referenced in the IEBC that address the same subject matter to a lesser or greater extent are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IEBC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the above, where administrative requirements of Chapters 2 - ~~15~~ 16 of the IEBC or of the codes and standards referenced in the IEBC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IEBC, then such requirements are not deleted and replaced.

Note: The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

H. Section 101.8 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

13VAC5-63-410. Section 102 Purpose and scope.

A. Section 102.1 Purpose. In accordance with § 36-99.01 of the Code of Virginia, the General Assembly of Virginia has declared that (i) there is an urgent need to improve the housing conditions of low and moderate income individuals and families, many of whom live in substandard housing, particularly in the older cities of the Commonwealth; (ii) there are large numbers of older residential buildings in the Commonwealth, both occupied and vacant, which are in urgent need of rehabilitation and must be rehabilitated if the state's citizens are to be housed in decent, sound, and sanitary conditions; and (iii) the application of those building code requirements currently in force to housing rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

The General Assembly further declares that (i) there is an urgent need to improve the existing condition of many of the Commonwealth's stock of commercial properties, particularly in older cities; (ii) there are large numbers of older commercial buildings in the Commonwealth, both occupied and vacant, that are in urgent need of rehabilitation and that must be rehabilitated if the citizens of the Commonwealth are to be provided with decent, sound and sanitary work spaces; and (iii) the application of the existing building code to such rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

B. Section 102.2 Scope. ~~In accordance with Section 103.6 of the USBC, this code shall be an acceptable alternative to compliance with the Virginia Construction Code for the rehabilitation of existing buildings and structures.~~ The provisions of this code shall control the rehabilitation, reconstruction, alteration, repair, and change of occupancy of existing buildings and structures in occupancies other than Group R-5 and shall be permitted to be used as an alternative to compliance with the VCC for additions to buildings in any occupancy classification and for reconstruction, alteration or repair in Group R-5 occupancies.

Exception: The use of this code shall not be permitted for change of occupancy involving Group I-2 or I-3.

13VAC5-63-420. Section 103 Application of code.

A. Section 103.1 General. ~~The provisions of this code shall control the rehabilitation, alteration, repair, addition and change of occupancy of existing buildings and structures when this code is chosen as an alternative to compliance with the Virginia Construction Code.~~ All administrative provisions of the ~~Virginia Construction Code~~ VCC, including but not limited to, requirements for permits, inspections and approvals by the local building department, provisions for appeals from decisions of the local building department and the issuance of modifications, are applicable to the use of this code, except where this code sets out differing requirements. Where there is a conflict between a general requirement and a specific requirement in the IEBC, the specific requirement shall govern.

~~Exception: the use of this code shall not be permitted for change of occupancy involving Group I-2 or Group I-3.~~

B. Section 103.1.1 Use of performance code. Compliance with the provisions of a nationally recognized performance code when approved as a modification shall be considered to constitute compliance with this code. All documents submitted as part of such consideration shall be retained in the permanent records of the local building department.

C. Section 103.1.2 Preliminary meeting. When requested by a prospective permit applicant or when determined necessary by the code official, the code official shall meet with the prospective permit applicant prior to the application for a permit to discuss plans for the proposed work or change of occupancy in order to establish the specific applicability of the provisions of this code.

D. Section 103.2 Change of occupancy. No change of occupancy shall be made in any structure when the current USBC requires a greater degree of accessibility, structural strength, fire protection, means of egress, ventilation, or sanitation. When such a greater degree is required, the owner or the owner's agent shall make written application to the local building department for a new certificate of occupancy and shall obtain the new certificate of occupancy prior to the new use of the structure.

When impractical to achieve compliance with this code for the new occupancy classification, the building official shall consider modifications upon application and as provided for in Section 106.3 of the VCC.

E. Section 103.3 Retrofit requirements. In accordance with Section 103.7 of the VCC, the local building department shall enforce the provisions of Section 1701 that require certain existing buildings to be retrofitted with fire protection systems and other safety equipment. Retroactive fire protection system requirements contained in the IFC shall not be applicable unless required for compliance with the provisions of Section 1701.

F. Section 103.4 Nonrequired equipment. The following criteria for nonrequired equipment is in accordance with § 36-103 of the Code of Virginia. Building owners may elect to install partial or full fire alarms or other safety equipment that was not required by the edition of the VCC in effect at the time a building was constructed without meeting current requirements of the code, provided the installation does not create a hazardous condition. Permits for installation shall be obtained in accordance with the VCC. In addition, as a requirement of this code, when such nonrequired equipment is to be installed, the building official shall notify the appropriate fire official or fire chief.

G. Section 103.4.1 Reduction in function or discontinuance of nonrequired fire protection systems. When a nonrequired fire protection system is to be reduced in function or discontinued, it shall be done in such a manner so as not to create a false sense of protection. Generally, in such cases, any features visible from interior areas shall be removed, such as sprinkler heads, smoke detectors, or alarm panels or devices, but any wiring or piping hidden within the construction of the building may remain. Approval of the proposed method of reduction or discontinuance shall be obtained from the building official.

H. Section 103.5 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with either the IRC, the IMC, or the IFGC, depending on which is applicable based on the fuel source and the occupancy classification of the structure.

2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration, and are in operable condition.

Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

I. Section 103.6 Requirements relating to maintenance. Any requirements of the IEBC requiring the maintenance of existing buildings or structures are invalid.

Note: Requirements for the maintenance of existing buildings and structures and for unsafe conditions are contained in ~~Part III of~~ the ~~Virginia Uniform Statewide Building Code, also known as the "Virginia Maintenance Code~~ VMC.~~"~~

~~E.~~ J. Section ~~103.3~~ 103.7 Use of Appendix A. Appendix A of the IEBC provides guidelines for the seismic retrofit of existing buildings. The use of this appendix is not mandatory but shall be permitted to be utilized at the option of an owner, the owner's agent or the RDP involved in a rehabilitation project. However, in no case shall the use of Appendix A be construed to authorize the lowering of existing levels of health or safety in buildings or structures being rehabilitated.

~~F.~~ K. Section ~~103.4~~ 103.8 Use of Appendix B. Appendix B of the IEBC provides supplementary accessibility requirements for existing buildings and facilities. All applicable requirements of Appendix B shall be met in buildings and structures being rehabilitated.

~~G.~~ L. Section 103.5 Use of Resource A. Resource A of the IEBC provides guidelines for the evaluation of fire resistance ratings of archaic materials and may be used in conjunction with rehabilitation projects.

13VAC5-63-430. Chapter 2 Definitions.

A. Change Section 201.3 of the IEBC to read:

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the other International Codes, such terms shall have the meanings ascribed to them in those codes, except that terms that are not defined in this code and that are defined in the ~~Virginia~~

~~Construction Code~~ VCC shall take precedence over other definitions.

B. Change the following definition in Section 202 of the IEBC to read:

Existing building. A building for which a legal certificate of occupancy has been issued under any edition of the USBC and that has been occupied for its intended use; or, a building built prior to the initial edition of the USBC.

13VAC5-63-434. Chapter ~~7~~ 8 Alterations -- Level 2.

A. Change Exception 2 of Section ~~705.2~~ 805.2 to read:

2. Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress.

B. Change Item 7 of Section ~~705.3.1.1~~ 805.3.1.1 of the IEBC to read:

7. In ~~Group~~ Groups R-2, H-4, H-5 and I occupancies and in rooming houses and childcare centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm). In dwelling units within Group R-2 buildings, an occupant load of 12 shall be permitted to be substituted for the occupant load established above and, in addition, staff of such family day homes shall not be counted for the purposes of establishing occupant loads.

13VAC5-63-438. Chapter ~~11~~ 12 Historic buildings.

Change Section ~~1101.2~~ 1201.2 of the IEBC to read:

~~1101.2~~ 1201.2 Report. The code official shall be permitted to require that an historic building undergoing repair, alteration or change of occupancy be investigated and evaluated by an RDP or other qualified person or agency as a condition of determining compliance with this code.

13VAC5-63-440. Chapter ~~13~~ 14 Performance compliance methods.

A. Change Section ~~1301.2~~ 1401.2 of the IEBC to read:

~~1301.2~~ 1401.2 Applicability. Work involving rehabilitation, additions, alterations or changes of occupancy shall be made to conform to the requirements of this chapter or the provisions of Chapters 4 5 through ~~12~~ 13. The provisions in Sections ~~1301.2.1~~ 1401.2.1 through ~~1301.2.5~~ 1401.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.

B. Add an exception to Section ~~1301.2.1~~ 1401.2.1 of the IEBC to read:

Exception: Plumbing, mechanical and electrical systems in buildings undergoing a change of occupancy shall be subject to any applicable requirements of ~~Section 103.3 of the Virginia Construction Code~~ Chapter 10.

C. Change Section ~~1301.2.5~~ 1401.2.5 of the IEBC to read:

~~1301.2.5~~ 1401.2.5 Accessibility requirements. All portions of the buildings proposed for change of occupancy and all alterations to existing buildings shall conform to the applicable accessibility provisions of Section ~~310~~ 410.

13VAC5-63-445. Chapter 17 Retrofit requirements.

A. Add IEBC Section 1701 General.

B. Add Section 1701.1 to the IEBC to read:

1701.1 Scope. In accordance with Section 103.7 of the VCC and as set out herein, the following buildings are required to be provided with certain fire protection equipment or systems or other retrofitted components.

C. Add Section 1701.2 to the IEBC to read:

1701.2 Smoke detectors in colleges and universities. In accordance with § 36-99.3 of the Code of Virginia, college and university buildings containing dormitories for sleeping purposes shall be provided with battery-powered or AC-powered smoke detector devices installed therein in accordance with this code in effect on July 1, 1982. All public and private college and university dormitories shall have installed such detectors regardless of when the building was constructed. The chief administrative office of the college or university shall obtain a certificate of compliance with the provisions of this subsection from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services. The provisions of this section shall not apply to any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.

D. Add Section 1701.3 to the IEBC to read:

1701.3 Smoke detectors in certain juvenile care facilities. In accordance with § 36-99.4 of the Code of Virginia, battery-powered or AC-powered smoke detectors shall be installed in all local and regional detention homes, group homes, and other residential care facilities for children and juveniles that are operated by or under the auspices of the Virginia Department of Juvenile Justice, regardless of when the building was constructed, by July 1, 1986, in accordance with the provisions of this code that were in effect on July 1, 1984. Administrators of such homes and facilities shall be responsible for the installation of the smoke detector devices.

E. Add Section 1701.4 to the IEBC to read:

1701.4 Smoke detectors for the deaf and hearing-impaired. In accordance with § 36-99.5 of the Code of Virginia, smoke detectors providing an effective intensity of not less than 100 candela to warn a deaf or hearing-impaired individual shall be provided, upon request by the occupant to the landlord or proprietor, to any deaf or hearing-impaired occupant of any of the following occupancies, regardless of when constructed:

1. All dormitory buildings arranged for the shelter and sleeping accommodations of more than 20 individuals;

2. All multiple-family dwellings having more than two dwelling units, including all dormitories and boarding and lodging houses arranged for shelter and sleeping accommodations of more than 5 individuals; or

3. All buildings arranged for use as one-family or two-family dwelling units.

A tenant shall be responsible for the maintenance and operation of the smoke detector in the tenant's unit.

A hotel or motel shall have available no fewer than one such smoke detector for each 70 units or portion thereof, except that this requirement shall not apply to any hotel or motel with fewer than 35 units. The proprietor of the hotel or motel shall post in a conspicuous place at the registration desk or counter a permanent sign stating the availability of smoke detectors for the hearing impaired. Visual detectors shall be provided for all meeting rooms for which an advance request has been made.

F. Add Sections 1701.5, 1701.5.1, and 1701.5.2 to the IEBC to read:

1701.5 Assisted living facilities (formerly known as adult care residences or homes for adults). Existing assisted living facilities licensed by the Virginia Department of Social Services shall comply with this section.

1701.5.1 Fire protective signaling system and fire detection system. A fire protective signaling system and an automatic fire detection system meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

Exception: Assisted living facilities that are equipped throughout with a fire protective signaling system and an automatic fire detection system.

1701.5.2 Single-station and multiple-station smoke detectors. Battery or AC-powered single-station and multiple-station smoke detectors meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

Exception: Assisted living facilities that are equipped throughout with single-station and multiple-station smoke detectors.

G. Add Section 1701.6 to the IEBC to read:

1701.6 Smoke detectors in buildings containing dwelling units. AC-powered smoke detectors with battery backup or an equivalent device shall be required to be installed to replace a defective or inoperative battery-powered smoke detector located in buildings containing one or more dwelling units or rooming houses offering to rent overnight sleeping accommodations when it is determined by the building official that the responsible party of such building or dwelling unit fails to maintain battery-powered smoke detectors in working condition.

H. Add Section 1701.7 to the IEBC to read:

1701.7 Fire suppression, fire alarm, and fire detection systems in nursing homes and facilities. Fire suppression systems as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing facilities licensed by the Virginia Department of Health by January 1, 1993, regardless of when such facilities or institutions were constructed. Units consisting of certified long-term care beds located on the ground floor of general hospitals shall be exempt from the requirements of this section.

Fire alarm or fire detector systems, or both, as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing homes and nursing facilities licensed by the Virginia Department of Health by August 1, 1994.

I. Add Section 1701.8 to the IEBC to read:

1701.8 Fire suppression systems in hospitals. Fire suppression systems shall be installed in all hospitals licensed by the Virginia Department of Health as required by the edition of this code in effect on October 1, 1995, regardless of when such facilities were constructed.

J. Add Section 1701.9 to the IEBC to read:

1701.9 Identification of disabled parking spaces by above grade signage. All parking spaces reserved for the use of persons with disabilities shall be identified by above grade signs, regardless of whether identification of such spaces by above grade signs was required when any particular space was reserved for the use of persons with disabilities. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. Any parking space not identified by an above grade sign shall not be a parking space reserved for the disabled within the meaning of this section. All above grade disabled parking space signs shall have the bottom edge of the sign no lower than 4 feet (1219 mm) nor higher than 7 feet (2133 mm) above the parking surface. Such signs shall be designed and constructed in accordance with the provisions of Chapter 11 of this code. All disabled parking signs shall include the following language: "PENALTY, $100-500 Fine, TOW-AWAY ZONE." Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than 4 feet above the parking surface.

K. Add Section 1701.10 to the IEBC to read:

1701.10 Smoke detectors in hotels and motels. Smoke detectors shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, by the dates indicated, regardless of when constructed.

L. Add Section 1701.11 to the IEBC to read:

1701.11 Sprinkler systems in hotel and motels. By September 1, 1997, an automatic sprinkler system shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, regardless of when constructed.

M. Add Section 1701.12 to the IEBC to read:

1701.12 Fire suppression systems in dormitories. An automatic fire suppression system shall be provided throughout all buildings having a Group R-2 fire area that are more than 75 feet (22,860 mm) or 6 stories above the lowest level of exit discharge and are used, in whole or in part, as a dormitory to house students by any public or private institution of higher education, regardless of when such buildings were constructed, in accordance with the edition of this code in effect on August 20, 1997, and the requirements for sprinkler systems under the edition of the NFPA 13 standard referenced by that code. The automatic fire suppression system shall be installed by September 1, 1999. The chief administrative office of the college or university shall obtain a certificate of compliance from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.

Exceptions:

1. Buildings equipped with an automatic fire suppression system in accordance with Section 903.3.1.1 of the 1983 or later editions of NFPA 13.

2. Any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.

3. Application of the requirements of this section shall be modified in accordance with the following:

3.1. Building systems, equipment, or components other than the fire suppression system shall not be required to be added or upgraded except as necessary for the installation of the fire suppression system and shall only be required to be added or upgraded where the installation of the fire suppression system creates an unsafe condition.

3.2. Residential sprinklers shall be used in all sleeping rooms. Other sprinklers shall be quick response or residential unless deemed unsuitable for a space. Standard response sprinklers shall be used in elevator hoistways and machine rooms.

3.3. Sprinklers shall not be required in wardrobes in sleeping rooms that are considered part of the building construction or in closets in sleeping rooms when such wardrobes or closets (i) do not exceed 24 square feet (2.23 m^2) in area, (ii) have the smallest dimension less than 36 inches (914 mm), and (iii) comply with all of the following:

3.3.1. A single-station smoke detector monitored by the building fire alarm system is installed in the room containing the wardrobe or closet that will activate the general alarm for the building if the single station smoke detector is not cleared within five minutes after activation.

3.3.2. The minimum number of sprinklers required for calculating the hydraulic demand of the system for the room shall be increased by two and the two additional sprinklers shall be corridor sprinklers where the wardrobe or closet is used to divide the room. Rooms divided by a wardrobe or closet shall be considered one room for the purpose of this requirement.

3.3.3. The ceiling of the wardrobe, closet, or room shall have a fire resistance rating of not less than 1/2 hour.

3.4. Not more than one sprinkler shall be required in bathrooms within sleeping rooms or suites having a floor area between 55 square feet (5.12 m^2) and 120 square feet (11.16 m^2), provided the sprinkler is located to protect the lavatory area and the plumbing fixtures are of a noncombustible material.

3.5. Existing standpipe residual pressure shall be permitted to be reduced when the standpipe serves as the water supply for the fire suppression system, provided the water supply requirements of NFPA 13-94 are met.

3.6. Limited service controllers shall be permitted for fire pumps when used in accordance with their listing.

3.7. Where a standby power system is required, a source of power in accordance with Section 701-11 (d) or 701-11 (e) of NFPA 70-96 shall be permitted.

N. Add Section 1701.13 to the IEBC to read:

1701.13 Fire extinguishers and smoke detectors in SRCFs. SRCFs shall be provided with at least one approved type ABC portable fire extinguisher with a minimum rating of 2A10BC installed in each kitchen. In addition, SRCFs shall provide at least one approved and properly installed battery operated smoke detector outside of each sleeping area in the vicinity of bedrooms and bedroom hallways and on each additional floor.

O. Add Section 1701.14 to the IEBC to read:

1701.14 Smoke detectors in adult day care centers. Battery-powered or AC-powered smoke detector devices shall be installed in all adult day care centers licensed by the Virginia Department of Social Services, regardless of when the building was constructed. The location and installation of the smoke detectors shall be determined by the provisions of this code in effect on October 1, 1990. The licensee shall obtain a certificate of compliance from the building official of the locality in which the center is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.

P. Add Section 1701.15 to the IEBC to read:

1701.15 Posting of occupant load. Every room or space that is an assembly occupancy, and where the occupant load of that room or space is 50 or more, shall have the occupant load of the room or space as determined by the building official posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or owner's authorized agent.

Q. Add Section 1701.16 to the IEBC to read:

1701.16 ALFSTs. Existing ALFSTs, regardless of when constructed, shall by October 1, 2011, meet the applicable requirements of API 653 and TFI RMIP for suitability for service and inspections and shall provide a secondary containment system complying with Section 425.3 of the VCC.

R. Add Section 1701.17 to the IEBC to read:

1701.17 Standards for replacement glass. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.

Part III
Maintenance

13VAC5-63-450. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part III, Maintenance, may be cited as the "Virginia Maintenance Code," or as the "VMC."

B. Section 101.2 Incorporation by reference. Chapters 2 - 8 of the ~~2009~~ 2012 International Property Maintenance Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the ~~Virginia Maintenance Code~~ VMC. The term "IPMC" means the ~~2009~~ 2012 International Property Maintenance Code, published by the International Code Council, Inc. Any codes and standards referenced in the IPMC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference.

C. Section 101.3 Numbering system. A dual numbering system is used in the ~~Virginia Maintenance Code~~ VMC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IPMC. IPMC numbering system designations are provided in the catch-lines of the ~~Virginia Administrative Code~~ VMC sections and cross references between sections or chapters of the Virginia Maintenance Code use only the IPMC numbering system designations. The term "chapter" is used in the context of the numbering system of the IPMC and may mean a chapter in the ~~Virginia Maintenance Code~~ VMC, a chapter in the IPMC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The ~~Virginia Maintenance Code~~ VMC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - 8 of the IPMC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IPMC which are specifically identified. The terminology "changes to the text of the incorporated chapters of the IPMC which are specifically identified" shall also be referred to as the "state amendments to the IPMC." Such state amendments to the IPMC are set out using corresponding chapter and section numbers of the IPMC numbering system. In addition, since Chapter 1 of the IPMC is not incorporated as part of the ~~Virginia Maintenance Code~~ VMC, any reference to a provision of Chapter 1 of the IPMC in the provisions of Chapters 2 - 8 of the IPMC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established herein, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

E. Section 101.5 Use of terminology and notes. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - 8 of the IPMC, or in the state amendments to the IPMC, means the ~~Virginia Maintenance Code~~ VMC, unless the context clearly indicates otherwise. The term "this code," or "the code," where used in a code or standard referenced in the IPMC, means that code or standard, unless the context clearly indicates otherwise. The term "USBC" where used in this code means ~~Part I of~~ the ~~Virginia Uniform Statewide Building Code, also known as the "Virginia Construction Code,"~~ VCC unless the context clearly indicates otherwise. In addition, the use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision. Notes in the IPMC, in the codes and standards referenced in the IPMC, and in the state amendments to the IPMC, may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of Chapters 2 - 8 of the IPMC ~~and~~ that address the same subject matter and impose differing requirements.

2. The provisions of Chapter 1 of this code supersede any ~~conflicting~~ provisions of the codes and standards

referenced in the IPMC that address the same subject matter and impose differing requirements. ~~In addition, the~~

3. The state amendments to the IPMC supersede any ~~conflicting~~ provisions of Chapters 2 - 8 of the IPMC ~~and~~ that address the same subject matter and impose differing requirements.

4. The state amendments to the IPMC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IPMC that address the same subject matter and impose differing requirements. ~~Further, the~~

5. The provisions of Chapters 2 - 8 of the IPMC supersede any ~~conflicting~~ provisions of the codes and standards referenced in the IPMC that address the same subject matter and impose differing requirements.

G. Section 101.7 Administrative provisions. The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope of the code, enforcement, fees, permits, inspections and disputes. Any provisions of Chapters 2 - 8 of the IPMC or any provisions of the codes and standards referenced in the IPMC which address the same subject matter to a lesser or greater extent are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IPMC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the above, where administrative requirements of Chapters 2 - 8 of the IPMC or of the codes and standards referenced in the IPMC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IPMC, then such requirements are not deleted and replaced.

Note: The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

H. Section 101.8 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

Note: The order of precedence outlined in Section 101.6 may be determinative in establishing how to apply the definitions in the IPMC and in the referenced codes and standards.

13VAC5-63-460. Section 102 Purpose and scope.

A. Section 102.1 Purpose. In accordance with § 36-103 of the Code of Virginia, the Virginia Board of Housing and Community Development may adopt and promulgate as part of the Virginia Uniform Statewide Building Code, building regulations that facilitate the maintenance, rehabilitation, development and reuse of existing buildings at the least possible cost to ensure the protection of the public health, safety and welfare. Further, in accordance with § 36-99 of the Code of Virginia, the purpose of this code is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and structures should be permitted to be maintained at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

B. Section 102.2 Scope. In accordance with § 36-98 of the Code of Virginia, the ~~Virginia Maintenance Code~~ VMC shall supersede the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies.

C. Section 102.3 Exemptions. This code shall not regulate those buildings and structures specifically exempt from the ~~Virginia Construction Code~~ VCC, except that existing industrialized buildings and manufactured homes shall not be exempt from this code.

13VAC5-63-470. Section 103 Application of code.

A. Section 103.1 General. This code prescribes regulations for the maintenance of all existing buildings and structures and associated equipment, including regulations for unsafe buildings and structures.

B. Section 103.2 Maintenance requirements. Buildings and structures shall be maintained and kept in good repair in accordance with the requirements of this code and when applicable in accordance with the USBC under which such building or structure was constructed. No provision of this code shall require alterations to be made to an existing building or structure or to equipment unless conditions are present which meet the definition of an unsafe structure or a structure unfit for human occupancy.

C. 103.2.1 Maintenance of nonrequired fire protection systems. Nonrequired fire protection systems shall be maintained to function as originally installed. If any such systems are to be reduced in function or discontinued, approval shall be obtained from the building official in accordance with Section 103.8.1 of the ~~Virginia Construction Code~~ VCC.

D. Section 103.3 Continued approval. Notwithstanding any provision of this code to the contrary, alterations shall not be required to be made to existing buildings or structures which are occupied in accordance with a certificate of occupancy issued under any edition of the USBC.

E. Section 103.4 Rental Inspections. In accordance with § 36-105.1:1 of the Code of Virginia, these provisions are applicable to rental inspection programs. For purposes of this section:

"Dwelling unit" means a building or structure or part thereof that is used for a home or residence by one or more persons who maintain a household.

"Owner" means the person shown on the current real estate assessment books or current real estate assessment records.

"Residential rental dwelling unit" means a dwelling unit that is leased or rented to one or more tenants. However, a dwelling unit occupied in part by the owner thereof shall not be construed to be a residential rental dwelling unit unless a tenant occupies a part of the dwelling unit that has its own cooking and sleeping areas, and a bathroom, unless otherwise provided in the zoning ordinance by the local governing body.

The local governing body may adopt an ordinance to inspect residential rental dwelling units for compliance with this code and to promote safe, decent and sanitary housing for its citizens, in accordance with the following:

1. Except as provided for in subdivision 3 of this subsection, the dwelling units shall be located in a rental inspection district established by the local governing body in accordance with this section; and

2. The rental inspection district is based upon a finding by the local governing body that (i) there is a need to protect the public health, safety and welfare of the occupants of dwelling units inside the designated rental inspection district; (ii) the residential rental dwelling units within the designated rental inspection district are either (a) blighted or in the process of deteriorating or (b) the residential rental dwelling units are in the need of inspection by the building department to prevent deterioration, taking into account the number, age and condition of residential dwelling rental units inside the proposed rental inspection district; and (iii) the inspection of residential rental dwelling units inside the proposed rental inspection district is necessary to maintain safe, decent and sanitary living conditions for tenants and other residents living in the proposed rental inspection district. Nothing in this section shall be construed to authorize ~~a~~ one or more locality-wide rental inspection ~~district~~ districts and a local governing body shall limit the boundaries of the proposed rental inspection ~~district~~ districts to such areas of the locality that meet the criteria set out in this subsection; or

3. An individual residential rental dwelling unit outside of a designated rental inspection district is made subject to the rental inspection ordinance based upon a separate finding for each individual dwelling unit by the local governing body that (i) there is a need to protect the public health, welfare and safety of the occupants of that individual dwelling unit; (ii) the individual dwelling unit is either (a) blighted or (b) in the process of deteriorating; or (iii) there is evidence of violations of this code that affect the safe, decent and sanitary living conditions for tenants living in such individual dwelling unit.

For purposes of this section, the local governing body may designate a local government agency other than the building department to perform all or part of the duties contained in the enforcement authority granted to the building department by this section.

Before adopting a rental inspection ordinance and establishing a rental inspection district or an amendment to either, the governing body of the locality shall hold a public hearing on the proposed ordinance. Notice of the hearing shall be published once a week for two successive weeks in a newspaper published or having general circulation in the locality.

Upon adoption by the local governing body of a rental inspection ordinance, the building department shall make reasonable efforts to notify owners of residential rental dwelling units in the designated rental inspection district, or their designated managing agents, and to any individual dwelling units subject to the rental inspection ordinance, not located in a rental inspection district, of the adoption of such ordinance, and provide information and an explanation of the rental inspection ordinance and the responsibilities of the owner thereunder.

The rental inspection ordinance may include a provision that requires the owners of dwelling units in a rental inspection district to notify the building department in writing if the dwelling unit of the owner is used for residential rental purposes. The building department may develop a form for such purposes. The rental inspection ordinance shall not include a registration requirement or a fee of any kind associated with the written notification pursuant to this subdivision. A rental inspection ordinance may not require that the written notification from the owner of a dwelling unit subject to a rental inspection ordinance be provided to the building department in less than 60 days after the adoption of a rental inspection ordinance. However, there shall be no penalty for the failure of an owner of a residential rental dwelling unit to comply with the provisions of this subsection, unless and until the building department provides personal or written notice to the property owner, as provided in this section. In any event, the sole penalty for the willful failure of an owner of a dwelling unit who is using the dwelling unit for residential rental purposes to comply with the written notification requirement shall be a civil penalty of up to $50. For purposes of this subsection, notice sent by regular first-class mail to the last known address of the owner as shown on the current real estate tax assessment books or current real estate tax assessment records shall be deemed compliance with this requirement.

Upon establishment of a rental inspection district in accordance with this section, the building department may, in conjunction with the written notifications as provided for above, proceed to inspect dwelling units in the designated rental inspection district to determine if the dwelling units are being used as a residential rental property and for compliance with the provisions of this code that affect the safe, decent and sanitary living conditions for the tenants of such property.

If a multifamily development has more than 10 dwelling units, in the initial and periodic inspections, the building department shall inspect only a sampling of dwelling units, of not less than two and not more than 10% of the dwelling units, of a multifamily development, that includes all of the multifamily buildings that are part of that multifamily development. In no event, however, shall the building department charge a fee authorized by this section for inspection of more than 10 dwelling units. If the building department determines upon inspection of the sampling of dwelling units that there are violations of this code that affect the safe, decent and sanitary living conditions for the tenants of such multifamily development, the building department may inspect as many dwelling units as necessary to enforce these provisions, in which case, the fee shall be based upon a charge per dwelling unit inspected, as otherwise provided in the fee schedule established pursuant to this section.

Upon the initial or periodic inspection of a residential rental dwelling unit subject to a rental inspection ordinance, the building department has the authority under these provisions to require the owner of the dwelling unit to submit to such follow-up inspections of the dwelling unit as the building department deems necessary, until such time as the dwelling unit is brought into compliance with the provisions of this code that affect the safe, decent and sanitary living conditions for the tenants.

Except as provided for above, following the initial inspection of a residential rental dwelling unit subject to a rental inspection ordinance, the building department may inspect any residential rental dwelling unit in a rental inspection district, that is not otherwise exempted in accordance with this section, no more than once each calendar year.

Upon the initial or periodic inspection of a residential rental dwelling unit subject to a rental inspection ordinance for compliance with these provisions, provided that there are no violations of this code that affect the safe, decent and sanitary living conditions for the tenants of such residential rental dwelling unit, the building department shall provide, to the owner of such residential rental dwelling unit, an exemption from the rental inspection ordinance for a minimum of four years. Upon the sale of a residential rental dwelling unit, the building department may perform a periodic inspection as provided above, subsequent to such sale. If a residential rental dwelling unit has been issued a certificate of occupancy within the last four years, an exemption shall be granted for a minimum period of four years from the date of the issuance of the certificate of occupancy by the building department. If the residential rental dwelling unit becomes in violation of this code during the exemption period, the building department may revoke the exemption previously granted under this section.

A local governing body may establish a fee schedule for enforcement of these provisions, which includes a per dwelling unit fee for the initial inspections, follow-up inspections and periodic inspections under this section.

The provisions of this section shall not in any way alter the rights and obligations of landlords and tenants pursuant to the applicable provisions of Chapter 13 (§ 55-217 et seq.) or Chapter 13.2 (§ 55-248.2 et seq.) of Title 55 of the Code of Virginia.

The provisions of this section shall not alter the duties or responsibilities of the local building department under § 36-105 of the Code of Virginia to enforce the USBC.

Unless otherwise provided for in § 36-105.1:1 of the Code of Virginia, penalties for violation of this section shall be the same as the penalties provided for violations of other sections of the USBC.

13VAC5-63-480. Section 104 Enforcement, generally.

A. Section 104.1 Scope of enforcement. This section establishes the requirements for enforcement of this code in accordance with § 36-105 of the Code of Virginia. The local governing body may also inspect and enforce the provisions of the USBC for existing buildings and structures, whether occupied or not. Such inspection and enforcement shall be carried out by an agency or department designated by the local governing body.

If the local building department receives a complaint that a violation of this code exists that is an immediate and imminent threat to the health or safety of the owner ~~or~~, tenant, or occupants of ~~a residential dwelling unit~~ any building or structure, or a the owner, occupant, or tenant of any nearby ~~residential dwelling unit~~ building or structure, and the owner, occupant, or tenant of the ~~residential dwelling unit~~ building or structure that is the subject of the complaint has refused to allow the code official or his agent to have access to the subject ~~dwelling~~ building or structure, the code official or his agent may present sworn testimony to a magistrate or court of competent jurisdiction and request that the magistrate or court grant the code official or his agent an inspection warrant to enable the code official or his agent to enter the subject ~~dwelling~~ building or structure for the purpose of determining whether violations of this code exist. The code official or his agent shall make a reasonable effort to obtain consent from the owner, occupant, or tenant of the subject ~~dwelling~~ building or structure prior to seeking the issuance of an inspection warrant under this section.

Note: Generally, official action must be taken by the local government to enforce the ~~Virginia Maintenance Code~~ VMC. Consultation with the legal counsel of the jurisdiction when initiating or changing such action is advised.

B. Section 104.1.1 Transfer of ownership. In accordance with § 36-105 of the Code of Virginia, if the local building department has initiated an enforcement action against the owner of a building or structure and such owner subsequently transfers the ownership of the building or structure to an entity in which the owner holds an ownership interest greater

than 50%, the pending enforcement action shall continue to be enforced against the owner.

C. Section 104.2 Fees. In accordance with § 36-105 of the Code of Virginia, fees may be levied by the local governing body in order to defray the cost of enforcement and appeals.

D. Section 104.3 State buildings. In accordance with § 36-98.1 of the Code of Virginia, this code shall be applicable to state-owned buildings and structures. Acting through the Division of Engineering and Buildings, the Department of General Services shall function as the building official for state-owned buildings.

E. Section 104.3.1 Certification of state enforcement personnel. State enforcement personnel shall comply with the applicable requirements of Sections 104.4.2 through 104.4.4 for certification, periodic maintenance training, and continuing education.

F. Section 104.4 Local enforcing agency. In jurisdictions enforcing this code, the local governing body shall designate the agency within the local government responsible for such enforcement and appoint a code official. The local governing body may also utilize technical assistants to assist the code official in the enforcement of this code. A permanently appointed code official shall not be removed from office except for cause after having been afforded a full opportunity to be heard on specific and relevant charges by and before the appointing authority. DHCD shall be notified by the appointing authority within 30 days of the appointment or release of a permanent or acting code official and within 60 days after retaining or terminating a technical assistant.

Note: Code officials and technical assistants are subject to sanctions in accordance with the VCS.

G. Section 104.4.1 Qualifications of code official and technical assistants. The code official shall have at least five years of building experience as a licensed professional engineer or architect, building, fire or trade inspector, contractor, housing inspector or superintendent of building, fire or trade construction or at ~~lease~~ least five years of building experience after obtaining a degree in architecture or engineering, with at least three years in responsible charge of work. Any combination of education and experience that would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The code official shall have general knowledge of sound engineering practice in respect to the design and construction of structures, the basic principles of fire prevention, the accepted requirements for means of egress and the installation of elevators and other service equipment necessary for the health, safety and general welfare of the occupants and the public. The local governing body may establish additional qualification requirements.

A technical assistant shall have at least three years of experience and general knowledge in at least one of the following areas: building construction, building, fire or housing inspections, plumbing, electrical or mechanical trades, fire protection, elevators or property maintenance work. Any combination of education and experience which would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The locality may establish additional certification requirements.

