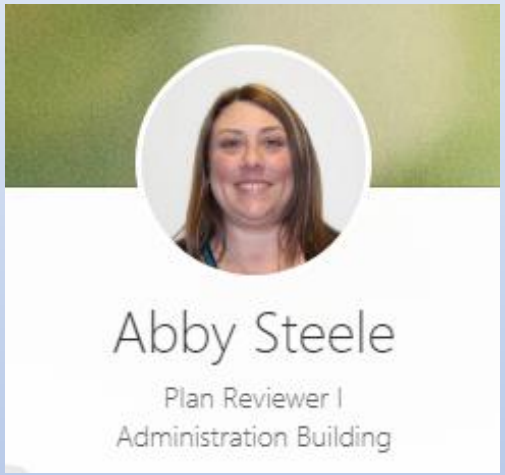
Staff Presentation and Q&A on 2021 International Residential Code, (IRC) Chapters 1 -10.

Welcome!

Jamie Whitehouse

Director of Planning & Zoning
Administration Building



Abby Steele

Plan Reviewer I
Administration Building

Clint Whaley

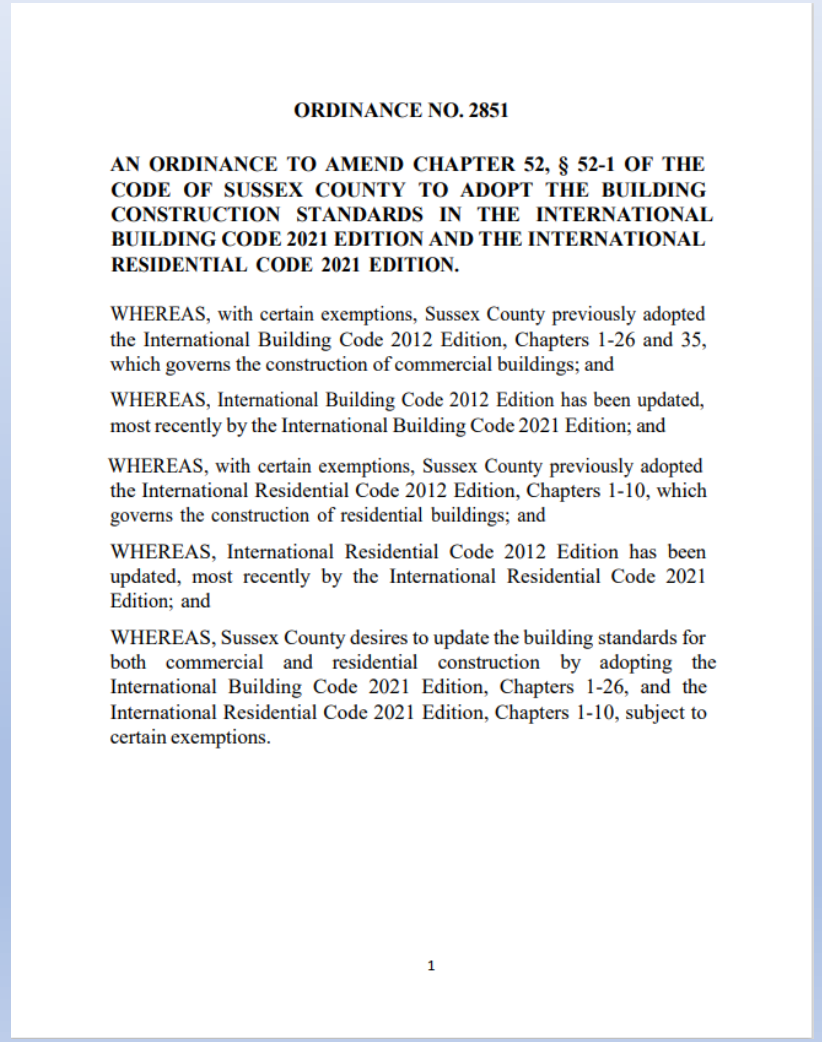
Plan Reviewer
Administration Building

Presentation will Start at 2:05 PM

Please Remain Muted During the Presentation

Please Feel Free to Ask Questions Using the Chat Feature

Introduction



ORDINANCE NO. 2851

AN ORDINANCE TO AMEND CHAPTER 52, § 52-1 OF THE CODE OF SUSSEX COUNTY TO ADOPT THE BUILDING CONSTRUCTION STANDARDS IN THE INTERNATIONAL BUILDING CODE 2021 EDITION AND THE INTERNATIONAL RESIDENTIAL CODE 2021 EDITION.

WHEREAS, with certain exemptions, Sussex County previously adopted the International Building Code 2012 Edition, Chapters 1-26 and 35, which governs the construction of commercial buildings; and

WHEREAS, International Building Code 2012 Edition has been updated, most recently by the International Building Code 2021 Edition; and

WHEREAS, with certain exemptions, Sussex County previously adopted the International Residential Code 2012 Edition, Chapters 1-10, which governs the construction of residential buildings; and

