Notable IRC Changes 2018 to 2024 IRC

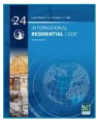
Instructor: Russell Thornburg

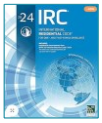
ICC Resources Available

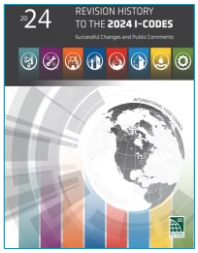
Recourses

ICC Digital Code

2024 International Residential Code without Energy (IRC)







3

INSTRUCTOR:

Introduction

Russell Thornburg
Milano, TX 76556
507.413.2027
russell.thornburg1@gmail.com

Background:

Building Contractor - 1984 to present
Building Inspector Technician - 1997 - 2 years
Field Inspector – 1997 - 2020
Residential Plans Examiner – 1997 – to present
Code Development Committee – started 2001
Instructor – 1998 - present
Code Consultant – 2005 to present
Program Manager – Short Stint
Willdan – Residential Plans Examiner – 2023
Field Inspector

www.thornburgcodeservices.com

2

Identifying Changes within the Codes

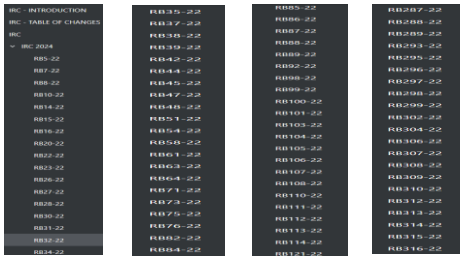
Electronically Identified

- The 2024 I-Code print editions replace the marginal markings with QR codes to identify code changes more precisely.
- A QR code is placed at the beginning of any section that has undergone technical revision.
- If there is no QR code, there are no technical changes to that section.

4

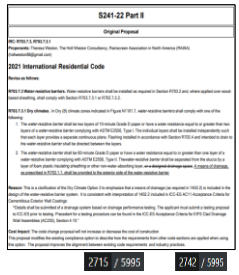
Introduction Revision History

2024_revision_history_updated_with_iecc_and_irc.pdf



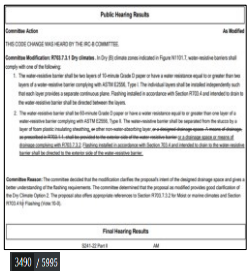
Proponent

Actual Proposal


S241-22 Part II

Original Proposal

2021 International Residential Code


Public Hearing Results

Committee Action — As Modified

Final Hearing Results

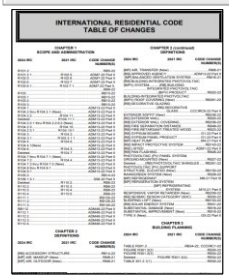
2715 / 5995

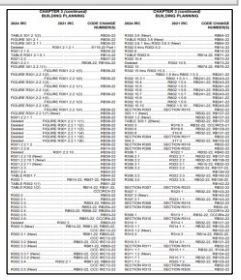
2742 / 5995

3490 / 5995

Table of Content

Who, What and . . .


INTERNATIONAL RESIDENTIAL CODE TABLE OF CHANGES



New Title

Section R103

2024

~~DEPARTMENT OF BUILDING SAFETY~~ CODE COMPLIANCE AGENCY

R103.1 Creation of ~~enforcement~~ agency. The ~~department of building safety~~ [INSERT NAME OF DEPARTMENT] is hereby created and the official in charge thereof shall be known as the building official. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.

R103.2 Appointment. The building official shall be appointed by the chief appointing authority of the *jurisdiction*.

Reason: The purpose of this proposal is consistency through the family of codes for Enforcement Agency. During the 2018-2019 code development cycle, ADM 16-19 Parts 1 and III was approved for inclusion of this language in the IBC, IFC, IEBC, IPC, IMC, IFGC, IPMC, ISPSC, IPSDC, IGCC and IWUIC. BCAC is proposing this change again to the IRC to complete uniformity and consistency of language among all codes. A survey of several departments across the country showed that jurisdictions choose many different names. ADM 16-19 proposed to change the name of this section to "Code Compliance Agency" and add a fill in the blank for the adopting agency to choose a name specific to their jurisdiction. In addition to these changes, all three sub-sections were modified to use language that is common in a majority of the codes. Specifically, a sentence was added to the section "Creation of the Agency" to state the function of the agency. In the section titled "Appointment," the term "chief appointing authority of the" was inserted before "jurisdiction." . . . .

RB10-22

Thornburg Code Services

Section R104

2024

Duties and Powers of the Building Official

Section R104
Overhauled
Reviewing for code alternate materials, designs and methods are evaluated

Section R104

2024

Duties and Powers of the Building Official

- **R104.2.1 Listed compliance**. Where this code or a referenced standard requires equipment, materials, products or services to be *listed* and a listing standard is specified, the listing shall be based on the **specified standard**. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *building official*.

Germane = relevant to a subject under consideration

Section R104

2024

Duties and Powers of the Building Official

R104.2 Determination of compliance. The building official shall have the authority to determine compliance with this code, to render interpretations of this code and to adopt policies, and procedures~~, rules and regulations~~ in order to clarify the application of this code's provisions. Such interpretations, policies, and procedures~~, rules and regulations~~.

1. Shall be in compliance with the intent and purpose of this code.
2. Shall not have the effect of waiving requirements specifically provided for in this code.

Section R104

2024

Duties and Powers of the Building Official

R104.2.2.1 Approval authority.

- An alternative material, design or method of construction shall be approved where the *building official* finds that the proposed alternative is satisfactory and complies with Sections R104.2.2 through R104.2.2.6.2, as applicable.

Approved where the *building official* finds that the proposed alternative is satisfactory . . .

Duties and Powers of the Building Official

Section R104

2024

❑ **R104.2.2.4 Equivalency criteria.**
An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

Duties and Powers of the Building Official

Section R104

- General
- R104.2 Determination of compliance
- R104.2.1 Listed compliance
- R104.2.2 ~~R104.11~~ Alternative materials, design and methods of construction and equipment
  - R104.2.2.1 Approval authority
  - R104.2.2.2 Application and disposition
  - R104.2.2.3 Compliance with code intent
  - R104.2.2.4 Equivalency criteria
  - R104.2.2.5 ~~R104.11.1~~ Tests
- R104.2.2.6 Reports
  - R104.2.2.6.1 Evaluation reports
  - R104.2.2.6.2 Other reports
- R104.2.3 ~~R104.10~~ Modifications
  - 104.2.3.1 ~~R104.10.1~~ Flood hazard areas
- R104.3 ~~R104.2~~ Applications and permits
- R104.4 ~~R104.6~~ Right of entry
  - R104.4.1 Warrant
- R104.5 Identification
- R104.6 ~~R104.3~~ Notices and orders

Duties and Powers of the Building Official

Section R104

2024

❑ **R104.2.2.5 Tests.** ~~**R104.11.1**~~
Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *building official*.

This modification makes testing only required when needed.
Adding 'such' takes the ambiguity out of what testing is required.

Duties and Powers of the Building Official

Section R104

- R104.7 Official ~~Department~~ records
  - R104.7.1 Approvals.
  - R104.7.2 ~~R104.4~~ Inspections
  - R104.7.3 Code alternatives and modifications
  - R104.7.4 Tests
  - R104.7.5 Fees
- R104.8 Liability
  - R104.8.1 Legal defense
- R104.9 Approved materials and equipment
  - R104.9.1 Materials and equipment reuse

Administration

2024

R104.3.1 – 2024 IRC

~~R105.3.1.1~~ Determination of substantially improved or substantially damagedexisting buildings in flood hazard areas.

For applications for reconstruction, rehabilitation, ~~addition~~ addition, alteration, repair or other improvement of existing buildings or structures located in a flood hazard area as established by Table R301.2(1), the *building official* shall examine or cause to be examined the *construction documents* and shall ~~prepare~~ make a ~~finding~~ determination with regard to the value of the proposed work. For buildings that have sustained damage of any origin, the value of the proposed work shall include the cost to repair the building or structure to its predamaged condition. If the *building official* finds that the value of proposed work equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the ~~finding shall be provided to the board of appeals for~~ proposed work is a **determination of** substantial improvement or ~~substantial damage. Applications determined by the board~~ restoration of **appeals to constitute substantial improvement or** substantial damage and the building official shall require ~~all~~ existing portions of the entire building or structure to meet the requirements of Section ~~R322~~ R322.

repairs

2015 IRC IRC 2018

17

Chapter 2 Definitions

2018

Clarifications

35 Definition Changes along in the 2018

[RB] ACCESS (TO). That which enables a device, an appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction.

[RE] **ACCESSIBLE.** ~~Signifies access that requires the removal of an access panel or similar removable obstruction~~ For the definition applicable in Chapter 11, see Section N1101.6.

[RE] READILY ACCESSIBLE. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] READY ACCESS (TO). That which enables a device, *appliance* or *equipment* to be directly reached, without requiring the removal or movement of any panel, door or similar obstruction.

REDLINE VERSION shows changes from the 2015 edition

Clarifications

19

Section R111

Service Utilities

R111.1 Connection of service utilities.

A *person* shall not make connections from a utility, a source of energy, fuel or power, or water system or sewer system to any *building* or system that is regulated by this code for which a *permit* is required, until *approved* by the *building official*.

apps

R111.2 Temporary connection.

The *building official* shall have the authority to authorize the temporary connection of the building or system to the utility, source of energy, fuel or power, water system or sewer system for the purpose of testing systems for use under a temporary approval.

Reason: ADM39-19 was a 2 part proposal. The revised text for service utilities was approved for IBC, IPC, IMC, IFGC, IEBC, IPSDC, IWUIC, ISPSC. The reason for disapproval by the IRC code development committee was "This would be in violation of the requirements of many public utilities across the country. (**Vote 6-4**)." The BCAC respectively disagrees with the IRC development committee. The code official is not making the connection or disconnection, he just has the power to approve it were warranted. This is not over riding the public utility companies. The main purpose of this proposal is coordination IRC with the other codes for the section on connection to services – including those coming from utilities or generated on-site. . . .

RB 126-22 - IRC: Section R111.1, R111.2, R111.3 Thornburg Code Services

18

Section R202, R302

Definition - Clarified

- **[RB] ACCESSORY STRUCTURE**. A structure that is accessory to and incidental to that of the *dwelling(s)* or townhouse(s) and that is located on the same *lot*.
- **[RB] BUILDING**. Any one- or two-family dwelling or *townhouse*, or portion thereof, ~~including *townhouses*~~, used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or any accessory structure. For the definition applicable in Chapter 11, see Section N1101.6.
- **[RB] FIRE SEPARATION DISTANCE.** The distance measured from the building face to one of the following:
  1. To the closest interior lot line.
  2. To the centerline of a street, an alley or public way.
  3. To an imaginary line between two *buildings* or townhouse units on the lot.
- The distance shall be measured at a right angle from the face of the wall.

20

Section R202, R319, R702.3

Definition - Clarified

- **[RB] GRADE FLOOR EMERGENCY ESCAPE AND RESCUE OPENING.** ~~A window or other~~ An emergency and escape and rescue opening located such that the ~~sill~~ height of the bottom of the clear opening is not more than 44" above or below the finished ground level adjacent to the opening. (See also "Emergency escape and rescue opening – R319.")

- **[RB] GYPSUM BOARD.** ~~The generic name for a family of sheet products~~ A type of gypsum panel product consisting of a noncombustible core primarily of gypsum with paper surfacing. ~~Gypsum wallboard, gypsum sheathing, gypsum base for gypsum *veneer* plaster, exterior gypsum soffit board, predecorated gypsum board and water-resistant gypsum backing board complying with the standards listed in Section R702.3 and Part IX of this code are types of gypsum board~~.

21

Chapter 2 Definitions

2018

Modification

[RB] HISTORIC BUILDING. ~~Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law.~~ A building or structure that is one or more of the following:

1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register-listed, or a state-designated or locally designated historic district.

For the definition applicable in Chapter 11, see Section N1101.6.

REDLINE VERSION shows changes from the 2015 edition

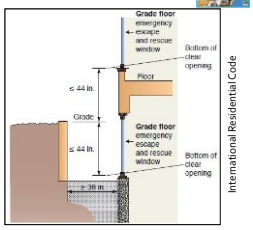
23

Grade Floor - EERO

2021 IRC

Chapter 2 - Definition

- **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.



What could be added to this illustration?

Def. & R319 EERO

22

Chapter 2 Definition - Habitable Attic

2018

Definition – Change - Habitable Attic

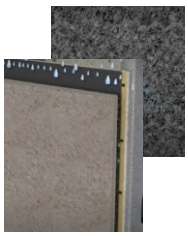
- Finished or unfinished space
- ~~Not considered a *story* for purposes of determining a 3 story structure~~
- ~~Must comply with ALL of these:~~
  1. ~~Occupiable floor area ≥ 70 sq ft~~
  2. ~~Ceiling height of 7' for at least 35 sqft.~~
  3. ~~Space is enclosed by a roof assembly, knee walls (if applicable) and floor/ceiling below.~~

Section R202 (New), Table R702.7.3

2024 IRC

Definition

- **RAINSCREEN SYSTEM.** An assembly applied to the exterior side of an exterior wall which consists of, at minimum, an outer layer, an inner layer, and a cavity between them sufficient for the passive removal of liquid water and water vapor.



RB28-22

25

Chapter 3 – Completely Over Hauled Number System

2024 IRC

Building and Planning

- Section R301 -Design Criteria
- Section R302 Fire-Resistant Construction
- Section R303 ~~R316~~ Foam Plastic
- Section R304 ~~R317~~ Protection of Wood and Wood Based Products Against Decay
- Section R305 ~~R318~~ Protection Against Subterranean Termites
- Section R306 ~~R322~~ Flood-Resistant Construction
- Section R307 ~~R323~~ Strom Shelters
- Section R308 ~~R319~~ Site Address
- Section R309 ~~R313~~ Automatic Fire Sprinkles Systems

RB32-22, RB 110-22

27

Section R202, 315

2024 IRC

Definition - Clarified

- **[RB] SLEEPING LOFT.** A space designated for sleeping on an intermediate level or levels between the floor and ceiling of a story, open on one or more sides to the room in which the space is located, and in accordance with Section R315. (2024)
- **[RB] 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. For the definition applicable in Chapter 11, see Section N1101.6. (2021)

26

Chapter 3 – Completely Over Hauled Number System

2024 IRC

Building and Planning

- Section R310 ~~R314~~ Smoke Alarms
- Section R311 ~~R315~~ Carbon Monoxide Alarms
- Section R312 ~~R304~~ Minimum Room Areas
- Section R313 ~~R305~~ Ceiling Height
- Section R314 ~~R325~~ Mezzanines
- Section R315 Sleeping Lofts
- Section R316 ~~R326~~ Habitable Attics
- Section R317 ~~R309~~ Garage and Carports
- Section R318 ~~R311~~ Means of Egress
- Section R319 ~~R310~~ Emergency Escape and Rescue Openings (EERO)
- Section R320 ~~R311.7.8.~~ Handrails R318.7.8
- Section R321 ~~R312~~ Guards and Window Fall Protection

RB32-22, RB 110-22

28

Chapter 3 – Completely Over Hauled Number System

2024 IRC

Building and Planning

- Section R322 ~~R320~~ Accessibility
- Section R323 ~~R321~~ Elevator and Platform
- Section R324 ~~R308~~ Glazing
- Section R325 ~~R303~~ Light, Ventilation and Heating
- Section R326 ~~R306~~ Sanitation
- Section R327 ~~R307~~ Toilet, Bath and Shower Spaces
- Section R328 ~~R327~~ Swimming Pools, Spas and Hot Tubs
- Section R329 Solar Energy System
- Section R330 ~~R328~~ Energy Storage System
- Section R331 ~~R329~~ Stationary Engine Generators
- Section R332 ~~R330~~ Stationary Fuel Cell System

RB32-22, RB 110-22

29

Code & Results

Code Section

- ADM = Administration
- RB = IRC Building
- S = IBC - Structural
- G = IBC – General
- RM = IRC Mechanical
- M = Mechanical
- RP = IRC Plumbing
- P = Plumbing
- CCC = Code Correlation Committee
- NEC = National Electric Code

- AS = **A**pproved as **S**ubmitted
- AM = **A**pproved as **M**odified at the Committee Action Hearing
- AMPC = **A**pproved as **M**odified by **P**ublic **C**omment
- D = **D**isapproved

- NYS - Where a change is made by NYS, rather than an ICC level change, "[NY]" is added to the section numbers

31

Chapter 3 – The Intent of Restructure

2024 IRC

Building and Planning

- **Reason:** There are no technical changes to the text - this is a reorganization to improve usability of the code. Over the years there have been numbers 'adds' to IRC Chapter 3 without a general look at grouping or organization. The biggest stretch are the room area (R304) and height (R305) being multiple sections away from mezzanines (R325) and habitable attics (R326). The intent of this proposal is to reorganize the requirements into areas for the following:
  - Structural (Passive Fire Resistance) R301-307
  - Fire (Active fire Resistance) R308 -311
  - Rooms and spaces R312-317
  - Means of egress R318-R321
  - Accessibility/Elevators R320-R321
  - MEP (Home Safety) R322-R328
  - Energy R329-R332
- **Cost Impact:** The code change proposal will not increase or decrease the cost of construction
- This proposal is only to reorganize the sections in Chapter 3 for ease of use. There are no technical changes.