H. Section 104.4.2 Certification of code official and technical assistants. An acting or permanent code official shall be certified as a code official in accordance with the VCS within one year after being appointed as acting or permanent code official. A technical assistant shall be certified in the appropriate subject area within 18 months after becoming a technical assistant. When required by a locality to have two or more certifications, a technical assistant shall obtain the additional certifications within three years from the date of such requirement.

Exception: A code official or technical assistant in place prior to April 1, 1995, shall not be required to meet the certification requirements in this section while continuing to serve in the same capacity in the same locality.

I. Section 104.4.3 Noncertified code official. Except for a code official exempt from certification under the exception to Section 104.4.2, any acting or permanent code official who is not certified as a code official in accordance with the VCS shall attend the core module of the Virginia Building Code Academy or an equivalent course in an individual or regional code academy accredited by DHCD within 180 days of appointment. This requirement is in addition to meeting the certification requirement in Section 104.4.2.

J. Section 104.4.4 Requirements for periodic maintenance training and education. Code officials and technical assistants shall attend periodic maintenance training as designated by DHCD. In addition to the periodic maintenance training required above, code officials and technical assistants shall attend 16 hours of continuing education every two years as approved by DHCD. If a code official or technical assistant possesses more than one BHCD certificate, the 16 hours shall satisfy the continuing education requirement for all BHCD certificates.

K. Section 104.4.5 Conflict of interest. The standards of conduct for code officials and technical assistants shall be in accordance with the provisions of the State and Local Government Conflict of Interests Act, Chapter 31 (§ 2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

L. Section 104.4.6 Records. The local enforcing agency shall retain a record of applications received, permits, certificates, notices and orders issued, fees collected and reports of inspections in accordance with The Library of Virginia's General Schedule Number Six.

M. Section 104.5 Powers and duties, generally. The code official shall enforce this code as set out herein and as interpreted by the State Review Board and shall issue all necessary notices or orders to ensure compliance with the code.

N. Section 104.5.1 Delegation of authority. The code official may delegate powers and duties except where such authority is limited by the local government. When such delegations are made, the code official shall be responsible for assuring that they are carried out in accordance with the provisions of this code.

O. Section 104.5.2 Issuance of modifications. Upon written application by an owner or an owner's agent, the code official may approve a modification of any provision of this code provided the spirit and intent of the code are observed and public health, welfare and safety are assured. The decision of the code official concerning a modification shall be made in writing and the application for a modification and the decision of the code official concerning such modification shall be retained in the permanent records of the local enforcing agency.

P. Section 104.5.2.1 Substantiation of modification. The code official may require or may consider a statement from a professional engineer, architect or other person competent in the subject area of the application as to the equivalency of the proposed modification.

Q. Section 104.5.3 Inspections. The code official may inspect buildings or structures to determine compliance with this code and shall carry proper credentials when performing such inspections. The code official is authorized to engage such expert opinion as deemed necessary to report upon unusual, detailed, or complex technical issues in accordance with local policies.

R. Section 104.5.3.1 Observations. When, during an inspection, the code official or authorized representative observes an apparent or actual violation of another law, ordinance, or code not within the official's authority to enforce, such official shall report the findings to the official having jurisdiction in order that such official may institute the necessary measures.

S. Section 104.5.3.2 Approved inspection agencies and individuals. The code official may accept reports of inspections or tests from individuals or inspection agencies approved in accordance with the code official's written policy required by Section 104.5.3.3. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Reports of inspections by approved individuals or agencies shall be in writing, shall indicate if compliance with the applicable provisions of this code have been met, and shall be certified by the individual inspector or by the responsible officer when the report is from an agency. The code official shall review and approve the report unless there is cause to reject it. Failure to approve a report shall be in writing within five working days of receiving it, stating the reasons for rejection.

T. Section 104.5.3.3 Third-party inspectors. Each code official charged with the enforcement of this code and that accepts third-party reports shall have a written policy establishing the minimum acceptable qualifications for third-party inspectors. The policy shall include the format and time frame required for submission of reports, any prequalification or preapproval requirements before conducting a third-party inspection, and any other requirements and procedures established by the code official.

U. Section 104.5.3.4 Qualifications. In determining third-party qualifications, the code official may consider such items as DHCD inspector certification, other state or national certifications, state professional registrations, related experience, education, and any other factors that would demonstrate competency and reliability to conduct inspections.

V. Section 104.5.4 Notices, reports and orders. Upon findings by the code official that violations of this code exist, the code official shall issue a correction notice or notice of violation to the owner or the person responsible for the maintenance of the structure. Work done to correct violations of this code subject to the permit, inspection and approval provisions of the ~~Virginia Construction Code~~ VCC shall not be construed as authorization to extend the time limits established for compliance with this code.

~~S.~~ W. Section 104.5.4.1 Correction notice. The correction notice shall be a written notice of the defective conditions. The correction notice shall require correction of the violation or violations within a reasonable time unless an emergency condition exists as provided under the unsafe building provisions of Section 105. Upon request, the correction notice shall reference the code section that serves as the basis for the defects and shall state that such defects shall be corrected and reinspected in a reasonable time designated by the code official.

~~T.~~ X. Section 104.5.4.2 Notice of violation. If the code official determines there are violations of this code other than those for unsafe structures, unsafe equipment or structures unfit for human occupancy under Section 105, the code official may issue a notice of violation to be communicated promptly in writing to the owner or the person responsible for the maintenance or use of the building or structure in lieu of a correction notice as provided for in Section 104.5.4.1. In addition, the code official shall issue a notice of violation for any uncorrected violation remaining from a correction notice established in Section 104.5.4.1. A notice of violation shall be issued by the code official before initiating legal proceedings unless the conditions violate the unsafe building conditions of Section 105 and the provisions established therein are followed. The code official shall provide the section numbers to the owner for any code provision cited in the notice of violation. The notice shall require correction of the violation or violations within a reasonable time unless an emergency condition exists as provided under the building provisions of Section 105. The owner or person to whom the notice of violation has been issued shall be responsible for contacting the code official within the time frame established for any reinspections to assure the violations have been corrected.

The code official will be responsible for making such inspection and verifying the violations have been corrected. In addition, the notice of violation shall indicate the right of appeal by referencing the appeals section of this code.

~~U.~~ Y. Section 104.5.5 Coordination of inspections. The code official shall coordinate inspections and administrative orders with any other state or local agencies having related inspection authority and shall coordinate those inspections required by the Virginia Statewide Fire Prevention Code (13VAC5-51) for maintenance of fire protection devices, equipment and assemblies so that the owners and occupants will not be subjected to numerous inspections or conflicting orders.

Note: The Fire Prevention Code requires the fire official to coordinate such inspections with the code official.

~~V.~~ Z. Section 104.5.6 Further action when violation not corrected. If the responsible party has not complied with the notice of violation, the code official shall submit a written request to the legal counsel of the locality to institute the appropriate legal proceedings to restrain, correct or abate the violation or to require the removal or termination of the use of the building or structure involved. In cases where the locality so authorizes, the code official may issue or obtain a summons or warrant.

~~W.~~ AA. Section 104.5.7 Penalties and abatement. Penalties for violations of this code shall be as set out in § 36-106 of the Code of Virginia. The successful prosecution of a violation of the code shall not preclude the institution of appropriate legal action to require correction or abatement of a violation.

13VAC5-63-490. Section 105 Unsafe structures or structures unfit for human occupancy.

A. Section 105.1 General. This section shall apply to existing structures which are classified as unsafe or unfit for human occupancy. All conditions causing such structures to be classified as unsafe or unfit for human occupancy shall be remedied or as an alternative to correcting such conditions, the structure may be vacated and secured against public entry or razed and removed. Vacant and secured structures shall still be subject to other applicable requirements of this code. Notwithstanding the above, when the code official determines that an unsafe structure or a structure unfit for human occupancy constitutes such a hazard that it should be razed or removed, then the code official shall be permitted to order the demolition of such structures in accordance with applicable requirements of this code.

Note: Structures which become unsafe during construction are regulated under the ~~Virginia Construction Code~~ VCC.

B. Section 105.2 Inspection of unsafe or unfit structures. The code official shall inspect any structure reported or discovered as unsafe or unfit for human habitation and shall prepare a report to be filed in the records of the local enforcing agency and a copy issued to the owner. The report shall include the use of the structure and a description of the nature and extent of any conditions found.

C. Section 105.3 Unsafe conditions not related to maintenance. When the code official finds a condition that constitutes a serious and dangerous hazard to life or health in a structure constructed prior to the initial edition of the USBC and when that condition is of a cause other than improper maintenance or failure to comply with state or local building codes that were in effect when the structure was constructed, then the code official shall be permitted to order those minimum changes to the design or construction of the structure to remedy the condition.

D. Section 105.3.1 Limitation to requirements for retrofitting. In accordance with Section 103.2, this code does not generally provide for requiring the retrofitting of any structure. However, conditions may exist in structures constructed prior to the initial edition of the USBC because of faulty design or equipment that constitute a danger to life or health or a serious hazard. Any changes to the design or construction required by the code official under this section shall be only to remedy the serious hazard or danger to life or health and such changes shall not be required to fully comply with the requirements of the ~~Virginia Construction Code~~ VCC applicable to newly constructed buildings or structures.

E. Section 105.4 Notice of unsafe structure or structure unfit for human occupancy. When a structure is determined to be unsafe or unfit for human occupancy by the code official, a written notice of unsafe structure or structure unfit for human occupancy shall be issued by personal service to the owner, the owner's agent or the person in control of such structure. The notice shall specify the corrections necessary to comply with this code, or if the structure is required to be demolished, the notice shall specify the time period within which the demolition must occur. Requirements in Section 104.5.4 for notices of violation are also applicable to notices issued under this section to the extent that any such requirements are not in conflict with the requirements of this section.

Note: Whenever possible, the notice should also be given to any tenants of the affected structure.

F. Section 105.4.1 Vacating unsafe structure. If the code official determines there is actual and immediate danger to the occupants or public, or when life is endangered by the occupancy of an unsafe structure, the code official shall be authorized to order the occupants to immediately vacate the unsafe structure. When an unsafe structure is ordered to be vacated, the code official shall post a notice with the following wording at each entrance: "THIS STRUCTURE IS UNSAFE AND ITS OCCUPANCY (OR USE) IS PROHIBITED BY THE CODE OFFICIAL." After posting, occupancy of use of the unsafe structure shall be prohibited except when authorized to enter to conduct inspections, make required repairs or as necessary to demolish the structure.

G. Section 105.5 Posting of notice. If the notice is unable to be issued by personal service as required by Section 105.4,

then the notice shall be sent by registered or certified mail to the last known address of the responsible party and a copy of the notice shall be posted in a conspicuous place on the premises.

H. Section 105.6 Posting of placard. In the case of a structure unfit for human habitation, at the time the notice is issued, a placard with the following wording shall be posted at the entrance to the structure: "THIS STRUCTURE IS UNFIT FOR HABITATION AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL." In the case of an unsafe structure, if the notice is not complied with, a placard with the above wording shall be posted at the entrance to the structure. After a structure is placarded, entering the structure shall be prohibited except as authorized by the code official to make inspections, to perform required repairs or to demolish the structure. In addition, the placard shall not be removed until the structure is determined by the code official to be safe to occupy, nor shall the placard be defaced.

I. Section 105.7 Revocation of certificate of occupancy. If a notice of unsafe structure or structure unfit for human habitation is not complied with within the time period stipulated on the notice, the code official shall be permitted to request the local building department to revoke the certificate of occupancy issued under the ~~Virginia Construction Code~~ VCC.

J. Section 105.8 Vacant and open structures. When an unsafe structure or a structure unfit for human habitation is open for public entry at the time a placard is issued under Section 105.6, the code official shall be permitted to authorize the necessary work to make such structure secure against public entry whether or not legal action to compel compliance has been instituted.

K. Section 105.9 Emergency repairs and demolition. To the extent permitted by the locality, the code official may authorize emergency repairs to unsafe structures or structures unfit for human habitation when it is determined that there is an immediate danger of any portion of the unsafe structure or structure unfit for human habitation collapsing or falling and when life is endangered. Emergency repairs may also be authorized where there is a code violation resulting in the immediate serious and imminent threat to the life and safety of the occupants. The code official shall be permitted to authorize the necessary work to make the structure temporarily safe whether or not legal action to compel compliance has been instituted. In addition, whenever an owner of an unsafe structure or structure unfit for human habitation fails to comply with a notice to demolish issued under Section 105.4 in the time period stipulated, the code official shall be permitted to cause the structure to be demolished. In accordance with §§ 15.2-906 and 15.2-1115 of the Code of Virginia, the legal counsel of the locality may be requested to institute appropriate action against the property owner to recover the costs associated with any such emergency repairs or demolition and every such charge that remains unpaid shall constitute a lien against the property on which the emergency repairs or demolition were made and shall be enforceable in the same manner as provided in Articles 3 (§ 58.1-3490 et seq.) and 4 (§ 58.1-3965 et seq.) of Chapter 39 of Title 58.1 of the Code of Virginia.

Note: Code officials and local governing bodies should be aware that other statutes and court decisions may impact on matters relating to demolition, in particular whether newspaper publication is required if the owner cannot be located and whether the demolition order must be delayed until the owner has been given the opportunity for a hearing. In addition, historic building demolition may be prevented by authority granted to local historic review boards in accordance with § 15.2-2306 of the Code of Virginia unless determined necessary by the code official.

L. Section 105.10 Closing of streets. When necessary for public safety, the code official shall be permitted to order the temporary closing of sidewalks, streets, public ways or premises adjacent to unsafe or unfit structures and prohibit the use of such spaces.

13VAC5-63-500. Section 106 Appeals.

A. Section 106.1 Establishment of appeals board. In accordance with § 36-105 of the Code of Virginia, there shall be established within each local enforcing agency a LBBCA. Whenever a county or a municipality does not have such a LBBCA, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such appeals resulting therefrom. Fees may be levied by the local governing body in order to defray the cost of such appeals. The LBBCA for hearing appeals under the ~~Virginia Construction Code~~ VCC shall be permitted to serve as the appeals board required by this section. The locality is responsible for maintaining a duly constituted LBBCA prepared to hear appeals within the time limits established in this section. The LBBCA shall meet as necessary to assure a duly constituted board, appoint officers as necessary, and receive such training on the code as may be appropriate or necessary from staff of the locality.

B. Section 106.2 Membership of board. The LBBCA shall consist of at least five members appointed by the locality for a specific term of office established by written policy. Alternate members may be appointed to serve in the absence of any regular members and as such, shall have the full power and authority of the regular members. Regular and alternate members may be reappointed. Written records of current membership, including a record of the current chairman and secretary shall be maintained in the office of the locality. In order to provide continuity, the terms of the members may be of different length so that less than half will expire in any one-year period. ~~The LBBCA shall meet at least once annually to assure a duly constituted board, appoint officers~~

~~as necessary and receive such training on the code as may be appropriate or necessary from staff of the locality.~~

C. Section 106.3 Officers and qualifications of members. The LBBCA shall annually select one of its regular members to serve as chairman. When the chairman is not present at an appeal hearing, the members present shall select an acting chairman. The locality or the chief executive officer of the locality shall appoint a secretary to the LBBCA to maintain a detailed record of all proceedings. Members of the LBBCA shall be selected by the locality on the basis of their ability to render fair and competent decisions regarding application of the USBC and shall to the extent possible, represent different occupational or professional fields relating to the construction industry. At least one member should be an experienced builder; at least one member should be an RDP, and at least one member should be an experienced property manager. Employees or officials of the locality shall not serve as members of the LBBCA.

D. Section 106.4 Conduct of members. No member shall hear an appeal in which that member has a conflict of interest in accordance with the State and Local Government Conflict of Interests Act (§ 2.2-3100 et seq. of the Code of Virginia). Members shall not discuss the substance of an appeal with any other party or their representatives prior to any hearings.

E. Section 106.5 Right of appeal; filing of appeal application. Any person aggrieved by the local enforcing agency's application of this code or the refusal to grant a modification to the provisions of this code may appeal to the LBBCA. The applicant shall submit a written request for appeal to the LBBCA within 14 calendar days of the receipt of the decision being appealed. The application shall contain the name and address of the owner of the building or structure and, in addition, the name and address of the person appealing, when the applicant is not the owner. A copy of the code official's decision shall be submitted along with the application for appeal and maintained as part of the record. The application shall be marked by the LBBCA to indicate the date received. Failure to submit an application for appeal within the time limit established by this section shall constitute acceptance of a code official's decision.

F. Section 106.6 Meetings and postponements. The LBBCA shall meet within 30 calendar days after the date of receipt of the application for appeal, except that a period of up to 45 calendar days shall be permitted where the LBBCA has regularly scheduled monthly meetings. A longer time period shall be permitted if agreed to by all the parties involved in the appeal. A notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application at least 14 calendar days prior to the date of the hearing, except that a lesser time period shall be permitted if agreed to by all the parties involved in the appeal. When a quorum of the LBBCA is not present at a hearing to hear an appeal, any party involved in the appeal shall have the right to request a postponement of the hearing. The LBBCA shall reschedule the appeal within 30 calendar days of the postponement, except that a longer time period shall be permitted if agreed to by all the parties involved in the appeal.

G. Section 106.7 Hearings and decision. All hearings before the LBBCA shall be open meetings and the appellant, the appellant's representative, the locality's representative and any person whose interests are affected by the code official's decision in question shall be given an opportunity to be heard. The chairman shall have the power and duty to direct the hearing, rule upon the acceptance of evidence and oversee the record of all proceedings. The LBBCA shall have the power to uphold, reverse or modify the decision of the official by a concurring vote of a majority of those present. Decisions of the LBBCA shall be final if no further appeal is made. The decision of the LBBCA shall be by resolution signed by the chairman and retained as part of the record of the appeal. Copies of the resolution shall be sent to all parties by certified mail. In addition, the resolution shall contain the following wording:

"Any person who was a party to the appeal may appeal to the State Review Board by submitting an application to such Board within 21 calendar days upon receipt by certified mail of this resolution. Application forms are available from the Office of the State Review Board, 600 East Main Street, Richmond, Virginia 23219, (804) 371-7150."

H. Section 106.8 Appeals to the State Review Board. After final determination by the LBBCA in an appeal, any person who was a party to the appeal may further appeal to the State Review Board. In accordance with § 36-98.2 of the Code of Virginia for state-owned buildings and structures, appeals by an involved state agency from the decision of the code official for state-owned buildings or structures shall be made directly to the State Review Board. The application for appeal shall be made to the State Review Board within 21 calendar days of the receipt of the decision to be appealed. Failure to submit an application within that time limit shall constitute an acceptance of the code official's decision. For appeals from a LBBCA, a copy of the code official's decision and the resolution of the LBBCA shall be submitted with the application for appeal to the State Review Board. Upon request by the Office of the State Review Board, the LBBCA shall submit a copy of all pertinent information from the record of the appeal. In the case of appeals involving state-owned buildings or structures, the involved state agency shall submit a copy of the code official's decision and other relevant information with the application for appeal to the State Review Board. Procedures of the State Review Board are in accordance with Article 2 (§ 36-108 et seq.) of Chapter 6 of Title 36 of the Code of Virginia. Decisions of the State Review Board shall be final if no further appeal is made.

13VAC5-63-510. Chapter 2 Definitions.

A. Change Section 201.3 of the IPMC to read:

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the ~~International Building Code~~ IBC, ~~International Fire Code~~ IFC, ~~International Plumbing Code~~ IPC, ~~International Mechanical Code~~ IMC, International Existing Building Code, IRC, International Zoning Code or ~~the ICC Electrical Code~~ NFPA 70, such terms shall have the meanings ascribed to them in those codes, except that terms defined in the ~~Virginia Construction Code~~ VCC shall be used for this code and shall take precedence over other definitions.

B. Add the following definitions to Section 202 of the IPMC to read:

Structure unfit for human occupancy. An existing structure determined by the code official to be dangerous to the health, safety and welfare of the occupants of the structure or the public because (i) of the degree to which the structure is in disrepair or lacks maintenance, ventilation, illumination, sanitary or heating facilities or other essential equipment, or (ii) the required plumbing and sanitary facilities are inoperable.

Unsafe equipment. Unsafe equipment includes any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment that is in such disrepair or condition that such equipment is determined by the code official to be dangerous to the health, safety and welfare of the occupants of a structure or the public.

Unsafe structure. An existing structure (i) determined by the code official to be dangerous to the health, safety and welfare of the occupants of the structure or the public, (ii) that contains unsafe equipment, or (iii) that is so damaged, decayed, dilapidated, structurally unsafe or of such faulty construction or unstable foundation that partial or complete collapse is likely. A vacant existing structure unsecured or open shall be deemed to be an unsafe structure.

13VAC5-63-520. Chapter 3 General requirements.

A. Delete Section 302.1 of the IPMC.

B. Change Section 302.2 of the IPMC to read:

302.2 Grading and drainage. All premises shall be graded and maintained to protect the foundation walls or slab of the structure from the accumulation and drainage of surface or stagnant water in accordance with the ~~Virginia Construction Code~~ VCC.

C. Change Section 302.3 of the IPMC to read:

302.3 Sidewalks and driveways. All sidewalks, walkways, stairs, driveways, parking spaces and similar spaces regulated under the ~~Virginia Construction Code~~ VCC shall be kept in a proper state of repair, and maintained free from hazardous conditions. Stairs shall comply with the requirements of Sections 305 and 702.

D. Delete Section 302.4 of the IPMC.

E. Change Section 302.5 of the IPMC to read:

302.5 Rodent harborage. All structures and adjacent premises shall be kept free from rodent harborage and infestation where such harborage or infestation adversely affects the structures.

F. Delete Sections 302.8 and 302.9 of the IPMC.

G. Delete Section 304.1.1 of the IPMC.

H. Change Section 304.7 of the IPMC to read:

304.7 Roofs and drainage. The roof and flashing shall be sound, tight and not have defects that admit rain. Roof drainage shall be adequate to prevent dampness or deterioration in the walls or interior portion of the structure. Roof drains, gutters and downspouts shall be maintained in good repair and free from obstructions. Roof water shall be discharged in a manner to protect the foundation or slab of buildings and structures from the accumulation of roof drainage.

I. Change Section 304.14 of the IPMC to read:

304.14 Insect screens. During the period from April 1 to December 1, every door, window and other outside opening required for ventilation of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored, shall be supplied with approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device in good working condition.

Exception: Screens shall not be required where other approved means, such as mechanical ventilation, air curtains or insect repellant fans, are used.

J. Delete Sections 304.18, 304.18.1, 304.18.2 and 304.18.3 of the IPMC.

K. Delete Section 305.1.1 of the IPMC.

L. Add Section 305.7 to the IPMC to read:

305.7 Carbon monoxide alarms. Carbon monoxide alarms shall be maintained as approved.

M. Delete Section 306 of the IPMC in its entirety.

N. Change Section 308.1 of the IPMC to read as follows and delete the remaining provisions of Section 308:

308.1 Accumulation of rubbish and garbage. The interior of every structure shall be free from excessive accumulation of rubbish or garbage.

O. Change Section 309.1 of the IPMC to read:

309.1 Infestation. This section shall apply to the extent that insect and rodent infestation adversely affects a structure. All structures shall be kept free from insect and rodent infestation. All structures in which insects or rodents are found shall be promptly exterminated by approved processes that will not be injurious to human health. After

extermination, proper precautions shall be taken to prevent reinfestation.

P. Add IPMC Section 310 Lead-Based Paint.

Q. Add Section 310.1 to the IPMC to read:

310.1 General. Interior and exterior painted surfaces of dwellings and child care facilities, including fences and outbuildings, that contain lead levels equal to or greater than 1.0 milligram per square centimeter or in excess of 0.50% lead by weight shall be maintained in a condition free from peeling, chipping and flaking paint or removed or covered in an approved manner. Any surface to be covered shall first be identified by approved warning as to the lead content of such surface.

R. Add IPMC Section 311 Aboveground Liquid Fertilizer Storage Tanks (ALFSTs).

S. Add Section 311.1 to the IPMC to read:

311.1 General. ALFSTs shall be maintained in accordance with the requirements of Section ~~3413.16~~ 1701.16 of the ~~Virginia Construction Code~~ VRC and the requirements of the ~~Virginia Construction Code~~ VCC applicable to such ALFSTs when newly constructed~~,~~ and the requirements of the VRC when undergoing a change of occupancy to an ALFST and when repaired, altered or reconstructed, including the requirements for inspections and for a secondary containment system.

13VAC5-63-525. ~~Chapter 4 Light, ventilation and occupancy limitations.~~ (Repealed.)

~~A. Change Section 404.4.1 of the IMPC to read:~~

~~404.4.1 Room area. Every living room shall contain at least 120 square feet (11.2 m^2) and every bedroom shall contain at least 70 square feet (6.5 m^2) and every bedroom occupied by more than one person shall contain at least 50 square feet (4.6 m^2) of floor area for each occupant thereof.~~

~~B. Change Section 404.5 of the IPMC and add new Table 404.5 to the IPMC to read:~~

~~404.5 Overcrowding. Dwelling units shall not be occupied by more occupants than permitted by the minimum area requirements of Table 404.5.~~

~~Table 404.5~~
~~Minimum Area Requirements~~

~~Space~~	~~Minimum Area in Square Feet~~		
	~~1-2 occupants~~	~~3-5 occupants~~	~~6 or more occupants~~
~~Living room[a,b]~~	~~120~~	~~120~~	~~150~~
~~Dining room[a,b]~~	~~No requirement~~	~~80~~	~~100~~
~~Bedrooms~~	~~Shall comply with Section 404.4.1~~		

~~For SI: 1 square foot = 0.093 m^2~~

~~[a]See Section 404.5.2 for combined living room/dining room spaces.~~

~~[b]See Section 404.5.1 for limitations on determining the minimum occupancy area for sleeping purposes.~~

~~C. Add Sections 404.5.1 and 404.5.2 to the IPMC to read:~~

~~404.5.1 Sleeping area. The minimum occupancy area required by Table 404.5 shall not be included as a sleeping area in determining the minimum occupancy area for sleeping purposes. All sleeping areas shall comply with Section 404.4.~~

~~404.5.2 Combined spaces. Combined living room and dining room spaces shall comply with the requirements of Table 404.5 if the total area is equal to that required for separate rooms and if the space is located so as to function as a combination living room/dining room.~~

13VAC5-63-530. Chapter 5 Plumbing facilities and fixture requirements.

A. Add Section 505.5 to the IPMC to read:

505.5 Inspection and testing of backflow prevention assemblies. Inspection and testing shall comply with Sections 505.5.1 and 505.5.2.

B. Add Section 505.5.1 to the IPMC to read:

505.5.1 Inspections. Inspections shall be made of all backflow prevention assemblies and air gaps to determine whether they are operable.

C. Add Section 505.5.2 to the IMPC to read:

505.5.2 Testing. Reduced pressure principle backflow preventer assemblies, double check-valve assemblies, double-detector check valve assemblies and pressure vacuum breaker assemblies shall be tested at the time of installation, immediately after repairs or relocation and at least annually. The testing procedure shall be performed in accordance with one of the following standards: ASSE 5010-1013-1, Sections 1 and 2; ASSE 5010-1015-1, Sections 1 and 2; ASSE 5010-1015-2; ASSE 5010-1015-3, Sections 1 and 2; ASSE 5010-1015-4, Sections 1 and 2; ASSE 5010-1020-1, Sections 1 and 2; ASSE 5010-1047-1, Sections 1, 2, 3 and 4; ASSE 5010-1048-1, Sections 1, 2, 3 and 4; ASSE 5010-1048-2; ASSE 5010-1048-3, Sections 1, 2, 3 and 4; ASSE 5010-1048-4, Sections 1, 2, 3 and 4; or CAN/CSA B64.10.

~~D. Change Section 506.3 of the IPMC to read:~~

~~506.3 Grease interceptors. Grease interceptors, grease traps, and automatic grease removal devices shall be maintained in accordance with this code and the manufacturer's installation instructions. Grease interceptors, grease traps, and automatic grease removal devices shall be regularly serviced and cleaned to prevent the discharge of oil, grease, and other substances harmful or hazardous to the building drainage system, the public~~

~~sewer, the private sewage disposal system, or the sewage treatment plant or processes. All records of maintenance, cleaning, and repairs shall be available for inspection by the code official.~~

~~E.~~ D. Change Section 507.1 of the IPMC to read:

507.1 General. Drainage of roofs and paved areas, yards and courts, and other open areas on the premises shall be discharged in a manner to protect the buildings and structures from the accumulation of overland water runoff.

13VAC5-63-540. Chapter 6 Mechanical and electrical requirements.

A. Change Section 602 of the IPMC to read:

Section 602 Heating and Cooling Facilities.

B. Change Section 602.1 of the IPMC to read:

602.1 Facilities required. Heating and cooling facilities shall be maintained and operated in structures as required by this section.

C. Change Section 602.2 of the IPMC to read:

602.2 Heat supply. Every owner and operator of ~~any~~ a Group R-2 apartment building or other residential dwelling who rents, leases or lets one or more dwelling unit, rooming unit, dormitory or guestroom on terms, either expressed or implied, to furnish heat to the occupants thereof shall supply heat during the period from October 15 to May 1 to maintain a temperature of not less than 65°F (18°C) in all habitable rooms, bathrooms, and toilet rooms. The code official may also consider modifications as provided in Section 104.5.2 when requested for unusual circumstances or may issue notice approving building owners to convert shared heating and cooling piping HVAC systems 14 calendar days before or after the established dates when extended periods of unusual temperatures merit modifying these dates.

Exception: When the outdoor temperature is below the winter outdoor design temperature for the locality, maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity. The winter outdoor design temperature for the locality shall be as indicated in Appendix D of the ~~International Plumbing Code~~ IPC.

D. Add Section 602.2.1 to the IPMC to read:

602.2.1 Prohibited use. In dwelling units subject to Section 602.2, one or more unvented room heaters shall not be used as the sole source of comfort heat in a dwelling unit.

E. Change Section 602.3 of the IPMC to read:

602.3 Occupiable work spaces. Indoor occupiable work spaces shall be supplied with heat during the period from October 1 to May 15 to maintain a temperature of not less than 65°F (18°C) during the period the spaces are occupied.

Exceptions:

1. Processing, storage and operation areas that require cooling or special temperature conditions.

2. Areas in which persons are primarily engaged in vigorous physical activities.

F. Change Section 602.4 of the IPMC to read:

602.4 Cooling supply. Every owner and operator of a Group R-2 apartment building who rents, leases or lets one or more dwelling units, rooming units or guestrooms on terms, either expressed or implied, to furnish cooling to the occupants thereof shall supply cooling during the period from May 15 to October 1 to maintain a temperature of not more than 80°F (27°C) in all habitable rooms. The code official may also consider modifications as provided in Section 104.5.2 when requested for unusual circumstances or may issue notice approving building owners to convert shared heating and cooling piping HVAC systems 14 calendar days before or after the established dates when extended periods of unusual temperatures merit modifying these dates.

Exception: When the outdoor temperature is higher than the summer design temperature for the locality, maintenance of the room temperature shall not be required provided that the cooling system is operating at its full design capacity. The summer outdoor design temperature for the locality shall be as indicated in the ~~International Energy Conservation Code~~ IECC.

G. Change the exception to Section 604.3.1.1 of the IPMC to read:

Exception: The following equipment shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer, an approved representative of the equipment manufacturer, a third party licensed or certified electrician, or an electrical engineer indicates that the exposed equipment has not sustained damage that requires replacement:

1. Enclosed switches, rated 600 volts or less;
2. Busway, rated 600 volts or less;
3. Panelboards, rated 600 volts or less;
4. Switchboards, rated 600 volts or less;
5. Fire pump controllers, rated 600 volts or less;
6. Manual and magnetic motor controllers;
7. Motor control centers;
8. Alternating current high-voltage circuit breakers;
9. Low-voltage power circuit breakers;
10. Protective relays, meters and current transformers;
11. Low- and medium-voltage switchgear;
12. Liquid-filled transformers;
13. Cast-resin transformers;
14. Wire or cable that is suitable for wet locations and whose ends have not been exposed to water;

15. Wire or cable, not containing fillers, that is suitable for wet locations and whose ends have not been exposed to water;

16. Luminaires that are listed as submersible;

17. Motors;

18. Electronic control, signaling and communication equipment.

H. Change Section 606.1 to the IPMC to read:

606.1 General. Elevators, dumbwaiters and escalators shall be maintained in compliance with ASME A17.1. The most current certificate of inspection shall be on display at all times within the elevator or attached to the escalator or dumbwaiter, be available for public inspection in the office of the building operator or be posted in a publicly conspicuous location approved by the code official. An annual periodic inspection and test is required of elevators and escalators. A locality shall be permitted to require a six-month periodic inspection and test. All periodic inspections shall be performed in accordance with Section 8.11 of ASME A17.1. The code official may also provide for such inspection by an approved agency or through agreement with other local certified elevator inspectors. An approved agency includes any individual, partnership or corporation who has met the certification requirements established by the VCS.

