

2021 Code Change Training

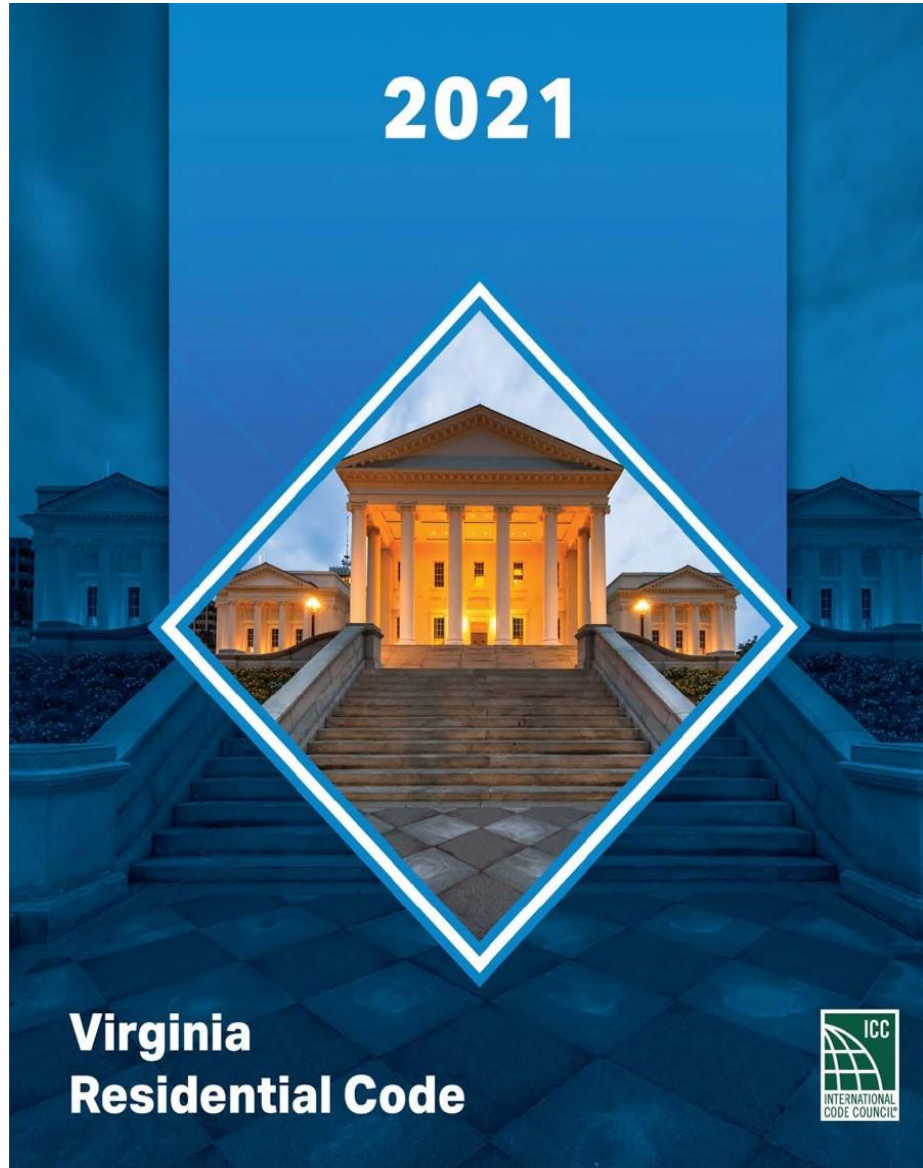
2021 Virginia Residential Code (VRC)

Significant International Changes and
State Amendments



Agenda

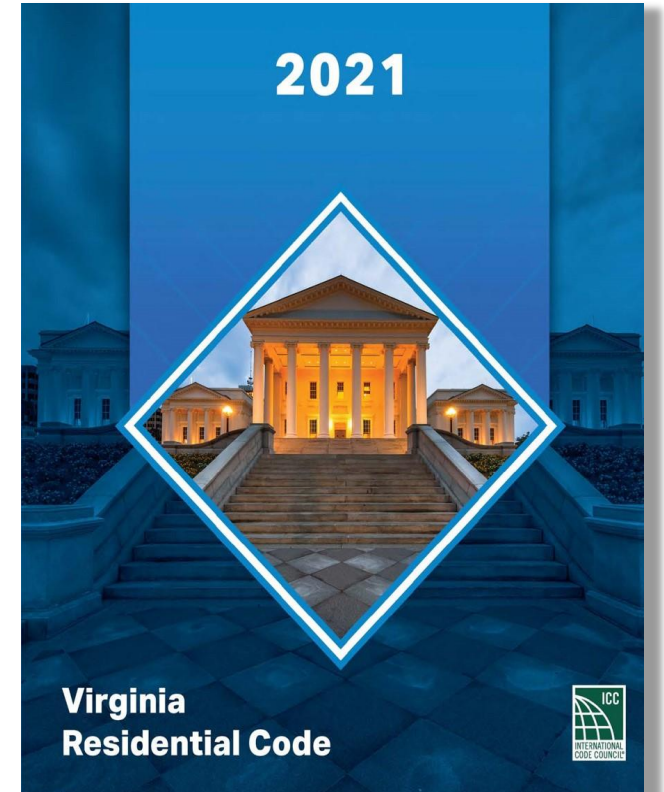
- We'll cover the most significant Virginia Residential Code (VRC) changes.
- The most impactful changes to building, energy, mechanical, fuel gas, plumbing and electrical requirements are discussed.
- Only about **115 out of over 600 total changes** are discussed here, therefore you are strongly encouraged to review the many other changes not included in this training.
- The Virginia icon shown here is used to call your attention to VA amendments.



The Virginia USBC Amendments and the IRC are Combined to Create the Virginia Residential Code (VRC)



All Virginia Amendments to the 2021 IRC



Change types



Addition



Deletion



Modification



Clarification

Course Objectives

- Upon completion of this course, you will be better able to:
 - Identify the differences between 2018 VRC and 2021 VRC.
 - Determine if the change is an addition, deletion, modification or clarification.
 - Identify changes in format and technical requirements.
 - Explain the intent and application of the changes.

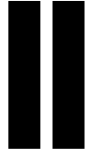
Course Overview

Chapter 2	• Definitions
Chapters 3 – 9	• Building
Chapter 11	• Energy
Chapters 12 – 23	• Mechanical
Chapter 24	• Fuel Gas
Chapters 25 – 33	• Plumbing
Chapters 34 – 43	• Electrical
Appendices AF and AW	• Radon and 3D Printed Construction

Selection of Topics

- Provisions addressed based primarily on:
 - Life/Safety impact
 - Frequency of application
 - Special significance
 - Change in application

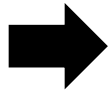
Marginal Markings within the VRC – Physical Books



- **DOUBLE vertical lines** in the margin within the body of the code indicates a **Virginia Amendment**



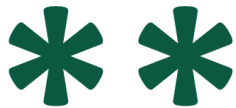
- **A single Solid vertical line** in the margin within the body of the code indicates a technical change from the requirements of the 2018 International Residential code.



- **Deletion indicators in the form of an arrow** are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.




- **A single asterisk** [*] placed in the margin indicates that text or a table has been relocated within the code.



- **A double asterisk** [**] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code.

Marginal Markings within the VRC – Digital

- Virginia Specific Amendments in RED
- Changes from the 2018 International Residential Code in BLUE
-  • Deletions marked with the arrow

Chapter 2

Definitions

Initials before each definition indicate the code development committee responsible for the definition:

[RB] = IRC – Building Code Development
Committee

[RE] = International Residential Energy
Conservation Code Development Committee

[MP] = IRC – Mechanical / Plumbing Code
Development Committee

2021



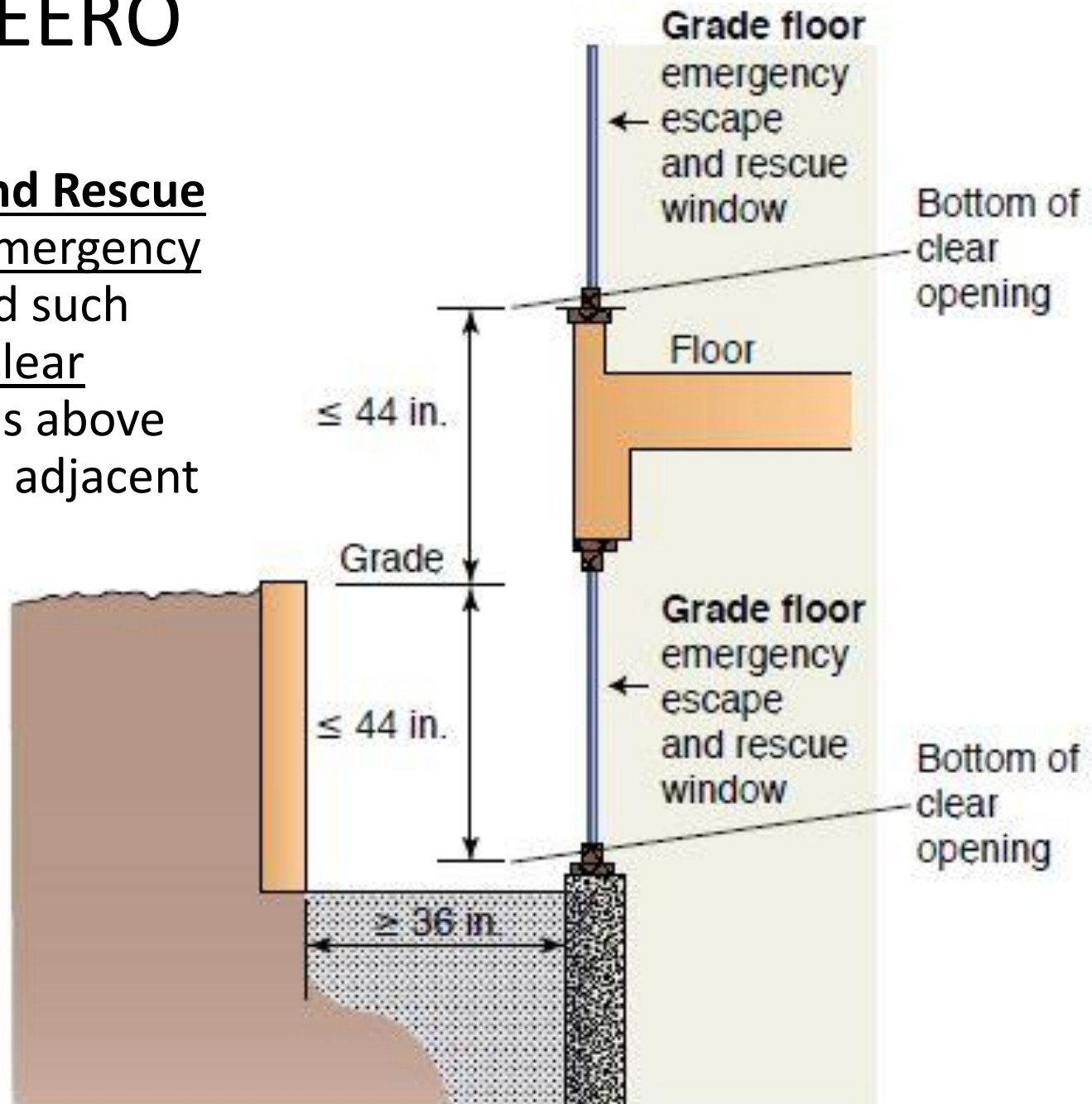
**Virginia
Residential Code**





R202 [RB] Grade Floor EERO

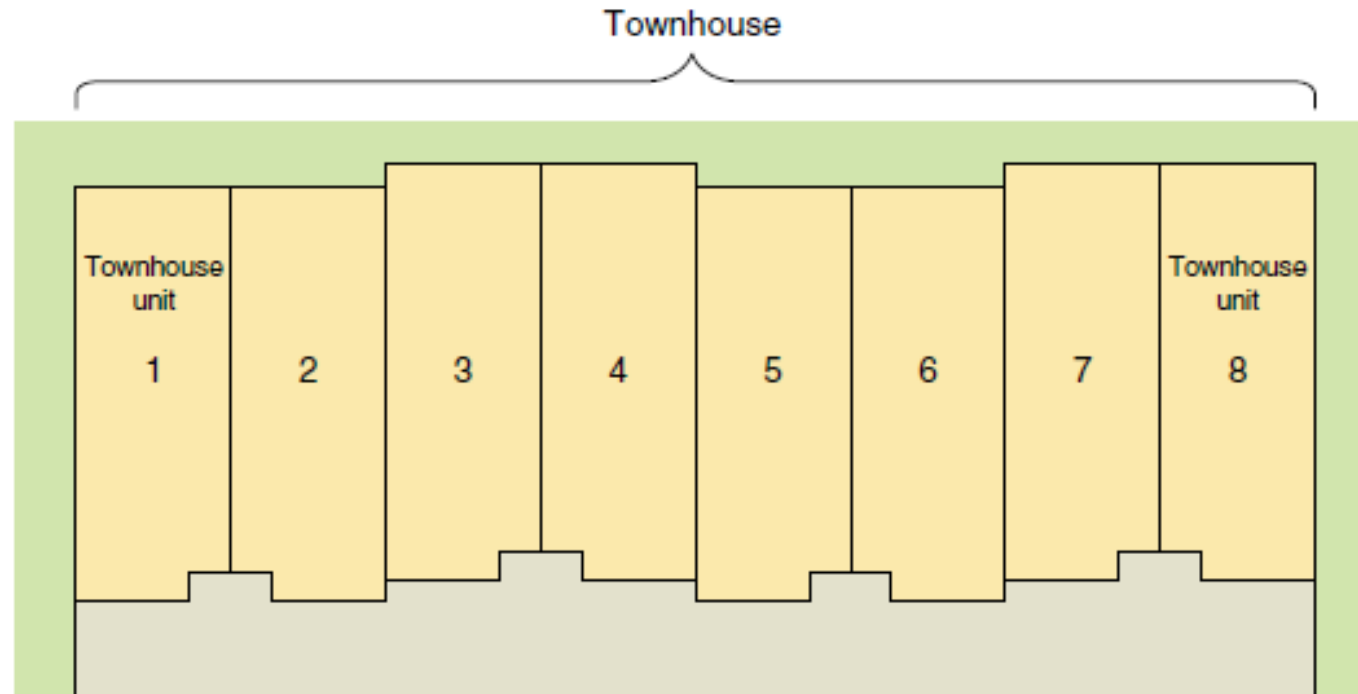
- **Grade Floor Emergency Escape And Rescue Opening.** ~~A window or other~~ An emergency escape and rescue opening located such that the ~~sill height~~ bottom of the clear opening is not more than 44 inches above or below the finished ground level adjacent to the opening.





R202 [RB]Townhouse and [RB]Townhouse Unit

- **TOWNHOUSE.** Building that contains three or more attached townhouse units.
- **TOWNHOUSE UNIT.** A single-family dwelling unit in a townhouse that extends from foundation to roof and that has a yard or public way on not less than two sides.



2021

Chapter 3

Loads

**Virginia
Residential Code**





R301.1.4 Intermodal Shipping Containers

- Provisions for construction with intermodal shipping containers are added to the VRC/IRC by referencing the **structural provisions of new VCC/IBC Section 3115**
- **Additionally, ICC G5 is available for guidance – *Guideline for the Safe Use of ISO Shipping Containers Repurposed as Buildings and Building Components.***



301.1.4 Intermodal shipping containers. Intermodal shipping containers that are repurposed for use as buildings or structures shall be designed in accordance with the structural provisions in Section 3115 of the International Building Code.

OVERVIEW - IBC/VCC SECTION 3115 (not all subsections shown)

SECTION 3115 INTERMODAL SHIPPING CONTAINERS

3115.8 Structural.

3115.8.1 Foundations

3115.8.2 Welds.

3115.8.3 Structural design.

3115.8.4 Detailed design procedure.

3115.8.5 Simplified structural design of single-unit containers.

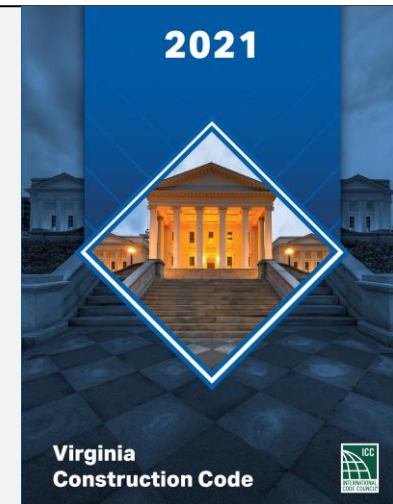
Table 3115.8.5.3 allowable shear values for intermodal shipping container corrugated steel walls for wind or seismic loading

Figure 3115.8.5.3(1) bracing unit distribution—maximum linear length

Figure 3115.8.5.3(2) bracing unit distribution—minimum linear length

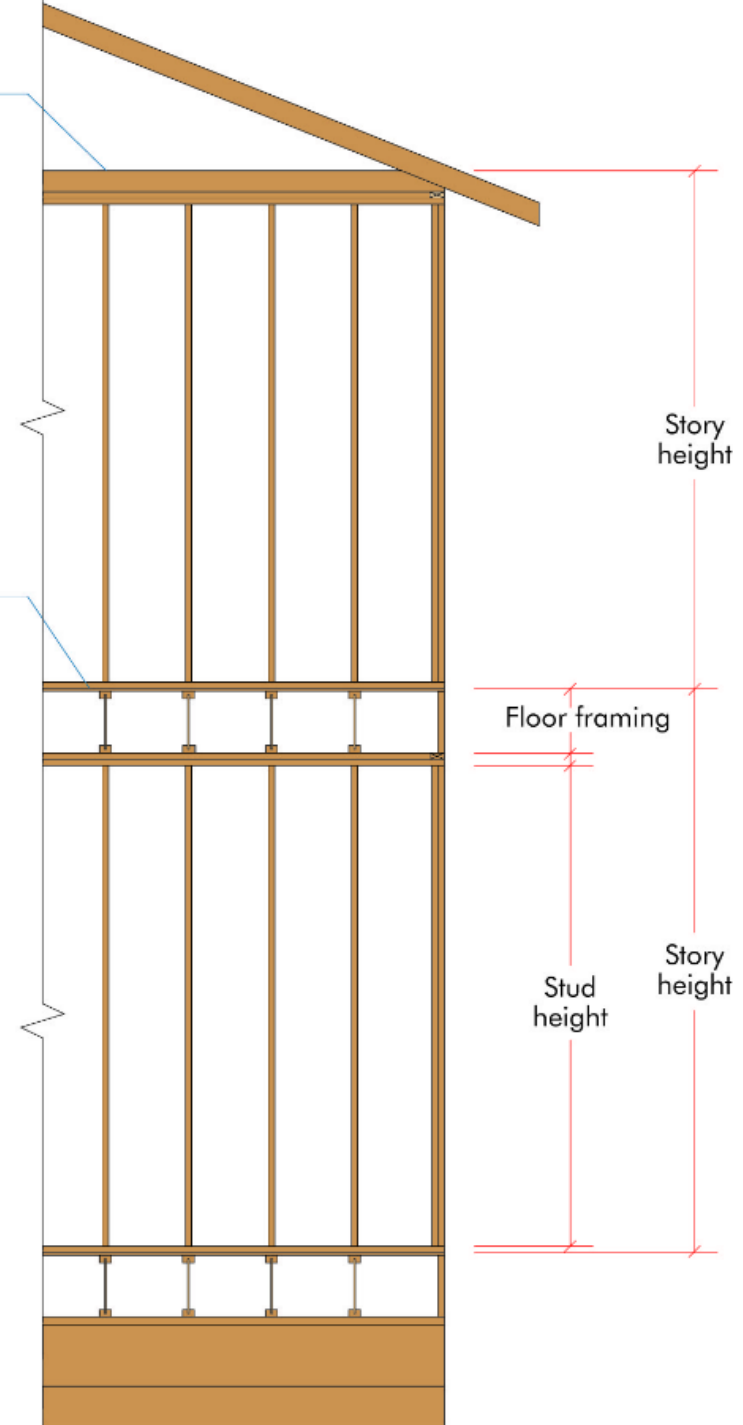
Figure 3115.8.5.3(3) bracing unit distribution—boundary elements

Figure 3115.8.5.3(4) bracing unit distribution—penetration limitations





R301.3 Story Height

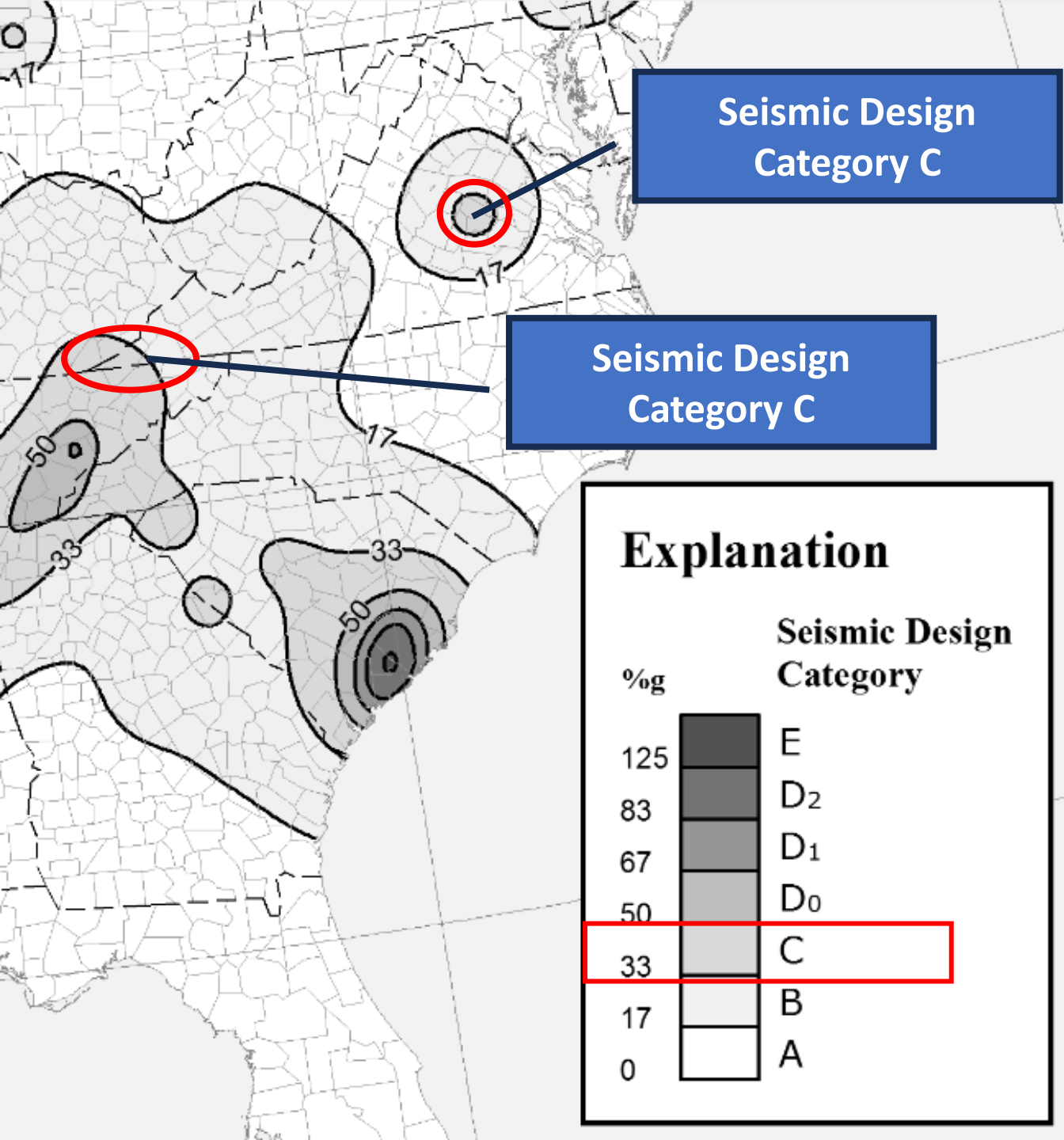


- Maximum story height for wood wall framing is 13 feet 7 inches when the exception requirements are met.



R301.3 Story Height

Load	Stud Height (feet)		
	$\leq 10'$	$> 10'$ to $\leq 12'$	$> 12'$
Load Bearing Studs	No engineering required	Engineering required unless an exception in Section R602.3.1 is met: <ul style="list-style-type: none">• Exc. 2 – snow load and tributary length limit• Exc. 3 – snow load and span limits, only Exp B	Engineering always required
Non-loadbearing Studs	No engineering required	No engineering required for 2x4 and larger studs	Engineering required unless limits of Table R602.3(5) are met



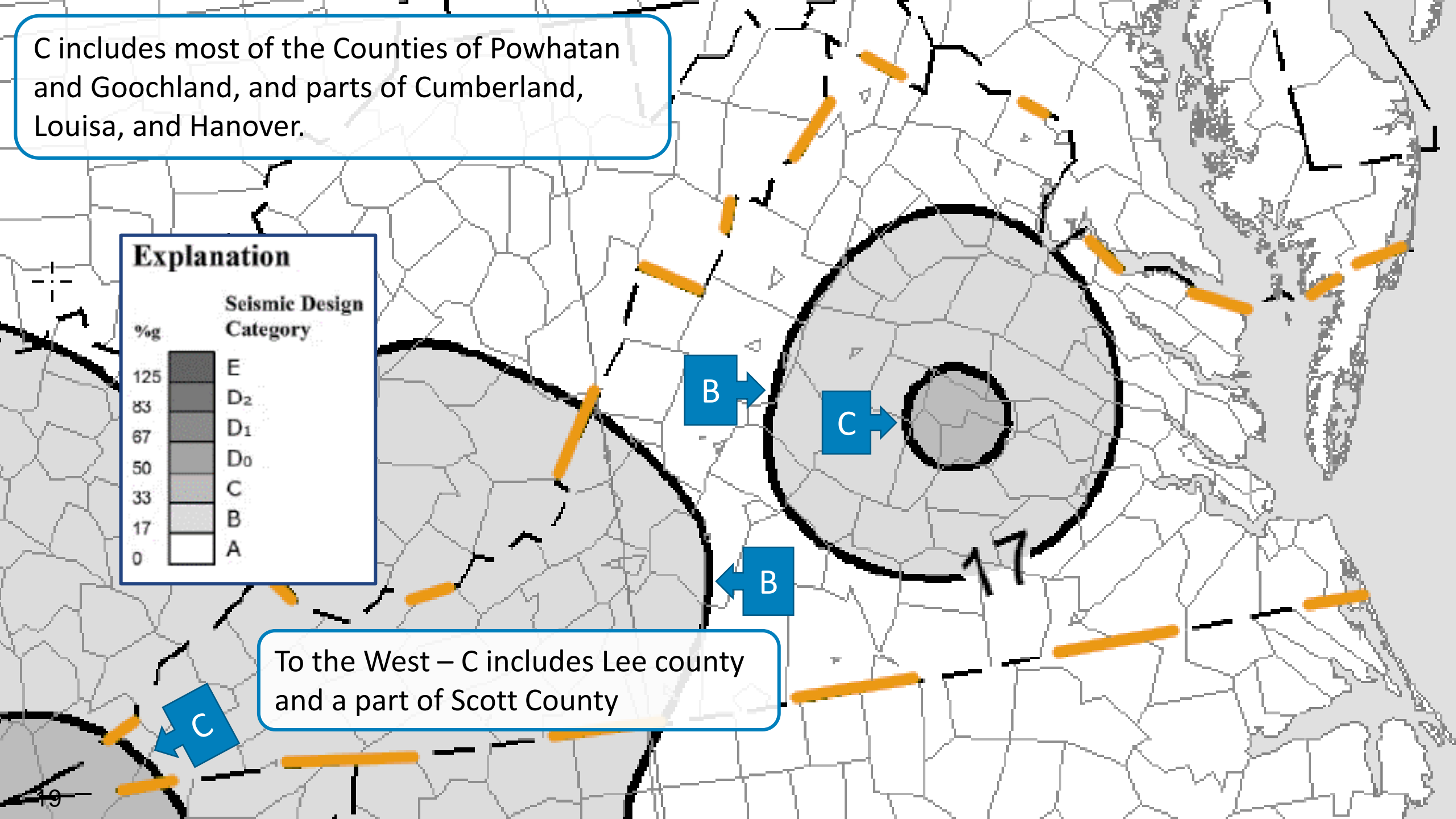
The following changes apply to **Seismic Design Category C areas only**

From FIGURE R301.2.2.1(6)
**SEISMIC DESIGN CATEGORIES—
 UNITED STATES^a**

C includes most of the Counties of Powhatan and Goochland, and parts of Cumberland, Louisa, and Hanover.

Explanation	
%g	Seismic Design Category
125	E
83	D ₂
67	D ₁
50	D ₀
33	C
17	B
0	A

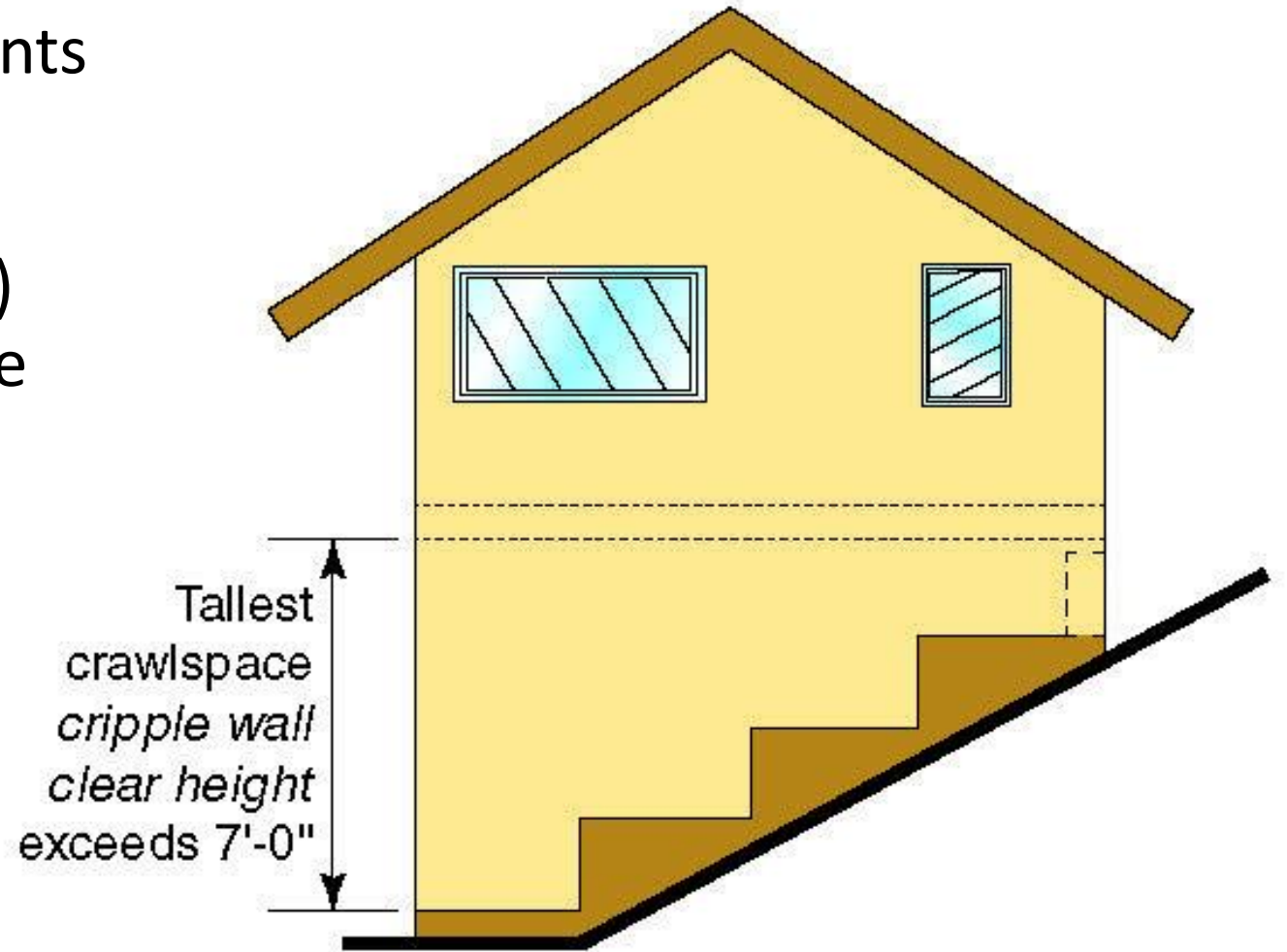
To the West – C includes Lee county and a part of Scott County





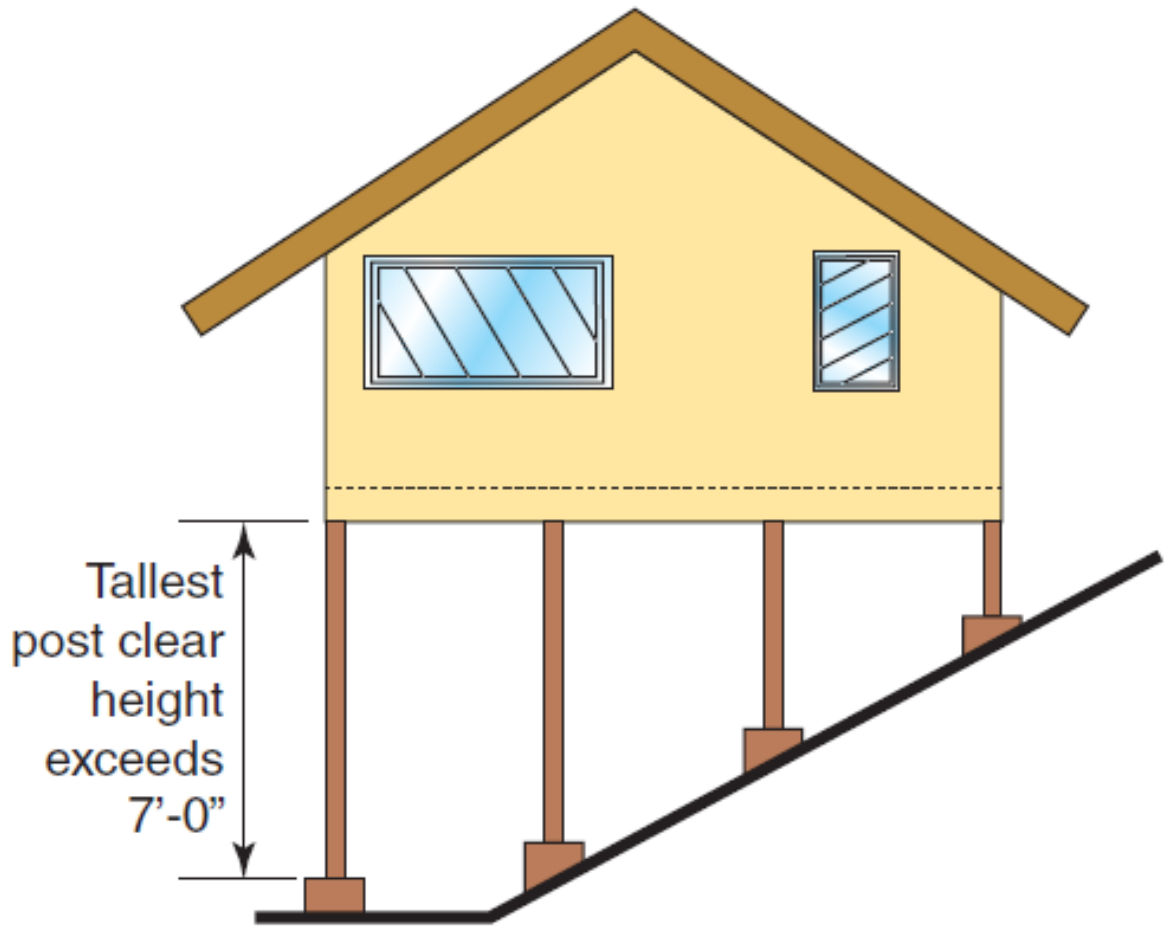
R301.2.2.6 Irregular Buildings Item 8

- Irregular building requirements for homes in high seismic regions (Seismic Design Categories **C**, D0, D1 and D2) now include limits for hillside light-frame construction.