RB32-22

30

Section R202 (New), Table R702.7.3

2024 IRC

Sections – Titles - Proponent

Ch 3	Chapter 3 Reorganization	RB32-22 AS
R301.2.1 C&C	Components and Cladding	RB35-22 AS
R301.2.1.1	Wind Maps	RB35-22 AS
R301.2.2	Buildings Required to Meet Seismic Provisions	RB37 AS, RB38 AS, RB164-22 AM
R301.2.2.10	Seismic Restraint	RB39-22 AM
R301.2.3 Snow Maps	Snow Loads	RB34-22 AS
R302.1	Exterior Walls	RB48 AMPC
R302.3	Two-Family Dwellings	RB61 AMPC, RB63 AMPC3, RB14 AS, CCCIRC12-2022
R302.3.5	Stacked Dwelling Units	RB61 AMPC
R302.3.6	Shared Accessory Rooms	RB64 AMPC1,2
R302.13	Floor Protection	RB75-22 AS
~~R316~~ R303	Foam Plastic	RB127 AS, RB32 AS
~~R322.2~~ R306.2	Flood Hazard Area	RB137 AS
~~R322.3~~ R306.3	Coastal High Hazard Areas	RB137 AS, RB 139 AS, RB15 AS
~~R314~~ R310	Smoke Alarms	RB121 AS, RB122 AMPC, RB153 AMPC2,3, RB14 AS
~~R326~~ R315	Sleeping Lofts	RB153 AMPC1,2,3; RB32 AS
~~R309~~ RB317	Garages	RB87 AMPC, RB88 AS
~~R311.7.6~~ R318.7.6	Stairways Landings	R107 AS, RB108 AS, RB100 AMPC
~~R311.7.8.4~~ R318.8	Ramps	R107 AS, RB108 AS, RB100 AMPC
~~R311.7.8~~ R320	Handrails	RB110 AS, RB111 AM, RB112 AM, RB114 AM
~~R320~~ R322	Accessibility	RB134 AM, RB14 AS, RB32 AS
~~R321.1~~ R323	Elevators and Hoistways	RB 135 AS, RB32 AS
~~R308.6.5~~ RB324.6.5	Light, Ventilation and Heating	RB84-22 AM
~~R303~~ R325	Screens	RB76-22 AM
~~R324~~ R329	Photovoltaic Systems	RB149-22 AS, RB150-22 AMPC
~~R328.4~~ R330.4	Energy Storage System Locations	RB155 AS, RB137 AM
~~R328.8~~ R330.8	Impact Protection	RB161 22 AS

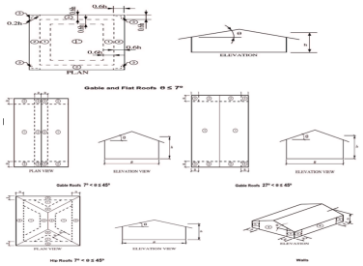
32

Wind Force and Loading - Figure R301.2.1

2024 IRC

Component and Cladding (CC)

- A zone refers to **areas** of a wall or roof as illustrated in **Figure R301.2.1** which shows corner, edge and interior regions for flat, gable and hip roofs
- The figure is used in tandem with **Table R301.2.1(1)** to determine component and cladding pressures in any area of the roof or a wall
- High pressures in one or more regions of a roof often require **tighter nailing patterns**



33

Wind Force and Loading

2021 IRC, 2024 IRC

R301.2.1 Wind Design Criteria.

- *Metal roof shingles* shall be designed for wind speeds in accordance with Section R905.4.4. A continuous load path shall be provided to transmit the applicable uplift forces in Section R802.11 from the *roof assembly* to the foundation. Where ultimate design wind speeds in **Figure R301.2(2)** are less than the lowest wind speed indicated in the prescriptive provisions of this code, the lowest wind speed indicated in the prescriptive provisions of this code shall be used.

- **R905.4.4.1 Wind resistance of metal roof shingles.**

Metal roof shingles fastened to *wood structural panels*, solid lumber sheathing or closely fitted lumber sheathing ~~applied to a solid or closely fitted deck~~ shall be tested in accordance with ASTM D3161, FM 4474, UL 580 or UL 1897. *Metal roof shingles* tested in accordance with ASTM D3161 shall meet the classification requirements of Table R905.4.4.1 for the appropriate maximum basic wind speed and the metal shingle packaging shall bear a *label* to indicate compliance with ASTM D3161 and the required classification in Table R905.2.4.1.

RB279-19, RB254-22

35

Wind Force and Loading

Component and Cladding (CC)

- MWFRS – Main Wind-Force Resisting Systems
- C & C – Components and Cladding

- Main Wind Force Resisting Systems
  - The Wind loads act on the frame and foundation of a building
  - These loads try to tip, twist, and shake the building as a whole

The metal roof and wall panels would be considered cladding. The overhead door, walk door, and window would be considered components. Also, the roof purlins and wall girts are receiving loading from the cladding and are, therefore, also considered components.

ASCE 7 guideline is the go-to resource for wind load calculations. This guideline takes into account several factors, including wind speed, wind directionality factor, exposure category, topographic factors, ground elevation, and building enclosure. (MWFRS)

34

Classification of Steep Slop Metal Roof Shingles Tested - ASTM 3161

2021 IRC

Table R905.4.4.1

Incomplete / Partial Table

TABLE R905.4.4.1–CLASSIFICATION OF STEEP SLOPE METAL ROOF SHINGLES TESTED IN ACCORDANCE WITH ASTM D3161		
MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}, FROM FIGURE R301.2(2) (mph)	MAXIMUM BASIC WIND SPEED, V_{asd}, FROM TABLE R301.2.1.3 (mph)	ASTM D3161 SHINGLE CLASSIFICATION
110	85	A, D or F
116	90	A, D or F
129	100	A, D or F
142	110	F
155	120	F

RB279-19

36

Wind Force and Loading

2021 IRC
2024 IRC

Component and Cladding (CC)

- **Wind pressure increases with greater height in Exposure B while negative (suction) pressure reduced on roofs**

Incomplete / Partial Table

TABLE R301.2.1(1)

Component and Cladding Loads for a Building with a mean Roof Height of 30 Feet Located in Exposure B (ASD) (psf) [a, b, c, d, e, f, g]

	ZONE	EFFECTIVE WIND AREAS (square feet)	Ultimate Design Wind Speed, V_{ult} 90.0 Pos	90.0 Neg	95.0 Pos	95.0 Neg	100.0 Pos	100.0 Neg	105.0 Pos	105.0 Neg	110.0 Pos	110.0 Neg
Gable roof 0 to 7 degrees	1, 1'	10	3.6	-13.9	4.0	-15.5	4.4	-17.2	4.8	-19.0	5.3	-20.8
	1, 1'	20	3.3	-12.4	3.7	-13.8	4.1	-15.3	4.5	-16.8	5.0	-18.5
	1, 1'	50	3.0	-10.3	3.4	-11.5	3.8	-12.7	4.1	-14.0	4.5	-15.4
	1, 1'	100	2.8	-8.7	3.1	-9.7	3.5	-10.8	3.8	-11.9	4.2	-13.1
	2	10	3.6	-18.4	4.0	-20.5	4.4	-22.7	4.8	-25.0	5.3	-27.4
	2	20	3.3	-16.4	3.7	-18.2	4.1	-20.2	4.5	-22.3	5.0	-24.5
	2	50	3.0	-13.7	3.4	-15.3	3.8	-16.9	4.1	-18.7	4.5	-20.5
	2	100	2.8	-11.7	3.1	-13.0	3.5	-14.6	3.8	-15.9	4.2	-17.5

Wind Force and Loading – Figure R302.2.1

2021 IRC
2024 IRC

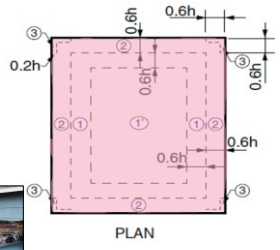
Component and Cladding (CC)

Gable and Flat Roofs θ < 7°

Flat roof zones 0 to 7 degrees

(1.5:12 slope or less)

- A roof slope of **<7°** is considered **flat** and has corner zones that wrap around the edge of the roof
- The width and length of these zones depends upon the **height (h)** of the house



Wind Force and Loading

2024 IRC

Component and Cladding (CC)

- Exposure Coefficients
- Decreased for Tall Buildings

Table R301.2.1(2)

Means Roof Height	Exposure B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
25	0.94	1.35	1.61
30	1	1.4	1.66
35	1.05	1.45	1.7
40	~~1.09~~ 1.06	1.49	1.74
45	~~1.12~~ 1.1	1.53	1.78
50	~~1.16~~ 1.13	1.56	1.81
55	~~1.19~~ 1.16	1.59	1.84
60	~~1.22~~ 1.19	1.62	1.87

Wind Force and Loading – Figure R302.2.1

2024 IRC

Component and Cladding (CC)

- **Gable Roofs 7° < θ < 45° – 2021 IRC**

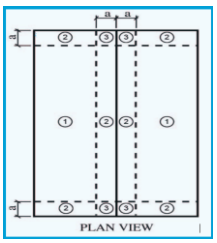
(1.5:12 to 12:12 slope)

- **Gable Roof 7 to 27° - 7 - 2024 IRC**

(1.5:12 to 6:12 slope)

- A gable roof has edge and corner zones which **change** depending upon the **steepness** of the **roof slope**

a = 4'



Wind Force and Loading – Figure R302.2.1

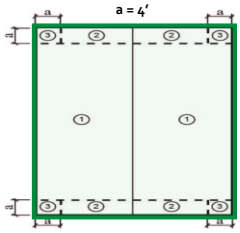
2024 IRC

Component and Cladding (CC)

2024 IRC

- **Gable Roofs 27° < θ ≤ 45°**
  (6:12 to 12:12 slope)

- Gable roofs are now split into **lower slope <6:12** and **higher slope >6:12**



Zones are simplified, but C&C loads for fasteners (EWA=10) still assume worst case. So, fastener spacings will not change. EWA - Effective Wind Area.

RB35-22

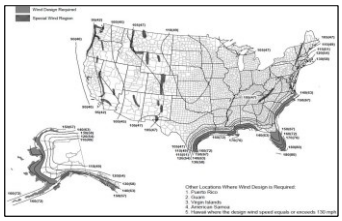
41

Wind Force

2024 IRC

Wind Design Required

- Figure R301.2.1.1
- Areas of the Gulf Coast and Alaska that require structural design for wind loads are updated
- Figure 301.2.(2)
- Figure updated to match wind loads in the IBC and ASCE 7



B35-22

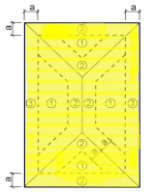
43

Wind Force and Loading – Figure R302.2.1

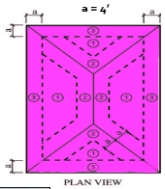
2024 IRC

Component and Cladding (CC)

- **Hip Roofs 7° < to ≤ 45° – 2021 IRC**
  (1.5:12 to 12:12 slope)
- **Hip Roof 7 to 45° – 2024 IRC**
  (1.5:12 to 12:12 slope)



- A **hip roof** has edge and corner zones that **vary** over the roof



RB35-22

42

Wind Speed Conversions [a]

Table R301.2.1.3

R301.2.1.3 Wind speed conversion. Where referenced documents are based on nominal design wind speeds and do not provide the means for conversion between ultimate design wind speeds and nominal design wind speeds, the ultimate design wind speeds, V_{ult} of Figure R301.2(2) shall be converted to nominal design wind speeds, V_{asd} using Table R301.2.1.3.

TABLE R301.2.1.3—WIND SPEED CONVERSIONS[a]

V_{ult}	110	115	120	130	140	150	160	170	180	190	200
V_{asd}	85	89	93	101	108	116	124	132	139	147	155

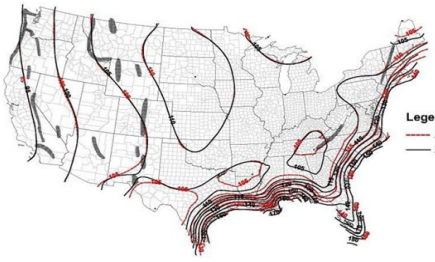
For SI: 1 mile per hour = 0.447 m/s.
a. Linear interpolation is permitted.

44

Wind Force Change Data

2024 IRC

Ultimate Design Wind Speed

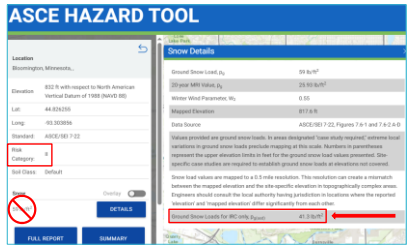


45

R301.2.3 Snow Loads

2021 IRC
2024 IRC

Adjusted



Not for IRC

Up from 35 psf
Over 115% increase

RB34-22

Choose Risk Category II from the (IBC) 1604.5 Risk Category Residential

47

Wind Force /Speed

2021 IRC

Ultimate Design Wind Speed

R301.2.1.1 - Wind Limitations & Wind Design Required.

- Wind speed can be found in the ASCE 7 Hazard Tool or approved equivalent.
- https://ascehazardtool.org

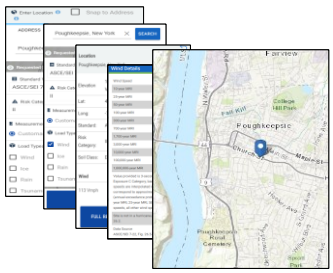


Figure R301.2(2)

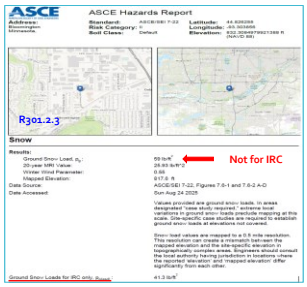
RB34-22

46

Snow Loads - R301.2.3

2021 IRC
2024 IRC

Adjusted



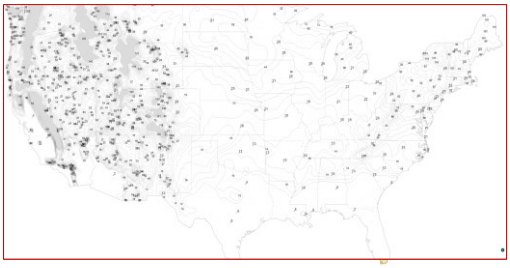
RB34-22

48

Snow Load - R301.2.3

2021 IRC
2024 IRC

Adjusted



RB34-22

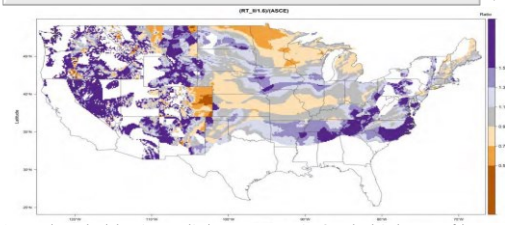
I can not see these numbers, can you?

49

Ratio of ASCE 7-22 to ASCE 7-16

2021 IRC
2024 IRC

Increased/Decreased



In general, snow loads have increased in the western mountains. Snow loads in the center of the country have dropped. Areas where there is no change to the snow load or the snow load is less than 10 psf are white. From the map, areas of increased snow load (shades of purple indicate a ratio greater than 1) and decreased snow load (shades of orange indicate a ratio less than 1) can be determined.

RB34-22 https://ascehazardtool.org

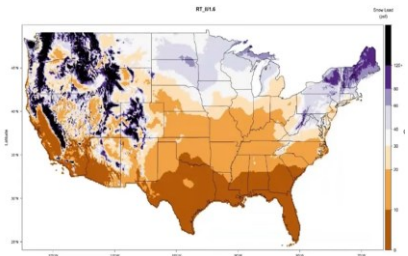
51

Snow Load - R301.2.3

2021 IRC
2024 IRC

Adjusted

- The snow load map has been updated to show snow loads across the USA
- 20-lbs increments
- https://ascehazardtool.org



- Comparison of the 2024 and 2021 IRC snow loads shows the ratio between the 2024 IRC and the 2021

RB34-22

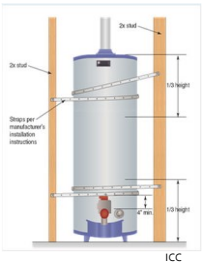
50

Seismic Provision - R301.2.2

2021 IRC

Seismic Restraint

- In Seismic Design Categories D_0, D_1, and D_2 and in townhouses in SDC C
- System components that are designed to be fixed in position shall be supported and braced or anchored to the structure in accordance with the component manufacturer's recommendations or per Section R301.2.2.10.1.
- Exceptions: 1-4



ICC

RB39-22

Thornburg Code Services

52

Live Loads – Table R301.5

2021 IRC

Clarification

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED AND CONCENTRATED LIVE LOADS (~~In pounds per square foot~~)

OCCUPANCY OR USE	UNIFORM LIVE LOAD (psf)	CONCENTRATED LOAD (lbs)
Uninhabitable attics without storage[b]	10	a
Uninhabitable attics with limited storage[b, i]	20	a
Habitable attics and attics served with fixed stairs	30	a
Balconies (exterior) and decks[e]	40	a
Fire escapes	40	a
Guards ~~and handrails~~[d, i]	~~200~~	200[i]
Guard in-fill components[i]	~~50~~	50[i]
Handrails[i]		200[i]
Passenger vehicle garages[a]	50	2,000[i]
Areas ~~Rooms~~ other than sleeping areas ~~rooms~~	40	a
Sleeping areas ~~rooms~~	30	a
Stairs	40	300[c]

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm², 1 pound = 4.45 N.

a. Elevated garage floors shall be capable of supporting the uniformly distributed live load or a 2,000-pound ~~load applied over a 20 square inch area~~ concentrated load applied on an area of 4 1/2 inches by 4 1/2 inches, whichever produces the greater stresses.

b. Glazing used in handrail assemblies and guards shall be designed with a ~~safety~~ load adjustment factor of 4. The ~~safety~~ load adjustment factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

i. Where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated load shall not be applied concurrently.

REDLINE VERSION Changes from the 2018 edition

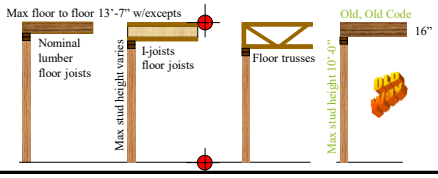
53

Story Height

2021 IRC

R301.3 - Modified

- Story height limited to 13'-7" meeting except. 2 or 3 of R602.3.1
- Previously: Conditional 11' – 7"
- Floor height limited by stud height of 10' plus 16" for top plates and joists



55

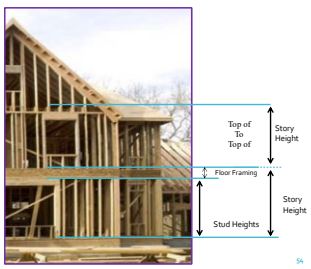
Story Height - R301.3

2021 IRC

R301.3 - Modified

Exception:

- ❑ Maximum story height for wood wall framing is 13'- 7" when the except. 2 or 3 design requirements are met of R602.3.1
- ❑ Or engineer design
  - Max. bearing wall stud heights of 10'
  - Max. floor framing 16" in depth
  - Max. bearing wall stud height of 12 feet when an engineered design



54

Story Height

2021 IRC

R301.3 - Modified

Load	Stud Height (feet)		
	≤ 10	10 to ≤ 12	> 12
Load Bearing Studs	No engineering required	Engineering required unless a Section R602.3.1 exception is met: 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

56

Definitions – Old & New - Overview

2021 & 2024 IRC

2021 IRC Definitions

[RB] DWELLING. Any building that contains one or two *dwelling units* used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

[RB] DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] LOT. A measured portion or parcel of land considered as a unit having fixed boundaries.

[RB] LOT LINE. The line that bounds a plot of ground described as a lot in the title to the property.

[RB] TOWNHOUSE. A *building* that contains three or more attached *townhouse units*.

[RB] 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.