DOCUMENTS INCORPORATED BY REFERENCE (13VAC5-63)

International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070 (http://www.iccsafe.org/):

International Building Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070.~~

International Energy Conservation Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Existing Building Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Fire Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Fuel Gas Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Mechanical Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Property Maintenance Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Plumbing Code - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Residential Code for One- and Two-Family Dwellings - ~~2009~~ 2012 Edition~~, International Code Council, Inc.~~

International Swimming Pool and Spa Code - 2012 Edition

ICC/ANSI A117.1-09, Accessible and Usable Buildings and Facilities, Approved November 26, 2003

~~AISI-S230-07-W/S2-08, Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings, 2007 Edition with Supplement 2, American Iron and Steel Institute, 1140 Connecticut Avenue NW, Suite 705, Washington, DC 20036.~~

~~ANSI/AF&PA WCFM-2001, Wood Frame Construction Manual for One and Two Family Dwellings, 2001 Edition, Approved October 11, 2001, American Forest and Paper Association, 1111 19th St. NW, Suite 800, Washington, DC 20036.~~

~~ANSI/NSPI-1-2003, American National Standard for Public Swimming Pools, National Spa and Pool Institute, 2111 Eisenhower Avenue, Alexandria, VA 22314.~~

~~ANSI/NSPI-2-1999, American National Standard for Public Spas, National Spa and Pool Institute, 2111 Eisenhower Avenue, Alexandria, VA 22314.~~

ACI 318-11, Building Code Requirements for Structural Concrete, American Concrete Institute, 38800 Country Club Drive, Farmington Hills, MI 48331 (http://www.concrete.org/)

American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070 (http://www.api.org/):

API 650-09, Welded Tanks for Oil Storage, Eleventh Edition, June 2007 (Addendum 1, November 2008, Addendum 2, November 2009, effective May 1, 2010)~~, American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070.~~

API 653-09, Tank Inspection, Repair, Alteration, and Reconstruction~~, American Petroleum Institute.~~

ASHRAE 193-2010, Method of Test for Determining the Airtightness of HVAC Equipment, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305 (https://www.ashrae.org/)

American Society of Testing Materials International, 100 Barr Harbor Drive, P.O. Box C700, West Conshocken, PA 19428-2959 (http://www.astm.org/):

ASTM C199-84(2005), Standard Test Method for Pier Test for Refractory Mortar

ASTM C315-07, Standard Specification for Clay Flue Liners and Chimney Pots

ASTM C1261-07, Standard Specification for Firebox Brick for Residential Fireplaces

ASTM D1557-07, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3(2700 kN-m/m^3))

ASTM E90-90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E283-04, Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

ASTM E329-02, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction~~, American Society of Testing Materials International, 100 Barr Harbor Dr., P.O. Box C700, West Conshocken, PA 19428-2959.~~

~~ASTM D1557-00, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)), ASTM International.~~

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ASTM F2006-10, Standard Safety Specification for Window Fall Prevention Devices for Nonemergency Escape (Egress) and Rescue (Ingress) Windows

ASTM F2090-08, Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms

CAN/CSA-B64.10-01, Manual for the Selection and Installation of Backflow Prevention Devices/Manual for the Maintenance and Field Testing of Backflow Prevention Devices, June 2003, National Standards of Canada~~.~~, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W5N6 (http://www.csa.ca)

American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990 (https://www.asme.org/):

~~ASME A17.1-2007 / CSA B44-07~~ ASME A17.1/CSA B44-2007 Safety Code for Elevators and Escalators~~, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.~~

~~ASME A17.1a-2008 / CSA B44a-08, Addenda to ASME A17.1-2007 / CSA B44-07~~ ASME A17.1/CSA B44-2010, Safety Code for Elevators and Escalators~~, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.~~

~~ASME A17.1b-2009 / CSA B44b-09, Addenda to ASME A17.1-2007 / CSA B44-07, Safety Code for Elevators and Escalators, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.~~

ASME A18.1-2011, Safety Standard for Platform Lifts and Stairway Chairlifts

~~ASME A90.1-97, Safety Standard for Belt Manlifts, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.~~

~~ASME B20.1-00, Safety Standard for Conveyors and Related Equipment, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.~~

American Society of Sanitary Engineering, 901 Canterbury Road, Suite A, Westlake, OH 44145 (http://www.asse-plumbing.org/):

~~ASSE 1010-98~~ ASSE 1010-2004, Performance Requirements for Water Hammer Arrestors~~, American Society of Sanitary Engineering, 901 Canterbury Road, Suite A, Westlake, OH 44145.~~

ASSE 5010-1013-1, Field Test Procedure for a Reduced Pressure Principle Assembly Using a Differential Pressure Gauge, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1015-1, Field Test Procedure for a Double Check Valve Assembly Using a Duplex Gauge, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1015-2, Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1015-3, Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High Pressure Hose Method, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1015-4, Field Test Procedure for a Double Check Valve Assembly Using a Site Tube, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1020-1, Field Test Procedures for a Pressure Vacuum Breaker Assembly, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1047-1, Field Test Procedure for a Reduced Pressure Detector Assembly Using a Differential Pressure Gauge, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1048-1, Field Test Procedure for a Double Check Detector Assembly Using a Duplex Gauge, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1048-2, Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1048-3, Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High-Pressure Hose Method, 1991~~, American Society of Sanitary Engineering.~~

ASSE 5010-1048-4, Field Test Procedure for a Double Check Detector Assembly Using a Site Tube, 1991~~, American Society of Sanitary Engineering.~~

~~ICC/ANSI A117.1-2003, Accessible and Usable Buildings and Facilities, Approved November 26, 2003, International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070.~~

~~ICC 600-2008, Standard for Residential Construction in High-Wind Regions, Approved August 6, 2008, International Code Council, Inc.~~

~~SEI/ASCE 7-05~~ ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers/Structural Engineering Institute, 1801 Alexander Bell Drive, Reston, VA 20191-4400. (http://www.asce.org/sei/)

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471 (http://www.nfpa.org/):

NFPA 13-10, Installation of Sprinkler Systems

NFPA 13R-10, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height

~~NFPA 13D-07~~ NFPA 13D-10, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

~~NFPA 70-08~~ NFPA 70-11, National Electrical Code~~, 2008 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 72-10, National Fire Alarm Code

NFPA 105-10, Standard for the Installation of Smoke Door Assemblies

NFPA 495-01, Explosive Materials Code~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 701-10, Standard Methods of Fire Tests for Flame-propagation of Textiles and Films

~~NFPA 704-07~~ NFPA 704-12, Standard System for the Identification of the Hazards of Materials for Emergency Response~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

TFI RMIP-09, Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices, December 2009, The Fertilizer Institute, 820 First Street, NE, Suite 430, Washington, DC 20002

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062 (http://www.ul.com):

UL 1784-01, Air Leakage Tests of Door Assemblies, revised July 2009

~~UL 2034~~ UL 2034-2008, Standard for Single and Multiple Station Carbon Monoxide Alarms~~, Third Edition, February 28, 2008, including revisions through~~, revised February ~~20,~~ 2009~~, Underwriters Laboratories, Inc. 333 Pfingsten Road, Northbrook, IL 60062.~~

Interim Remediation Guidance for Homes with Corrosion from Problem Drywall, April 2, 2010, Joint Report, Consumer Products Safety Commission and Department of Housing and Urban Development

VA.R. Doc. No. R12-3159; Filed June 27, 2013, 9:56 a.m.

Proposed Regulation

REGISTRAR'S NOTICE: The Board of Housing and Community Development is claiming an exemption from the Administrative Process Act pursuant to § 2.2-4006 A 12 of the Code of Virginia, which excludes regulations adopted pursuant to the Industrialized Building Safety Law (§ 36-70 et seq. of the Code of Virginia).

Title of Regulation: **13VAC5-91. Virginia Industrialized Building Safety Regulations (amending 13VAC5-91-10, 13VAC5-91-20, 13VAC5-91-40, 13VAC5-91-60, 13VAC5-91-100, 13VAC5-91-115, 13VAC5-91-120, 13VAC5-91-140, 13VAC5-91-150, 13VAC5-91-160, 13VAC5-91-170, 13VAC5-91-180, 13VAC5-91-210, 13VAC5-91-220, 13VAC5-91-240, 13VAC5-91-260, 13VAC5-91-270; repealing 13VAC5-91-130).**

Statutory Authority: § 36-73 of the Code of Virginia.

Public Hearing Information:

September 23, 2013 - 10 a.m. - Virginia Housing Center, 4224 Cox Road, Glen Allen, VA

Public Comment Deadline: September 29, 2013.

Agency Contact: Stephen W. Calhoun, Regulatory Coordinator, Department of Housing and Community Development, Main Street Centre, 600 East Main Street, Suite 300, Richmond, VA 23219, telephone (804) 371-7000, FAX (804) 371-7090, TTY (804) 371-7089, or email steve.calhoun@dhcd.virginia.gov.

Background: The Virginia Industrialized Building Safety Regulations (IBSR) govern the in-factory construction of industrialized buildings, also known as modular buildings. The regulations provide the same standards for construction as those buildings constructed on-site and regulated by the Virginia Uniform Statewide Building Code (13VAC5-63). Both regulations utilize nationally recognized model building codes and standards to provide the technical requirements for the actual construction of the regulated buildings. The model codes are produced by the International Code Council and, every three years, new editions of the model codes become available. At that time, the Board of Housing and Community Development initiates a regulatory action to incorporate the newer editions of the model codes into the regulations through the publishing of a proposed regulation.

Summary:

The proposed amendments (i) conform the regulations to statutory provisions and updated industry standards; (ii) coordinate the application of the regulation with the other building code and fire code regulations of the board; (iii) revise the definition of compliance assurance agency (CAA) to allow the placement of CAAs labels on industrialized buildings in one location; (iv) add definitions for label, certification label, compliance assurance agency certification label, seal, registration seal, and Virginia registration seal to clarify the meaning of each label or seal; (v) change the name of the State Building Code Administrative Office to the State Building Codes Office (SBCO); (vi) revise the exemption for storage containers; (vii) clarify the right to appeal any

TAB 2 - Consensus USBC Code Changes

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 x☐ Government Entity ☐ Company

Name: Frank Castelvecchi, 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
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
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 X 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 m2) 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
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 8th 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
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)]

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[a]

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

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 <u>all</u> 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

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

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
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 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 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.

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 – REVISED (supporting statement only)**

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 #1:
This is already allowed by previous IBC editions.

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 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.

Regarding 2603.5.5:
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., veneers, insulation, WRB, air barriers, structure, sheathing, interior finishes, location, and/or thicknesses of all those materials listed).

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).

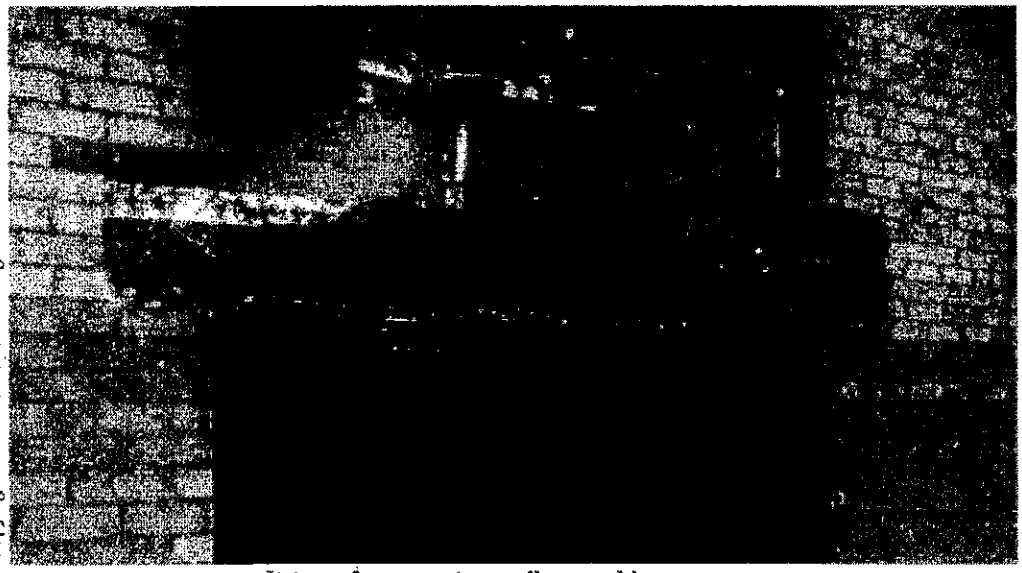

Copyright ©2012 Owens Corning.

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

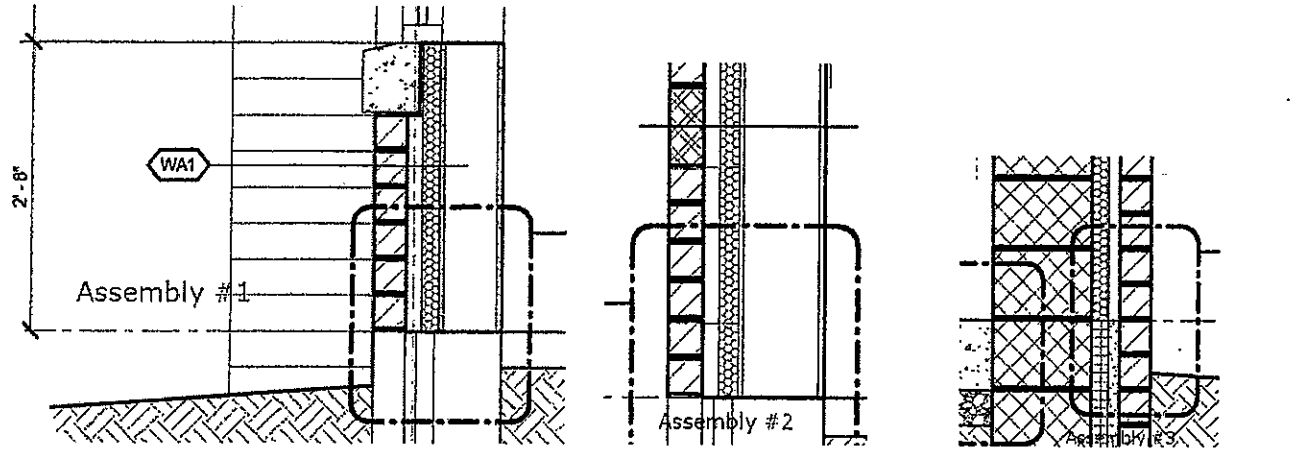
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

- 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 and the other has gypsum sheathing + steel studs + gypsum drywall backup (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 veneer, a second NFPA 285 test would not be required.

- Refer to the examples below: Assembly #1 would require a test. 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 in the United States 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 in 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 (or more) per exterior wall assembly when compared to the current 2012 code requirements. There are at least two or more different exterior wall assemblies per building; thus, equaling 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~~ August 8, 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 ☐ Company

Name: Michael D Redifer Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3rd 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
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 230808(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	12-0 11-10	15-10 15-7	20-3 19-10	24-8 24-2	12-0 11-10	15-10 15-7	20-3 18-7	24-8 22-0
	Southern Pine	#2	11-10 11-3	15-7 14-11	19-10 18-1	24-2 21-4	11-10 10-9	15-7 13-8	18-7 16-2	21-9 19-1
	Southern Pine	#3	10-5 9-2	13-3 11-6	15-8 14-0	18-8 16-6	9-4 8-2	11-11 10-3	14-0 12-6	16-8 14-9
	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	10-11 10-9	14-5 14-2	18-5 18-0	22-5 21-4	10-11 10-9	14-5 13-9	17-11 16-1	21-4 19-1
	Southern Pine	#2	10-9 10-3	14-2 13-3	18-0 15-8	21-1 18-6	10-5 9-4	13-6 11-10	16-1 14-0	18-10 16-6
	Southern Pine	#3	9-0 7-11	[redacted]	13-7 12-1	16-2 14-4	8-1 7-1	10-3 8-11	12-2 10-10	14-6 12-10
	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	10-4	13-7	16-5	19-6	9-11	12-7	14-8	17-5
	Southern Pine	#2	9-6	12-1	14-4	16-10	8-6	10-10	12-10	15-1
	Southern Pine	#3	7-3	9-1	11-0	13-1	6-5	8-2	9-10	11-8
	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	19-11
	Southern Pine	#1	9-7	12-7	16-1	19-6	9-7	12-4	14-7	17-5
	Southern Pine	#2	9-4	12-4	14-8	17-2	8-6	11-0	13-1	15-5
	Southern Pine	#3	7-4	9-5	11-1	13-2	6-7	8-5	9-11	11-10
	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^2.

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	10-11	14-5	18-0	21-11	10-11	14-2	16-11	20-1
	Southern Pine	#2	10-9	14-2	16-2	19-1	10-9	12-6	14-9	17-5
	Southern Pine	#3	9-4	11-1	12-6	14-9	8-6	10-9	11-5	13-6
	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	9-11	13-1	16-9	20-4	9-11	13-1	16-4	19-6
	Southern Pine	#2	9-9	12-10	16-1	19-1	9-6	12-4	14-8	17-5
	Southern Pine	#3	8-1	10-3	12-2	14-6	7-4	9-5	11-1	13-2
	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	9-4	12-4	15-9	19-2	9-4	12-4	14-11	17-9
	Southern Pine	#2	9-2	12-1	14-8	17-2	8-8	11-3	13-5	15-8
	Southern Pine	#3	7-4	9-5	11-1	13-2	6-9	8-7	10-1	12-1
	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[a]
	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	~~18-1~~ ~~18-0~~
	Southern Pine	#1	~~8-8~~ ~~8-6~~	~~11-5~~ ~~11-3~~	~~14-7~~ ~~13-1~~	~~17-5~~ ~~15-7~~	~~8-8~~ ~~8-1~~	~~11-3~~ ~~10-3~~	~~13-4~~ ~~12-0~~	~~15-11~~ ~~14-3~~
	Southern Pine	#2	~~8-6~~ ~~7-7~~	~~11-0~~ ~~9-8~~	~~13-1~~ ~~11-5~~	~~15-5~~ ~~13-6~~	~~7-9~~ ~~7-0~~	~~10-0~~ ~~8-10~~	~~12-0~~ ~~10-5~~	~~14-0~~ ~~12-4~~
	Southern Pine	#3	~~6-7~~ ~~5-9~~	~~8-5~~ ~~7-3~~	~~9-11~~ ~~8-10~~	~~11-10~~ ~~10-5~~	~~6-0~~ ~~5-3~~	~~7-8~~ ~~6-8~~	~~9-1~~ ~~8-1~~	~~10-9~~ ~~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^2.

a. End bearing length shall be increased to 2 inches.

TABLE 2308.9.5
HEADER AND GIRDER SPANS[a] FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]											
		30						50					
		Building width[c] (feet)											
		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
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[a,b] FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[e] and Required Number of Jack Studs)

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]											
		30						50					
		Building width[c] (feet)											
		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
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^2.

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 header is permitted to be supported by an *approved* framing anchor attached to the full-height wall stud and to the header.

e. 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[a][b] FOR INTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING width[c] (feet)					
		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
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	~~12-8~~ 12-5	~~19-11~~ 19-6	~~26-0~~ 25-8	26-0
	Southern Pine	#2	~~12-5~~ 11-10	~~19-6~~ 18-8	~~25-8~~ 24-7	26-0
	Southern Pine	#3	~~11-6~~ 10-1	~~17-0~~ 14-11	~~21-8~~ 18-9	~~25-7~~ 22-9
	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	~~11-6~~ 11-3	~~18-1~~ 17-8	~~23-10~~ 23-4	26-0
	Southern Pine	#2	~~11-3~~ 10-9	~~17-8~~ 16-11	~~23-4~~ 21-7	~~26-0~~ 25-7
	Southern Pine	#3	~~10-0~~ 8-9	~~14-9~~ 12-11	~~18-9~~ 16-3	~~22-2~~ 19-9
	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	~~10-10~~ 10-7	~~17-0~~ 16-8	~~22-5~~ 22-0	26-0
	Southern Pine	#2	~~10-7~~ 10-2	~~16-8~~ 15-7	~~21-11~~ 19-8	~~26-0~~ 23-5
	Southern Pine	#3	~~9-1~~ 8-0	~~13-6~~ 11-9	~~17-2~~ 14-10	~~20-3~~ 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	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 20-5	~~26-0~~ 24-0
	Southern Pine	#2	~~9-10~~ 9-3	~~15-6~~ 13-11	~~20-1~~ 17-7	~~23-11~~ 20-11
	Southern Pine	#3	~~8-2~~ 7-2	~~12-0~~ 10-6	~~15-4~~ 13-3	~~18-1~~ 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^2.

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	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 20-5	~~26-0~~ 24-0
	Southern Pine	#2	~~9-10~~ 9-3	~~15-6~~ 13-11	~~20-1~~ 17-7	~~23-11~~ 20-11
	Southern Pine	#3	~~8-2~~ 7-2	~~12-0~~ 10-6	~~15-4~~ 13-3	~~18-1~~ 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
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	~~9-1~~ 8-11	~~14-4~~ 14-0	~~18-11~~ 17-9	~~23-1~~ 20-9
	Southern Pine	#2	~~8-11~~ 8-0	~~13-6~~ 12-0	~~17-5~~ 15-3	~~20-9~~ 18-1
	Southern Pine	#3	~~7-1~~ 6-2	~~10-5~~ 9-2	~~13-3~~ 11-6	~~15-8~~ 14-0
	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	~~18-1~~ 18-2	23-1
	Southern Pine	#1	~~8-7~~ 8-5	~~13-6~~ 12-9	~~17-9~~ 16-2	~~21-1~~ 18-11
	Southern Pine	#2	~~8-5~~ 7-4	~~12-3~~ 11-0	~~15-10~~ 13-11	~~18-11~~ 16-6
	Southern Pine	#3	~~6-5~~ 5-8	~~9-6~~ 8-4	~~12-1~~ 10-6	~~14-4~~ 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	~~8-0~~ 7-8	~~12-6~~ 11-5	~~15-10~~ 14-6	~~18-10~~ 16-11
	Southern Pine	#2	~~7-8~~ 6-7	~~11-0~~ 9-10	~~14-2~~ 12-6	~~16-11~~ 14-9
	Southern Pine	#3	~~5-9~~ 5-1	~~8-6~~ 7-5	~~10-10~~ 9-5	~~12-10~~ 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^2.

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 × 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	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	~~11-1~~ 10-10	~~17-4~~ 17-0	~~22-11~~ 22-5	26-0	26-0	~~11-1~~ 10-6	~~17-3~~ 15-8	~~21-9~~ 19-10	~~25-10~~ 23-2	26-0
	Southern Pine	#2	~~10-10~~ 10-4	~~17-0~~ 15-7	~~22-5~~ 19-8	~~26-0~~ 23-5	26-0	~~10-6~~ 9-0	~~15-1~~ 13-6	~~19-5~~ 17-1	~~23-2~~ 20-3	~~26-0~~ 23-10
	Southern Pine	#3	~~9-1~~ 8-0	~~13-6~~ 11-9	~~17-2~~ 14-10	~~20-3~~ 18-0	~~24-1~~ 21-4	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 18-6
	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	~~26-0~~ 25-7	26-0
	Southern Pine	#1	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 19-10	~~25-10~~ 23-2	26-0	~~10-0~~ 9-1	~~15-0~~ 13-7	~~18-10~~ 17-2	~~22-4~~ 20-1	~~26-0~~ 23-10
	Southern Pine	#2	~~9-10~~ 9-0	~~15-1~~ 13-6	~~19-5~~ 17-1	~~23-2~~ 20-3	~~26-0~~ 23-10	~~9-1~~ 7-9	~~13-0~~ 11-8	~~16-10~~ 14-9	~~20-1~~ 17-6	~~23-7~~ 20-8
	Southern Pine	#3	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 18-6	~~6-10~~ 6-0	~~10-1~~ 8-10	~~12-10~~ 11-2	~~15-2~~ 13-6	~~18-1~~ 16-0
	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	~~19-11~~ 19-7	~~25-5~~ 23-4	26-0
	Southern Pine	#1	~~9-5~~ 9-3	~~14-10~~ 14-3	~~19-7~~ 18-1	~~23-7~~ 21-2	~~26-0~~ 25-2	~~9-3~~ 8-4	~~13-8~~ 12-4	~~17-2~~ 15-8	~~20-5~~ 18-4	~~24-4~~ 21-9
	Southern Pine	#2	~~9-3~~ 8-2	~~13-9~~ 12-3	~~17-9~~ 15-7	~~21-2~~ 18-6	~~24-10~~ 21-9	~~8-4~~ 7-1	~~11-11~~ 10-8	~~15-4~~ 13-6	~~18-4~~ 16-0	~~21-6~~ 18-10
	Southern Pine	#3	~~7-3~~ 6-4	~~10-8~~ 9-4	~~13-7~~ 11-9	~~16-0~~ 14-3	~~19-1~~ 16-10	~~6-3~~ 5-6	~~9-3~~ 8-1	~~11-9~~ 10-2	~~13-10~~ 12-4	~~16-6~~ 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	~~14-1~~ 13-10	~~18-6~~ 17-6	~~22-11~~ 20-10	~~26-0~~ 24-8
	Southern Pine	#1	~~8-9~~ 8-7	~~13-9~~ 12-9	~~17-9~~ 16-2	~~21-1~~ 18-11	~~25-2~~ 22-6	~~8-3~~ 7-5	~~12-3~~ 11-1	~~15-4~~ 14-0	~~18-3~~ 16-5	~~21-9~~ 19-6
	Southern Pine	#2	~~8-7~~ 7-4	~~12-3~~ 11-0	~~15-10~~ 13-11	~~18-11~~ 16-6	~~22-2~~ 19-6	~~7-5~~ 6-4	~~10-8~~ 9-6	~~13-9~~ 12-1	~~16-5~~ 14-4	~~19-3~~ 16-10
	Southern Pine	#3	~~6-5~~ 5-8	~~9-6~~ 8-4	~~12-1~~ 10-6	~~14-4~~ 12-9	~~17-1~~ 15-1	~~5-7~~ 4-11	~~8-3~~ 7-3	~~10-6~~ 9-1	~~12-5~~ 11-0	~~14-9~~ 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^2.

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	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 20-5	26-0	26-0	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 19-10	~~25-10~~ 23-2	26-0
	Southern Pine	#2	~~9-10~~ 9-5	~~15-6~~ 14-9	~~20-5~~ 19-6	~~26-0~~ 23-5	26-0	~~9-10~~ 9-0	~~15-1~~ 13-6	~~19-5~~ 17-1	~~23-2~~ 20-3	~~26-0~~ 23-10
	Southern Pine	#3	~~9-1~~ 8-0	~~13-6~~ 11-9	~~17-2~~ 14-10	~~20-3~~ 18-0	~~24-1~~ 21-4	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 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	~~9-1~~ 8-11	~~14-4~~ 14-1	~~18-11~~ 18-6	~~24-1~~ 23-2	26-0	~~9-1~~ 8-11	~~14-4~~ 13-7	~~18-10~~ 17-2	~~22-4~~ 20-1	~~26-0~~ 23-10
	Southern Pine	#2	~~8-11~~ 8-7	~~14-1~~ 13-5	~~18-6~~ 17-1	~~23-3~~ 20-3	~~26-0~~ 23-10	~~8-11~~ 7-9	~~13-0~~ 11-8	~~16-10~~ 14-9	~~20-1~~ 17-6	~~23-7~~ 20-8
	Southern Pine	#3	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 18-6	~~6-10~~ 6-0	~~10-1~~ 8-10	~~12-10~~ 11-2	~~15-2~~ 13-6	~~18-1~~ 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/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	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	~~18-1~~ 18-2	23-1	26-0	8-9	13-9	~~18-1~~ 18-2	23-1	26-0
	Southern Pine	#1	~~8-7~~ 8-5	~~13-6~~ 13-3	~~17-9~~ 17-5	~~22-8~~ 21-2	~~Note b~~ 25-2	~~8-7~~ 8-4	~~13-6~~ 12-4	~~17-2~~ 15-8	~~20-5~~ 18-4	~~24-4~~ 21-9
	Southern Pine	#2	~~8-5~~ 8-1	~~13-3~~ 12-3	~~17-5~~ 15-7	~~21-2~~ 18-6	~~24-10~~ 21-9	~~8-4~~ 7-1	~~11-11~~ 10-8	~~15-4~~ 13-6	~~18-3~~ 16-0	~~21-6~~ 18-10
	Southern Pine	#3	~~7-3~~ 6-4	~~10-8~~ 9-4	~~13-7~~ 11-9	~~16-0~~ 14-3	~~19-1~~ 16-10	~~6-3~~ 5-6	~~9-3~~ 8-1	~~11-9~~ 10-2	~~13-10~~ 12-4	~~16-6~~ 14-7
	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	~~21-6~~ 20-10	~~26-0~~ 24-8
	Southern Pine	#1	~~8-0~~ 7-10	~~12-6~~ 12-3	~~16-6~~ 16-2	~~21-1~~ 18-11	~~25-2~~ 22-6	~~8-0~~ 7-5	~~12-3~~ 11-1	~~15-4~~ 14-0	~~18-3~~ 16-5	~~21-9~~ 19-6
	Southern Pine	#2	~~7-10~~ 7-4	~~12-3~~ 11-0	~~15-10~~ 13-11	~~18-11~~ 16-6	~~22-2~~ 19-6	~~7-5~~ 6-4	~~10-8~~ 9-6	~~13-9~~ 12-1	~~16-5~~ 14-4	~~19-3~~ 16-10
	Southern Pine	#3	~~6-5~~ 5-8	~~9-6~~ 8-4	~~12-1~~ 10-6	~~14-4~~ 12-9	~~17-1~~ 15-1	~~5-7~~ 4-11	~~8-3~~ 7-3	~~10-6~~ 9-1	~~12-5~~ 11-0	~~14-9~~ 13-1
	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^2.

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	~~26-0~~ 25-4	26-0
	Southern Pine	#1	~~9-8~~ 9-6	~~15-2~~ 14-10	~~20-0~~ 19-0	~~24-9~~ 22-3	26-0	~~9-8~~ 9-0	~~14-10~~ 13-5	~~18-8~~ 17-0	~~22-2~~ 19-11	~~26-0~~ 23-7
	Southern Pine	#2	~~9-6~~ 8-7	~~14-5~~ 12-11	~~18-8~~ 16-4	~~22-3~~ 19-5	~~26-0~~ 22-10	~~9-0~~ 7-8	~~12-11~~ 11-7	~~16-8~~ 14-8	~~19-11~~ 17-4	~~23-4~~ 20-5
	Southern Pine	#3	~~7-7~~ 6-7	~~11-2~~ 9-9	~~14-3~~ 12-4	~~16-10~~ 15-0	~~20-0~~ 17-9	~~6-9~~ 5-11	~~10-0~~ 8-9	~~12-9~~ 11-0	~~15-1~~ 13-5	~~17-11~~ 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	~~18-6~~ 18-5	~~23-8~~ 21-11	~~26-0~~ 25-11
	Southern Pine	#1	~~8-9~~ 8-7	~~13-9~~ 13-0	~~18-1~~ 16-6	~~21-5~~ 19-3	~~25-7~~ 22-10	~~8-8~~ 7-10	~~12-10~~ 11-7	~~16-2~~ 14-9	~~19-2~~ 17-3	~~22-10~~ 20-5
	Southern Pine	#2	~~8-7~~ 7-6	~~12-6~~ 11-2	~~16-2~~ 14-2	~~19-3~~ 16-10	~~22-7~~ 19-10	~~7-10~~ 6-8	~~11-2~~ 10-0	~~14-5~~ 12-8	~~17-3~~ 15-1	~~20-2~~ 17-9
	Southern Pine	#3	~~6-7~~ 5-9	~~9-8~~ 8-6	~~12-4~~ 10-8	~~14-7~~ 13-0	~~17-4~~ 15-4	~~5-10~~ 5-2	~~8-8~~ 7-7	~~11-0~~ 9-7	~~13-0~~ 11-7	~~15-6~~ 13-9
	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	~~17-5~~ 16-10	~~22-0~~ 20-0	~~25-9~~ 23-7
	Southern Pine	#1	~~8-3~~ 8-0	~~13-0~~ 11-10	~~16-6~~ 15-1	~~19-7~~ 17-7	~~23-4~~ 20-11	~~7-11~~ 7-1	~~11-9~~ 10-7	~~14-9~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8
	Southern Pine	#2	~~7-11~~ 6-10	~~11-5~~ 10-2	~~14-9~~ 12-11	~~17-7~~ 15-4	~~20-7~~ 18-1	~~7-1~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2
	Southern Pine	#3	~~6-0~~ 5-3	~~8-10~~ 7-9	~~11-3~~ 9-9	~~13-4~~ 11-10	~~15-10~~ 14-0	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 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	~~20-8~~ 20-0	~~25-1~~ 23-7	7-10	~~12-3~~ 11-10	~~16-2~~ 15-0	~~19-8~~ 17-11	~~23-0~~ 21-2
	Southern Pine	#1	~~7-8~~ 7-1	~~11-9~~ 10-7	~~14-9~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8	~~7-1~~ 6-4	~~10-6~~ 9-6	~~13-2~~ 12-0	~~15-8~~ 14-1	~~18-8~~ 16-8
	Southern Pine	#2	~~7-1~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2	~~6-4~~ 5-5	~~9-2~~ 8-2	~~11-9~~ 10-4	~~14-1~~ 12-3	~~16-6~~ 14-6
	Southern Pine	#3	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 12-6	~~4-9~~ 4-2	~~7-1~~ 6-2	~~9-0~~ 7-10	~~10-8~~ 9-6	~~12-8~~ 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^2.

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	13-0 13-1	17-2	21-11	26-0	8-4	13-0 13-1	17-2	21-11 21-5	26-0 25-3
	Southern Pine	#1	8-2 8-0	12-10 12-3	16-10 15-6	20-3 18-2	24-1 21-7	8-2 7-7	12-6 11-4	15-9 14-5	18-9 16-10	22-4 20-0
	Southern Pine	#2	8-0 7-0	11-9 10-6	15-3 13-4	18-2 15-10	21-3 18-8	7-7 6-6	10-11 9-9	14-1 12-4	16-10 14-8	19-9 17-3
	Southern Pine	#3	6-2 5-5	9-2 8-0	11-8 10-1	13-9 12-3	16-1 14-6	5-9 5-0	8-5 7-5	10-9 9-4	12-9 11-4	15-2 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	24-3 23-7	7-6	11-10	15-7	19-11 18-6	23-10 21-10
	Southern Pine	#1	7-5 7-1	11-7 10-7	14-9 13-5	17-6 15-9	20-11 18-8	7-4 6-7	10-10 9-10	13-8 12-5	16-2 14-7	19-1 17-3
	Southern Pine	#2	7-1 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2	6-7 5-8	9-5 8-5	12-2 10-9	14-7 12-9	17-1 15-0
	Southern Pine	#3	5-1 4-8	7-11 6-11	10-1 8-9	12-11 10-7	14-2 12-6	4-11 4-4	7-1 6-5	9-4 8-1	11-0 9-10	13-1 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	~~18-9~~ 18-3	~~22-10~~ 21-7	7-1	11-2	~~14-8~~ 14-2	~~18-7~~ 16-11	~~21-9~~ 20-0
	Southern Pine	#1	~~7-0~~ 6-6	~~10-8~~ 9-8	~~13-5~~ 12-3	~~16-0~~ 14-4	~~19-1~~ 17-1	~~6-8~~ 6-0	~~9-11~~ 9-0	~~12-5~~ 11-4	~~14-10~~ 13-4	~~17-8~~ 15-9
	Southern Pine	#2	~~6-6~~ 5-7	~~9-4~~ 8-4	~~12-0~~ 10-7	~~14-4~~ 12-6	~~16-10~~ 14-9	~~6-0~~ 5-2	~~8-8~~ 7-9	~~11-2~~ 9-9	~~13-4~~ 11-7	~~15-7~~ 13-8
	Southern Pine	#3	~~4-11~~ 4-3	~~7-3~~ 6-4	~~9-2~~ 8-0	~~10-10~~ 9-8	~~12-11~~ 11-5	~~4-6~~ 4-0	~~6-8~~ 5-10	~~8-6~~ 7-4	~~10-1~~ 8-11	~~12-0~~ 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	~~17-5~~ 16-4	~~21-0~~ 19-3	6-7	~~10-4~~ 10-0	~~13-8~~ 12-8	~~16-7~~ 15-2	~~19-5~~ 17-10
	Southern Pine	#1	~~6-5~~ 5-10	~~9-7~~ 8-8	~~12-0~~ 11-0	~~14-4~~ 12-10	~~17-1~~ 15-3	~~6-9~~ 5-5	~~8-10~~ 8-0	~~11-2~~ 10-2	~~13-3~~ 11-11	~~15-9~~ 14-1
	Southern Pine	#2	~~5-10~~ 5-0	~~8-4~~ 7-5	~~10-9~~ 9-5	~~12-10~~ 11-3	~~15-1~~ 13-2	~~5-5~~ 4-7	~~7-9~~ 6-11	~~10-0~~ 8-9	~~11-11~~ 10-5	~~13-11~~ 12-3
	Southern Pine	#3	~~4-4~~ 3-10	~~6-5~~ 5-8	~~8-3~~ 7-1	~~9-9~~ 8-8	~~11-7~~ 10-3	~~4-1~~ 3-6	~~6-0~~ 5-3	~~7-7~~ 6-7	~~9-0~~ 8-0	~~10-8~~ 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^2.