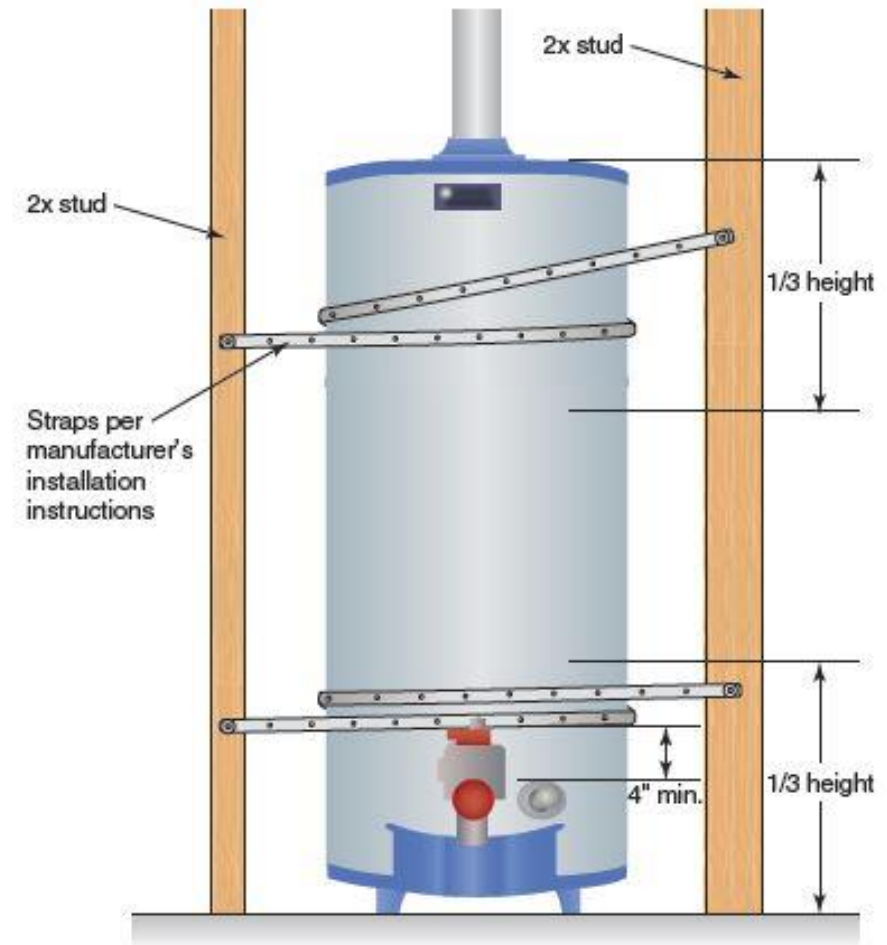
R301.2.2.6 Irregular Buildings Item 8, cont'd



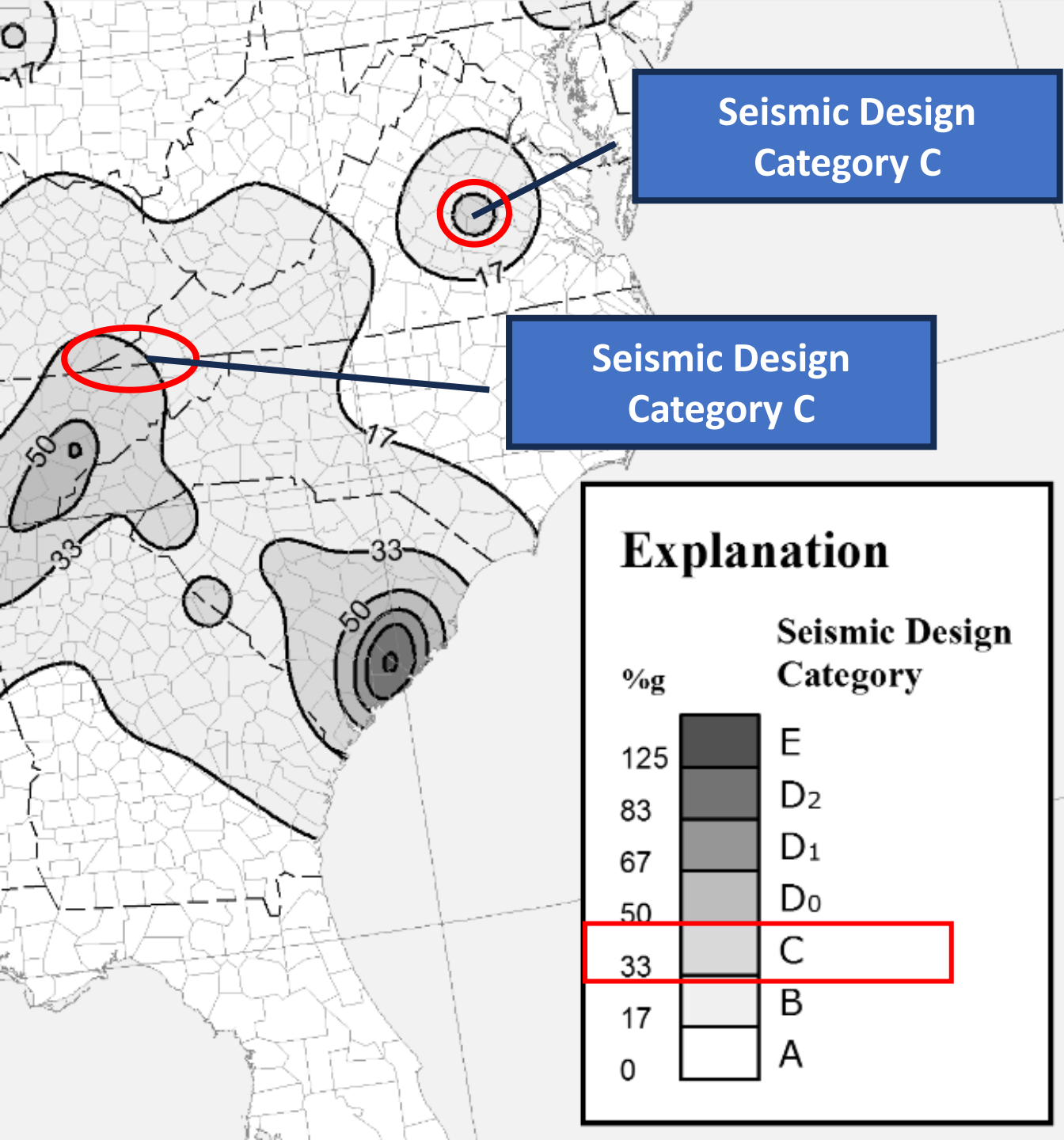


R301.2.2.10 Anchorage of Water Heaters

- Water heaters and thermal storage units in **Townhouses in Seismic Design Categories C** must be anchored.



Anchorage of water heater



(End of Seismic Design Category C Specific Changes)

2021

Chapter 3

Life Safety

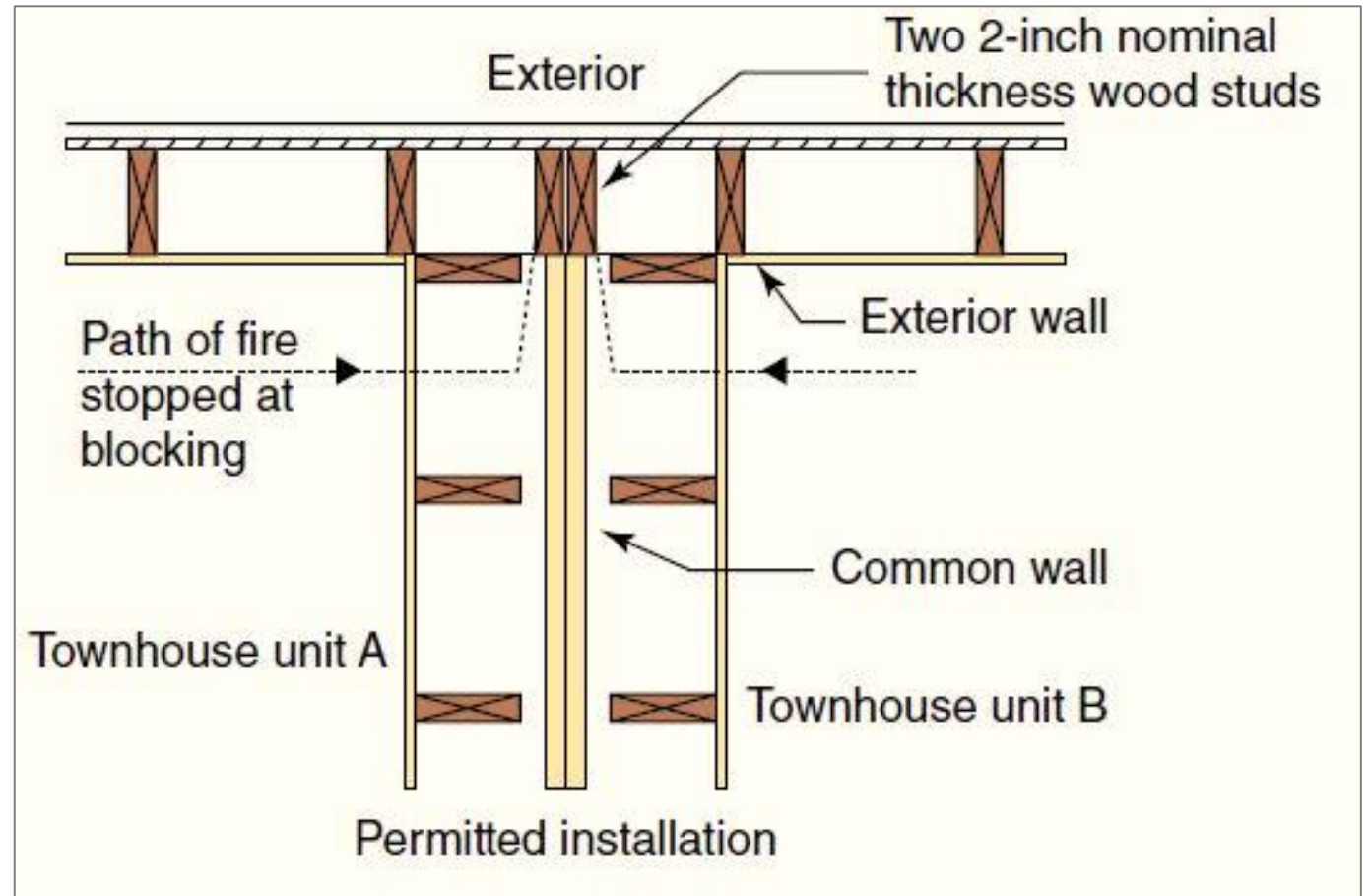
**Virginia
Residential Code**





R302.2 Townhouse Common Wall

- Common walls separating townhouses can terminate at the inside of exterior walls:
 - Two 2 in. studs as fireblocking





R303.1 Mechanical Ventilation

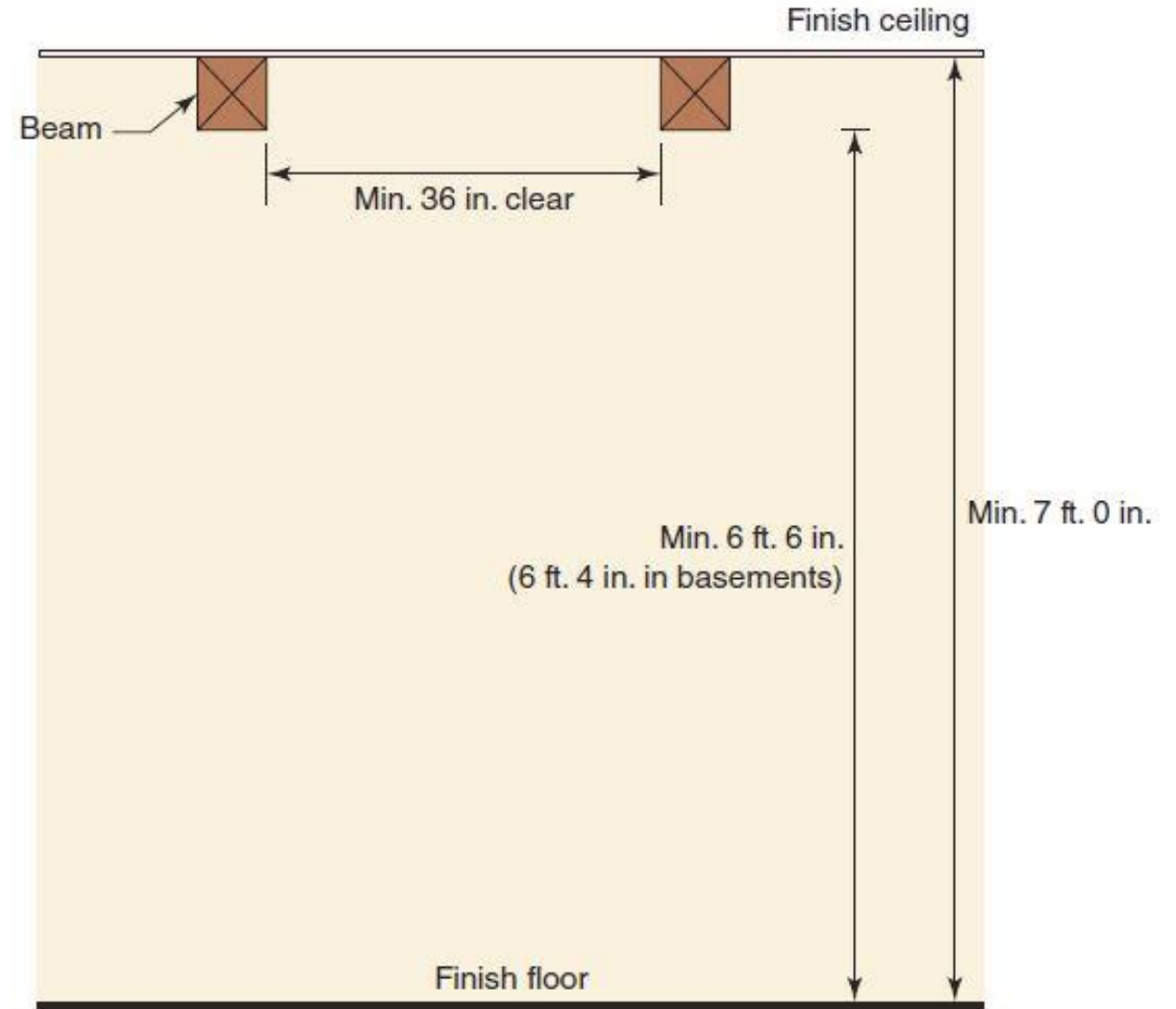
- Whole-house mechanical ventilation system or a mechanical ventilation system capable of producing 0.35 ACH in habitable rooms.
- A local exhaust system is an acceptable substitute for natural ventilation in kitchens.





R305.1 Ceiling Height

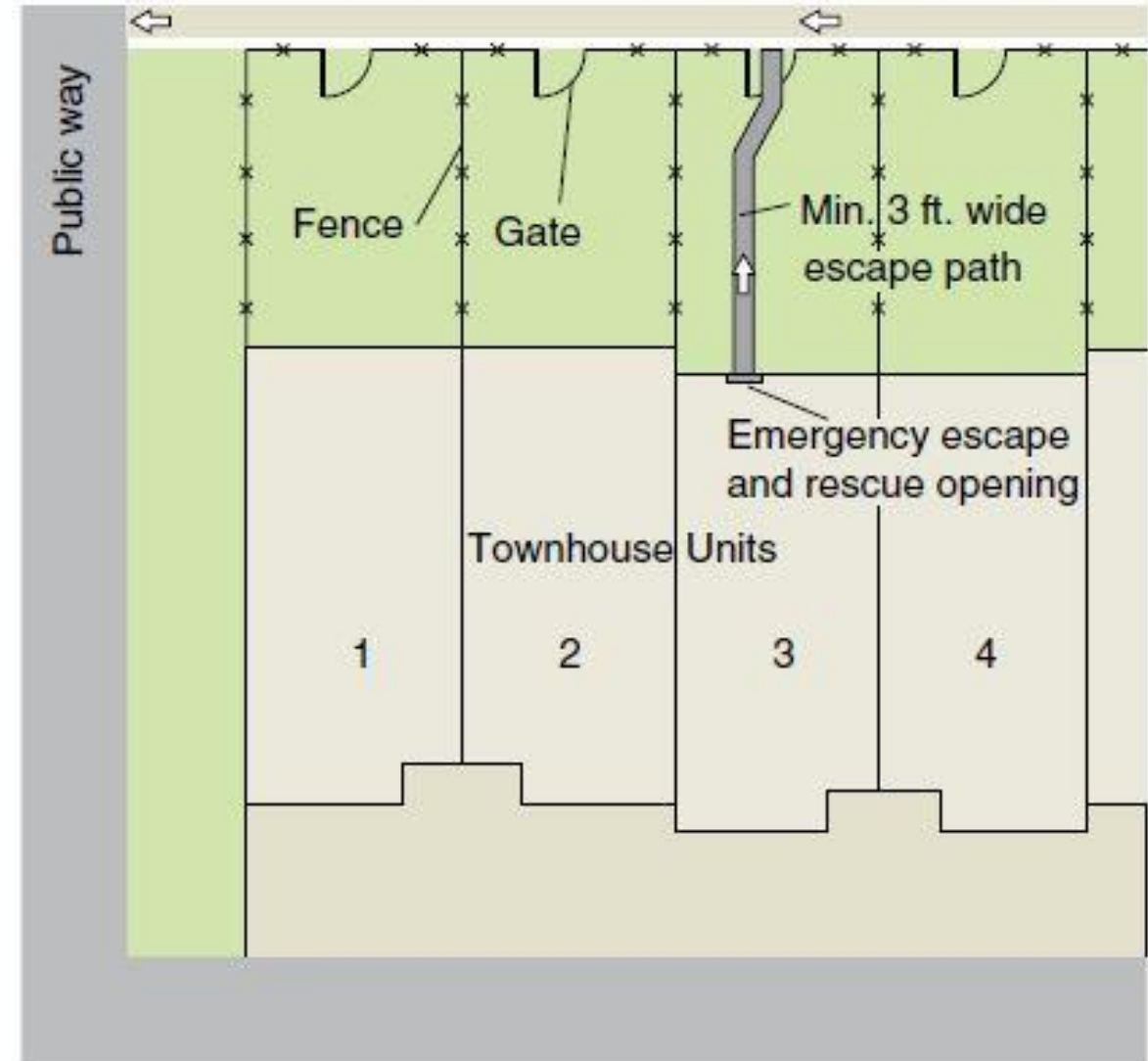
- Minimum ceiling height is reduced to 6 ft. 6 in. under beams spaced at least 36 in. apart.





R310.1 Emergency Escape and Rescue Opening Required

- Emergency escape and rescue openings require an unobstructed 36-inch-wide path to a public way.
- Operation requirements have been clarified.

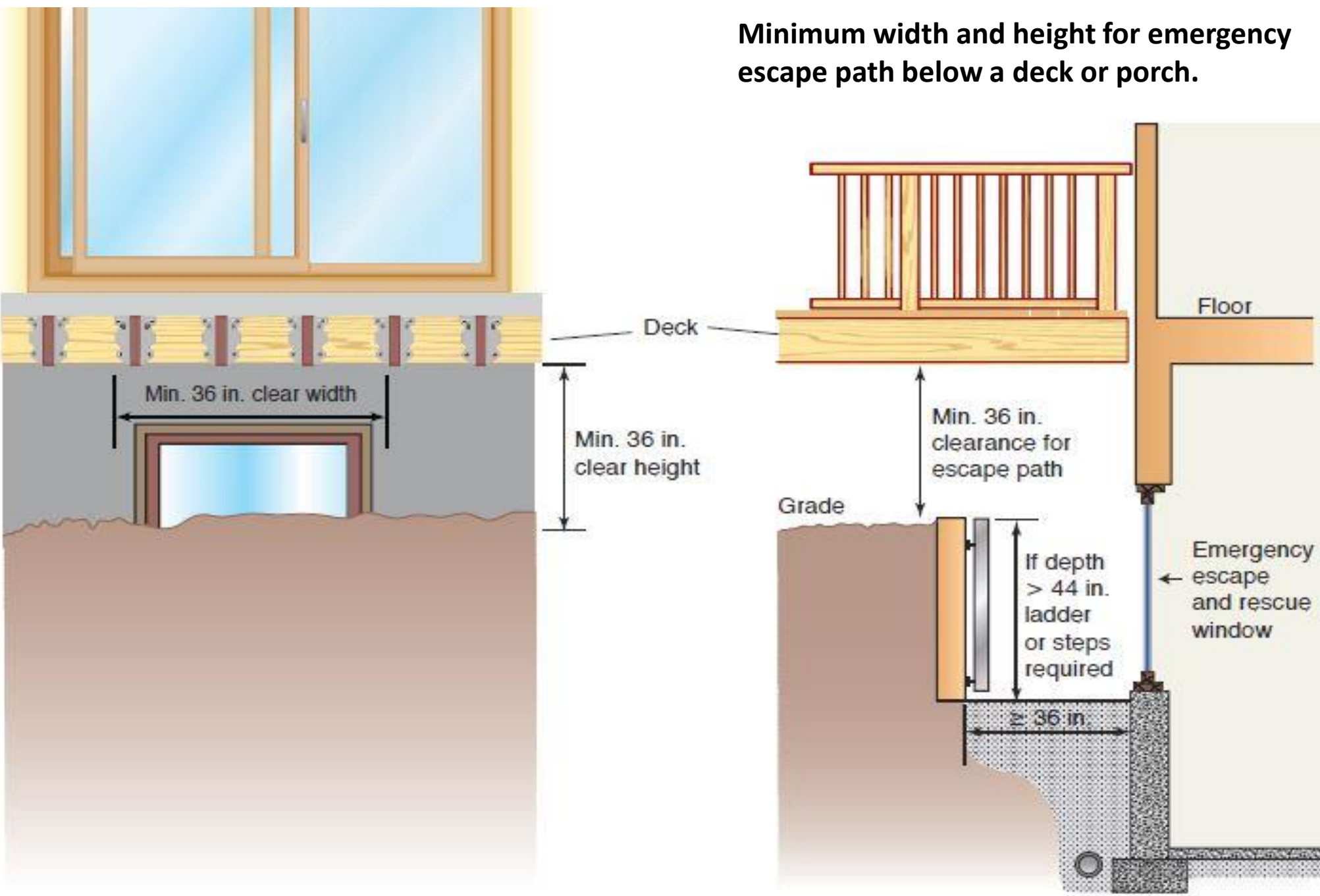




R310.2.4 Emergency Escape and Rescue Openings

- Emergency escape openings under decks, porches and cantilevers require a path not less than 36 in. in height and 36 in. in width.

Minimum width and height for emergency escape path below a deck or porch.



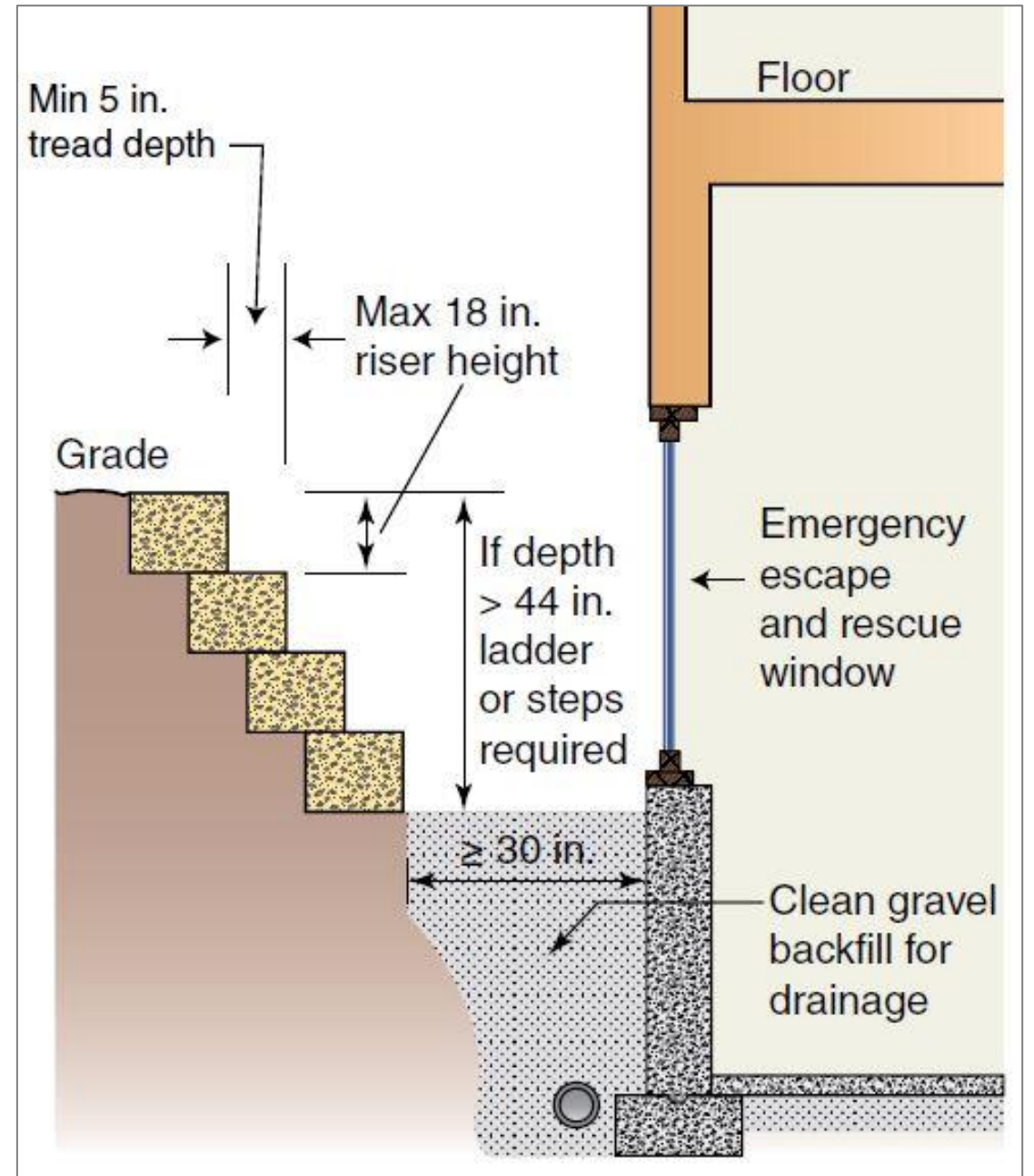
Section at deck facing house

Cross section of area well below deck



R310.3, R310.4 Area Wells for EERO

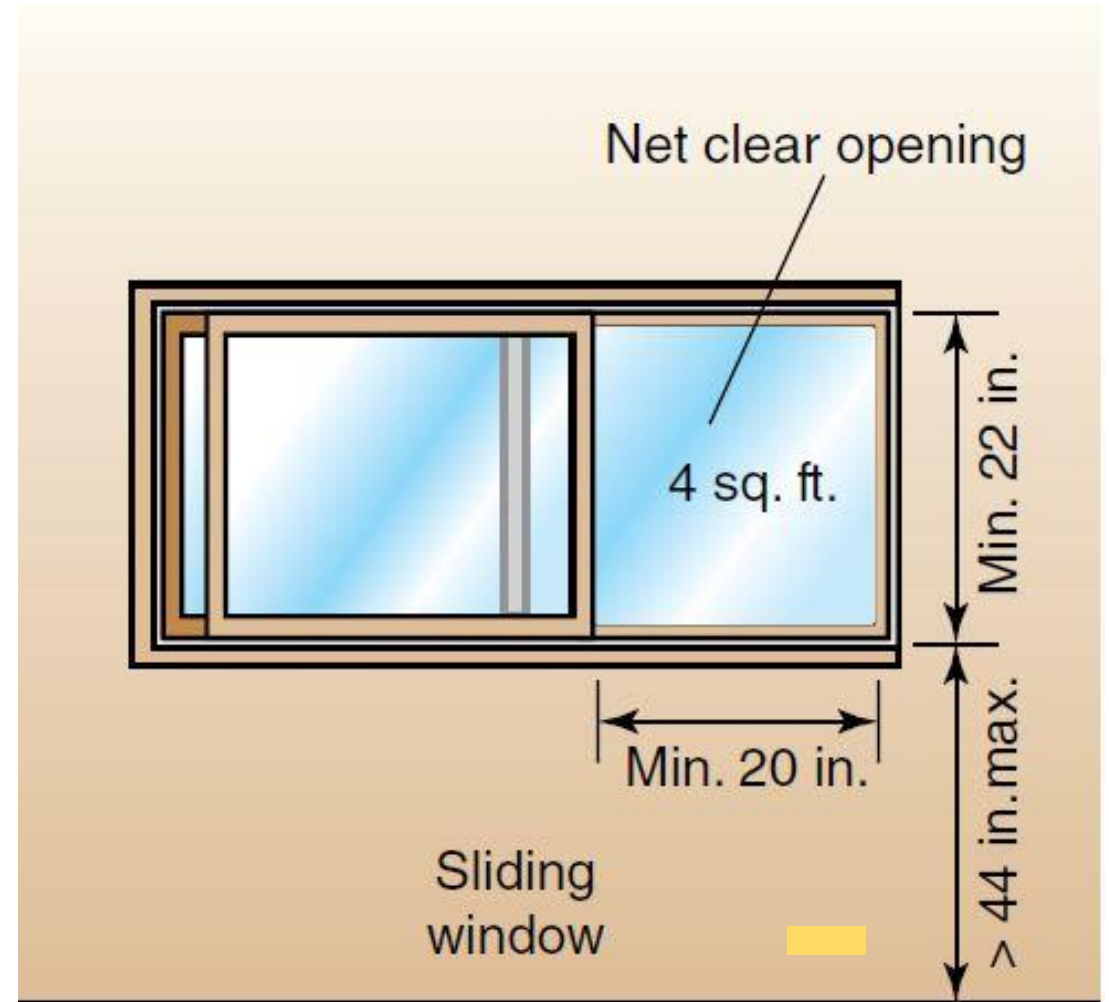
- Window wells and area wells are merged into area wells.
- Dimensions are given for steps:
 - 5 in. tread
 - 18 in. rise
 - 12 in. width



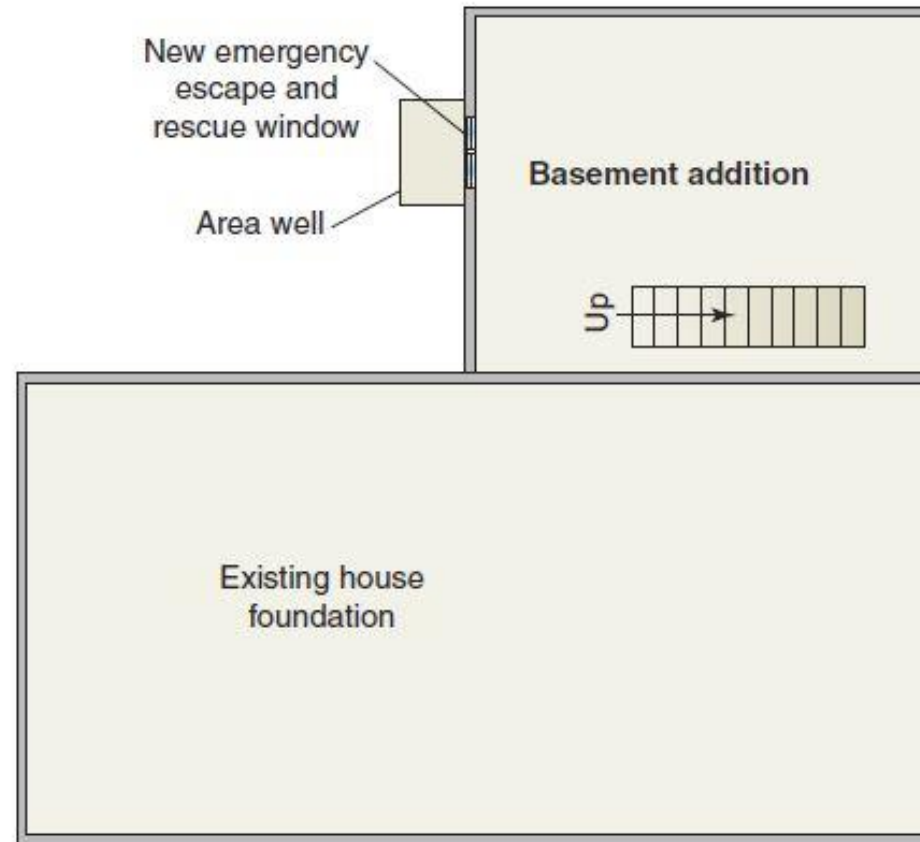
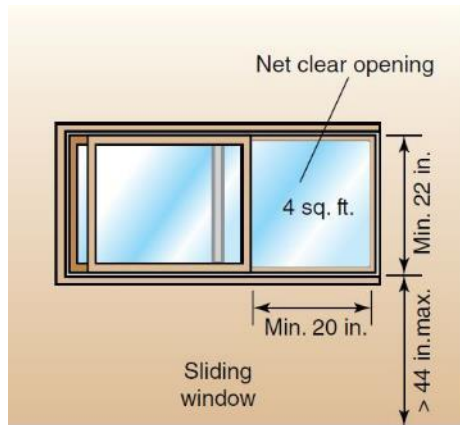


R310.5, R310.6, R310.7 EERO in Existing Buildings

- 4 sq. ft. clear opening for EERO is acceptable for:
 - Basement remodel
 - Basement addition
 - Change of occupancy

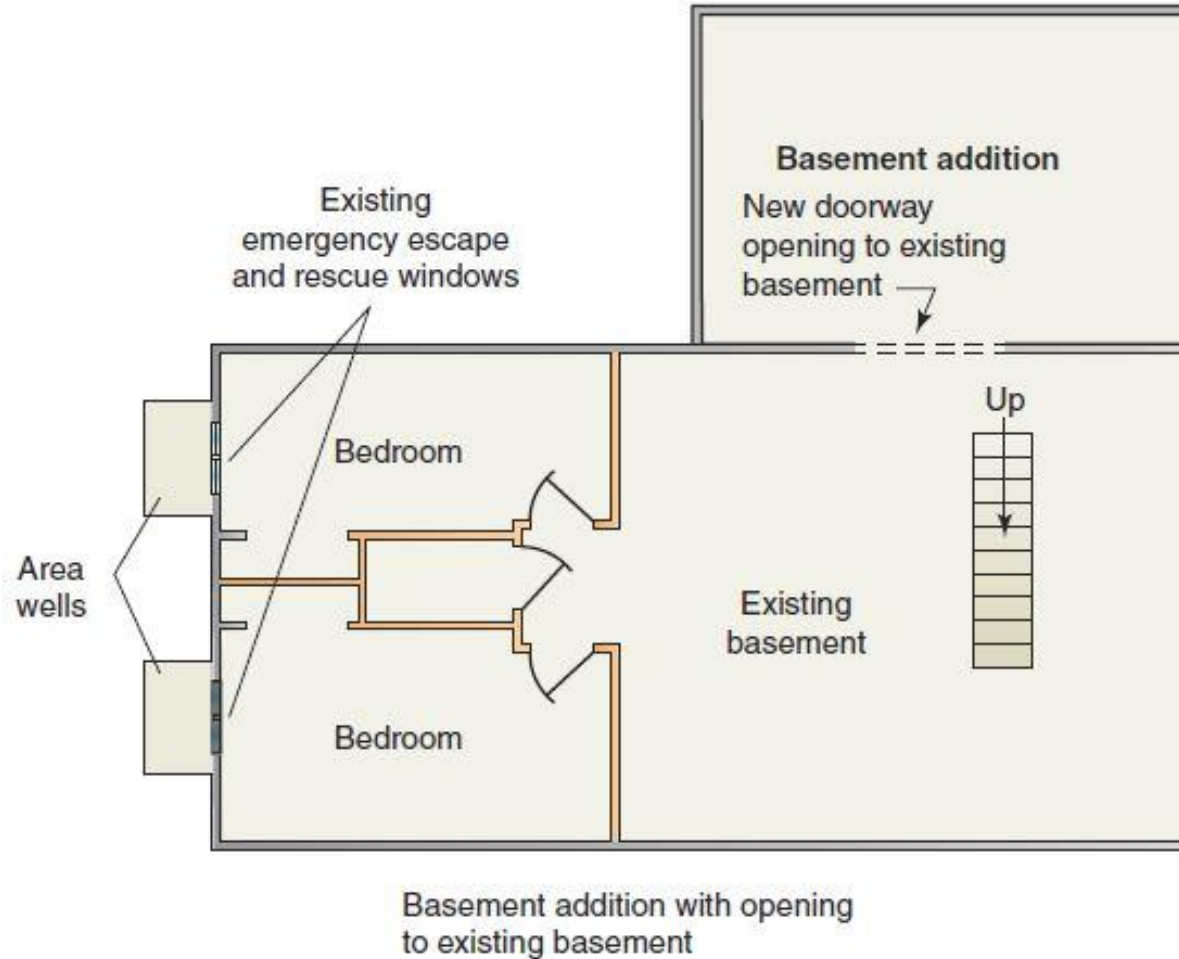
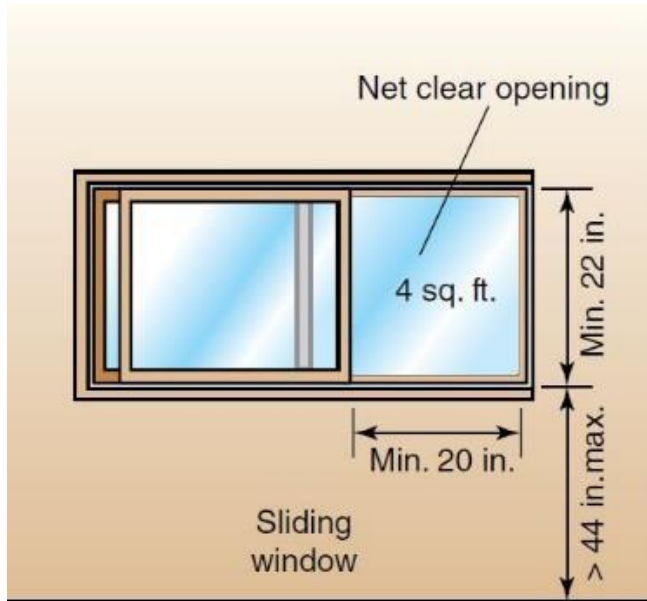


R310.5, R310.6, R310.7 EERO in Existing Buildings (continued)



Basement addition with required emergency escape and rescue opening

R310.5, R310.6, R310.7 EERO in Existing Buildings (continued)





R311.7, R311.8 Stairways and Ramps

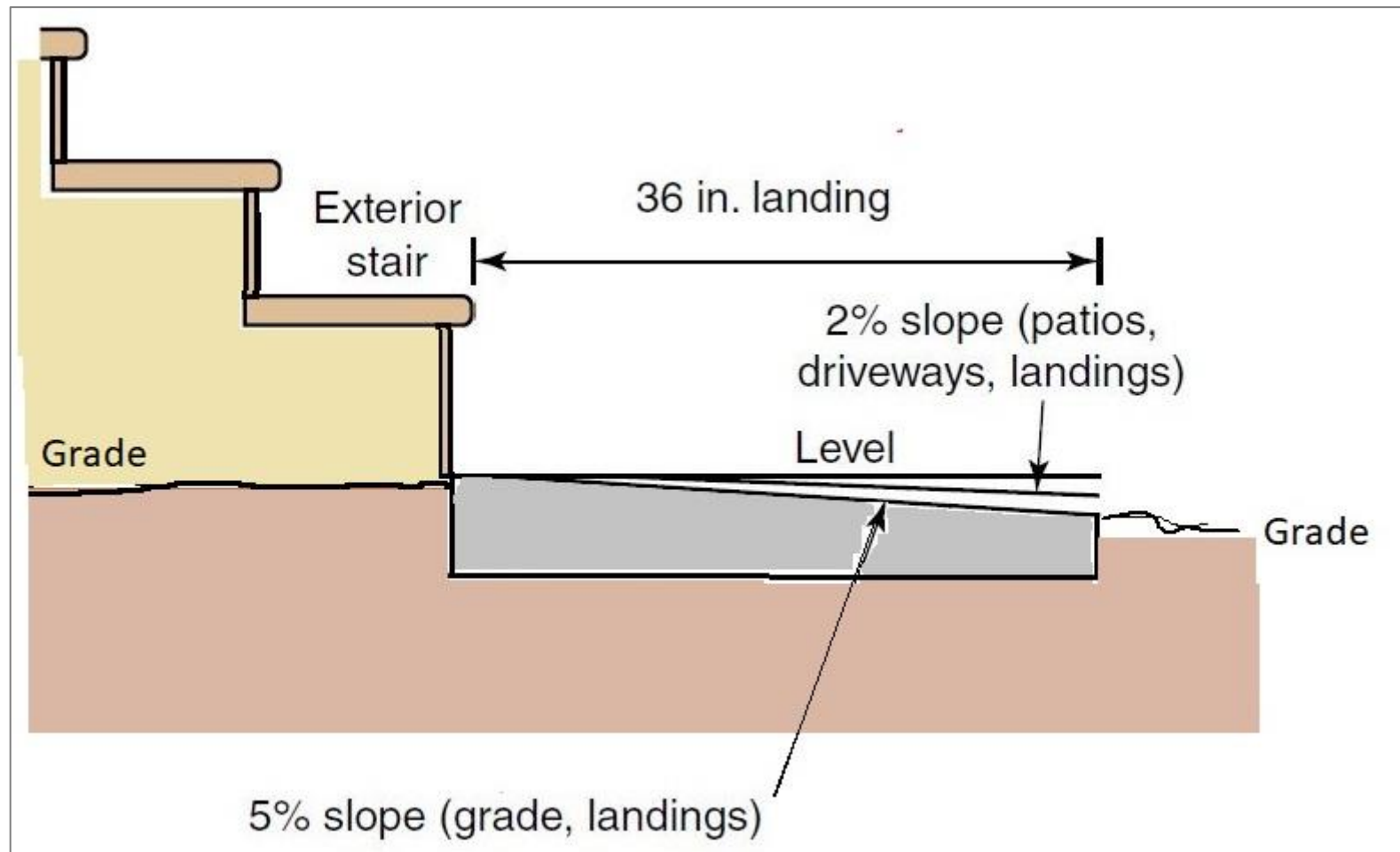
- The provisions of Sections R311.7 and R311.8 apply only to stairways and ramps within or serving:
 - Building
 - Porch or
 - Deck
- Stair exceptions:
 - non-habitable attics
 - crawl spaces





R311.7.7 Stairway and Landing Walking Surface

- New exception allows steeper slopes for exterior landings that also serve to drain surface water away from the building.