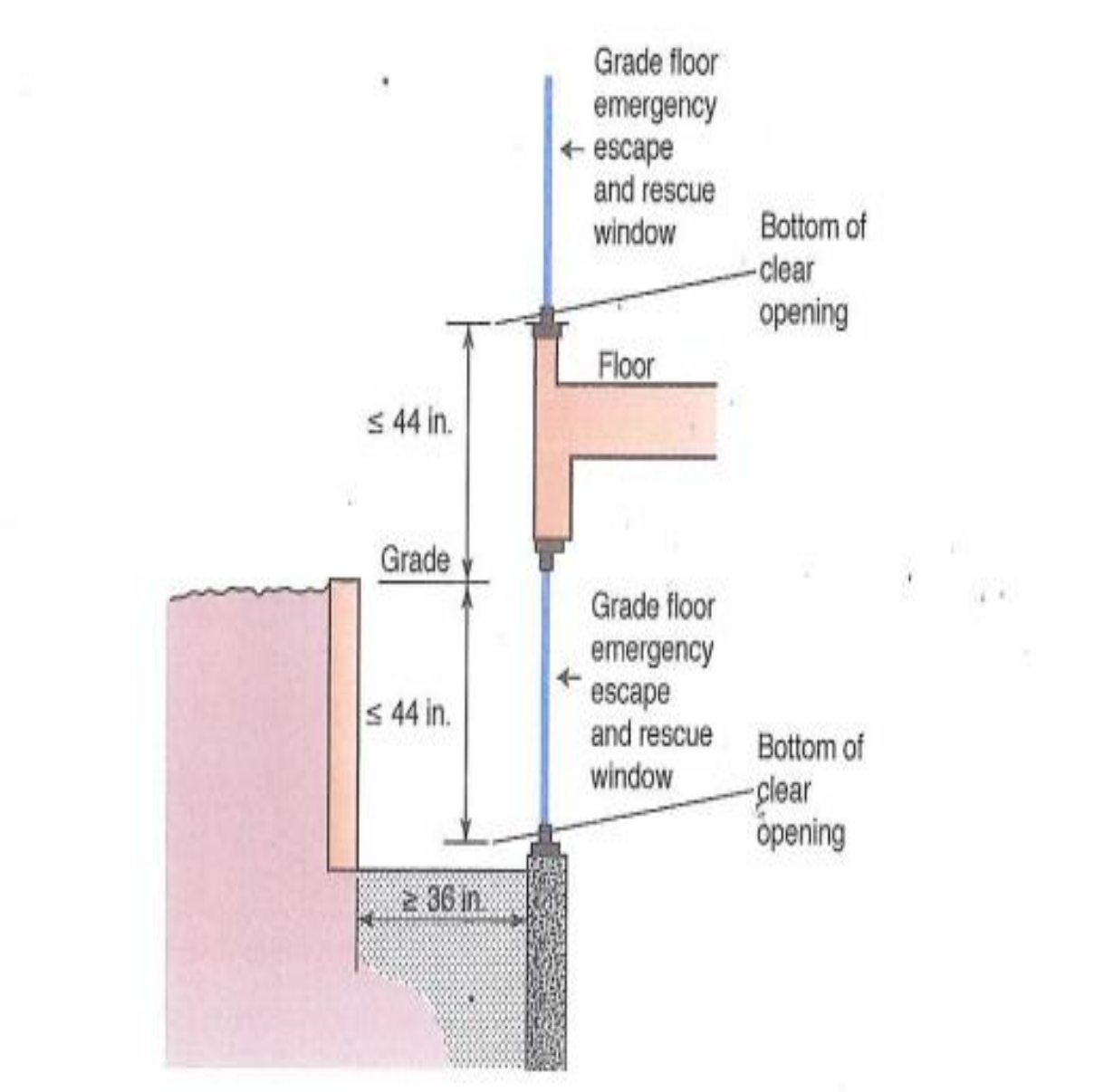
WHEREAS, International Residential Code 2012 Edition has been updated, most recently by the International Residential Code 2021 Edition; and

WHEREAS, Sussex County desires to update the building standards for both commercial and residential construction by adopting the International Building Code 2021 Edition, Chapters 1-26, and the International Residential Code 2021 Edition, Chapters 1-10, subject to certain exemptions.

1

- **On August 9, 2022, the Sussex County Council adopted the 2021 International Building Code, (IBC) Chapters 1 – 26 & 35 and the 2021 International Residential Code, (IRC) Chapters 1 -10.**

- **These codes will take effect, beginning January 1, 2023. All plan submittals prior to January 1, 2023, will still be enforced under the 2012 IBC/IRC. All plan submittals on or after January 1, 2023, will be enforced under the new 2021 IBC/IRC.**



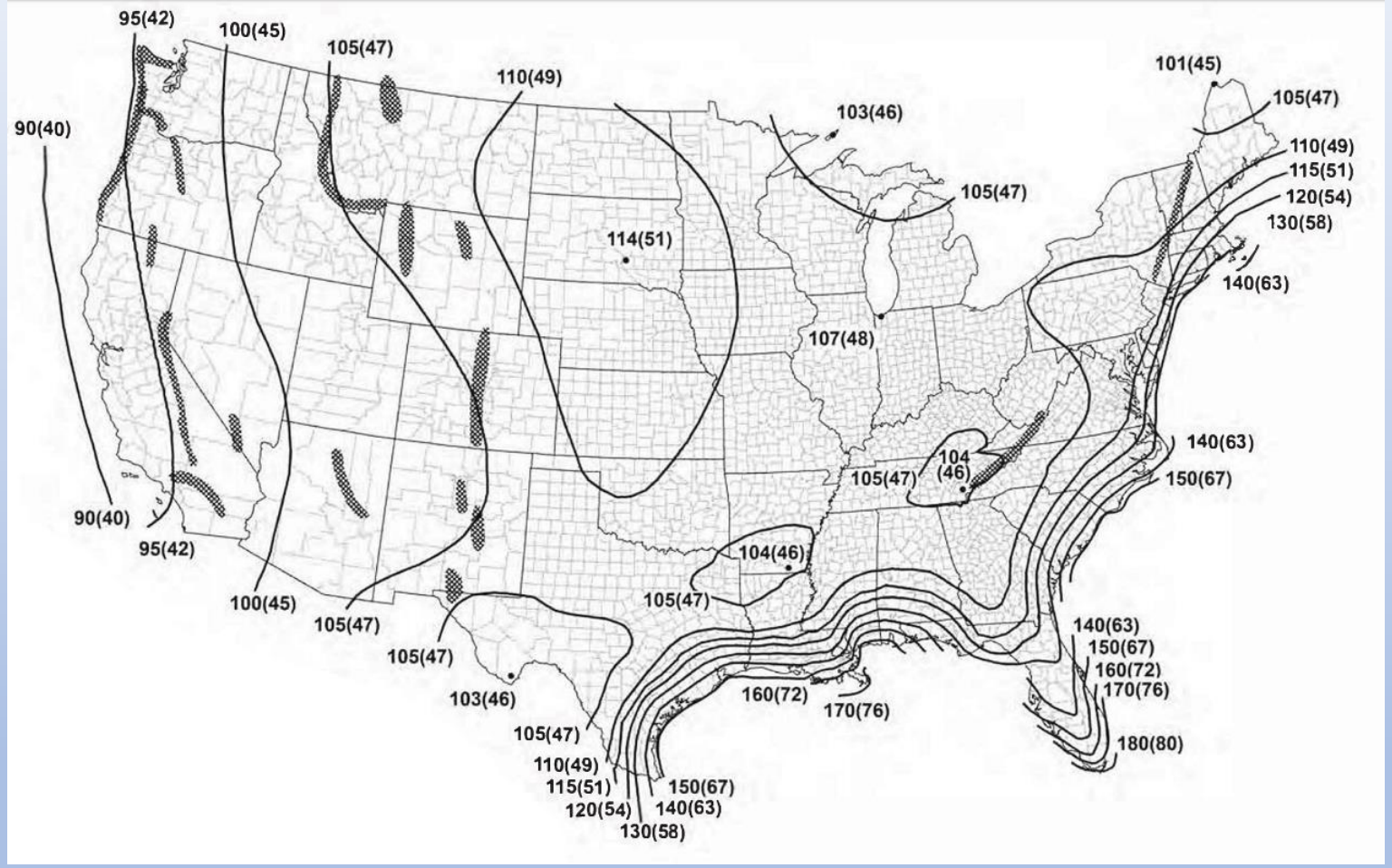
Emergency Escape & Rescue Opening

Grade Floor Emergency Escape and Rescue Opening: (Definition R 202)