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.)	(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	~~8-9~~ 8-7	~~13-9~~ 13-6	~~18-2~~ 17-10	~~23-2~~ 22-3	26-0	~~8-9~~ 8-7	~~13-9~~ 13-5	~~18-2~~ 17-0	~~22-2~~ 19-11	~~26-0~~ 23-7
	Southern Pine	#2	~~8-7~~ 8-3	~~13-6~~ 12-11	~~17-10~~ 16-4	~~22-3~~ 19-5	~~26-0~~ 22-10	~~8-7~~ 7-8	~~12-11~~ 11-7	~~16-8~~ 14-8	~~19-11~~ 17-4	~~23-4~~ 20-5
	Southern Pine	#3	~~7-7~~ 6-7	~~11-2~~ 9-9	~~14-3~~ 12-4	~~16-10~~ 15-0	~~20-0~~ 17-9	~~6-9~~ 5-11	~~10-0~~ 8-9	~~12-9~~ 11-0	~~15-1~~ 13-5	~~17-11~~ 15-10
	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	~~26-9~~ 25-11
	Southern Pine	#1	~~8-0~~ 7-10	~~12-6~~ 12-3	~~16-6~~ 16-2	~~21-1~~ 19-3	~~25-7~~ 22-10	~~8-0~~ 7-10	~~12-6~~ 11-7	~~16-2~~ 14-9	~~19-2~~ 17-3	~~22-10~~ 20-5
	Southern Pine	#2	~~7-10~~ 7-6	~~12-3~~ 11-2	~~16-2~~ 14-2	~~19-3~~ 16-10	~~22-7~~ 19-10	~~7-10~~ 6-8	~~11-2~~ 10-0	~~14-5~~ 12-8	~~17-3~~ 15-1	~~20-2~~ 17-9
	Southern Pine	#3	~~6-7~~ 5-9	~~9-8~~ 8-6	~~12-4~~ 10-8	~~14-7~~ 13-0	~~17-4~~ 15-4	~~5-10~~ 5-2	~~8-8~~ 7-7	~~11-0~~ 9-7	~~13-0~~ 11-7	~~15-6~~ 13-9
	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	20-2 20-0	24-7 23-7
	Southern Pine	#1	7-6 7-4	11-9 11-7	15-6 15-1	19-7 17-7	23-4 20-11	7-6 7-1	11-9 10-7	14-9 13-5	17-6 15-9	20-11 18-8
	Southern Pine	#2	7-4 6-10	11-5 10-2	14-9 12-11	17-7 15-4	20-7 18-1	7-1 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2
	Southern Pine	#3	6-0 5-3	8-10 7-9	11-3 9-9	13-4 11-10	15-10 14-0	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 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	18-9 17-11	22-10 21-2
	Southern Pine	#1	7-0 6-10	10-11 10-7	14-5 13-5	17-6 15-9	20-11 18-8	7-0 6-4	10-6 9-6	13-2 12-0	15-8 14-1	18-8 16-8
	Southern Pine	#2	6-10 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2	6-4 5-5	9-2 8-2	11-9 10-4	14-1 12-3	16-6 14-6
	Southern Pine	#3	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 12-6	4-9 4-2	7-1 6-2	9-0 7-10	10-8 9-6	12-8 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^2.

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~~ 7-3	~~11-7~~ 11-5	~~15-4~~ 15-0	~~19-7~~ 18-2	~~23-9~~ 21-7	~~7-5~~ 7-3	~~11-7~~ 11-4	~~15-4~~ 14-5	~~18-9~~ 16-10	~~22-4~~ 20-0
	Southern Pine	#2	~~7-3~~ 6-11	~~11-5~~ 10-6	~~15-0~~ 13-4	~~18-2~~ 15-10	~~21-3~~ 18-8	~~7-3~~ 6-6	~~10-11~~ 9-9	~~14-1~~ 12-4	~~16-10~~ 14-8	~~19-9~~ 17-5
	Southern Pine	#3	~~6-2~~ 5-5	~~9-2~~ 8-0	~~11-8~~ 10-1	~~13-9~~ 12-3	~~16-4~~ 14-6	~~5-9~~ 5-0	~~8-5~~ 7-5	~~10-9~~ 9-4	~~12-9~~ 11-4	~~15-2~~ 13-5
	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	~~22-0~~ 21-10
	Southern Pine	#1	~~6-9~~ 6-7	~~10-7~~ 10-4	~~13-11~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8	~~6-9~~ 6-7	~~10-7~~ 9-10	~~13-8~~ 12-5	~~16-2~~ 14-7	~~19-4~~ 17-3
	Southern Pine	#2	~~6-7~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2	~~6-7~~ 5-8	~~9-5~~ 8-5	~~12-2~~ 10-9	~~14-7~~ 12-9	~~17-1~~ 15-0
	Southern Pine	#3	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 12-6	~~4-11~~ 4-4	~~7-4~~ 6-5	~~9-4~~ 8-1	~~11-0~~ 9-10	~~13-1~~ 11-7
	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	~~17-0~~ 16-11	~~20-9~~ 20-0
	Southern Pine	#1	~~6-4~~ 6-2	~~9-11~~ 9-8	~~13-1~~ 12-3	~~16-0~~ 14-4	~~19-1~~ 17-1	~~6-4~~ 6-0	~~9-11~~ 9-0	~~12-5~~ 11-4	~~14-10~~ 13-4	~~17-8~~ 15-9
	Southern Pine	#2	~~6-2~~ 5-7	~~9-4~~ 8-4	~~12-0~~ 10-7	~~14-4~~ 12-6	~~16-10~~ 14-9	~~6-0~~ 5-2	~~8-8~~ 7-9	~~11-2~~ 9-9	~~13-4~~ 11-7	~~15-7~~ 13-8
	Southern Pine	#3	~~4-11~~ 4-3	~~7-3~~ 6-4	~~9-2~~ 8-0	~~10-10~~ 9-8	~~12-11~~ 11-5	~~4-6~~ 4-0	~~6-8~~ 5-10	~~8-6~~ 7-4	~~10-1~~ 8-11	~~12-0~~ 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	~~15-10~~ 15-2	~~19-3~~ 17-10
	Southern Pine	#1	~~5-10~~ 5-9	~~9-3~~ 8-8	~~12-0~~ 11-0	~~14-4~~ 12-10	~~17-1~~ 15-3	~~5-10~~ 5-5	~~8-10~~ 8-0	~~11-2~~ 10-2	~~13-3~~ 11-11	~~15-9~~ 14-1
	Southern Pine	#2	~~5-9~~ 5-0	~~8-4~~ 7-5	~~10-9~~ 9-5	~~12-10~~ 11-3	~~15-1~~ 13-2	~~5-5~~ 4-7	~~7-9~~ 6-11	~~10-0~~ 8-9	~~11-11~~ 10-5	~~13-11~~ 12-3
	Southern Pine	#3	~~4-4~~ 3-10	~~6-5~~ 5-8	~~8-3~~ 7-1	~~9-9~~ 8-8	~~11-7~~ 10-3	~~4-1~~ 3-6	~~6-0~~ 5-3	~~7-7~~ 6-7	~~9-0~~ 8-0	~~10-8~~ 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^2

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): SFPC Table 5003.1.1(1) USBC Table 307.1(1)

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

Revise as follows:

SFPC Table 5003.1.1(1)/USBC Table 307.1(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[d,e,l]	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 12,000ft² in area. Full background information may be found at the document information tab at 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.

Code change was edited based on 8/22/13 work group meeting comments in order to conform USBC with SFPC.

Submittal Information

Date Submitted: 6/3/2013 (8/30/13 edit)

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

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
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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 X 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 dysfunctional! 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 by 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
Fax Number: (804) 371-7092
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C.E. Gerber

[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 *International Fire Code*

[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 *dwellings* 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*.

C.E. Gerber

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^2 (93 m^2) 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.

C. E. Gerber

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-Cochere.

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 noncombustible 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 ft³ (4.5 m³) 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 ft² (5.1 m²) 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 ft² (5.1 m²) 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 ft² (2.2 m²), the least dimension does not exceed 8 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

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^2) 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^3/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.

C.E. Garley

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 SHIDOW Representing: MYSELF

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

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

Proposal Information

Code(s) and Section(s): (IRC) SECTION R311.3.1

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

R311.3.1 Floor elevations at the required egress doors. Landings of floors ....

Exception: The exterior landing or floor shall not be more than 8 1/4" inches (210mm) below the top of the threshold ....

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

PROVIDES CONSISTENCY WITH VIRGINIA AMENDMENT TO RISER DIMENSION IN SECTION R311.7.4.1.

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

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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: Chuck Bajnai Representing: VBCOA IRC Committee

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

Email Address: bajnaic@chesterfield.gov Telephone Number: 804-717-6428

Proposal Information

Code(s) and Section(s): R602.3.1

Replace as follows:

R602.3.1 Stud size, height and spacing. The size, height and spacing of studs shall be in accordance with Table R602.3(5).

Exceptions:

1. Utility grade studs shall not be spaced more than 16 inches (406 mm) on center, shall not support more than a roof and ceiling, and shall not exceed 8 feet (2438 mm) in height for exterior walls and load-bearing walls or 10 feet (3048 mm) for interior nonload-bearing walls.
2. ~~Studs more than 10 feet in height which are in accordance with Table R602.3.1.~~ Where snow loads are less than or equal to 25 pounds per square foot, and the ultimate design wind speed is less than or equal to 130 mph, 2x6 studs supporting a roof load with not more than 6' of tributary length shall have a maximum height of 18 feet where spaced at 16 inches on center, or 20 feet where spaced at 12 inches on center. Studs shall be minimum No. 2 grade lumber.

~~**TABLE R602.3.1**~~
~~**MAXIMUM ALLOWABLE LENGTH OF WOOD STUDS EXPOSE TO WIND SPEEDS OF 100 MPH OR LESS IN SEISMIC DESIGN CATEGORIES A, B, C, D_0, D_1, and D_2 [b,c]**~~

Reason:

1. The reason this code change proposal was written was because the footnote b to the table is frequently missed or applied incorrectly.
   The basic stud table only allows studs to be 10 feet tall.
   The exception in the wall bracing section will allow studs to be 12 feet tall.
   Studs can go to 20 feet when the footnote b to Table R602.3.1 is applied, namely walls can carry a maximum of 6' of tributary width.
2. This exception replaces the table and eliminates the figures with easy to understand text.

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 Residential: Table R502.3.1(1), Table R502.3.1(2), Table R502.3.1(3), Table R502.3.3(1), Table R502.3.3(2), Table R502.5(1), Table R502.5(2), Table R602.7.1, Table R802.4(1), Table R802.4(2), Table R802.5.1(1), Table R802.5.1(2), Table R802.5.1(3), Table R802.5.1(4), Table R802.5.1(5), Table R802.5.1(6), Table R802.5.1(7), Table R802.5.1(8)

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

Revisions to the following tables to reflect new Southern Pine design values.
Table R502.3.1(1), Table R502.3.1(2), Table R502.3.1(3), Table R502.3.3(1), Table R502.3.3(2), Table R502.5(1), Table R502.5(2), Table R602.7.1, Table R802.4(1), Table R802.4(2), Table R802.5.1(1), Table R802.5.1(2), Table R802.5.1(3), Table R802.5.1(4), Table R802.5.1(5), Table R802.5.1(6), Table R802.5.1(7), Table R802.5.1(8)
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 IRC 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 R502.3.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential sleeping areas, live load = 30 psf, L/Δ = 360)[a]

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			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	12-0 11-10	15-10 15-7	20-3 19-10	24-8 24-2	12-0 11-10	15-10 15-7	20-3 18-7	24-8 22-0
	Southern pine	#2	11-10 11-3	15-7 14-11	19-10 18-1	24-2 21-4	11-10 10-9	15-7 13-8	18-7 16-2	21-9 19-1
	Southern pine	#3	10-5 9-2	13-3 11-6	15-8 14-0	18-8 16-6	9-4 8-2	11-11 10-3	14-0 12-6	16-8 14-9
	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	10-11 10-9	14-5 14-2	18-5 18-0	22-5 21-4	10-11 10-9	14-5 13-9	17-11 16-1	21-4 19-1
	Southern pine	#2	10-9 10-3	14-2 13-3	18-0 15-8	21-1 18-6	10-5 9-4	13-6 11-10	16-1 14-0	18-10 16-6
	Southern pine	#3	9-0 7-11	11-6 10-00	13-7 12-1	16-2 14-4	8-1 7-1	10-3 8-11	12-2 10-10	14-6 12-10
	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

(continued)

TABLE R502.3.1(1)—continued
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential sleeping areas, live load = 30 psf, L/Δ = 360)[a]

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)
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
	Southern pine	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern pine	#1	~~10-4~~ 10-1	~~13-7~~ 13-4	~~17-4~~ 16-5	~~21-1~~ 19-6	~~10-4~~ 9-11	~~13-7~~ 12-7	~~16-4~~ 14-8	~~19-6~~ 17-5
	Southern pine	#2	~~10-1~~ 9-6	~~13-4~~ 12-1	~~16-5~~ 14-4	~~19-3~~ 16-10	~~9-6~~ 8-6	~~12-4~~ 10-10	~~14-8~~ 12-10	~~17-2~~ 15-1
	Southern pine	#3	~~8-3~~ 7-3	~~10-6~~ 9-1	~~12-5~~ 11-0	~~14-9~~ 13-1	~~7-4~~ 6-5	~~9-5~~ 8-2	~~11-1~~ 9-10	~~13-2~~ 11-8
	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	~~19-11~~ 19-8
	Southern pine	#1	~~9-7~~ 9-4	~~12-7~~ 12-4	~~16-1~~ 14-8	~~19-6~~ 17-5	~~9-7~~ 8-10	~~12-4~~ 11-3	~~14-7~~ 13-1	~~17-5~~ 15-7
	Southern pine	#2	~~9-4~~ 8-6	~~12-4~~ 10-10	~~14-8~~ 12-10	~~17-2~~ 15-1	~~8-6~~ 7-7	~~11-0~~ 9-8	~~13-1~~ 11-5	~~15-5~~ 13-6
	Southern pine	#3	~~7-4~~ 6-5	~~9-5~~ 8-2	~~11-1~~ 9-10	~~13-2~~ 11-8	~~6-7~~ 5-9	~~8-5~~ 7-3	~~9-11~~ 8-10	~~11-10~~ 10-5
	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 = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1 and D_2 shall be determined in accordance with Section R301.2.2.2.1.

TABLE R502.3.1(2)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, L/Δ = 360)[b]

JOIST SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			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	~~10-11~~10-9	~~14-5~~14-2	~~18-5~~18-0	~~22-5~~21-11	~~10-11~~10-9	~~14-5~~14-2	~~18-5~~16-11	~~22-5~~20-1
	Southern pine	#2	~~10-9~~10-3	~~14-2~~13-6	~~18-0~~16-2	~~21-9~~19-1	~~10-9~~9-10	~~14-2~~12-6	~~16-11~~14-9	~~19-10~~17-5
	Southern pine	#3	~~9-4~~8-2	~~11-11~~10-3	~~14-0~~12-6	~~16-8~~14-9	~~8-6~~7-5	~~10-10~~9-5	~~12-10~~11-5	~~15-3~~13-6
	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	~~9-11~~9-9	~~13-1~~12-10	~~16-9~~16-1	~~20-4~~19-1	~~9-11~~9-9	~~13-1~~12-7	~~16-4~~14-8	~~19-6~~17-5
	Southern pine	#2	~~9-9~~9-4	~~12-10~~11-10	~~16-1~~14-0	~~18-10~~16-6	~~9-6~~8-6	~~12-4~~10-10	~~14-8~~12-10	~~17-2~~15-1
	Southern pine	#3	~~8-1~~7-1	~~10-3~~8-11	~~12-2~~10-10	~~14-6~~12-10	~~7-4~~6-5	~~9-5~~8-2	~~11-1~~9-10	~~13-2~~11-8
	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

(continued)

TABLE R502.3.1(2)—continued
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, L/Δ = 360)[b]

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)	(ft - in.)
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	~~9-4~~9-2	~~12-4~~12-1	~~15-9~~14-8	~~19-2~~17-5	~~9-4~~9-0	~~12-4~~11-5	~~14-11~~13-5	~~17-9~~15-11
	Southern pine	#2	~~9-2~~8-6	~~12-1~~10-10	~~14-8~~12-10	~~17-2~~15-1	~~8-8~~7-9	~~11-3~~9-10	~~13-5~~11-8	~~15-8~~13-9
	Southern pine	#3	~~7-4~~6-5	~~9-5~~8-2	~~11-1~~9-10	~~13-2~~11-8	~~6-9~~5-11	~~8-7~~7-5	~~10-1~~9-0	~~12-1~~10-8
	Spruce-pine-fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-pine-fir	#	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
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[a]
	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	~~18-1~~18-0
	Southern pine	#1	~~8-8~~8-6	~~11-5~~11-3	~~14-7~~13-1	~~17-5~~15-7	~~8-8~~8-1	~~11-3~~10-3	~~13-4~~12-0	~~15-11~~14-3
	Southern pine	#2	~~8-6~~7-7	~~11-0~~9-8	~~13-1~~11-5	~~15-5~~13-6	~~7-9~~7-0	~~10-0~~8-10	~~12-0~~10-5	~~14-0~~12-4
	Southern pine	#3	~~6-7~~5-9	~~8-5~~7-3	~~9-11~~8-10	~~11-10~~10-5	~~6-0~~5-3	~~7-8~~6-8	~~9-1~~8-1	~~10-9~~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 = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.

b. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1, and D_2 shall be determined in accordance with Section R301.2.2.2.1.

TABLE R502.3.3(1)
CANTILEVER SPANS FOR FLOOR JOISTS SUPPORTING LIGHT-FRAME EXTERIOR BEARING WALL AND ROOF ONLY[a, b, c, f, g, h]
(Floor Live Load ≤ 40 psf, Roof Live Load ≤ 20 psf)

Member & Spacing	Maximum Cantilever Span (Uplift Force at Backspan Support in Lbs.)[d, e]											
	Ground Snow Load											
	≤ 20 psf			30 psf			50 psf			70 psf		
	Roof Width			Roof Width			Roof Width			Roof Width		
	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft
2 × 8 @ 12″	20″ (177)	15″ (227)	—	18″ (209)	—	—	—	—	—	—	—	—
2 × 10 @ 16″	29″ (228)	21″ (297)	16″ (364)	26″ (271)	18″ (354)	—	20″ (375)	—	—	—	—	—
2 × 10 @ 12″	36″ (166)	26″ (219)	20″ (270)	34″ (198)	22″ (263)	16″ (324)	26″ (277)	—	—	19″ (356)	—	—
2 × 12 @ 16″	—	32″ (287)	25″ (356)	36″ (263)	29″ (345)	21″ (428)	29″ (367)	20″ (484)	—	23″ (471)	—	—
2 × 12 @ 12″	—	42″ (209)	31″ (263)	—	37″ (253)	27″ (317)	36″ (271)	27″ (358)	17″ (447)	31″ (348)	19″ (462)	—
2 × 12 @ 8″	—	48″ (136)	45″ (169)	—	48″ (164)	38″ (206)	—	40″ (233)	26″ (294)	36″ (230)	29″ (304)	18″ (379)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Tabulated values are for clear-span roof supported solely by exterior bearing walls.

b. Spans are based on minimum design properties for No. 2 Grade lumber of Douglas fir-larch, hem-fir, ~~southern pine~~ and spruce-pine-fir for repetitive (three or more) members. No. 1 or better grade lumber shall be used for southern pine.

c. Ratio of backspan to cantilever span shall be at least 3:1.

d. Connections capable of resisting the indicated uplift force shall be provided at the backspan support.

e. Uplift force is for a backspan to cantilever span ratio of 3:1. Tabulated uplift values are permitted to be reduced by multiplying by a factor equal to 3 divided by the actual backspan ratio provided (3/backspan ratio).

f. See Section R301.2.2.2.5, Item 1, for additional limitations on cantilevered floor joists for detached one- and two-family dwellings in Seismic Design Category D_0, D_1, or D_2 and townhouses in Seismic Design Category C, D_0, D_1 or D_2.

g. A full-depth rim joist shall be provided at the unsupported end of the cantilever joists. Solid blocking shall be provided at the supported end.

h. Linear interpolation shall be permitted for building widths and ground snow loads other than shown.

TABLE R502.3.3(2)
CANTILEVER SPANS FOR FLOOR JOISTS SUPPORTING EXTERIOR BALCONY[a, b, e, f]

Member Size	Spacing	Maximum Cantilever Span (Uplift Force at Backspan Support in lb)[c, d]		
		Ground Snow Load		
		≤ 30 psf	50 psf	70 psf
2 × 8	12″	42″ (139)	39″ (156)	34″ (165)
2 × 8	16″	36″ (151)	34″ (171)	29″ (180)
2 × 10	12″	61″ (164)	57″ (189)	49″ (201)
2 × 10	16″	53″ (180)	49″ (208)	42″ (220)
2 × 10	24″	43″ (212)	40″ (241)	34″ (255)
2 × 12	16″	72″ (228)	67″ (260)	57″ (268)
2 × 12	24″	58″ (279)	54″ (319)	47″ (330)

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are based on minimum design properties for No. 2 Grade lumber of Douglas fir-larch, hem-fir, ~~southern pine~~ and spruce-pine-fir for repetitive (three or more) members. No. 1 or better grade lumber shall be used for southern pine.

b. Ratio of backspan to cantilever span shall be at least 2:1.

c. Connections capable of resisting the indicated uplift force shall be provided at the backspan support.

d. Uplift force is for a backspan to cantilever span ratio of 2:1. Tabulated uplift values are permitted to be reduced by multiplying by a factor equal to 2 divided by the actual backspan ratio provided (2/backspan ratio).

e. A full-depth rim joist shall be provided at the unsupported end of the cantilever joists. Solid blocking shall be provided at the supported end.

f. Linear interpolation shall be permitted for ground snow loads other than shown.

TABLE R502.5(1)
GIRDER SPANS[a,b] AND HEADER SPANS[a,b] FOR EXTERIOR BEARING WALLS
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]																	
		30						50						70					
		Building width[c] (feet)																	
		20		28		36		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
Roof and ceiling	2-2 × 4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-6	1	2-10	1	2-6	1	2-3	1
	2-2 × 6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2	4-2	1	3-8	2	3-3	2
	2-2 × 8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2	5-4	2	4-7	2	4-1	2
	2-2 × 10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2	6-6	2	5-7	2	5-0	2
	2-2 × 12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2	7-6	2	6-6	2	5-10	3
	3-2 × 8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	2	5-9	2	6-8	1	5-9	2	5-2	2
	3-2 × 10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2	8-2	2	7-0	2	6-4	2
	3-2 × 12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2	9-5	2	8-2	2	7-4	2
	4-2 × 8	9-2	1	8-4	1	7-8	1	8-4	1	7-5	1	6-8	1	7-8	1	6-8	1	5-11	2
	4-2 × 10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2	9-5	2	8-2	2	7-3	2
	4-2 × 12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2	10-11	2	9-5	2	8-5	2
Roof, ceiling and one center-bearing floor	2-2 × 4	3-1	1	2-9	1	2-5	1	2-9	1	2-5	1	2-2	1	2-7	1	2-3	1	2-0	1
	2-2 × 6	4-6	1	4-0	1	3-7	2	4-1	1	3-7	2	3-3	2	3-9	2	3-3	2	2-11	2
	2-2 × 8	5-9	2	5-0	2	4-6	2	5-2	2	4-6	2	4-1	2	4-9	2	4-2	2	3-9	2
	2-2 × 10	7-0	2	6-2	2	5-6	2	6-4	2	5-6	2	5-0	2	5-9	2	5-1	2	4-7	3
	2-2 × 12	8-1	2	7-1	2	6-5	2	7-4	2	6-5	2	5-9	3	6-8	2	5-10	3	5-3	3
	3-2 × 8	7-2	1	6-3	2	5-8	2	6-5	2	5-8	2	5-1	2	5-11	2	5-2	2	4-8	2
	3-2 × 10	8-9	2	7-8	2	6-11	2	7-11	2	6-11	2	6-3	2	7-3	2	6-4	2	5-8	2
	3-2 × 12	10-2	2	8-11	2	8-0	2	9-2	2	8-0	2	7-3	2	8-5	2	7-4	2	6-7	2
	4-2 × 8	8-1	1	7-3	1	6-7	1	7-5	1	6-6	1	5-11	2	6-10	1	6-0	2	5-5	2
	4-2 × 10	10-1	1	8-10	2	8-0	2	9-1	2	8-0	2	7-2	2	8-4	2	7-4	2	6-7	2
	4-2 × 12	11-9	2	10-3	2	9-3	2	10-7	2	9-3	2	8-4	2	9-8	2	8-6	2	7-7	2
Roof, ceiling and one clear span floor	2-2 × 4	2-8	1	2-4	1	2-1	1	2-7	1	2-3	1	2-0	1	2-5	1	2-1	1	1-10	1
	2-2 × 6	3-11	1	3-5	2	3-0	2	3-10	2	3-4	2	3-0	2	3-6	2	3-1	2	2-9	2
	2-2 × 8	5-0	2	4-4	2	3-10	2	4-10	2	4-2	2	3-9	2	4-6	2	3-11	2	3-6	2
	2-2 × 10	6-1	2	5-3	2	4-8	2	5-11	2	5-1	2	4-7	3	5-6	2	4-9	2	4-3	3
	2-2 × 12	7-1	2	6-1	3	5-5	3	6-10	2	5-11	3	5-4	3	6-4	2	5-6	3	5-0	3
	3-2 × 8	6-3	2	5-5	2	4-10	2	6-1	2	5-3	2	4-8	2	5-7	2	4-11	2	4-5	2
	3-2 × 10	7-7	2	6-7	2	5-11	2	7-5	2	6-5	2	5-9	2	6-10	2	6-0	2	5-4	2
	3-2 × 12	8-10	2	7-8	2	6-10	2	8-7	2	7-5	2	6-8	2	7-11	2	6-11	2	6-3	2
	4-2 × 8	7-2	1	6-3	2	5-7	2	7-0	1	6-1	2	5-5	2	6-6	1	5-8	2	5-1	2
	4-2 × 10	8-9	2	7-7	2	6-10	2	8-7	2	7-5	2	6-7	2	7-11	2	6-11	2	6-2	2
	4-2 × 12	10-2	2	8-10	2	7-11	2	9-11	2	8-7	2	7-8	2	9-2	2	8-0	2	7-2	2
Roof, ceiling and two center-bearing floors	2-2 × 4	2-7	1	2-3	1	2-0	1	2-6	1	2-2	1	1-11	1	2-4	1	2-0	1	1-9	1
	2-2 × 6	3-9	2	3-3	2	2-11	2	3-8	2	3-2	2	2-10	2	3-5	2	3-0	2	2-8	2
	2-2 × 8	4-9	2	4-2	2	3-9	2	4-7	2	4-0	2	3-8	2	4-4	2	3-9	2	3-5	2
	2-2 × 10	5-9	2	5-1	2	4-7	3	5-8	2	4-11	2	4-5	3	5-3	2	4-7	3	4-2	3
	2-2 × 12	6-8	2	5-10	3	5-3	3	6-6	2	5-9	3	5-2	3	6-1	3	5-4	3	4-10	3
	3-2 × 8	5-11	2	5-2	2	4-8	2	5-9	2	5-1	2	4-7	2	5-5	2	4-9	2	4-3	2
	3-2 × 10	7-3	2	6-4	2	5-8	2	7-1	2	6-2	2	5-7	2	6-7	2	5-9	2	5-3	2
	3-2 × 12	8-5	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	3	7-8	2	6-9	2	6-1	3
	4-2 × 8	6-10	1	6-0	2	5-5	2	6-8	1	5-10	2	5-3	2	6-3	2	5-6	2	4-11	2
	4-2 × 10	8-4	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	2	7-7	2	6-8	2	6-0	2
	4-2 × 12	9-8	2	8-6	2	7-8	2	9-5	2	8-3	2	7-5	2	8-10	2	7-9	2	7-0	2
Roof, ceiling, and two clear span floors	2-2 × 4	2-1	1	1-8	1	1-6	2	2-0	1	1-8	1	1-5	2	2-0	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	2-11	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	3-9	2	3-3	2	2-11	3

(continued)

TABLE R502.5(1)—continued
GIRDER SPANS[a,b] AND HEADER SPANS[a,b] FOR EXTERIOR BEARING WALLS
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]																	
		30						50						70					
		Building width[c] (feet)																	
		20		28		36		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
Roof, ceiling, and two clear span floors	2-2 × 10	4-9	2	4-1	3	3-8	3	4-8	2	4-0	3	3-7	3	4-7	3	4-0	3	3-6	3
	2-2 × 12	5-6	3	4-9	3	4-3	3	5-5	3	4-8	3	4-2	3	5-4	3	4-7	3	4-1	4
	3-2 × 8	4-10	2	4-2	2	3-9	2	4-9	2	4-1	2	3-8	2	4-8	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	5-9	2	4-11	2	4-5	3
	3-2 × 12	6-10	2	5-11	3	5-4	3	6-9	2	5-10	3	5-3	3	6-8	2	5-9	3	5-2	3
	4-2 × 8	5-7	2	4-10	2	4-4	2	5-6	2	4-9	2	4-3	2	5-5	2	4-8	2	4-2	2
	4-2 × 10	6-10	2	5-11	2	5-3	2	6-9	2	5-10	2	5-2	2	6-7	2	5-9	2	5-1	2
	4-2 × 12	7-11	2	6-10	2	6-2	3	7-9	2	6-9	2	6-0	3	7-8	2	6-8	2	5-11	3

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. ~~Tabulated values assume #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 header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

TABLE R502.5(2)
GIRDER SPANS[a,b] AND HEADER SPANS[a,b] FOR INTERIOR BEARING WALLS
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING Width[c] (feet)					
		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
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.

b. ~~Tabulated values assume #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 header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

TABLE R602.7.1
SPANS FOR MINIMUM No.2 GRADE SINGLE HEADER[a, b, c, f]

SINGLE HEADERS SUPPORTING	SIZE	WOOD SPECIES	GROUND SNOW LOAD (psf)								
			≤ 20[d]			30			50		
			Building Width (feet)[e]								
			20	28	36	20	28	36	20	28	36
Roof and ceiling	2 × 8	Spruce-Pine-Fir	4-10	4-2	3-8	4-3	3-8	3-3	3-7	3-0	2-8
		Hem-Fir	5-1	4-4	3-10	4-6	3-10	3-5	3-9	3-2	2-10
		Douglas-Fir or No. 1 Grade Southern Pine	5-3	4-6	4-0	4-7	3-11	3-6	3-10	3-3	2-11
	2 × 10	Spruce-Pine-Fir	6-2	5-3	4-8	5-5	4-8	4-2	4-6	3-11	3-1
		Hem-Fir	6-6	5-6	4-11	5-8	4-11	4-4	4-9	4-1	3-7
		Douglas-Fir or No. 1 Grade Southern Pine	6-8	5-8	5-1	5-10	5-0	4-6	4-11	4-2	3-9
	2 × 12	Spruce-Pine-Fir	7-6	6-5	5-9	6-7	5-8	4-5	5-4	3-11	3-1
		Hem-Fir	7-10	6-9	6-0	6-11	5-11	5-3	5-9	4-8	3-8
		Douglas-Fir or No. 1 Grade Southern Pine	8-1	6-11	6-2	7-2	6-1	5-5	5-11	5-1	4-6
Roof, ceiling and one center-bearing floor	2 × 8	Spruce-Pine-Fir	3-10	3-3	2-11	3-9	3-3	2-11	3-5	2-11	2-7
		Hem-Fir	4-0	3-5	3-1	3-11	3-5	3-0	3-7	3-0	2-8
		Douglas-Fir or No. 1 Grade Southern Pine	4-1	3-7	3-2	4-1	3-6	3-1	3-8	3-2	2-9
	2 × 10	Spruce-Pine-Fir	4-11	4-2	3-8	4-10	4-1	3-6	4-4	3-7	2-10
		Hem-Fir	5-1	4-5	3-11	5-0	4-4	3-10	4-6	3-11	3-4
		Douglas-Fir or No. 1 Grade Southern Pine	5-3	4-6	4-1	5-2	4-5	4-0	4-8	4-0	3-7
	2 × 12	Spruce-Pine-Fir	5-8	4-2	3-4	5-5	4-0	3-6	4-9	3-6	2-10
		Hem-Fir	5-11	4-11	3-11	5-10	4-9	4-2	5-5	4-2	3-4
		Douglas-Fir or No. 1 Grade Southern Pine	6-1	5-3	4-8	6-0	5-2	4-10	5-7	4-10	4-3
Roof, ceiling and one clear span floor	2 × 8	Spruce-Pine-Fir	3-5	2-11	2-7	3-4	2-11	2-7	3-3	2-10	2-6
		Hem-Fir	3-7	3-1	2-9	3-6	3-0	2-8	3-5	2-11	2-7
		Douglas-Fir or No. 1 Grade Southern Pine	3-8	3-2	2-10	3-7	3-1	2-9	3-6	3-0	2-9
	2 × 10	Spruce-Pine-Fir	4-4	3-7	2-10	4-3	3-6	2-9	4-2	3-4	2-7
		Hem-Fir	4-7	3-11	3-5	4-6	3-10	3-3	4-4	3-9	3-1
		Douglas-Fir or No. 1 Grade Southern Pine	4-8	4-0	3-7	4-7	4-0	3-6	4-6	3-10	3-5
	2 × 12	Spruce-Pine-Fir	4-11	3-7	2-10	4-9	3-6	2-9	4-6	3-4	2-7
		Hem-Fir	5-6	4-3	3-5	5-6	4-2	3-3	5-4	3-11	3-1
		Douglas-Fir or No. 1 Grade Southern Pine	5-8	4-11	4-4	5-7	4-10	4-3	5-6	4-8	4-2

For SI: 1 inch=25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Table is based on a maximum roof-ceiling dead load of 15 psf.

c. The header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header in lieu of the required jack stud.

d. The 20 psf ground snow load condition shall apply only when the roof pitch is 9:12 or greater. In conditions where the ground snow load is 30 psf or less and the roof pitch is less than 9:12, use the 30 psf ground snow load condition.

e. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

f. The header shall bear on a minimum of one jack stud at each end.