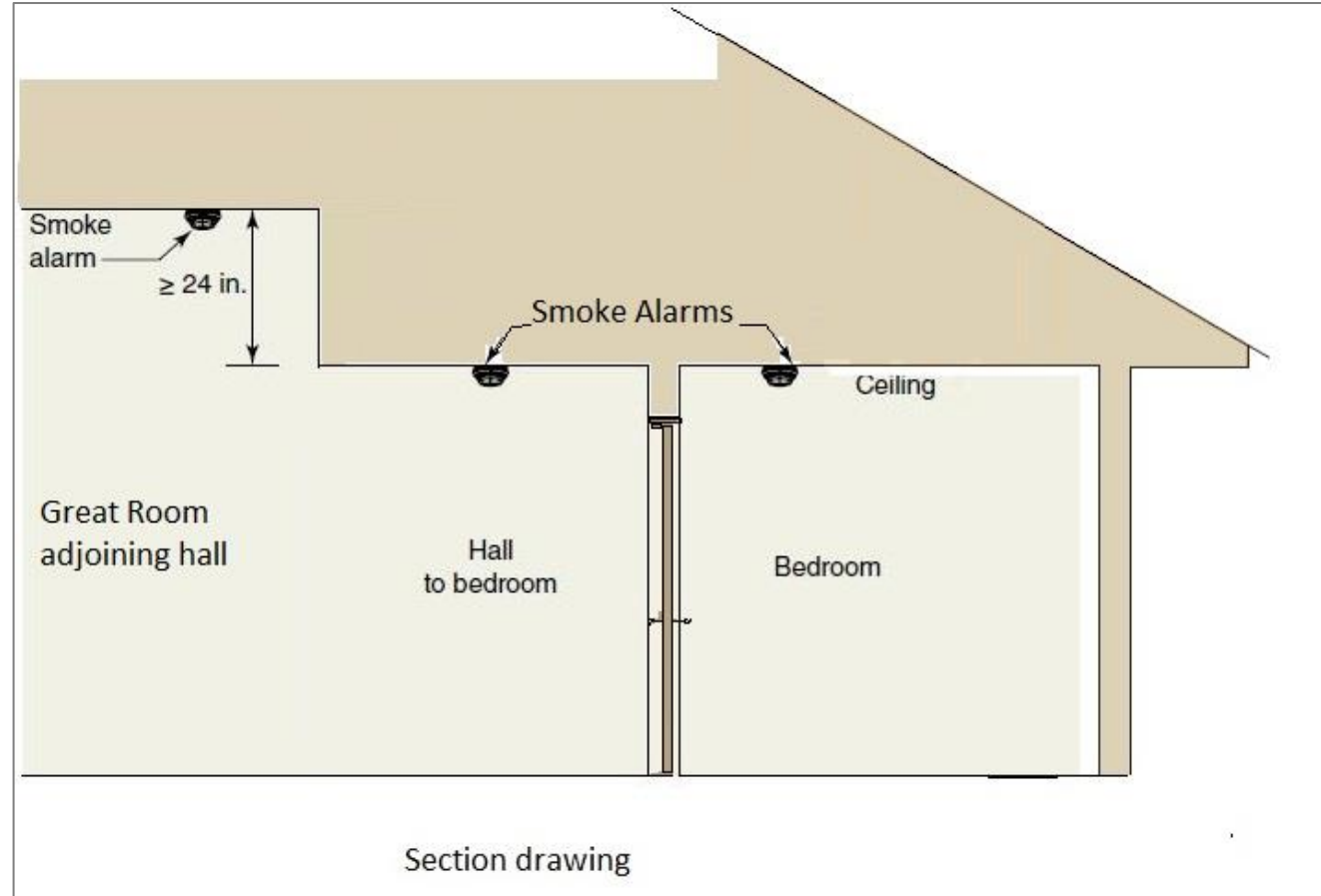




R314.3 Smoke Alarm Locations

- A new location requirement addresses high ceilings adjacent to hallways serving bedrooms.

5. In the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.





R314.3 Smoke Alarms Near Cooking Appliances

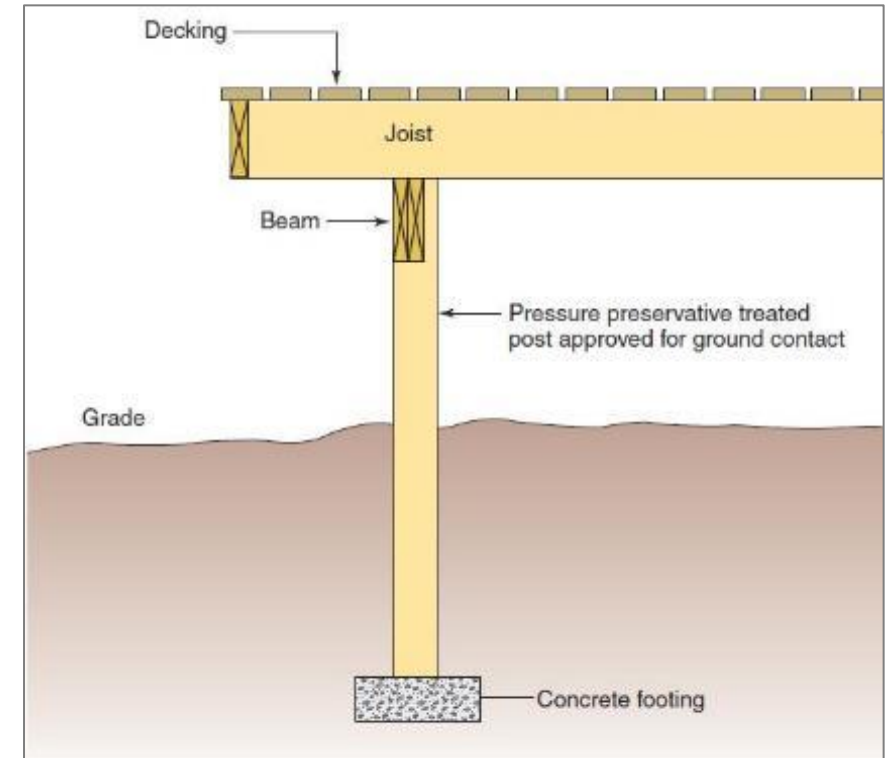
- Smoke alarms identified as having resistance to common nuisance alarms from cooking sources are now permitted to be as close as **6 feet** from the cooking appliance.





R317.1 Protection of Wood against Decay

- Section is revised and reorganized
 - **Item 1** - Rearranged for readability and moisture barrier language deleted (governed by crawl space provisions in R408)
 - **Item 2** - Adds columns to other wood framing members (columns in R317.1.4 deleted)
 - **Item 8 (new)** - Comes from deleted R317.1.3 (Geographical areas), which seemed to only apply if a need was demonstrated – now a general rule
 - **Item 9 (new)** - Reduced clearance for columns above basement floor slabs - comes from deleted R317.1.4 Exception 1



(Continued)



R317.1 Protection of Wood against Decay (Continued)

- ~~R317.1.3~~

- **Deleted.** Text revised and moved to the new Item 8 of R317.1. (previous slide)

- ~~R317.1.4~~

- **Deleted** because it was confusing and contained errors
 - **Exception 1: Deleted:** seemed to exempt all columns exposed to the weather. Conflict with IBC and Exception 2.
 - **Exception 2: Clarified** and moved to Item 1 of R317.1.
 - **Exception 3: Deleted** because it seemed to exempt any deck posts supported by piers or pedestals extending above concrete or earth.

- ~~R317.1.5~~

- **Deleted** - covered under scope of new Item 8 of R317.1.



R320 Accessibility

- Clarifies accessibility provisions for live/work units and owner-occupied lodging houses (B&Bs)
 - Accessibility is typically not required for VRC buildings.

LIVE/WORK UNIT. A dwelling unit or sleeping unit in which a significant portion of the space includes a nonresidential use that is operated by the tenant.

SLEEPING UNIT. A single unit that provides rooms or spaces for one or more persons, includes permanent provisions for sleeping and can include provisions for living, eating and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.



R322 Flood Hazard Areas



- These flood area related changes are from the Resiliency sub-workgroup
- The new definition and related changes align with the National Flood Insurance Program (NFIP).

RB202-21

FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a floodplain subject to a 1-percent or greater chance of flooding in any given year (also known as the 100-year floodplain).
2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated, including areas shown in either the Flood Insurance Study or on the Flood Insurance Rate Map (FIRM) and including areas added to account for future flooding conditions based on the locally adopted sea level rise projected to occur by 2070.





R322 Flood Hazard Areas, cont'd



RB202-21

- **322.1.5 Lowest floor**
 - limited storage defined as 200 sq ft or less

- **322.1.8 Flood-resistant materials**
 - adds ASCE 24 to requirements

- **322.2 Flood hazard areas (including A Zones)**
 - Simplifies wave height requirement (≥ 1.5 ft or otherwise designated by the *jurisdiction*) and adds options for V, VE , and V1-30 zones

- **322.2.1 Elevation requirements**
 - Adds flood resistant materials requirement for garages and carports.



R322 Flood Hazard Areas, cont'd



RB202-21

- **R322.3.1 Location and site preparation**
 - New FEMA letter requirement for alteration of sand dunes and mangrove stands

- **R322.3.6 Enclosed areas below required elevation**
 - Prohibited in Coastal A Zones and Coastal High Hazard Areas

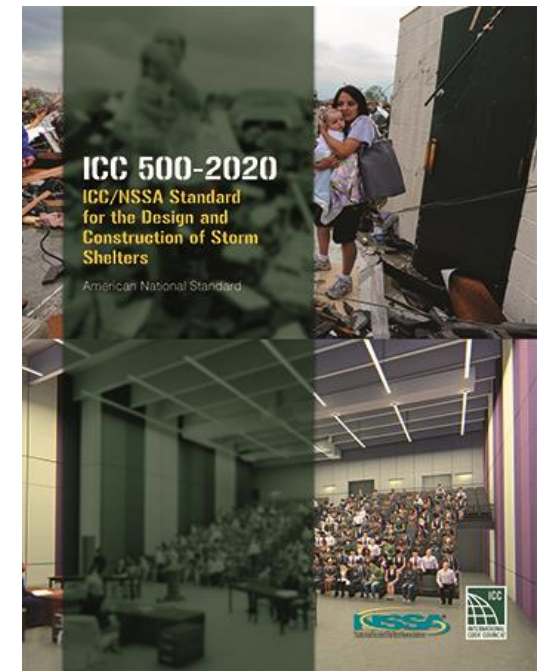
- **R322.3.10 Tanks**
 - Underground tanks prohibited in Coastal A Zones and Coastal High Hazard Areas



R323.1.1 Storm Shelters

- Added guidance on the design of storm shelters is placed in Section R323.
- Storm Shelter definition also added.

STORM SHELTER. A building, structure or portion thereof, constructed in accordance with ICC 500 and designated for use during a severe windstorm event, such as a hurricane or tornado.





R324.6 Photovoltaic Systems

- Building-integrated photovoltaic (BIPV) systems meeting the specified criteria do not require firefighter access pathways and setbacks.



R324.6.2 Setback at Ridge



RB324.6.2 - 21

- This Virginia modification greatly simplifies the requirements for setbacks at a horizontal ridge into one sentence.

R324.6.2 Setback at ridge.

~~For photovoltaic arrays occupying not more than 33 percent of the plan view total roof area,~~
Not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge. ~~For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge.~~

~~R324.6.2.1 Alternative setback at ridge.~~

~~Where an automatic sprinkler system is installed within the dwelling in accordance with NFPA 13D or Section P2904, setbacks at ridges shall comply with one of the following:~~

- ~~1. For photovoltaic arrays occupying not more than 66 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge.~~
- ~~2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge.~~



R326 Habitable Attics



RB326 - 21

- Virginia deletes the technical requirements from the definition and incorporates the VA-specific requirements in updated section R326.
- Does not change any requirements or how habitable attics are enforced in Virginia.

R326.3 Story above grade plane.

A habitable attic shall be considered a story above grade plane.

Exceptions: A habitable attic shall not be considered to be a story above grade plane provided that the habitable attic meets **all the following:**

1. The aggregate area of the habitable attic is not greater than two-thirds of the floor area of the story below OR a maximum of 400 sq ft.
2. The occupiable space is enclosed by the roof assembly above, knee walls, if applicable, on the sides and the floor-ceiling assembly below.



R333.1 Sound Transmission between Dwelling Units



- Adds an exception to the sound insulation requirements for Accessory Dwelling Units (ADUs).

RB330.1 - 21

R333.1 Sound transmission between dwelling units.
Construction assemblies separating *dwelling units* shall provide airborne sound insulation as required in Appendix K.

Exception: *accessory dwelling units*

VA DHCD

Accessory Dwelling Units – 2018 USBC

Key changes in the 2018 VRC related to ADUs:

- New “Accessory Dwelling Unit” definition – A unit in a two-family dwelling that is accessory to the primary dwelling and can share living space, means of egress, utilities, etc.
- Means of egress – Each dwelling unit in a two-family dwelling must have a compliant means of egress, but an ADU may share means of egress with the primary dwelling unit.
- Fire separation – New exception added to eliminate the requirement for fire separation between dwelling units and ADUs. Both units must be on the same lot, a fire alarm system complying with Chapter 29 of NFPA 72 and interconnected CO alarms must be installed throughout.
- Return Air Openings – An exception was added to allow an ADU and primary dwelling unit to share return air.

ADU Cont..

FAQs

What is an Accessory Dwelling Unit?

An “Accessory Dwelling Unit” is defined in the 2018 Virginia Residential Code as, “A dwelling unit in a two-family dwelling that is accessory to the primary dwelling unit. An accessory dwelling unit provides for separate living, sleeping, eating, cooking and sanitation facilities for one or more occupants, but may share living space, means of egress, utilities, or other components. An accessory dwelling unit fully complies with the requirements of this code for a dwelling unit except where specified otherwise.”

What are the design criteria for an ADU?

ADUs are required to comply with all of the applicable design criteria in the Virginia Residential Code. Light, ventilation, heating, room areas, ceiling heights, sanitation, toilet, bath, and shower spaces, EEROs, etc., are all required within an ADU. As the definition states, “An accessory dwelling unit fully complies with the requirements of this code for a dwelling unit.”

ADU Cont..

How must egress be provided within and from an ADU?

Egress within an ADU must comply with Section R311 Means of Egress in the Virginia Residential Code. The definition of an ADU provides the opportunity for a shared means of egress between the ADU and the primary dwelling.

Can an ADU be detached?

Although detached living structures are commonly referred to as ADUs, the new USBC definition only include ADUs that exist within a two-family dwelling. That can be an attached ADU with a shared wall, an interior conversion of an attic, basement, or other room to an ADU, an above-garage converted space, or a garage that has been converted to an ADU. For USBC purposes, a detached dwelling unit would simply be considered a separate dwelling.

Are ADUs required to be fire-separated from the primary dwelling?

There is an exception that allows construction of an ADU without fire separation from the primary dwelling, however, there are specific additional safety features that may be required throughout the building.

ADU Cont..

What fire protection systems are required in a non-separated Two-Family Dwelling with an ADU?

Non-separated Two-Family Dwellings with an ADU are required to have a fire alarm system complying with the NFPA 72 provisions applicable to Household Fire Alarm Systems. The requirements for these systems can be found in Chapter 29 of NFPA 72. The control panel for this system must be located in a place where access to the panel is provided to both the occupant(s) of the ADU and the occupant(s) of the primary dwelling.

Are there system monitoring requirements for the fire alarm system in a non-separated Two-Family Dwelling with an ADU?

Yes. System monitoring is a requirement of NFPA 72. Chapter 29 of NFPA 72 should be examined in its entirety while reviewing the proposed design of the fire alarm system to ensure that all monitoring requirements are met.

ADU Cont..

Are CO alarms required in an ADU?

CO alarms are only required in an ADU where required by Section R315 of the Virginia Residential Code. In a non-separated Two-Family Dwelling with an ADU, the required CO alarms shall be interconnected between the ADU and the primary dwelling.

Are ADUs required to be provided with access to utility controls, disconnecting means, and all overcurrent devices?

Yes. Full access to utility controls, disconnecting means, and all overcurrent devices must be provided to the ADU. As an example, locating an electrical panel with disconnecting means for circuits serving an ADU in a locked closet, to which only the primary dwelling would have access, is prohibited.

Chapter 4

Foundations

2021



**Virginia
Residential Code**





Table R403.1(1) Footing Width and Thickness

- Minimum footing size tables are revised to more accurately reflect current practice.
- A 20 psf roof live load or 25 psf ground snow load form the lowest load assumed for the footing.



Table R403.1(1) Footing Width and Thickness excerpt

Ground Snow Load or Roof Live Load	Story and Type of Structure with Light Frame	Load Bearing Value of Soil (psf)					
		1500	2000	2500	3000	3500	4000
20 psf Roof Live Load or 25 psf Ground Snow Load	1 story - slab on grade	12x6	12x6	12x6	12x6	12x6	12x6
	1 story - with crawl space	12x6	12x6	12x6	12x6	12x6	12x6
	1 story - plus basement	16x6 18x6	12x6 14x6	12x6	12x6	12x6	12x6
	2 story - slab on grade	13x6 12x6	12x6	12x6	12x6	12x6	12x6
	2 story - with crawl space	15x6 16x6	12x6	12x6	12x6	12x6	12x6
	2 story - plus basement	19x6 22x6	14x6 16x6	12x6 13x6	12x6	12x6	12x6
30 psf	1 story - slab on grade	12x6	12x6	12x6	12x6	12x6	12x6
	1 story - with crawl space	13x6	12x6	12x6	12x6	12x6	12x6
	1 story - plus basement	16x6 19x6	12x6 14x6	12x6	12x6	12x6	12x6
	2 story - slab on grade	13x6 12x6	12x6	12x6	12x6	12x6	12x6
	2 story - with crawl space	16x6 17x6	12x6 13x6	12x6	12x6	12x6	12x6
	2 story - plus basement	19x6 23x6	14x6 17x6	12x6 14x6	12x6	12x6	12x6



R406.2 Foundation Waterproofing

- Six-mil polyvinyl chloride and polyethylene fabrics are removed from the list of approved waterproofing materials.



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Chapter 5

Floors

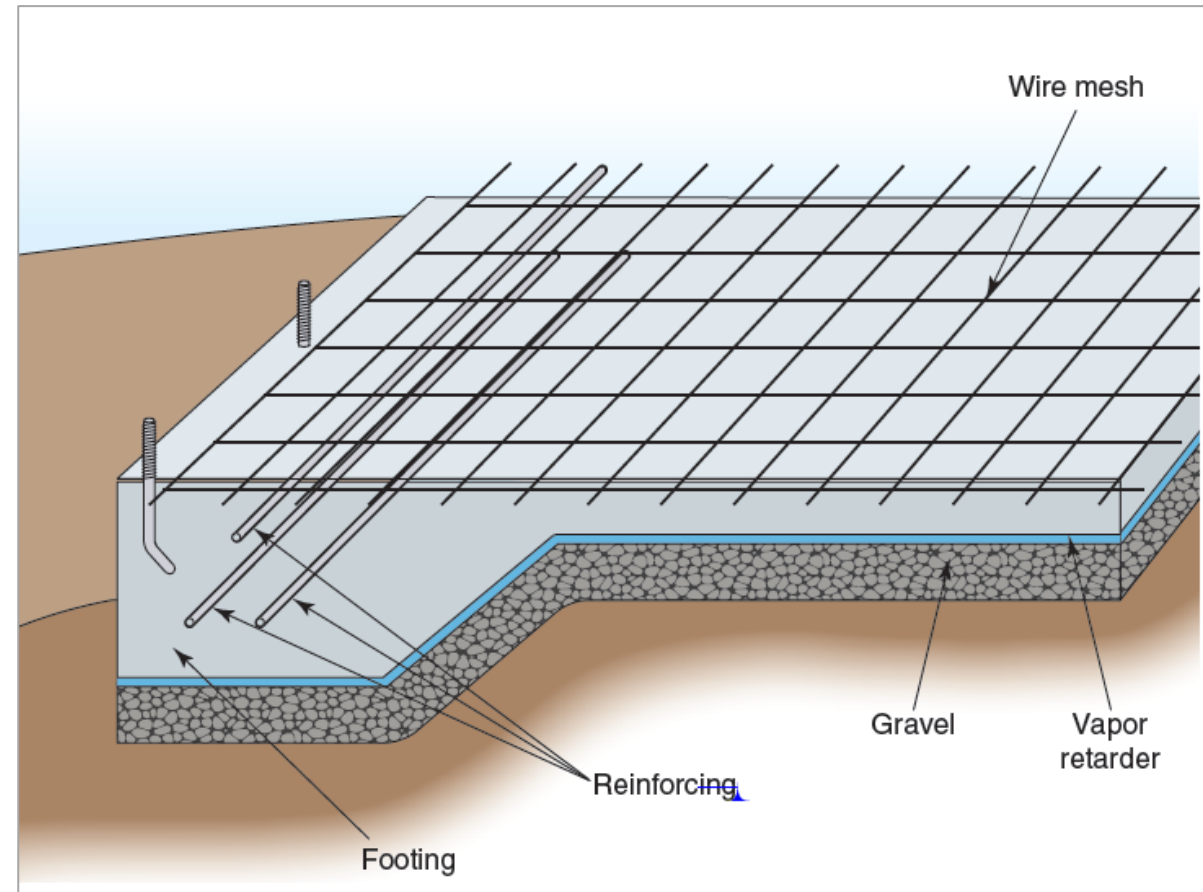
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R506.2.3 Vapor Retarders under Concrete Slabs

- Minimum thickness of required vapor retarders below floor slabs has increased from 6 mil to 10 mil





R507.3 Deck Footings

- Footings for freestanding decks on or near the ground have been clarified.





Table R507.3.1 Minimum Footing Size for Decks

Table Excerpt

LIVE OR GROUND SNOW LOAD (psf)	TRIBUTARY AREA (sq. ft.)	SOIL BEARING CAPACITY		
		1500 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)
40	<u>5</u>	<u>7</u>	<u>8</u>	<u>6</u>
	20	<u>10</u>	<u>12</u>	6
	40	14	16	6
50	<u>5</u>	<u>7</u>	<u>8</u>	<u>6</u>
	20	<u>11</u>	<u>13</u>	6
	40	15	17	6
60	<u>5</u>	<u>7</u>	<u>8</u>	<u>6</u>
	20	12	14	6
70	<u>5</u>	<u>7</u>	<u>8</u>	<u>6</u>
	20	12	14	6



R507.4 Deck Posts

- The deck post height table is expanded by adding the tributary area supported by a post and the wood species for determination of maximum post height.

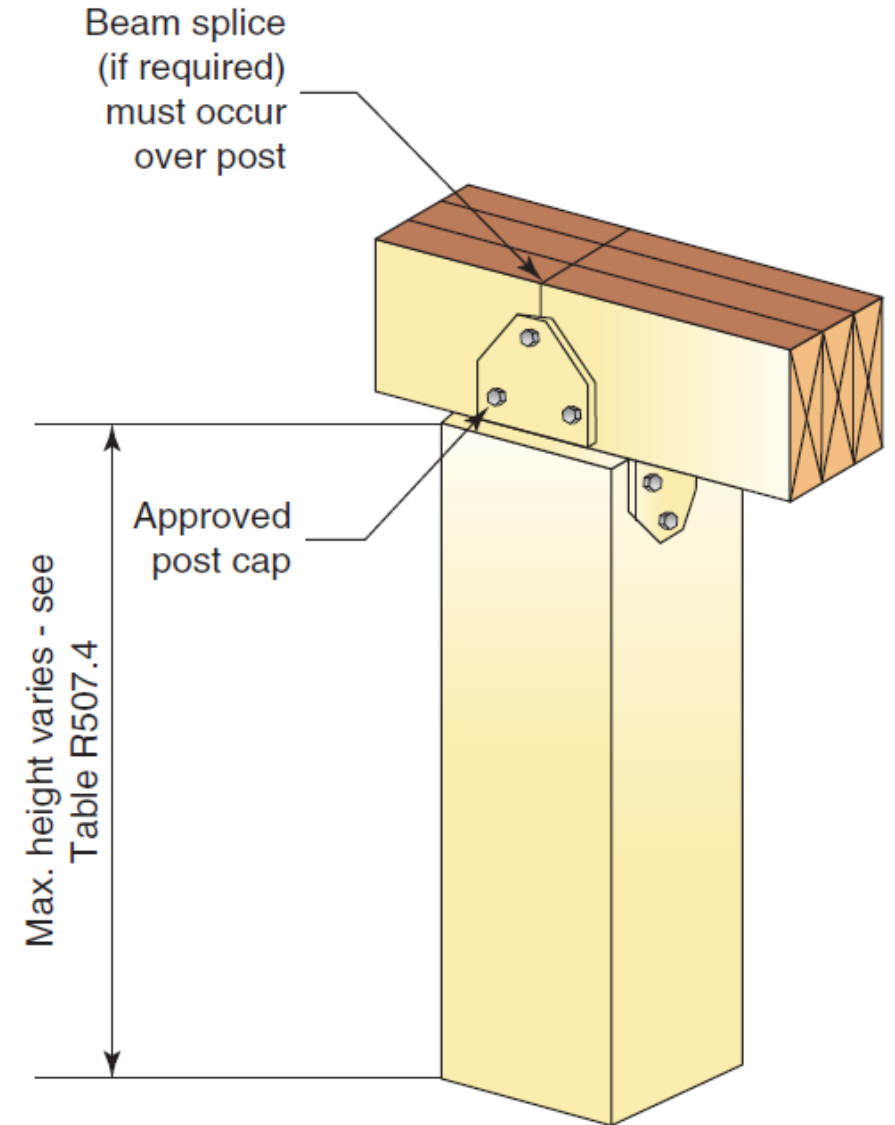


Table R507.4 Deck Post Height

<u>Loads</u> <u>(psf)</u>	<u>Post</u> <u>Species</u>	<u>Post</u> <u>Size</u>	<u>Tributary Area (ft²)</u>								
			<u>20</u>	<u>40</u>	<u>60</u>	<u>80</u>	<u>100</u>	<u>120</u>	<u>140</u>	<u>160</u>	
			<u>Maximum Deck Post Height (feet-inches)</u>								
<u>50</u> <u>Ground</u> <u>Snow</u> <u>Load</u>	<u>Southern</u> <u>Pine</u>	<u>4 x 4</u>	<u>14-0</u>	<u>12-2</u>	<u>9-10</u>	<u>8-5</u>	<u>7-5</u>	<u>6-7</u>	<u>5-11</u>	<u>5-4</u>	
		<u>4 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>12-6</u>	<u>10-9</u>	<u>9-6</u>	<u>8-7</u>	<u>7-10</u>	<u>7-3</u>	
		<u>6 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>13-4</u>
		<u>8 x 8</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>
	<u>Douglas Fir,</u> <u>Hem-fir,</u> <u>SPF</u>	<u>4 x 4</u>	<u>14-0</u>	<u>12-1</u>	<u>9-8</u>	<u>8-2</u>	<u>7-1</u>	<u>6-2</u>	<u>5-3</u>	<u>4-2</u>	
		<u>4 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>12-4</u>	<u>10-7</u>	<u>9-4</u>	<u>8-4</u>	<u>7-7</u>	<u>6-11</u>	
		<u>6 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>12-10</u>
		<u>8 x 8</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>
	<u>Redwood,</u> <u>W. Cedars,</u> <u>Pond. Pine,</u> <u>Red Pine</u>	<u>4 x 4</u>	<u>14-0</u>	<u>11-8</u>	<u>9-0</u>	<u>6-10</u>	<u>3-7</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	
		<u>4 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>12-0</u>	<u>10-0</u>	<u>8-6</u>	<u>7-0</u>	<u>5-3</u>	<u>NP</u>	
		<u>6 x 6</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>10-8</u>	<u>2-4</u>	
		<u>8 x 8</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	<u>14-0</u>	



R507.10 Exterior Guards

- Requirements for deck guardrails are added.
- Provisions mirror requirements for interior stairway ramp guards.
- Two methods to connect guards – to side or top of deck framing.



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Chapter 6

Wall Construction

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Table R602.3(1) Fasteners – Roof and Wall

Item	Description of Building Elements	Number and Type of Fastener	Spacing and Location
Roof			
1	<u>Blocking between ceiling joists or rafters or trusses to top plate or other framing below</u>	4-8d box (2½" x 0.113") nails 3-8d common (2½" x 0.131") nails 3-10d box (3" x 0.128") nails 3-(3" x 0.131") nails	Toenail
	<u>Blocking between rafters or truss not at the wall top plate, to rafter or truss</u>	<u>2-8d common (2½" x 0.131") nails</u> <u>2-(3" x 0.131") nails</u>	<u>Each end, toenail</u>
		<u>2-16d common (3½" x 0.162") nails</u> <u>3-(3" x 0.131") nails</u>	<u>End nail</u>
	<u>Flat blocking to truss and web filler</u>	<u>16d common (3½" x 0.162") nails</u> <u>3" x 0.131" nails</u>	<u>6" o.c. face nail</u>
Wall			
12	<u>Adjacent full-height stud to end of header</u>	<u>3-16d common (3½" x 0.162") nails</u> <u>4-16d box (3 ½" x 0.135") nails</u> <u>4-10d box (3" x 0.128") nails</u> <u>4-(3" x 0.131") nails</u>	<u>End nail</u>



Table R602.3(1) Fasteners – Roof Sheathing

Item	Thickness	Number and Type of Fastener	Spacing of Fasteners	
			Edges (inches)	Interm. supports (inches)
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing				
<u>30-31</u>	$\frac{3}{8}'' - \frac{1}{2}''$	6d common <u>or deformed</u> ($2'' \times 0.113'' \times 0.266''$ head) (subfloor, wall); 8d common ($2\frac{1}{2}'' \times 0.131''$) nail (subfloor, wall); or <u>$2 \frac{3}{8}'' \times 0.113'' \times 0.266''$ head nail (subfloor, wall)</u>	6 ^f	<u>12-6</u> ^f
		8d common ($2\frac{1}{2}'' \times 0.131''$) (roof) RSRS-01 ($2\frac{3}{8}'' \times 0.113''$) nail (roof)	6 ^f	<u>12-6</u> ^f
<u>31-32</u>	$\frac{19}{32}'' - 1''$ $\frac{3}{4}''$	8d common ($2\frac{1}{2}'' \times 0.131''$) (subfloor, wall) <u>Deformed $2\frac{3}{8}'' \times 0.113'' \times 0.266''$ head (wall or subfloor)</u>	<u>6</u>	<u>12</u>
		8d common ($2\frac{1}{2}'' \times 0.131''$) nail (roof) RSRS-01 ($2\frac{3}{8}'' \times 0.113''$) nail (roof)	<u>6</u> ^f	<u>12-6</u> ^f
<u>32-33</u>	$\frac{1\frac{1}{8}'' - 7}{8}'' - 1\frac{1}{4}''$	10d common ($3'' \times 0.148''$) nail 8d ($2\frac{1}{2}'' \times 0.131'' \times 0.281''$ head) deformed nail	6	12

f. For wood structural panel roof sheathing attached to gable end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 6 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C.



Table R602.3(2) Alternate Attachments

- Table R602.3(2) footnote g is updated for clarity.

Nominal Material Thickness (inches)	Description of Fastener and Length (inches)	Spacing of Fasteners	
		Edges (inches)	Interm. supports (inches)
Wood structural panels subfloor, roof ^g and wall sheathing to framing and particleboard wall sheathing to framing			

g. Alternate fastening is only permitted for roof sheathing where the ultimate design wind speed is less than or equal to 110 mph, and where fasteners are installed 3 inches on center at all supports.



R602.9 Cripple Walls

- Cripple wall requirements apply **only** to exterior cripple walls.





R602.10.1.2 Location of Braced Wall Lines

- Modifications to this section limit placement of a braced wall line (building plans)
- Multiple illustrations and examples to follow

R602.10.1.2 Offsets along a Location of braced wall lines and permitted offsets.