2024 IRC Definition

[RB] FIRE SEPARATION DISTANCE. The distance measured from the building face to one of the following:

1. To the closest interior *lot line*.
2. To the centerline of a street, an alley or public way.
3. To an imaginary line between two *buildings* or townhouse units on the *lot*.

Exterior Walls – R302.1

2024 IRC

FSD

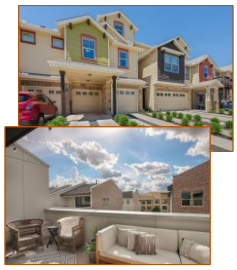
- Defining fire separation distance when there are multiple dwellings or townhouse buildings on the **same lot is added**
- All units have measurements distance Table R302.1(1) or Table R302.1(2)

Exterior Walls - R202, R302,

Fire Protection

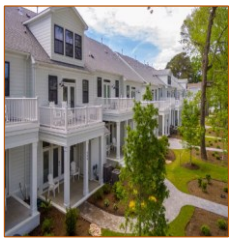
R202 - Definition of: Exterior Wall

- Above-grade wall
- Defines exterior boundaries of a building.
- Includes:
  - between-floor spandrels, peripheral edges of
  - floors, roof and basement knee walls, dormer walls,
  - gable end walls, gable end roof trusses,
  - walls enclosing a mansard roof and basement walls with an average
  - below-grade wall area < 50% of the total area of that enclosing side.



Exterior Walls – R302.1

FSD



- For FSD, dwellings and townhouses on the same lot shall be assumed to have an imaginary line between them.
- FSD and requirements of Section R302.1 do not apply to walls separating townhouse units (party walls).

Exterior Walls – R302.1

2024 IRC

NewCode - FDS

- For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them.
- Where a new *dwelling* or *townhouse* is to be erected on the same *lot* as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.

Townhouse – R302.2

2021 IRC

Common Wall

R302.2.2 Common walls.

Common walls separating *townhouse units* shall be assigned a fire-resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. Common walls shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing. The common wall shared by two *townhouse units* shall be constructed without plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

Code Change No: RB56-19

Exterior Walls – R302.1

2024 IRC

NewCode - FDS

- Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*.
- Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line.
- *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.

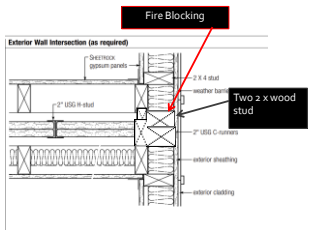
Townhouse Common Wall - R302.2

2021IRC

Common Wall

Exception:

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



Two-Family Dwelling Separation – R302.3

2021 IRC

1 Hour Fire Resistive Rating

- One-hour separation **whether or not** a lot line exists between units

65

Vertically Stack Dwelling Units – R302.3.4

2024 IRC

NEW

- Where one *dwelling unit* in a two-family dwelling is located above the other and an automatic sprinkler system complying with Section P2904 is not provided in both *dwelling units*, both of the following **shall apply**:
  1. Horizontal and vertical assemblies separating the *dwelling units*, including an interior *stairway* serving as the means of egress for the upper *dwelling unit*, shall be constructed in a manner that limits the transfer of smoke.
  2. A notification appliance connected to smoke alarms in the other *dwelling unit* shall be provided in each *dwelling unit*

RB63-22 AMPC3

67

Two-Family Dwelling – R302.3

New Code Change

- Fire-Resistance Requirements has Changed
- Separate from each other in accordance Sections R302.3.1 through Section R302.3.5, regardless of lot line between the two
- *Dwelling units* shall be separated by fire-resistance rated assemblies that are vertical, horizontal, or a combination thereof.

RB61-22 AMPC1

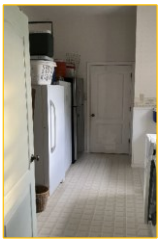
66

Shared Accessory Rooms– R302.3.6

2024 IRC

New Code Change

- Shared accessory rooms shall be separated from each individual *dwelling unit* in accordance with Table R302.3.6.
- Openings between the shared accessory room and *dwelling unit* shall comply with Section R302.3.6.1.
- Attachment of *gypsum board* shall comply with Table R702.3.5.



R302.3 Two-family dwellings

68

Dwelling-Shared Accessory Room Separation–Table R302.3.6

2024 IRC

New Code Change

SEPARATION	MATERIAL
From the dwelling units and attics	Not less than 1/2-inch gypsum board or equivalent applied to the accessory room side wall
From habitable rooms above or below the shared accessory room	Not less than 5/8-inch Type X gypsum board or equivalent
Structures supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent

R302.3.6.1 Opening protection.
Openings from a shared accessory room or area directly into a room used for sleeping purposes shall not be permitted. Other openings between the shared accessory room or area and dwelling units shall be equipped with solid wood doors not less than $1\frac{3}{8}$" in thickness, solid or honeycomb core steel doors not less than $1\frac{3}{8}$" in thickness, or a fire door assembly with a 20-minute fire-protection rating, equipped with a self-closing or automatic-closing device.

R302.3.6.2 Duct penetration.
Ducts penetrating the walls or ceilings separating the dwelling from the shared accessory room shall be constructed of sheet steel not less than No. 26 gage or other approved material and **shall not have openings** into the shared accessory room.

RB64-22 AMPC1,2

69

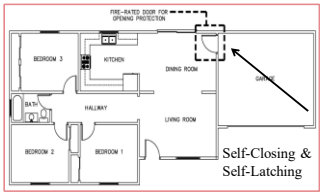
Garage Door Between . . .

2021 IRC

R302.5 Opening Protection

- Door between the garage and residence must be equipped with a self-closing or automatic-closing device..

Self-closing Door Hinges



R302.3.6.1 Shared Accessory Room & R302.5 Btwn Garage & House

71

Dwelling-Shared Accessory Room Separation–Table R302.3.6

2024 IRC

New Code Change

SEPARATION	MATERIAL
From the dwelling units and attics	Not less than 1/2-inch gypsum board or equivalent applied to the accessory room side wall
From habitable rooms above or below the shared accessory room	Not less than 5/8-inch Type X gypsum board or equivalent
Structures supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent

R302.3.6.3 Other penetrations.
Penetrations through the walls, ceiling and floor-level separation required in Section R302.3.6 shall be protected as required by Section R302.11, Item 4.

4. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an *approved* material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet the ASTM E136 requirements.

RB64-22 AMPC1,2

70

Under the Stairway – R302.7

2018

Modification

R302.7 Under-stair protection.
Enclosed accessible space under stairs that is accessed by a door or access panel, shall have walls, under-stair surface and any soffits protected on the enclosed side with 1 1/2-inch (12.7 mm) gypsum board.

True of False

REDLINE VERSION
(Italics) changes from the 2018 edition

72

Insulation Flame Spread

2021 IRC

R302.10.1 Insulation.
Insulating materials installed within floor-ceiling assemblies, roof-ceiling assemblies, wall assemblies, crawl spaces and attics shall comply with the requirements of this section. They shall exhibit a flame spread index not to exceed 25 and a smoke-developed index not to exceed 450 where tested in accordance with ASTM E84 or UL 723.

Insulating materials, where tested in accordance with the requirements of this section, shall include facings, where used, such as vapor retarders, vapor permeable membranes and similar coverings.

Foam Plastic R303

2024 IRC

Code Change

❑ **R303.1.1 Spray-applied foam plastic.**
Single- and multiple-component spray-applied *foam plastic insulation* shall comply with the provisions of Section R303 and ICC 1100.

❑ **R303.1.2 Insulating sheathing.**
Foam plastic materials used as insulating sheathing shall comply with the provisions of Section R303 and the material standards in Table R303.1.2.

❑ **New Standards** for Foam Plastic materials and their application are added

RB127-22 AS

75

Fire Protection of Floors - R302.13

2024 IRC

Addition to Exceptions

❑ Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a $^{1}/_{2}$" *gypsum wallboard* membrane, $^{5}/_{8}$" *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: 1-4

5. Wood floor assemblies less than 600 sq. ft. within detached *accessory structures* with no *habitable space* above them.

❑ This **new exception** is intended to address small haylofts and other floor systems with a low likelihood of an issue with egress or the need to enter during a fire

Small haylofts or other small/ low/ limited occupancy or risk floor systems should not have to be held to the same standards as a dwelling

RB75-22 AS

74

Foam Plastics - ~~R316.3~~ R303

2021IRC
2024IRC

New and Modification Code

R303.3 Surface burning characteristics. CDP INSIGHTS
Unless otherwise allowed in Section R303.5, foam plastic, or foam plastic cores used as a component in manufactured assemblies, used in building construction shall comply with Section R303.3.1 or R303.3.2. Loose-fill-type *foam plastic insulation* shall be tested as board stock for the *flame spread index* and *smoke-developed index*.

Exception: Spray *foam plastic insulation* more than 4" in thickness shall have a *flame spread index* of not more than 25 and a *smoke-developed index* of not more than 450 were tested at a thickness of 4" and at the density intended for use. Such spray foam plastic shall be separated from the interior of a *building* by $^{1}/_{2}$-inch *gypsum wallboard* or by a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.

R303.3.1 Foam plastic insulation 4 inches thick or less. INSIGHTS
Foam plastic insulation installed at 4" in thickness or less shall have a *flame spread index* of not more than 75 and a *smoke-developed index* of not more than 450 where tested in the maximum thickness and density intended for use in accordance with ASTM E84 or UL 723.

R303.3.2 Foam plastic insulation more than 4 inches thick. INSIGHTS
Foam plastic insulation installed at more than 4" in thickness shall have a *flame spread index* of not more than 75 and a *smoke-developed index* of not more than 450 where tested at a thickness of 4" in accordance with ASTM E84 or UL 723, provided that the end use is *approved* in accordance with Section R303.6 using the thickness and density intended for use.

Code Change No: RB132-19

76

New Code Change

Alternative test method - R302.9.4

2021 IRC

Code Change No: RB71-19

Original Proposal

Section(s): R302.9.4 (New)

Proponents: Marcelo M Hirschler, GBH International, representing GBH International (mmh@gbhint.com)

2018 International Residential Code

Add new text as follows:

R302.9.4 High density polyethylene (HDPE) and polypropylene (PP). Where high density polyethylene or polypropylene is used as an interior finish material, it shall be tested in accordance with NFPA 286 and comply with the requirements in Section R302.9.4.

Reason: This proposal brings in a key fire safety requirement from the IBC and the IFC. The new section addresses the issue that it is not appropriate to allow testing of high density polyethylene (HDPE) and polypropylene (PP) materials used as interior finish in accordance with ASTM E84 or UL 723, because the test results are misleading. Such materials must be tested to NFPA 286, as shown in the existing section R302.9.4.

77

New Code Change

Storm Shelters - R307.2.1

2021 IRC

- An engineered design is required for storm shelters.
- . . . *Registered design professional* indicating compliance with ICC 500.
- . . . *Listed* and *labeled* to indicate compliance with ICC 500.

FINDINGS ON FAILED SHELTER DOOR

This door attached to an above-ground shelter failed during an EF-4 tornado in Arkansas on April 27, resulting in one death.

79

New Code Change

Foam Plastic Table R303.1.2

What materials can be used?

	Typical R-value per inch	Inches for R-10	Inches for R-15
Expanded Polystyrene	4.0	2.5	3.75
Extruded Polystyrene	5.0	2.0	3.0
Polyisocyanurate	6.5	1.5	2.3

Table R3023.1.2

Material Standards for Foam Plastic Insulation Sheathing	
Foam Plastic Insulation Sheathing	**Material Standard**
Expanded Polystyrene (EPS)	ASTM C578
Extruded Polystyrene (XPS)	ASTM C578
Polyisocyanurate	ASTM C1289

78

New Code Change

Smoke Alarms R310

R310.1 General.
Smoke alarms shall comply with NFPA 72-22, Section R310 and the manufacturer's installation instructions.

R310.1.1 Listings.
Smoke alarms shall be *listed* and *labeled* in accordance with UL 217. Combination smoke and *carbon monoxide alarms* shall be *listed* and *labeled* in accordance with UL 217 and UL 2034.

R310.1.2 Installation.
Smoke alarms and combination smoke and *carbon monoxide alarms* shall be installed in accordance with their listing and the manufacturer's instructions.

RB121AS, RB122 AMPC, RB153AMPC2,3, RB14 AS
Thornburg Code Services
80

Smoke Alarms R310

2024 IRC

Code Modification

❑ **R310.3 Location.**

Smoke alarms shall be installed in the following locations: 1-5

6. Within the room to which a *sleeping loft* is open, in the immediate vicinity of the *sleeping loft*.

❑ **R310.3.1 Installation near cooking appliances.**

Smoke alarms shall be installed not less than 10' horizontally from a permanently installed cooking appliance.

Exception: Smoke alarms shall be permitted to be installed not less than 6' horizontally from a permanently installed cooking appliance where necessary to comply with Section R310.3.

~~Ionization or Photoelectric smoke alarms~~

Carbon Monoxide Alarms - R311

2021IRC

Revised

R311.2.2 Alterations, repairs and additions.

❑ Repairs to an existing fuel-fired mechanical system now trigger the retroactive requirements for carbon monoxide alarms.

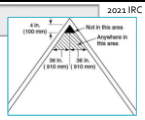
Smoke Alarm Locations

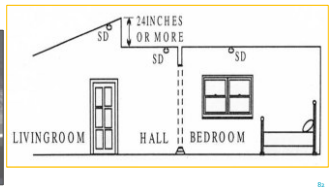
2021 IRC

Code Modification

R310.3 Location.

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" or more.





Minimum Ceiling Height - R313.1

2021 IRC

Code Modification

❑ *Habitable space*, hallways and portions of *basements* containing these spaces shall have a *ceiling height* 7'

Exception: #4

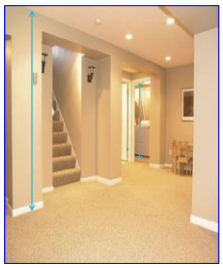
Minimum ceiling height reduced to 6 ft. 6 in. under beams spaced at least 36 in. apart.

Habitable Attics & Basements in Existing Bldgs – R313.1.2

2024 IRC

Revision

- Where a *habitable attic* or habitable space in a *basement* is created in an *existing building*, *ceiling height* shall not be less than 6' 8".
- Bathrooms, toilet rooms and laundry rooms shall have a *ceiling height* of not less than 6 feet 4 inches.



85

Sleeping Lofts Definition 202

New Code Definition

SLEEPING LOFT.

- A space designated for sleeping on an intermediate level or
- Levels between the floor and ceiling of a *story*, open on one or more sides to the room in which the space is located, and in accordance with Section R315.

RB153AMPC1,2,3; RB32 AS

87

Sleeping Lofts - R315

New Code

From the appendix 2015 IRC,
To code languages 2024 IRC

- Sleeping Loft Limitations requirements added for sleeping lofts along with a new definition 202

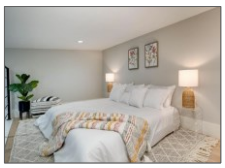
~~R325.1~~ R314.1 **General.** *Mezzanines* -
Exception: *Sleeping lofts* in *dwelling units* and *sleeping units* shall be permitted to comply with Section 315, subject to the limitations in Section R315.2.

RB153AMPC1,2,3; RB32 AS

86

Sleeping Lofts Minimums R315

New Code



Minimum Requirements for a sleeping loft:

- Area < 70 ft²
- Ceiling height for < ½ of floor area shall not exceed 7 ft. tall
- Ceiling height min. 3' tall from finish floor
- Floor area limited to areas with 3 ft. tall ceiling height
- Permanent means of egress
- Floor below min. 7 ft ceiling height

RB153AMPC1,2,3; RB32 AS Thornburg Code Services

88

Sleeping Lofts – Exceptions R315

New Code: Tiny/Small Loft Dims.

- **R315.1** . . .Such *sleeping lofts* shall not contribute to the number of *stories* as regulated by this code.

Exceptions: *Sleeping lofts* need not comply with Section R325 where they meet any of the following conditions:

1. The *sleeping loft* has a depth of less than 3 ft.
2. The *sleeping loft* has a floor area of < 35 sq. ft.
3. The *sleeping loft* is not provided with a permanent means of egress.

RB153AMPC1,2,3; RB32 AS

89

Habitable Attics – R316

2021 IRC
2024 IRC

Code Change

R316.1 General. Habitable attics shall comply with Sections R316.2 and R316.3.

R316.2 Minimum dimensions. A habitable attic shall have a floor area in accordance with Section R302 and a ceiling height in accordance with Section R333.

R316.3 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 either of the following:
   1.1. Not greater than one-third of the floor area of the story below.
   1.2. Not greater than one-half of the floor area of the story below where the habitable attic is located within a dwelling unit equipped with an automatic sprinkler system in accordance with Section P2904.
2. The occupiable space is enclosed by the roof assembly above, knee walls, if applicable, on the sides and the floor-ceiling assembly below.
3. The floor of the habitable attic does not extend beyond the exterior walls of the story below.
4. Where a habitable attic is located above a third story, an automatic sprinkler system in accordance with Section P2904 shall be installed in the habitable attic and remaining portion of the townhouse unit or dwelling unit or units located beneath the habitable attic.

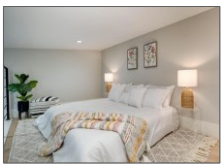
R316.4 Means of egress. The means of egress for habitable attics shall comply with the applicable provisions of Section R318.

Code Change No. RB152-19 - New

91

Sleeping Lofts Minimums R315

New Code



Minimum Requirements for a sleeping loft:

- Area < 70 ft²
- Ceiling height for < ⅓ of floor area shall not exceed 7 ft. tall
- Ceiling height min. 3' tall from finish floor
- Floor area limited to areas with 3 ft. tall ceiling height
- Floor below min. 7 ft ceiling height
- Permanent means of egress

RB153AMPC1,2,3; RB32 AS

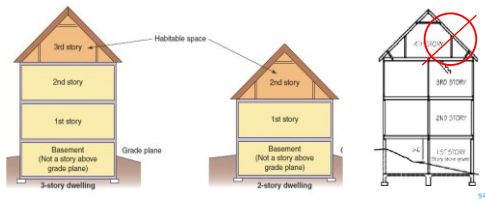
90

Habitable Attics – R316

2021 IRC

Code Change

- Habitable space above 2nd story or 1st story meets definition of story – no additional requirements



92

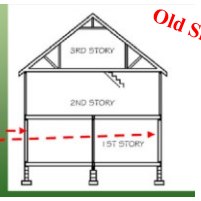
Story above grade plane

2021 IRC

Concerns

- **Why this matters:**
- In this example—the "attic" room is a *story*.
- The load bearing walls of the first floor are required to be 2x6 @ 16"o.c. (per Table R602.3(5))

Old Slide



The Fire group are concerned to how tall the dwelling is from grade. I have all ways been concerned to what is holding up the structure.