TABLE R802.4(1)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics without storage, live load = 10 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	13-2	20-8	Note a	Note a
	Douglas fir-larch	#1	12-8	19-11	Note a	Note a
	Douglas fir-larch	#2	12-5	19-6	25-8	Note a
	Douglas fir-larch	#3	10-10	15-10	20-1	24-6
	Hem-fir	SS	12-5	19-6	25-8	Note a
	Hem-fir	#1	12-2	19-1	25-2	Note a
	Hem-fir	#2	11-7	18-2	24-0	Note a
	Hem-fir	#3	10-10	15-10	20-1	24-6
	Southern pine	SS	12-11	20-3	Note a	Note a
	Southern pine	#1	~~12-8~~ 12-5	~~19-11~~ 19-6	~~Note a~~ 25-8	Note a
	Southern pine	#2	~~12-5~~ 11-10	~~19-6~~ 18-8	~~25-8~~ 24-7	Note a
	Southern pine	#3	~~11-6~~ 10-1	~~17-0~~ 14-11	~~21-8~~ 18-9	~~25-7~~ 22-9
	Spruce-pine-fir	SS	12-2	19-1	25-2	Note a
	Spruce-pine-fir	#1	11-10	18-8	24-7	Note a
	Spruce-pine-fir	#2	11-10	18-8	24-7	Note a
	Spruce-pine-fir	#3	10-10	15-10	20-1	24-6
16	Douglas fir-larch	SS	11-11	18-9	24-8	Note a
	Douglas fir-larch	#1	11-6	18-1	23-10	Note a
	Douglas fir-larch	#2	11-3	17-8	23-0	Note a
	Douglas fir-larch	#3	9-5	13-9	17-5	21-3
	Hem-fir	SS	11-3	17-8	23-4	Note a
	Hem-fir	#1	11-0	17-4	22-10	Note a
	Hem-fir	#2	10-6	16-6	21-9	Note a
	Hem-fir	#3	9-5	13-9	17-5	21-3
	Southern pine	SS	11-9	18-5	24-3	Note a
	Southern pine	#1	~~11-6~~ 11-3	~~18-1~~ 17-8	~~23-10~~ 23-4	Note a
	Southern pine	#2	~~11-3~~ 10-9	~~17-8~~ 16-11	~~23-4~~ 21-7	~~Note a~~ 25-7
	Southern pine	#3	~~10-0~~ 8-9	~~14-9~~ 12-11	~~18-9~~ 16-3	~~22-2~~ 19-9
	Spruce-pine-fir	SS	11-0	17-4	22-10	Note a
	Spruce-pine-fir	#1	10-9	16-11	22-4	Note a
	Spruce-pine-fir	#2	10-9	16-11	22-4	Note a
	Spruce-pine-fir	#3	9-5	13-9	17-5	21-3

(continued)

TABLE R802.4(1)—continued
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics without storage, live load = 10 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Douglas fir-larch	SS	11-3	17-8	23-3	Note a
	Douglas fir-larch	#1	10-10	17-0	22-5	Note a
	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	Note a
	Hem-fir	#1	10-4	16-4	21-6	Note a
	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	Note a
	Southern pine	#1	~~10-10~~ 10-7	~~17-0~~ 16-8	~~22-5~~ 22-0	Note a
	Southern pine	#2	~~10-7~~ 10-2	~~16-8~~ 15-7	~~21-11~~ 19-8	~~Note a~~ 23-5
	Southern pine	#3	~~9-1~~ 8-0	~~13-6~~ 11-9	~~17-2~~ 14-10	~~20-3~~ 18-0
	Spruce-pine-fir	SS	10-4	16-4	21-6	Note a
	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	Note a
	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	Note a
	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	Note a
	Southern pine	#1	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 20-5	~~Note a~~ 24-0
	Southern pine	#2	~~9-10~~ 9-3	~~15-6~~ 13-11	~~20-1~~ 17-7	~~23-11~~ 20-11
	Southern pine	#3	~~8-2~~ 7-2	~~12-0~~ 10-6	~~15-4~~ 13-3	~~18-1~~ 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

:k sources for availability of lumber in lengths greater than 20 feet.
SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479kPa.
)an exceeds 26 feet in length.

TABLE R802.4(2)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics with limited storage, live load = 20 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	10-5	16-4	21-7	Note a
	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	Note a
	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	Note a
	Southern pine	#1	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 20-5	~~Note a~~ 24-0
	Southern pine	#2	~~9-10~~ 9-3	~~15-6~~ 13-11	~~20-1~~ 17-7	~~23-11~~ 20-11
	Southern pine	#3	~~8-2~~ 7-2	~~12-0~~ 10-6	~~15-4~~ 13-3	~~18-1~~ 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
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	~~9-1~~ 8-11	~~14-4~~ 14-0	~~18-11~~ 17-9	~~23-1~~ 20-9
	Southern pine	#2	~~8-11~~ 8-0	~~13-6~~ 12-0	~~17-5~~ 15-3	~~20-9~~ 18-1
	Southern pine	#3	~~7-1~~ 6-2	~~10-5~~ 9-2	~~13-3~~ 11-6	~~15-8~~ 14-0
	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 R802.4(2)—continued
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics with limited storage, live load = 20 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
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	~~18-1~~ 18-2	23-1
	Southern pine	#1	~~8-7~~ 8-5	~~13-6~~ 12-9	~~17-9~~ 16-2	~~21-1~~ 18-11
	Southern pine	#2	~~8-5~~ 7-4	~~12-3~~ 11-0	~~15-10~~ 13-11	~~18-11~~ 16-6
	Southern pine	#3	~~6-5~~ 5-8	~~9-6~~ 8-4	~~12-1~~ 10-6	~~14-4~~ 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	~~8-0~~ 7-8	~~12-6~~ 11-5	~~15-10~~ 14-6	~~18-10~~ 16-11
	Southern pine	#2	~~7-8~~ 6-7	~~11-0~~ 9-10	~~14-2~~ 12-6	~~16-11~~ 14-9
	Southern pine	#3	~~5-9~~ 5-1	~~8-6~~ 7-5	~~10-10~~ 9-5	~~12-10~~ 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

:k sources for availability of lumber in lengths greater than 20 feet.
SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479kPa.
Span exceeds 26 feet in length.

TABLE R802.5.1(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load=20 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-5	Note b	Note b
	Douglas fir-larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	10-10	16-7	21-0	25-8	Note b	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	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-fir	#1	10 -7	16-8	21-10	Note b	Note b	10-3	14-11	18-11	23-2	Note b
	Hem-fir	#2	10-1	15-11	20-8	25-3	Note b	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	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern pine	#1	~~11-1~~ 10-10	~~17-4~~ 17-0	~~22-11~~ 22-5	Note b	Note b	~~11-1~~ 10-6	~~17-3~~ 15-8	~~21-9~~ 19-10	~~25-10~~ 23-2	Note b
	Southern pine	#2	~~10-10~~ 10-4	~~17-0~~ 15-7	~~22-5~~ 19-8	~~Note b~~ 23-5	Note b	~~10-6~~ 9-0	~~15-1~~ 13-6	~~19-5~~ 17-1	~~23-2~~ 20-3	~~Note b~~ 23-10
	Southern pine	#3	~~9-1~~ 8-0	~~13-6~~ 11-9	~~17-2~~ 14-10	~~20-3~~ 18-0	~~24-1~~ 21-4	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 18-6
	Spruce-pine-fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-pine-fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#2	10-4	16-3	21-0	25-8	Note b	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	Note b	Note b	10-5	16-0	20-3	24-9	Note b
	Douglas fir-larch	#1	10-0	15-4	19-5	23-9	Note b	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	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-fir	#1	9-8	14-11	18-11	23-2	Note b	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	Note b	Note b	10-3	16-1	21-2	~~Note b~~ 25-7	Note b
	Southern pine	#1	~~10-0~~ 9-10	~~15-9~~ 15-6	~~20-10~~ 19-10	~~25-10~~ 23-2	Note b	~~10-0~~ 9-1	~~15-0~~ 13-7	~~18-10~~ 17-2	~~22-4~~ 20-1	~~Note b~~ 23-10
	Southern pine	#2	~~9-10~~ 9-0	~~15-1~~ 13-6	~~19-5~~ 17-1	~~23-2~~ 20-3	~~Note b~~ 23-10	~~9-1~~ 7-9	~~13-0~~ 11-8	~~16-10~~ 14-9	~~20-1~~ 17-6	~~23-7~~ 20-8
	Southern pine	#3	~~7-11~~ 6-11	~~11-8~~ 10-2	~~14-10~~ 12-10	~~17-6~~ 15-7	~~20-11~~ 18-6	~~6-10~~ 6-0	~~10-1~~ 8-10	~~12-10~~ 11-2	~~15-2~~ 13-6	~~18-1~~ 16-0
	Spruce-pine-fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	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
19.2	Douglas fir-larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-7	18-6	22-7	Note b
	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	Note b	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	Note b	9-8	15-2	~~19-11~~ 19-7	~~25-5~~ 23-4	Note b
	Southern pine	#1	~~9-5~~ 9-3	~~14-10~~ 14-3	~~19-7~~ 18-1	~~23-7~~ 21-2	~~Note b~~ 25-2	~~9-3~~ 8-4	~~13-8~~ 12-4	~~17-2~~ 15-8	~~20-5~~ 18-4	~~24-4~~ 21-9
	Southern pine	#2	~~9-3~~ 8-2	~~13-9~~ 12-3	~~17-9~~ 15-7	~~21-2~~ 18-6	~~24-10~~ 21-9	~~8-4~~ 7-1	~~11-11~~ 10-8	~~15-4~~ 13-6	~~18-4~~ 16-0	~~21-6~~ 18-10
	Southern pine	#3	~~7-3~~ 6-4	~~10-8~~ 9-4	~~13-7~~ 11-9	~~16-0~~ 14-3	~~19-1~~ 16-10	~~6-3~~ 5-6	~~9-3~~ 8-1	~~11-9~~ 10-2	~~13-10~~ 12-4	~~16-6~~ 14-7
	Spruce-pine-fir	SS	9-1	14-3	18-9	23-11	Note b	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

(continued)

TABLE R802.5.1(1)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load=20 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas fir-larch	SS	9-1	14-4	18-10	23-4	Note b	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	Note b	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	Note b	8-11	~~14-1~~13-10	~~18-6~~17-6	~~22-11~~20-10	~~Note b~~24-8
	Southern pine	#1	~~8-9~~8-7	~~13-9~~12-9	~~17-9~~16-2	~~21-1~~18-11	~~25-2~~22-6	~~8-3~~7-5	~~12-3~~11-1	~~15-4~~14-0	~~18-3~~16-5	~~21-9~~19-6
	Southern pine	#2	~~8-7~~ 7-4	~~12-3~~11-0	~~15-10~~13-11	~~18-11~~16-6	~~22-2~~19-6	~~7-5~~ 6-4	~~10-8~~9-6	~~13-9~~12-1	~~16-5~~14-4	~~19-3~~16-10
	Southern pine	#3	~~6-5~~ 5-8	~~9-6~~8-4	~~12-1~~10-6	~~14-4~~12-9	~~17-1~~15-1	~~5-7~~ 4-11	~~8-3~~7-3	~~10-6~~9-1	~~12-5~~11-0	~~14-9~~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

[illegible]rces for availability of lumber in lengths greater than 20 feet.

[illegible]ch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

Span exceeds 26 feet in length.

TABLE R802.5.1(2)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load=20 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
	Douglas fir-larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	9-10	15-6	20-5	25-8	Note b	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	Note b	Note b	9-10	15-6	20-5	Note b	Note b
	Hem-fir	#1	9-8	15-2	19-11	25-5	Note b	9-8	14-11	18-11	23-2	Note b
	Hem-fir	#2	9-2	14-5	19-0	24-3	Note b	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	Note b	Note b	10-3	16-1	21-2	Note b	Note b
	Southern pine	#1	10-0 9-10	15-9 15-6	20-10 20-5	Note b	Note b	10-0 9-10	15-9 15-6	20-10 19-10	25-10 23-2	Note b
	Southern pine	#2	9-10 9-5	15-6 14-9	20-5 19-6	Note b 23-5	Note b	9-10 9-0	15-1 13-6	19-5 17-1	23-2 20-3	Note b 23-10
	Southern pine	#3	9-1 8-0	13-6 11-9	17-2 14-10	20-3 18-0	24-1 21-4	7-11 6-11	11-8 10-2	14-10 12-10	17-6 15-7	20-11 18-6
	Spruce-pine-fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
	Spruce-pine-fir	#1	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#2	9-5	14-9	19-6	24-10	Note b	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	Note b	9-6	14-11	19-7	24-9	Note b
	Douglas fir-larch	#1	9-1	14-4	18-11	23-9	Note b	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	Note b	8-11	14-1	18-6	23-8	Note b
	Hem-fir	#1	8-9	13-9	18-1	23-1	Note b	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	Note b	9-4	14-7	19-3	24-7	Note b
	Southern pine	#1	9-1 8-11	14-4 14-1	18-11 18-6	24-1 23-2	Note b	9-1 8-11	14-4 13-7	18-10 17-2	22-4 20-1	Note b 23-10
	Southern pine	#2	8-11 8-7	14-1 13-5	18-6 17-1	23-2 20-3	Note b 23-10	8-11 7-9	13-0 11-8	16-10 14-9	20-1 17-6	23-7 20-8
	Southern pine	#3	7-11 6-11	11-8 10-2	14-10 12-10	17-6 15-7	20-11 18-6	6-10 6-0	10-1 8-10	12-10 11-2	15-2 13-6	18-1 16-0
	Spruce-pine-fir	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-0	Note b
	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
19.2	Douglas fir-larch	SS	8-11	14-0	18-5	23-7	Note b	8-11	14-0	18-5	22-7	Note b
	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	Note b	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

(continued)

TABLE R802.5.1(2)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load=20 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Southern pine	SS	8-9	13-9	~~18-1~~18-2	23-1	Note b	8-9	13-9	~~18-1~~18-2	23-1	Note b
	Southern pine	#1	~~8-7~~8-5	~~13-6~~13-3	~~17-9~~17-5	~~22-8~~21-2	~~Note b~~25-2	~~8-7~~8-4	~~13-6~~12-4	~~17-2~~15-8	~~20-5~~18-4	~~24-4~~21-9
	Southern pine	#2	~~8-5~~ 8-1	~~13-3~~12-3	~~17-5~~15-7	~~21-2~~18-6	~~24-10~~21-9	~~8-4~~ 7-1	~~11-11~~10-8	~~15-4~~13-6	~~18-4~~16-0	~~21-6~~18-10
	Southern pine	#3	~~7-3~~ 6-4	~~10-8~~9-4	~~13-7~~11-9	~~16-0~~14-3	~~19-1~~16-10	~~6-3~~ 5-6	~~9-3~~8-1	~~11-9~~10-2	~~13-10~~12-4	~~16-6~~14-7
	Spruce-pine-fir	SS	8-3	12-11	17-1	21-9	Note b	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	2 1-10	Note b	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	Note b	8-1	12-9	16-10	~~21-6~~20-10	~~Note b~~24-8
	Southern pine	#1	~~8-0~~7-10	~~12-6~~12-3	~~16-6~~16-2	~~21-1~~18-11	~~25-2~~22-6	~~8-0~~7-5	~~12-3~~11-1	~~15-4~~14-0	~~18-3~~16-5	~~21-9~~19-6
	Southern pine	#2	~~7-10~~ 7-4	~~12-3~~11-0	~~15-10~~13-11	~~18-11~~16-6	~~22-2~~19-6	~~7-5~~ 6-4	~~10-8~~9-6	~~13-9~~12-1	~~16-5~~14-4	~~19-3~~16-10
	Southern pine	#3	~~6-5~~ 5-8	~~9-6~~8-4	~~12-1~~10-6	~~14-4~~12-9	~~17-1~~15-1	~~5-7~~ 4-11	~~8-3~~7-3	~~10-6~~9-1	~~12-5~~11-0	~~14-9~~13-1
	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

:k sources for availability of lumber in lengths greater than 20 feet.

3I: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

t of roof ridge measured vertically above the top of the rafter support walls.

Span exceeds 26 feet in length.

TABLE R802.5.1(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=30 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	10-0	15-9	20-9	Note b	Note b	10-0	15-9	20-1	24-6	Note b
	Douglas fir-larch	#1	9-8	14-9	18-8	22-9	Note b	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	Note b	9-6	14-10	19-7	24-1	Note b
	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	Note b	Note b	9-10	15-6	20-5	Note b 25-4	Note b
	Southern pine	#1	9-8 9-6	15-2 14-10	20-0 19-0	24-9 22-3	Note b	9-8 9-0	14-10 13-5	18-8 17-0	22-2 19-11	Note b 23-7
	Southern pine	#2	9-6 8-7	14-5 12-11	18-8 16-4	22-3 19-5	Note b 22-10	9-0 7-8	12-11 11-7	16-8 14-8	19-11 17-4	23-4 20-5
	Southern pine	#3	7-7 6-7	11-2 9-9	14-3 12-4	16-10 15-0	20-0 17-9	6-9 5-11	10-0 8-9	12-9 11-0	15-1 13-5	17-11 15-10
	Spruce-pine-fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-7	18-8	22-9	Note b
	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	Note b	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	Note b	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	Note b	8-11	14-1	18-6 18-5	23-8 21-11	Note b 25-11
	Southern pine	#1	8-9 8-7	13-9 13-0	18-1 16-6	21-5 19-3	25-7 22-10	8-8 7-10	12-10 11-7	16-2 14-9	19-2 17-3	22-10 20-5
	Southern pine	#2	8-7 7-6	12-6 11-2	16-2 14-2	19-3 16-10	22-7 19-10	7-10 6-8	11-2 10-0	14-5 12-8	17-3 15-1	20-2 17-9
	Southern pine	#3	6-7 5-9	9-8 8-6	12-4 10-8	14-7 13-0	17-4 15-4	5-10 5-2	8-8 7-7	11-0 9-7	13-0 11-7	15-6 13-9
	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
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

(continued)

TABLE R802.5.1(3)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=30 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Southern pine	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	~~17-5~~ 16-10	~~22-0~~ 20-0	~~25-9~~ 23-7
	Southern pine	#1	~~8-3~~ 8-0	~~13-0~~ 11-10	~~16-6~~ 15-1	~~19-7~~ 17-7	~~23-4~~ 20-11	~~7-11~~ 7-1	~~11-9~~ 10-7	~~14-9~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8
	Southern pine	#2	~~7-11~~ 6-10	~~11-5~~ 10-2	~~14-9~~ 12-11	~~17-7~~ 15-4	~~20-7~~ 18-1	~~7-1~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2
	Southern pine	#3	~~6-0~~ 5-3	~~8-10~~ 7-9	~~11-3~~ 9-9	~~13-4~~ 11-10	~~15-10~~ 14-0	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 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	~~20-8~~ 20-0	~~25-1~~ 23-7	7-10	~~12-3~~ 11-10	~~16-2~~ 15-0	~~19-8~~ 17-11	~~23-0~~ 21-2
	Southern pine	#1	~~7-8~~ 7-1	~~11-9~~ 10-7	~~14-9~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8	~~7-1~~ 6-4	~~10-6~~ 9-6	~~13-2~~ 12-0	~~15-8~~ 14-1	~~18-8~~ 16-8
	Southern pine	#2	~~7-1~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2	~~6-4~~ 5-5	~~9-2~~ 8-2	~~11-9~~ 10-4	~~14-1~~ 12-3	~~16-6~~ 14-6
	Southern pine	#3	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 12-6	~~4-9~~ 4-2	~~7-1~~ 6-2	~~9-0~~ 7-10	~~10-8~~ 9-6	~~12-8~~ 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

:k sources for availability of lumber in lengths greater than 20 feet.

3I: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

Sp[illegible] exceeds 26 feet in length.

TABLE R802.5.1(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=50 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE	DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
		2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
		Maximum rafter spans[a]									
		(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-0	20-9	24-0
	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	13-0 13-1	17-2	21-11	Note b	8-4	13-0 13-1	17-2	21-11 21-5	Note b 25-3
	Southern pine #1	8-2 8-0	12-10 12-3	16-10 15-6	20-3 18-2	24-1 21-7	8-2 7-7	12-6 11-4	15-9 14-5	18-9 16-10	22-4 20-0
	Southern pine #2	8-0 7-0	11-9 10-6	15-3 13-4	18-2 15-10	21-3 18-8	7-7 6-6	10-11 9-9	14-1 12-4	16-10 14-8	19-9 17-3
	Southern pine #3	6-2 5-5	9-2 8-0	11-8 10-1	13-9 12-3	16-4 14-6	5-9 5-0	8-5 7-5	10-9 9-4	12-9 11-4	15-2 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	24-3 23-7	7-6	11-10	15-7	19-11 18-6	23-10 21-10
	Southern pine #1	7-5 7-1	11-7 10-7	14-9 13-5	17-6 15-9	20-11 18-8	7-4 6-7	10-10 9-10	13-8 12-5	16-2 14-7	19-4 17-3
	Southern pine #2	7-1 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2	6-7 5-8	9-5 8-5	12-2 10-9	14-7 12-9	17-1 15-0
	Southern pine #3	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 12-6	4-11 4-4	7-4 6-5	9-4 8-1	11-0 9-10	13-1 11-7
	Spruce-pine-fir SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	15-11	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
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

(continued)

TABLE R802.5.1(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=50 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Southern pine	SS	7-1	11-2	14-8	~~18-9~~ 18-3	~~22-10~~ 21-7	7-1	11-2	~~14-8~~ 14-2	~~18-7~~ 16-11	~~21-9~~ 20-0
	Southern pine	#1	~~7-0~~ 6-6	~~10-8~~ 9-8	~~13-5~~ 12-3	~~16-0~~ 14-4	~~19-1~~ 17-1	~~6-8~~ 6-0	~~9-11~~ 9-0	~~12-5~~ 11-4	~~14-10~~ 13-4	~~17-8~~ 15-9
	Southern pine	#2	~~6-6~~ 5-7	~~9-4~~ 8-4	~~12-0~~ 10-7	~~14-4~~ 12-6	~~16-10~~ 14-9	~~6-0~~ 5-2	~~8-8~~ 7-9	~~11-2~~ 9-9	~~13-4~~ 11-7	~~15-7~~ 13-8
	Southern pine	#3	~~4-11~~ 4-3	~~7-3~~ 6-4	~~9-2~~ 8-0	~~10-10~~ 9-8	~~12-11~~ 11-5	~~4-6~~ 4-0	~~6-8~~ 5-10	~~8-6~~ 7-4	~~10-1~~ 8-11	~~12-0~~ 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-	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	~~17-5~~ 16-4	~~21-0~~ 19-3	6-7	~~10-4~~ 10-0	~~13-8~~ 12-8	~~16-7~~ 15-2	~~19-5~~ 17-10
	Southern pine	#1	~~6-5~~ 5-10	~~9-7~~ 8-8	~~12-0~~ 11-0	~~14-4~~ 12-10	~~17-1~~ 15-3	~~6-0~~ 5-5	~~8-10~~ 8-0	~~11-2~~ 10-2	~~13-3~~ 11-11	~~15-9~~ 14-1
	Southern pine	#2	~~5-10~~ 5-0	~~8-4~~ 7-5	~~10-9~~ 9-5	~~12-10~~ 11-3	~~15-1~~ 13-2	~~5-5~~ 4-7	~~7-9~~ 6-11	~~10-0~~ 8-9	~~11-11~~ 10-5	~~13-11~~ 12-3
	Southern pine	#3	~~4-4~~ 3-10	~~6-5~~ 5-8	~~8-3~~ 7-1	~~9-9~~ 8-8	~~11-7~~ 10-3	~~4-1~~ 3-6	~~6-0~~ 5-3	~~7-7~~ 6-7	~~9-0~~ 8-0	~~10-8~~ 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

:k sources for availability of lumber in lengths greater than 20 feet.

3I: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

Span exceeds 26 feet in length.

TABLE R802.5.1(5)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=30 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (Inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-4	18-10	24-1	Note b
	Douglas fir-larch	#1	8-9	13-9	18-2	22-9	Note b	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	Note b	8-7	13-6	17-10	22-9	Note b
	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	Note b	8-11	14-1	18-6	23-8	Note b
	Southern pine	#1	8-9 8-7	13-9 13-6	18-2 17-10	23-2 22-3	Note b	8-9 8-7	13-9 13-5	18-2 17-0	22-2 19-11	Note b 23-7
	Southern pine	#2	8-7 8-3	13-6 12-11	17-10 16-4	22-3 19-5	Note b 22-10	8-7 7-8	12-11 11-7	16-8 14-8	19-11 17-4	23-4 20-5
	Southern pine	#3	7-7 6-7	11-2 9-9	14-3 12-4	16-10 15-0	20-0 17-9	6-9 5-11	10-0 8-9	12-9 11-0	15-1 13-5	17-11 15-10
	Spruce-pine-fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	Note b
	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	Note b	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	Note b	8-1	12-9	16-10	21-6	Note b 25-11
	Southern pine	#1	8-0 7-10	12-6 12-3	16-6 16-2	21-1 19-3	25-7 22-10	8-0 7-10	12-6 11-7	16-2 14-9	19-2 17-3	22-10 20-5
	Southern pine	#2	7-10 7-6	12-3 11-2	16-2 14-2	19-3 16-10	22-7 19-10	7-10 6-8	11-2 10-0	14-5 12-8	17-3 15-1	20-2 17-9
	Southern pine	#3	6-7 5-9	9-8 8-6	12-4 10-8	14-7 13-0	17-4 15-4	5-10 5-2	8-8 7-7	11-0 9-7	13-0 11-7	15-6 13-9
	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
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

(continued)

TABLE R802.5.1(5)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=30 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Southern pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	20-2 20-0	24-7 23-7
	Southern pine	#1	7-6 7-4	11-9 11-7	15-6 15-1	19-7 17-7	23-4 20-11	7-6 7-1	11-9 10-7	14-9 13-5	17-6 15-9	20-11 18-8
	Southern pine	#2	7-4 6-10	11-5 10-2	14-9 12-11	17-7 15-4	20-7 18-1	7-1 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2
	Southern pine	#3	6-0 5-3	8-10 7-9	11-3 9-9	13-4 11-10	15-10 14-0	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 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	18-9 17-11	22-10 21-2
	Southern pine	#1	7-0 6-10	10-11 10-7	14-5 13-5	17-6 15-9	20-11 18-8	7-0 6-4	10-6 9-6	13-2 12-0	15-8 14-1	18-8 16-8
	Southern pine	#2	6-10 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2	6-4 5-5	9-2 8-2	11-9 10-4	14-1 12-3	16-6 14-6
	Southern pine	#3	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 12-6	4-9 4-2	7-1 6-2	9-0 7-10	10-8 9-6	12-8 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

:k sources for availability of lumber in lengths greater than 20 feet.

SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

Span exceeds 26 feet in length.

TABLE R802.5.1(6)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=50 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE	DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
		2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
		Maximum rafter spans[a]									
		(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
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	11-10	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern pine #1	~~7-5~~ 7-3	~~11-7~~ 11-5	~~15-4~~ 15-0	~~19-7~~ 18-2	~~23-9~~ 21-7	~~7-5~~ 7-3	~~11-7~~ 11-4	~~15-4~~ 14-5	~~18-9~~ 16-10	~~22-4~~ 20-0
	Southern pine #2	~~7-3~~ 6-11	~~11-5~~ 10-6	~~15-0~~ 13-4	~~18-2~~ 15-10	~~21-3~~ 18-8	~~7-3~~ 6-6	~~10-11~~ 9-9	~~14-1~~ 12-4	~~16-10~~ 14-8	~~19-9~~ 17-3
	Southern pine #3	~~6-2~~ 5-5	~~9-2~~ 8-0	~~11-8~~ 10-1	~~13-9~~ 12-3	~~16-4~~ 14-6	~~5-9~~ 5-0	~~8-5~~ 7-5	~~10-9~~ 9-4	~~12-9~~ 11-4	~~15-2~~ 13-5
	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	~~22-0~~ 21-10
	Southern pine #1	~~6-9~~ 6-7	~~10-7~~ 10-4	~~13-11~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8	~~6-9~~ 6-7	~~10-7~~ 9-10	~~13-8~~ 12-5	~~16-2~~ 14-7	~~19-4~~ 17-3
	Southern pine #2	~~6-7~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2	~~6-7~~ 5-8	~~9-5~~ 8-5	~~12-2~~ 10-9	~~14-7~~ 12-9	~~17-1~~ 15-0
	Southern pine #3	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 12-6	~~4-11~~ 4-4	~~7-4~~ 6-5	~~9-4~~ 8-1	~~11-0~~ 9-10	~~13-1~~ 11-7
	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
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

(continued)

TABLE R802.5.1(6)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load=50 psf, ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
19.2	Southern pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	17-0 16-11	20-9 20-0
	Southern pine	#1	6-4 6-2	9-11 9-8	13-1 12-3	16-0 14-4	19-1 17-1	6-4 6-0	9-11 9-0	12-5 11-4	14-10 13-4	17-8 15-9
	Southern pine	#2	6-2 5-7	9-4 8-4	12-0 10-7	14-4 12-6	16-10 14-9	6-0 5-2	8-8 7-9	11-2 9-9	13-4 11-7	15-7 13-8
	Southern pine	#3	4-11 4-3	7-3 6-4	9-2 8-0	10-10 9-8	12-11 11-5	4-6 4-0	6-8 5-10	8-6 7-4	10-1 8-11	12-0 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	15-2	18-0	5-9	9-1	11-9	14-5	15-11
	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	15-10 15-2	19-3 17-10
	Southern pine	#1	5-10 5-9	9-3 8-8	12-0 11-0	14-4 12-10	17-1 15-3	5-10 5-5	8-10 8-0	11-2 10-2	13-3 11-11	15-9 14-1
	Southern pine	#2	5-9 5-0	8-4 7-5	10-9 9-5	12-10 11-3	15-1 13-2	5-5 4-7	7-9 6-11	10-0 8-9	11-11 10-5	13-11 12-3
	Southern pine	#3	4-4 3-10	6-5 5-8	8-3 7-1	9-9 8-8	11-7 10-3	4-1 3-6	6-0 5-3	7-7 6-7	9-0 8-0	10-8 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

:k sources for availability of lumber in lengths greater than 20 feet.

3I: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.
Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE R802.5.1(7)
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum Rafter Spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	7-7	11-10	15-8	19-5	22-6	7-7	11-10	15-0	18-3	21-2
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-8	9-10	12-5	15-2	17-7
	Douglas fir-larch	#2	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Douglas fir-larch	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Hem-fir	SS	7-2	11-3	14-9	18-10	22-1	7-2	11-3	14-8	18-0	20-10
	Hem-fir	#1	6-11	10-2	12-10	15-8	18-2	6-6	9-7	12-1	14-10	17-2
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	6-2	9-1	11-5	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	7-5	11-8	15-4	19-7	23-10 23-7	7-5	11-8	15-4	19-7 18-10	23-10 22-3
	Southern pine	#1	7-3 7-1	11-5 10-7	14-9 13-5	17-6 15-9	20-11 18-8	7-3 6-9	11-1 10-0	13-11 12-8	16-6 14-10	19-8 17-7
	Southern pine	#2	7-1 6-1	10-2 9-2	13-2 11-7	15-9 13-9	18-5 16-2	6-8 5-9	9-7 8-7	12-5 10-11	14-10 12-11	17-5 15-3
	Southern pine	#3	5-4 4-8	7-11 6-11	10-1 8-9	11-11 10-7	14-2 12-6	5-1 4-5	7-5 6-6	9-6 8-3	11-3 10-0	13-4 11-10
	Spruce-pine-fir	SS	7-0	11-0	14-6	18-0	20-11	7-0	11-0	13-11	17-0	19-8
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
16	Douglas fir-larch	SS	6-10	10-9	13-9	16-10	19-6	6-10	10-3	13-0	15-10	18-4
	Douglas fir-larch	#1	6-2	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#2	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Douglas fir-larch	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Hem-fir	SS	6-6	10-2	13-5	16-6	19-2	6-6	10-1	12-9	15-7	18-0
	Hem-fir	#1	6-0	8-9	11-2	13-7	15-9	5-8	8-3	10-6	12-10	14-10
	Hem-fir	#2	5-8	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Hem-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Southern pine	SS	6-9	10-7	14-0	17-10 17-4	21-8 20-5	6-9	10-7	14-0 13-9	17-10 16-4	21-0 19-3
	Southern pine	#1	6-7 6-2	10-2 9-2	12-9 11-8	15-2 13-8	18-1 16-2	6-5 5-10	9-7 8-8	12-0 11-0	14-4 12-10	17-1 15-3
	Southern pine	#2	6-2 5-3	8-10 7-11	11-5 10-0	13-7 11-11	16-0 14-0	5-10 5-0	8-4 7-5	10-9 9-5	12-10 11-3	15-1 13-2
	Southern pine	#3	4-8 4-1	6-10 6-0	8-9 7-7	10-4 9-2	12-3 10-10	4-4 3-10	6-5 5-8	8-3 7-1	9-9 8-8	11-7 10-3
	Spruce-pine-fir	SS	6-4	10-0	12-9	15-7	18-1	6-4	9-6	12-0	14-8	17-1
	Spruce-pine-fir	#1	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#2	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
19.2	Douglas fir-larch	SS	6-5	9-11	12-7	15-4	17-9	6-5	9-4	11-10	14-5	16-9
	Douglas fir-larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Douglas fir-larch	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
	Hem-fir	SS	6-1	9-7	12-4	15-1	17-4	6-1	9-2	11-8	14-2	15-5
	Hem-fir	#1	5-6	8-0	10-2	12-5	14-5	5-2	7-7	9-7	11-8	13-7
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10

(continued)

TABLE R802.5.1(7)—continued
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum Rafter Spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
19.2	Southern pine	SS	6-4	10-0	13-2	~~16-9~~ 15-10	~~20-4~~ 18-8	6-4	~~10-0~~ 9-10	~~13-2~~ 12-6	~~16-5~~ 14-11	~~19-2~~ 17-7
	Southern pine	#1	~~6-3~~ 5-8	~~9-3~~ 8-5	~~11-8~~ 10-8	~~13-10~~ 12-5	~~16-6~~ 14-9	~~5-11~~ 5-4	~~8-9~~ 7-11	~~11-0~~ 10-0	~~13-1~~ 11-9	~~15-7~~ 13-11
	Southern pine	#2	~~5-7~~ 4-10	~~8-1~~ 7-3	~~10-5~~ 9-2	~~12-5~~ 10-10	~~14-7~~ 12-9	~~5-4~~ 4-6	~~7-7~~ 6-10	~~9-10~~ 8-8	~~11-9~~ 10-3	~~13-9~~ 12-1
	Southern pine	#3	~~4-3~~ 3-8	~~6-3~~ 5-6	~~8-0~~ 6-11	~~9-5~~ 8-4	~~11-2~~ 9-11	4-0 3-6	~~5-11~~ 5-2	~~7-6~~ 6-6	~~8-10~~ 7-11	~~10-7~~ 9-4
	Spruce-pine-fir	SS	6-0	9-2	11-8	14-3	16-6	5-11	8-8	11-0	13-5	15-7
	Spruce-pine-fir	#1	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
24	Douglas fir-larch	SS	6-0	8-10	11-3	13-9	15-11	5-9	8-4	10-7	12-11	15-0
	Douglas fir-larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas fir-larch	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Douglas fir-larch	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Hem-fir	SS	5-8	8-8	11-0	13-6	13-11	5-7	8-3	10-5	12-4	12-4
	Hem-fir	#1	4-11	7-2	9-1	11-1	12-10	4-7	6-9	8-7	10-6	12-2
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Southern pine	SS	5-11	9-3	~~12-2~~ 11-11	~~15-7~~ 14-2	~~18-2~~ 16-8	5-11	~~9-3~~ 8-10	~~12-2~~ 11-2	~~14-8~~ 13-4	~~17-2~~ 15-9
	Southern pine	#1	~~5-7~~ 5-0	~~8-3~~ 7-6	~~10-5~~ 9-6	~~12-5~~ 11-1	~~14-9~~ 13-2	~~5-3~~ 4-9	~~7-10~~ 7-1	~~9-10~~ 9-0	~~11-8~~ 10-6	~~13-11~~ 12-5
	Southern pine	#2	~~5-0~~ 4-4	~~7-3~~ 6-5	~~9-4~~ 8-2	~~11-1~~ 9-9	~~13-0~~ 11-5	~~4-9~~ 4-1	~~6-10~~ 6-1	~~8-9~~ 7-9	~~10-6~~ 9-2	~~12-4~~ 10-9
	Southern pine	#3	~~3-9~~ 3-4	~~5-7~~ 4-11	~~7-1~~ 6-2	~~8-5~~ 7-6	~~10-0~~ 8-10	~~3-7~~ 3-1	~~5-3~~ 4-7	~~6-9~~ 5-10	~~7-11~~ 7-1	~~9-5~~ 8-4
	Spruce-pine-fir	SS	5-6	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	12-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

:k sources for availability of lumber in lengths greater than 20 feet.

SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE R802.5.1(8)
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	6-10	10-9	14-3	18-2	22-1	6-10	10-9	14-3	18-2	21-2
	Douglas fir-larch	#1	6-7	10-5	13-2	16-1	18-8	6-7	9-10	12-5	15-2	17-7
	Douglas fir-larch	#2	6-6	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Douglas fir-larch	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Hem-fir	SS	6-6	10-2	13-5	17-2	20-10	6-6	10-2	13-5	17-2	20-10
	Hem-fir	#1	6-4	10-0	12-10	15-8	18-2	6-4	9-7	12-1	14-10	17-2
	Hem-fir	#2	6-1	9-6	12-2	14-10	17-3	6-1	9-1	11-5	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	6-9	10-7	14-0	17-10	21-8	6-9	10-7	14-0	17-10	21-8
	Southern pine	#1	~~6-7~~ 6-6	~~10-5~~ 10-2	~~13-8~~ 13-5	~~17-6~~ 15-9	~~20-11~~ 18-8	~~6-7~~ 6-6	~~10-5~~ 10-0	~~13-8~~ 12-8	~~16-6~~ 14-10	~~19-8~~ 17-7
	Southern pine	#2	~~6-6~~ 6-1	~~10-2~~ 9-2	~~13-2~~ 11-7	~~15-9~~ 13-9	~~18-5~~ 16-2	~~6-6~~ 5-9	~~9-7~~ 8-7	~~12-5~~ 10-11	~~14-10~~ 12-11	~~17-5~~ 15-3
	Southern pine	#3	~~5-4~~ 4-8	~~7-11~~ 6-11	~~10-1~~ 8-9	~~11-11~~ 10-7	~~14-2~~ 12-6	~~5-1~~ 4-5	~~7-5~~ 6-6	~~9-6~~ 8-3	~~11-3~~ 10-0	~~13-4~~ 11-10
	Spruce-pine-fir	SS	6-4	10-0	13-2	16-9	20-5	6-4	10-0	13-2	16-9	19-8
	Spruce-pine-fir	#1	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
16	Douglas fir-larch	SS	6-3	9-10	12-11	16-6	19-6	6-3	9-10	12-11	15-10	18-4
	Douglas fir-larch	#1	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#2	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Douglas fir-larch	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Hem-fir	SS	5-11	9-3	12-2	15-7	18-11	5-11	9-3	12-2	15-7	18-0
	Hem-fir	#1	5-9	8-9	11-2	13-7	15-9	5-8	8-3	10-6	12-10	14-10
	Hem-fir	#2	5-6	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Hem-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Southern pine	SS	6-1	9-7	12-8	16-2	19-8	6-1	9-7	12-8	16-2	~~19-8~~ 19-3
	Southern pine	#1	~~6-0~~ 5-11	~~9-5~~ 9-2	~~12-5~~ 11-8	~~15-2~~ 13-8	~~18-1~~ 16-2	~~6-0~~ 5-10	~~9-5~~ 8-8	~~12-0~~ 11-0	~~14-4~~ 12-10	~~17-1~~ 15-3
	Southern pine	#2	~~5-11~~ 5-3	~~8-10~~ 7-11	~~11-5~~ 10-0	~~13-7~~ 11-11	~~16-0~~ 14-0	~~5-10~~ 5-0	~~8-4~~ 7-5	~~10-9~~ 9-5	~~12-10~~ 11-3	~~15-1~~ 13-2
	Southern pine	#3	~~4-8~~ 4-1	~~6-10~~ 6-0	~~8-9~~ 7-7	~~10-4~~ 9-2	~~12-3~~ 10-10	4-4 3-10	~~6-5~~ 5-8	~~8-3~~ 7-1	~~9-9~~ 8-8	~~11-7~~ 10-3
	Spruce-pine-fir	SS	5-9	9-1	11-11	15-3	18-1	5-9	9-1	11-11	14-8	17-1
	Spruce-pine-fir	#1	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#2	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
19.2	Douglas fir-larch	SS	5-10	9-3	12-2	15-4	17-9	5-10	9-3	11-10	14-5	16-9
	Douglas fir-larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Douglas fir-larch	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
	Hem-fir	SS	5-6	8-8	11-6	14-8	17-4	5-6	8-8	11-6	14-2	15-5
	Hem-fir	#1	5-5	8-0	10-2	12-5	14-5	5-2	7-7	9-7	11-8	13-7
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10

(continued)

TABLE R802.5.1(8)—continued
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Southern pine	SS	5-9	9-1	11-11	15-3	18-6	5-9	9-1	11-11	~~15-3~~ 14-11	~~18-6~~ 17-7
	Southern pine	#1	~~5-8~~ 5-6	~~8-11~~ 8-5	~~11-8~~ 10-8	~~13-10~~ 12-5	~~16-6~~ 14-9	~~5-8~~ 5-4	~~8-9~~ 7-11	~~11-0~~ 10-0	~~13-1~~ 11-9	~~15-7~~ 13-11
	Southern pine	#2	~~5-6~~ 4-10	~~8-1~~ 7-3	~~10-5~~ 9-2	~~12-5~~ 10-10	~~14-7~~ 12-9	~~5-4~~ 4-6	~~7-7~~ 6-10	~~9-10~~ 8-8	~~11-9~~ 10-3	~~13-9~~ 12-1
	Southern pine	#3	~~4-3~~ 3-8	~~6-3~~ 5-6	~~8-0~~ 6-11	~~9-5~~ 8-4	~~11-2~~ 9-11	~~4-0~~ 3-6	~~5-11~~ 5-2	~~7-6~~ 6-6	~~8-10~~ 7-11	~~10-7~~ 9-4
	Spruce-pine-fir	SS	5-5	8-6	11-3	14-3	16-6	5-5	8-6	11-0	13-5	15-7
	Spruce-pine-fir	#1	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
24	Douglas fir-larch	SS	5-5	8-7	11-3	13-9	15-11	5-5	8-4	10-7	12-11	15-0
	Douglas fir-larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas fir-larch	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Douglas fir-larch	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Hem-fir	SS	5-2	8-1	10-8	13-6	13-11	5-2	8-1	10-5	12-4	12-4
	Hem-fir	#1	4-11	7-2	9-1	11-1	12-10	4-7	6-9	8-7	10-6	12-2
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Southern pine	SS	5-4	8-5	11-1	14-2	~~17-2~~ 16-8	5-4	8-5	11-1	~~14-2~~ 13-4	~~17-2~~ 15-9
	Southern pine	#1	~~5-3~~ 5-0	~~8-3~~ 7-6	~~10-5~~ 9-6	~~12-5~~ 11-1	~~14-9~~ 13-2	~~5-3~~ 4-9	~~7-10~~ 7-1	~~9-10~~ 9-0	~~11-8~~ 10-6	~~13-11~~ 12-5
	Southern pine	#2	~~5-0~~ 4-4	~~7-3~~ 6-5	~~9-4~~ 8-2	~~11-1~~ 9-9	~~13-0~~ 11-5	~~4-9~~ 4-1	~~6-10~~ 6-1	~~8-9~~ 7-9	~~10-6~~ 9-2	~~12-4~~ 10-9
	Southern pine	#3	~~3-9~~ 3-4	~~5-7~~ 4-11	~~7-1~~ 6-2	~~8-5~~ 7-6	~~10-0~~ 8-10	~~3-7~~ 3-1	~~5-3~~ 4-7	~~6-9~~ 5-10	~~7-11~~ 7-1	~~9-5~~ 8-4
	Spruce-pine-fir	SS	5-0	7-11	10-5	12-9	14-9	5-0	7-9	9-10	12-0	12-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

:k sources for availability of lumber in lengths greater than 20 feet.

3I: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/10 or less	1.00

e:

Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

Height of roof ridge measured vertically above the top of the rafter support walls.

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 X☐Company

Name: Ralph Sachs (Albemarle Heating &Air); Andrew Grigsby (Virginia Energy Efficiency Council); Rich Mialki Jr.; Laura Fiori (Local Energy Alliance Program)

Proposal Information

Code(s) and Section(s): _____

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

14. Change Section R403.2.2 to read:

R403.2.2 Sealing (Mandatory) Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the IMC or the IRC, as applicable. Verification of compliance with this section shall be in accordance with ~~either~~ Section R403.2.2.1 ~~or Section R403.2.2.2~~.

~~Exceptions:~~

~~1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.~~
~~2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.~~
~~3. Continuously welded and locking type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.~~

15. Change Section R403.2.2.1 to read:

R403.2.2.1 Testing ~~option~~. Duct tightness shall be verified by ~~either of~~ the following:

1. Post-construction test: Total leakage shall be less than or equal to 6 cfm (169.9 L/min) per 100 square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Rough-in test: Total leakage shall be less than or equal to 5 cfm (141.5 L/min) per 100 square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 5 cfm (141.5 L/min) per 100 square feet (9.29 m^2) of conditioned floor area.

Exception: The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope.

When this option is chosen, testing shall be performed by approved qualified individuals, testing agencies, or contractors. Testing and results shall be as prescribed in Section R403.2.2 and approved recognized industry standards.

~~16. Add Section R403.2.2.2 to read:~~

~~R403.2.2.2 Visual inspection option. In addition to the inspection of the ducts otherwise required by this code, when the air handler and all ducts are not within conditioned space and this option is chosen to verify duct tightness, duct tightness shall be considered acceptable when the requirements of Section R403.2.2 are field verified.~~

The purpose of this change is to delete the visual inspection option for verification of duct tightness in Virginia's residential building code and to require testing to a measurable standard. It would preserve the leakage targets set in the current proposed language.

A duct tightness test is necessary to guarantee that buyers of new homes in Virginia are receiving a quality duct installation. A visual inspection cannot provide any guarantee of performance. All new homebuyers deserve such a guarantee when it is so easily obtainable and the cost of leaky ductwork – in comfort and dollars – is so high.

The current code language presumes that duct tightness can be visually "verified". This is impossible. One cannot verify a seal or tightness with one's eyes. The seal must be tested. Any person who actually has tested ductwork – or had a system fail a leakage test – knows that looks can be deceiving. Most leaks are the in hard-to-reach places – which generally are hard-to-see places. It makes no sense to ask an inspector to crawl around the entire system hunting for leaks. Quite often that's physically impossible.

The law of Virginia should avoid unenforceable subjective evaluations. For duct tightness, an objective test is readily available. Like most everything in a new home, the cost for the test will vary with the size of the house, likely ranging from $125 to $250. This is a low price for true quality control on such an important part of the home.

Submittal Information

Date Submitted: 6/26/2013

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

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: Jessica Abralind Representing: Arlington County Government

Mailing Address: 2100 Clarendon Blvd Suite 700, Arlington, VA 20001

Email Address: jabralind@arlingtonva.us Telephone Number: 703-228-0628

Proposal Information

Code(s) and Section(s): Chapter 4, 2009 VA Energy Code

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

403.2.2 Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 of the *International Residential Code*. Verification of compliance with this section shall be in accordance with ~~either~~ Section 403.2.2.1 ~~or~~ and 403.2.2.2.

403.2.2.1 Testing ~~option~~. Duct tightness shall be verified by either of the following:

1. Postconstruction test: Leakage to outdoors shall be less than or equal to 8 cfm (226.5 Llmin) per 100 ft2 (9.29 m_2) of conditioned floor area or a total leakage less than or equal to 12cfm (12 Llmin) per 100 ft2 (9.29 m_2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g.(25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.
2. Rough-in test: Total leakage shall be less than or equal to 6 cfm (169.9 Llmin) per 100 ft_2 (9.29 m_2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (113.3 Lim in) per 100 ft_2 (9.29 m_2) of conditioned floor area.

Exception: Duct tightness test is not required if the air handler and all ducts are located within conditioned space.

~~When this option is chosen.~~ tTesting shall be performed by approved qualified individuals, testing agencies or contractors. Testing and results shall be as prescribed in Section 403.2.2 and approved recognized industry standards.

403.2.2.2 Visual inspection ~~option~~. In addition to 403.2.2.1 Testing, and the inspection of ducts otherwise required by this code, when the air handler and all ducts are not within conditioned space ~~and this option is chosen to verify duct tightness,~~ duct tightness shall be visually inspected to verify compliance with 403.2.2~~considered acceptable when the requirements of Section 403.2.2 are field verified~~.

Supporting Statement (including intent, need, and cost impact of the proposal):
Visual inspections should be included because they may help builders meet the air sealing requirements of section *403.2.2 Sealing,* however visual inspections alone cannot not verify compliance. Many times it will be difficult for inspectors or builders to see the quality of air sealing that was completed or it may be completely obscured by drywall or other components. In my experience, unless there is also a requirement for duct leakage testing, the visual inspections and corrections are not performed with the rigor needed to meet the air sealing requirements of *403.2.2 Sealing.*

Submittal Information

Date Submitted: 3/11/13

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
Fax Number: (804) 371-7092
Phone Numbers: (804) 371-7150

TAB 3 - Non-Consensus USBC Code Changes.

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: John Catlett Representing: VBCOA Administration Committee

Mailing Address: 301 King Street, Alexandria, Virginia 22314

Email Address: john.catlett@alexandriava.gov Telephone Number: 703.746.4182

Proposal Information

Code(s) and Section(s): VCC Section 108.2; Exceptions

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.

1. Installation of wiring …

11. Construction work deemed by the building official to be minor and ordinary, and which does not adversely affect public health or general safety.

No change to the remainder of this section.

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

The VBCOA Administrative Provisions Committee felt that recent proposed changes to exempt flag poles and residential ramps were again adding to a rather lengthy "laundry list" that needs some level of curtailment. The committee felt that several very local issues were driving the code change process and consistency throughout the state was in jeopardy.

It was recently found when surveying localities regarding residential gas dryer, stove and oven replacement permit requirements that the code enforcement agencies were nearly split. This change provides needed guidance to continue to allow flexibility in applying the USBC and recognizes the current practice by many code officials and customers. It does not relief the person doing work with complying with code requirements; it only exempts them from obtaining a permit if the building official deems the work minor and not a threat to public health and safety.

There was general consensus within the VBCOA Administration Committee on the premise of this code change, which is to allow some local decision making of the need for permits for the application of the code to the building official.

Submittal Information

Date Submitted: July 12, 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)
600 East Main Street
Suite 300
Richmond, VA 23219

Email Address: 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: CHRIS SNIDOW Representing: MYSELF

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

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

Proposal Information

Code(s) and Section(s): 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
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 90775, HENRICO, VA. 23273-0775

Email Address: sni@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 PROJECING 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
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
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 ☒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 are 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 #3 – REVISED (supporting statement only)**

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 from Option #1:

- The NFPA 285 test would be required for all 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 permit 2-4 story buildings to be exempt from 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 all exterior wall assemblies of a high-rise building, without 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 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, location, and/or thicknesses of all those materials listed).

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.

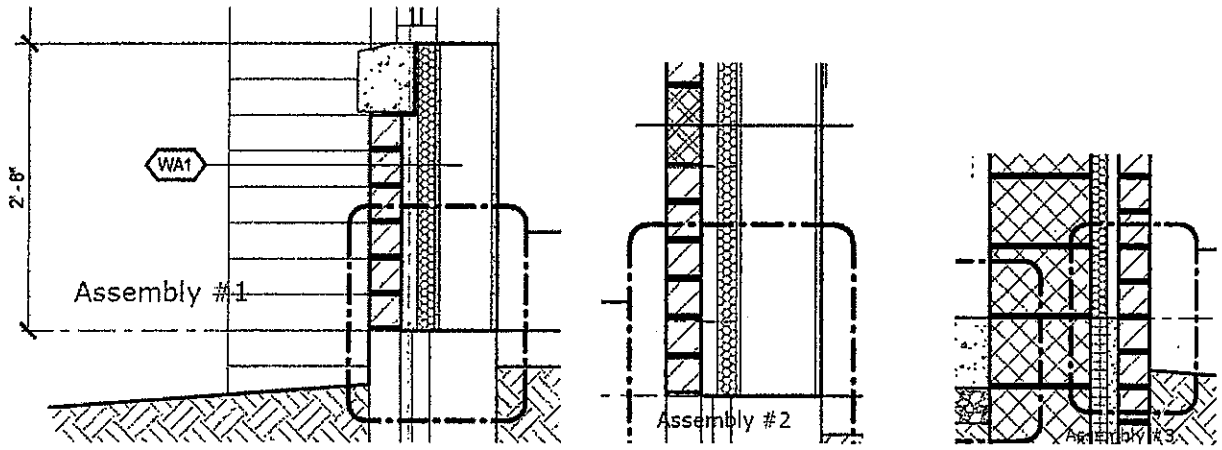
- The IBC currently allows a multitude of combustible materials within noncombustible construction. If one of those "exempted" materials changed from or within one exterior wall assembly to another, it should not be grounds to require another NFPA 285 test.

- 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 and the other has gypsum sheathing + steel studs + gypsum drywall backup (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 veneer, a second NFPA 285 test would not be required.

    - Refer to the examples below: Assembly #1 would require a test. 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 in the United States 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 in 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 (or more) per exterior wall assembly when compared to the current 2012 code requirements. There are at least two or more different exterior wall assemblies per building; thus, equaling 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~~ August 8, 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] 2902.1.1 and equivalent language in the 2012 IPC - REVISED**

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

[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 outdoor activities at buildings or structures associated with Group E, the minimum number of required water closets and lavatories shall be permitted to be reduced by no more than 50% provided all of the following conditions are met:
   a. When the necessary water pressure or volume, or both, is not available to the location of such plumbing fixtures to serve such events or activities.
   b. *Approved* statistical data indicating the average actual attendance is less than the *occupant load* determined by this code.
   c. Approval is granted by the *building official.*
   d. The remaining minimum number of required water closets shall be provided by portable toilet facilities that conform to ANSI 4.3 and ICC A117.1, and are equipped with *approved* hand sanitizers or other *approved* non-tempered hand-washing capabilities.

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

This code change proposal addresses those situations where K-12 educational facilities provides spectator seating (e.g., bleachers), and therefore, is required to provide the minimum number of plumbing fixtures based on the maximum potential occupancy of those bleachers – even when the maximum attendance may be achieved rarely per year (once or twice per year?). Meeting the minimum plumbing fixtures based on maximum occupancy can oftentimes become cost prohibitive and a burdensome task – especially in localities where water is not readily available and/or must be supplied by a well and/or pump.

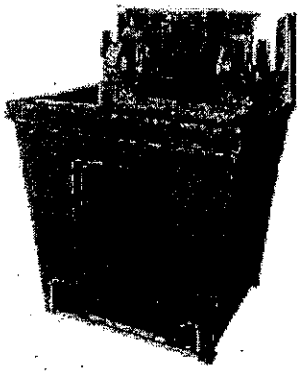
Oftentimes, the fixed seating facilities are at capacity no more than a handful of times per year; yet, the minimum plumbing fixtures factors result in a vast number of plumbing fixtures that could remain unused for 6 months or more out of a typical school year. Oftentimes, draining of the water lines is required to avoid freezing, or traps must be continually primed, or the heat must be run in an unoccupied building to avoid freezing the pipes, or a combination of all of the above.

If a reduced plumbing fixture count were allowed per the code change proposal, on those occasions where the actual attendance exceeds the number of fixed plumbing fixtures provided, portable toilet facilities (w/ some form of hand-cleaning capabilities) would be allowed. For example, say a high school would like to provide bleacher seating for 3,000 people (they might sell out for their cross-town rival and/or might want to host a regional playoff game), 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, the required number of permanent plumbing fixtures would result in the following: (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 toilet facilities would need to make up the difference in water closets and lavatories. Hand washing would be handled by *approved* sanitizers or non-tempered washing stations.
  - 29 portable toilets would be required in the example above
    - If more than 3,000 people attended the outdoor event, then more portable toilet facilities (beyond the 29) would be required to make up the difference.

Portable toilet facilities are currently allowed for numerous outdoor events and activities. It seems only reasonable that similar accommodations could be allowed for K-12 educational facilities where water supply is limited or not available where the outdoor events occur.

Portable toilet facilities (ANSI 4.3)



Hand washing station (example)

REMINDER:
Code requires all required plumbing fixtures be within 500 feet of travel distance. If fully enforced, a typical high school may require MULTIPLE field houses and/or plumbing facilities throughout the athletic complex. Portable facilities would help alleviate this potential.

Cost Impact:
The cost **savings** could be substantial in both initial and life cycle (maintenance) costs.

Regarding the revisions and selected comments received:

- Deleted the "footnote" to Table 2902.1. It was felt the exception was enough and did not warrant duplicative language at the Table.
- Another "outdoor" was added to Exception #2 to clarify the intent is to apply to "outdoor" activities, and could not be interpreted to apply to "indoor" activities.
- Added the water limitation requirements (similar language as used under VCC 903.2.8), since the main impetus of the code change was for locales where water is scarce or non-existent.
- Delete "educational occupancies" and substituted "Group E" to ensure this would apply only to K-12 facilities, and not other "educational" facilities, which may be interpreted to include colleges and universities.

1. *The facilities should meet a standard otherwise there would be no clear guidance as to what constitutes an acceptable portable toilet.*
    a. ANSI 4.3 reference was added.
2. *Why not just require the other 50% (based on maximum seating available) to be in place at the event regardless of the actual anticipated occupant load? That way adequate facilities would be available even under maximum occupant load conditions.*
    a. Exception 2d was revised to require the remaining 50% be provided, no matter what attendance is anticipated, which should also assist in the enforcement (would not have to know how many people would attend each event).
3. *At least tempered water is required for public hand washing facilities so an exception to VPC 607.1 may need to be considered.*
    a. Clarification was added that tempered water was not required for the hand-washing facilities. Please advise if an exception is required.
4. *What about accessibility?*
    a. Reference to ICC A117.1 was added.
5. *Once we start allowing portable facilities to replace permanent fixtures where will it stop?*
    a. We contend it occurs now – at any event where portable facilities are used (e.g., amphitheater movie night, Redskins Fan Appreciation Day, almost every sporting event throughout Virginia, etc.).
    b. Each code change proposal should be evaluated on its own merit, and not "what ifs" or "what it could lead to."
        i. If future code change proposals attempt to expand where portable facilities could be used – do not support them
6. *Guard houses, maintenance work-shops, seasonal business, temporary realtor offices, vacation homes, hunting cabins, etc.*
    a. Code change is limited to Group E outdoor sporting events and activities.
7. *A once a year concert at a park is a much different scenario than a high school schedule of sporting events. With regular events such as Track-field, baseball, softball, football, soccer, lacrosse, that usually includes both girls and boys separately and includes varsity, junior varsity and freshman regular schedules of events almost year round . . .*
    a. Exceptions 2a, 2b, and 2c should address the above concerns
        i. It would only be allowed where water supply is limited or non-existent (limited applications)
        ii. Statistical data must be submitted supporting the reduced number of fixtures
        iii. Ultimately must be approved by the building official – in other words, it is not automatic
8. *The Averett Convocation Center in Danville was granted some allowances based on it being used as a back-up indoor graduation hall once a year. Now it's used for graduation of all area high schools, concerts, theatrical productions, etc.*
    a. Code change is limited to facilities associated with Group E outdoor sporting events and activities.
    b. We assume the Averett Convocation Center was classified as Group A, and was associated with Averett University – which is not Group E
        i. Therefore, the above scenario should not be applicable per this proposed code change.

Submittal Information

Date Submitted: ~~May 17, 2013~~ August 8, 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(s) ☐ Government Entity ☐ Company

Name: Bryan Deem and Stephen Turchen Representing: VBCOA

Mailing Address: 359 Laurel Drive, Aylett, Virginia 23009

Email Address: bdeem@co.stafford.va.us Telephone Number: 540-658-4504

Proposal Information

Code(s) and Section(s): VCC, IECC R402

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

Add a new subsection to Section R402 to read as follows:

R402.2.13 Mechanical rooms. If a room contains combustion equipment, and outside air is admitted directly into the room to provide combustion air for the equipment, then the walls, doors, ceilings, and floors of that room bound unconditioned space and must be insulated as part of the *building thermal envelope.*

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

Reason:

AHJs have disagreed regarding how to apply the energy code to "mechanical rooms" with permanently installed air ducts directly connecting the room to the outdoor environment. This proposal attempts to apply the code requirements to these rooms in a feasible and enforceable manner. Note that by identifying the enclosure of the mechanical room as part of the thermal envelope, these surfaces will be sealed as well as insulated, thereby preventing unwanted and energy-consuming air intrusion into the conditioned living space adjacent to the mechanical room. This provision has been submitted to ICC for review to be incorporated into the 2015 IRC, IECC.

Cost Impact:

To the extent that mechanical rooms have previously been considered unconditioned space and were enforced as such, this clarifying proposal has no cost impact. If these rooms were previously uninsulated, there will be some costs associated with insulating the customary framed walls and ceiling of the room, as well as sealing potential avenues of air infiltration to the conditioned living space beyond.

Submittal Information

Date Submitted: 6/13/12

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

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

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, IRC Section E3902.2

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

Add the following exception to Section E3902.2 of the IRC:

E3902.2 Garage and accessory building receptacles. All 125-volt single-phase, 15- and 20-ampere receptacles installed in garages and grade-level portions of unfinished accessory buildings used for storage or work areas shall have ground-fault circuit-interrupter protection for personnel.

Exception: Receptacles in garages used solely for refrigeration appliances or for garage door opening equipment.

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

This proposal is based on discussion at the May 20, 2013 BHCD meeting where it was suggested that the need for GFCI protection is minimal when outlets are used solely for refrigeration appliances in garages or for garage door opening equipment and the exception would prevent nuisance tripping of GFCI devices which can lead to loss of freezer contents or the ability of a garage door opener to operate.

Submittal Information

Date Submitted: June 18, 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

TAB 4 – Proposed Industrialized Building Safety Regulations

~~SEI/ASCE 7-05~~ ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers/Structural Engineering Institute, 1801 Alexander Bell Drive, Reston, VA 20191-4400. (http://www.asce.org/sei/)

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471 (http://www.nfpa.org/):

NFPA 13-10, Installation of Sprinkler Systems

NFPA 13R-10, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height

~~NFPA 13D-07~~ NFPA 13D-10, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

~~NFPA 70-08~~ NFPA 70-11, National Electrical Code~~, 2008 Edition, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 72-10, National Fire Alarm Code

NFPA 105-10, Standard for the Installation of Smoke Door Assemblies

NFPA 495-01, Explosive Materials Code~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

NFPA 701-10, Standard Methods of Fire Tests for Flame-propagation of Textiles and Films

~~NFPA 704-07~~ NFPA 704-12, Standard System for the Identification of the Hazards of Materials for Emergency Response~~, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269~~

TFI RMIP-09, Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices, December 2009, The Fertilizer Institute, 820 First Street, NE, Suite 430, Washington, DC 20002

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062 (http://www.ul.com):

UL 1784-01, Air Leakage Tests of Door Assemblies, revised July 2009

~~UL 2034~~ UL 2034-2008, Standard for Single and Multiple Station Carbon Monoxide Alarms~~, Third Edition, February 28, 2008, including revisions through~~, revised February ~~20,~~ 2009~~, Underwriters Laboratories, Inc. 333 Pfingsten Road, Northbrook, IL 60062.~~

Interim Remediation Guidance for Homes with Corrosion from Problem Drywall, April 2, 2010, Joint Report, Consumer Products Safety Commission and Department of Housing and Urban Development

VA.R. Doc. No. R12-3159; Filed June 27, 2013, 9:56 a.m.

Proposed Regulation

REGISTRAR'S NOTICE: The Board of Housing and Community Development is claiming an exemption from the Administrative Process Act pursuant to § 2.2-4006 A 12 of the Code of Virginia, which excludes regulations adopted pursuant to the Industrialized Building Safety Law (§ 36-70 et seq. of the Code of Virginia).

Title of Regulation: **13VAC5-91. Virginia Industrialized Building Safety Regulations (amending 13VAC5-91-10, 13VAC5-91-20, 13VAC5-91-40, 13VAC5-91-60, 13VAC5-91-100, 13VAC5-91-115, 13VAC5-91-120, 13VAC5-91-140, 13VAC5-91-150, 13VAC5-91-160, 13VAC5-91-170, 13VAC5-91-180, 13VAC5-91-210, 13VAC5-91-220, 13VAC5-91-240, 13VAC5-91-260, 13VAC5-91-270; repealing 13VAC5-91-130).**

Statutory Authority: § 36-73 of the Code of Virginia.

Public Hearing Information:

September 23, 2013 - 10 a.m. - Virginia Housing Center, 4224 Cox Road, Glen Allen, VA

Public Comment Deadline: September 29, 2013.

Agency Contact: Stephen W. Calhoun, Regulatory Coordinator, Department of Housing and Community Development, Main Street Centre, 600 East Main Street, Suite 300, Richmond, VA 23219, telephone (804) 371-7000, FAX (804) 371-7090, TTY (804) 371-7089, or email steve.calhoun@dhcd.virginia.gov.

Background: The Virginia Industrialized Building Safety Regulations (IBSR) govern the in-factory construction of industrialized buildings, also known as modular buildings. The regulations provide the same standards for construction as those buildings constructed on-site and regulated by the Virginia Uniform Statewide Building Code (13VAC5-63). Both regulations utilize nationally recognized model building codes and standards to provide the technical requirements for the actual construction of the regulated buildings. The model codes are produced by the International Code Council and, every three years, new editions of the model codes become available. At that time, the Board of Housing and Community Development initiates a regulatory action to incorporate the newer editions of the model codes into the regulations through the publishing of a proposed regulation.

Summary:

The proposed amendments (i) conform the regulations to statutory provisions and updated industry standards; (ii) coordinate the application of the regulation with the other building code and fire code regulations of the board; (iii) revise the definition of compliance assurance agency (CAA) to allow the placement of CAAs labels on industrialized buildings in one location; (iv) add definitions for label, certification label, compliance assurance agency certification label, seal, registration seal, and Virginia registration seal to clarify the meaning of each label or seal; (v) change the name of the State Building Code Administrative Office to the State Building Codes Office (SBCO); (vi) revise the exemption for storage containers; (vii) clarify the right to appeal any

administrator order; (viii) clarify that the building official can require the correction of any regulatory violation before the registered industrialized building may be occupied; (ix) delete the terms "defects" and "noncompliance," which are not defined by the adopted building codes; (x) clarify that a change in use of an industrialized building is subject to 13VAC-5-91; (xi) delete redundant provisions or provisions not required by law and revise or move provisions for consistency; (xii) require a compliance assurance agency to make application for acceptance by the SBCO; (xiii) clearly delineate the terms of approval of CAAs by the SBCO and define when approval of a CAA may be suspended or revoked; (xiv) clarify that CAA certification labels must be applied to a registered industrialized building prior to shipment of the building from the place of manufacture; (xv) clarify that CAA certification labels and SBCO certification seals may be applied either by the CAA or the manufacturer when authorized by the CAA; (xvi) require that registration seals must be purchased from the SBCO and decrease the cost of registration seals for building constructed as R-5 (residential) from $75 to $50 per module; and (xvii) allow a partial refund of a certification seal and a deduction from the refund of a processing fee of 25% of the refund due, not to exceed $250.

13VAC5-91-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise.

"Administrator" means the Director of DHCD or his designee.

"Approved" as applied to a material, device, method of construction, registered building, or as otherwise used in this chapter means approved by the administrator.

"Building official" means the officer or other designated authority charged with the administration and enforcement of the USBC, or duly authorized representative.

"Compliance assurance agency" means an architect or professional engineer registered in Virginia, or an organization, determined by DHCD to be specially qualified by reason of facilities, personnel, experience, and demonstrated reliability, to investigate, test and evaluate industrialized buildings; to list such buildings complying with standards at least equal to this chapter; to provide adequate follow-up services at the point of manufacture to ensure that production units are in full compliance; and to provide a label as evidence of compliance ~~on each manufactured section or module~~.

"DHCD" means the Virginia Department of Housing and Community Development.

"ICC" means the International Code Council, Inc.

"Industrialized building" means a combination of one or more sections or modules, subject to state regulations and including the necessary electrical, plumbing, heating, ventilating, and other service systems, manufactured off-site and transported to the point of use for installation or erection, with or without other specified components, to comprise a finished building. Manufactured homes defined in § 36-85.3 of the Code of Virginia and certified under the provisions of the National Manufactured Housing Construction and Safety Standards Act (42 USC § 5401 et seq.) shall not be considered industrialized buildings for the purpose of this law.

"Label," "certification label," or "compliance assurance agency certification label" means the label required by 13VAC5-91-210.

"Model" means a specific design of an industrialized building designated by the producer of the building including production buildings with variations and options that do not affect compliance with the standards governing structural, plumbing, mechanical, or electrical systems or any other items governed by this chapter.

"Registered" means an industrialized building which displays a registration seal issued by DHCD in accordance with this chapter.

"Seal," "registration seal," or "Virginia registration seal" means the seal required by 13VAC5-91-260.

~~"SBCAO"~~ "SBCO" means the State Building ~~Code Administrative~~ Codes Office within DHCD.

"State Review Board" means the Virginia State Building Code Technical Review Board as established by § 36-108 of the Code of Virginia.

"This law" means the Virginia Industrialized Building Safety Law as embraced in Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

13VAC5-91-20. Application and compliance.

A. In accordance with § 36-81 of the Code of Virginia, registered industrialized buildings shall be acceptable in all localities as meeting the requirements of the Industrialized Building Safety Law (Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia), which shall supersede the building codes and regulations of the counties, municipalities and state agencies. Local requirements affecting industrialized buildings, including zoning, utility connections, preparation of the site and maintenance of the unit shall remain in full force and effect. All building officials are authorized to and shall enforce the provisions of the Industrialized Building Safety Law (Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia) and this chapter.

B. In accordance with § 36-78 of the Code of Virginia, no person, firm or corporation shall offer for sale or rental, or sell or rent, any industrialized building subject to any provisions of this chapter unless it conforms with the applicable provisions of this chapter.

Further, any industrialized building constructed before January 1, 1972, shall remain subject to the ordinances, laws or regulations in effect at the time such industrialized building was constructed. Additionally, as a requirement of this chapter, any industrialized building bearing the label of a compliance assurance agency shall remain subject to the provisions of this chapter that were effective when such building was constructed, regardless of whether the building has been relocated.

C. In accordance with § 36-99 of the Code of Virginia and in accordance with the USBC, the installation or erection of industrialized buildings and alterations, additions, or repairs to industrialized buildings are regulated by the USBC and not this chapter. The USBC provides for administrative requirements for permits, inspections, and certificates or occupancy for such work.

D. ~~Shipping~~ Off-site manufactured intermodal freight containers ~~and portable on-demand storage (PODS),~~ moving containers, and storage containers placed on site temporarily or permanently for use as a storage container are not subject to this chapter.

13VAC5-91-40. Inspection and enforcement by administrator.

A. The ~~SBCAO~~ SBCO is designated as the administrator's representative for the enforcement of this chapter and shall act as the building official for registered industrialized buildings. It shall have authority to make inspections during reasonable hours at the manufacturing facilities and at building sites where industrialized buildings are being installed. The ~~SBCAO~~ SBCO shall have authority to issue inspection reports for correction of violations caused by the manufacturer and to take such other actions as are required to enforce this chapter.

B. The ~~SBCAO~~ SBCO will maintain a list of approved compliance assurance agencies. Each manufacturer producing registered industrialized buildings will contract with one or more compliance assurance agencies for required evaluation, monitoring and inspection services. The contract will delineate the services to be provided by the compliance assurance agency. The compliance assurance agency will notify the ~~SBCAO~~ SBCO within 30 days of signing a new contract or terminating an existing contract with any manufacturer.