Each braced wall line shall be located such that no more than two-thirds of the required braced wall panel length is located to one side of the braced wall line. Braced wall panels shall be permitted to be **offset up to 4 feet (1219 mm)** from the designated braced wall line. Braced wall panels parallel to a braced wall line shall be offset not more than 4 feet (1219 mm) from the designated braced wall line location as shown in **Figure R602.10.1.1.**

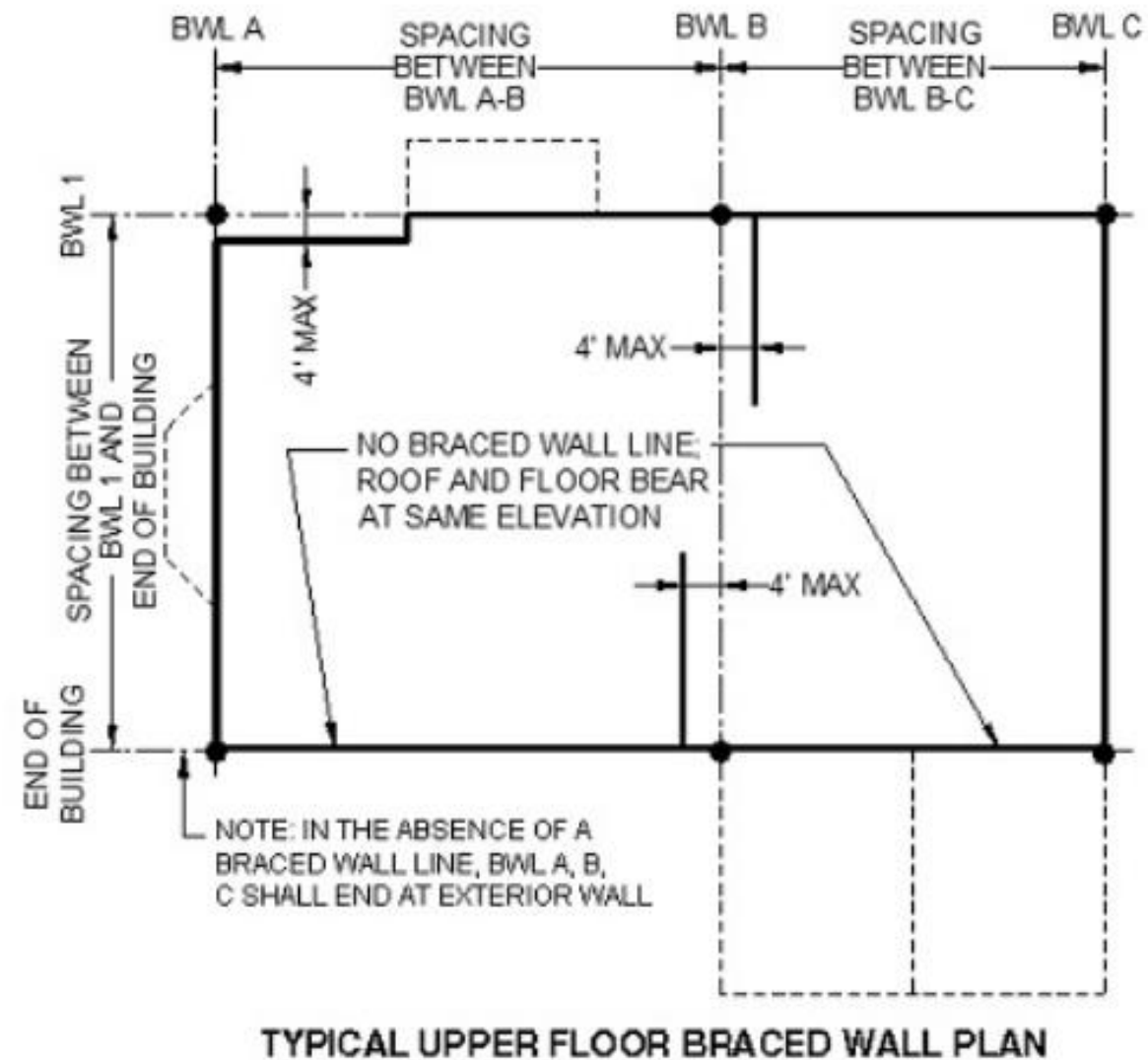
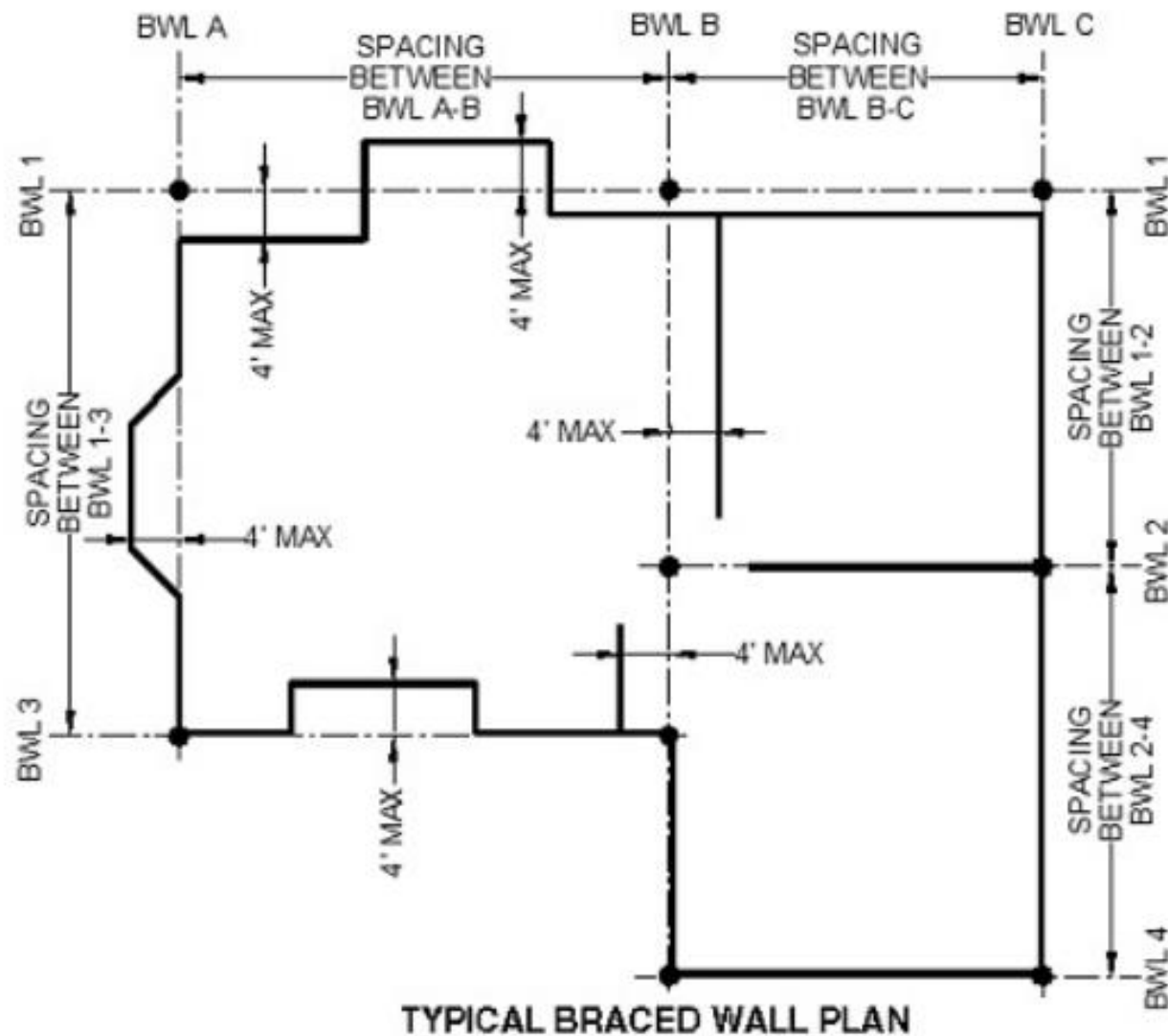
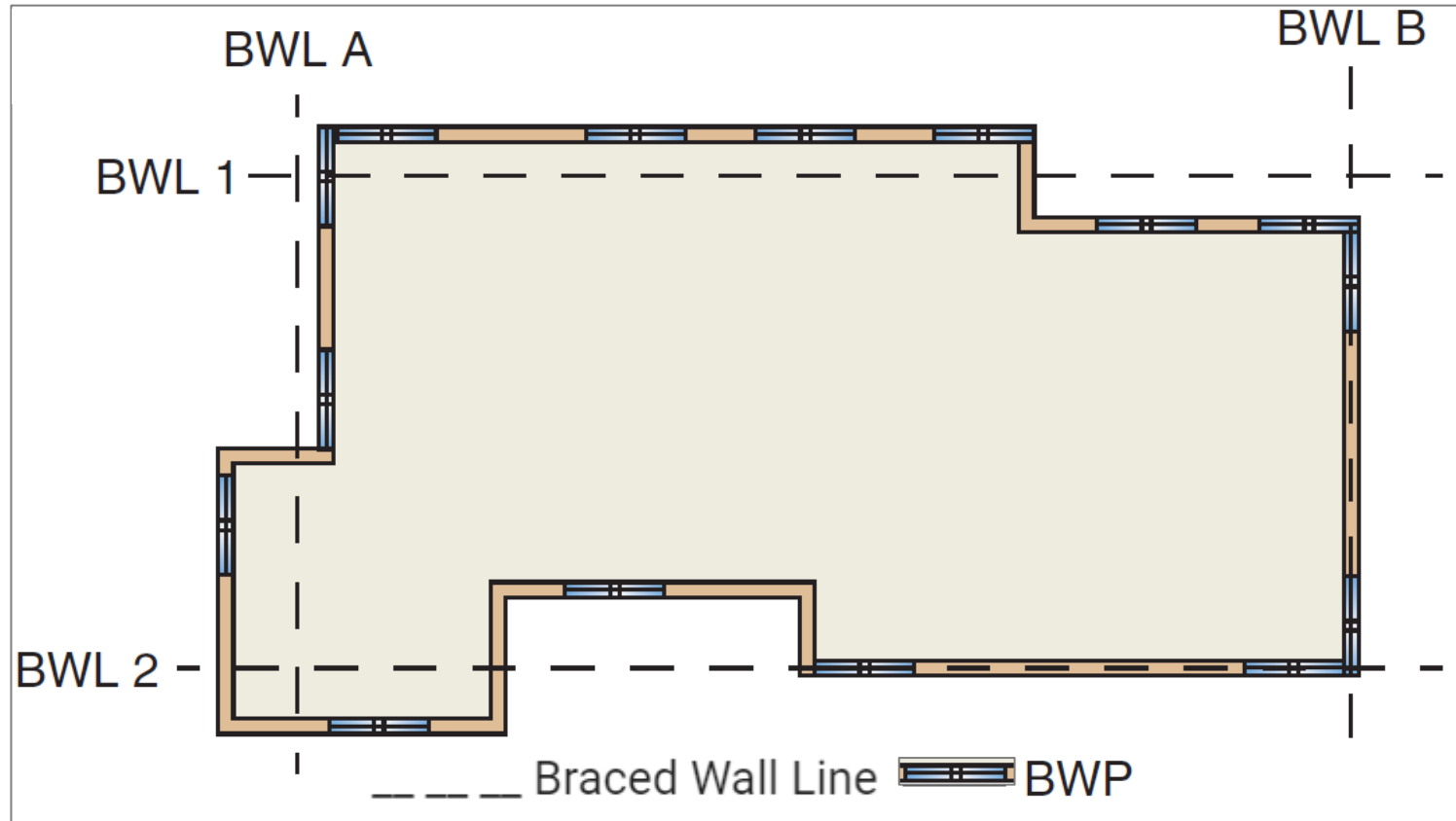


FIGURE R602.10.1.1 BRACED WALL LINES

Example 1



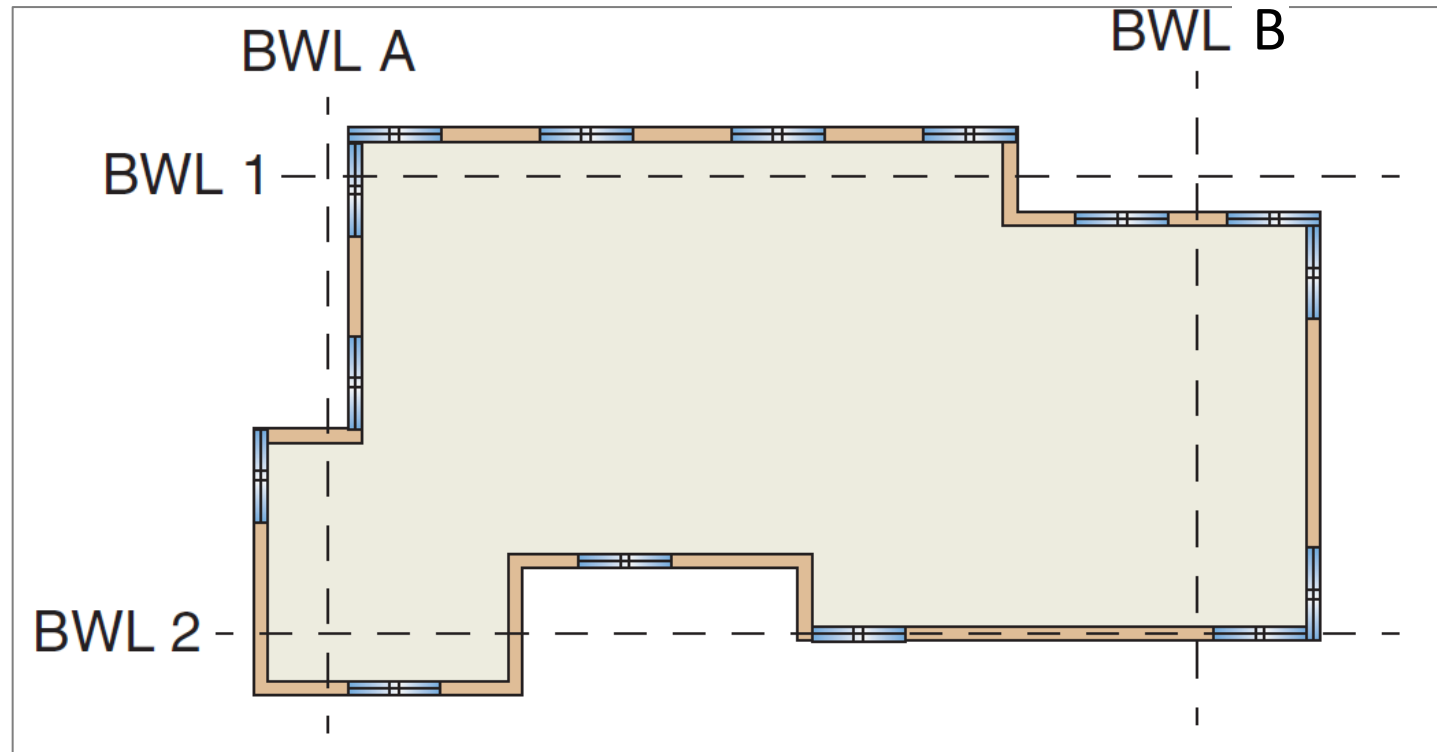
BWL 1: line runs between two walls, 4 of 6 panels on outside side of line, 2 of 6 panels on opposite side of line = **OK**

BWL 2: line runs between three walls, 1 of 4 panels outside line, 2 of 4 panels on BWL and 1 of 4 panels inside line = **OK**

BWL A: line runs between two walls, 2 of 3 panels on one side of line, 1 of 3 panels on opposite side of line = **OK**

BWL B: line runs on one wall = **OK**

Example 2



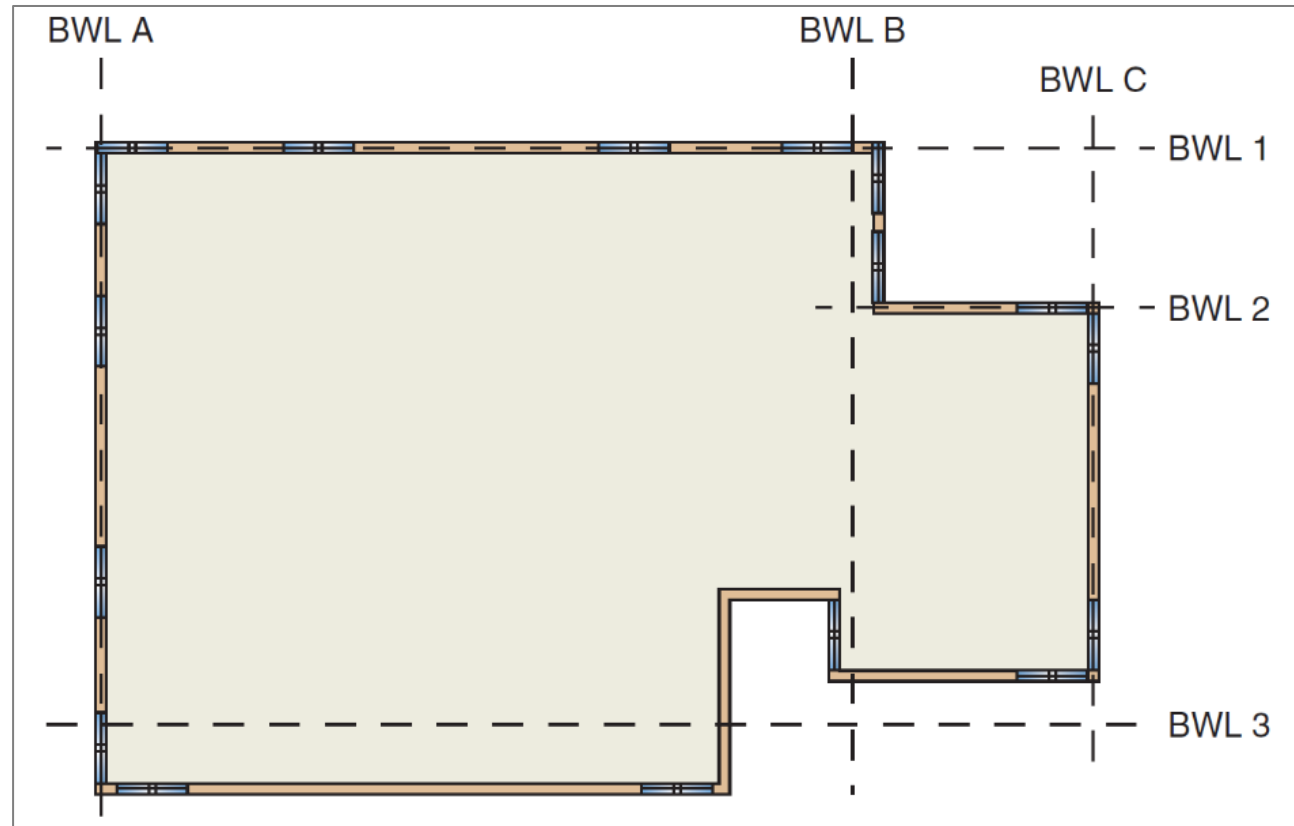
BWL 1: line runs between two walls, 4 of 6 panels on outside side of line, 2 of 6 panels on opposite side of line = **OK**

BWL 2: line runs between three walls, 1 of 4 panels outside line, 2 of 4 panels on BWL and 1 of 4 panels inside line = **OK**

BWL A: line runs between two walls, 2 of 3 panels on one side of line, 1 of 3 panels on opposite side of line = **OK**

BWL B: line runs inside single wall, 2 of 2 panels outside BWL = **No Good**

Example 3



BWL 1: line runs along a single wall, 4 of 4 panels are on the BWL = **OK**

BWL 2: line runs along a single wall, 1 of 1 panel is on the BWL = **OK**

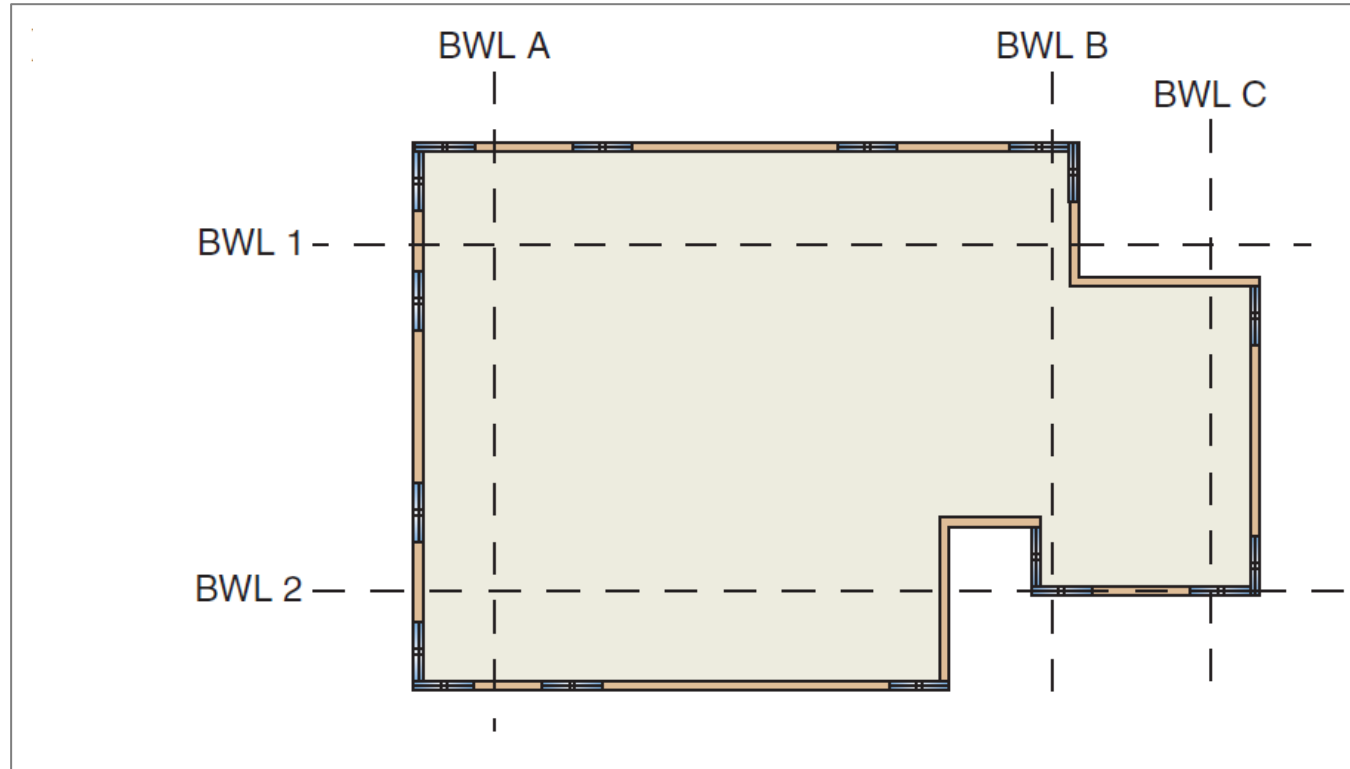
BWL 3: line runs between two walls, 2 of 3 panels on one side of line, 1 of 3 panels on opposite side of line = **OK**

BWL A: line runs along a single wall, 4 of 4 panels are on the BWL = **OK**

BWL B: line runs between two walls, 2 of 3 panels on one side of line, 1 of 3 panels on opposite side of line = **OK**

BWL C: line runs along a single wall, 2 of 2 panels are on the BWL = **OK**

Example 4



BWL 1: line runs between two walls, 4 of 5 panels on one side of line, 1 of 5 panels on opposite side of line = **No Good**, as more than $\frac{2}{3}$ of panels are on one side of the BWL.

BWL 2: line runs on one wall, 3 of 5 panels on one side of line, 2 of 5 panels on the wall = **No Good**

BWL A: line inside of a single wall, 4 of 4 panels are on one side of the BWL = **No Good**

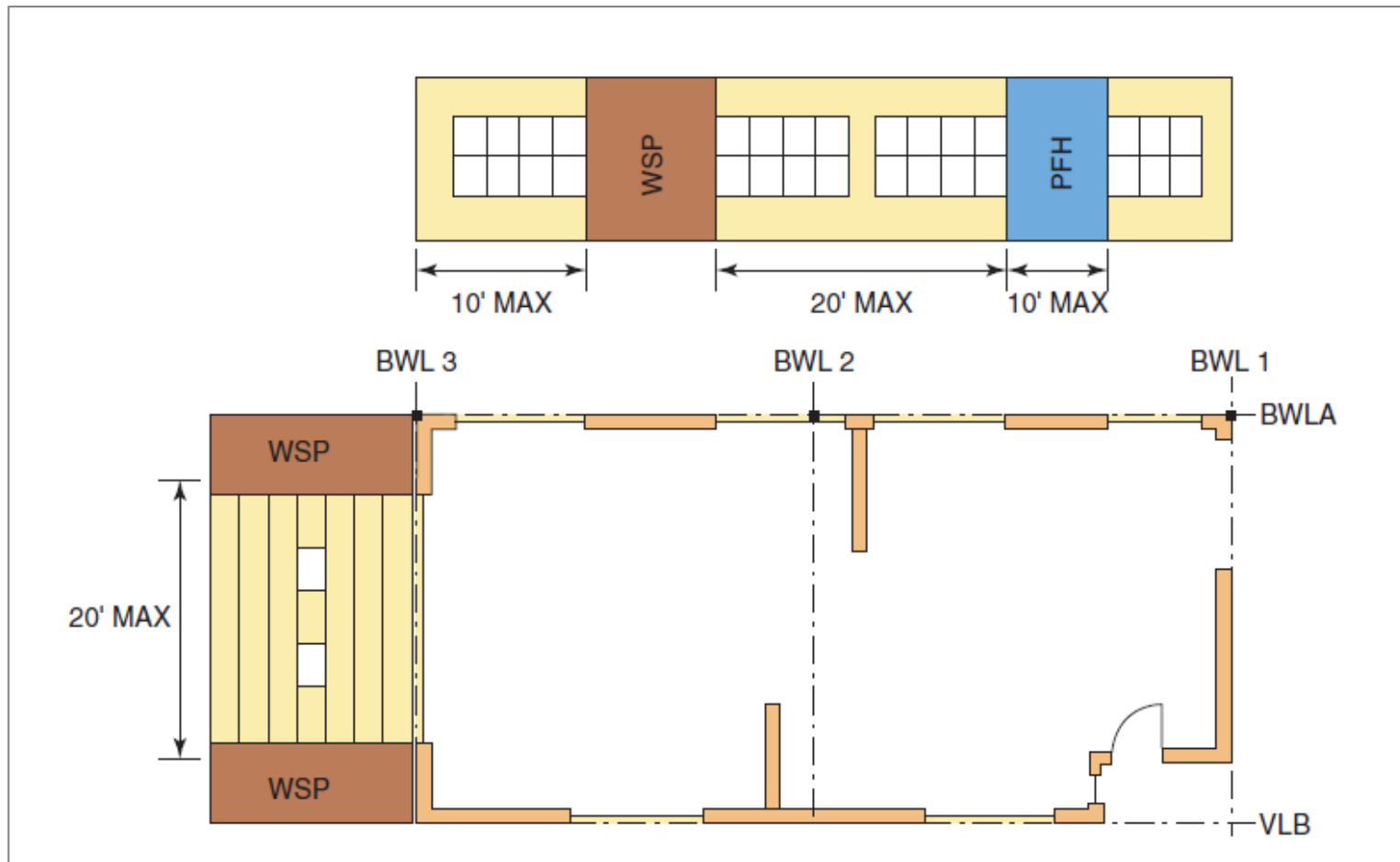
BWL B: line runs between two walls, 1 of 2 panels on one side of line, 1 of 2 panels on opposite side of line = OK

BWL C: line inside of a single wall, 2 of 2 panels are on the inside of the BWL = **No Good**



R602.10.2.2 Location of Braced Wall Panels

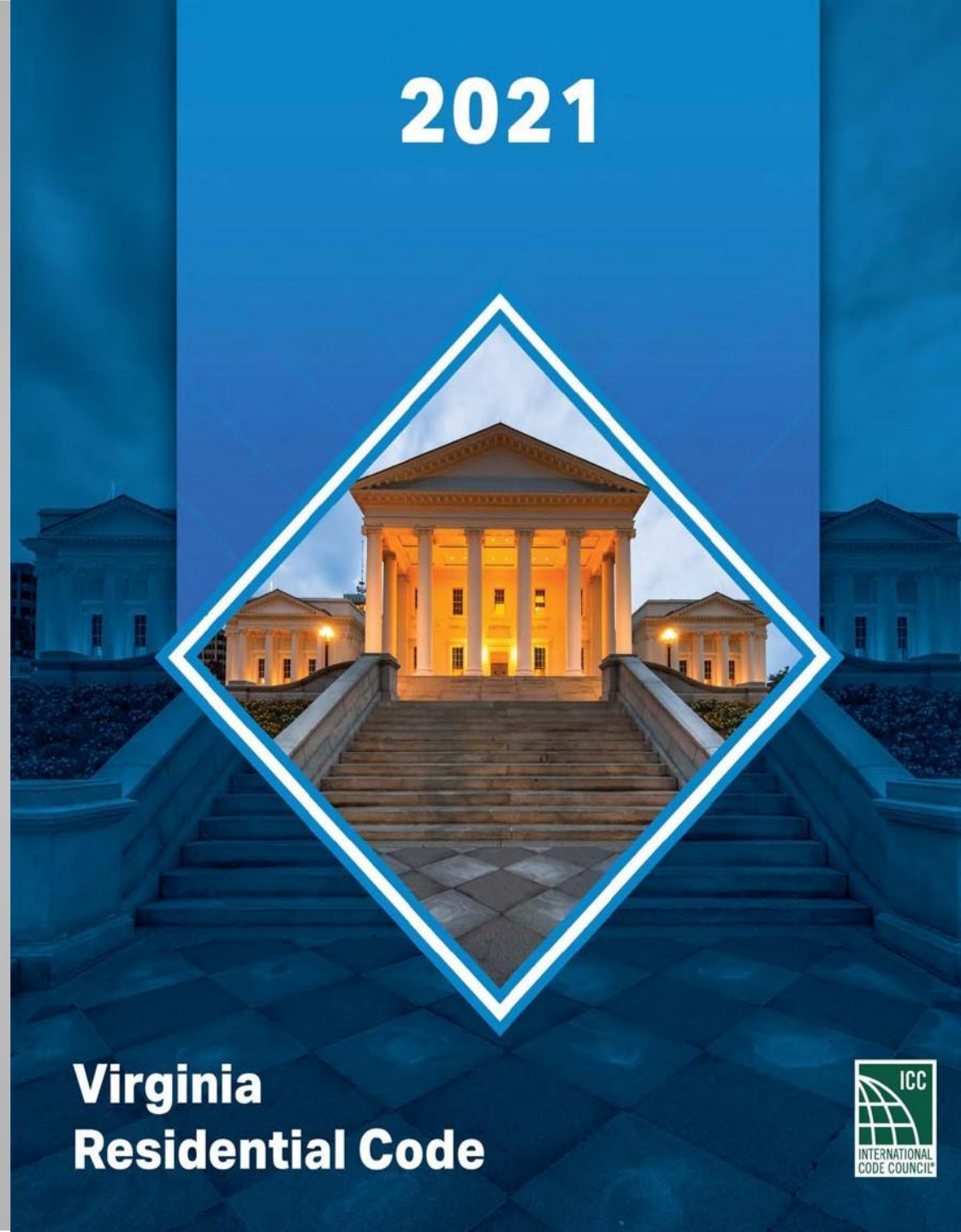
- Section R602.10.2.2 is clarified for the starting point of the first braced wall panel when not placed at the corner of the structure.



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Chapter 7

Wall Covering



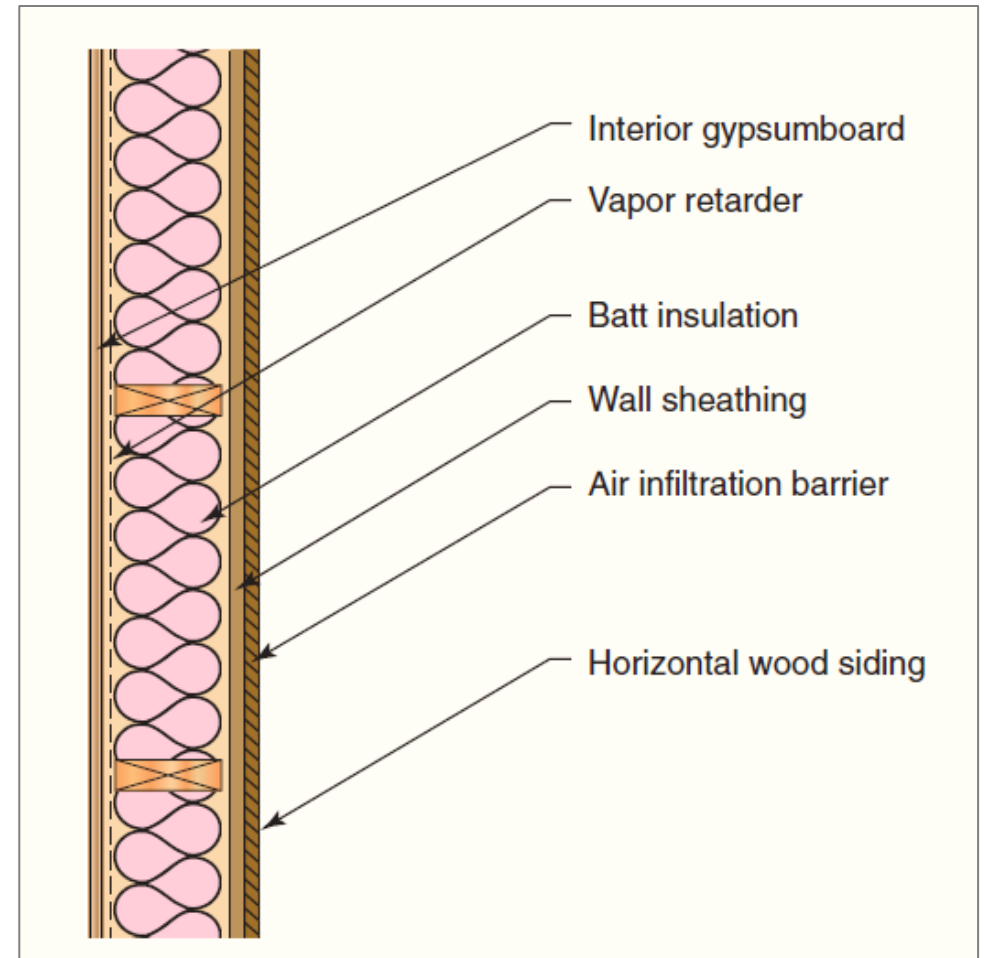
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R702.7 Vapor Retarders

- The vapor retarder section is reorganized for clarity and ease of use.
- Materials are listed as Class I, II or III.
- Tables offer appropriate climate zones for each class.
- Class II and III vapor retarders may be used with continuous insulation.



Vapor Retarders

Class I



VR < 0.1 perm
Impermeable
Foil and Polyethylene sheets

Class II

0.1 perm < VR < 1 perm
Semi-impermeable
Extruded polystyrene and
Kraft fiberglass batts



Class III



1 perm < VR
Semi-impermeable
Latex paint, 30# felt and Plywood



Table R703.8.4(1) Tie Attachment and Airspace

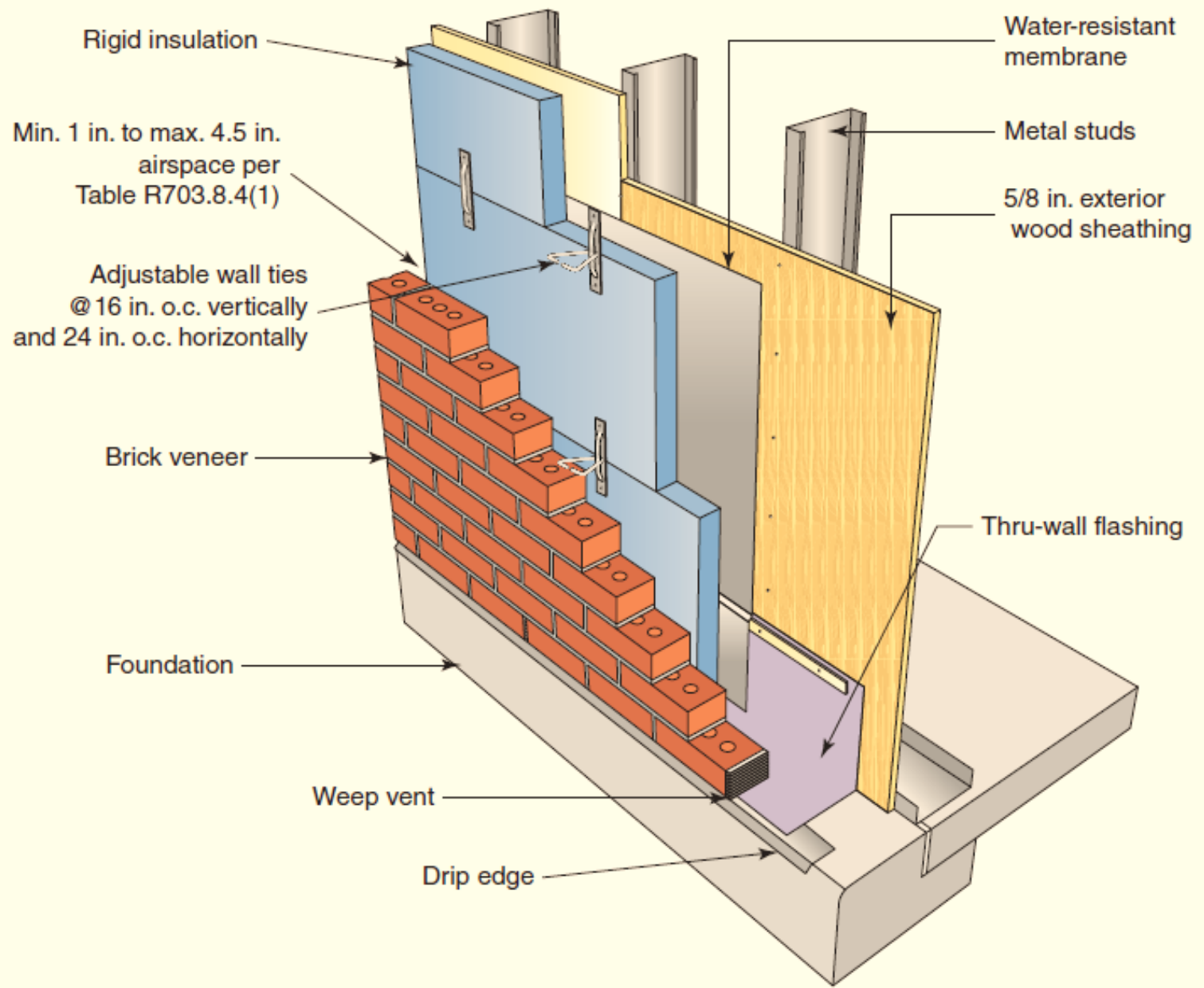
- Larger air gaps are allowed behind veneer to accommodate thicker continuous insulation. (**Note:** table illustration is not showing the min. Tie and Tie fastener columns)

Backing and Tie	Airspace ^b	
Wood stud backing with corrugated sheet metal	Nominal 1 in. between sheathing and veneer	
Wood stud backing with <u>adjustable</u> metal strand wire	Minimum nominal 1 in. between sheathing and veneer	Maximum $4\frac{5}{8}$ in. between backing and veneer
<u>Wood stud backing with adjustable metal strand wire</u>	<u>Greater than $4\frac{5}{8}$ in. between backing and veneer</u>	<u>Maximum $6\frac{5}{8}$ in. between backing and veneer</u>
Cold-formed steel stud backing with adjustable metal strand wire	Minimum nominal 1 in. between sheathing and veneer	Maximum $4\frac{5}{8}$ in. between backing and veneer
<u>Cold-formed steel stud backing with adjustable metal strand wire</u>	<u>Greater than $4\frac{5}{8}$ in. between backing and veneer</u>	<u>Maximum $6\frac{5}{8}$ in. between backing and veneer</u>



Table R703.8.4(1) - New Footnotes d-f

- d. Adjustable tie pintles shall include a minimum of 1 pintle leg of wire size W2.8 with a maximum offset of 1-1/4 in.
- e. Adjustable tie pintles shall include a minimum of 2 pintle legs with a maximum offset of 1¼ in. Distance between inside face of brick and end of pintle shall be a maximum of 2 in.
- f. Adjustable tie backing attachment components shall consist of one of the following: eyes with minimum wire W2.8, barrel with minimum ¼ in. outside dia., or plate with minimum thickness of 0.074 in. and minimum width of 1¼ in.





R704 Soffits

- Requirements for soffit material and installation are expanded in a new section.