93

Garage R317

New Additions to the Code

- **R317.7 Automotive Lifts**

Where provided, automotive lifts shall be *listed* and *labeled* in accordance with ANSI/ALI ALCTV.

- **R317.7.1 Installation**

Automotive lifts shall be installed in accordance with ANSI/ALI ALCTV, the listing and the lift manufacturer's installation instructions.

- Automotive lifts shall not be installed within the *habitable space* of a *dwelling unit*.

Chapter 44 Referenced Standards

ALI — Automotive Lift Institute, Inc, PO Box 85, Cortland NY 13045

ALI ALCTV—2017 — Standard for Automotive Lifts—Safety Requirements for Construction, Testing and Validation (ANSI) - R317.7

RB87 AMPC, RB88 AS

95

Garage R317

New Additions to the Code

EV Home Charging

R317.6 - Electric vehicle charging systems.

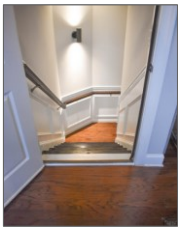
- Where provided, electric vehicle charging systems shall be installed in accordance with NFPA 70. (NEC)
- Electric vehicle charging system equipment shall be *listed and labeled* in accordance with UL 2202.
- *Electric vehicle supply equipment* shall be *listed* and *labeled* in accordance with UL 2594.
  - **(NY) R317.6.1 Disconnecting means.** . . . . . equipped with disconnecting means in accordance with Section 611 of the FCNYS.

RB87 AMPC, RB88 AS

94

Landings & Stairways R318

Code Modification



- **R318.7.6 Landings for Stairways**

There shall be a floor or landing at the top and bottom of each *flight* of stairs. . . .

Exceptions: **(1 – 4)**

1. The top landing of an interior *stairway*, including those in an enclosed garage, shall be permitted to be on the other side of a door located at the top of the *stairway*, provided that the door does not swing over the stairs.

R107 AS, RB108 AS, RB100 AMPC

Thornburg Code Services

96

Means of Egress - ~~R311.7.3~~ (R318.7.3)

2018

A flight of stairs shall not have a vertical riser larger than 12 ft. 7 inches between floor levels or landings.

97

Landings & Stairways R318

Code Modification

❑ **R318.7.9 Stairways in Existing Buildings.**

Alterations to existing *stairs* shall not be required to comply with the requirements of this code where the existing space and construction does not allow a reduction in pitch or slope.

R107 AS, RB108 AS, RB100 AMPC

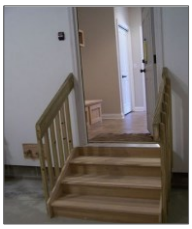
99

Landings & Stairways R318

Code Modification

❑ **R318.7.6 Landings for Stairways Exceptions: (1-4)**

2. At an enclosed garage, the top landing at the *stair* shall be permitted to be not more than 7¾" below the top of the threshold.
3. At exterior doors, a top landing is not required for an exterior stairway of not more than two risers, provided that the door does not swing over the *stairway*.
4. Exterior *stairways* to grade with three or fewer *risers* **serving** a deck, porch or patio shall have a bottom landing width of not less than 36", provided that the stairway is not the required access to grade serving the required egress door.



R107 AS, RB108 AS, RB100 AMPC

Thornburg Code Services

98

Ramps R318

2021 IRC
2024 IRC

Modification of Code

❑ **R318.8.3 Handrails required**
- *Handrails* shall be provided on not less than one side of *ramps* exceeding a slope of 1 unit vertical in 12 units horizontal and shall comply with Section R320.

❑ **R320.3 Handrail projection**
- *Handrails* shall not project more than 4 1/2" on either side of the stairway or *ramp*.

❑ **R320.5 Continuity**
- *Handrails* where required for *ramps* shall be continuous for the full length of the *ramp*.

R107 AS, RB108 AS, RB100 AMPC, RB110-22

100

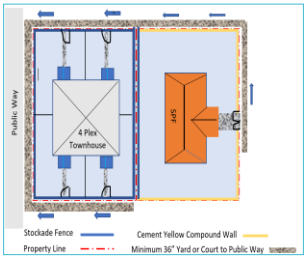
Emergency Escape and Rescue – R319.1

2021 IRC
2024 IRC

R310.1 Emergency Escape and Rescue Opening Required

Exception: #4

- A *yard* shall not be required to open directly into a *public way* where the *yard* opens to an unobstructed path from the *yard* to the *public way*. Such path shall have a width of not less than 36".



Code Change No: RB86-19

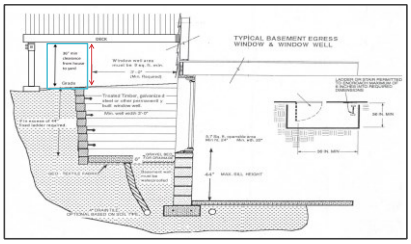
101

Emergency Escape and Rescue Openings – R319.2.4

2021 IRC

Code Clarification

- 36 in. height
- 36 in. width



103

Emergency Escape and Rescue Openings – R319.2.4

2021 IRC
2024 IRC

Code Clarification

- Emergency escape openings under decks, porches and cantilevers require a path not less than 36 in. in height and 36 in. in width & 36 inches in width to a *yard* or *court*.
- Dimensions have been clarified (placed in separate sections):
  - Minimum opening area
  - Minimum opening dimensions
  - Maximum ~~sill~~ height above floor

RB111-25

102

Replacement windows for EERO - R319.5

2018

Emergency Escape and Rescue Openings EERO

~~R310.2.5~~ (R319.5)

Replacement for emergency escape and rescue openings in stalled in buildings meeting the scope of this code shall be exempt from Sections R319.2 and R319.4.4, provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement window is not part of a change of occupancy.

104

Bars, Grills, Covers & Screens – ~~R310.4~~ (R319.4.4)

2018

105

Handrails R320

Merge & Changed

- Handrail height and continuity are placed in one single section on handrails.
- Handrail height and continuity are merged into one single Section R320.5
- Handrail returns shall not form a gap **>1/4"** from the adjacent wall

Section R320 Handrails

- R320.1 General.
- R320.2 Height.
- R320.3 Handrail Projection.
- R320.4 Handrail Clearance.
- R320.5 Continuity.
- R320.6 Grip Size.
- R320.7 Exterior Plastic Composite Handrails.

RB110 AS, RB111 AM, RB112 AM, RB114 AM

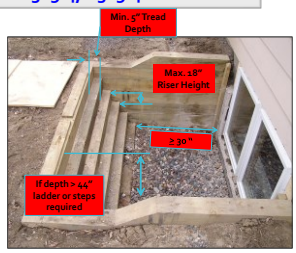
107

EERO Area Wells -R319.4, R319.4.2.2

2021 IRC

Code Clarification

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



106

Handrail Projection ~~R311.7.8.2~~ (R320.3)

2018

Handrail

R311.7.8.2 ~~Continuity.~~ Handrail projection.

Handrails ~~for stairways~~ shall ~~be continuous for the full length of the flight, from a point directly above the top riser~~ not project more than 4½ inches (114 mm) on either side of the ~~flight to a point directly above the lowest riser~~ stairway.

Exceptions:

1. ~~Handrails shall be permitted to be interrupted by a newel post at the turn.~~
2. ~~The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.~~ Where nosings of landings, floors or passing flights project into the stairway reducing the clearance at passing handrails, handrails shall project not more than 4½ inches (165 mm) into the stairway, provided that the stair width and handrail clearance are not reduced to less than that required.

REDLINE VERSION
(Shows changes from the 2018 edition)

108

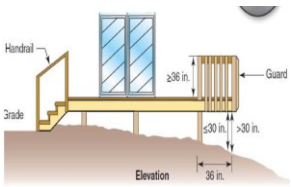
Change - Modification

Guard Height - ~~R312.1.1~~ (R321.1.1)

2018

~~R312.1.1~~ R321.1.1 Where required.

Guards shall be provided for those portions of open-sided walking surfaces, including....



109

Linking IRC to IBC

Care Facility Accessibility R322.3

- **R322.1 Dwelling units or sleeping units**
  - ≥4 dwelling units (townhouse) or sleeping units in a single structure
  - **Exception** for owner-occupied transient lodging
- **R322.2 Live/work units**
  - **Non-residential** portion of the live/work unit
- **R322.3 Care facilities**
  - Where permitted
  - May use IRC for design
  - Must be accessible per Chapter 11 of the IBC in the care facility portion of the building

111

Linking IRC to IBC

Accessibility R322

- **R322.3 Care Facilities**

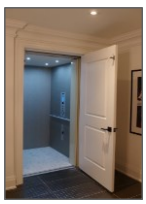
Where care facilities are permitted to be constructed in accordance with Section R101.2, the portions of the *dwelling* used to *operate a business* providing care shall be accessible in accordance with Chapter 11 of the *International Building Code*.

RB134-22

110

Additions and Change

Elevators & Platform Lifts - R323



- **R323.1.1 Private Residence Elevators**

The design, construction and installation of private residence elevators installed within a residential unit or providing access to one individual *dwelling unit* shall conform to ASME A17.1/CSA B44, . . .

- **R323.1.1.1 Hoistway Enclosures.**

Hoistway enclosures for private residence elevators shall comply with ASME A17.1/CSA B44, . . .

- **R323.1.1.2 Hoist-way Opening Protection.**

Hoist-way landing doors for private residence elevators shall comply with ASME A17.1/CSA B44, . . .

RB 135 AS, RB32 AS

112

Safety Glazing (R324.4.4.1)

Hazardous Locations

Section: R308.4.4.1 (New)

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

Add new text as follows:

R308.4.4.1 Structural glass baluster panels. Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by a minimum of three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

Exception: An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

Reason: This proposal will clarify and align the IRC and IBC requirements for glass panels that are used as a structural component in a guard. Imperfections in glass can cause it to fail at loads that are well below its nominal resistance value. We believe the intent of the IBC requirements is to have something (a top rail or a handrail at stairs) to provide some additional fall protection for a person leaning on the guard, should a glass panel fail. Having a handrail attached to at least 3 panels also provides some backup support if a panel fails while someone is grabbing the handrail to prevent a fall. However, there is an exception that allows glass-only guards (without an attached top rail or handrail) if the balusters are laminated glass. The laminated glass provides some backup against total panel failure, but note that the entire glass baluster still has to be designed to be able to support the full loads for guards, as specified in Table R301.5, including using a factor of safety of 4 found in footnote "h".
We believe the IRC should also have these critical safety requirements, which it currently does not.
The proposed code text is consistent with, but not identical to the IBC text (Section 2407.1.2). However, we believe this more clearly states the requirements, and have submitted a parallel amendment for the IBC.

Cost Impact: Will not increase the cost of construction
This change creates consistency with the IBC for glass guards only and allows for more safety and flexibility in design. There should be no increase in the cost.

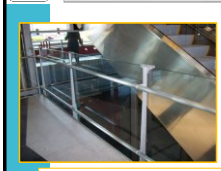
https://www.youtube.com/watch?v=BS-QtsdR4dU

2018

113

Hazardous Locations

2018



This is a guard application with no top rail and an attached handrail. Handrail is not required by code. It has been included in an attempt to meet code by including an attached "handrail" in lieu of an attached "guard."

This problem begins with the interpretation of the phrase: **glass balusters shall not be installed without an attached handrail or guard.** Many installers, designers and inspectors are taking this sentence to indicate that as long as a handrail is in place, the code has been met.

115

Minimum Uniformly Distributed Live Loads (lbs per Sq Ft) - Table R301.5

Safety Glazing

Guards and handrails[d]	200[h]
Guard in-fill components[f]	50[h]

- f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 lbs. on an area equal to 1 sq. ft. This load need not be assumed to act concurrently with any other live load requirement.
- h. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components…
- ***Interpretation:*** **Handrails and guards.** Handrail assemblies and guards shall be designed to resist a load of 50 lbs. plf applied in any direction at the top and to transfer this load through the supports to the structure.

This states that the load must be met by the top of the guard 36". Glass balusters will not be able to meet the 800 lbs. (4 X 200 lbs.) concentrated load without an attached guard rail. And in the event of one panel's failure, a railing must remain at the top of the guard that meets the load requirement. An attached handrail will not meet this requirement.

2018

114

Light, Ventilation and Heating R325

Code Changes and Additions

❑ R325.1.1 Natural light.

Habitable rooms shall have an aggregate area of glazed openings not less than 8 percent of the floor area of such rooms. Required glazed openings shall face directly onto a street, alley or *public way*, or a yard or *court* located on the same *lot* as the *building*.

Exceptions:

1. Required glazed openings shall be permitted to face into a roofed porch, deck or patio adjacent to a street, alley, *public way*, yard or *court*, where there the longer side of the roofed area is not less than 65 percent unobstructed and the *ceiling height* is not less than 7'.
2. Required glazed openings shall be permitted to face into a *sunroom* adjacent to a street, alley, *public way*, *yard* or *court*.
3. Glazed openings are not required where artificial light is provided that is capable of producing an average illumination of 6 footcandles (65 lux) over the area of the room at a height of 30" above the floor level.
4. Eave projections shall not be considered as obstructing the clear open space of a *yard* or *court*.

RB32-22, RB76-22

116

Light, Ventilation and Heating R325

Code Changes

R325.1.2 Natural ventilation

Habitable rooms shall have an aggregate area openable to the outdoors not less than 4 percent of the floor area of such rooms. Openings shall be through windows, *skylights*, doors, louvers or other *approved* openings to the outdoor air. Such openings shall be provided with *ready access* or shall otherwise be readily controllable by the building occupants.

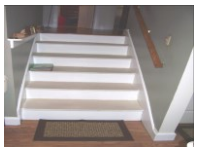
Exceptions:

1. Natural *ventilation* shall not be required in habitable rooms other than *kitchens* where a whole-house mechanical *ventilation* system or a mechanical *ventilation* system capable of producing 0.35 air changes per hour in the habitable rooms is installed in accordance with Section M1505.
2. Natural *ventilation* shall not be required in *kitchens* where a *local exhaust* system is installed in accordance with Section M1505.
3. Required *ventilation* openings shall be permitted to open into a thermally isolated *sunroom* or roofed porch, deck, or patio where not less than 40 percent of the roofed area perimeter is open to the outdoor air.
4. Required *ventilation* openings shall be permitted to open into a thermally isolated *sunroom* provided there is an openable area between the adjoining room and the sunroom of not less than one-tenth of the floor area of the interior room and not less than 20 square feet. The minimum openable area of the *sunroom* to outdoor air shall be based on the total floor area of the adjoining room and the *sunroom*.

Stairway Lighting Outlet Control – ~~R303.7.1~~R325.6 & E3903.3.1

2018

Light Activation



- Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The illumination of exterior stairways shall be controlled from inside the dwelling unit.
- E3903.3.1 . . . at each landing level that includes a stairway entry to control the lighting outlets where the *stairway* between floor levels has six or more *risers*

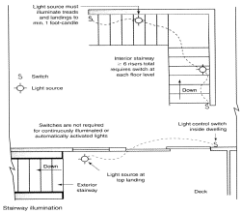
Exception: A switch is not required where remote, central or automatic control of lighting is provided.

Stairway Illumination - ~~R303.7, R303.8~~ (R325.7, R325.8)

2018

CHANGE: CLARIFICATION

- Interior and exterior stairway illumination provisions have been placed in separate sections. Conflicting language has been removed to clarify the requirements.

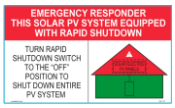


Stairway illumination

BIPV Systems R329.6.4

Code Change

- Building-integrated photovoltaic (BIPV) systems should be **marked** from below **to identify** hazardous areas for emergency responders



Addition to the Code

Energy Storage System – Location R330.4

- *ESS* shall be installed only in the following locations:
  1. Detached garages and detached *accessory structures*.
  2. Attached garages separated from the *dwelling unit living space* in accordance with Section R302.6.
  3. Outdoors **or** on the exterior side of exterior walls located not less than 3′ from doors and windows directly entering the *dwelling unit*, except where smaller separation distances are permitted by the UL 9540 listing and manufacturer's installation instructions.
  4. **Enclosed** utility *closets*, *basements*, storage or utility spaces within *dwelling units* with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than $^{5}/_{8}$″- *Type X gypsum wallboard*. Openings into the dwelling shall be equipped with solid wood doors not less than $1^{3}/_{8}$ inches in thickness, solid or honeycomb-core steel doors not less than $1^{3}/_{8}$″ in thickness, or doors with a 20-minute fire protection rating. Doors shall be self-latching and equipped with a self-closing or an automatic-closing device. Penetrations through the required *gypsum wallboard* into the dwelling shall be protected as required by Section R302.11, Item 4.
- *ESS* shall not be installed in sleeping rooms, or *closets* or spaces opening directly into sleeping rooms.

New Code

Stationary fuel cell power systems = Batteries

ESS Vehicle Impact Protection - Garage R330.8.3

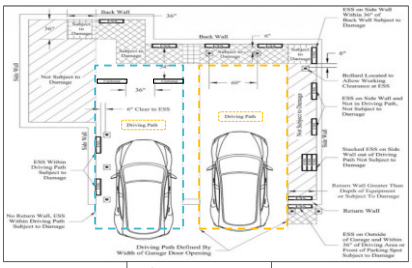


Figure R330.8.1

New Code

Energy Storage System - Garage R330.8.1

- **R330.8 Protection from impact.** *ESS* installed in a location subject to vehicle damage shall be protected in accordance with Section R330.8.1 or R330.8.2.
- Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection complying with Section R330.8.3 shall be provided. The normal driving path is a space between the garage vehicle opening and the interior face of the back wall to a height of 48″ above the finished floor. The width of the normal driving path shall be equal to the width of the garage door opening. Impact protection shall also be provided for an ESS installed at either of the following locations (see Figure R330.8.1):
  1. On the interior face of the back wall and located within 36″ to the left or to the right of the normal driving path.
  2. On the interior face of a side wall and located within 24″ from the back wall and 36″ of the normal driving path.

  Exception: Where the clear height of the vehicle garage opening is 7′ – 6″ or less, ESS installed not less than 36″ above finished floor are not subject to vehicle impact protection requirements.