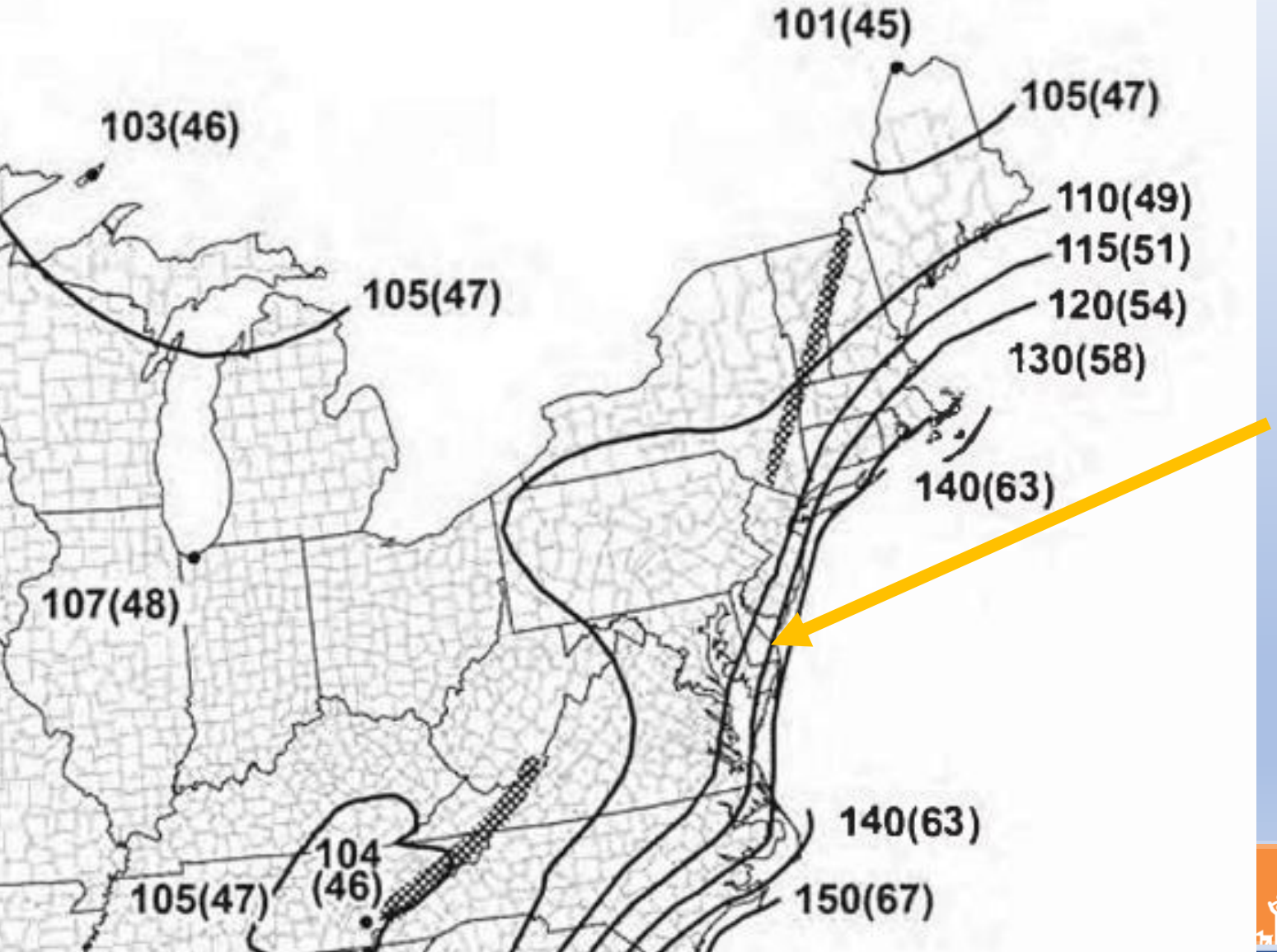
2012 - Defines a grade floor opening as a window or opening located such that the sill height of the opening is not more than 44 inches above or below the finished ground level adjacent to the opening.

2021 - An emergency escape and rescue opening located such that the bottom of the clear opening is not more than 44 inches above or below the finished ground level adjacent to the opening.

Conclusion - Requirements are the same, just now requires the measurement to be taken from the clear opening and not the sill height.



Wind Design Criteria
Ultimate Design Wind Speeds
Figure 301.2 (2)



Wind Design Criteria
Ultimate Design Wind Speeds
Figure 301.2 (2)

2012 - Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the basic wind speed in Table R301.2(1) as determined from Figure R301.2(4)A

2021 - Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the ultimate wind speed in Table R301.2 as determined from Figure R301.2(2).

Conclusion - This changes the current basic design wind speeds of 100 to less than 110 mph to the ultimate design wind speeds of 115 to less than 130 mph. No new requirements are needed.