R704 Soffits – New section overview

- R704.1 General wind limitations
- R704.2 Soffit installation where the design wind pressure is 30 psf or less
 - R704.2.1 Vinyl soffit panels
 - R704.2.2 Fiber-cement soffit panels
 - R704.2.3 Hardboard soffit panels
 - R704.2.4 Wood structural panel soffit
- R704.3 Soffit installation where the design wind pressure exceeds 30 psf
 - R704.3.1 Vinyl soffit panels
 - R704.3.2 Fiber-cement soffit panels
 - R704.3.3 Hardboard soffit panels
 - R704.3.4 Wood structural panel soffit

Figures R704.2.1(1) and R704.2.1 (2)

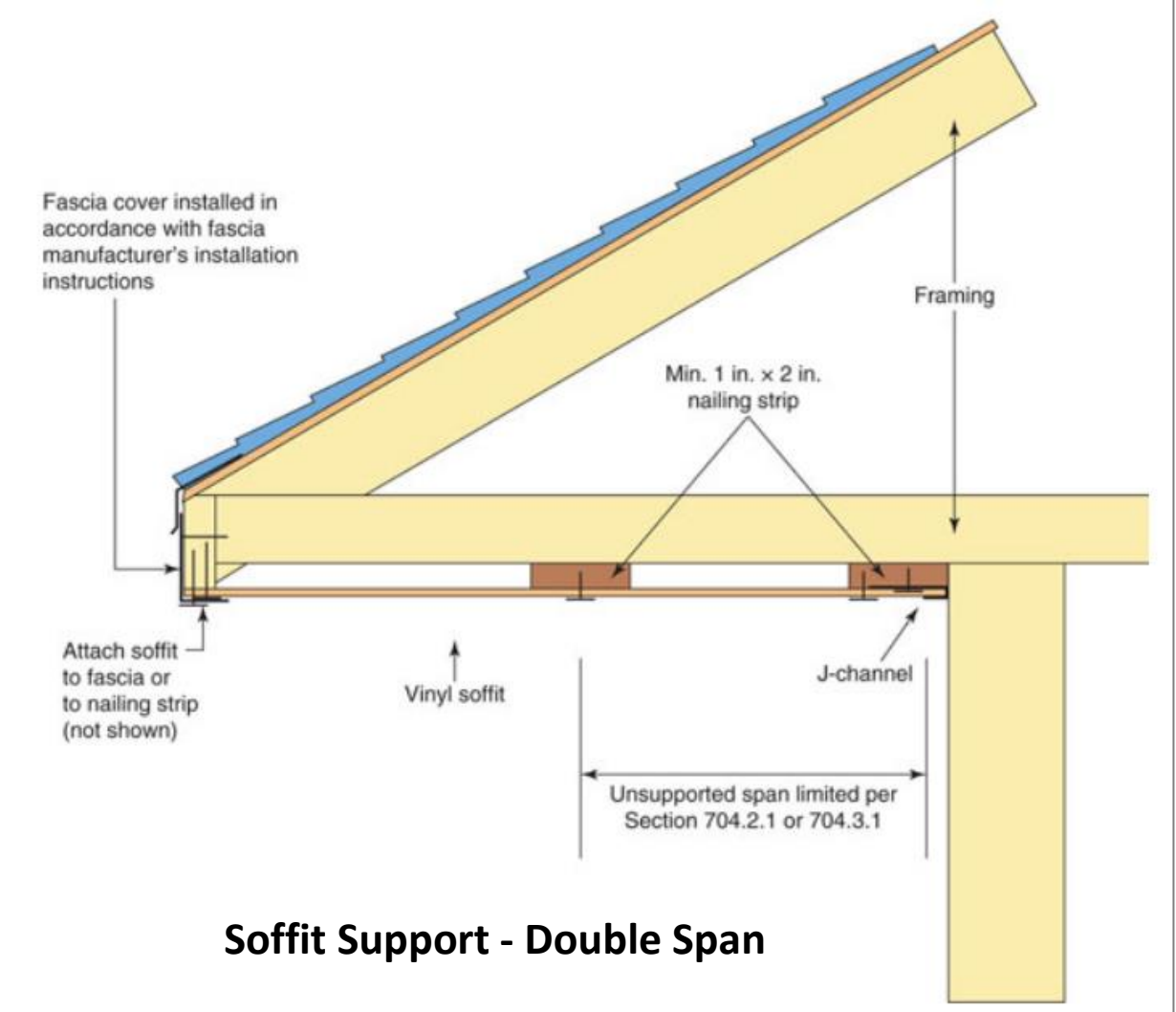
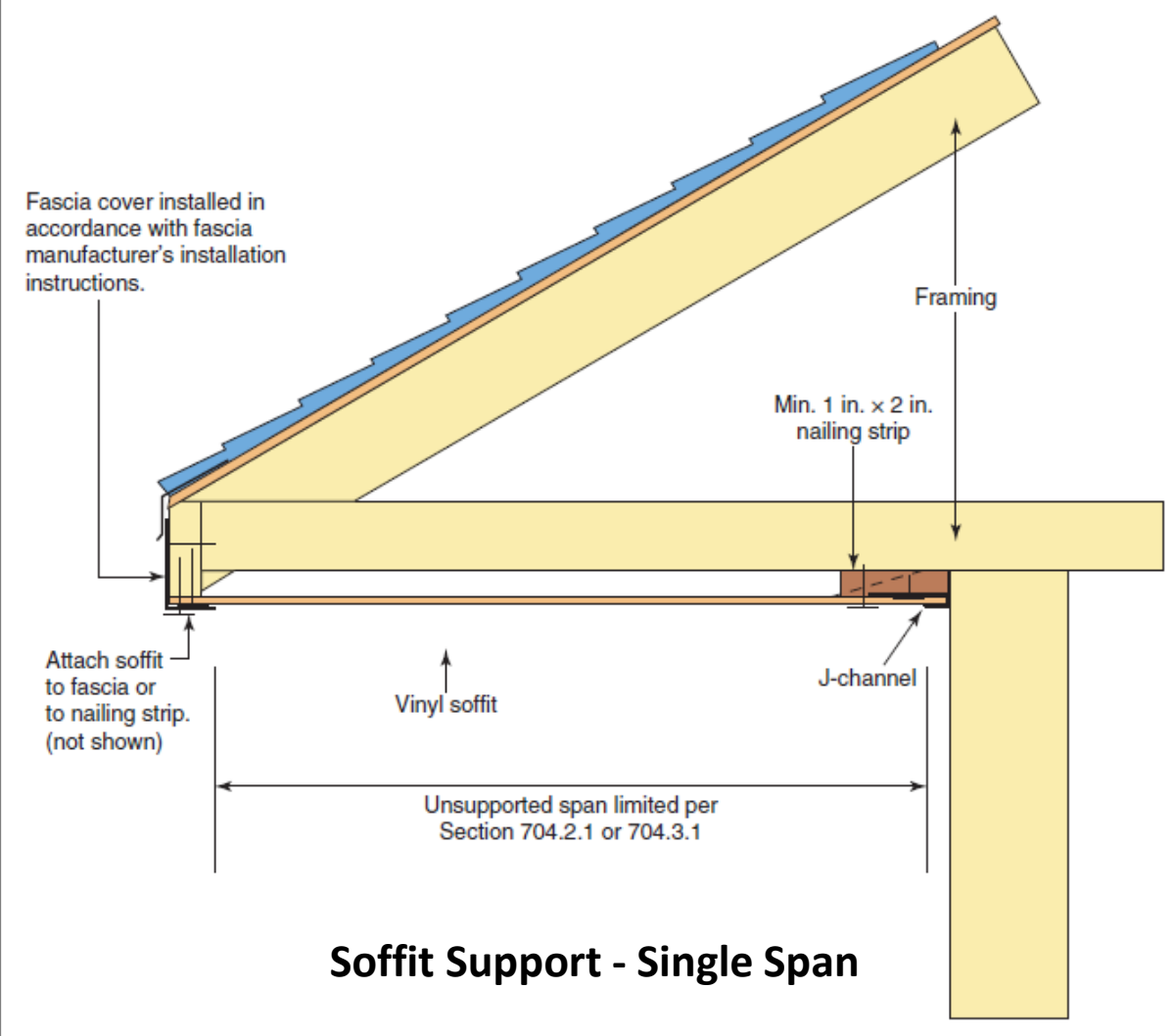


Table R704.3.4 Prescriptive Alternative Nailing for a WSP Soffit

For High Wind Regions only

<u>Maximum Design Pressure (+ or - psf)</u>	<u>Minimum Panel Span Rating</u>	<u>Minimum Panel Performance Category</u>	<u>Nail Type and Size</u>	<u>Fastener^a Spacing Along Edges and Intermediate Supports</u>	
				<u>Galvanized Steel</u>	<u>Stainless Steel</u>
<u>30</u>	<u>24/0</u>	<u>3/8</u>	<u>6d box (2 x 0.099 x 0.266 head diameter)</u>	<u>6^f</u>	<u>4</u>
<u>40</u>	<u>24/0</u>	<u>3/8</u>	<u>6d box (2 x 0.099 x 0.266 head diameter)</u>	<u>6</u>	<u>4</u>
<u>50</u>	<u>24/0</u>	<u>3/8</u>	<u>6d box (2 x 0.099 x 0.266 head diameter)</u>	<u>4</u>	<u>4</u>
			<u>8d common (2½ x 0.131 x 0.281 head diameter)</u>	<u>6</u>	<u>6</u>
<u>60</u>	<u>24/0</u>	<u>3/8</u>	<u>6d box (2 x 0.099 x 0.266 head diameter)</u>	<u>4</u>	<u>3</u>
			<u>8d common (2½ x 0.131 x 0.281 head diameter)</u>	<u>6</u>	<u>4</u>
<u>70</u>	<u>24/16</u>	<u>7/16</u>	<u>8d common (2½ x 0.131 x 0.281 head diameter)</u>	<u>4</u>	<u>4</u>
			<u>10d box (3 x 0.128 x 0.312 head diameter)</u>	<u>6</u>	<u>4</u>
<u>80</u>	<u>24/16</u>	<u>7/16</u>	<u>8d common (2½ x 0.131 x 0.281 head diameter)</u>	<u>4</u>	<u>4</u>
			<u>10d box (3 x 0.128 x 0.312 head diameter)</u>	<u>6</u>	<u>4</u>
<u>90</u>	<u>32/16</u>	<u>15/32</u>	<u>8d common (2½ x 0.131 x 0.281 head diameter)</u>	<u>4</u>	<u>3</u>
			<u>10d box (3 x 0.128 x 0.312 head diameter)</u>	<u>6</u>	<u>4</u>

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Chapters 8 and 9

Roof and Roof Covering

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Table R802.5.2(1) Heel Joint Connections

- The heel joint connection table is updated for roof spans of 24 and 36 feet and a 19.2-inch rafter spacing.





Table R802.5.2(1) Rafter/Ceiling Joist Heel Joint Connections

RAFTER SLOPE	RAFTER SPACING (inches)	GROUND SNOW LOAD (psf)											
		20 ^e			30			50			70		
		Roof span (feet)											
		12	24	36	12	24	36	12	24	36	12	24	36
		Required number of 16d common nails per heel joint splice ^{a,b,c,d,f}											
3:12	12	<u>3</u>	<u>5</u>	<u>8</u>	<u>3</u>	<u>6</u>	<u>9</u>	5	<u>9</u>	<u>13</u>	6	<u>12</u>	<u>17</u>
	16	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>8</u>	<u>12</u>	6	<u>12</u>	<u>17</u>	8	<u>15</u>	<u>23</u>
	<u>19.2</u>	<u>4</u>	<u>8</u>	<u>12</u>	<u>5</u>	<u>10</u>	<u>14</u>	<u>7</u>	<u>14</u>	<u>21</u>	<u>9</u>	<u>18</u>	<u>27</u>
	24	<u>5</u>	<u>10</u>	<u>15</u>	<u>6</u>	<u>12</u>	<u>18</u>	9	<u>17</u>	<u>26</u>	12	<u>23</u>	<u>34</u>
4:12	12	3	<u>4</u>	<u>6</u>	3	<u>5</u>	<u>7</u>	4	<u>7</u>	<u>10</u>	5	<u>9</u>	<u>13</u>
	16	<u>3</u>	<u>5</u>	<u>8</u>	<u>3</u>	<u>6</u>	<u>9</u>	5	<u>9</u>	<u>13</u>	6	<u>12</u>	<u>17</u>
	<u>19.2</u>	<u>3</u>	<u>6</u>	<u>9</u>	<u>4</u>	<u>7</u>	<u>11</u>	<u>6</u>	<u>11</u>	<u>16</u>	<u>7</u>	<u>14</u>	<u>21</u>
	24	<u>4</u>	<u>8</u>	<u>11</u>	<u>5</u>	<u>9</u>	<u>13</u>	7	<u>13</u>	<u>19</u>	9	<u>17</u>	<u>26</u>
5:12	12	3	<u>3</u>	<u>5</u>	3	<u>4</u>	<u>6</u>	3	<u>6</u>	<u>8</u>	4	<u>7</u>	<u>11</u>
	16	3	<u>4</u>	<u>6</u>	3	<u>5</u>	<u>7</u>	4	<u>7</u>	<u>11</u>	5	<u>9</u>	<u>14</u>
	<u>19.2</u>	<u>3</u>	<u>5</u>	<u>7</u>	<u>3</u>	<u>6</u>	<u>9</u>	<u>5</u>	<u>9</u>	<u>13</u>	<u>6</u>	<u>11</u>	<u>17</u>
	24	<u>3</u>	<u>6</u>	<u>9</u>	<u>4</u>	<u>7</u>	<u>11</u>	6	<u>11</u>	<u>16</u>	7	<u>14</u>	<u>21</u>
Sections for 7:12 and 9:12 Slopes not shown													
12:12	12	3	<u>3</u>	3	3	<u>3</u>	3	3	<u>3</u>	4	3	<u>3</u>	5
	16	3	<u>3</u>	<u>3</u>	3	<u>3</u>	<u>3</u>	3	<u>3</u>	5	3	<u>4</u>	<u>6</u>
	<u>19.2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>4</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>3</u>	<u>5</u>	<u>7</u>
	24	3	<u>3</u>	<u>4</u>	3	<u>3</u>	<u>5</u>	3	<u>5</u>	<u>7</u>	3	<u>6</u>	<u>9</u>



Table R802.5.2(1) Rafter/Ceiling Joist Heel Joint Connections - Footnote a

- a. 10d common (3" × 0.148") nails shall be permitted to be substituted for 16d common (3½" × 0.162") nails where the required number of nails is taken as 1.2 times the required number of 16d common nails, rounded up to the next full nail.

Chapter 11

Energy



2021



**Virginia
Residential Code**





N1101.6 Definition of High-Efficacy Light Sources



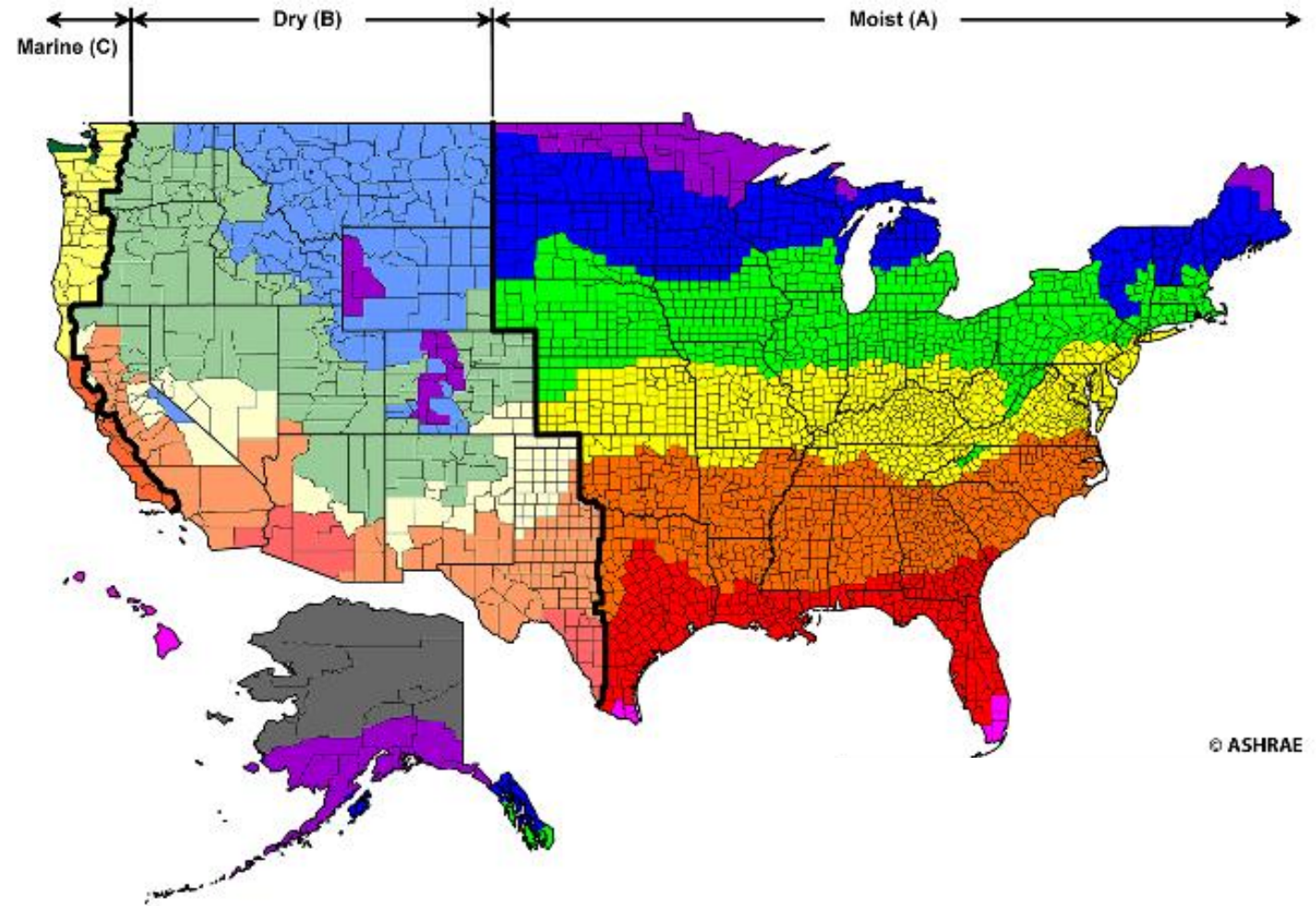
- The definition related to high-efficacy lighting now includes both lamps and luminaires and better reflects current technology and federal standards.

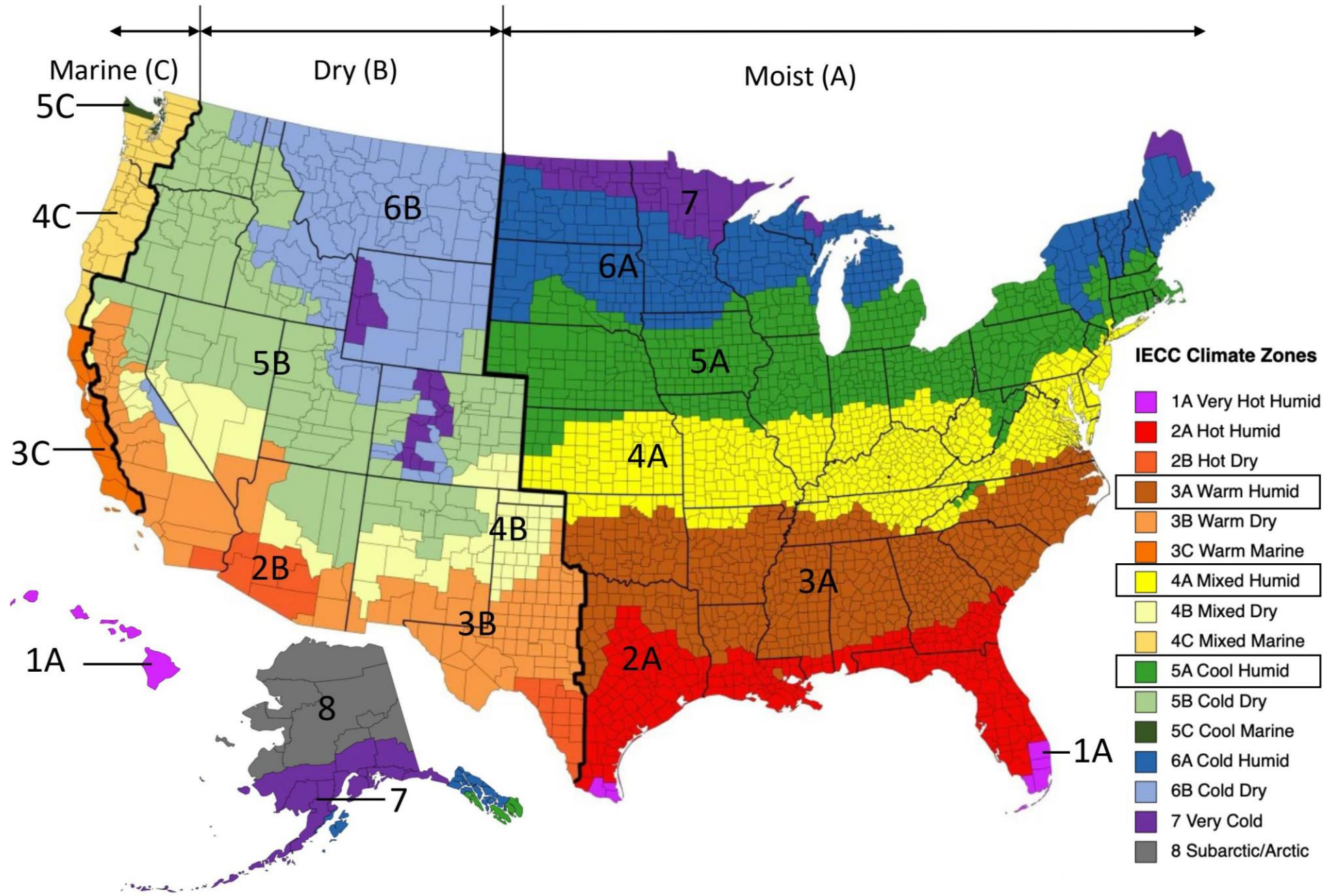
HIGH-EFFICACY LAMPS LIGHT SOURCES. Any lamp with an efficacy of not less than 65 lumens per watt, or luminaires with an efficacy of not less than 45 lumens per watt.











N1101.7 Climate Zones

- Comprehensively updated
- VA now has 3 zones
- Most counties stay zone 4A (mixed humid)
- 19 Counties move to 3A (warm humid)
- 5 counties move to 5A (cool humid)





IECC Climate Zones

-  1A Very Hot Humid
-  2A Hot Humid
-  2B Hot Dry
-  3A Warm Humid
-  3B Warm Dry
-  3C Warm Marine
-  4A Mixed Humid
-  4B Mixed Dry
-  4C Mixed Marine
-  5A Cool Humid
-  5B Cold Dry

3A VA Counties/Cities/Towns (19):

Brunswick
Chesapeake
Emporia
Franklin
Greensville
Halifax
Hampton
Isle of Wight
Mecklenburg
Newport News
Norfolk
Pittsylvania
Portsmouth
South Boston
Southampton
Suffolk
Surry
Sussex
Virginia Beach

5A VA Counties/Cities/Towns (5):

Alleghany
Bath
Clifton Forge
Covington
Highland



N1101.13 Compliance Options

- The compliance path options (Prescriptive, Total Building Performance, Energy Rating Index and Tropical Zone) have been clarified and the Prescriptive and Mandatory labels in the section titles have been removed.





N1101.13.5 Additional Energy Efficiency Requirements

- Prescriptive compliance projects must include **one package from Section N1108.**
- Total building performance compliance projects must either include one package from N1108 (without including it in the proposed design calculations), or the proposed design must have an annual energy cost less than or equal to 95% of the standard reference design.
- Projects complying via the ERI path do not require any of the additional efficiency package options in Section N1108, but must have a score at least 5% less than that in the ERI Table N1106.4.



Enhanced envelope performance is just one option for satisfying the additional efficiency requirements for the prescriptive or performance path.



N1108 Additional Efficiency Package Options

- **N1108.2.1 Enhanced envelope performance option**
- **N1108.2.2 More efficient HVAC equipment performance option**
- **N1108.2.3 Reduced energy use in service water-heating option**
- **N1108.2.4 More efficient duct thermal distribution system option**
- **N1108.2.5 Improved air sealing and efficient ventilation system option**



N1101.14 Permanent Energy Certificate

- Additional information required:
 - Addition details for fenestration *U*-factors
 - Sizes of heating, cooling, and service water heating equipment
 - PV (Solar) system details – if applicable
 - Energy Rating Index (ERI) score – if applicable
 - Code edition



The form is titled "Energy Efficiency Certificate" and includes a house icon. It is divided into several sections with dark green headers:

- Insulation rating**: A table with two columns for "R-Value".

Insulation rating	R-Value	R-Value
Ceiling/Roof	_____	Floor/Foundation _____
Wall	_____	Ductwork _____
- Glass & door rating**: A table with two columns for "U-Factor" and two columns for "SHGC".

Glass & door rating	U-Factor	SHGC	U-Factor	SHGC
Window	_____	_____	_____	_____
Door	_____	_____	_____	_____
- Heating & cooling equipment**:

Heating & cooling equipment	Efficiency
Heating system: _____	_____
Cooling system: _____	_____
Water heater: _____	_____
- Building air leakage and duct test results**:

Building air leakage _____	Name of tester _____
Duct test _____	Name of tester _____
- Photovoltaic (PV) panel system**:

Array capacity _____	Panel tilt _____
Inverter efficiency _____	Orientation _____
- Energy Rating Index (ERI)**:

ERI w/o on-site generation _____	ERI with on-site generation _____
----------------------------------	-----------------------------------

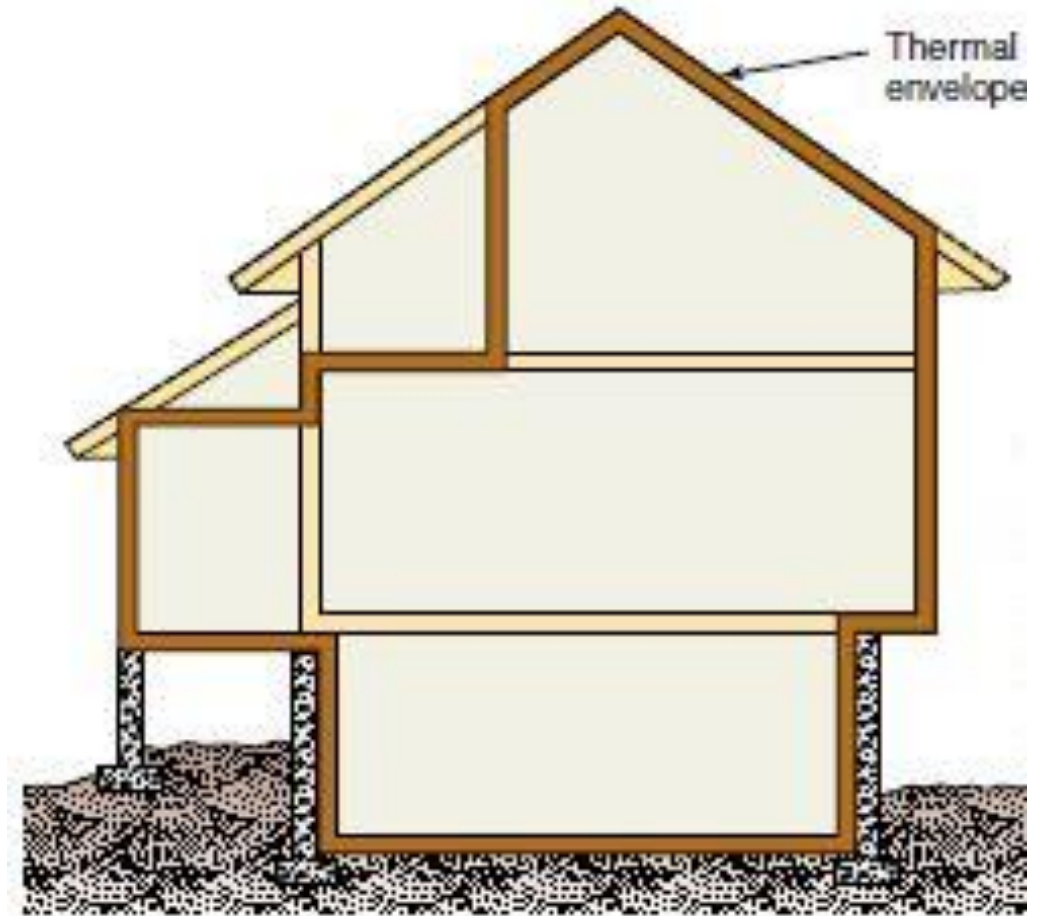
Additional energy efficiency option used: _____

Name: _____ Date: _____



N1102.1 Building Thermal Envelope

- The assembly U -Factor is established as the primary insulation metric.
- The R -Value approach is now an alternative method.





Tables N1102.1.2 and N1102.1.3 Insulation and Fenestration Requirements

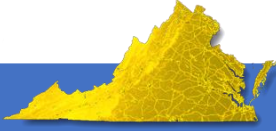
- U -factors are lowered, and R-values are increased in the prescriptive tables.
- The table order is reversed to recognize that the assembly U -Factors are the primary method for determining compliance.
- Other changes relate to footnotes, additional options for using continuous insulation (ci), and clarification to the tables.





TABLE ~~N1102.1.4 (R402.1.4)~~ N1102.1.2 (R402.1.2) Equivalent Maximum Assembly U-Factors^a and Fenestration Requirements

Lower U-Factor = More Effective Insulation

Climate Zone	Fenestration U-Factor ^f	Skylight U-Factor	<u>Glazed Fenestration SHGC^{d,e}</u>	Ceiling U-Factor	 Frame Wall U-Factor	Mass Wall U-Factor ^b	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
3	0.32 <u>.30</u>	0.55	<u>0.25</u>	0.030 <u>0.026</u>	0.060 0.079	0.098	0.047	0.091 ^c	0.136
4 except Marine	0.32 <u>.30</u>	0.55	<u>0.40</u>	0.026 <u>0.024</u>	0.060 0.045 0.079	0.098	0.047	0.059	0.065
5 and Marine 4	0.30	0.55	<u>0.40</u>	0.026 <u>0.024</u>	0.060 0.045 0.079	0.082	0.033	0.050	0.055

↑
This column from the R value table is added, and applies to all glazed fenestration

↑
VA modifies – same as 2018 VA values



~~TABLE N1102.1.2 (R402.1.2)~~ TABLE N1102.1.3 (R402.1.3) Insulation Minimum R-Values and Fenestration Requirements by Component^a

Higher R value = More Effective Insulation
 "ci" = Continuous Insulation

Climate Zone	Fenestration U-Factor ^{b,i}	Skylight ^b U-Factor	Glazed Fenestration SHGC ^{b,e}	Ceiling R-Value	Wood Frame Wall R-value ^g	Mass Wall R-value ^h	Floor R-Value	Basement ^{c,d} Wall R-Value	Slab ^e R-value & Depth	Crawl Space ^{c,d} all R-value
3	0.32 0.30	.55	0.25	38 49	20 or 13 + 5ci or 0 + 15ci 15 or 13 + 1	8/13	19	5ci or 13 ^g	∅ <u>10ci, 2 ft</u>	5ci /or 13
4 except Marine	0.32 0.30	.55	0.40	49 60	20 or 13 + 5ci or 0 + 15ci 15 or 13 + 1	8/13	19	10ci or 13	10ci, 2 <u>4 ft</u>	10 ci or 13
5 and Marine 4	0.30	.55	0.40	49 60	20 or 13 + 5ci or 0 + 15ci 15 or 13 + 1	13/17	30 ^g	15ci or 19 or 13+5ci	10ci, 2 <u>4 ft</u>	15ci /or 19 or 13+5ci

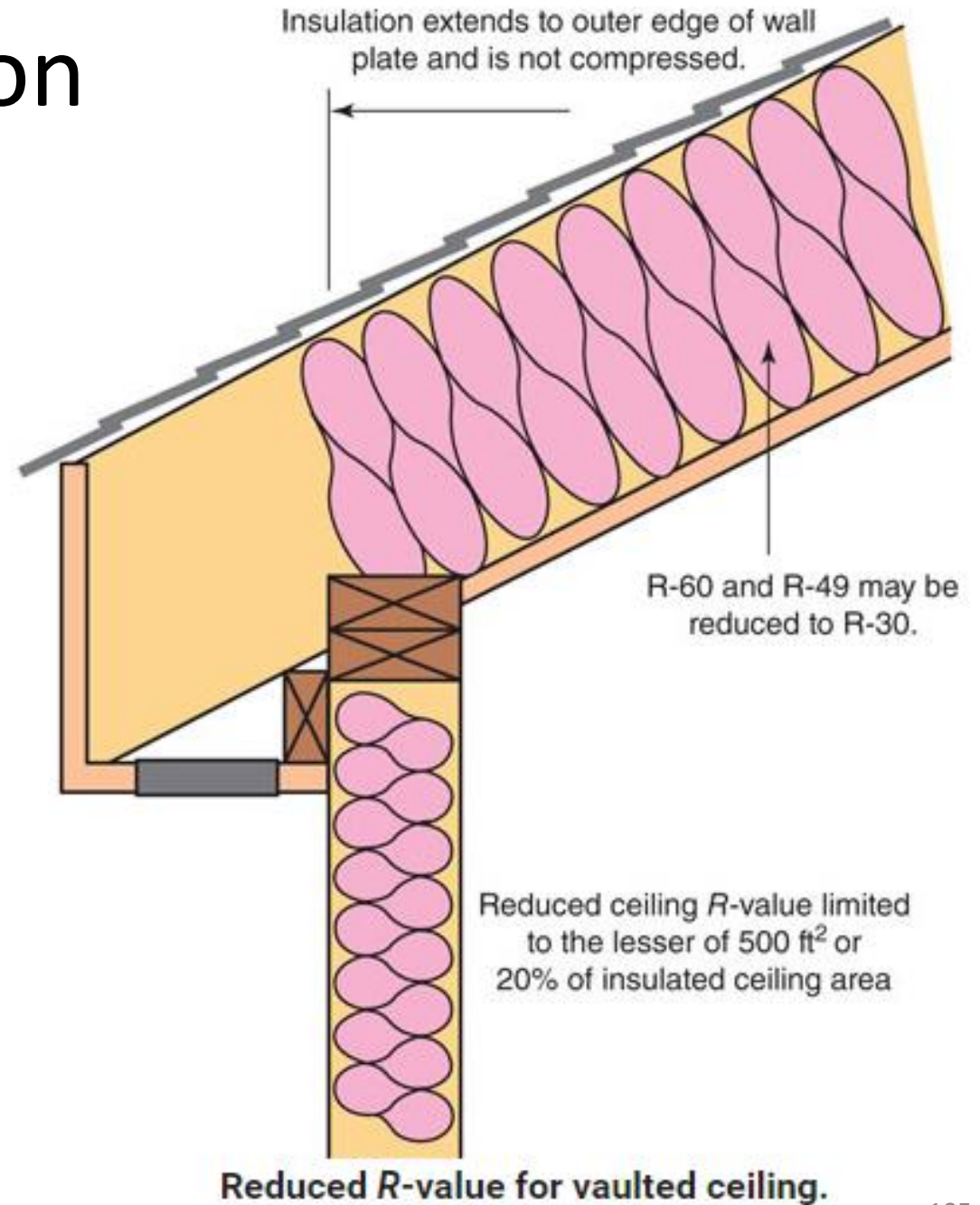
VA modifies – same as 2018 VA values

Footnote g. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "13+5" means R-13 cavity insulation plus R-5 continuous insulation.



N1102.2 Ceiling Insulation

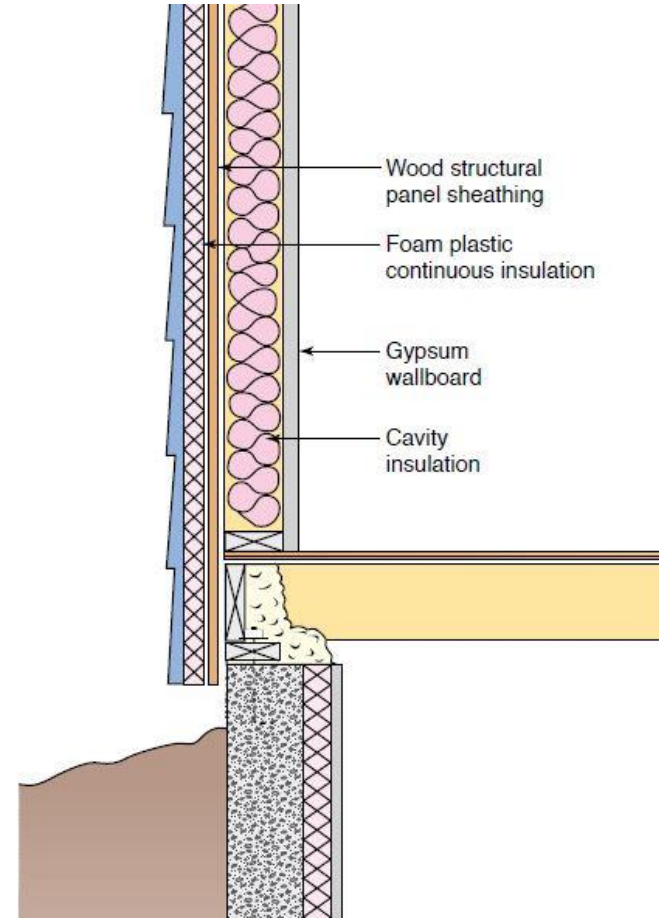
- The options for a reduction in R -values for both ceilings with attics and those without have been adjusted to recognize the increase in the prescriptive ceiling R -values in Table N1102.1.3.





~~N1102.2.7 R-Value Reduction for Walls with Partial Structural Sheathing~~

- Deleted provision for reducing the *R*-value of the required continuous wall insulation at areas of structural wall sheathing.