New Code

ESS Vehicle Impact Protection - Garage R330.8.3

Incomplete code sections

- **R330.8.3 Impact protection options.** ESS protection shall comply with one of the following:

1. Bollards constructed in accordance with one of the following:
   1.1. Minimum 48″ in length X 3″ in dia. Sch. 80 steel pipe . . .
   1.2. Minimum 36″ in height X 3″ in dia. Schedule 80 steel pipe fully welded to a steel plate not less than 8″ in length by $^{1}/_{4}$″ in thickness and bolted . . .
   1.3. Premanufactured steel pipe bollards filled with concrete and anchored in . . .
2. Wheel barriers constructed in accordance with one of the following:
   2.1. Concrete or polymer 4″ in height by 5″ in width by 70″ in length, anchored to . . .
   2.2. Premanufactured wheel barriers shall be anchored in accordance with the manufacturer's installation instructions. . .
3. An *approved* method designed to resist an impact of 2,000 lbs. psf in the direction of travel at 24″ above *grade*.

Foundation Soil Test R401.4

2024 IRC

New Requirement

- Where the *seismic design category* in accordance with Section R301.2.2.1 is C or greater and where soil testing is performed, the geotechnical report shall include the determination of the site class and the *short-period spectral response acceleration*, S_{DS}, in accordance with Section 1613 of the *International Building Code*.
- The *seismic design category* shall be assigned in accordance with Table R301.2.2.1.1.

RB164-22 AM

125

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

2021IRC

Example Table

Table Modified

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

128

Foundation Soil Properties Table R401.4.1(2)

2024 IRC

Example Table

Table Modified w/ USDA

TABLE R401.4.1(2) R405.1 PROPERTIES OF SOILS CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL GROUP	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL	SOIL DESCRIPTION	USDA TEXTURAL SOIL CLASSIFICATION	DRAINAGE CHARACTERISTICS[a]	FROST HEAVE POTENTIAL	VOLUME CHANGE POTENTIAL EXPANSION[b]
Group I	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	N/A	Good	Low	Low
	GP	Poorly graded gravels or gravel sand mixtures, little or no fines	N/A	Good	Low	Low
	SW	Well-graded sands, gravelly sands, little or no fines	N/A	Good	Low	Low
	SP	Poorly graded sands or gravelly sands, little or no fines	Sand	Good	Low	Low
	GM	Silty gravels, gravel-sand-silt mixtures	N/A	Good	Medium	Low
	SM	Silty sand, sand-silt mixtures	Loamy Sand, Sandy Loam	Good	Medium	Low
Group II	GC	Clayey gravels, gravel-sand-clay mixtures	N/A	Medium	Medium	Low
	SC	Clayey sands, sand-clay mixture	Sandy Clay Loam, Sandy Clay	Medium	Medium	Low

RB165-22

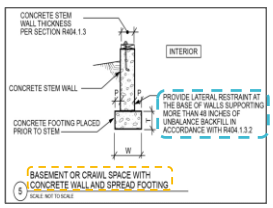
126

Foundation Lateral Support R403

2024 IRC

Addition to Figure R403.1(1) #5

- Figure R403.1(1) Plain Concrete Footings with Masonry and Concrete Stem Walls in Seismic Design Categories A, B & C [a, b, c, d, e, f]
- **Reason:** All basement walls tables assumed the wall is laterally supported at the top and bottom. See foot notes in all concrete wall tables. Footnote g. states "Where walls will retain 4 feet or more of unbalanced backfill, they shall be laterally supported at the top and bottom before backfilling". R403.1.1 Minimum size for footing reference Figure R403.1(1). Figure R403.1(1) does not show any connection requirements. This proposal gives options for footing to wall connections in FIGURE R403.1(1) By adding a pointer states "Provide lateral restraint at the base of walls supporting more than 48 inches of unbalance backfill in accordance with R404.1.3.2". This lateral restraint can be provided by a keyway, footing dowels, or by a slab-on-ground poured against the base of the wall.



RB167-22 AS

129

Continuous Footing in SDC-D - R403.1.2

2024 IRC

New Code

- Exterior walls and required interior *braced wall panels of building* located in *Seismic Design Categories* D_0, D_1 and D_2 shall be supported by continuous solid or fully grouted masonry or concrete footings in accordance with **the NEW** Table R403.1.2.
- Other footing materials or systems shall be designed in accordance with accepted engineering practice.

RB169-22 AMPC

130

Foundation Anchorage - R403.1.6

2021 IRC

Modification

- Anchor bolts shall be permitted to be located while concrete is still plastic **and** before it has set.
- Where **anchor bolts resist placement** or the consolidation of concrete around anchor bolts is impeded, **the concrete shall be vibrated** to ensure full contact between the anchor bolts and concrete.

RB166-22

132

Continuous Footing in SDC-D - R403.1.2

2024 IRC

New Table

BUILDING PLAN DIMENSIONS	1-STORY						2-STORY						3-STORY	
	35 feet or less			> 35 feet			35 feet or less			> 35 feet			Any	
SDC	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1
Continuous footings supporting exterior walls	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Continuous footings supporting required interior braced wall panels	NR	NR	NR	R[a]	R[a]	R[a]	NR	NR	R[a]	R[a]	R[a]	R[a]	R	R

For SI: 1 foot = 304.8 mm.

R = Continuous solid or fully grouted masonry or concrete footings in accordance with Section R403.1.3.4 required.

NR = Continuous footings not required.

a. Buildings shall be permitted to have interior braced wall panels supported on continuous foundations at intervals not exceeding 50 feet, provided that the following conditions are all met:

1. The height of cripple walls does not exceed 4 feet.
2. First-floor braced wall panels are supported on doubled floor joists, continuous blocking or floor beams.
3. The distance between bracing lines does not exceed twice the building width measured parallel to the braced wall line.

RB169-22 AMPC

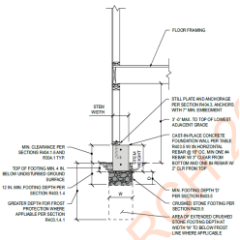
131

Crushed Stone Footings for Cast-in-Place Concrete Foundations - R403.5

2024 IRC

New Code Language

- Crushed stone footings in accordance with Section R403.4.1 shall be permitted for non-retaining cast-in-place concrete foundations complying with Section R404.1.3 and this section.
- The footing and foundation wall shall be installed in accordance with Figure R403.5(1), or Figure R403.5(2) & Table R403.5, or Figure R403.5(3).
- Crushed stone footings for cast-in-place concrete foundations shall be permitted for townhouses in *Seismic Design Categories* A and B and one- and two-family *dwellings* in *Seismic Design Categories* A, B and C.



RB166-22

133

Crushed Stone Footings for Cast-in-Place Concrete Foundations - R403.5

2024 IRC

New Code Language

Table R403.5 Minimum Cast-in-Place Concrete Foundation Wall Dimensions, Reinforcement, and Maximum Braced Wall Line Spacing

WIND EXPOSURE CATEGORY	ULTIMATE DESIGN WIND SPEED (MPH)	MIN. STEM WALL WIDTH (IN.)	MIN. STEM WALL HEIGHT (IN.)	MIN. HORIZONTAL REBAR	MAX. BRACED WALL LINE SPACING (FT.)
B	≤ 140	6	12	(2) - #4	28
C and D	≤ 140	8	18	(3) - #4	25

RB166-22

134

Floor Framing Supporting Guards
IRC: R502.11, R502.11.1, R502.11.2, R502.11.3

2024 IRC

New Code

Approved NEW Code for 2024 International Residential Code

Proponents: David Cooper, representing Stairbuilders and Manufacturers Association (coderep@stairways.org); Erik Farrington, representing myself (ewfarrington@sgh.com); Renda Barr, representing Stairbuilders and Manufacturers Association (rbarr@srg-ventures.com); Robert Aulicky, representing Stairbuilders & Manufacturers Association (acitizen@reagan.com); Marvin Strzyzewski, representing Truss Engineering Company (marvins@mii.com); Thomas Zuzik Jr, representing NOMMA (coderep@railingcodes.com); Daniel Obrien, representing Universal Building Systems, Inc. (dano@stairfasteners.com) requests As Modified by Public Comment

https://stairways.org/guard-calculations

https://sma-new.s3.us-east-1.amazonaws.com/Torsion-Member-Calculations.pdf

https://sma-new.s3.us-east-1.amazonaws.com/Rotation-Calculations.pdf

https://sma-new.s3.us-east-1.amazonaws.com/Floor-Edge-Bracing-Details-updated-2022.06.pdf

RB173-22 AMPC

136

Unvented Crawl Space - R408.3

2018 IRC
2021 IRC

Unvented Crawl Space - R408.3

2018 IRC

2.4. Dehumidification sized to provide 70 pints of moisture removal per day for every 1,000 square feet of crawl space floor area.

2.4. Dehumidification sized ~~to provide 70 pints (33 liters) of moisture removal per day for every 1,000 square feet (93 m2) of crawl space floor area~~ in accordance with the manufacturer's specifications.

Reason: Objective: Address dehumidifier sizing

Rating standards for moisture removal per day are changing (DOE) and moisture performance curves differ for different installations and entering air conditions from manufacturer to manufacturer.

Additionally, requirements may vary from climate to climate. Manufacturers update their sizing charts on a regular basis to take these factors into account.

Code Change No: RB177-19

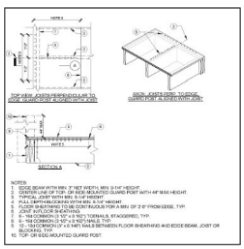
135

Floor Framing Support for Guards - R502.11

2024 IRC

New Code Language

- R502.11 Floor Framing Supporting Guards
- R502.11.1 Conventional Edge Framing
- R502.11.2 Timber Edge Framing
- R502.11.3 Roll Bracing



Engineering Calculations supporting this proposal can be found at this link: https://stairways.org/guard-calculations

RB173-22 AMPC

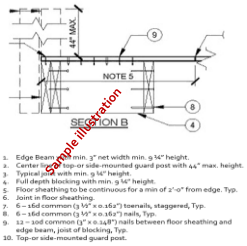
137

Supporting Guard Post

Floor Framing Support for Guards - R502.11

2024 IRC

- Details for bracing a floor when attaching a guard:
  - Blocking for joists perpendicular to the floor edge
  - Blocking for joists parallel to the floor edge
  - Blocking added between floor joists



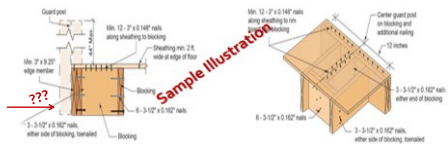
1. Edge Beam 3" min. 3" net width min. 9 ¼" height.
2. Center line of top-or side-mounted guard post with 44" max. height.
3. Typical joist with min. 9 ¼" height.
4. Full depth blocking with min. 9 ¼" height.
5. Floor sheathing to be continuous for a min of 2'-0" from edge. Typ.
6. Joint in floor sheathing.
7. 6 – 16d common (3 ½" x 0.162") toenails, staggered, Typ.
8. 6 – 16d common (3 ½" x 0.162") nails, Typ.
9. 12 – 10d common (3" x 0.148") nails between floor sheathing and edge beam, joist or blocking, Typ.
10. Top-or side-mounted guard post.

Supporting Guard Post

Floor Framing Support for Guards - R502.11

2024 IRC

Where a roll brace is not aligned with each *guard* post, the framing at the edge of the floor



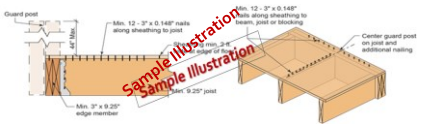
https://sma-new.s3.us-east-1.amazonaws.com/Floor-Edge-Bracing-Details-updated-2022.06.pdf

Supporting Guard Post

Floor Framing Support for Guards - R502.11

2024 IRC

. . . brace shall be a joist or blocking matching the depth of the edge member and extending perpendicular to the edge. . .



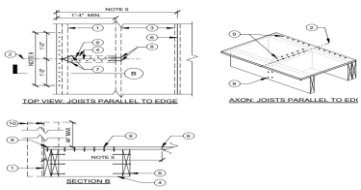
https://sma-new.s3.us-east-1.amazonaws.com/Floor-Edge-Bracing-Details-updated-2022.06.pdf

Supporting Guard Post

Floor Framing Support for Guards - R502.11

2024 IRC

Roll bracing for joists parallel to the floor edge



https://sma-new.s3.us-east-1.amazonaws.com/Floor-Edge-Bracing-Details-updated-2022.06.pdf

Post-Tensioned Slab-on-Ground Floors – R506.2

2024 IRC

New Code

- **Added** referenced standard for post-tensioned slabs on ground
- Post-tensioned concrete slab-on-ground floors placed on expansive or stable soils shall be designed in accordance with PTI DC10.5.
- **PTI DC 10.5-19** *Standard Requirements for Design and Analysis of Shallow Concrete Foundations on Expansive and Stable Soils:*
  - Lightly reinforced on stable soil
  - Reinforced and stiffened on expansive soil
  - Uniform (thicker) slab on expansive soil

RB174-22 AS

142

Deck Loads - R507.1

2021 IRC

Clarification - Whichever

- Decks shall be designed for the *live load* required in Section R301.5 or the ground snow load indicated in Table R301.2, whichever is greater.

RB184-19

144

Vapor Retarder - R506.3.3

2024 IRC

Code Change

- A minimum 6 mil polyethylene or *approved* vapor retarder with joints lapped not less than 6" shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

RB175-22 AS

143

Fasteners and Connectors – R507.2.3

2024 IRC

Code Change

- Metal fasteners and connectors used for all decks shall be in accordance with Section R304.3 and Table R507.2.3.
- Holes for through bolts ***shall be drilled*** to a diameter of $^{1}/_{32}$ inch to $^{1}/_{16}$ inch larger than the bolt diameter.
- Connectors shall be installed in accordance with the manufacturer's *approved* instructions.

Sawn lumber for joists, beams and posts shall be No. 2 or better R507.2.1

RB177-22
RB178-22 AMPC2

145

Deck Footings - R507.3

2021 IRC

Modification

R507.3 - Decks shall be supported on concrete footings or other *approved* structural systems designed to accommodate all loads in accordance with Section R301. Deck footings shall be sized to carry the imposed loads from the deck structure to the ground as shown in Figure R507.3.

Exceptions:

1. Footings shall not be required for free-standing decks consisting of joists directly supported on grade over their entire length.
2. Footings shall not be required for free-standing decks that meet all of the following criteria:
   - 2.1. The joists bear directly on *precast concrete* pier blocks at grade without support by beams or posts.
   - 2.2. The area of the deck does not exceed 200 sq ft.
   - 2.3. The walking surface is not more than 20" above grade at any point within 36" measured horizontally from the edge.

Code Change No: RB187-19

146

Minimum Depth - R507.3.2

2021 IRC

New & Modification

Deck footings shall be placed not less than 12" below the undisturbed ground surface.

R507.3.3 Frost protection.

Where decks are attached to a frost-protected structure, deck footings shall be protected from frost by one or more of the following methods:

1. Extending below the frost line specified in Table R301.2.
2. Erecting on solid rock.
3. Other *approved* methods of frost protection.

Code Change No: RB187-19 New

148

Min. Footing Size for Decks - Table R507.3.1

2021 IRC

Modification

TABLE R507.3.1MINIMUM FOOTING SIZE FOR DECKS

LIVE OR GROUND SNOW LOAD[b] (psf)	TRIBUTARY AREA[a] (ft^2)	LOAD-BEARING VALUE OF SOILS[b, c, d] (psf)								
		1,500			2,000			≥ 3,000		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Plain concrete thickness (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Plain concrete thickness (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Plain concrete thickness (inches)
40	5	7	8	6	7	8	6	7	8	6
	20	10	12	6	9	9	6	7	8	6
	40	14	16	6	12	14	6	10	12	6
	60	17	19	6	15	17	6	12	14	6
	80	20	22	7	17	19	6	14	16	6
	100	22	25	8	19	21	6	15	17	6
	120	24	27	9	21	23	7	17	19	6
	140	26	29	10	22	25	8	18	21	6
	160	28	31	11	24	27	9	20	22	7

Code Change No: RB184-19

147

Deck Posts - R507.4

2021 IRC

Modification

R507.4 Deck posts. For single-level ~~wood-framed~~ decks ~~with beams sized in accordance with Table R507.5,~~ wood deck post size shall be in accordance with Table R507.4.

- 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. Do forget the Footnotes a - h

LOADS (psf)[b]	POST SPECIES[c]	POST SIZE[c]	TRIBUTARY AREA (ft^2)[a, h]							
			20	40	60	80	100	120	140	160
			MAXIMUM DECK POST HEIGHT[e] (feet-inches)							
40 live load	Southern pine	4 × 4	14-0	13-8	11-0	9-5	8-4	7-5	6-9	6-2
		4× 6	14-0	14-0	13-11	12-0	10-8	9-8	8-10	8-2
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Douglas fir[e]	4 × 4	14-0	13-6	10-10	9-3	8-0	7-0	6-2	5-3
		4 × 6	14-0	14-0	13-10	11-10	10-6	9-5	8-7	7-10
	Hem-fir[e]	6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Spruce-pine-fir[e]	4 × 4	14-0	13-2	10-3	8-1	5-8	NP	NP	NP
	Redwood[f]	4 × 6	14-0	14-0	13-6	11-4	9-9	8-4	6-9	4-7
	Western cedars[f]	6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	13-7	9-7
	Ponderosa pine[f]	8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Red pine[f]									

Code Change No: RB184-19

149

Deck Post - R507.4

150

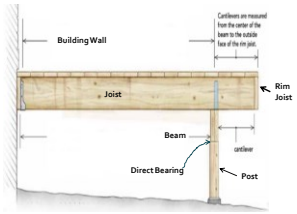
Deck Beams - R507.5

2024 IRC

Additional Language

Support Deck Joist Spans and Cantilevers

- Maximum allowable spans for wood deck beams, as shown in Figure R507.5, shall be in accordance with Tables R507.5(1) through R507.5(4) and based on the joist span length and cantilever length as shown in Figure R507.6.



RB182 AS, RB183 AS, RB184 AS

152

Deck Post Height – Table R507.4

2021 IRC

Modification

- **R507.4 Deck posts.** For single-level decks, wood post size shall be in accordance with Table R507.4.