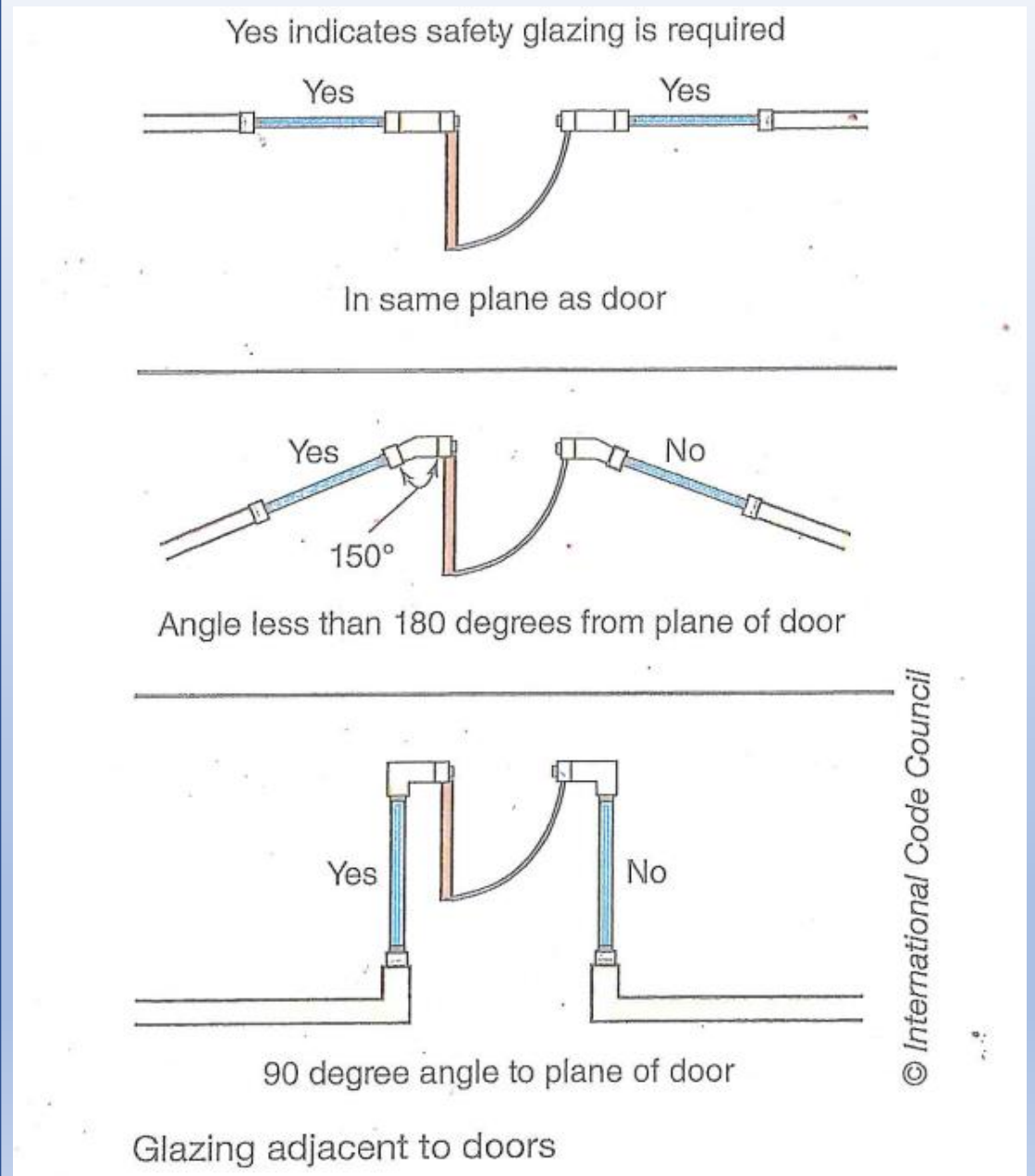
R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a $^{1}/_{2}$-inch (12.7 mm) gypsum wallboard membrane, $^{5}/_{8}$-inch (16 mm) *wood structural panel* membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other *approved* equivalent sprinkler system.
2. Floor assemblies located directly over a *crawl space* not intended for storage or for the installation of fuel-fired or electric-powered heating *appliances*.
3. Portions of floor assemblies shall be permitted to be unprotected where complying with the following:
   3.1. The aggregate area of the unprotected portions does not exceed 80 square feet (7.4 m^2) per story.

R302.13 Fire Protection of Floors

- Electric–powered heating appliances has been added, along with fuel–fired appliances.



Hazardous Locations R308.4
Glazing Adjacent to Doors R308.4.2
Hazardous Glazing Locations at Bottom Stair Landings R308.4.7

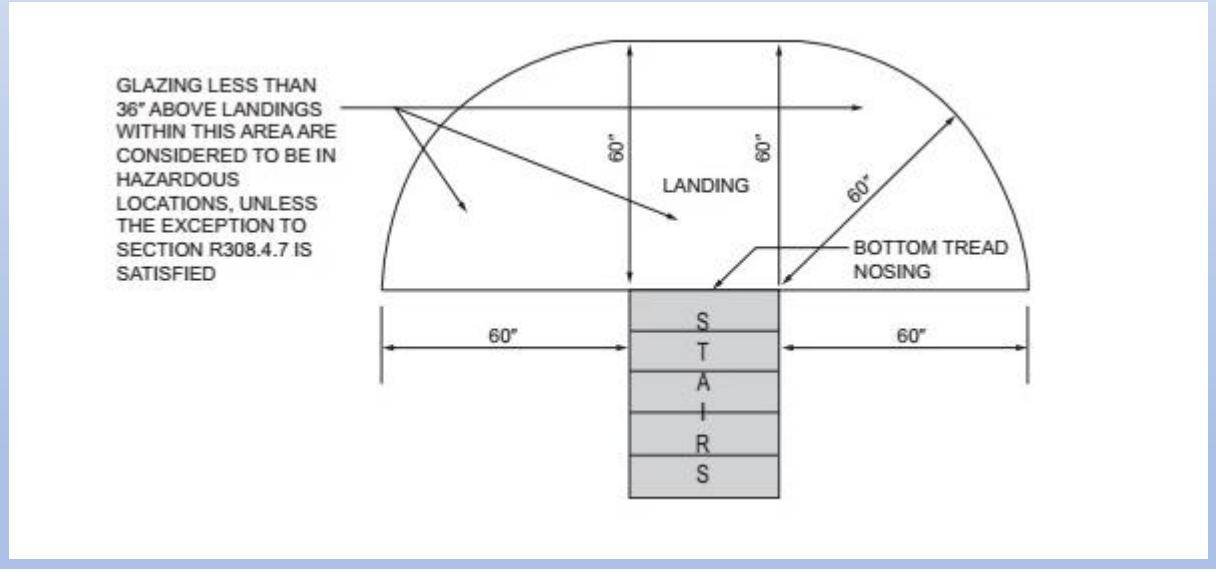
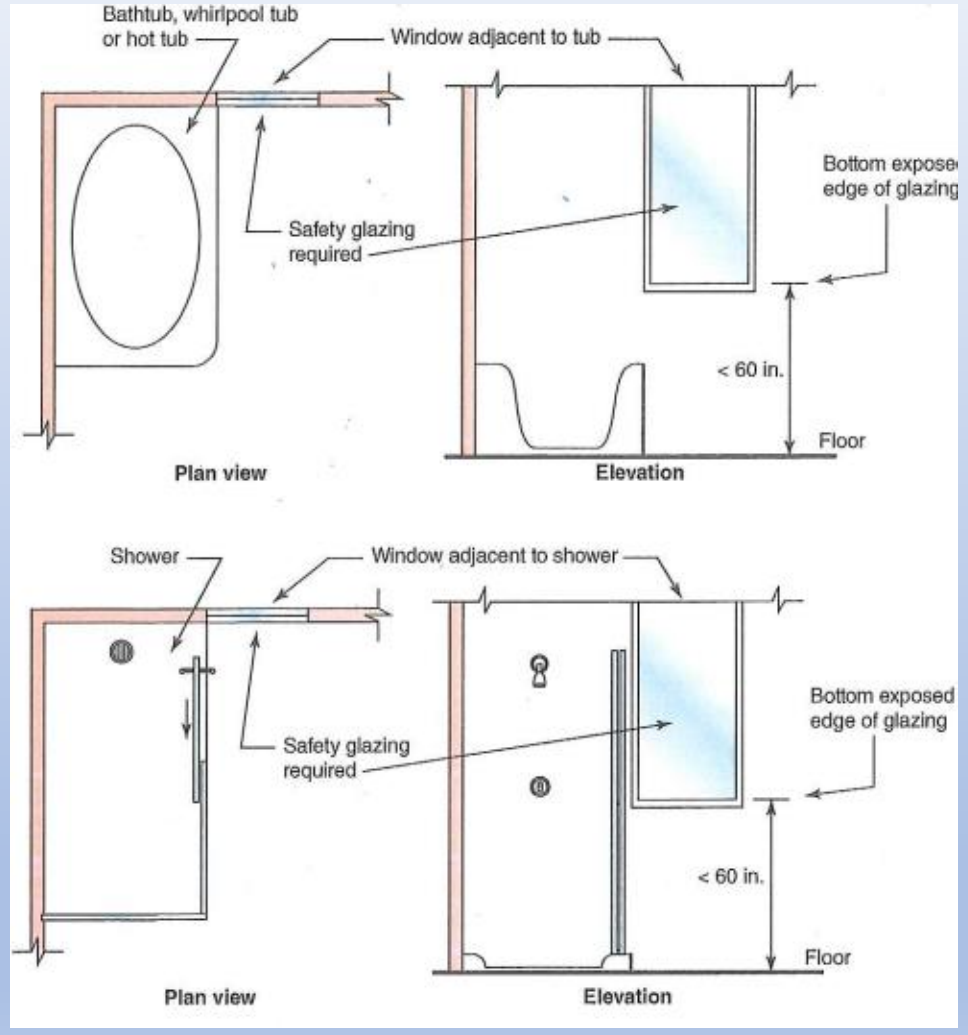