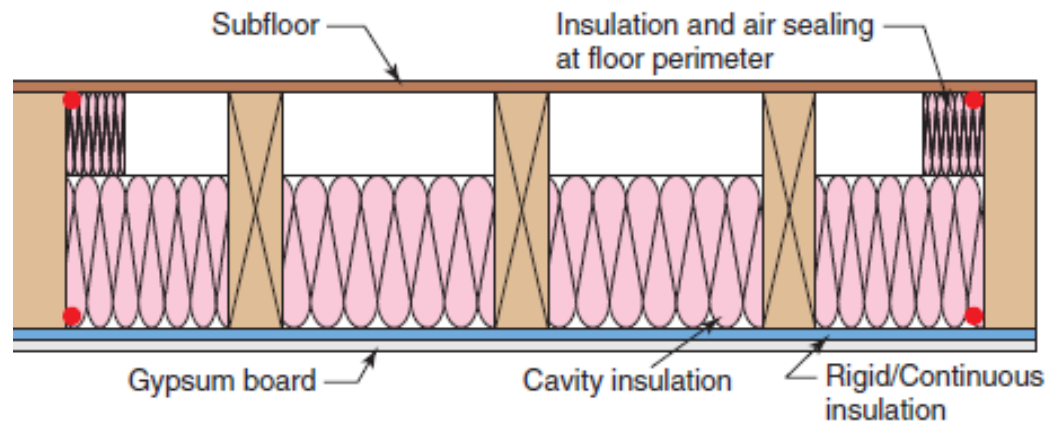
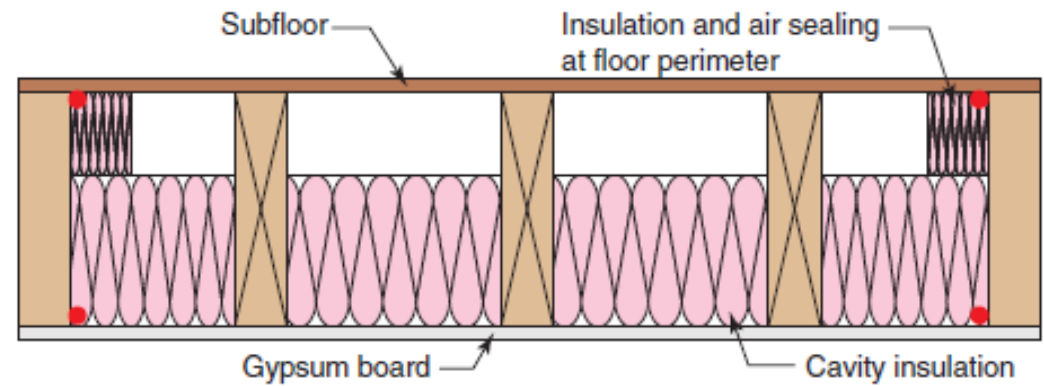
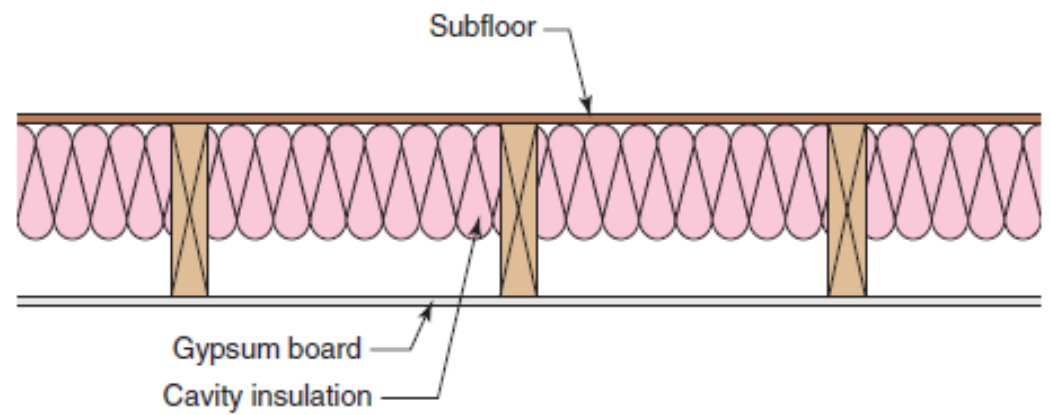




N1102.2.7 Floor Insulation

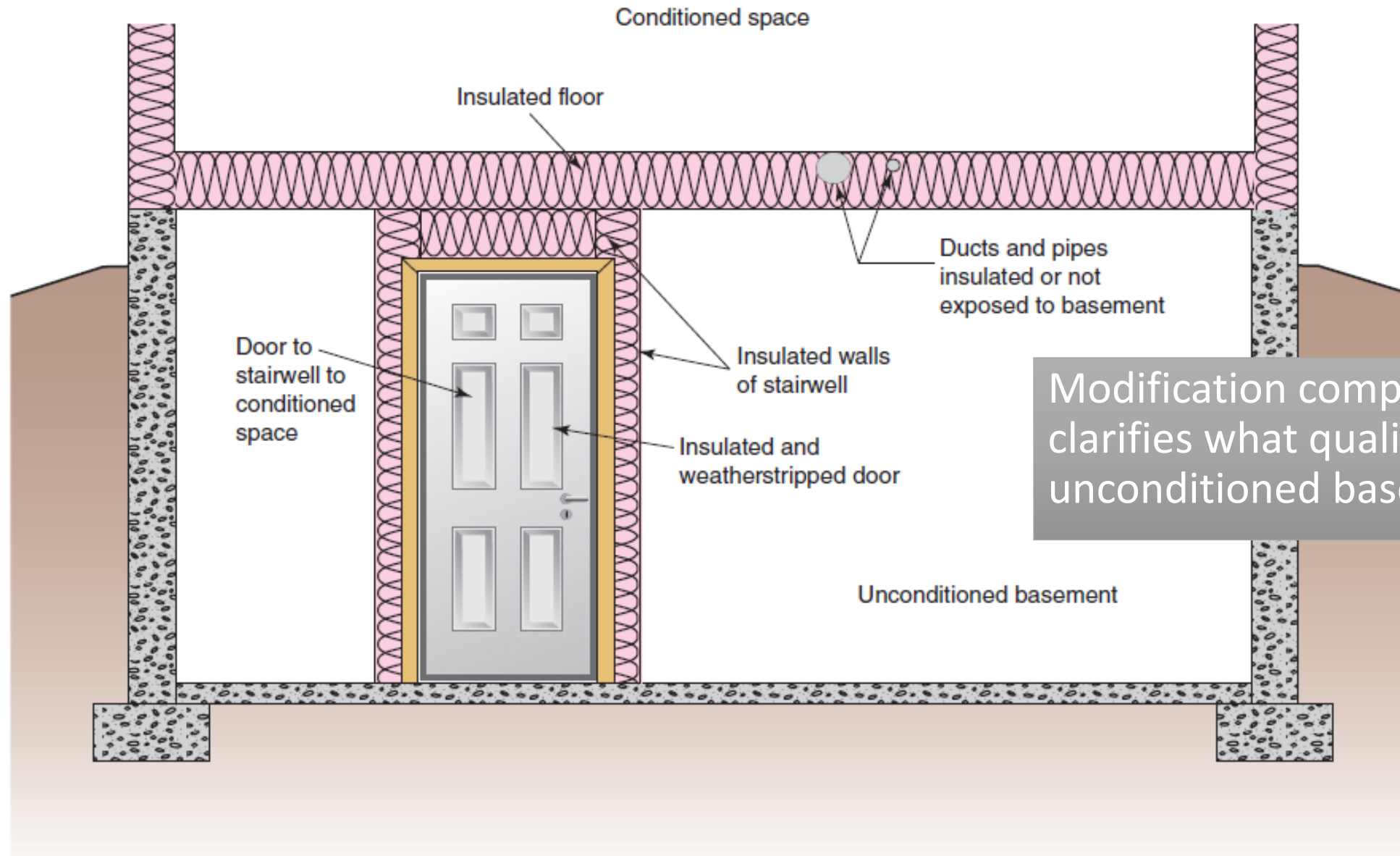
Three separate methods of compliance:

- Cavity insulation underside of subfloor
- Cavity insulation top side of ceiling
- Cavity and continuous insulation top side of ceiling





N1102.2.8 Unconditioned Basement

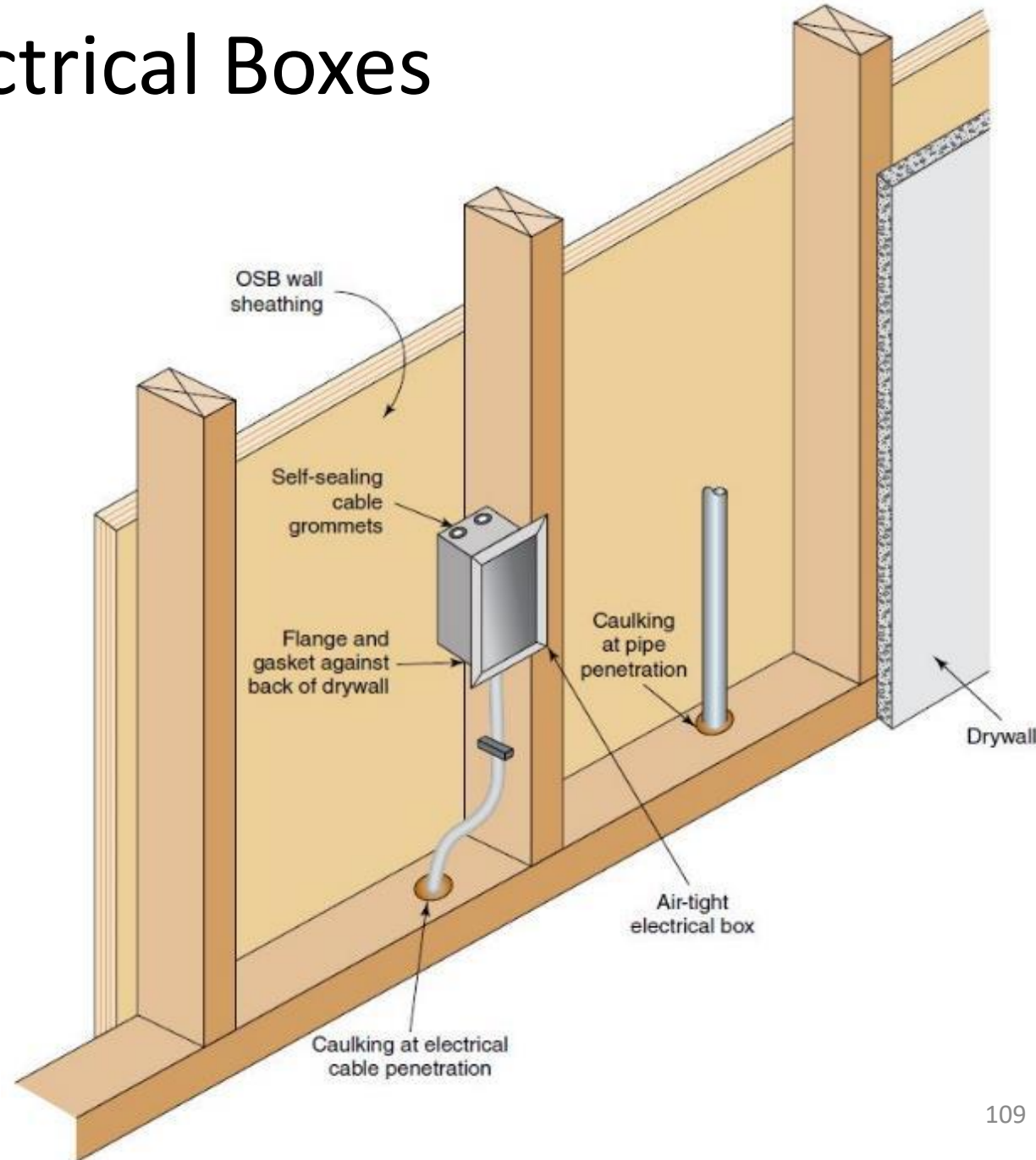


Modification comprehensively clarifies what qualifies as an unconditioned basement



N1102.4.6 Air-Sealed Electrical Boxes

- Electrical and communication outlet boxes installed **in the building thermal envelope**:
 - Sealed
 - Tested NEMA OS 4
 - Marked "NEMA OS 4" or "OS 4"
 - Installed per manufacturer's instructions and NEMA OS 4





N1103.1.3 (VECC R403.1.3) Heat Pump as Primary Space Heat Source



- This new section prohibits electric resistance heat (like “baseboard heaters”) from being installed as the primary heat source **IF a ducted or ductless heat pump can be installed.**
- This type of heating may continue to be used for “defrost, supplemental, or emergency heat”.
- Heat pumps must be designed so that supplemental resistance heat does not energize unless the outdoor temperature is below 40°F, except during defrost or emergency heating modes.

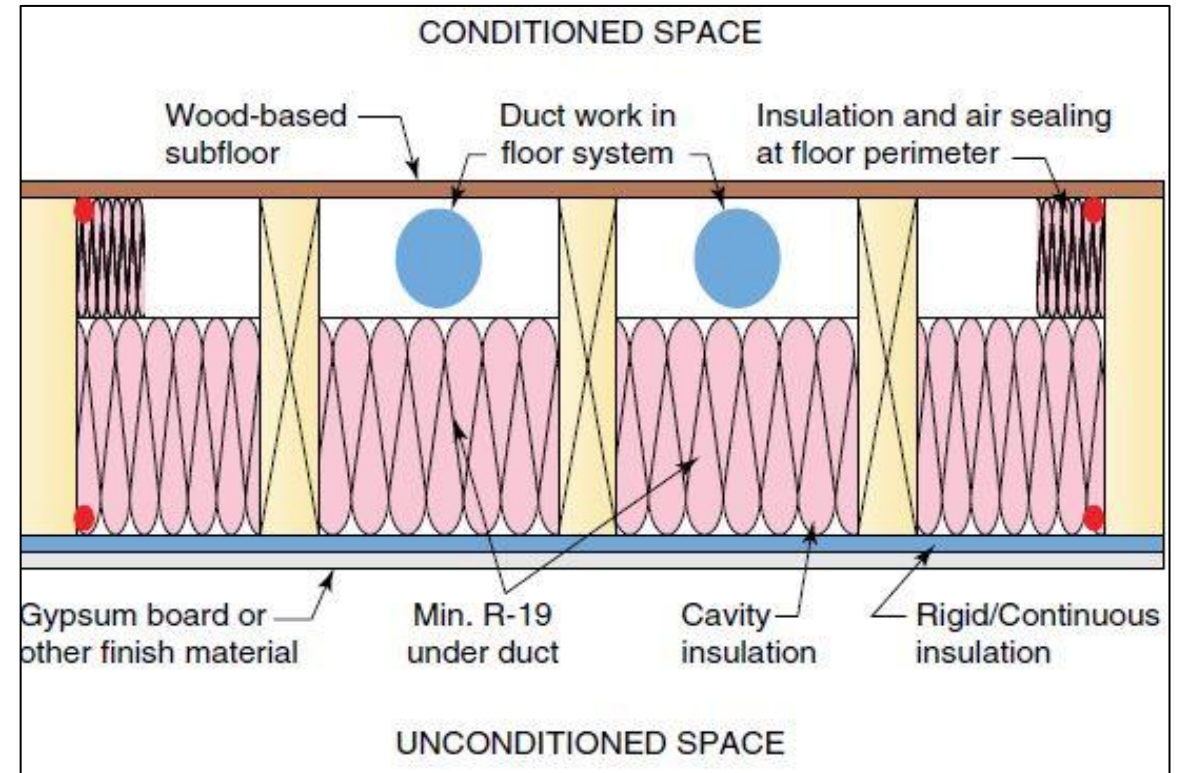
REC - R403.1.2 - 21

N1103.1.3 (R403.1.3) Heat pump as primary space heat source. Electric resistance heat shall not be used as the primary heat source for electric space heating if a ducted or ductless heat pump can be installed. Electric resistance space heating may be used for defrost, supplemental, or emergency heat. A heat pump shall be designed so that, except during defrost or emergency heating modes, supplemental heating does not energize unless the outdoor temperature is below 40°F (4°C).



N1103.3 Duct Installation

- Clarifies requirements for ducts concealed within continuous air barrier and the building thermal envelope
 - Duct system completely within the continuous air barrier and building thermal envelope
 - Duct work in ventilated attic and buried within ceiling insulation
 - Duct work in floor cavities over unconditioned space
 - Duct work within exterior walls





~~N1103.3.3~~ N1103.3.5 Duct Testing

- This section has been updated with current test standards and the exception language has been modified significantly.
- **Ducts and air handlers entirely within the building thermal envelope are no longer exempt from testing**, and the exception now applies only to “ducts serving heating, cooling or ventilation systems **that are not integrated** with ducts serving heating or cooling systems.”

~~N1103.3.3 (R403.3.3)~~ **N1103.3.5 (R403.3.5) Duct testing.** Ducts shall be pressure tested in accordance with ANSI/RESNET/ICC 380 or ASTM E1554 to determine air leakage by one of the following methods:

1. Rough-in test: *(code text unchanged - not shown)*
2. Postconstruction test: *(code text unchanged - not shown)*

Exception: A duct air-leakage test shall not be required ~~where the ducts and air handlers are located entirely within the building thermal envelope.~~ for ducts serving heating, cooling or ventilation systems that are not integrated with ducts serving heating or cooling systems.

(remaining section text unchanged – not shown)





~~N1103.3.4~~ N1103.3.6 Ducts within Thermal Envelope

- A new item #3 is added, which includes allowable duct leakage rates for scenarios “where all ducts and air handlers are located entirely within the building thermal envelope”

N1103.3.6 (R403.3.6) Duct leakage. The total leakage of the ducts, where measured in accordance with Section N1103.3.5, shall be as follows:

1. Rough-in test: *(unchanged – code text not shown)*

2. Postconstruction test: *(unchanged – code text not shown)*

3. Test for ducts within thermal envelope: Where all ducts and air handlers are located entirely within the building thermal envelope, total leakage shall be less than or equal to 8.0 cubic feet per minute (226.6 L/min) per 100 square feet (9.29 m²) of conditioned floor area.



N1103.3.7 Building Cavities (used as ducts or plenums)

- This amendment adds language that specifically addresses framing cavities used as ducts or plenums, requiring they meet the requirements of VRC M1601.1.1 (Above Ground Duct Systems - which includes additional plenum requirements and restrictions – see VRC M 1601.1.1 for full details).



REC - R403.3.3 - 21

2021 VRC

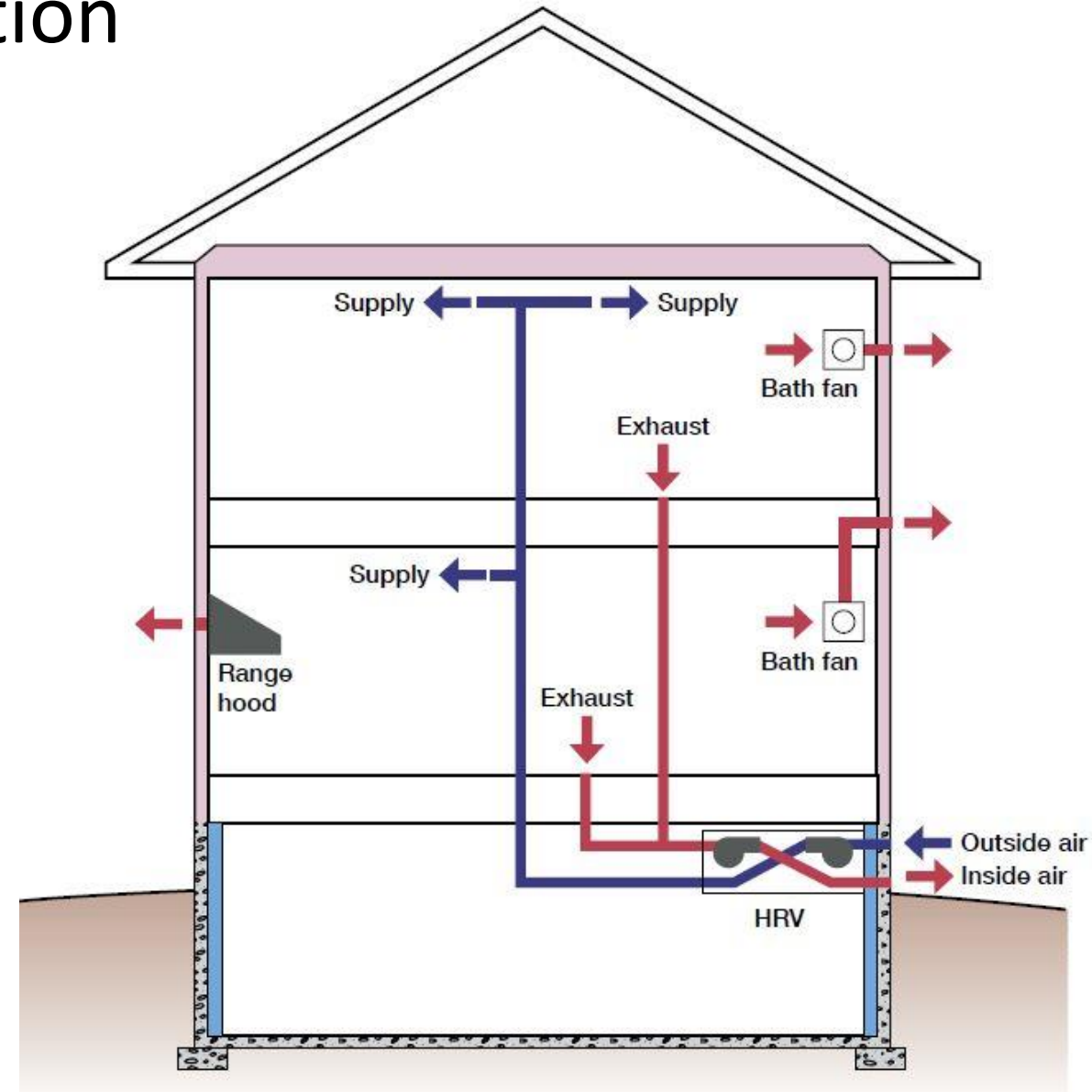
N1103.3.7 (R403.3.7) Building cavities. Building framing cavities used as ducts or plenums shall comply with VRC Section M1601.1.1.



N1103.6 Mechanical Ventilation

- Mechanical ventilation systems now require testing.

N1103.6.3 (R403.6.3) Testing. Mechanical ventilation systems shall be tested and verified to provide the minimum ventilation flow rates required by Section N1103.6. Testing shall be performed according to... (see code for full text)





N1104 Lighting Equipment



- High-efficacy lighting is now required in all permanent lighting fixtures.
- New provisions **require lighting controls for interior and exterior lighting.**



N1104.2 (R404.2) Interior Lighting Controls

N1104.2 (R404.2) Interior Lighting Controls. Permanently installed lighting fixtures shall be controlled with a dimmer, an occupant sensor control or another control that is installed or built into the fixture.

Exception: Lighting controls shall not be required for the following:

1. Bathrooms
2. Hallways
3. Exterior lighting fixtures
4. Lighting designed for safety or security



N1104.3 (R404.3) Exterior Lighting Controls

N1104.3 (R404.3) Exterior lighting controls. Where the total permanently installed exterior lighting power is greater than 30 watts, the permanently installed exterior lighting shall comply with the following:

1. Lighting shall be controlled by a manual on and off switch that permits automatic shut off actions.

Exception: Lighting serving multiple dwelling units.

2. Lighting shall be automatically shut off when daylight is present and satisfies the lighting needs.

3. Controls that override automatic shut off actions shall not be allowed unless the override automatically returns automatic control to its normal operation within 24 hours.



Section N1105 (R405) ~~Simulated Performance Alternative (Performance)~~ Total Building Performance

- Section has been retitled and reorganized, and the terms “mandatory” and “prescriptive” are eliminated
- All requirements applicable to this compliance path are now identified within Section N1105





Table N1105.2 Requirements for the Total Building Performance Compliance Path

- New table N1105.2 lists the section number and title of all required provisions for this compliance path that appear elsewhere in the code.

N1101.13.5 Additional energy efficiency

N1101.14 Certificate

Building Thermal Envelope

N1102.1.1 Vapor Retarder

N1102.2.3 Eave Baffles

N1102.2.4.1 Access hatches and doors

N1102.2.10.1 Crawl space wall insulation installation

N1102.4.1.1 Installation

N1102.4.1.2 Testing

N1102.5 Max. fenestration U-factor and SHGC

Mechanical

N1103.1 Controls

N1103.3, including N1103.3.1.1, except Sections

N1103.3.2, N1103.3.3, and N1103.3.6 Ducts

N1103.4 Mechanical system piping insulation

N1103.5.1 Heated water circ. systems

N1103.5.3 Drain water heat recovery units

N1103.6 Mechanical ventilation

N1103.7 Equipment sizing and efficiency rating

N1103.8 Systems serving multiple dwelling units

N1103.9 Snow melt system controls

N1103.10 Energy - pools and permanent spas

N1103.11 Portable spas

N1103.12 Residential pools and spas

Electrical Power and Lighting Systems

N1104.1 Lighting equipment

N1104.2 Interior Lighting Controls

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Chapters 12 - 23

Mechanical

*We will also include the VMC code section where applicable

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Chapter 14 Refrigeration Cooling Equipment Standards



- This code change updates multiple sections in Chapter 14 to reference the appropriate standards for various types of refrigeration cooling equipment (changes already approved/adopted in the 2024 IRC).

RM1404.1 - 21

Updated Sections

- M1402.1
- M1403.1
- M1404.1
- M1412.1
- M1413.1

Updated Referenced Standards

UL 474-2015: Standard for Safety Dehumidifiers

UL 484-2019 Standard for Room Air Conditioners

UL/CSA/ANCE ~~60335-2-40-2012~~ 60335-2-40-2012 2019 Standard for Household and Similar Electrical Appliances, Safety Part 2-40: Particular Requirements for Motor-compressors for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers



Section M1411.1 – Approved Refrigerants



RM1411 - 21

- This code change adds several new subsections to M1411.1 and deletes/updates several referenced standards related to the use of A2L refrigerants (aligns with the 2024 IRC).

New subsections:

M1411.1.1 Refrigeration system listing.

M1411.1.2 Refrigeration system installation.

M1411.1.3 Field installed accessories.

M1411.1.4 Signs and identification.

M1411.1.5 Refrigerant charge.

M1411.1.6 Group A2L refrigerant piping testing.

Deleted/Updated Standards

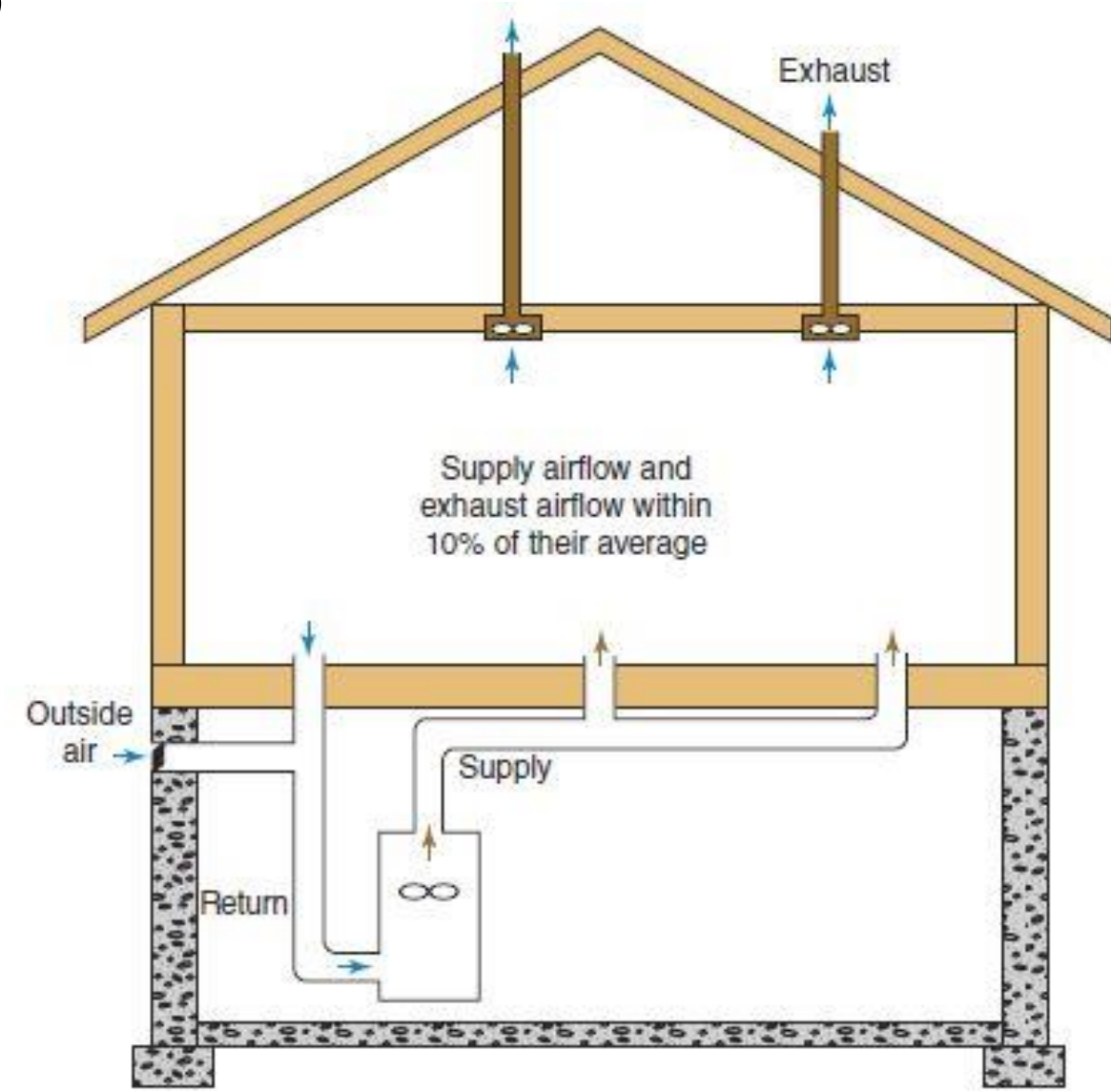
- ~~NMX-J-521/2-40-ANCE-2014/CAN/CSA-22.2 No.60335-2-40-12/UL 60335-2-40~~
- **UL 60335-2-40-2019/CAN/CSA/C22.2 No. 60335-2-40-2019**
- **UL 60335-2-40 2019/CAN/CSA C22.2 No. 60335-2-40-19**



M1505 *Balanced Ventilation* System Credit

- A 30 percent reduction of airflow is permitted for ***balanced ventilation*** systems.

BALANCED VENTILATION. Any combination of concurrently operating mechanical exhaust and mechanical supply whereby the total mechanical exhaust airflow rate is within 10% of the total mechanical supply airflow rate.

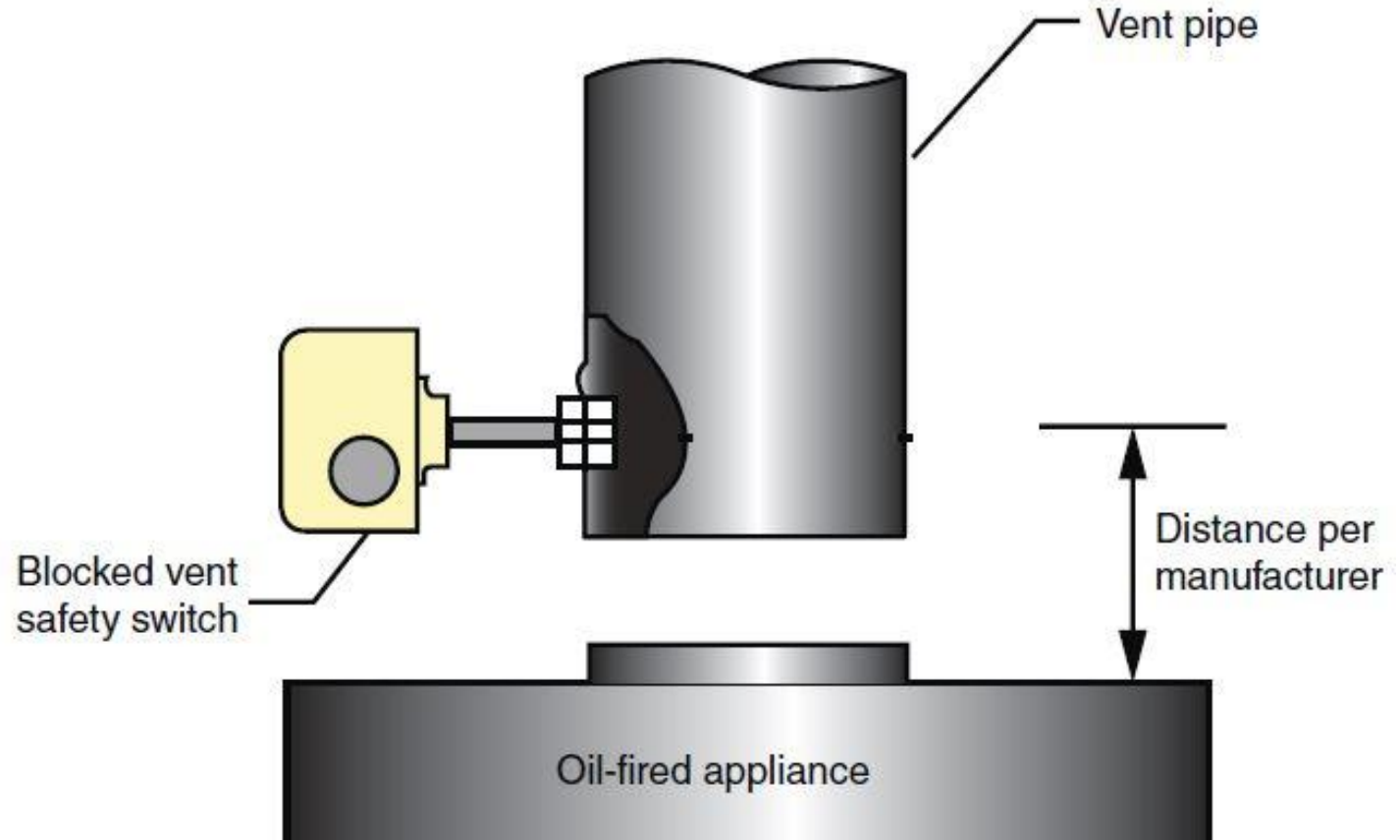


Balanced ventilation system



M1802.4 (801.21) Blocked Vent Switch for Oil-fired Appliances

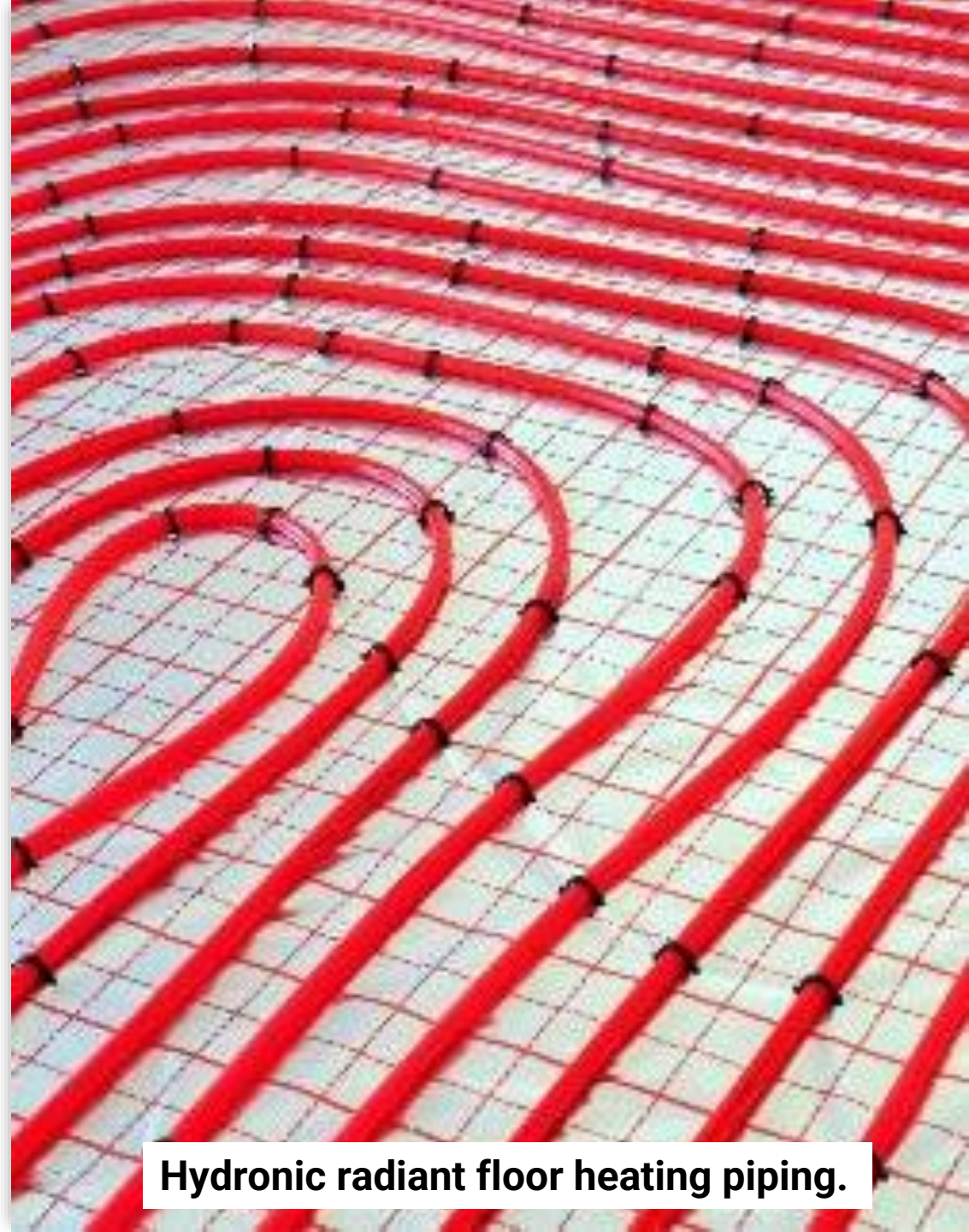
- Device will stop burner operation if venting system is obstructed.
- Requires a manual reset.
- Installed in accordance with the manufacturer's instructions.