TABLE R507.4—DECK POST HEIGHT

LOADS (psf)[a]	POST SPECIES[c]	POST SIZE[c]	TRIBUTARY AREA (ft²)[a,b] 20	40	60	80	100	120	140	160
			MAXIMUM DECK POST HEIGHT[a] (feet-inches)							
40 live load	Southern pine	4 × 4	14-0	13-8	11-0	9-5	8-4	7-5	6-9	6-2
		4 × 6	14-0	14-0	13-11	12-0	10-8	9-8	8-10	8-2
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Douglas fir[e] Hem-fir[e] Spruce-pine-fir[e]	4 × 4	14-0	13-5	10-10	9-3	8-0	7-0	6-2	5-3
		4 × 6	14-0	14-0	13-10	11-10	10-6	9-5	8-7	7-10
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	4 × 4	14-0	13-2	10-3	8-1	5-8	NP	NP	NP
		4 × 6	14-0	14-0	13-6	11-4	9-9	8-8	8-0	7-4
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	9-7
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Southern pine	4 × 4	14-0	12-2	9-10	8-5	7-5	6-7	5-11	5-4
		4 × 6	14-0	14-0	12-6	10-9	9-6	8-7	7-10	7-3
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	13-4
		8 × 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Douglas fir[e] Hem-fir[e] Spruce-pine-fir[e]	4 × 4	14-0	12-1	9-8	8-2	7-1	6-2	5-3	4-2
		4 × 6	14-0	14-0	12-4	10-7	9-4	8-4	7-7	6-11
		6 × 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	12-10
50 ground snow load										

Partial Table

RB184-19 AMPC4

151

Support Deck Joist Spans and Cantilevers – Table R507.5(1)

2024 IRC

Code Change

R507.5 Deck beams. Maximum allowable spans for wood deck beams, as shown in Figure R507.5, shall be in accordance with Tables R507.5(1) through R507.5(4) and based on the joist span length and cantilever length as shown in Figure R507.6.Beam plies shall be fastened together with two rows of 10d (3-inch × 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the actual beam span. Deck beams of other materials shall be permitted where designed in accordance with accepted engineering practices.

TABLE R507.5(1) MAXIMUM DECK BEAM SPAN—40 PSF LIVE LOAD[a]

BEAM SIZE[d]	JOIST SPAN	JOIST SPAN LENGTH & JOIST CANTILEVER LENGTH[b,c] (feet & inch)								
	8	8-0	8-0,1-0							
			8-0	8-0,1	8-0,2					
	9			10-0,1	10-0,2	10-0,3				
	10									
	12				12-0,2	12-0,1	12-0,2	12-0,3		
	14					14-0,0	14-0,1	14-0,2	14-0,3	
	16							16-0,0	16-0,1	16-0,2
	18								18-0,0	18-0,1
	20									20-0,0
		EFFECTIVE DECK JOIST SPAN LENGTH[a] (Table R507.5(2))								
		4	6	8	10	12	14	16	18	20
		MAXIMUM DECK BEAM SPAN LENGTH[a] (feet-inches)[e, f, g]								
BEAM SPECIES[h]	BEAM SIZE[h]									
Southern pine	1 – 2 × 8	8-10	8-7	8-0	8-0	8-0	8-0	8-0	8-0	8-0
	1 – 2 × 10	10-4	10-11	10-5	10-1	9-7	9-3	9-0	8-10	8-7
	1 – 2 × 12	12-0	12-0	12-0	11-8	11-2	10-9	10-5	10-2	9-11
	1 – 2 × 14	13-8	13-8	13-8	13-8	13-0	12-6	12-1	11-9	11-5
	2 – 2 × 8	8-10	8-7	8-0	8-0	8-0	8-0	8-0	8-0	8-0
	2 – 2 × 10	11-0	10-11	10-5	10-1	9-7	9-3	9-0	8-10	8-7
	2 – 2 × 12	13-0	12-11	12-5	12-0	11-6	11-1	10-9	10-5	10-2
	2 – 2 × 14	14-0	14-0	14-0	14-0	14-0	13-6	13-0	12-7	12-3
	3 – 2 × 8	9-0	8-8	8-0	8-0	8-0	8-0	8-0	8-0	8-0
	3 – 2 × 10	11-0	10-11	10-5	10-1	9-8	9-3	9-0	8-10	8-7
	3 – 2 × 12	13-11	13-9	13-2	12-9	12-3	11-10	11-5	11-1	10-10

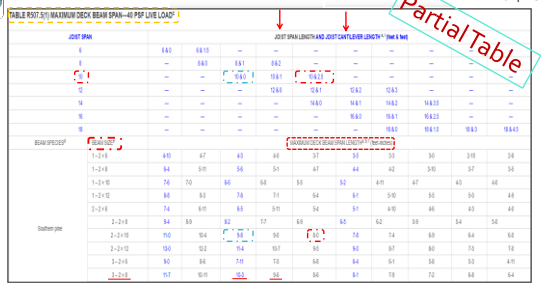
RB182-22 AS, RB183-22 AS, RB184-22 AS

153

2024 IRC

Partial Table

TABLE R507.5(1) MAXIMUM DECK BEAM SPAN—40 PSF LIVE LOAD[a]



RB182 AS, RB183 AS, RB184 AS

154

2021 IRC

Modification

Deck – Maximum Joist Spacing – R507.7

R507.7 Decking. Maximum allowable spacing for joists supporting wood decking, excluding stair treads, shall be in accordance with Table R507.7. Wood decking shall be attached to each supporting member with not less than two 8d deformed shank nails or two No. 8 wood screws. Maximum allowable spacing for joists supporting *plastic composite* decking shall be in accordance with Section R507.2. Other *approved* decking or fastener systems shall be installed in accordance with the manufacturer's installation requirements.

TABLE R507.7—MAXIMUM JOIST SPACING FOR WOOD DECKING

DECKING MATERIAL TYPE AND NOMINAL SIZE	DECKING PERPENDICULAR TO JOIST		DECKING DIAGONAL TO JOIST[a]	
	Single span[c]	Multiple span[c]	Single span[c]	Multiple span[c]
	Maximum on-center joist spacing (inches)			
1 1/4-inch-thick wood[b]	12	16	8	12
2-inch-thick wood	24	24	18	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.
a. Maximum angle of 45 degrees from perpendicular for wood deck boards.
b. Other maximum span provided by an accredited lumber grading or inspection agency also allowed.
c. Individual wood deck boards supported by two joists shall be considered single span and three or more joists shall be considered multiple span.

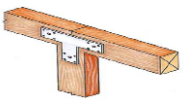
RB191-19 AS

156

2024 IRC

Additional Language

Built-Up Beams – R507.5.1



R507.5.1 Deck beam bearing. Beams and individual beam plies of built-up beams shall be continuous between bearing locations and continuous across bearing locations supporting beam cantilevers. Beams shall be permitted to cantilever beyond bearing locations up to one fourth of the actual beam span. The ends of beams shall have not less than 1½ inches (38 mm) of bearing length on wood or metal and not less than 3 inches (76 mm) of bearing length on concrete or masonry for the entire width of the beam. ~~Where multiple-span beams bear on intermediate posts, each ply must have full bearing on the post in accordance with Figures R507.5.1(1) and R507.5.1(2).~~

Reason: 1) There is still uncertainty by some code readers as to whether each end of each ply of a multi-ply ("built-up") beam must be supported on a bearing location. This is indeed the intent and is what this proposal attempts to clarify. Please note that in prescriptive wood frame construction, this has always been the rule. The 1931 edition of "Light Frame House Construction" by the Federal Board of Vocational Education" provides the following on page 40: "At the point of bearing the beam should be carefully sized, so that every piece of the built-up girder is in full contact with the support".
2) The term "length" was included to clarify the direction of the minimum bearing measurement. This term compliments the existing term "width" regarding the beam.
3) The reference to Figures R507.5.1(1) and (2) was removed in section R507.5.1 "deck beam bearing", because those figures speak to the connection of the beam to the post and not the bearing. A reference to those figures is already provided in the section on beam

Bearing R507.5.1& R802.6 Same bearing language in both places.

RB184-22 AS

155

2021 IRC

Revised & New Table

Deck Ledger Connection to Band Joist – Table R507.9.1.3(1)

LOAD[a] (psf)	JOIST SPAN[a] (feet)	ON-CENTER SPACING OF FASTENERS[b] (inches)		
		1/2-inch diameter lag screw with 1/2-inch maximum sheathing[c, e]	1/2-inch diameter bolt with 1/2-inch maximum sheathing	1/2-inch diameter bolt with 1-inch maximum sheathing[f]
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16
50 ground snow load	6	29	36	36
	8	22	36	33
	10	17	33	28
	12	14	27	23
	14	12	23	20
	16	11	20	17
	18	9	18	15

a. Interpolation permitted. Extrapolation is not permitted.
b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.
d. The tip of the lag screw shall fully extend beyond the inside face of the band joist. Lag screws shall be full-body diameter screws.
e. Sheathing shall be wood structural panel or solid sawn lumber.
f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to ½-inch thickness of stacked washers shall be permitted to substitute for up to ½-inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

RB184-19 AMPC4

157

Deck Ledger Flashing – R507.9.1.5

2024 irc

New Code Language

R507.9.1.5 Ledger Flashing

Where ledgers are attached to wood-frame construction, flashing shall be installed above the ledger to prevent the entry of water into the wall cavity or behind the ledger. Flashing shall extend vertically not less than 2 inches above the ledger. Flashing shall extend horizontally not less than 4 inches beyond the ledger face or shall extend to the ledger face and not less than ¼ inch down the ledger face.

Exceptions:

1. Where a window or door opening is located less than 2 inches above the ledger, flashing shall extend to the bottom of the wall opening.
2. Flashing is not required where the ledger is spaced horizontally from the *exterior wall covering* not less than 1/4 inch to allow for drainage and ventilation behind the ledger.

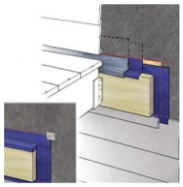
RB190-22AMPC1

158

Deck Ledger Flashing & Water-Resistive Barrier

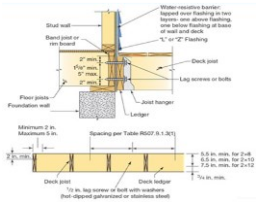
2024 irc

Change Code



Journal Light Construction

R507.2.4 & R703.4 - Flashing



Predrilled holes with lag screws req'd
R507.9.1.3
Ledger to Band Joist

International Code Council

160

Deck Ledger Flashing & Water-Resistive Barrier

2024 irc

New Code Language

Water-Resistive Barrier - R507.9.1.6

The water-resistive barrier required by Section R703.2 shall be lapped over a vertical leg of the ledger flashing or counterflashing extending up the wall by not less than 2 inches or the height of the vertical flashing leg, whichever is less. The *water-resistive barrier* shall continue from the top of the ledger flashing down the wall and behind the ledger flashing and ledger.

Exceptions:

1. Flashing shall be permitted to be placed against the face of the *water-resistive barrier* where a self-adhering membrane counterflashing is installed not less than 2 inches over the vertical leg of the flashing and not less than 2 inches onto the *water-resistive barrier*.
2. Flashing shall be permitted to be placed in front of the *water-resistive barrier* and behind the *exterior wall covering* where ledgers are spaced horizontally from the exterior wall not less than 1/4 inch to allow for drainage and ventilation behind the ledger.

RB190-22AMPC1

159

Deck Ledger / Existing Wall

2024 irc

New Code Language

R507.9.1.7 Existing walls.

Where ledgers are attached to existing walls without water-resistive barriers, a *water-resistive barrier* shall be installed behind the ledger and ledger flashing. The *water-resistive barrier* shall extend to the top of the ledger flashing vertical leg and not less than ½" beyond the sides and bottom of the ledger. A self-adhering membrane counterflashing shall be installed not less than 2" over the vertical leg of the ledger flashing and not less than 2" onto the existing sheathing.

Exceptions:

1. Where a window or door opening is located less than 2" above the ledger, flashing shall extend to the bottom of the wall opening.
2. Flashing is not required where the ledger is spaced horizontally from the *exterior wall covering* not less than ¼" to allow for drainage and ventilation behind the ledger.

RB190-22AMPC1

161

Deck Ledger Flashing

2024 irc

New Code Language

R507.9.1.8 Exterior wall coverings.

Exterior wall coverings shall be terminated above the finished deck surface in accordance with the covering manufacturer's requirements and Chapter 7, as applicable to the type of covering.

Exception: *Exterior wall coverings* shall be permitted behind ledgers in accordance with Section R507.9.1.5 where capable of resisting compression forces from the ledger attachment.

RB190-22 AMPC1

162

Exterior Guards - R507.10

2021 IRC

New Code

- R507.10.1 Support of guards - Where *guards* are supported on deck framing, *guard* loads shall be transferred to the deck framing with a continuous load path to the deck joists.
- R507.10.1.1 Guards supported by side of deck framing - Where *guards* are connected to the interior or exterior side of a deck joist or beam, the joist or beam shall be connected to the adjacent joists to prevent rotation of the joist or beam. Connections relying only on fasteners in end grain withdrawal are not permitted.
- R507.10.1.2 Guards supported on top of deck framing. - Where *guards* are mounted on top of the decking, the *guards* shall be connected to the deck framing or blocking and installed in accordance with manufacturer's instructions to transfer the *guard* loads to the adjacent joists.
- R507.10.2 Wood posts at deck guards. Where 4-inch by 4-inch wood posts support guard loads applied to the top of the guard, such posts shall not be notched at the connection to the supporting structure.
- R507.10.3 *Plastic composite guards* shall comply with the provisions of Section R507.2.2.
- R507.10.4 Other *guards* shall be in accordance with either manufacturer's instructions or accepted engineering principles.

Code Change No: RB185-19
Acceptance Criteria for Handrails and Guards – AC273

164

Exterior Guards - R507.10

2021 IRC

New Code

- 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.

Code Change No: RB185-19

163

Chapter 6 – Walls, Fastening Schedules – Tables R602.3(1)

2021 IRC
2024 IRC

Modification-of Sheathing

Item	Description of Building Elements	Number and Type of Fastener [a, b, c]	Spacing of Fasteners	
			Edges [d] (inches)	Intermediate Supports [e, f]
Wood Structural Panels, Subfloor, Roof and Interior Wall Sheathing to Framing and Particleboard Wall Sheathing to Framing (see Table R602.3(3) for Wood Structural Panel Exterior Wall Sheathing to Wall				
31	3/8" – 1/2"	6d common or deformed (2" × 0.113" × 0.266" head); or 3/8" × 0.113" × 0.280" head nail (subfloor, wall)	6	12
		8d common (2½" × 0.131" × 0.281" head nail (roof); or RSRS-01 (2 3/8" × 0.113" × 0.281" head) nail (roof) [g]	6 [f]	6 [f]
32	19/32" – 3/4"	8d common (2½" × 0.131") nail (subfloor, wall)	6	12
		8d common (2½" × 0.131" × 0.281" head) nail (roof); or deformed 3 3/8" × 0.131" × 0.266" head (wall or subfloor)	6 [f]	6 [f]
		RSRS-01 (2 3/8" × 0.113" × 0.281" head) nail (roof) [g]		
33	7/8" – 1 1/4"	10d common (3" × 0.148") nail; or	6	12
		3 1/2" × 0.131" × 0.281" head) deformed nail		

a. 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 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. Fastener spacing applies where roof framing specific gravity is 0.42 or larger. Where roof framing specific gravity is greater than or equal to 0.35 but less than 0.42 in accordance with AWC NDS, fastening of roof sheathing shall be with ring shank nails (RSRS-03 (2 1/2" × 0.131" × 0.281" head) nails.

- Fastener spacing applies where roof framing Specific Gravity (SG) ≥ 0.42 or larger.
- Where roof framing specific gravity is greater than or equal to 0.35 but less than 0.42 in accordance with AWC NDS, fastening of roof sheathing **shall be** with RSRS-03 (2 1/2" × 0.131" × 0.281" head) nails.

RB192 AS, RB193 AMPC, RB195 AMPC

165

Location of Braced Wall Lines - R602.10.1.2

2021 IRC

Modification

R602.10.1.2 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 four feet from the designated braced wall line.

Code Change No: RB199-19

166

Location of Braced Wall Lines - R602.10.1.2

2021 IRC

Explanation of Change

- Over a series of code cycles, changes to IRC Section R602.10 wall bracing provisions have caused some of the important concepts fundamental to the development of the bracing provisions to be lost. In the 2006 IRC and earlier editions, **braced wall panels were required on exterior walls** with additional interior braced wall lines where needed to meet braced wall line spacing requirements. The concept that exterior walls are to be braced is not specifically stated in the 2009 IRC forward. Rather, a line is drawn on plans with braced wall panels on walls counted as part of a braced wall line when the panels are within four feet of the line drawn on the plans.
- This sounds reasonable. It allows the designer to break up the exterior walls pushing some out and others inward along the front of a building. But what about when the front of a house is one single continuous wall? Can the designer still draw the braced wall line four feet inward of the actual wall?
- The IRC did not address this issue leaving each jurisdiction to decide and designers arguing their case with each jurisdiction. In fact, most jurisdictions feel that the braced wall line must be on a physical wall when the braced wall line contains a single unbroken line.
- For the 2021 edition, the IRC requires that at least one-third of all braced wall panels be either side of a braced wall line when some braced wall panels aren't on the braced wall line. Braced wall panels continue to be required to be within 4 feet of the braced wall line. For the case where a single wall forms the entire braced wall line, this change requires all braced wall panels to be at the braced wall line. In other words, the braced wall line must be drawn at the physical wall.

167

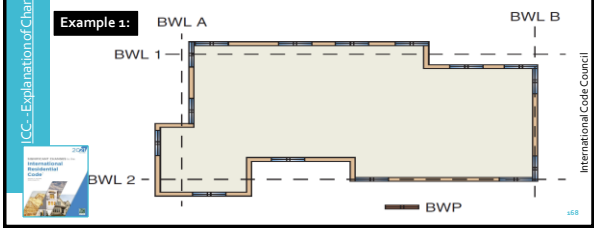
Location of Braced Wall Lines - R602.10.1.2 – Example 1

2021 IRC

ICC - Explanation of Change

- Braced wall lines must be placed on a physical wall or placed between multiple walls.