13VAC5-91-60. Notice of violation from administrator.

In accordance with § 36-82 of the Code of Virginia, whenever the administrator shall find any violation of this chapter, he shall order the person responsible therefor to bring the building into compliance within a reasonable time, to be fixed in the order. In addition, as a requirement of this chapter, the administrator may request assistance from the building official for enforcement of this section. Any order issued by the administrator pursuant to this section shall contain a statement explaining the right of appeal of the order.

13VAC5-91-100. Duties and responsibilities of building officials in the installation or erection of a registered industrialized building.

A. All building officials are authorized by § 36-81 of the Code of Virginia to enforce the provisions of this chapter and shall be responsible for and authorized to do the following:

1. Verify through inspection that the registered industrialized building displays the required state registration seal and the proper label of the compliance assurance agency.

2. Verify through inspection that the registered industrialized building has not been damaged in transit to a degree that would render it unsafe. If the building has been damaged, then the building official is authorized to require tests for tightness of plumbing systems and gas piping and an operational test to ensure that all luminaries and receptacles are operable.

3. ~~Prevent the use or occupancy of a registered industrialized building that in the opinion of the building official contains a serious defect or imminent safety hazard and notify the SBCAO immediately.~~ If warranted due to the nature of any violations discovered, the building official shall be permitted to require the correction of any violations of this chapter before occupancy of the registered industrialized building is permitted.

4. Notify the ~~SBCAO~~ SBCO of any apparent violations of this chapter ~~to include defects and noncompliance~~.

B. In accordance with § 36-99 of the Code of Virginia and the USBC, all site work associated with the installation or erection of an industrialized building is subject to the USBC. In addition, under the USBC, all administrative requirements for permits, inspections, and certificates of occupancy are also applicable.

13VAC5-91-115. Change of occupancy classification.

When the occupancy classification of a registered industrialized building is proposed to be changed, a compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether compliance may be achieved for a change of occupancy classification in accordance with ~~the USBC~~ this chapter. If factory plans are available, then disassembly is not required to the extent that the factory plans can be reasonably verified to reflect the actual construction. Once any necessary work is completed, the compliance assurance agency shall prepare a report documenting the method utilized for the change of occupancy and any alterations to the building to achieve compliance. When the report is complete, the compliance assurance agency shall (i) mark the building with a new compliance assurance agency label in accordance with 13VAC5-91-210, which replaces the existing label; (ii) place a new manufacturer's data plate on the building in accordance with 13VAC5-91-245, which replaces the existing manufacturer's data plate and reflects the new occupancy

classification; and (iii) forward a copy of the report and new data plate to the ~~SBCAO~~ SBCO.

13VAC5-91-120. Unregistered industrialized buildings.

A. The building official shall determine whether any unregistered industrialized building complies with this chapter and shall require any noncomplying unregistered building to be brought into compliance with this chapter. The building official shall enforce all applicable requirements of this chapter including those relating to the sale, rental and disposition of noncomplying buildings. The building official may require submission of full plans and specifications for each building. Concealed parts of the building may be exposed to the extent necessary to permit inspection to determine compliance with the applicable requirements. The building official may also accept reports of inspections and tests from individuals or agencies deemed acceptable to the building official.

~~B. Unregistered industrialized buildings offered for sale in this Commonwealth shall be marked by a warning sign to prospective purchasers that the building is not registered in accordance with this chapter and must be inspected and approved by the building official. The sign shall be of a size and form approved by the administrator and shall be conspicuously posted on the exterior of the unit near the main entrance door. This requirement shall not apply to residential accessory buildings.~~

~~C.~~ B. An existing unregistered industrialized building may be registered in accordance with one of the following:

1. Where an unregistered building was constructed under an industrialized building program of another state and approved under such program, a compliance assurance agency shall prepare a report based on review of the plans and specifications and inspection of the building to determine whether there is compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building. If compliance is determined, the compliance assurance agency shall (i) mark the building with a compliance assurance agency label in accordance with 13VAC5-91-210, (ii) place a new manufacturer's data plate on the building in accordance with 13VAC5-91-245, (iii) mark the building with a registration seal in accordance with 13VAC5-91-260, and (iv) forward a copy of the report and new data plate to the ~~SBCAO~~ SBCO.

2. Where an unregistered building was not approved under an industrialized building program of another state and the date of manufacture can be verified, the compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether there is compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building. When factory plans are available, then disassembly is not required to the extent that the factory plans can be verified to reflect the actual construction of the building. When compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building is achieved, the compliance assurance agency shall prepare a report documenting compliance, outlining any changes made to the building, and certifying the building in accordance with clauses (i) through (iv) of subdivision 1 of this subsection.

3. When the date of manufacture of the existing unregistered building cannot be verified, the building shall be evaluated for compliance with the codes and standards specified in 13VAC5-91-160. The compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether there is compliance with these construction requirements. If compliance is achieved, the compliance assurance agency shall prepare a report documenting compliance, outlining any changes made to the building, and certifying the building in accordance with clauses (i) through (iv) of subdivision 1 of this subsection.

13VAC5-91-130. ~~Disposition of noncomplying building.~~ (Repealed.)

~~When a building is found to be in violation of this chapter, the building official may require the violations to be corrected before occupancy of the building is permitted.~~

13VAC5-91-140. Report to the ~~SBCAO~~ SBCO.

If the building is moved from the jurisdiction before the violations have been corrected, the building official shall make a prompt report of the circumstances to the ~~SBCAO~~ SBCO. The report shall include all of the following:

1. A list of the uncorrected violations.

2. All information contained on the label pertinent to the identification of the building, the manufacturer and the compliance assurance agency.

3. The number of the Virginia registration seal.

4. The new destination of the building, if known.

5. The party responsible for moving the building.

13VAC5-91-150. When modification may be granted.

~~A.~~ The administrator shall have the power upon request in specific cases to authorize modification of this chapter so as to permit certain specified alternatives where the objectives of this law can still be fulfilled. Such request shall be in writing and shall be accompanied by the plans, specifications and other information necessary for an adequate evaluation of the modification requested.

~~B. Before a modification is authorized, the building official may be afforded an opportunity to present his views and recommendations.~~

13VAC5-91-160. Use of model codes and standards.

A. Industrialized buildings produced after the effective date of the ~~2009~~ 2012 edition of this chapter shall comply with all applicable requirements of the codes and standards listed in subsection B of this section except that the following codes

and standards may be used for ~~90 days~~ one year after the effective date of the ~~2009~~ 2012 edition of this chapter:

1. ICC International Building Code - ~~2006~~ 2009 Edition

2. ICC International Plumbing Code - ~~2006~~ 2009 Edition

3. ICC International Mechanical Code - ~~2006~~ 2009 Edition

4. National Fire Protection Association Standard Number 70 (National Electrical Code) - ~~2005~~ 2008 Edition

5. ICC International Fuel Gas Code - 2009 Edition

6. ICC International Energy Conservation Code - 2009 Edition

~~5.~~ 7. ICC International Residential Code - ~~2006~~ 2009 Edition

B. The following documents are adopted and incorporated by reference to be an enforceable part of this chapter:

1. ICC International Building Code - ~~2009~~ 2012 Edition

2. ICC International Plumbing Code - ~~2009~~ 2012 Edition

3. ICC International Mechanical Code - ~~2009~~ 2012 Edition

4. National Electrical Code - ~~2008~~ 2011 Edition

5. ICC International Fuel Gas Code - 2012 Edition

6. ICC International Energy Conservation Code - 2012 Edition

~~5.~~ 7. ICC International Residential Code - ~~2009~~ 2012 Edition

Note: As the ~~2009~~ 2012 editions of the International Codes are incorporated by reference as the construction standards for use with these regulations, this chapter is also referred to as the ~~2009~~ 2012 edition of the Virginia Industrialized Building Safety Regulations or the ~~2009~~ 2012 edition of this chapter.

The codes and standards referenced above may be procured from:

International Code Council, Inc.
500 New Jersey Avenue, NW, 6th Floor
Washington, DC 20001-2070

13VAC5-91-170. Amendments to codes and standards.

A. All requirements of the referenced model codes and standards that relate to fees, permits, certificates of use and occupancy, approval of plans and specifications, and other procedural, administrative and enforcement matters are deleted and replaced by the procedural, administrative and enforcement provisions of this chapter ~~and the applicable provisions of Chapter 1 of the USBC~~.

B. The referenced codes and standards are amended as set forth in the USBC.

13VAC5-91-180. Compliance assurance agencies.

A. Application ~~may~~ shall be made to the ~~SBCAO~~ SBCO for acceptance as a compliance assurance agency. Application shall be made under oath and shall be accompanied by information and evidence that is adequate for the ~~SBCAO~~ SBCO to determine whether the applicant is specially qualified by reason of facilities, personnel, experience and demonstrated reliability to investigate, test and evaluate industrialized buildings for compliance with this chapter, and to provide adequate follow-up and compliance assurance services at the point of manufacture.

B. Following a determination by the SBCO that an application is complete, the information contained in the application and any other information deemed necessary by the SBCO will be reviewed for approval or disapproval. If the application is approved, the applicant will be notified with an approval letter for a two-year period from the date of the approval letter. If the application is disapproved, the applicant will be notified in writing of the reasons for the disapproval. The applicant may then resubmit the application within 30 days of the receipt of the notification of disapproval for reconsideration of approval.

C. Compliance assurance agencies that are already approved by the SBCO at the time of the effective date of this provision shall have 90 days from the effective date of this provision to apply for reapproval in accordance with subsections A and B of this section. Such agencies shall continue to be approved while the SBCO evaluates the reapplication. Compliance assurance agencies receiving an approval letter from the SBCO after the effective date of this provision shall apply for reapproval within 90 days prior to the expiration of the two-year approval period if continued approval as a compliance assurance agency is desired.

D. The SBCO may suspend or revoke the approval of a compliance assurance agency upon a determination that (i) approval or reapproval was based upon fraudulent or inaccurate information, (ii) a change in facts or circumstances renders the agency incapable of meeting its duties and responsibilities as a compliance assurance agency in a satisfactory manner, or (iii) the agency failed to discharge its duties and responsibilities as a compliance assurance agency in a satisfactory manner. In such cases, the SBCO will issue a suspension or revocation notice to the agency outlining the reasons for the actions and the terms, if any, for reinstatement.

13VAC5-91-210. Compliance assurance agency certification label.

~~Every manufactured section or module of a registered~~ A. Registered industrialized ~~building~~ buildings shall be marked with ~~a label~~ certification labels supplied by the compliance assurance agency that includes the name and address of the compliance assurance agency and the numbers of the certification ~~label number~~ labels. The labels shall be applied to registered industrialized buildings intended for sale or use in Virginia and shall be applied prior to the shipment of the building from the place of manufacture. The labels shall be applied by the compliance assurance agency or by the manufacturer when so authorized by the compliance assurance agency.

B. Registered industrialized buildings shall bear one certification label on each manufactured section or module, or as an alternative, the certification label for each manufactured section or module may be placed in one location in the completed building.

13VAC5-91-220. Mounting of compliance assurance agency certification label.

To the extent practicable, the certification label shall be installed so that it cannot be removed without destroying it. The label shall be applied in the vicinity of the electrical distribution panel or in another location that is readily accessible for inspection and shall be installed near the registration seal. ~~When a building is comprised of more than one section or module, the required label may be furnished as a single label for the entire building provided each section or module is marked by the compliance assurance agency in a clearly identifiable manner provided with or on the label.~~

13VAC5-91-240. ~~Label control~~ Control of compliance assurance agency certification label.

The labels shall be under direct control of the compliance assurance agency until applied by the manufacturer to buildings that comply fully with this chapter. The manufacturer shall place its order for labels with the compliance assurance agency. The manufacturer is not permitted to acquire labels from any other source. Each compliance assurance agency shall keep a list of the serial numbers of labels issued to each manufacturer's plant in such manner that a copy of the record can be submitted to the administrator upon request.

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

A. Registered industrialized buildings shall be marked with approved registration seals issued by the ~~SBCAO~~ SBCO. The seals shall be applied ~~by the manufacturer~~ to a registered industrialized building intended for sale or use in Virginia prior to the shipment of the building from the place of manufacture. The seals shall be applied by the compliance assurance agency or by the manufacturer when authorized to do so by the compliance assurance agency.

B. Registered industrialized buildings shall bear one registration seal on each manufactured section or module, or, as an alternative, the registration seal for each manufactured section or module may be placed in one location in the completed building.

C. Approved registration seals ~~may~~ shall be purchased 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.

D. To the extent practicable, the registration seal shall be installed so that it cannot be removed without destroying it. ~~It~~ The seal shall be applied in the vicinity of the electrical distribution panel or in another location that is readily accessible for inspection and shall be installed near the certification label ~~applied by the compliance assurance agency~~.

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. 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.

13VAC5-91-270. Manufacturer's installation instructions and responsibilities of installers.

A. The manufacturer of each industrialized building shall provide specifications or instructions, or both, with each building for handling, installing or erecting the building. Such instructions may be included as part of the label from the compliance assurance agency or may be furnished separately by the manufacturer of the building. The manufacturer shall not be required to provide the foundation and anchoring equipment for the industrialized building.

B. Persons or firms installing or erecting registered industrialized buildings shall install or erect the building in accordance with the manufacturer's instructions.

C. Where the installation or erection of an industrialized building utilizes components that are to be concealed, the installer shall notify and obtain approval from the building official prior to concealment of such components unless the building official has agreed to an alternative method of verification.

Note: The Virginia Department of Professional and Occupational Regulation's Board for Contractors requires licenses for certain activities related to the industrialized building industry. For more information, contact the Board for Contractors.

DOCUMENTS INCORPORATED BY REFERENCE (13VAC5-91)

International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070 (http://shop.iccsafe.org/codes.html):

ICC International Plumbing Code -- ~~2006 and~~ 2009 and 2012 Editions~~, International Code Council~~

ICC International Mechanical Code -- ~~2006 and~~ 2009 and 2012 Editions~~, International Code Council~~

~~National Fire Protection Association Standard Number 70 (National Electrical Code) -- 2005 and 2008 Editions~~

ICC International Building Code -- ~~2006 and~~ 2009 and 2012 Editions~~, International Code Council~~

ICC International Residential Code -- ~~2006 and~~ 2009 and 2012 Editions~~, International Code Council~~

ICC International Fuel Gas Code -- 2009 and 2012 Editions

ICC International Energy Conservation Code -- 2009 and 2012 Editions

NFPA 70, National Electrical Code -- 2008 and 2011 Editions, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471 (http://www.nfpa.org/)

ASTM Standard Number E541-08 -- Standard Specification for Agencies Engaged in System Analysis and Compliance Assurance for Manufactured Building, American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (http://www.astm.org/)

VA.R. Doc. No. R12-3162; Filed June 27, 2013, 9:55 a.m.

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TITLE 18. PROFESSIONAL AND OCCUPATIONAL LICENSING

VIRGINIA BOARD FOR ASBESTOS, LEAD, AND HOME INSPECTORS

Notice of Objection to Fast-Track Rulemaking

REGISTRAR'S NOTICE: Pursuant to § 2.2-4012.1 of the Code of Virginia, the Virginia Board for Asbestos, Lead, and Home Inspectors has filed a notice of objection to the fast-track rulemaking action published in 29:20 VA.R. 2439-2441 June 3, 2013. The board intends to proceed with the normal promulgation process set out in Article 2 (§ 2.2-4006 et seq.) of Chapter 40 of the Administrative Process Act with the initial publication of the fast-track regulation serving as the Notice of Intended Regulatory Action.

Title of Regulation: **18VAC15-40. Virginia Certified Home Inspectors Regulations (amending 18VAC15-40-30).**

Statutory Authority: §§ 54.1-201 and 54.1-501 of the Code of Virginia.

Fast-Track Publication Date: 29:20 VA.R. 2439-2441 June 3, 2013.

The fast-track action was intended to remove the restriction that training courses to meet the certified home inspector entry requirements be conducted in a classroom setting. More than 10 persons objected to the fast-track process during the public comment period, which ended July 3, 2013. Consequently, in accordance with § 2.2-4012.1 of the Code of Virginia, the agency has terminated the fast-track process and is proceeding with the normal promulgation process.

Agency Contact: Trisha L. Henshaw, Executive Director, Virginia Board for Asbestos, Lead, and Home Inspectors, 9960 Mayland Drive, Suite 400, Richmond, VA 23233, telephone (804) 367-8595, FAX (804) 350-5354, or email alhi@dpor.virginia.gov.

VA.R. Doc. No. R13-2848; Filed July 8, 2013, 9:41 a.m.

BOARD OF NURSING

Emergency Regulation

Title of Regulation: **18VAC90-20. Regulations Governing the Practice of Nursing (adding 18VAC90-20-215).**

Statutory Authority: § 54.1-2400 of the Code of Virginia.

Effective Dates: August 1, 2013, through July 31, 2014.

Agency Contact: Jay P. Douglas, R.N., Executive Director, Board of Nursing, 9960 Mayland Drive, Suite 300, Richmond, VA 23233-1463, telephone (804) 367-4515, FAX (804) 527-4455, or email jay.douglas@dhp.virginia.gov.

Preamble:

Legislation for provisional licensure was introduced at the request of Excelsior College, a nontraditional nursing education program that is competency-based and does not provide didactic coursework or any hours of precepted clinical experience. Therefore, its graduates do not meet the Board of Nursing requirement for licensure of 500 hours of supervised clinical experience (effective in 2008). While most other out-of-state, nontraditional nursing education programs do meet board requirements for hours of clinical experience, there are a few whose applicants have less than the requisite number of hours. In 2009, the board adopted regulations for endorsement of applicants from other states with a requisite number of clinical experience hours, but there has been no resolution for new graduates of programs such as Excelsior that do not meet Virginia's regulation for the number of clinical hours required for licensure by examination.

Chapter 712 of the 2011 Acts of Assembly authorizes the board to adopt regulations to provide a pathway to licensure by the issuance of a provisional license to allow a graduate who has met the educational and examination requirements but is lacking clinical experience to obtain such experience by practicing under the supervision of a registered nurse for a period of time. The regulations for provisional licensure will assure that the RN applicant gains experience across the life span in all areas of nursing practice and that his practice will be overseen by an RN with at least two years of clinical practice experience. The supervisor is responsible for the assignment of duties consistent with the knowledge and skills of the provisional licensee and must be prepared to intervene if necessary for the health and safety of clients receiving care from a provisional licensee.

Chapter 712 further required that the board promulgate regulations to implement the provisions of the act to be

TAB 5 - Consensus Industrialized Building Safety Code Changes

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)

TAB 6 – Proposed Virginia Amusement Device Regulations

the following: (i) evidenced-based practices in early intervention services; (ii) changes in federal or state law, regulations, or practice requirements; (iii) topics identified on a personal development plan; ~~and~~ (iv) training needed for new responsibilities relating to early intervention services; and (v) training required by the department. For each continuing learning activity, documentation shall include a description of the activity and sponsoring organization, if applicable; the date or dates of training; the number of hours; and a copy of a certificate or verification of attendance, if applicable.

12VAC35-220-80. Restoration of expired certifications.

A. The department shall notify practitioners in writing of the date their certification ~~as an early intervention professional or early intervention specialist~~ expired and that the practitioner has been placed on inactive status in the practitioner database maintained by the department.

B. Practitioners whose certification ~~as early intervention professionals or early intervention specialists~~ has expired may apply to the department for restoration of their certifications.

C. The department may restore certification for practitioners ~~as early intervention professionals or early intervention specialists~~ under the following conditions:

1. The individual's certification has been lapsed for a period of less than one year; and

2. The certification:

a. Has lapsed because the practitioner failed to complete the three-year recertification requirements and the individual provides documentation to the department demonstrating (i) he is currently qualified for the practice of his discipline or profession in the Commonwealth of Virginia, and (ii) he has completed at least 30 hours of training addressing one or more of the topics specified in 12VAC35-220-50 B 2; or

b. Has lapsed because the practitioner's discipline or profession-specific qualification expired and the practitioner documents that he now holds a current license, certification, endorsement, or other qualification for the practice of his discipline or profession in the Commonwealth of Virginia.

D. The department shall provide written notice of the decision on reinstatement of the practitioner's certification within 30 days of the receipt of a completed request and required documentation.

E. Upon restoration of the practitioner's certification ~~as an early intervention professional or early intervention specialist~~, the department shall reinstate the individual's active status in the practitioner database maintained by the department.

12VAC35-220-90. Termination of ~~early intervention professional or early intervention specialist~~ certification.

A. The department shall terminate a practitioner's certification ~~as an early intervention professional or early intervention specialist~~ under the following circumstances:

1. The practitioner's discipline-specific license, certification, or endorsement has been suspended or terminated;

2. The practitioner, after a year, fails to comply with the recertification requirements set forth in these regulations; or

3. The practitioner fails to comply with his signed assurance that he will comply with all federal and state early intervention requirements.

B. The department shall notify the practitioner in writing of the date of and reason for termination and that the practitioner has been removed from the practitioner database maintained by the department.

VA.R. Doc. No. R12-2761; Filed July 9, 2013, 11:13 a.m.

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TITLE 13. HOUSING

BOARD OF HOUSING AND COMMUNITY DEVELOPMENT

Proposed Regulation

REGISTRAR'S NOTICE: The Board of Housing and Community Development is claiming an exemption from the Administrative Process Act pursuant to § 2.2-4006 A 12 of the Code of Virginia, which excludes regulations adopted pursuant to § 36-98.3 of the Code of Virginia.

Title of Regulation: **13VAC5-31. Virginia Amusement Device Regulations (amending 13VAC5-31-20, 13VAC5-31-30, 13VAC5-31-40, 13VAC5-31-60, 13VAC5-31-75, 13VAC5-31-200, 13VAC5-31-210, 13VAC5-31-290).**

Statutory Authority: § 36-98.3 of the Code of Virginia.

Public Hearing Information:

September 23, 2013 - 10 a.m. - Virginia Housing Center, 4224 Cox Road, Glen Allen, VA

Public Comment Deadline: September 29, 2013.

Agency Contact: Stephen W. Calhoun, Regulatory Coordinator, Department of Housing and Community Development, Main Street Centre, 600 East Main Street, Suite 300, Richmond, VA 23219, telephone (804) 371-7000, FAX (804) 371-7090, TTY (804) 371-7089, or email steve.calhoun@dhcd.virginia.gov.

Background: The Virginia Amusement Device Regulations (VADR) govern the construction and operation of amusement devices, which are defined by statute as devices or structures open to the public by which persons are conveyed or moved

in an unusual manner for diversion and passenger tramways. The regulations are very closely related to the Virginia Uniform Statewide Building Code (USBC), 13VAC5-63, as, also by statutory arrangement, the USBC applies to amusement devices to the extent that they are not superseded by the VADR. The VADR utilizes nationally recognized standards to provide the technical requirements for the construction and operation of amusement devices. The standards are produced by the American Society for Testing and Materials (ASTM). To coincide with the updating of its other building and fire regulations, the Board of Housing and Community Development initiates a regulatory action under the VADR to consider changes necessary to correlate with the Department of Housing and Community Development's other building and fire regulations and to adopt available newer ASTM standards.

Summary:

Specific changes in the proposed regulation are as follows:

1. 13VAC5-31-20 A:

a. In the definition of "amusement device," clarifies the phrase "open to the public" to facilitate a more uniform application of the VADR.

b. Adds a definition of the phrase "certificate of inspection" to mean the certificate or sticker for amusement devices distributed by the department, as referenced in 13VAC5-31-75 E. This amendment requires the use of the department sticker where previously a locality was permitted to use its own.

c. Changes the term "kiddie ride" to "small mechanical ride" and revises the criteria for what qualifies as a small mechanical ride. This amendment is in conjunction with new requirements for inspections in 13VAC5-31-75 D that limit the permit period to a maximum of six months for small mechanical rides.

2. 13VAC5-31-30 A: Adds this subsection to assist local building departments in determining whether certain devices are amusement devices and to achieve more uniformity in the application of the regulation.

3. 13VAC5-31-30 B: Expands the list of exempted equipment or devices.

4. 13VAC5-31-40 A: Updates the list of incorporated standards.

5 13VAC5-31-75 A: Increases the amount a locality must reduce a permit fee when a private inspector is used, from 50% to 75%; increases permit fees for amusement rides; and adds language permitting the increase of fees by a local building department for weekend or after-hour inspections.

6. 13VAC5-31-75 D: Adds language on (i) the minimum time frame for notifying local building departments prior to the operation of a small mechanical ride or an inflatable amusement device, (ii) the inspection fee that a local building department may charge per event where an inflatable amusement device is operating, and (iii) the inspection report required for such inspections.

7. 13VAC5-31-75 E: Clarifies that a local building department may authorize a third-party inspector to post the certification sticker and that permits for small mechanical rides are only valid for a maximum of six months.

8. 13VAC5-31-75 J: Adds this subsection to clarify the procedures for violations of the chapter.

9. 13VAC5-31-75 K: Adds this subsection to clarify that the Virginia Department of General Services functions as the local building department for amusement devices located on state-owned property.

13VAC5-31-20. Definitions.

A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Amusement device" means (i) a device or structure open to the public by which persons are conveyed or moved in an unusual manner for diversion, but excluding snow tubing parks and rides, ski terrain parks, ski slopes, and ski trails, and (ii) passenger tramways. For the purpose of this definition, the phrase "open to the public" means that the public has full access to a device or structure at an event, irrespective of whether a fee is charged. The use of devices or structures at private events is not considered to be open to the public.

"Bungee cord" means the elastic rope to which the jumper is attached which lengthens and shortens to produce a bouncing action.

"Carabineer" means a shaped metal device with a gate used to connect sections of a bungee cord, jump rigging, equipment, or safety gear.

"Certificate of inspection" means the certificate or sticker for amusement devices distributed by DHCD.

"DHCD" means the Virginia Department of Housing and Community Development.

"Gravity ride" means a ride that is installed on an inclined surface, which depends on gravity for its operation to convey a passenger from the top of the incline to the bottom, and which conveys a passenger in or on a carrier tube, bag, bathing suit, or clothes.

"Ground operator" means a person who assists the jump master to prepare a jumper for jumping.

"Harness" means an assembly to be worn by a bungee jumper to be attached to a bungee cord. It is designed to prevent the wearer from becoming detached from the bungee system.

"Jump master" means a person who has responsibility for the bungee jumper and who takes the jumper through the final stages to the actual jump.

"Jump zone" means the space bounded by the maximum designed movements of the bungee jumper.

"Jumper" means the person who departs from a height attached to a bungee system.

~~"Kiddie ride" means an amusement device where the passenger or patron height is limited to 54 inches or less, the design capacity of passengers or patrons is 12 or less, and the assembly time for the device is two hours or less.~~

"Landing area" means the surface area of ground or water directly under the jump zone, the area where the lowering device moves the bungee jumper to be landed away from the jump space and the area covered by the movement of the lowering device.

"Local building department" means the agency or agencies of the governing body of any city, county or town in this Commonwealth charged with the enforcement of the USBC.

"Operating manual" means the document that contains the procedures and forms for the operation of bungee jumping equipment and activity at a site.

"Passenger tramway" means a device used to transport passengers uphill, and suspended in the air by the use of steel cables, chains or belts, or ropes, and usually supported by trestles or towers with one or more spans.

"Platform" means the equipment attached to the structure from which the bungee jumper departs.

"Private inspector" means a person performing inspections who is independent of the company, individual or organization owning, operating or having any vested interest in an amusement device being inspected.

"Small mechanical ride" means an amusement device, other than an inflatable amusement device, where (i) the assembly time for the device is two hours or less, (ii) the revolutions per minute of any rotation of the components of the device is not greater than seven, (iii) the device has a footprint of less than 500 square feet, and (iv) the device does not invert a patron or lift a patron more than three feet in the air, measured from the ground to the bottom of the patron's feet when the device is operating.

"Ultimate tensile strength" means the greatest amount of load applied to a bungee cord prior to failure.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

B. Words and terms used in this chapter which are defined in the USBC shall have the meaning ascribed to them in that regulation unless the context clearly indicates otherwise.

C. Words and terms used in this chapter which are defined in the standards incorporated by reference in this chapter shall have the meaning ascribed to them in those standards unless the context clearly indicates otherwise.

13VAC5-31-30. ~~Exemptions~~ Devices covered and exempt.

A. The following devices, identified by name or description, when open to the public shall be considered amusement devices subject to this chapter. The list is intended only to clarify questionable devices, while the definition of an "amusement device" in 13VAC5-31-20 is generally used to determine the applicability of this chapter.

1. Inflatable amusement devices; and

2. Zip lines.

B. The following equipment or devices shall not be considered amusement devices subject to this chapter:

1. Nonmechanized playground or recreational equipment such as swing sets, sliding boards, climbing bars, jungle gyms, skateboard ramps and similar equipment where no admission fee is charged for its use or for admittance to areas where the equipment is located;

2. Coin-operated rides designed to accommodate three or less passengers; ~~and~~

3. Water slides or similar equipment used in community association, community club or community organization swimming pools.;

4. Mechanical bulls or similar devices;

5. Devices known as mall trains, shopping mall trains, or electric trackless trains for malls; and

6. Devices known as water walking balls, euro bubbles, or similar devices.

13VAC5-31-40. Incorporated standards.

A. The following standards are hereby incorporated by reference for use as part of this chapter:

1. American National Standards Institute (ANSI) Standard No. ~~B77.1-2006~~ B77.1-2011 for the regulation of passenger tramways; and

2. American Society for Testing and Materials (ASTM) Standard Nos. F698-94 ~~(Reapproved 2000)~~, F747-06, ~~F770-06a~~ F770-11, F846-92 ~~(Reapproved 2003)~~ (2009), F853-05, ~~F893-05a, F1159-03a~~ F893-10, F1159-11, F1193-06, ~~F1305-94 (Reapproved 2002), F1950-99,~~ F1957-99 ~~(Reapproved 2004)~~ (2011), ~~F2007-06, F2137-09, F2291-09b, F2374-07a, F2376-06~~ F2007-11, F2137-11, F2291-11, F2374-10, F2375-09, F2376-08, and ~~F2460-06~~ F2460-11 for the regulation of amusement devices.

The standards referenced above may be procured from:

ANSI	ASTM
25 W 43rd Street	100 Barr Harbor Dr.
New York, NY	West Conshohocken, PA
10036	19428-2959

B. The provisions of this chapter govern where they are in conflict with any provisions of the standards incorporated by reference in this chapter.

C. The following requirements supplement the provisions of the ASTM standards incorporated by reference in this chapter:

1. The operator of an amusement device shall be at least 16 years of age, except when the person is under the supervision of a parent or guardian and engaged in activities determined not to be hazardous by the Commissioner of the Virginia Department of Labor and Industry;

2. The amusement device shall be attended by an operator at all times during operation except that (i) one operator is permitted to operate two or more amusement devices provided they are within the sight of the operator and operated by a common control panel or station and (ii) one operator is permitted to operate two ~~kiddie~~ small mechanical rides with separate controls provided the distance between controls is no more than 35 feet and the controls are equipped with a positive pressure switch; and

3. The operator of an amusement device shall not be (i) under the influence of any drugs which may affect the operator's judgment or ability to assure the safety of the public or (ii) under the influence of alcohol.

D. Where an amusement device was manufactured under previous editions of the standards incorporated by reference in this chapter, the previous editions shall apply to the extent that they are different from the current standards.

13VAC5-31-60. Appeals.

Appeals from the local building department concerning the application of this chapter shall be made to the local board of building code appeals established by the USBC. Application for appeal shall be filed with the local building department within 14 calendar days after receipt of the decision of the local building department. The board of appeals shall hear the appeal within seven calendar days after the application for appeal is filed. After final determination by the board, any person who was a party to the appeal may appeal to the State Building Code Technical Review Board, established under § 36-108 of the Code of Virginia, within 14 calendar days of receipt of the decision to be appealed. Such appeal shall be in accordance with the procedures established in the USBC, under the authority granted by § 36-98.3 of the Code of Virginia where the provisions of Chapter 6 (§ 36-97 et seq.) of Title 36 of the Code of Virginia and the USBC apply to amusement devices.

NOTE: Because of the short time frames normally associated with amusement device operations, DHCD staff will be available to assist in finding a timely resolution to disagreements between owners or operators and the local building department upon request by either party.

Part II

Enforcement, Permits and Certificates of Inspection

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%~~ 75%:

1. ~~$25~~ $35 for each ~~kiddie~~ small mechanical ride or inflatable amusement device covered by the permit;

2. ~~$35~~ $55 for each circular ride or flat-ride less than 20 feet in height covered by the permit;

3. ~~$55~~ $75 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~~ $200 for each coaster covered by the permit that exceeds 30 feet in height.

Notwithstanding the above, the local building department shall be permitted to increase the fees up to 50% when requested to perform weekend or after-hour inspections.

B. Notwithstanding the provisions of subsection A of this section, when an amusement device is constructed in whole or in part at a site for permanent operation at that site and is not intended to be disassembled and moved to another site, then the local building department may utilize permit and inspection fees established pursuant to the USBC to defray the cost of enforcement. This authorization does not apply to an amusement device that is only being reassembled, undergoing a major modification at a site or being moved to a site for operation.

C. A permit application shall be made to the local building department at least five days before the date in which the applicant intends to operate an amusement device. The application shall include the name of the owner, operator or other person assuming responsibility for the device or devices, a general description of the device or devices including any serial or identification numbers available, the location of the property on which the device or devices will be operated and the length of time of operation. The permit application shall indicate whether a private inspector will be utilized. If a private inspector is not utilized, the applicant shall give reasonable notice when an inspection is sought and may stipulate the day such inspection is requested provided it is during the normal operating hours of the local building department. In addition to the information required on the permit application, the applicant shall provide proof of liability insurance of an amount not less than $1,000,000 per occurrence or proof of equivalent financial responsibility. The local building department shall be notified of any change in the liability insurance or financial responsibility during the period covered by the permit.

D. Notwithstanding the provisions of subsection C of this section, a permit application is not required for a ~~kiddie~~ small mechanical ride or an inflatable amusement device that has ~~an unexpired~~ a certificate of inspection issued by any local building department in this Commonwealth within a one-year

period prior to the dates the small mechanical ride or inflatable amusement device is to be used, regardless of whether the device has been disassembled and moved to a new site. In such cases, the local building department shall be notified at least three days prior to the operation of the ~~kiddie~~ small mechanical ride or the inflatable amusement device and the information required on a permit application as listed in subsection C of this section shall be provided to the local building department. In addition, and notwithstanding the provisions of subsection A of this section, the local building department shall be permitted to charge a $50 inspection fee per event to the person notifying the local building department of an event where an inflatable amusement device is operating, if the local building department chooses to inspect any or all of the inflatable amusement devices operating at that event. An inspection report shall be provided to the person notifying the local building department of the event if such an inspection is conducted.

E. Local building department personnel shall examine the permit application within five days and issue the permit if all requirements are met. A certificate of inspection for each amusement device shall be issued when the device has been found to comply with this chapter by a private inspector or by an inspector from the local building department. It shall be the responsibility of the local building department to verify that the private inspector possesses a valid certificate of competence as an amusement device inspector from the Virginia Board of Housing and Community Development. In addition, local building department personnel shall be responsible for assuring that the certificate of inspection is posted or affixed on or in the vicinity of the device in a location visible to the public. Local building department personnel shall post or affix such certificates or permit the certificates to be posted or affixed by the private inspector. Permits shall indicate the length of time the device or devices will be operated at the site, clearly identify the device or devices to which it applies and the date of expiration of the permit. Permits shall not be valid for longer than one year, except that permits for small mechanical rides shall not be valid for longer than six months.