M2101 Hydronic Piping Systems Installation

- Duplicates provisions from M2105 Ground-Source Heat Pump Loop Piping systems
- Now applies to all hydronic piping systems
- M2103 Floor heating piping rating ~~100~~ 80 pounds psi at 180°F
- M2105 Ground-Source Piping: pipe ends per manufacturer



Hydronic radiant floor heating piping.

2021

Chapter 24

Fuel Gas

*We will also include the VFGC code section where applicable

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G2403 (202) General Definitions

New definitions clarify terms that are used in the definition of “**point of delivery**” (**coming up**) and a change to the definition of “service shutoff” coordinates with all of the relative definitions.

Service Meter Assembly

- The meter, valve, regulator, piping, fittings and equipment installed by the service gas supplier before the point of delivery

Service Shutoff

- A valve, installed by the serving gas supplier between ~~service meter or the source of supply~~ and the point of delivery ~~customer piping system~~, to shut off the entire piping system.

System Shutoff

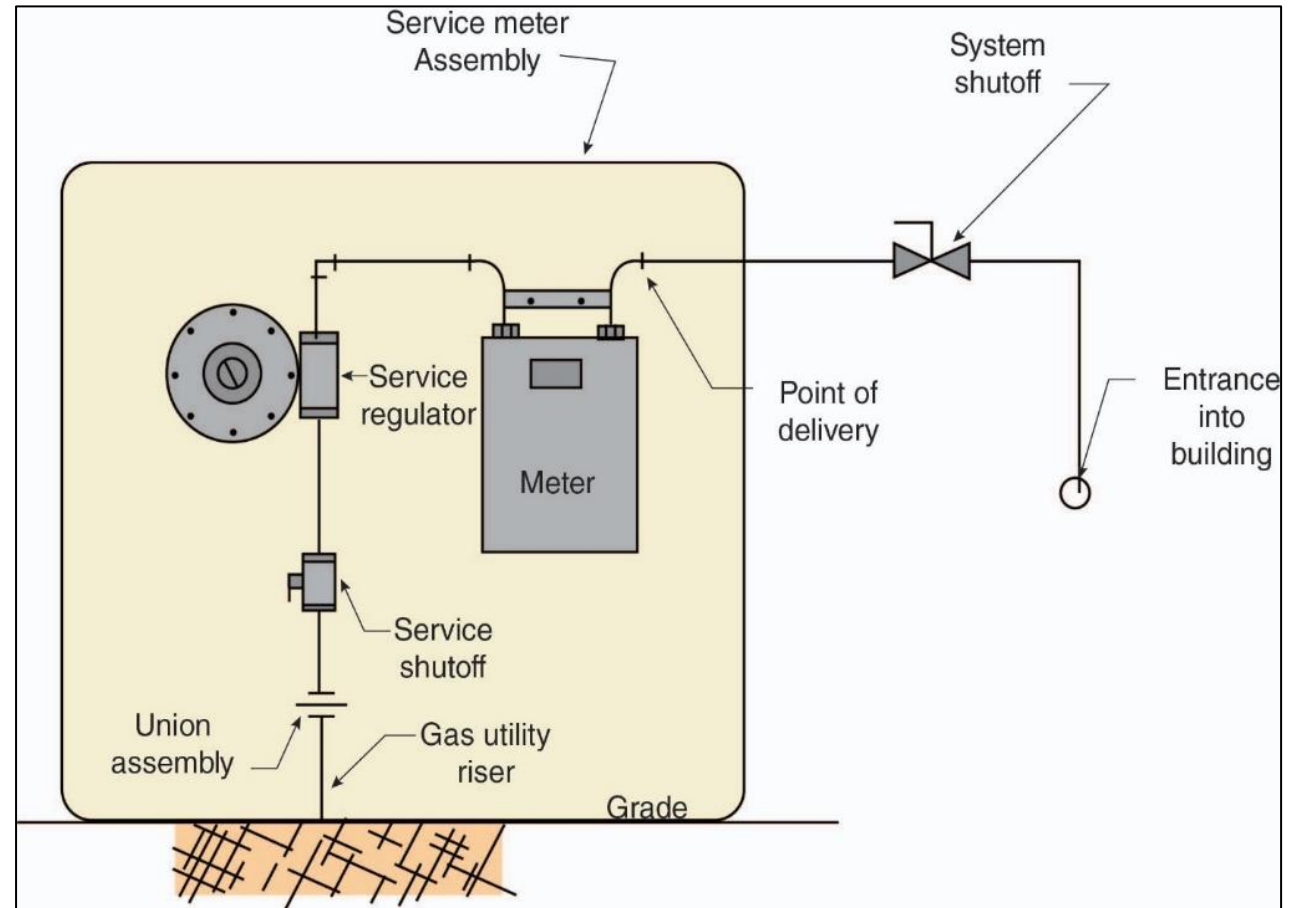
- A valve installed after the point of delivery to shut off the entire piping system.



G2403 (202) Definitions

Service Meter Assembly

The meter, valve, regulator, piping, fittings and equipment installed by the service gas supplier before the point of delivery.

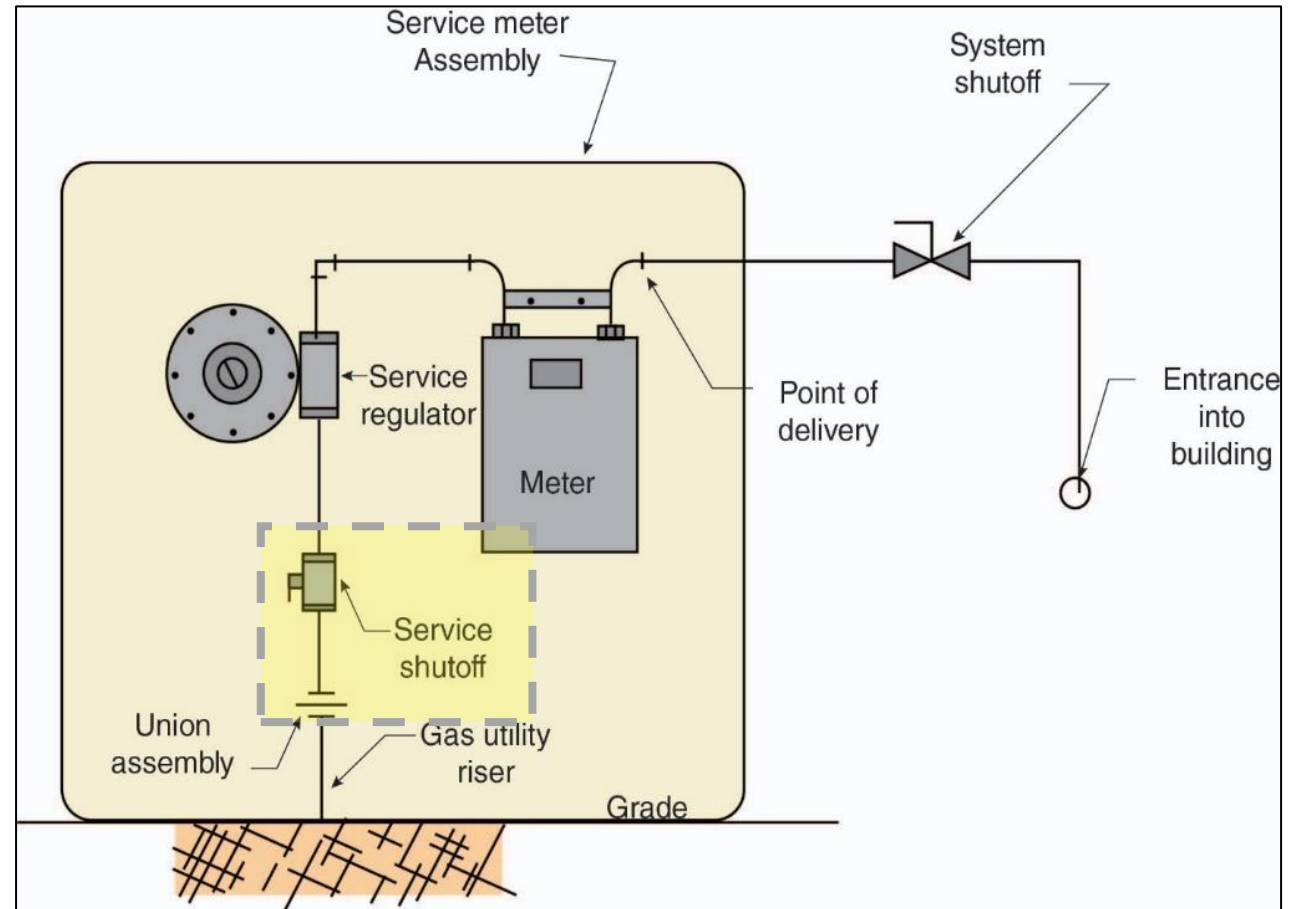




G2403 (202) Definitions

Service Shutoff

A valve, installed by the serving gas supplier between ~~service meter or the source of supply and the~~ point of delivery ~~customer piping system,~~ to shut off the entire piping system.



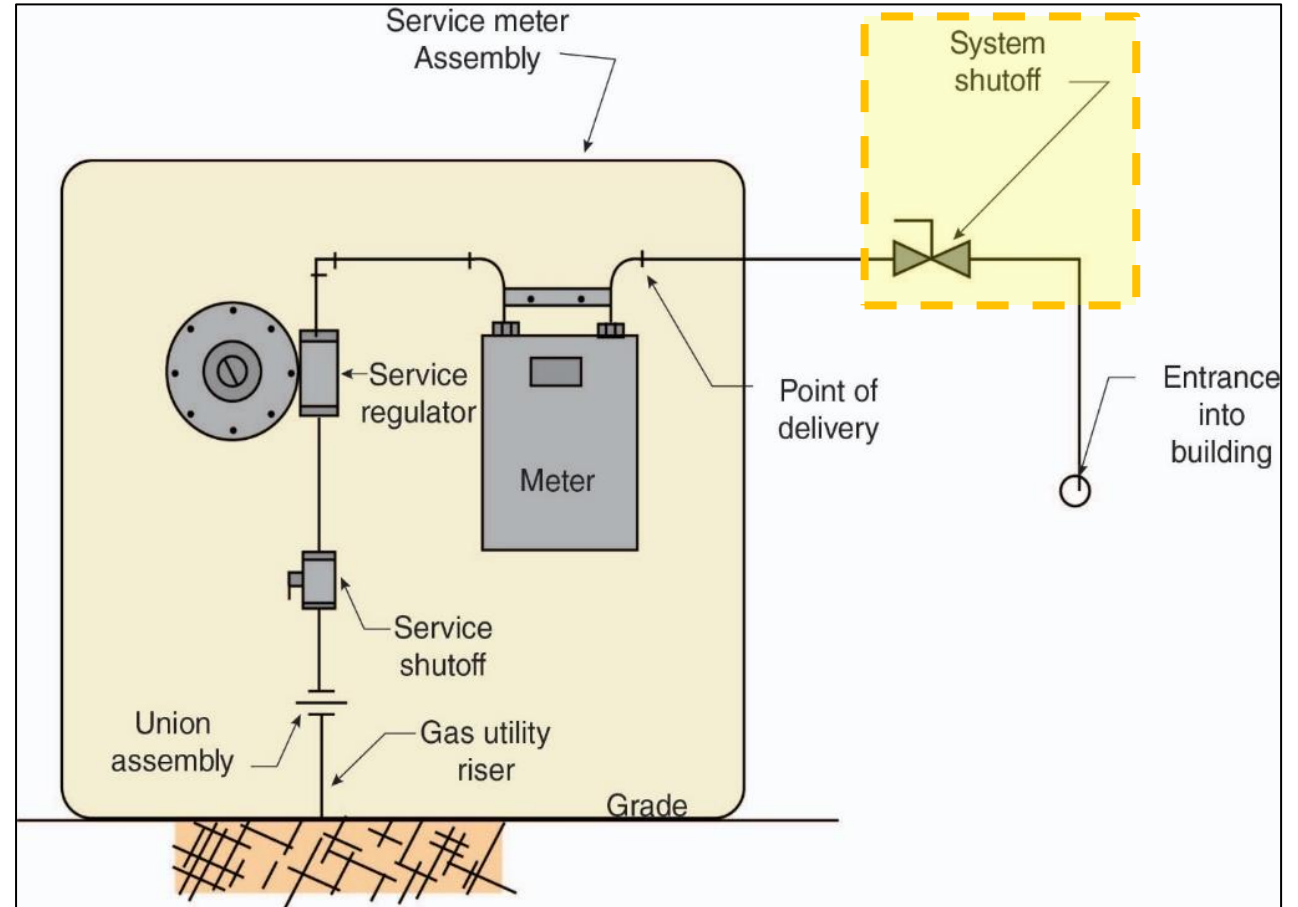


G2403 (202) Definitions

System Shutoff

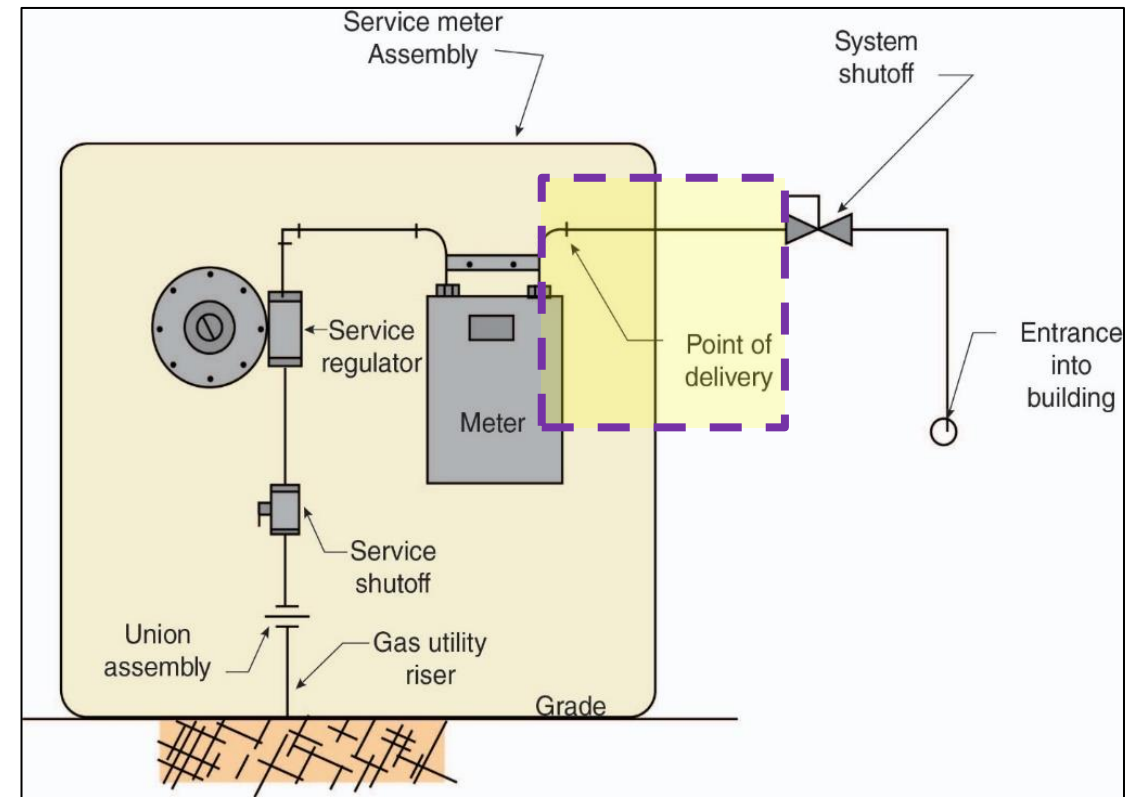
A valve installed after the point of delivery to shut off the entire piping system.

A “system shutoff” is a valve that is installed by choice to allow the customer or building owner to shut off the gas to the entire building.





G2403 (202) Definitions



POINT OF DELIVERY.

For natural gas systems, the point of delivery is the outlet of the service meter assembly or the outlet of the service regulator or service shutoff valve where a meter is not provided. Where a [system shutoff](#) valve is provided at [after](#) the outlet of the service meter assembly, such valve shall be considered to be downstream of the point of delivery. For undiluted liquefied petroleum gas systems, the point of delivery shall be considered to be the outlet of the service pressure regulator, exclusive of line gas regulators, in the system.



G2414.8.3 (403.8.3) Threaded Joint Sealing

- **Text was revised to require the use of thread joint sealants (aka joint compounds, pipe dope, pipe tape).**
- Thread sealants act primarily as a lubricant to allow the threads to form a tight metal-to-metal seal and any imperfections or voids in the threads are filled in by the thread sealant material.
- The most common thread sealants used today are pastes made with PTFE (Teflon) and Teflon tapes.



G2414.8.3 Threaded joint sealing. Threaded joints shall be made using a thread joint sealing material. Thread joint sealing materials shall be nonhardening and shall be resistant to the chemical constituents of the gases to be conducted through the piping. Thread joint sealing materials shall be compatible with the pipe and fitting materials on which the sealing materials are used.



G2415.5 (404.5) Fittings in Concealed Locations

G2415.5 (404.5) Fittings in concealed locations. Fittings installed in concealed locations shall be limited to the following types:

1. Threaded elbows, tees, couplings, [plugs and caps](#).
2. Brazed fittings.
3. Welded fittings.
4. Fittings listed to ANSI LC-1/CSA 6.26 or ANSI LC-4/CSA 6.32.



Caps and plugs are permitted to be concealed.



G2427.8 (503.8) Venting System Terminal Clearances

Through the wall vent terminal clearance distances have been placed in a new table for ease of use (**table detail enlarged on upcoming slides**).

Exception: The clearances in Table G2427.8 shall not apply to the combustion air intake of a direct-vent appliance

**TABLE 503.8
THROUGH-THE-WALL VENT TERMINAL CLEARANCE**

FIGURE CLEARANCE	CLEARANCE LOCATION	MINIMUM CLEARANCE FOR DIRECT-VENT TERMINALS	MINIMUM CLEARANCE FOR NONDIRECT-VENT TERMINALS
A	Clearance above finished grade level, veranda, porch, deck, or balcony	12 inches	
B	Clearance to window or door that is openable	6 inches: Appliances ≤ 10,000 Btu/hr 9 inches: Appliances > 10,000 Btu/hr ≤ 50,000 Btu/hr 12 inches: Appliances > 50,000 Btu/hr ≤ 150,000 Btu/hr Appliances > 150,000 Btu/hr, in accordance with the appliance manufacturer's instructions and not less than the clearances specified for nondirect-vent terminals in Row B	4 feet below or to side of opening or 1 foot above opening
C	Clearance to nonopenable window	None unless otherwise specified by the appliance manufacturer	
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet from the center line of the terminal	None unless otherwise specified by the appliance manufacturer	
E	Clearance to unventilated soffit	None unless otherwise specified by the appliance manufacturer	
F	Clearance to outside corner of building	None unless otherwise specified by the appliance manufacturer	
G	Clearance to inside corner of building	None unless otherwise specified by the appliance manufacturer	
H	Clearance to each side of center line extended above regulator vent outlet	3 feet up to a height of 15 feet above the regulator vent outlet	
I	Clearance to service regulator vent outlet in all directions	3 feet for gas pressures up to 2 psi; 10 feet for gas pressures above 2 psi	
J	Clearance to nonmechanical air supply inlet to building and the combustion air inlet to any other appliance	Same clearance as specified for Row B	
K	Clearance to a mechanical air supply inlet	10 feet horizontally from inlet or 3 feet above inlet	
L	Clearance above paved sidewalk or paved driveway located on public property	7 feet and shall not be located above public walkways or other areas where condensate or vapor can cause a nuisance or hazard	
M	Clearance to underside of veranda, porch, deck, or balcony	12 inches where the area beneath the veranda, porch, deck or balcony is open on not less than two sides. The vent terminal is prohibited in this location where only one side is open.	

- = Vent terminal
- = Air supply inlet
- = Area where terminal is not permitted

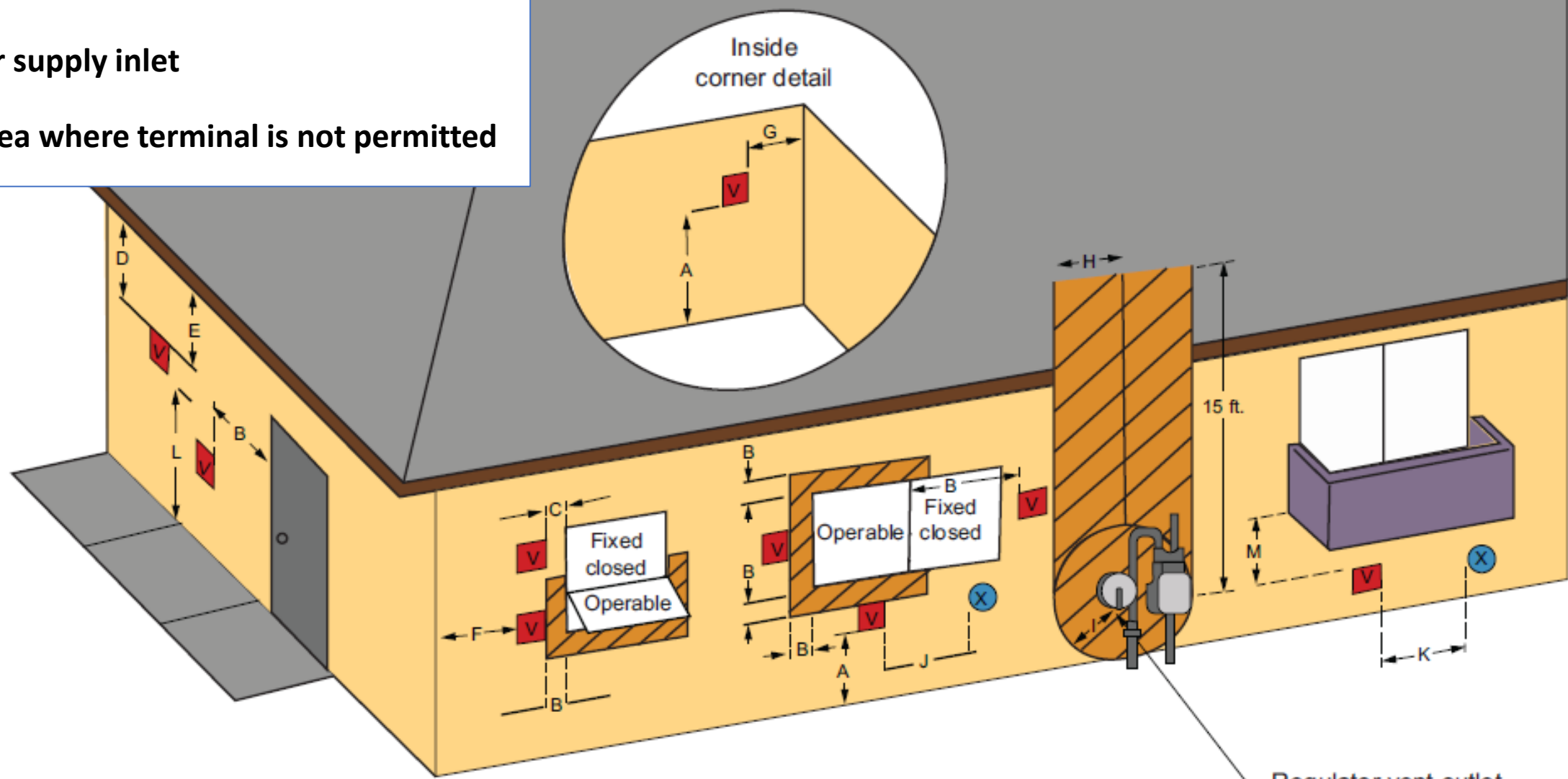


FIGURE G2427.8 (503.8)
THROUGH-THE-WALL VENT TERMINAL CLEARANCE

Regulator vent outlet.
 In the event no regulator is present, H and I can be disregarded.



G2427.8 (503.8) Venting System Terminal Clearances

Figure Clearance	Clearance Location	Minimum Clearance for Direct-Vent Terminals	Minimum Clearances for Non-Direct Vent Terminals
A	Clearance above finished grade level, veranda, porch, deck, or balcony	12 in.	
B	Clearance to window or door that is operable	6 in.:Appliances \leq 10,000 Btu/hr 9 in.:Appliances $>$ 10,000 Btu/hr \leq 50,000 Btu/hr 12 in.:Appliances $>$ 50,000 Btu/hr \leq 150,000 Btu/hr Appliances $>$ 150,000 Btu/hr, in accordance with the appliance manufacturer's instructions and not less than the clearances specified for Non-Direct Vent Terminals in row B	4 ft. below or to side of opening or 1 foot above opening



G2427.8 (503.8) Venting System Terminal Clearances

Figure Clearance	Clearance Location	Minimum Clearance for Direct-Vent Terminals	Minimum Clearances for Non-Direct Vent Terminals
C	Clearance to non-openable window	None unless otherwise specified by the appliance manufacturer	
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	None unless otherwise specified by the appliance manufacturer	
E	Clearance to unventilated soffit	None unless otherwise specified by the appliance manufacturer	
F	Clearance to outside corner of building	None unless otherwise specified by the appliance manufacturer	
G	Clearance to inside corner of building	None unless otherwise specified by the appliance manufacturer	



G2427.8 (503.8) Venting System Terminal Clearances

Figure Clearance	Clearance Location	Minimum Clearance for Direct-Vent Terminals	Minimum Clearances for Non-Direct Vent Terminals
H	Clearance to each side of center line extended above regulator vent outlet	3 ft. up to a height of 15 ft. above the regulator vent outlet	
I	Clearance to service regulator vent outlet in all directions	3 ft. for gas pressures up to 2 psi 10 ft. for gas pressures above 2 psi	
J	Clearance to non-mechanical air supply inlet to building and the combustion air inlet to any other appliance	Same clearance as specified for row B	
K	Clearance to a mechanical air supply inlet	10 ft. horizontally from inlet or 3 ft. above inlet	
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft. and shall not be located above public walkways or other areas where condensate or vapor can cause a nuisance or hazard	
M	Clearance to underside of veranda, porch deck, or balcony	12 in. where the area beneath the veranda, porch deck or balcony is open on not less than two sides. The vent terminal is prohibited in this location where only one side is open.	



G2447.2 (623.2) Commercial Cooking Appliances Prohibited

G2447.2 (623.2) Prohibited location. Cooking appliances designed, tested, listed and labeled for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur.

Exceptions Exception:

- ~~1. Appliances that are also listed as domestic cooking appliances.~~
- ~~2. Where the installation is designed by a licensed Professional Engineer, in compliance with the manufacturer's installation instructions.~~



2021

Chapters 25 - 33

Plumbing

*We will also include the VPC code section where applicable

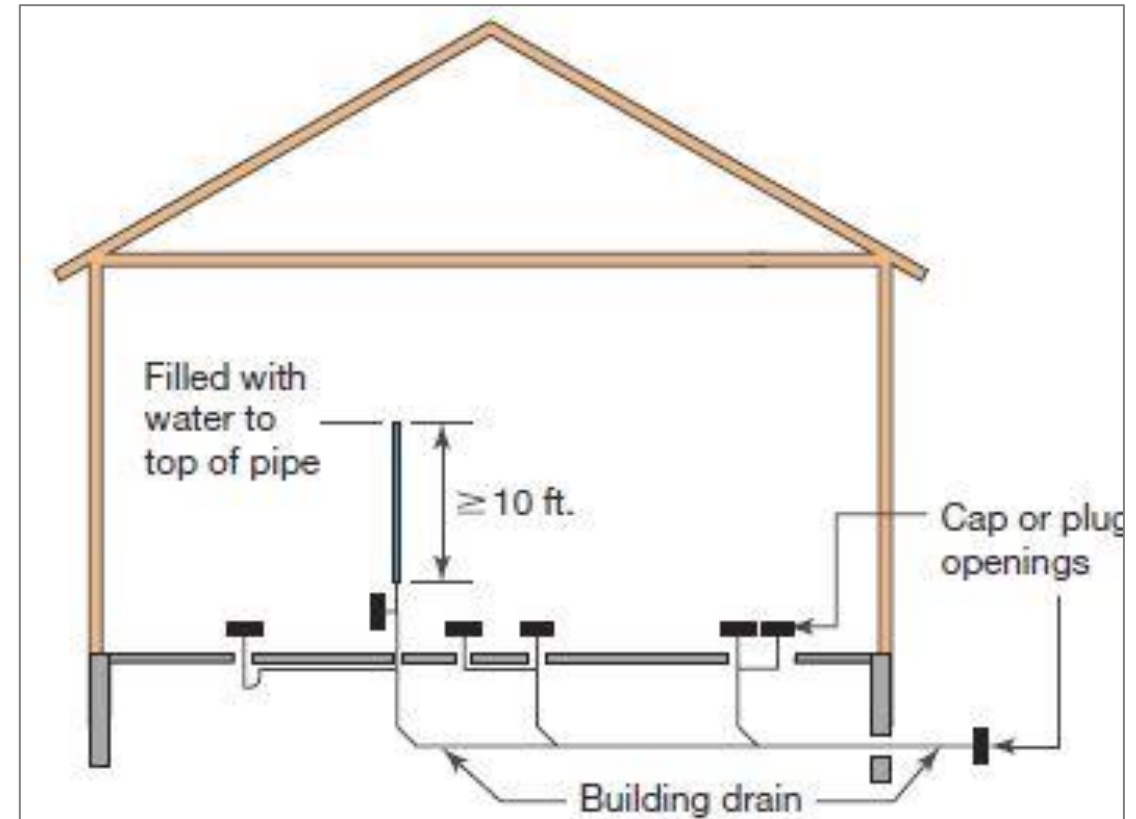
**Virginia
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P2503.5.1 Drain, Waste and Vent Systems Testing

- The head pressure for a water test of DWV systems has increased to **10 feet** (aligns with IPC).





P2503.5.1 Drain, Waste and Vent Systems Testing (continued)

- Air **vacuum** testing is now permitted for plastic piping DWV systems.

3. Vacuum Test. The portion under test shall be evacuated of air by a vacuum type pump to achieve a uniform gauge pressure of -5 pounds per square inch or a negative 10 inches of mercury column (- 34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes.





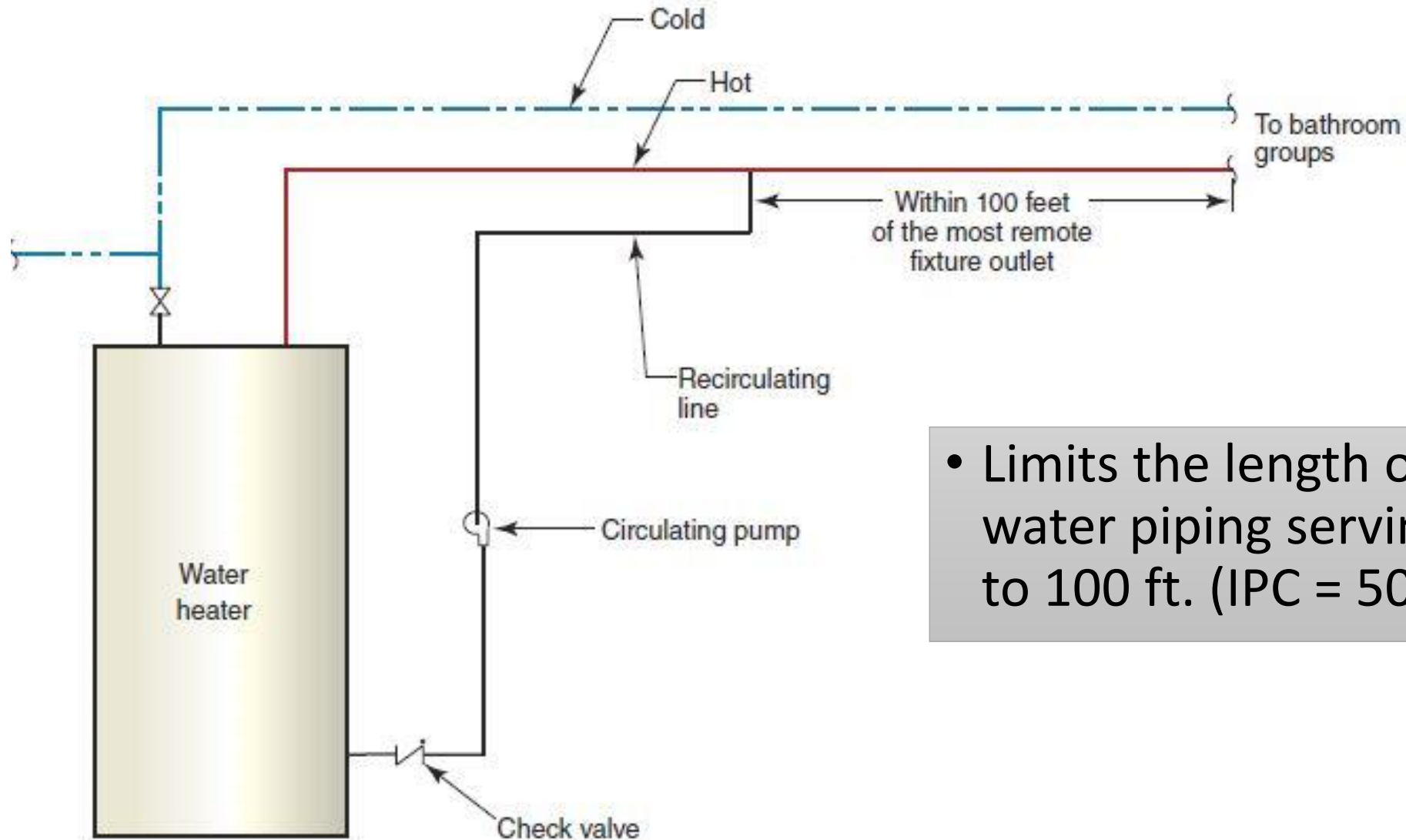
P2708.4, P2713.3 Shower and Bathtub Control Valves

- Addresses field adjustment and access to shower control valves.
- Lower flow shower heads need to be compatible with the shower control mixing valve.





P2905.3 Length of Hot Water Piping to Fixtures



- Limits the length of hot water piping serving fixtures to 100 ft. (IPC = 50 ft.)



P2906.9.1.2 Solvent cementing (CPVC piping)



- This VA amendment adds the option for solvent **green in color** for one-step solvent cementing of CPVC piping and joints when the other conditions for omitting primer are met.
- One-step CPVC cement can now be **yellow, red, OR green.**
- Green cement stands out better on CPVC pipe and fittings, allowing for installers and inspectors to more easily identify any joints that were not cemented.





P3005.2.10.1 (708.1.6) Removable Fixture Traps as Cleanouts

- Removable traps and removable fixtures with integral traps are acceptable for use as cleanouts.



P3005.2.10.1 (708.1.6) Cleanout Equivalent. A fixture trap or a fixture with an integral trap, removable without altering the concealed piping shall be acceptable as a cleanout equivalent.

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Chapters 34 - 43

Electrical

*We will also include the 2020 NEC code section where applicable

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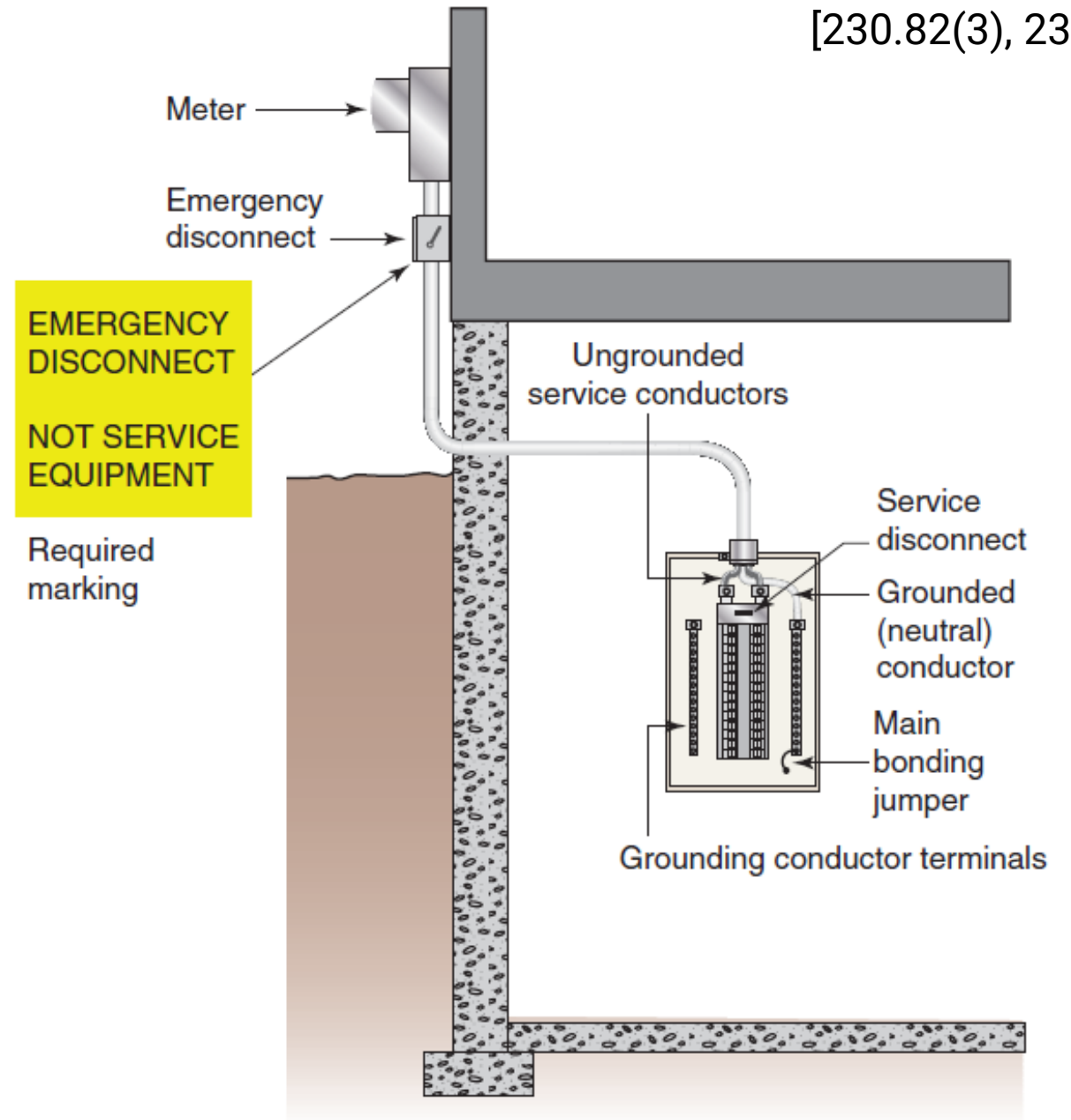




E3601.8 Emergency Service Disconnects

[230.82(3), 230.85]

- An emergency service disconnect is required in a readily accessible outdoor location.