FIGURE R308.4.7 HAZARDOUS GLAZING LOCATIONS AT BOTTOM STAIR LANDINGS

Hazardous Locations R308.4
Glazing and Wet Surfaces R308.4.5



2012 - Glazing in walls, enclosures of fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs and showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface shall be considered a hazardous location.

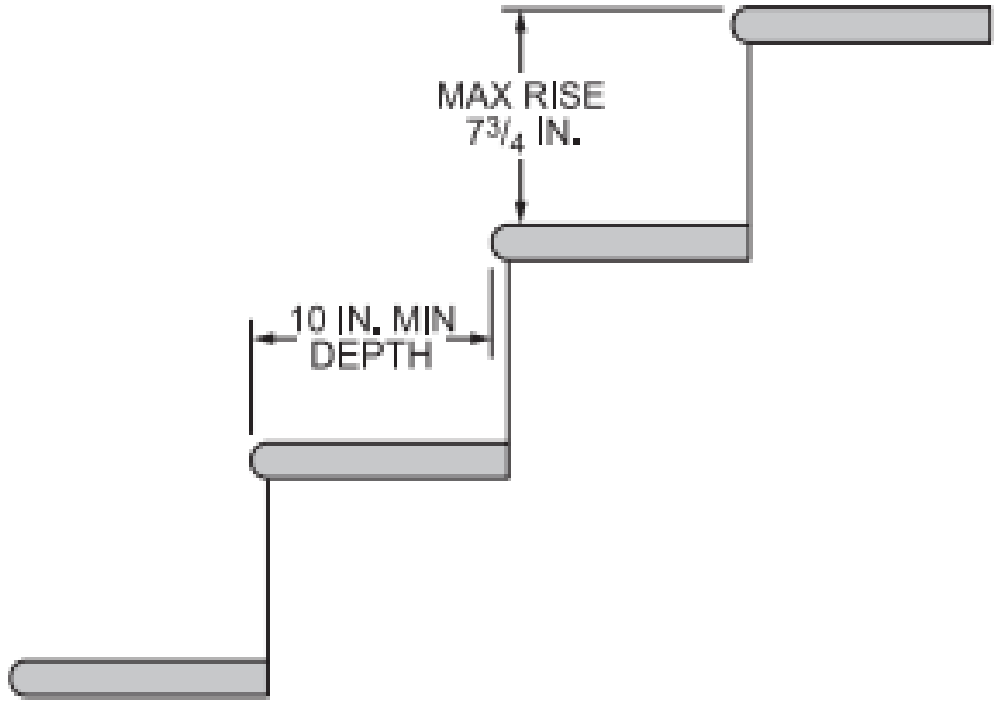
Exception: Glazing that is more than 60 inches, measured horizontally and in a straight line to from the water's edge.

2021 - Glazing in walls, enclosures of fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs and showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface shall be considered a hazardous location.

Exception: Glazing that is more than 60 inches, measured horizontally from the water's edge.

Conclusion – The measuring in a straight line has been deleted from the exception. The code now would require any glazing within 60 inches horizontally, from the water's edge of a bathtub, hot tub, spa, whirlpool or swimming pool or from the edge of a shower, sauna or steam room would have to be safety glazed. (tempered glass)

Stair Risers & Treads R 311.7.5



For SI: 1 inch = 25.4 mm.