Example 1:



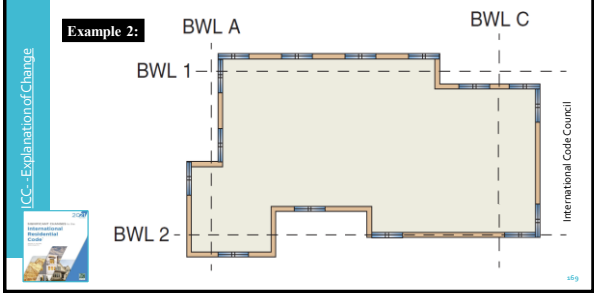
168

Location of Braced Wall Lines - R602.10.1.2 – Example 2

2021 IRC

ICC - Explanation of Change

Example 2:



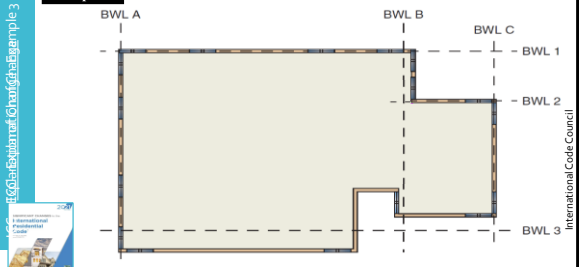
169

Location of Braced Wall Lines - R602.10.1.2

2021 IRC

ICC - Explanation of Change – Example 3 – Discussion

Example 3:



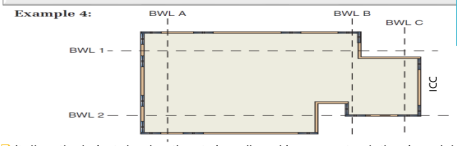
International Code Council

170

Location of Braced Wall Lines - R602.10.1.2

ICC - Explanation of Change – Example 4 – Discussion

Example 4:



- It allows the design to break up the exterior walls pushing some out and others inward along the front of a building.
- But what about when the front of a house is one single continuous wall? Can the designer still draw the braced wall line four feet inward of the actual wall?
- Jurisdictions feel that the braced wall line must be on a physical wall when the braced wall line contains a single unbroken line.
- 2021 IRC requires that at least one-third of all braced wall panels be either side of a braced wall line when some braced wall panels aren't on the braced wall line.
- Braced wall panels continue to be required to be within 4 ft of the braced wall line. For the case where a single wall forms the entire braced wall line, this change requires all braced wall panels to be at the braced wall line. In other words, the braced wall line must be drawn at the physical wall.

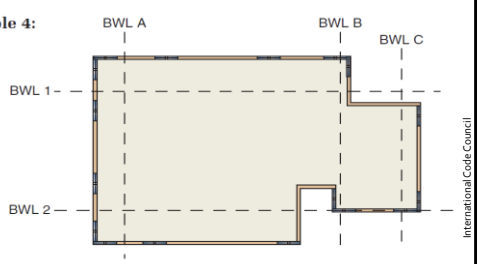
172

Location of Braced Wall Lines - R602.10.1.2

2021 IRC

ICC - Explanation of Change – Example 4 – Discussion

Example 4:



International Code Council

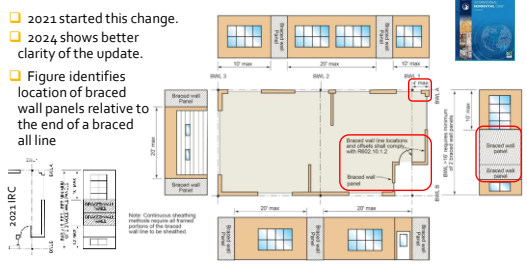
171

Braced Wall Panel Placement - R602.10.2.2

2024 IRC

Code Change

- 2021 started this change.
- 2024 shows better clarity of the update.
- Figure identifies location of braced wall panels relative to the end of a braced all line



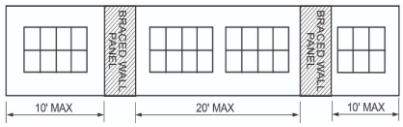
RB199 AM, RB200 AM

173

Locations of Braced Wall Panels – R602.10.2.2

Clarified / Modification

- The nearest edge of a *braced wall panel* shall be located within 10 ft. from each end of a *braced wall line* as determined in Section R602.10.1.1.



International Code Council

RB199 AM, RB200 AM

Wall Height - Wood Framing – R602.10.3.1

2024 IRC

Modification

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

ITEM NUMBER	ADJUSTMENT BASED ON	STORY/SUPPORTING	CONDITION	ADJUSTMENT FACTOR [multiply length from Table R602.10.3(1) by this factor]
3	Wall Height (Section R602.10.3.1) ~~Story height (Section R301.3)~~	Any story	8 feet	0.90
			9 feet	0.95
			10 feet	1.00
			11 feet	1.05
			12 feet	1.10

RB201-22 AM

Wall Height - Wood Framing – R602.10.3.1

2024 IRC

Code Change

R602.10.3.1 Wall height for wood framing

- Terminology for wall height is clarified & updated
- For determination of braced wall and panel adjustment factors in accordance with **Section R602.10,** wall height shall be the vertical distance from the **lower edge** of the bottom plate to the **upper edge** of the upper top plate.
- **Figure R602.10.3.1**

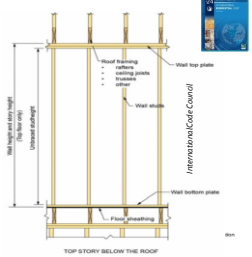


Figure R602.10.3.1

RB201-22 AM

Bracing Requirements Based on Seismic Design Category—continued - Table R602.10.3(3)

2021 IRC

Modifications

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

- WALL HEIGHT = 10 FEET
- 10 PSF FLOOR DEAD LOAD
- 15 PSF ROOF/CEILING DEAD LOAD
- BRACED WALL LINE SPACING ≤ 25 FEET

Seismic Design Category[a]	Story Location	Braced Wall Line Length (feet)[f]	MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE[c,g]				
			Method LIB[e]	Method GB	Methods DWB, SFB, PBS, PCP, HPS, CS-SFB[e]	Methods WSP,[e] ABW,[e] PFH[e] and PFG[e]	Methods CS-WSP, CS-G, CS-PF
D$_2$[d]	One-story dwelling; or top story of two-story dwelling	10	NP	4.0	4.0	2.5	2.1
		20	NP	8.0	8.0	5.0	4.3
		30	NP	12.0	12.0	7.5	6.4
		40	NP	16.0	16.0	10.0	8.5
		50	NP	20.0	20.0	12.5	10.6
		10	NP	7.5	7.5	5.5	4.7
		20	NP	15.0	15.0	11.0	9.4
	Three-story dwelling	30	NP	22.5	22.5	16.5	14.0
		40	NP	30.0	30.0	22.0	18.7
		50	NP	37.5	37.5	27.5	23.4
		10	NP	NP	NP	NP	NP
		20	NP	NP	NP	NP	NP
		30	NP	NP	NP	NP	NP
		40	NP	NP	NP	NP	NP
		50	NP	NP	NP	NP	NP
	Cripple wall below one- or two-story dwelling	10	NP	NP	NP	7.5	6.4
		20	NP	NP	NP	15.0	12.8
		30	NP	NP	NP	22.5	19.1
		40	NP	NP	NP	30.0	25.5
		50	NP	NP	NP	37.5	31.9

- Design Category: Adjustments for wall height provisions for areas of high seismic activity

RB204-19 AS

Wall Bracing - Wood Framing – R602.10.5

2024 IRC

Clarification

Table R602.10.5 - **Minimum Length of Braced Wall Panels**

Footnotes:

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

- The actual length of Methods CS-G, CS-WSP, CS-SFB, PFH, PFG, and CS-PF is the length of the full-height sheathed section.
- Braced wall panel (BWP) length is from the outer edge of the outermost stud to the opening (outer edge of king stud to outer edge of jack stud at portal opening)

R602.10.6 - Construction of Methods ABW, PFH, PFG, CS-PF and BV-WSP.

Methods ABW, PFH, PFG, CS-PF and BV-WSP shall be constructed as specified in Sections R602.10.6.1 through R602.10.6.5.

For the purposes of determining *braced wall panel* spacing *and end distance*, the edge of Methods PFH, PFG and CS-PF shall be defined as the end of the header.

RB200-22 AM

178

Garage Door Labelling- R609.4.1

2021 IRC

New Code

- Garage doors shall be labeled with a permanent label provided by the garage door manufacturer.
- The label shall identify the garage door:
  - manufacturer
  - model/series number
  - positive and negative design wind pressure rating
  - installation instruction drawing reference number
  - applicable test standard

RB215-19

Construction Methods –R602.10.6 - Alternative BWPs

2024 IRC

Clarification

Length of Portal Frame

Note: Header shall not extend over more than one opening.

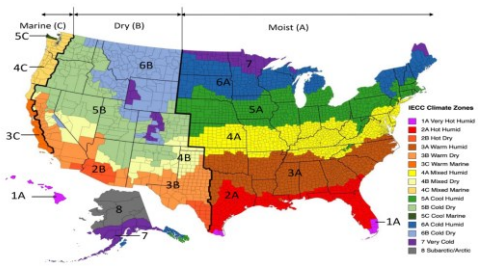
- The intent of this change proposal is to clarify the header requirement for portal frames and to limit the header to a single-span configuration, as originally tested, with double portal frames. This question has been frequently raised in the field and is worth clarification in the IRC. Portal frames first appeared in the 2009 IRC and were based on tests conducted by APA and NAHB, in which the headers were tested in a single-span configuration. While it can be argued that this is reflected in the detailed drawings of the existing Figures R602.10.6.2, R602.10.6.3, and R602.10.6.4, a careful examination is usually required to spot such a subtle difference. The addition of the clarification note as proposed will make these figures easier to follow and less prone to confusion. In practical applications, continuous headers if purchased for double portal frames can be cut into 2 single-span headers before installation into each portal frame.

RB200-22 AM, RB202 AM, RB203 AS, RB204 AS

179

Climate Zone

Reminder



181

Vapor Retarders - R702.7

2024 IRC

Code Addition

- **New Definition has been added**

Responsive Vapor Retarder is added

A vapor retarder material complying with a *vapor retarder class* of Class I or Class II but which also has a vapor permeance of 1 perm or greater in accordance with ASTM E96, water method (Procedure A).

- Continuous insulation without a vapor retarder on the exterior side of walls is allowed in some climate zones

- May providing a water-resistant barrier **behind** exterior cladding with a means of **draining** to the **exterior** any **water** that enters the assembly.

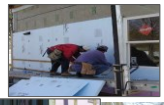
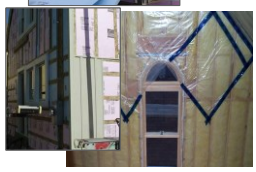


Table R702.7(5)



RB208-22 AM, RB209-22 AM, RB210-22 AS

Climate Zone - Vapor Retarders - R702.7

2024 IRC

Code Change & Modification

TABLE R702.7(2) VAPOR RETARDER OPTIONS

CLIMATE ZONE	VAPOR RETARDER CLASS		
	CLASS I[a]	CLASS II[a]	CLASS III
1, 2	Not Permitted	Not Permitted	Permitted
3, 4 (except Marine 4)	Not Permitted	Permitted[b]	Permitted
Marine 4, 5, 6, 7, 8	Permitted[b,c]	Permitted[b]	See Table R702.7(3)

a. A responsive vapor retarder shall be allowed on the interior side of any frame wall in all climate zones.
b. In frame walls, use of a Class I vapor retarder that is not a responsive vapor retarder on the interior side shall require an approved design.
c. Where a Class I or II vapor retarder is used in combination with foam plastic insulating sheathing or insulated siding installed as continuous insulation on the exterior side of frame walls, the continuous insulation shall comply with Table R702.7(4) and the Class I or II vapor retarder shall be a responsive vapor retarder.

TABLE R702.7(5) CONTINUOUS INSULATION ON WALLS WITHOUT CLASS I, II OR III INTERIOR VAPOR RETARDER[a]

CLIMATE ZONE	PERMITTED CONDITIONS[b, c]
4	Continuous insulation with R-value ≥ 4.5
5	Continuous insulation with R-value ≥ 6.5
6	Continuous insulation with R-value ≥ 8.5
7	Continuous insulation with R-value ≥ 11.5
8	Continuous insulation with R-value ≥ 14

a. The total insulating value of materials to the interior side of the exterior continuous insulation, including any cavity insulation, shall not exceed R-5. Where the *R*-value of materials to the interior side of the exterior continuous insulation exceeds R-5, an approved design shall be required.
b. A water vapor control material layer having a permeance not greater than 1 perm in accordance with ASTM E96 Procedure A (dry cup) shall be placed on the exterior side of the wall and to the interior side of the exterior continuous insulation. The exterior continuous insulation shall be permitted to serve as the vapor control layer where, at its installed thickness or with a facer on its interior face, the exterior continuous insulation is a Class I or II vapor retarder.
c. The requirements in this table apply only to insulation used to control moisture in order to allow walls without a Class I, II or III interior vapor retarder. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of the International Energy Conservation Code.

a. The **total** insulating **value** of materials to the interior side of the exterior continuous insulation, including any cavity insulation, shall **not exceed R-5**.

RB208 AM, RB209 AM, RB210 AS

Vapor Retarders - R702.7

2024 IRC

Modification

- **R702.7 Vapor retarder** materials shall be classified in accordance with Table R702.7(1). A vapor retarder shall be provided on the interior side of frame walls of the class indicated in Table R702.7(2), including compliance with Table R702.7(3) or R702.7(4) where applicable. An *approved* design using accepted engineering practice for hygrothermal analysis shall be permitted as an alternative. Vapor retarders shall be installed in accordance with Section R702.7.2. The *climate zone* shall be determined in accordance with Section N1101.7.

Exceptions:
1. *Basement walls*.
2. Below-grade portion of any wall.
3. Construction where accumulation, condensation or freezing of moisture will not damage the materials.
4. A vapor retarder shall not be required in *Climate Zones* 1, 2 and 3.
5. In *Climate Zones* 4 through 8, a vapor retarder shall not be required where the assembly complies with Table R702.7(5).

Table R702.7(1) Vapor Retarder Materials and Classes

CLASS	ACCEPTABLE MATERIALS
I	Sheet polyethylene, nonperforated aluminum foil or other approved materials with a perm rating less than or equal to 0.1.
II	Kraft-faced fiberglass batts, vapor retarder paint or other approved materials applied in accordance with the manufacturer's installation instructions for a perm rating greater than 0.1 and less than or equal to 1.0.
III	Latex paint, enamel paint or other approved materials applied in accordance with the manufacturer's installation instructions for a perm rating greater than 1.0 and less than or equal to 10.0.

- Control of water vapor may also be accomplished by using exterior continuous insulation without an interior vapor retarder

Spray Foam Plastic - R702.7.1

2021 IRC
2024 IRC

Code Change

R702.7.1 Spray foam plastic insulation for moisture control with Class II and III vapor retarders.

For purposes of compliance with Tables R702.7(3) and R702.7(4), spray foam with a maximum permeance of 1.5 perms at the installed thickness applied to the interior side of wood structural panels, fiberboard, *insulating sheathing* or gypsum shall be deemed to meet the continuous insulation moisture control requirement in accordance with one of the following conditions:

1. The spray foam *R*-value is equal to or greater than the specified continuous insulation *R*-value.
2. The combined *R*-value of the spray foam and continuous insulation is equal to or greater than the specified continuous insulation *R*-value.

RB223-19 (21) & RB213-25 (24)

Code Modification & New - R703.2

Code Change & Modification

2021 IRC

R703.2 Water-resistive barrier.

Not fewer than one layer of water-resistive barrier shall be applied over studs or sheathing of all exterior walls with flashing as indicated in Section R703.4, in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer and behind deck ledgers. The water-resistive barrier material shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section R703.1. Where the water-resistive barrier also functions as a component of a continuous air barrier, the water-resistive barrier shall be installed as an air barrier in accordance with Section N1102.4.1.1. Water-resistive barrier materials shall comply with one of the following:

1. No. 15 felt complying with ASTM D226, Type 1.
2. ASTM E2556, Type 1 or 2.
3. Foam plastic insulating sheathing water-resistive barrier systems complying with Section R703.1.1 and installed in accordance with the manufacturer's installation instructions.
4. ASTM E331 in accordance with Section R703.1.1.
5. Other approved materials in accordance with the manufacturer's installation instructions.

No. 15 asphalt felt and water-resistive barriers complying with ASTM E2556 shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm), and where joints occur, shall be lapped not less than 6 inches (152 mm).

Exception: A water-resistive barrier shall not be required in unconditioned detached tool sheds, storage sheds, playhouses, and other similar accessory structures provided all of the following requirements are met:

1. Exterior wall covering is limited to siding that is attached direct to studs.
2. Exterior walls are uninsulated.
3. Interior side of exterior walls has no wall covering or wall finishes.

RB190 AMPC, RB212 AS, RB213 AS, RB214 AS

186

Water-Resistive Barriers
R703.2, R703.7.3

Clarification

2021 IRC

- WRB material options include:
  - No. 15 felt complying with ASTM D226, Type 1
  - ASTM E2556, Type I or II
  - ASTM E331
  - Other approved materials
- WRB requirements for dry climates versus wet climates are defined for stucco.

188

Vapor Retarders - R702.7

Clarification

2021 IRC

- The International Residential Code (IRC) defines vapor retarders as Class I, II or III based on how permeable they are to water vapor, the lower the permeability – the less water vapor that will pass through the vapor retarder.
  - **Class I – Very low permeability vapor retarders** – rated at 0.1 perms or less. Sheet polyethylene (visqueen) or unperforated aluminum foil (FSK) are Class I vapor retarders.
  - **Class II – Low permeability vapor retarders** – rated greater than 0.1 perms and less than or equal to 1.0 perms. The kraft facing on batts qualify as a Class II vapor retarder.
  - **Class III – Medium permeability vapor retarders** – rated greater than 1.0 perms and less than or equal to 10 perms. Latex or enamel paint qualify as Class III vapor retarders.

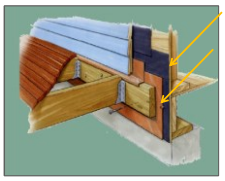
Vapor Retarder	Perm Rating
Insulation Facing, Kraft	1.0
¼ Inch Plywood (douglas fir, exterior glue)	0.7
Insulation Facing, Foil Kraft, Laminate	0.5
Vapor Retarder Latex Paint 0.0031 inch thick	0.45
0.002 inch Polyethylene	0.16
0.004 inch Polyethylene	0.08
0.0006 inch Polyethylene	0.06
Aluminum foil 0.00035 inch thick	0.05
Aluminum foil 0.001 inch thick	0.01

187

Water-Resistive Barrier - R703.2

Modification

- ❑ Continuous WRB behind deck ledgers
- ❑ Shall not terminate on top of the ledger



RB190 AMPC, RB212 AS, RB213 AS, RB214 AS

189

Flashing – R703.4

Clarified Application

- *Approved* corrosion-resistant flashing shall be applied in a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. Overlapped flashing shall be applied in *shingle fashion*. . .
- Flashing shall be installed above deck ledgers in accordance with Section R507.9.1.5.

https://www.decks.com

RB218, RB219, RB190-22

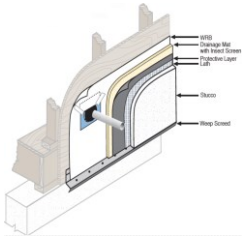
190

Water Resistive Barriers for Stucco – R703.7.3

2024 IRC

Addition

- Several changes to the water-resistive barrier (WRB) requirements for stucco:
  - **Sheathing:** WRBs and drainage requirements now apply to all sheathing types behind stucco, not just wood-based sheathing.
  - **Dry climates:** WRB options for stucco in dry climates have been modified.
  - **Separation:** The WRB must be separated from the stucco by a drainage space, waterproof layer, foam insulation, or material that drains water away from the wall.
  - **Flashing:** Requirements added



192

Furring over WRBs for Shakes and Shingles – R703.6.1

Addition

- Alternatively, horizontal furring shall be gapped not less than $^{3}/_{16}$ inch from the surface of the water-resistive barrier without the requirement for a vertical furring strip.
- When installed over foam plastic *insulating sheathing*, furring attachments shall comply with Section R703.15, R703.16 or R703.17
- Furring required over continuous insulation before applying wood shakes or shingles.