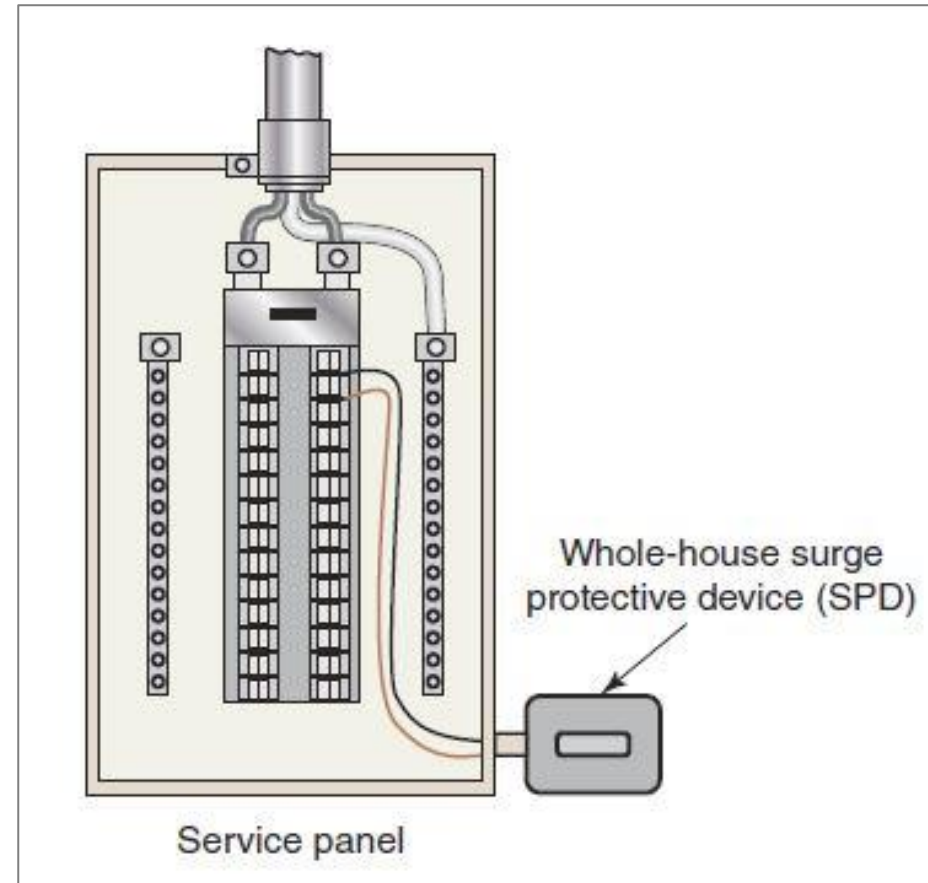




E3606.5 Service Surge-Protective Device

[230.67]

- A surge-protective device (SPD) is now required at the service panel.

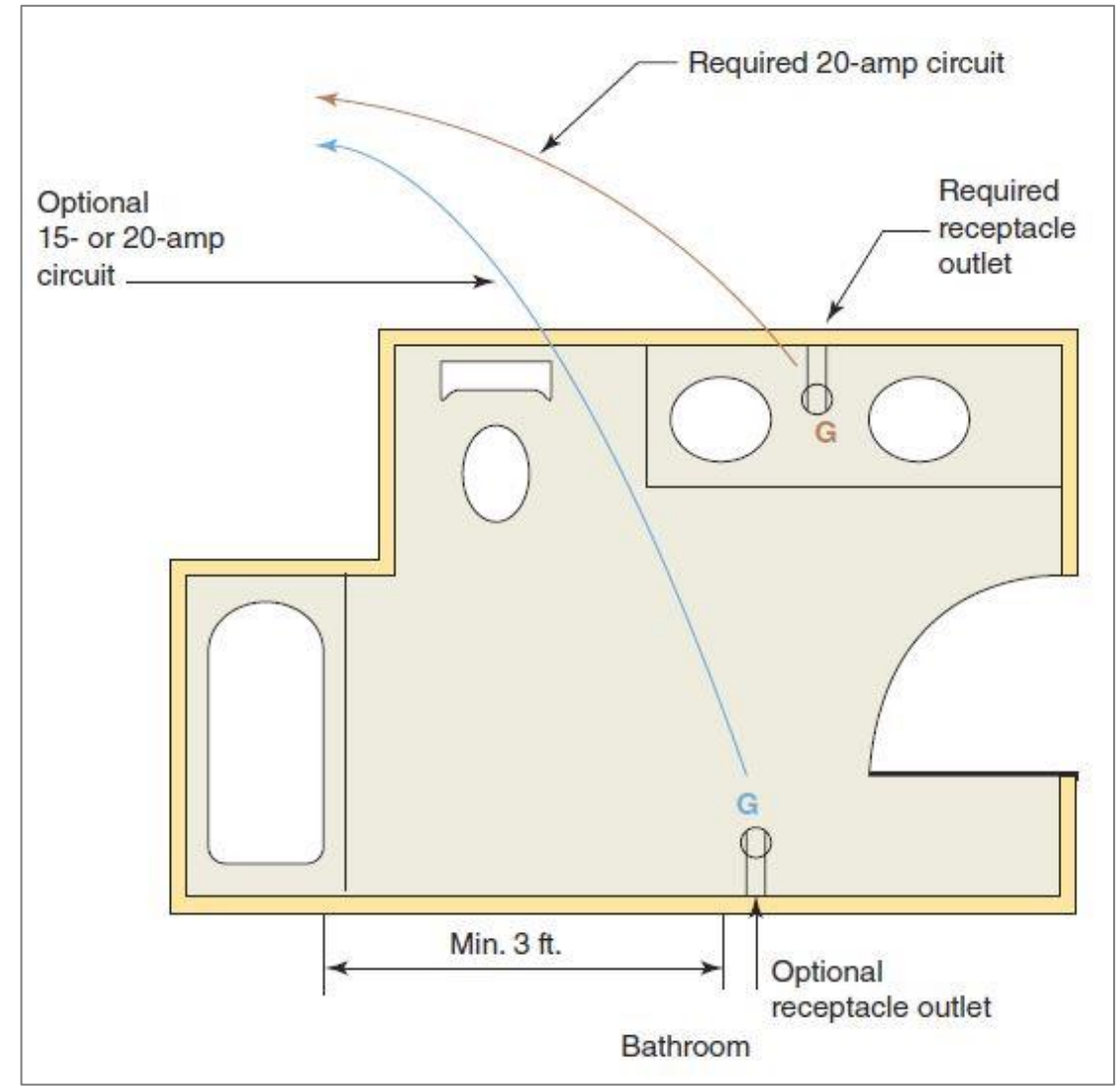




E3703.4 Bathroom Branch Circuits

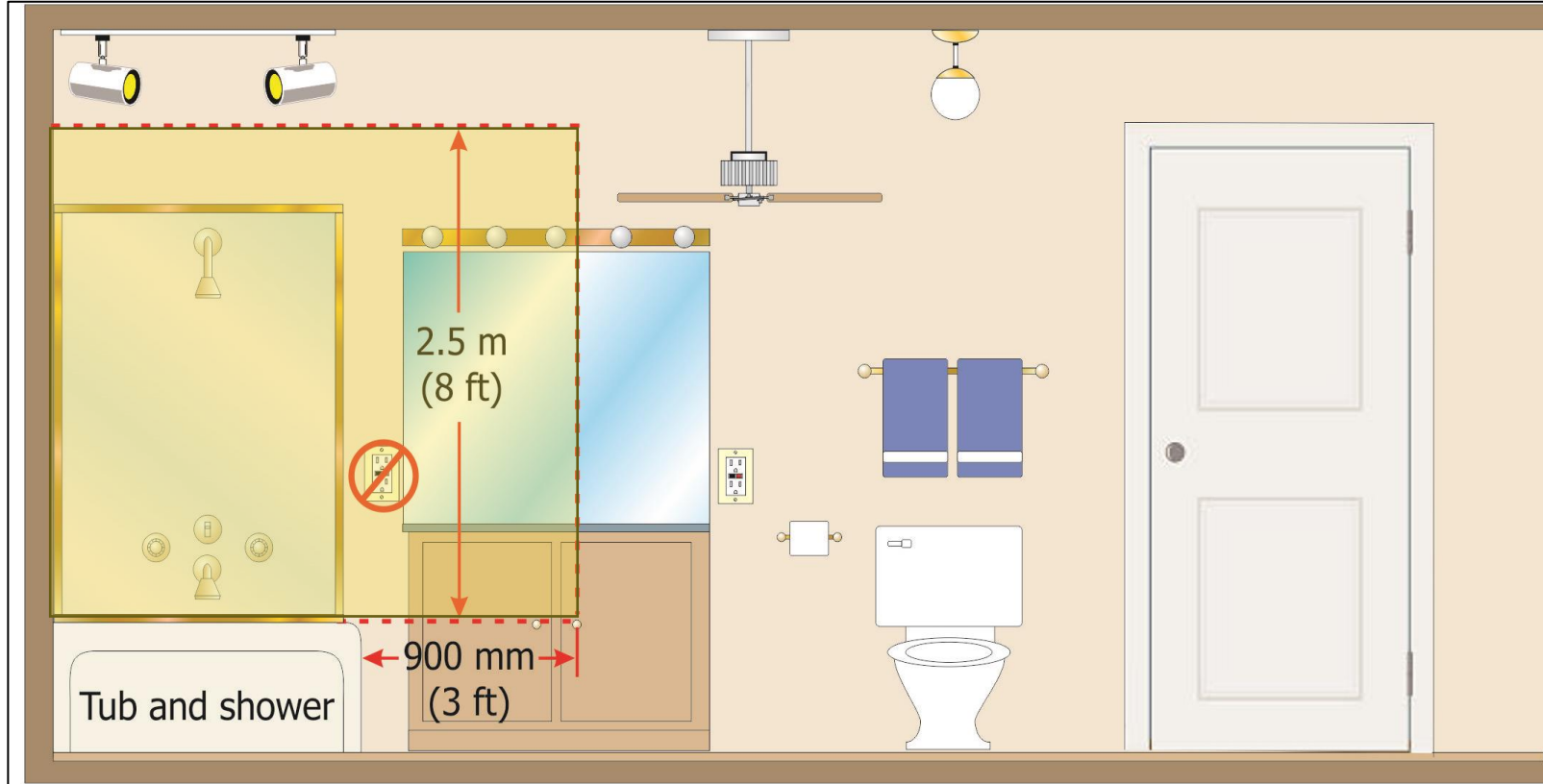
[210.11(C)(3)]

- Only the required bathroom receptacle outlets or those serving a countertop need to be on the dedicated 20-amp bathroom circuit.



E4002.11 Bathtub and Shower Space

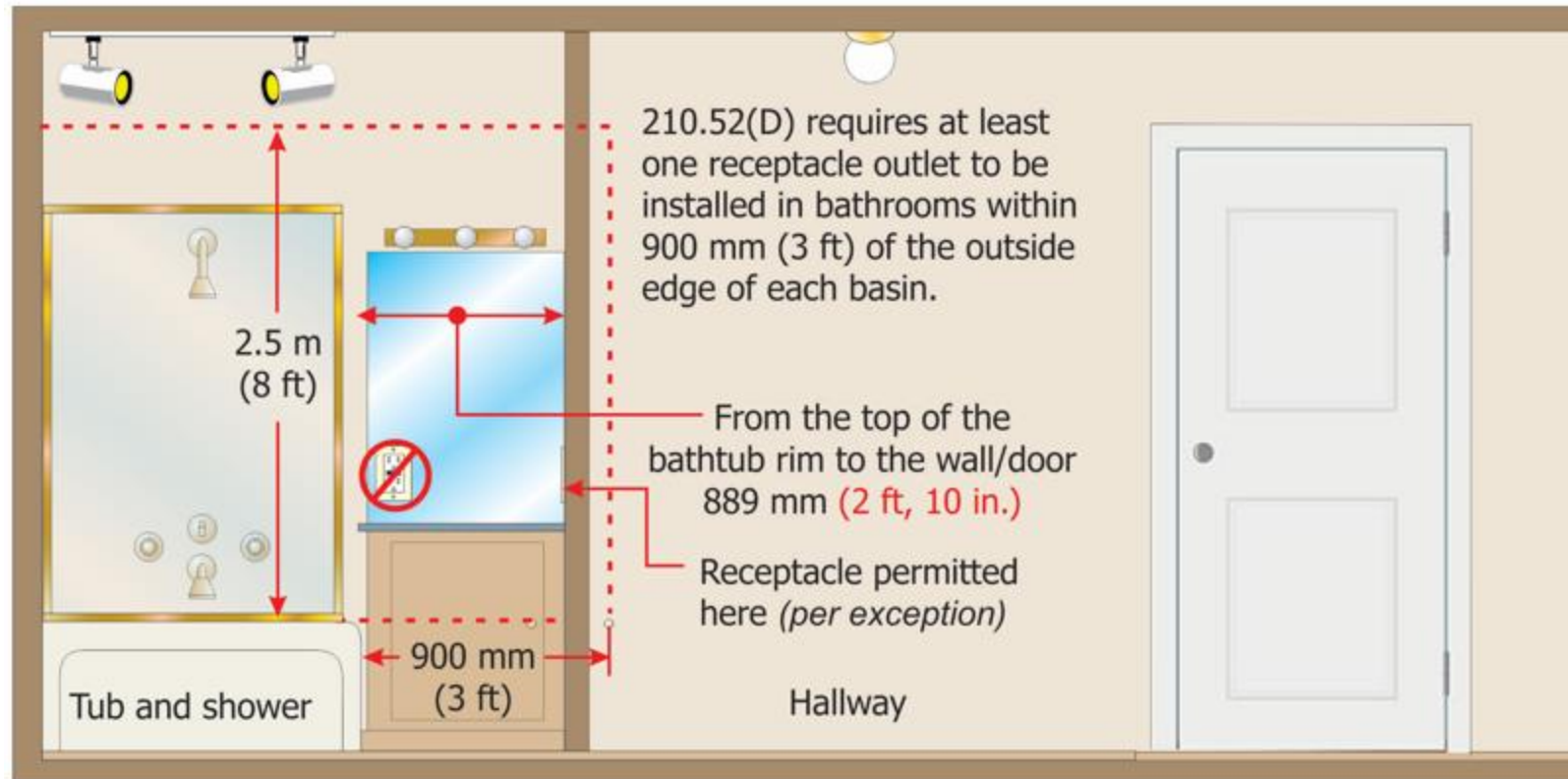
[406.9(C)]



Receptacles shall not be installed within a **zone measured 3 ft horizontally and 8 ft vertically** from the top of the bathtub rim or shower stall threshold. The identified zone is all encompassing and shall include the space directly over the tub or shower stall.

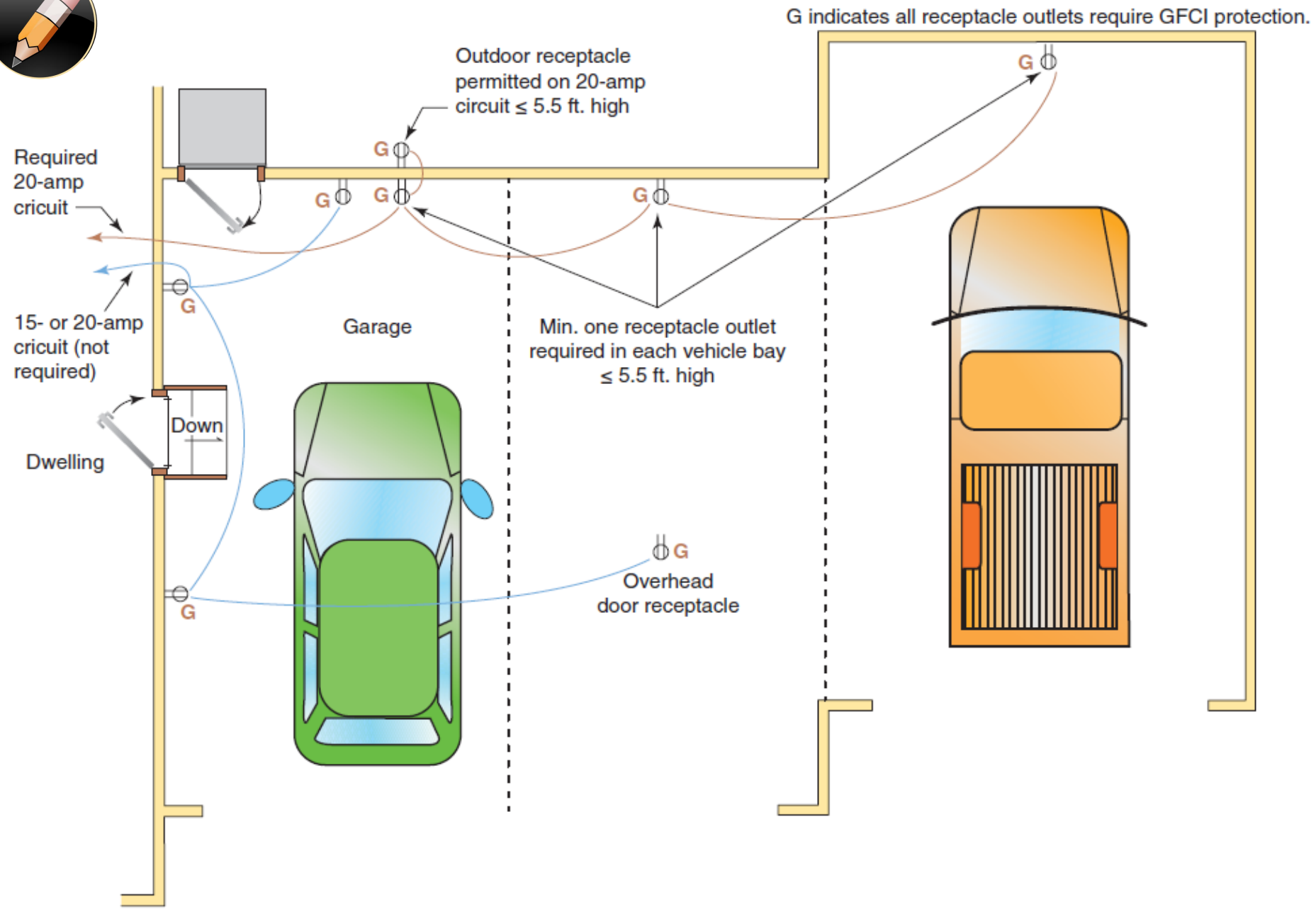
E4002.11 Bathtub and Shower Space - Exception

[406.9(C)]



Example of Exception scenario

Exception: In bathrooms with less than the required zone the receptacle(s) shall be permitted to be installed opposite the bathtub rim or shower stall threshold on the farthest wall within the room.



Three stall garage

E3703.5 Garage Branch Circuits

- Only the required receptacle outlets must be on the 20-amp dedicated circuit for garages.

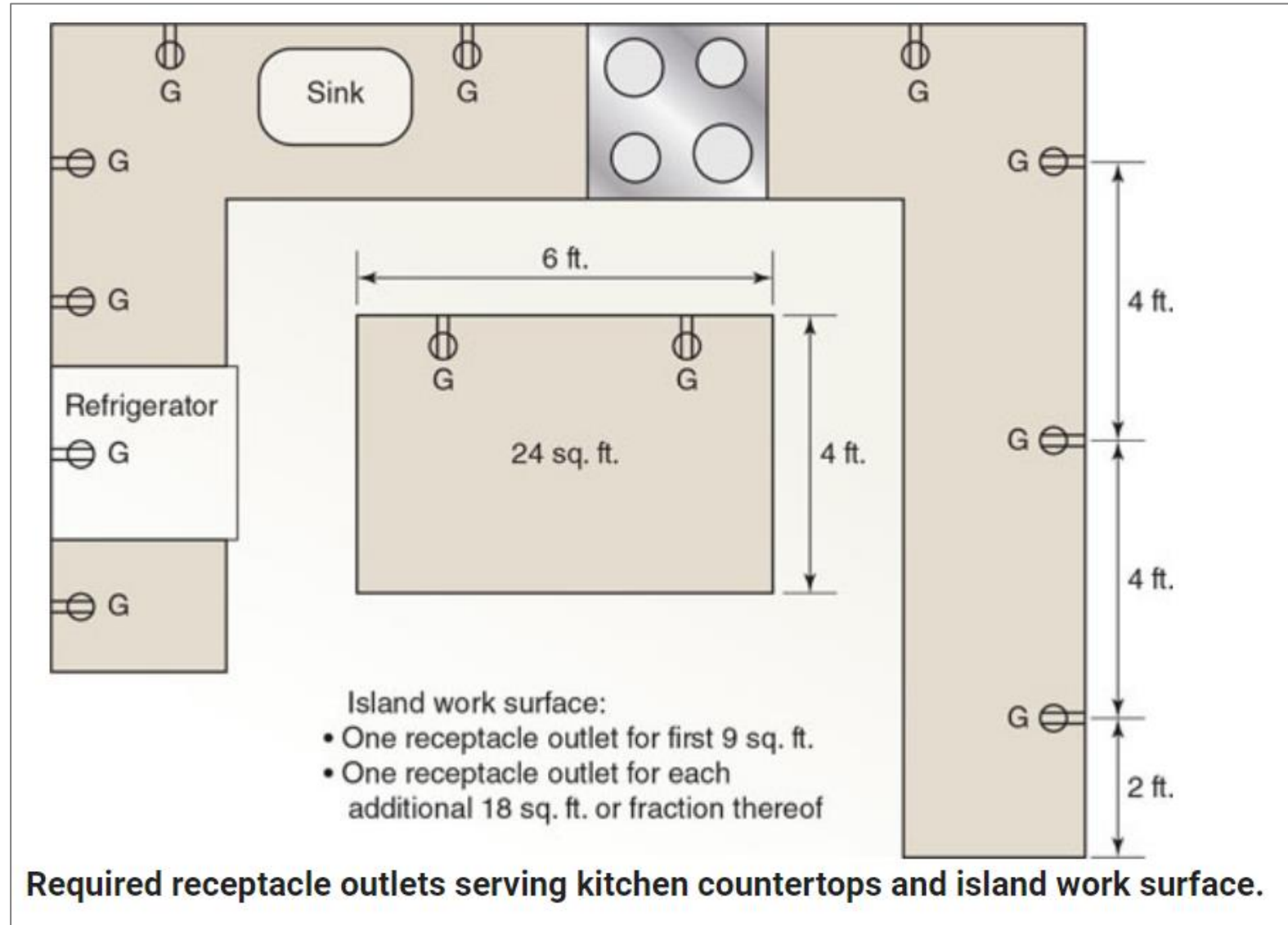
[210.11(C)(4)]



E3901.4 Kitchen Countertop and Work Surface Receptacles

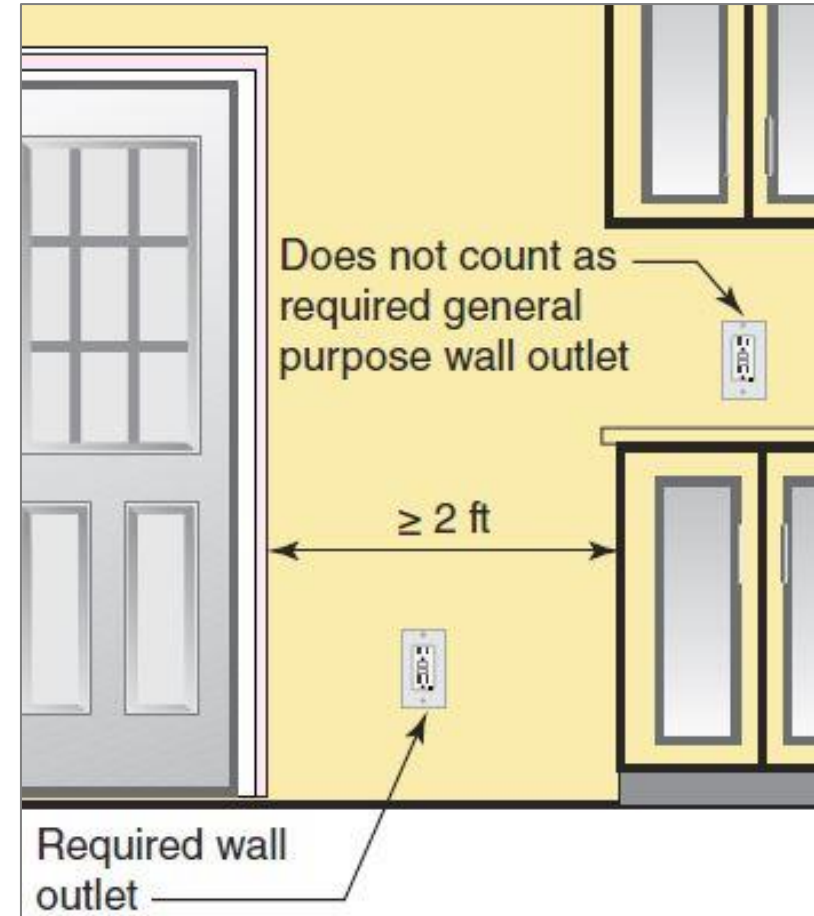
[210.52(C)]

- The number of receptacle outlets required for peninsular and island countertops in kitchens is determined by the area of the countertop surface.



E3901.4 Kitchen Countertop and Work Surface Receptacles

- Countertop and work surface receptacles in kitchen areas cannot be counted as a required general-purpose wall space receptacle outlet.

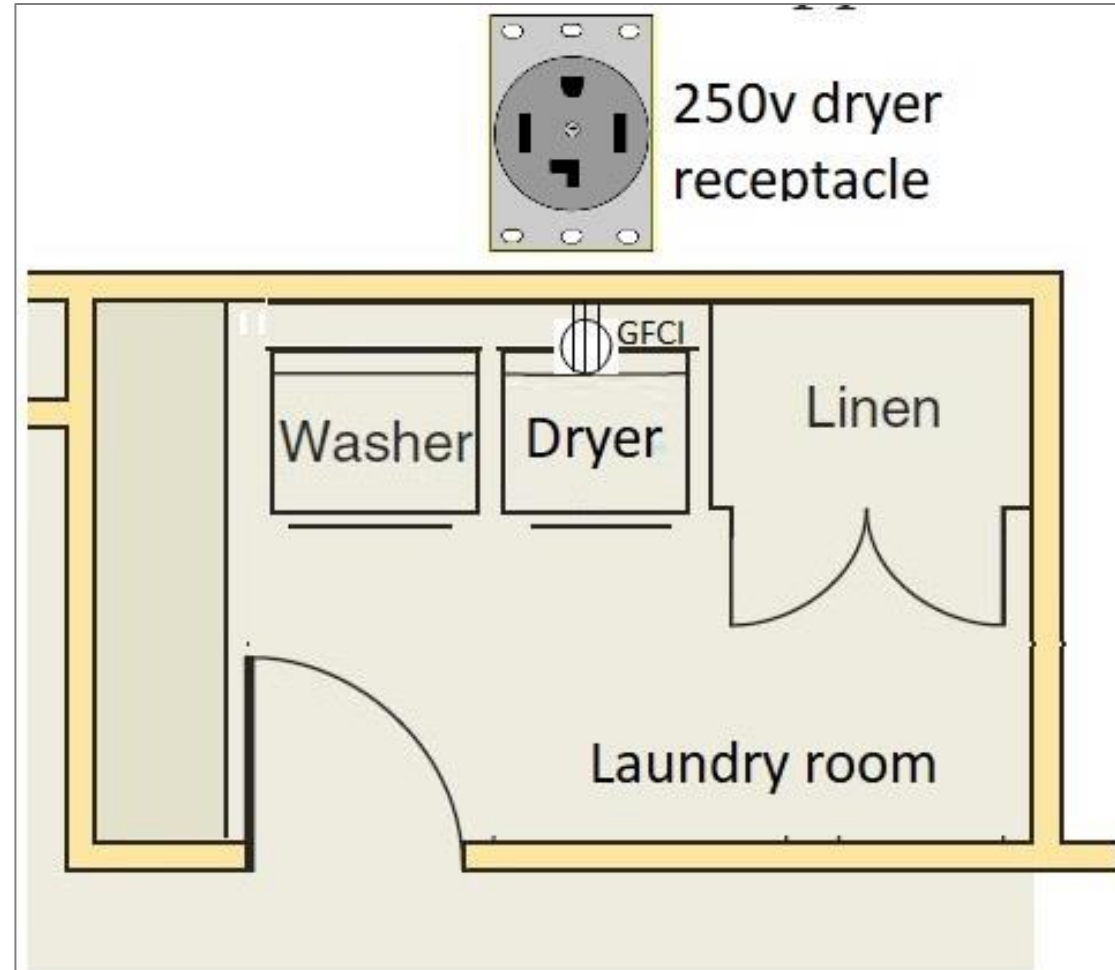




E3902 GFCI Protection for 250-Volt Receptacles

[210.8(A) – multiple subsections]

- GFCI protection is required for up to 250-volt receptacles in the identified areas.
- The 20-amp limitation has been removed.

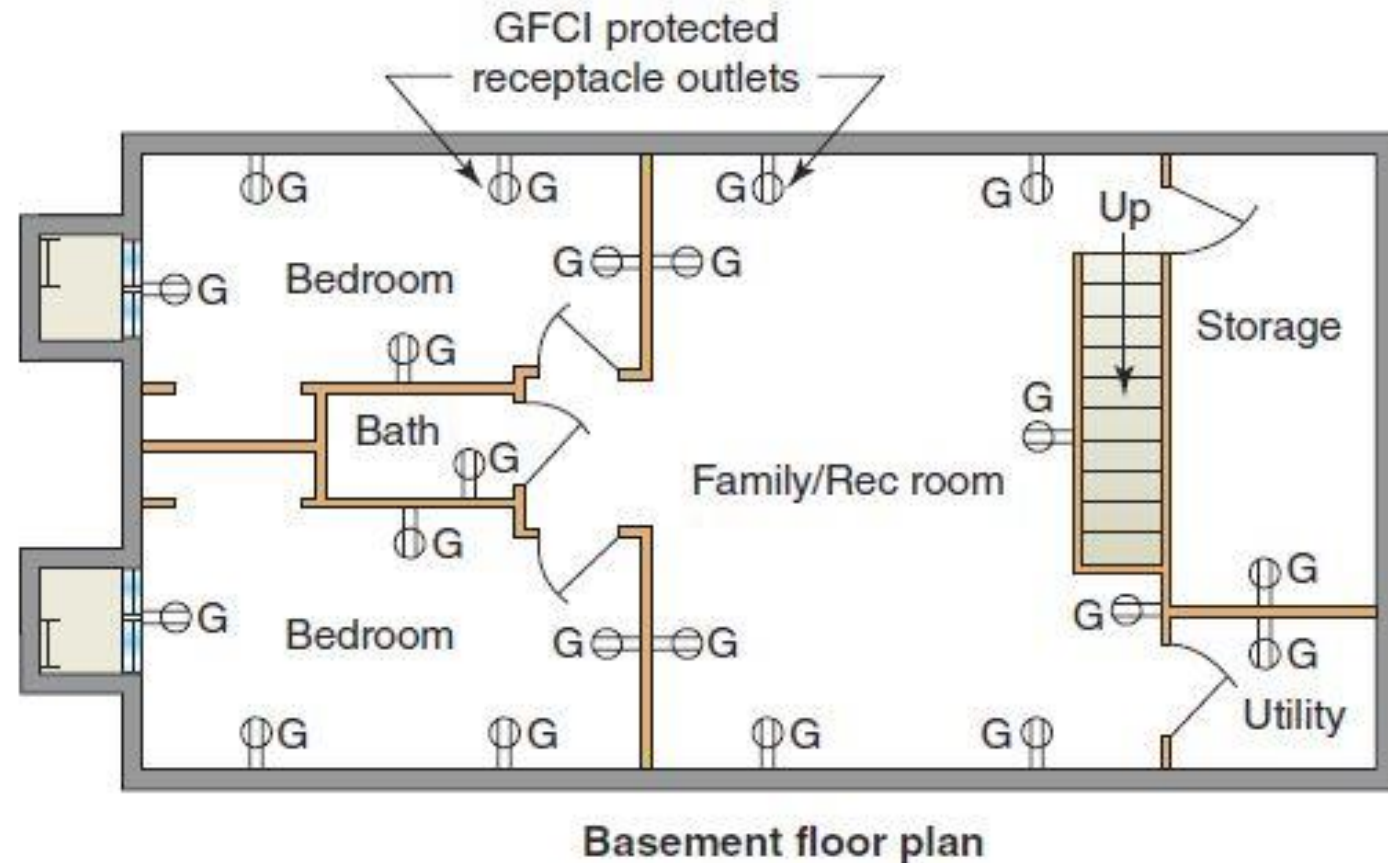




E3902.5 GFCI Protection for Basement Receptacles

[210.8(A)(5)]

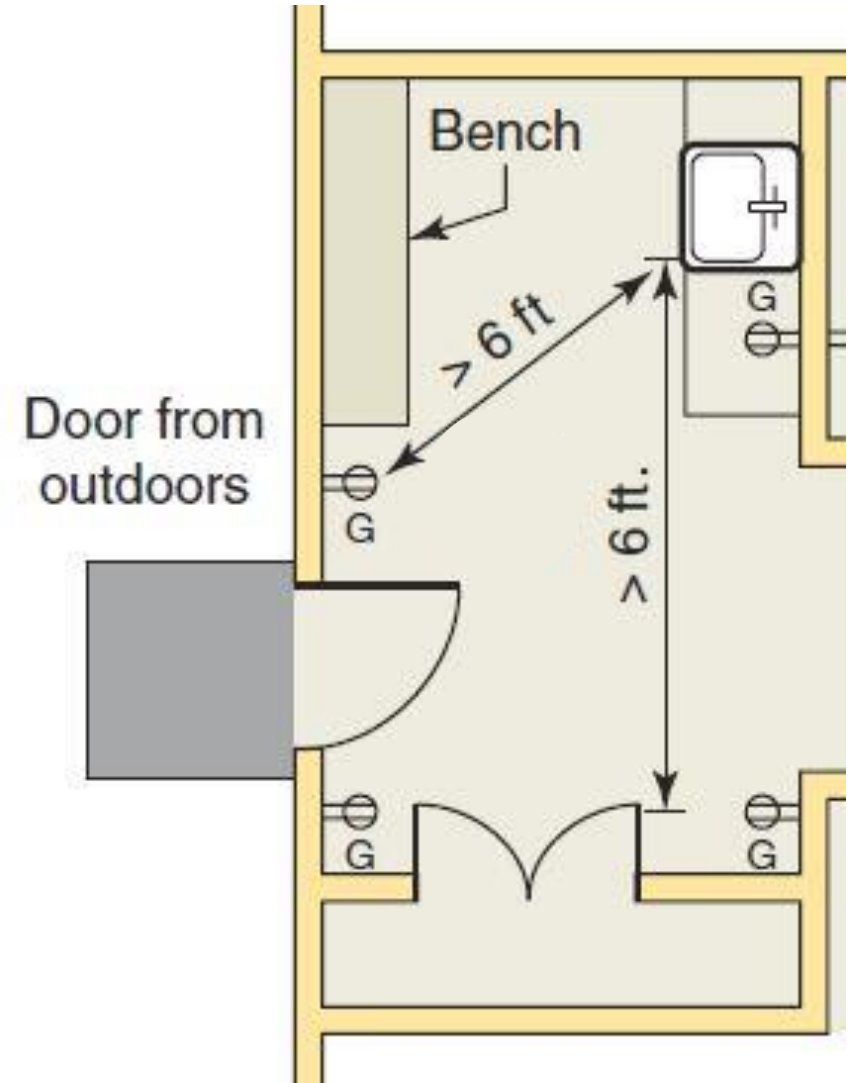
- The requirement for GFCI protection in unfinished basement areas has been expanded to include all basement areas – whether finished or unfinished.





E3902.10 GFCI Protection for Indoor Damp and Wet Locations

- GFCI protection is now required for damp and wet locations.





VA Deletes Section E3902.17 in its Entirety (GFCI Protection for Outdoor Outlets)



**VA Proposals
RE2701.1.1-21 and
RE3902.17-21**



~~E3902.17 Outdoor outlets.~~

~~All outdoor outlets, other than those covered in the exception to Section E3902.3, that are supplied by single phase branch circuits rated 150 volts to ground or less, 50 amperes or less, shall have ground fault circuit interrupter protection for personnel. [210.8(F)]~~

~~Exception: Ground fault circuit interrupter protection shall not be required on lighting outlets other than those covered in Section E3902.15. [210.8(F) Exception]~~

[210.8(F)]

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Appendices

**Virginia
Residential Code**



AF104 Radon Testing

- Procedures for Radon testing are added to Appendix F
- For use by localities where radon-resistant construction is required



Appendix AW – 3D Construction

- Appendix AW adds requirements for 3D printed homes.



2021 Code Change Training

2021 Virginia Residential Code (VRC)

Thank you for attending!