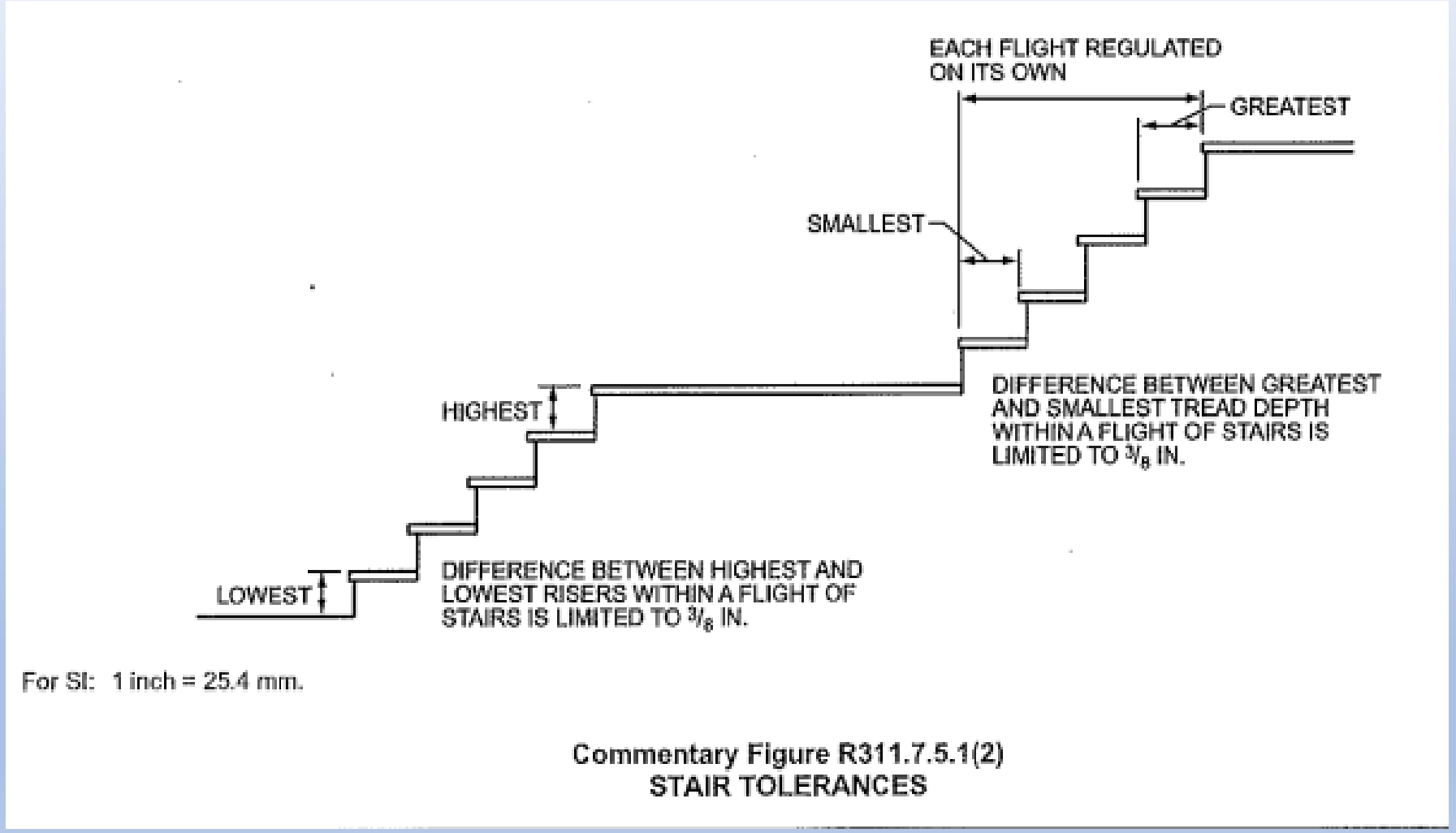
Commentary Figure R311.7.5.1(1)
CONVENTIONAL STAIRWAY

2012 – County adopted Minimum 9-inch treads and maximum 8.25-inch risers

2021 – Requires minimum 10-inch tread and a maximum 7.75-inch riser.

Conclusion – New code requires minimum 10-inch tread and a maximum 7.75-inch riser.

Stair Risers & Treads R 311.7.5 (cont.)



For SI: 1 inch = 25.4 mm.

Commentary Figure R311.7.5.1(2)
STAIR TOLERANCES

FOUNDATIONS

TABLE R403.1(1)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION (inches)[a, b, c, d]

GROUND SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH LIGHT FRAME	LOAD-BEARING VALUE OF SOIL (psf)					
		1,500	2,000	2,500	3,000	3,500	4,000
20 psf roof live load or 25 psf ground snow load	1 story—slab-on-grade	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	18 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—plus basement	22 × 7	16 × 6	13 × 6	12 × 6	12 × 6	12 × 6
30 psf	1 story—slab-on-grade	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	16 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—plus basement	22 × 7	16 × 6	13 × 6	12 × 6	12 × 6	12 × 6
50 psf	1 story—slab-on-grade	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	18 × 6	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	15 × 6	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	17 × 6	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	21 × 7	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	18 × 6	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	20 × 6	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—plus basement	24 × 8	18 × 6	14 × 6	12 × 6	12 × 6	12 × 6
70 psf	1 story—slab-on-grade	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	17 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	22 × 7	17 × 6	13 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	20 × 6	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	22 × 7	16 × 6	13 × 6	12 × 6	12 × 6	12 × 6
	3 story—plus basement	24 × 8	19 × 6	15 × 6	13 × 6	12 × 6	12 × 6

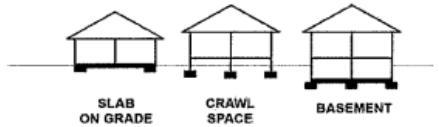
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.9 N/m^2.

a. Linear interpolation of footing width is permitted between the soil bearing pressures in the table. Extrapolation is not permitted.

b. The table is based on the following conditions and loads: building width, 32 feet; wall height, 9 feet; basement wall height, 8 feet; dead loads, 15 psf roof and ceiling assembly, 10 psf floor assembly, 12 psf wall assembly; live loads, roof and ground snow loads as listed, 40 psf first floor, 30 psf second and third floors. Footing sizes are calculated assuming a clear span roof/ceiling assembly and an interior bearing wall or beam at each floor.

c. Where the building width perpendicular to the wall footing is greater than 32 feet, the footing width shall be increased by 2 inches and footing depth shall be increased by 1 inch for every 4 feet of increase in building width.

d. Where the building width perpendicular to the wall footing is less than 32 feet, a 2-inch decrease in footing width and 1-inch decrease in footing depth is permitted for every 4 feet of decrease in building width provided that the minimum width is 12 inches and minimum depth is 6 inches.



Footings R 403

- Minimum Width and Thickness
  - Table R 403.1 (1)

2012 – Require minimum 8-inch-thick x 16-inch-wide footings. (unless designed by a Delaware architect or engineer)

2021 – Table R403.1 (1) would allow certain type of foundations to have a minimum 6-inch-thick x 12-inch-wide footings.

Conclusions – Newer code allows smaller footing sizes on certain types of foundations.

Footings R 403 Table R 403.1(1) cont.