F. In addition to obtaining a certificate of inspection in conjunction with a permit application for amusement devices permanently fixed to a site, a new certificate of inspection shall also be obtained prior to the operation of an amusement device following a major modification, prior to each seasonal operation of a device, at least once during the operating season and prior to resuming the operation of a device following an order from a local building department to cease operation. This requirement shall not apply to ~~kiddie~~ small mechanical rides meeting the conditions outlined in subsection D of this section.

G. For amusement devices manufactured prior to 1978, the owner or operator shall have the information required by §§ 2.1 through 2.6 of ASTM F698 available at the time of inspection. In addition, the operator of any amusement device shall be responsible for obtaining all manufacturer's notifications, service bulletins and safety alerts issued pursuant to ASTM F853 and the operator shall comply with all recommendations and requirements set out in those documents. A copy of all such documents shall be made available during an inspection.

H. In the enforcement of this chapter, local building department personnel shall have authority to conduct inspections at any time an amusement device would normally be open for operation or at any other time if permission is granted by the owner or operator, to issue an order to temporarily cease operation of an amusement device upon the determination that the device may be unsafe or may otherwise endanger the public and to accept and approve or deny requests for modifications of the rules of this chapter in accordance with the modification provisions of the USBC.

I. In accordance with subdivision 7 of § 36-137 of the Code of Virginia, the local building department shall collect a 2.0% levy of fees charged for permits under this chapter and transmit it quarterly to DHCD to support training programs of the Virginia Building Code Academy. Localities that maintain individual or regional training academies accredited by DHCD shall retain such levy.

J. In accordance with § 36-98.3 of the Code of Virginia and 13VAC5-31-10 B, the procedures for violations of this chapter shall be prescribed in the USBC.

K. In accordance with § 36-98.1 of the Code of Virginia, the Virginia Department of General Services (DGS) shall function as the local building department for the application of this chapter to amusement devices located on state-owned property. In accordance with §§ 36-98.2 and 36-114 of the Code of Virginia, appeals of the application of this chapter by the DGS shall be made directly to the State Building Code Technical Review Board. Further, as a condition of this chapter, such appeals shall be filed within 14 calendar days after receipt of the decision of DGS.

Part V
Inflatable Amusement Devices

13VAC5-31-200. General requirements.

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 if the device has an unexpired certificate of inspection issued by a local building department in this Commonwealth, regardless of whether the device has been disassembled or moved to a new site.~~

Part VI
Artificial Climbing Walls

13VAC5-31-210. General requirements.

In addition to other applicable requirements of this chapter, artificial climbing walls shall be operated, maintained and inspected in accordance with ASTM F1159.

Notwithstanding any requirements of this chapter to the contrary, an artificial climbing wall may be moved, setup and operated without obtaining a permit provided the wall has a ~~valid~~ certificate of inspection issued by a local building department in this Commonwealth within the prior 90 days and the expiration date of the wire ropes used with the device does not expire within that 90-day period.

13VAC5-31-290. Requirements.

Amusement devices subject to this part shall comply with applicable requirements of 36 CFR Part 1191—Americans With Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities ~~and~~; Architectural Barriers Act (ABA) Accessibility Guidelines~~,~~ (69 FR 44151-44455 (July 23, 2004)).

DOCUMENTS INCORPORATED BY REFERENCE (13VAC5-31)

ANSI B77.1-2011, Passenger Ropeways – Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors – Safety Requirements, American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10036 (http://www.ansi.org/)

American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; (http://www.astm.org/):

~~F 698 – 94 (Reapproved 2000)~~ ASTM F698-94, Standard Specification for Physical Information to be Provided for Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 747 – 06~~ ASTM F747-06, Standard Terminology Relating to Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 770 – 06a~~ ASTM F770-11, Standard Practice for Ownership and Operation of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 846 – 92 (Reapproved 2003)~~ ASTM F846-92 (2009), Standard Guide for Testing Performance of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 853 – 05~~ ASTM F853-05, Standard Practice for Maintenance Procedures for Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 893 – 05a~~ ASTM F893-10, Standard Guide for Inspection of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 1159 – 03a~~ ASTM F1159-11, Standard Practice for Design and Manufacture of Patron Directed, Artificial Climbing Walls, Dry Slide, Coin Operated and Purposeful Water Immersion Amusement Rides and Devices and Air-Supported Structures~~, ASTM International, West Conshohocken, PA 19428~~

~~F 1193 – 06~~ ASTM F1193-06, Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 1305 – 94 (Reapproved 2002), Standard Guide for Classification of Amusement Rides and Device Related Injuries and Illnesses, ASTM International, West Conshohocken, PA 19428~~

~~F 1950 – 99, Standard Specification for Physical Information to be Transferred With Used Amusement Rides and Devices, ASTM International, West Conshohocken, PA 19428~~

~~F 1957 – 99 (Reapproved 2004)~~ ASTM F1957-99 (2011), Standard Test Method for Composite Foam Hardness-Durometer Hardness~~, ASTM International, West Conshohocken, PA 19428~~

~~F 2007 – 06~~ ASTM F2007-11, Standard Practice for Classification, Design, Manufacture, and Operation of Concession Go-Karts and Facilities~~, ASTM International, West Conshohocken, PA 19428~~

~~F 2137 – 09~~ ASTM F2137-11, Standard Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 2291 – 09b~~ ASTM F2291-11, Standard Practice for Design of Amusement Rides and Devices~~, ASTM International, West Conshohocken, PA 19428~~

~~F 2374 – 07a~~ ASTM F2374-10, Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices~~, ASTM International, West Conshohocken, PA 19428~~

ASTM F2375-09, Standard Practice for Design, Manufacture, Installation and Testing of Climbing Nets and Netting/Mesh used in Amusement Rides, Devices, Play Areas and Attractions

~~F 2376 – 06~~ ASTM F2376-08, Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems~~, ASTM International, West Conshohocken, PA 19428~~

~~F 2460 – 06~~ ASTM F2460-11, Standard Practice for Special Requirements for Bumper Boats~~, ASTM International, West Conshohocken, PA 19428~~

~~B 77.1 – 06, Passenger Ropeways – Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors – Safety Requirements, ANSI, New York, NY 10036~~

VA.R. Doc. No. R12-3160; Filed June 27, 2013, 9:53 a.m.

TAB 7 - Consensus Virginia Amusement Device Code Changes

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
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 X Government Entity ☐ Company

Name: Michael Redifer Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3rd 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
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 X Government Entity ☐ Company

Name: Michael Redifer Representing: City of Newport News

Mailing Address: 2400 Washington Avenue 3rd 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
Fax Number: (804) 371-7092
Phone Numbers: (804) 371-7150

October 11th Agenda

Date prepared: 9/10/13

AGENDA

DHCD WORKGROUP MEETING
2012 Code Change Cycle
October 11, 2013 at 9:30
Virginia Housing Center

SFPC:

	DESCRIPTION	Page #
1.	SFPC 103.2 - Administrative inspections, permits construction document. SFPC Section 106.3 covers all inspections deemed necessary or if something is missing can be done in Chapter 1 similar to USBC did some time ago? T107.2 covers now all operational permits so if need others can add? Open flame is broaden that clearly includes sterno canisters to warm food trays, but doesn't cover other occupancies besides A such as B or M or R? 901.2 needs to be correlated with the USBC 109 for construction documents as USBC governs copies that are disturbed to fire or maintenance officials, planning, zoning, public works and transportation departments?	4
2.	SFPC 107.5.1, 107.6 and 107.13 - Clean-up; adds exception for issuance of explosive and firework permits by the SFMO.	37
3.	SFPC 107.13 - SFMO new fee for permissible fireworks on state property. Legal issues.	39
4.	SFPC 107.6 – Compliance fees – complaints, storage/retail display permissible fireworks, bon fires on state owned property.	41
5.	SFPC 107.13 – Fees – state explosives, blasting agents, theatrical flame effects and firework permit fees. Need budget estimates. Proposed SFPC has increased fees too.	44
6.	SFPC 107.14 – State compliance inspection permit fees. These include hotels and B&B's. Need budget number estimates.	46
7.	SFPC 107.16 - SFMO permit fees not refundable.	49
8.	SFPC 5601.4.3.1 - New SFMO fee for replacement of certificate.	50
9.	SFPC – Definition - Residential Group R-5.	51
10.	SFPC 108.3 - Conditions of a permit. This change now deletes text in section and then adds a note with the same language. The SFPC cannot direct what a building official does under the USBC, not even in a note.	53
11.	SFPC 202 and 308.1.6.3 - Sky lanterns.	54
12.	SFPC 403.3 – First code change: Crowd managers for training. Second code change: DHCD for Crowd managers only for A up to 1,000 and then 1 for 250 thereafter with nightclubs 250 and not 1,000 exception.	55
13.	SFPC 307.1 – Approved outdoor live fire training exception.	56
14.	SFPC Chapter 4 rewrite. Reduces fire drills from 12 to 6 in I-1 and allows designation of an assembly point. Since it is entire chapter, where there are changes, a better explanation of those changes that goes beyond current requirements is needed so stakeholders can better understand the change besides clarity and format changes.	57
15.	SFPC 404.2. - Evacuation plans. Bed and Breakfasts.	78

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16. SFPC 503.1- Fire apparatus access roads for new and existing buildings.	80
17. SFPC 607.1 and other sections – Changes to existing building references.	81
18. SFPC 609.3.3.3 - Tags kitchen hood systems. From 2015 IFC code change. Seems reasonable much like tagging of fire extinguishers.	83
19. SFPC IFC 703.3.3/703.1.1- Delete annual visual inspection - all existing buildings for rated and fire-resistance construction. Issues and questions are: do owners file and do reports, how to identify what to inspect, are reports retained, covers all existing buildings, how related to the USBC VMC, how will SFMO implement and what are enforcement problems? This needs study, cost impact and risk assessment. Will need for someone to educate owners? Should any occupancy be exempted like dwelling units? In SFPC or USBC VMC, it is those code officials who already are allowed to do periodic inspections. Was part of a STRB case.	85
20. SFPC IFC 3406.1 - Fire apparatus access roads tire storage yards	86
21. SFPC 5001.3/USBC 116.2, 307.1, 425.1 – NFPA 45 – Laboratory buildings. DHCD alternate staff proposal also attached. Subgroup meeting held on September 24th.	87
22. SFPC 906.3 and 906.4 - SFMO new certification program fire extinguisher technician. Need program details, numbers impacted, budget and staff information.	90
23. SFPC 5601.5 - New section – Denial, suspension or revocation of certificate for blasters and pryotechnicians. What is the history? Have cases arisen for suspension consideration? Sets up review panel.	94
24. SFPC 5603.4 – Adds requirement that accident information involving explosives be submitted to the SFMO.	96
25. SFPC 5706.6.2.1 and 6111.2.2 - Code Change for fuel and propane truck parking in residential areas. Was submitted as a placeholder. Propane change is already a technical amendment different than the IFC 6111.2.1 referencing NFPA standard. Two code changes.	97
26. SFPC Section 5607.16 – Blast records (w/code commission corrections attached).	99
27. USBC/SFPC 2306.7.1 – E85 Standard.	105
28. SFPC 202 – Definition of responsible management.	107
29. IWUIC – Urban interface code.	108
30. USBC VCC IBC/IFC 906.1 - Deletes USBC amendments for the 2012 IBC/IFC. Would not have any sprinkled occupancies without fire extinguishers except R-2.	108a
31. USBC VCC IBC/IFC 906 - Delete from IBC and retain in SFPC/IFC as not a USBC matter.	108d

2012 USBC:

DESCRIPTION	Page #
1. USBC 103.10 IECC 101.7 – New item 7 - Explanation was given that the purpose of this change is to make it clear that low energy buildings were referenced.	109
2. USBC 103.10 – Use of certain provisions of referenced codes. DHCD staff proposal.	113
3. 108.1 and 3411.9.5 (IEBC 410.1) - Accessible parking (restriping) – discussion on evolution of change to make it less stringent. Incorporate into IEBC.	114
4. USBC – Definition of nightclub. Subgroup meeting held on September 24th.	116
5. USBC VCC Table 307.1 – Fireworks amounts. First code change is revised from previous change that was "approve as revised" from the August 22nd meeting. Second code change DHCD code changes on permissible fireworks.	118
6. USBC VCC IBC 404.5 - Smoke control clarification.	121
7. USBC VCC IBC 404.6 - Atrium sprinklers Exceptions 1 and 3 – two proposals.	122

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8. IBC 408.2 – Short term holding areas.	124
9. 415.1.1 and 414.6.2 – UST removal.	128
10. USBC VCC and VRC IBC 903.2.1A – Two code changes. Occupancy requiring buildings unsprinkled to have floor or floors sprinkled and egress to exit discharge. In the 2009 USBC/IBC so have there been any impacts for new or existing buildings? Triggers sprinklers in unsprinkled buildings like B with A on lower or upper floors could be entire building or entire 1st floor. Should it be A area and to exit discharge? How does this impact new and existing buildings triggers for sprinklers such as 55 feet or the VRC for alterations and change of occupancy. 903.2.1 for A occupancies is perhaps not problem VCC new buildings as 300 occupants for restaurants or where restaurants moving into an existing buildings is not able to use fire areas and VRC compliance methods. Carry-over 2015.	130
11. USBC VCC IBC 903.2.6 - Exception 5 new exercise yards I-3 and sprinklers.	131
12. USBC VCC IBC/IFC 906.1 - Deletes USBC amendments for the 2012 IBC/IFC. Would not have any sprinkled occupancies without fire extinguishers except R-2.	132
13. USBC VCC IBC/IFC 906 - Delete from IBC and retain in SFPC/IFC as not a USBC matter.	135
14. 1106.3 – Outpatient parking – Revised change exempts medical offices in residences.	136
15. USBC VCC IBC 1604 - Deletes #3. Adult education facilities.	137
16. USBC IBC 1705.16, 16.1 and 16.2 - 3rd party inspections Risk category III scoping review.	139
17. USBC IECC R402.1.1 - Wall insulation R18 or R15+3. Two changes.	140
18. USBC IECC R402.1.1 - Ceiling insulation R49.	147
19. USBC IECC R402.4.1.2.1 - Testing exterior barriers delete visual inspections – two proposals.	148
20. USBC IECC R402.3.6 - Requires replacement fenestration to meet current U values not being allowed to be replaced with similar kind per 103.5.	151
21. USBC IECC R403.4.2 - R-3 for hot water piping insulation.	153
22. USBC IECC R404.1 - Reinstates 75% for high-efficacy lamps/luminaires.	155
23. USBC IECC R405.5.2 - Glazing area having trade-offs below 15% deletes.	156
24. USBC IRC R602.10 and R602.12 - Coordination practical wall bracing.	159
25. USBC IRC R602.12.1(3) - Fasteners for gypsum wall bracing spacing.	163
26. USBC IRC R602.12.2 - Clarifies language with gypsum on both sides.	164
27. USBC IRC Table R602.12.4 - Clarifies foot notes wall bracing lengths.	165
28. USBC IECC R403-6 – Energy efficiency of appliances. Two changes.	166
29. USBC IRC M1401.3 – Energy efficiency of appliances. Two changes.	170
30. USBC IRC M1401.3 – VPC 608.16.10 – Coffee machines.	174
31. USBC IBC 908.7 – CO alarms – educational – two proposals.	175
32. USBC IBC 1008.1.9.7 – Delayed egress locks.	180
33. USBC IBC 1106.3 – Outpatient clinics.	181
34. USBC IBC 1403.8 – Air barriers.	182
35. USBC IRC R311.2.1 – Interior passage.	184
36. USBC IRC R403.1 – Depth of footings for ramps.	186
37. USBC IRC R507 – Decks	187
38. USBC IRC R806 – Attic ventilations.	203
39. USBC IRC M1501.2 – Transfer air.	204
40. USBC IRC M1503.4 – Make-up air.	205

Date prepared: 9/10/13

41. USBC IRC G2411.1 – CSST.	207
42. USBC IPC 607.2 – Hot water pipe insulation.	209
43. VCC 425.2 – Site work for manufactured homes.	210
44. 13VAC5-95-20 – Site prep., utility connection and skirting of manufactured homes.	211
45. IBC 1008.1.9.8 – Sensor lock. Change was consensus but needs correlation with ICC.	212
46. USBC/SFPC 2306.7.1 – E85 Standard.	217
47. IWUIC – Urban interface code.	219
48. IBC 308 – Code change relating to number of residents needing assistance,	220
49. USBC VADR – Fee for generators.	221

August 22nd Summary

SUMMARY

DHCD WORKGROUP MEETING
2012 Code Change Cycle

August 22, 2013 at 9:30

Virginia Housing Center

PART ONE OF AGENDA

Administrative

1. USBC 103.10 IECC 101.7 –Explanation was given that the purpose of this change is to make it clear that low energy buildings were referenced. There was discussion on if this will work in this section of code and opinions that the change is too ambiguous. **Non-consensus for now; will be carried over to October 11th meeting with revised change. Code change shown at meeting attached.**
2. 108.2 Exemptions – Flagpoles – Some believed that laundry list made it more uniform; some believed that flexibility was better. A number of examples were discussed where counties are split down the middle. Non Consensus (J. Catlett's change) for subjective language. **Consensus to approve F. Castelvecchi's change.**
3. 108.2 Exemptions – Ramps – (temporary ramps for dwelling units). There was support for the concept but opinions that language needs further work/specificity. **Non-consensus for now; proponent should revise to indicate temporary ramps only. Will be carried over to October 11th meeting if revised (submit to DHCD no later than September 20th).**
4. 108.1 and 3411.9.5 Accessible parking – discussion on evolution of change to make it less stringent. Latest proposal reviewed. Will be incorporated in IEBC. **Consensus to approve concept; will be carried over to October 11th meeting for review of suggested revisions.**
5. R311.2.1 Interior door openings. Discussion on changes that need to be made. Rewrite in emails was felt to work better by clarifying the requirement only applies if the rooms are provided. **Consensus to approve J. Catlett's change in concept. Will be carried over to October 11th meeting with preferred language from V. Hodge (in emails attached to supplement) deleting powder rooms and defining main living area.**
6. 1106.3 – Outpatient parking – Revised change exempts medical offices in residences. No agreement on whether medical offices sharing space with other occupants should be exempted. **Non-consensus for now; will be carried over to October 11th meeting with revised change. Code change shown at meeting attached.**
7. 107.1.3 and VADR – Generator fees – Discussion on fee amount, NFPA 70 compliance, 3rd party inspectors. Support for having uniformity. J. Catlett will revise based on discussion. **Consensus to approve if revised. Will be carried over to October 11th meeting if revised (submit to DHCD no later than September 20th).**
8. VADR New Part VIII – Zip lines – **Consensus.**
9. A75D – Certificate of Inspection – displaying – **Consensus to deny.**

10. A200 – Certificate of Inspection – calendar year – **Consensus to deny.**
11. IBSR 13VAC5-91-260 – Clarify if manufacturer can purchase seals – **Consensus to approve.**

USBC VCC

1. IBC 310 – Move IBC 310 into appendix - **proponent has withdrawn. DHCD will address with ICC.**
2. IBC 408.2 – Short term holding areas – lengthy discussion on "main use". There was agreement that language needs further work. Proponent will try to work on revision. **Non-consensus for now; will be carried over to October 11th meeting.**
3. 705.2- Projections – there is some support but agreement that there is missing language. **Non consensus.**
4. 706.5.2 – Horizontal projections - **Non consensus.**
5. 712.1.3 Exit stairway exemption - **Consensus to deny.**
6. 903.2.3 – Group E exemption – change deletes current exception (up to 20,000 sq. feet) and brings back to IBC 12,000 sq. feet threshold. **Consensus to approve.**
7. 903.2.8 – Group R - deletes exception for areas without sufficient water supply. Discussion on ability of domestic potable water supply to support. Lengthy discussion. Many comments so group was asked to state their opinion. Vast majority stated, **"Non-consensus".**
8. N/A
9. 908.7 – Group E CO alarms – This is in response to legislation. **Non-consensus for now; will be carried over to October 11th meeting.**
10. 1008.1.9.7 – Delayed egress locks - Lengthy discussion. Several stakeholders will review for possible revisions. **Non-consensus for now; will be carried over to October 11th meeting if revised (submit to DHCD no later than September 20th).**
11. 1008.1.9.8 Sensor release of electronically controlled delayed egress locks. Discussion on how ICC will be combining language that resulted from two code changes. DHCD will check with ICC to see how it will be correlated. Discussion on requirement of a motion sensor. **Consensus to approve if language matches ICC language from combined changes.**
12. 1016.2.2 Travel distance F and S - discussion on limit. Matches 2015 ICC change. **Consensus to approve.**
13. 1021.1 Exit stairway - Discussion on language being confusing. There was opposition because of the complete rewrite and the need for it to be looked at as a whole. Proponent feels this needs to be looked at from a level of safety that was removed. It was suggested that proponent meet with R. Clements and R. Fortner to review the CTC change in its entirety. **Consensus to deny.**
14. 1403.2 Air barriers - Discussion on air barrier and vapor barrier confusion amongst different building officials. **Consensus to approve if revised; will be carried over to October 11th meeting if revised (submit to DHCD no later than September 20th).**
15. 1403.5 – Water resistance barrier - **Consensus on option one.**
16. 1407.10.4 – Full scale tests (NFPA 285) - **Consensus on option #1. Proponent wants option #4 carried forward to BHCD as an alternative.**
17. 2603.5.5 Vertical and lateral flame propagation - **Consensus on option #1. Option #2 withdrawn. Proponent wants option #3 carried forward to BHCD as an alternative.**
18. 2902.1- Fixture calculations (allows portable toilets) - discussion on how to calculate, accessibility compliance, use of portable toilets when nothing is being built. **Non-consensus.**
19. 3006.4 – Elevator control rooms – rating – **Consensus to approve.**

20. 3412.2.2 – Partial change of occupancy exception – **Withdrawn.**
21. 415.1.1 and 414.6.2 – UST removal – Review and discussion of subgroup work, simply clarifies who and what controls removal of underground tanks, including the requirements of state water control board. Group present is in general consensus. **Consensus to approve in concept but needs further review. Will be carried over to October 11th meeting. Code change shown at meeting attached.**
22. 2306.7.1 E -85 UL listing– **Consensus to approve.**
23. Southern Pine Tables – **Consensus to approve.**
24. USBC/SFPC Section 202 – Nightclubs - IBC Committee does not support proposed or 2015 change. Discussion on necessity to take measures to prevent an event similar to the one in Rhode Island from happening in Virginia. Discussion on need to determine threshold for main use, teen centers that don't allow alcohol (dance floor was left out of definition); Discussion on whether to consider main use or call it mixed use. Sub-group to be convened to review issue. **Non-consensus for now. Will be carried over to October 11th meeting.**
25. IBC/IFC T307.1, IFC 5003.1.1 and T2703.1.1 – Storage of 1.4G Removes footnote "d" - discussion of use of same pyrotechnic material in permissible fireworks. Explanation that 125 lb gross is allowed. If sprinkled, 1,000 lb gross can be allowed. NFPA opposes footnote "d". **Consensus to approve. DHCD placeholder on permissible fireworks will be reviewed at October 11th meeting.**
26. 1203.6 – Smoking in restaurants – Moves language from MOA between DSS and DHCD into USBC construction requirements. Minor revisions suggested. **Consensus to approve unless suggested revisions are submitted.**
27. IBC Chapter 30 – Elevators – IPC 1003.4 Deletes exception separators in hydraulic elevator pits. Discussion on oil separators not being required due to exception. Statements that most buildings have sensors in lieu of separators. **Consensus to deny.**
28. NFPA 45 – Revised code change submitted following sub group meeting. Discussion on purpose to allow laboratories to use their upper level floors for efficiently. Statement that this was looked at thoroughly a few years ago and chapter 5 of the mechanical code is sufficient. Building officials opposed. Discussion on this is being offered as an alternative to building owners because current code is very limited on quantities. Sub group will meet again to review. See attached comment letters. **Non-consensus for now. Will be carried over to October 11th meeting.**

PART TWO OF AGENDA

IRC

1. IRC R311.3.1 - Exterior landing. **Consensus to approve.**
2. IRC R402.2.13 - Mechanical room ventilation. Discussion on difficulty to comply with change. Lack of data to show how much energy would be saved. **Non consensus.** VRC N1102.4.5 – Equipment room isolation. Discussion of unintended consequences. Same lack of data on energy savings. **Non-consensus.**
3. IRC R403.1. - New exception. Footings not required for ramps no more than 30" above grade (R-3 AND R-5) – Support if amended to specify temporary aluminum ramps. **Consensus to approve if amended (submit to DHCD no later than September 20th). Will be carried over to October 11th meeting.**
4. IRC Energy 403.2.2 and 403.2.2.2 – Sealing/Visual Inspection. Requires duct testing. **Consensus to deny.**
5. IRC R403.4.2 and 403.6. M1401.3 – Energy, Equipment, Appliance sizing. Some had an

issue with striking number 3 and would like to put it back in with the words "sufficient to meet the demands" The reason is that large builders using a contract with a specific carrier may only have a 4 or a 5 ton and not a 4 ½. This would permit them to go up to the five to be able to stay with their supplier. ACCA recognized that these issues, and built in the ability for the manufacturer to certify. Will work together and come back with a compromise. **Non-consensus for now. Will be carried forward to October 11th meeting if revised (submit to DHCD no later than September 20th).**
6. IRC R602.3.1- Tall walls. Discussion that this change solves a common problem with tall walls. **Consensus to approve.**
7. IRC R806 - Roof ventilation. **Will be carried over to October 11th meeting.**
8. IRC M1501.2 - Transfer air. Has been revised and will be submitted. **Will be carried over to October 11th for review of revision.**
9. IRC 1503.4 - Makeup air. RM34 was approved and that was an NAHB change and it didn't contain this language. **Non-consensus for now. Will be carried over to the October 11th meeting to consider RM34.**
10. IRC G2411 - CSST standard. Standard is not finalized yet. **This will be carried over to the October 11th meeting.**
11. IRC R507 – Decks. Complete replacement of section. ICC is being asked to create an adhoc committee to study deck specifications. **Non-consensus for now. Will be carried over to the October 11th meeting if revised (submit to DHCD no later than September 20th).**
12. IRC R507.2 and 5067.2.3 – Decks. Three changes. J. Trenary change – nonconsensus. B. Deam (page 193 of packet) – **non-consensus**. B. Deam (page 194 of packet) – **consensus to approve if needed.**
13. IRC 202 - Habitable attic. Leave as is or consider 1/3 floor below. **Non consensus.**
14. IRC E3902.2 - garage GFCI for freezers and garage door openers. HBAV supports. NEMA IAEI opposes. Comments on shock exposure, most garage doors having battery backups. **Non consensus.**
15. IRC Tables for Southern Pine lumber. **Consensus to approve (with correction of noted typo by proponent).**
16. IRC 607.2 – Length of hot water pipe – this should be an IPC change, not IRC. Needs review. **Non-consensus for now. Will be carried over to October 11th meeting for review if revised (submit to DHCD no later than September 20th).**

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 3rd 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 except where such provisions are more restrictive than the VCC for additions, alterations, renovations or repairs.

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. Additionally, depending on the scope of work involved, Sections C101.4.3 and R101.4.3 can be more restrictive than the VCC has traditionally been applied with respect to alterations so the excepting language is included to point out that retrofitting of windows, insulation, etc. is not required where otherwise exempted by language within the VCC.

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-ft² (10.7 W/m²) or 1.0 watt/ft² (10.7 W/m²) 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^2 (10.7 W/m^2) or 1.0 watt/ft^2 (10.7 W/m^2) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space.*

Submittal Information

Date Submitted: November 29, 2012 (revised 1/3/13 and 4/16/13)

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
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: John Catlett

Representing: VBCOA Administrative Code Change Com.

Email Address: john.catlett@ alexandriava.gov

Telephone Number: 703-746-4182

Proposal Information

Code(s) and Section(s): USBC, Virginia Construction Code Section 1106.3 **Option 1 (b)**

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.

Exceptions:

1.Medical facilities/offices located within strip malls, or sharing a common parking area with non-medical commercial businesses.
2. Medical offices located in residence of the service provider.

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

The VBCOA Administrative Provisions Committee generally supported Option 1. However, two minor changes are needed.

The first is to format the change consistent with standard code language by providing exceptions vs. exemptions.

The second is to apply the exception to home based practices that have small Parking Facilities associated with their practices.

Remaining justifications provided in Option 1 remain.

*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: August 12, 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
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: George Hollingsworth Representing: Fairfax County

Mailing Address: 10700 Page Avenue, Fairfax, Virginia 22030

Email Address: George.hollingsworth@fairfaxcounty.gov Telephone Number: 703-228-3848

Proposal Information

Code(s) and Section(s): 2012 VCC and 2012 SFPC

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

Delete Section 415.1.1 of the VCC and add Section 414.6.2 to the IBC (as part of the VCC) to read as follows:

~~415.1.1 Flammable and combustible liquids. Notwithstanding the provisions of this chapter, the storage, handling, processing, and transporting of flammable and combustible liquids shall be in accordance with the mechanical code and the fire code listed in Chapter 35 of this code. Regulations governing the installation, repair, upgrade, and closure of underground and aboveground storage tanks under the Virginia State Water Control Board regulations 9 VAC 25-91 and 9 VAC 25-580 are adopted and incorporated by reference to be an enforceable part of this code. Where differences occur between the provisions of this code and the incorporated provisions of the State Water Control Board regulations, the provisions of the State Water Control Board regulations shall apply.~~

414.6.2 Other regulations. The installation, repair, upgrade and closure of underground and aboveground storage tanks subject to the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580 shall be governed by those regulations, which are hereby incorporated by reference to be an enforceable part of this code. Where differences occur between the provisions of this code and the incorporated provisions of the State Water Control Board regulations, the provisions of the State Water Control Board regulations shall apply. Provisions of the International Fire Code addressing closure of such tanks which are subject to the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580 shall not be applicable.

Add Section 5701.1.1 to the IFC (as part of the SFPC) to read as follows:

5701.1.1 Other regulations. Provisions of the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580 addressing the maintenance and operational aspects of underground and aboveground storage tanks subject to those regulations are hereby incorporated by reference to be an enforceable part of this code. Where differences occur between the provisions of this code and the incorporated provisions of the State Water Control Board regulations, the provisions of the State Water Control Board regulations shall apply.

Note: For requirements for the installation, repair, upgrade and closure of such tanks, see Section 414.6.2 of the Virginia Construction Code.

Add the following exception to Section 5704.2.13.1.3 of the IFC (as part of the SFPC) to read:

Exception- : Underground storage tanks subject to the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580.

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

This proposal rewords the provision of the VCC for the incorporation of the State Water Control Board's regulations for underground and aboveground fuel tanks moving it to a more appropriate section of the International Building Code and clarifying that the requirements for the closure of such tanks are limited to only those requirements in the State Water Control Board's regulations.

The changes to the SFPC will direct Fire Marshals and Fire Inspector to 9VAC25-91 and 9VAC25-58 to determine the State Water Control Board's authority before enforcing the SFPC.

The proposal is the result of a sub-workgroup meeting for tanks facilitated by the Department of Housing and Community Development during the 2012 code change process which reviewed both the supplemental information provided in the Department's Related Laws Package and the existing code provisions for tanks. The sub-workgroup members were from both fire and building code enforcement departments and from the tank industry.

Submittal Information

Date Submitted: 7/29/2013

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 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

Environmental Health & Safety Office

GEORGE MASON UNIVERSITY

August 19, 2013

Ron Reynolds, MPA, MPH, CBO, CFO
Deputy, State Fire Marshal's Office
1005 Technology Park Drive
Glen Allen, VA 23059
Office 804-612-7268
Fax 804-371-3367

Re: NFPA 45 Code Change Proposals for Laboratories - 2012 Building and Fire Codes

Mr. Reynolds,

The incorporation of NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals as an alternative, or exception, to the VCC requirements for the handling, storage, and use of hazardous materials is strongly desired by George Mason University due to the age of our buildings and activities conducted therein. Many of our buildings were constructed prior to the development of the control area concept and are therefore not designed to incorporate multiple control areas, especially in buildings with three or more stories.

At George Mason University we conduct routine inspections of laboratories and enforce, to the extent possible, the storage of hazardous chemicals in accordance with the Virginia Statewide Fire Prevention Code. In rare cases laboratories may exceed MAQ due to the construction date of campus buildings and the institutions focus on research and laboratory instruction. University laboratories that do or have the potential to exceed MAQ are sprinklered and provided flammable storage cabinets. In our professional assessment the adoption of NFPA 45 will continue to maintain a high standard of safety that can mitigate fires to the same extent that the current code attempts to achieve while allowing flexibility for unique activities such as research and teaching in university settings.

We support the State Fire Marshalls Office's request to incorporate NFPA 45 into the VCC on the grounds that it will be mutually beneficially for all parties concerned and allow a regulated, safe, and practical alternative to the burden of the current regulatory requirement. If I can be of any further assistance with regard to this matter please feel free to contact me at your convenience.

Respectfully,

David Farris, MBA, CHMM
Director Emergency Management and Fire Safety

From: Dillman, Robert P [mailto:dillman@wm.edu]
Sent: Tuesday, August 06, 2013 3:55 PM
To: 'Mays, Delphine (daa3x)'; gdean@dhcd.state.va.us; Gall, Elaine (ebg5x); Gerald Drumheller (gerald@virginia.edu); hinson@vt.edu; Allen, Ralph (roa2s); Reynolds, Ron (VDFP)
Cc: Dillman, Robert P; Rudloff, David W
Subject: RE: NFPA 45 Code Change Proposal Meeting

I received a call from Gerald Drumheller about this issue. I support incorporating the portions of NFPA 45 into the Code that would give Fire Marshals, Building Officials and EH&S folks more latitude with respect to quantities of flammables and combustibles.

Bob Dillman

(William & Mary Building Official)

UVA Bullets Supporting NFPA 45

NFPA 45 provides a mechanism to control behavior and regulate chemicals in a manner that allows for quantities/density of chemicals needed for research methodology while maintaining a safe environment.

NFPA 45 looks at density of chemicals while allowing quantity levels needed in current (today's) research environment.

Several of our facilities were built prior to the development and implementation of the control area concept. The current fire code, if applied to existing facilities, would preclude and eliminate (shut down) research in many facilities that have always been utilized for research.

NFPA 45 was created specifically for laboratories by professionals. NFPA 45 was designed to achieve comprehensive laboratory fire prevention and protection to occupants and emergency personnel. NFPA 45 allows for the safe use of chemicals while not serving as an impediment to research.

University has a firm commitment to training and safe lab practices. Lab Safety Group coupled with the Fire Safety group performs inspections and lab visitations coupled with educational programs for lab personnel.

UVA has developed a "Sign Database" that tracks and indicates the type and amount of chemicals that are in the labs. Each lab has signage that indicates the classification of the lab, hazards, etc. This is a great tool for emergency response crews if they are called for an incident in a lab. UVA works closely with the Charlottesville Fire Department to insure they are educated to the fire risks in laboratories, coordinate emergency responses and guidelines, offer technical expertise during incidents, etc.

Gerald Drumheller

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