FOUNDATIONS

TABLE R403.1(1)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION (inches)[a, b, c, d]

GROUND SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH LIGHT FRAME	LOAD-BEARING VALUE OF SOIL (psf)					
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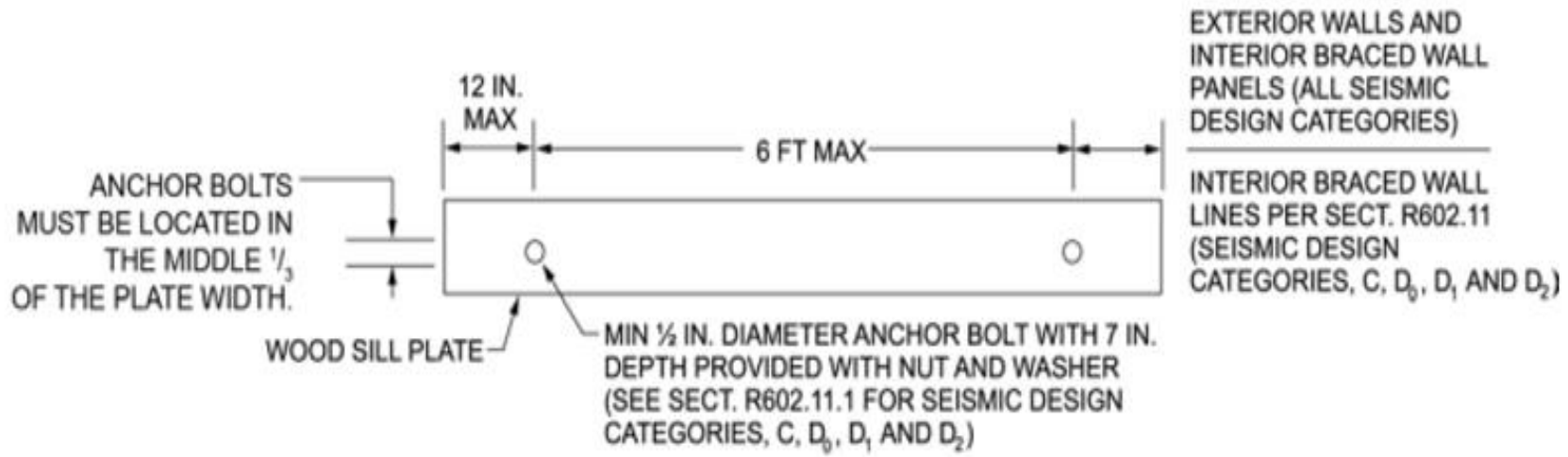
	1 story—with crawl space	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	18 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	3 story—plus basement	22 × 7	16 × 6	13 × 6	12 × 6	12 × 6	12 × 6

Foundation Anchorage R403.1.6 - Anchor Bolts

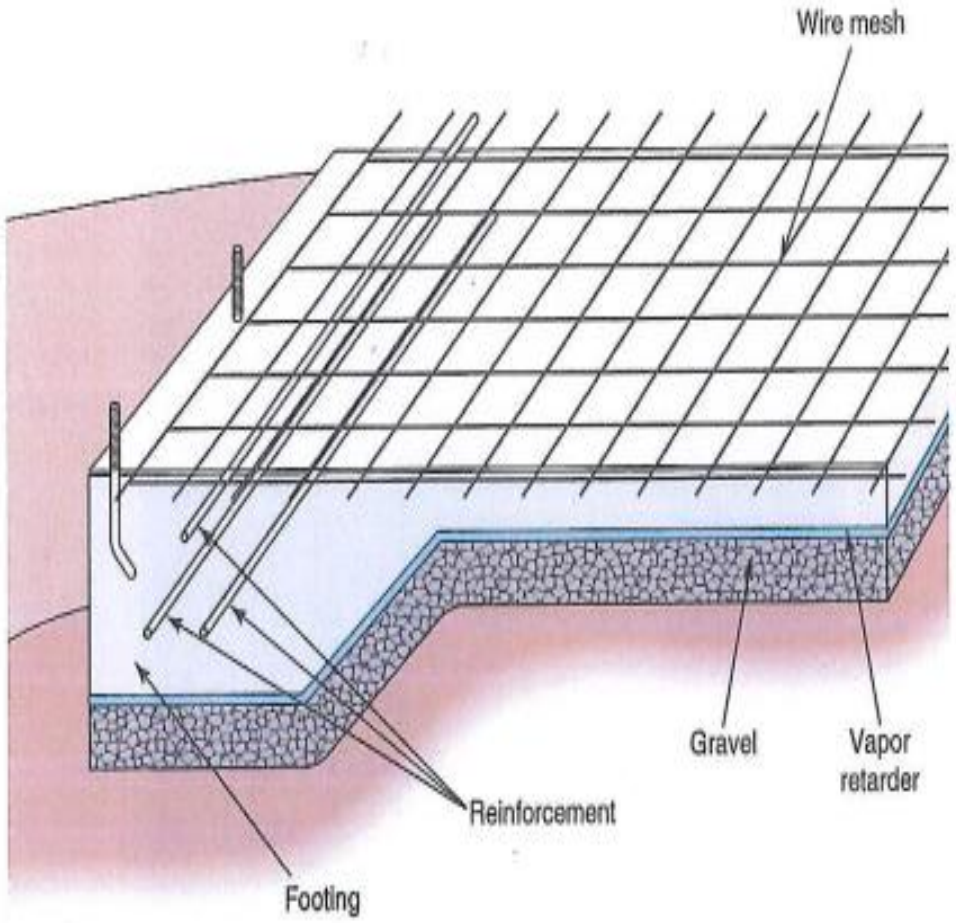


CARE SHOULD BE TAKEN THAT THE HOLES ARE NOT EXCESSIVELY OVERSIZED AND PROPER EDGE DISTANCE IS MAINTAINED. REFER TO THE AWC NDS OR OTHER INDUSTRY STANDARD FOR GUIDANCE.

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

Commentary Figure R403.1.6
WOOD SILL PLATE ANCHORAGE TO FOUNDATIONS

Vapor Retarders R 506.2.3



Vapor retarder laid between subgrade and concrete.

CHANGE TYPE: Modification

CHANGE SUMMARY: Thicker vapor retarders are now required below slabs-on-grade.

R506.2.3

Vapor Retarders Under Concrete Slabs

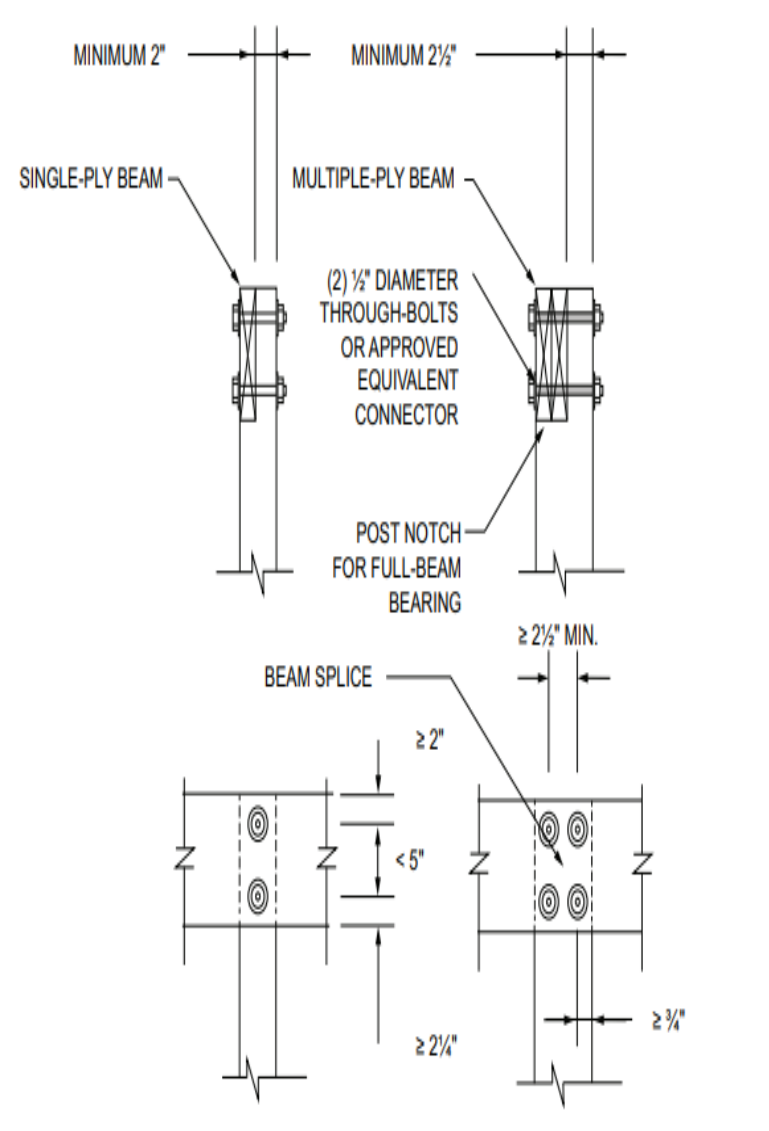
2021 CODE TEXT: **R506.2.3 Vapor retarder.** A minimum ~~6-mil~~ 10-mil (~~0.006~~ 0.010 inch; ~~152 µm~~ 0.254 mm) ~~polyethylene or approved~~ vapor retarder conforming to ASTM E1745 Class A requirements with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

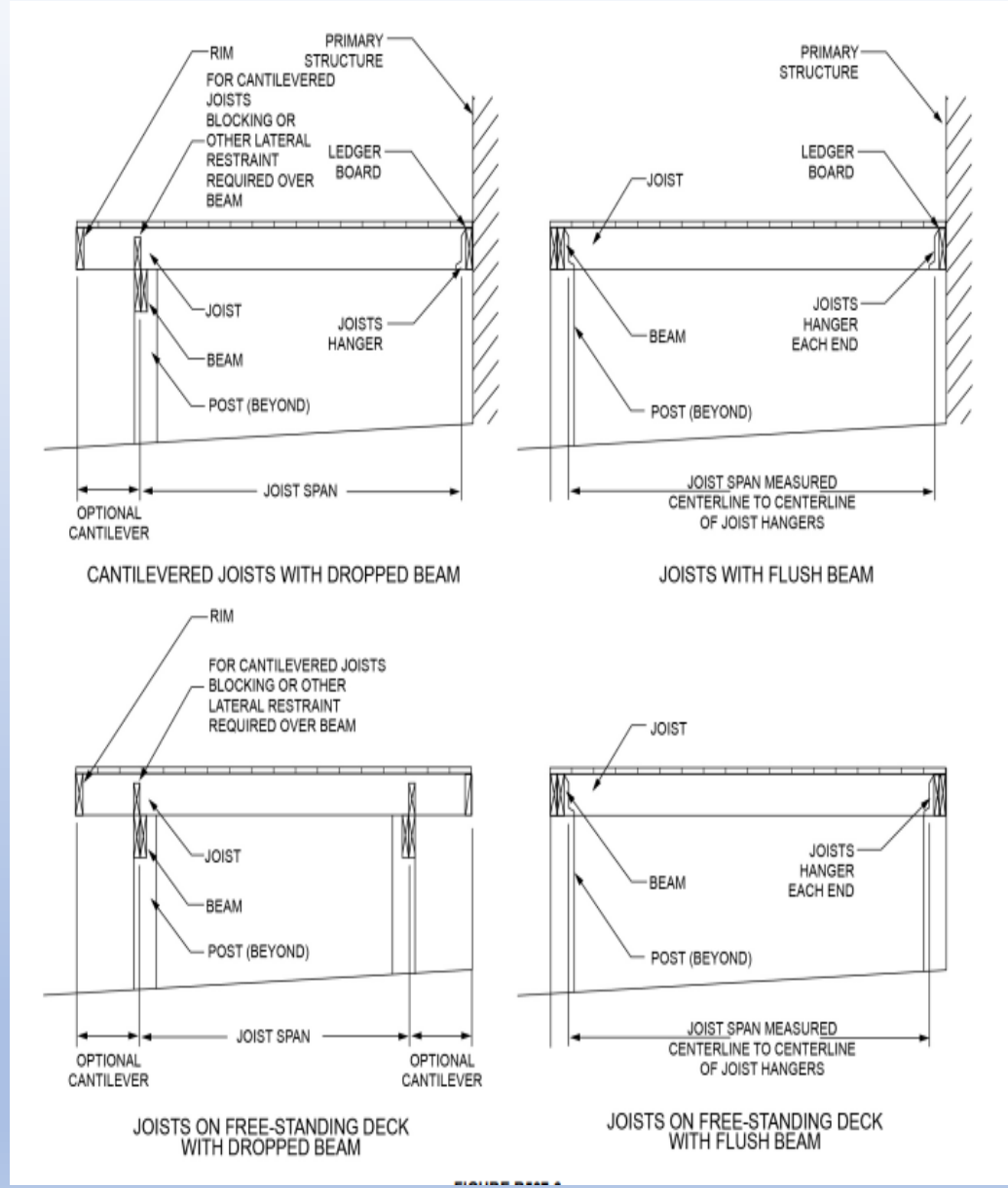
Exception: The vapor retarder is not required for the following:

1. Garages, utility buildings and other unheated accessory structures.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m) and carports.
3. Driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
4. Where approved by the building official, based on local site conditions.

CHANGE SIGNIFICANCE: Water vapor migrating from the ground into spaces such as vented crawlspaces and open foundation systems or through concrete slabs on ground toward cooler and drier indoor spaces may cause mold, mildew and decay, as condensed moisture is trapped indoors. Thin membranes on the ground can be torn during construction allowing moisture to migrate up into the house.

Deck Beams R 507.5





Questions

Please use the Raise your hand feature to be unmuted

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