191

Tie Attachment and Airspace - Table R703.8.4(1)

2021 IRC

- 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 adjustable metal strand wire	Minimum nominal 1in. between sheathing and veneer	Maximum 4½ in. between backing and veneer
Wood stud backing with adjustable metal strand wire	Greater than 4½ in. between backing and veneer	Maximum 6½ in. between backing and veneer
Cold-formed steel stud backing with adjustable metal strand wire	Minimum nominal 1 in. between sheathing and veneer	Maximum 4½ in. between backing and veneer
Cold-formed steel stud backing with adjustable metal strand wire	Greater than 4½ in. between backing and veneer	Maximum 6½ in. between backing and veneer

RB248-19 AMPC1

193

Tie Attachment and Airspace - Table R703.8.4(1)

2021 IRC

Visual Tie Attachment and Airspace

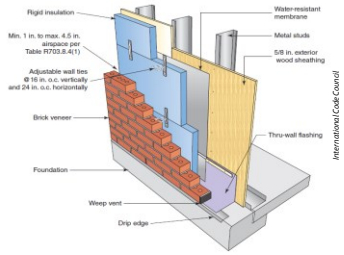
RB248-19AMPC1

194

Tie Attachment and Airspace - Table R703.8.4(1)

2021 IRC

Illustration Attachments -ICC



RB248-19AMPC1

196

Tie Attachment and Airspace Footnotes d-f / Table R703.8.4(1)

2021 IRC

Airspace Footnotes Details

d. Adjustable tie pintle 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 pintle 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.

RB248-19AMPC1

195

Exterior Wall Coverings - Vinyl Siding R703.11

Clarification

- **R703.11 Vinyl Siding** - *Vinyl siding* shall be certified and *labeled* as conforming to the requirements of **ASTM D3679** by an *approved* **agency**.
- **R703.11.1 Installation** - *Vinyl siding*, ***insulated vinyl siding*** and **compatible** accessories shall be installed in accordance with the manufacturer's ***installation*** instructions.
- **R703.11.1.1 Starter Strip** - The first course of horizontal siding shall be secured using a starter strip as specified in the manufacturer's installation instructions. See Figure R703.11.1.1(1). When the first course of siding has to be cut or trimmed, the bottom edge shall be secured with utility trim and snap locks as specified by the manufacturer's installation instructions.

https://polymericexteriors.org

Vinyl Siding Institute is now the Polymeric Exterior Products Association (PEPA)

https://polymericexteriors.org/installation/installation-manual

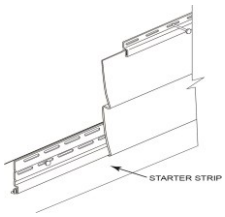


Figure R703.11.1.1(1) [a]

RB229 AM, RB230 AM, RB236 AM, RB228 AS, RB231 AM, RB232 AM

197

Vinyl Siding - Exterior Wall Coverings - R703.11

Code Addition

- **R703.11.1.2 Utility trim.**
When horizontal siding has to be cut or trimmed below windows and at the top of walls, the top edge of the siding shall be secured with utility *trim* and snap locks or as specified by the manufacturer's installation instructions.
See FiguresR703.11.1.2(1) and R703.11.1.2(2).

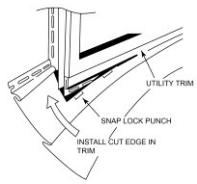


Figure R703.11.1.2 (2)
Typical Snap Lock and Utility Trim Under Window

RB229 AM, RB230-22 AM, RB236 AM, RB228 AS, RB231 AM, RB232 AM

198

Table R703.11.2 Required Minimum Wind Load Design Pressure Rating

2021 IRC

Modification Pressures

ULTIMATE DESIGN WIND SPEED (MPH)	ADJUSTED MINIMUM DESIGN WIND PRESSURE (ASD) (PSF)[a, b]					
	Case 1: With interior gypsum wallboard[c]			Case 2: Without interior gypsum wallboard[c]		
	Exposure			Exposure		
	B	C	D	B	C	D
595	-30.0	-33.2	-39.4	-33.9	-47.4	-56.2
100	-30.0	-36.8	-43.6	-37.2	-52.5	-62.2
105	-30.0	-40.5	-48.1	-41.4	-57.9	-68.6
110	~~-34.9~~ -31.8	~~-61.6~~ -44.5	~~-73.1~~ -52.8	~~-62.9~~ -45.4	~~-88.1~~ -63.5	~~-104.4~~ -75.3
115	~~-49.2~~ 35.5	~~-68.9~~ -49.7	~~-81.7~~ -59.0	~~-70.3~~ -50.7	~~-98.4~~ -71.0	~~-116.7~~ -84.2
120	~~-51.8~~ -37.4	~~-72.5~~ -52.4	~~-86.0~~ -62.1	~~-74.0~~ -53.4	~~-103.6~~ -74.8	~~-122.8~~ -88.6
130	~~-62.2~~ -44.9	~~-87.0~~ -62.8	~~-103.2~~ -74.5	~~-88.8~~ -64.1	~~124.3~~ -89.7	~~-147.4~~ -106
>130	See Footnote d Not Allowed[e]					

RB253-19

200

Vinyl Siding over Continuous Insulation - R703.11.2

2021 IRC

Modification Pressures

TABLE R703.11.2 ~~ADJUSTED~~ REQUIRED MINIMUM WIND LOAD DESIGN ~~WIND~~ PRESSURE ~~REQUIREMENT~~ RATING FOR VINYL SIDING INSTALLED OVER FOAM PLASTIC SHEATHING ALONE

- Table R703.11.2 is updated so adjusted vinyl siding design wind pressure ratings are consistent with requirements in ASTM D3679

RB253-19

199

Fiber-Mat Reinforced Backer Units – R703.18

Code Change

RB235-22

Original Proposal

IRC: R703.18 (New)

Proponents: Michael Gardner, M Gardner Services, LLC, National Gypsum Company (michael@mgardnerservices.com)

2021 International Residential Code

Add new text as follows:

R703.18 Fiber-mat reinforced cementitious backer units. Fiber-mat reinforced cementitious backer units used on exterior walls as a substrate for the application of exterior finish materials shall comply with ASTM C1325. Installation shall be in accordance with manufacturer's installation instructions. Backer units shall be installed using corrosion-resistant fasteners. Finish materials shall be installed in accordance with manufacturer's instructions.

Reason: ASTM C1325 cement board (technically, fiber-mat reinforced cementitious backer unit) was incorporated into the IRC in the mid-2000s when it was added to Section 702 as a substrate for interior wall tile in shower and tub areas.
In the interim period, C1325 cement board has gained use as an exterior substrate. It is primarily used for architectural stone and direct-applied finish system applications.

Exterior use of cement board is permitted by the C1325 standard and the two applicable Acceptance Criteria for cement board: AC 376, which addresses the cement board itself, and AC 59, which addresses direct-applied finish systems.

But because the only IRC reference to the material is the interior use described in Section 702 confusion occurs regarding the ability to use cement board as an exterior substrate. This proposal intends to clarify that cement board conforming with the ASTM C1325 standard can be used as a substrate in exterior applications by expanding the existing IRC reference to apply to exterior applications under Section R703.

A change to the IBC with the same intent was approved during the 'A' Cycle.

RB235-22 AS

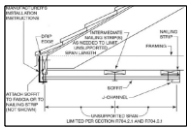
201

Exterior Soffits and Fascia - R704

2021 IRC

Code Change

- Requirements for soffit material and installation are expanded in a new section.
- Aluminum soffits addressed in Section R704
- Requirements for fascia are **added** in Section R704.4 mirroring soffit requirements
  - Vinyl soffit panels are required to be **fastened** each end and an unsupported span
  - Cannot **>16"** unless permitted by the manufacturer's product approval



RB234-19

202

Exterior Soffits and Fascia – R704

2024 IRC

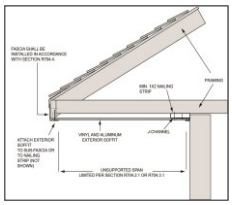
New Code

R704.4 Fascia - shall be installed in accordance with the manufacturer's installation instructions.

R704.4.1 Aluminum fascia - Aluminum fascia shall be installed in accordance with the manufacturer's installation instructions and comply with Section R704.4.1.1or R704.4.1.2.

R704.4.1.1 Fascia installation where the design wind pressure is 30 psf or less - When the design wind pressure is 30 lb. psf. or less, aluminum fascia shall be attached with one finish nail [1-1/4" X 0.57" X 0.177" head diameter (32 mm × 14.5 mm × 4.5 mm)] in the return leg spaced a maximum of 24" o.c., and the fascia shall be inserted under the drip edge at least 1" of fascia material covered by the drip edge. . .

R704.4.1.2 Fascia installation where the design wind pressure exceeds 30 psf. . . .



RB236 AMPC, RB237-22 AS, RB238 AS

204

Soffits - R704

2021 IRC

New Code & Clarification

- 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

RB234-19

203

Wood Roof Framing - R802

2021 IRC

Wood Roof Framing

- Revised provisions clarify ridge beam and ceiling joist requirements.

205

Reorganization

Fire-Retardant-Treated Wood - ~~R802.1.5~~ R302.15.2

2021 IRC
2024 IRC

~~R802.1.5.2~~ **R302.15.2 Other means during manufacture**

For wood products impregnated with chemicals by other means during manufacture, the treatment shall be an integral part of the manufacturing process of the wood product. The treatment shall provide permanent protection to all surfaces of the wood product. The use of paints, coating, stains or other surface treatments *is not* an *approved* method of protection as required by this section.

~~R802.1.5.3~~ **R302.1.5.3 Testing.**

For fire-retardant-treated wood products, the front and back faces of the wood product shall be tested in accordance with and produce the results required in Section R302.15.

~~R802.1.5.3.1~~ **R302.1.5.3.1 Fire testing of fire-retardant-treated wood structural panels.**

Fire-retardant-treated wood structural panels shall be tested with a ripped or cut longitudinal gap of $^1/_8$ inch.

RB241-22 (**Proponents**: Marcelo Hirschler, GBH International, GBH International)

206

Joint Connections Footnote [a]

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

2021 IRC

RAFTER SLOPE	RAFTER SPACING (inches)	GROUND SNOW LOAD (psf)											
		20[a]			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	3	5	8	3	6	9	5	9	13	6	12	17
	16	4	7	10	4	8	12	6	12	17	8	15	23
	19.2	4	8	12	5	10	14	7	14	21	9	18	27
	24	5	10	15	5	12	18	9	17	26	12	23	34
4:12	12	3	4	6	3	5	7	4	7	10	5	9	13
	16	3	5	8	3	6	9	5	9	13	6	12	17
	19.2	3	6	9	4	7	11	6	11	16	7	14	21
	24	4	8	11	5	9	13	7	13	19	9	17	26
5:12	12	3	3	5	3	4	6	3	6	8	4	7	11
	16	3	4	6	3	5	7	4	7	11	5	9	14
	19.2	3	5	7	3	6	9	5	9	13	6	11	17
	24	3	6	9	4	7	11	6	11	16	7	14	21
⋮													
12:12	12	3	3	3	3	3	3	3	3	4	3	3	5
	16	3	3	3	3	3	3	3	5	3	4	6	
	19.2	3	3	3	3	3	4	3	4	6	3	5	7
	24	3	3	4	3	3	5	3	5	7	3	6	9

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.

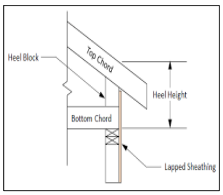
208

Table R802.5.2(1)Heel Joint Connections

Heel Joint Connections - Table R802.5.2(1)

2021 IRC

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



207

Rafter and Ceiling Joist Bearing

Rafter and Ceiling Joist Bearing - R802.6

2021 IRC

Where:

1. Roof pitch is ≥ 3:12 (25% slope)
2. Ceiling joists or rafter ties are connected to rafters to provide a continuous tension tie

Vertical bearing of the top of the rafter against the ridge board shall satisfy the bearing requirement.

RB264-19

209

Roof Assemblies ~~Covering Materials~~ – R902.1

2024 IRC

Roof Assembly

- Roof decks shall be covered with materials as set forth in Section R904 or with roof coverings as set forth in Section R905. Class A, B or C roof assemblies shall be installed in *jurisdictions* designated by law as requiring their use or where the edge of the roof deck is less than 3 feet (914 mm) from a *lot line*. Where Class A, B or C roof assemblies are required, they shall be tested in accordance with ASTM E108 or UL 790. Where required, the roof assembly shall be listed and identified as to class by an approved testing agency.

- **Reason:** Changing "roofing" to "roof assemblies" in Section R902.1 is important to recognize that roof assemblies are classified, not "roofing." The additional changes create a logical progression of thought that establishes when fire classification is required, what tests are to be done when fire classification is necessary, and provisions for listing when that additional step is appropriate.

RB251-22AS, RB252-22AS, RB254-22AS

210

Roof Covering - Sheathing - 905

2024 IRC

Roof Covering Application

- **R905.2.1 Sheathing requirements.** Asphalt shingles shall be fastened to *wood structural panels* or solid lumber sheathing. ~~solidly sheathed decks.~~
- **R905.3.1 ~~Deck~~ Sheathing requirements.** Concrete and clay tile shall be installed ~~only~~ over ~~solid sheathing.~~ *wood structural panels* or solid lumber sheathing.
- **R905.4.1 ~~Deck~~ Sheathing requirements.** *Metal roof shingles* shall be fastened to *wood structural panels*, solid lumber sheathing, or closely-fitted lumber sheathing ~~applied to a solid or closely fitted deck,~~ except where the roof covering is specifically designed to be applied to spaced lumber sheathing.

IRC: R905.2.1 – RB254-22

212

Ice Barriers - R905

2024 IRC

Roof Assemblies

- A significant change in the 2024 IRC that affects how ice barriers are installed on steep-sloped roofs.
- Specifically, Section R905.1.2 & R905.2.1 which governs the use of ice barriers, has been revised to remove a requirement that applied to roofs with a slope of 8:12 or greater.

Code language

- The ice barrier shall consist of not fewer than two layers of *underlayment* cemented together, or a self-adhering polymer-modified bitumen sheet shall be used in place of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches inside the exterior wall line of the *building*.
- On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal, the ice barrier shall be applied not less than 36 inches measured along the roof slope from the eave edge of the *building*.

R905.1.2 - RB262-22

211

Clay, Concrete and Slate Roofs – Wind - R905

2024 IRC

Wind Resistance

- Roof cladding must resist component and cladding loads
- **R905.3.6 Wind resistance of concrete and clay tile**
- **R905.5.6 Wind resistance of mineral-surfaced roll roofing - R905.6.5 Wind resistance of slate shingles.**
- Component and cladding loads specified in Table R301.2.1(1), adjusted for height and exposure in accordance with Table R301.2.1(2).

RB266-22 AM

213

New Code

RB268-22

Original Proposal

IRC: R905.6.5 (New), TABLE R905.6.5 (New)
Proponents: Mark Graham, National Roofing Contractors Assoc., National Roofing Contractors Assoc. (mgraham@nrca.net)

2021 International Residential Code

Add new text as follows:

R905.6.5 Wind resistance of slate shingles. Slate shingles shall be tested in accordance with ASTM D3161. Slate shingle packaging shall bear a label indicating compliance with ASTM D3161 and the required classification in Table R905.6.5.

TABLE R905.6.5 CLASSIFICATION OF SLATE SHINGLES TESTED IN ACCORDACNE WITH ASTM D3161

MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}, FROM FIGURE R301.2(2) (mph)	MAXIMUM BASIC WIND SPEED, V_{asd}, FROM TABLE R301.2.1.1 (mph)	ASTM D3161 CLASSIFICATION
110	85	A, D or F
120	90	A, D or F
130	100	D or F
140	110	D or F
150	115	D or F
160	120	D or F
170	130	D or F
180	140	D or F
190	150	F

Reason: This code change proposal is intended to provide building officials and users of the code guidance regarding the wind resistance of slate roof covings. Wind resistance of slate roof coverings is not currently addressed in the IRC. This code change adds wind resistance testing in accordance with ASTM D3161 and its classification designations similar to what is already provided for in the IBC for asphalt shingles and metal roof shingles. A new table is added, Table R905.6.5 providing the required wind resistance classification based on the maximum ultimate design wind speed, Vult, or maximum basic wind speed, Vasd. Slate package labeling is required to facilitate classification identification and enforcement. Such package labeling would be slate supplier specific, but most likely would be in the form of a pallet tag

214

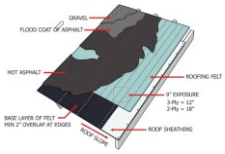
New Code & Addition

Wind Resistance—Built-Up, Metal and Bitumen Roofing – R905.9, R905.10, R905.11

2024 IRC

- New Req't. added for Wind Resistance for built-up and modified bitumen roofing and for metal roof panels
- New testing standards
- All connected back to Figure R301.2.1.1
- Regions wind Design is Required in Table R301.2.19(1), Components and Cladding Loads

Brent Snyder's Old Barn



RB266-22 AM

216

New Code & Addition

Wood Shakes and Shingles – R907, 905.8

2024 IRC

- New Sheathing & Fastening Req'ts
- Wind Resistance added
- In regions when wind design is required in accordance with Figure R301.2.1.1, wood shingles shall be installed to resist the component and cladding loads specified in Table R301.2.1(1), adjusted for height and exposure in accordance with Table R301.2.1(2).
- In regions when wind design is **not required** in accordance with Figure R301.2.1.1, wood shingles are permitted to be attached in accordance with Section R905.7.6.

RB266 AM, RB270 AS

215

New Code & Addition

Single-ply Liquid and Sprayed Roofing – R905.12, R905.13, R905.14

2024 IRC

- Table R905.12 – Single-Ply Roofing Material Standards - Updated
- R905.12.4 - Wind resistance of single-ply roofing – (CC)
- Table R905.13.3 - Protective Coating Material Standards
- R905.13.4 - Wind resistance of sprayed polyurethane foam roofing
- R905.14.4 - Wind resistance of liquid-applied roofing
- New Testing Standard are added as option (UL 580 and UL 1897)

RB266 AM, RB274 AS

217

Single-ply Liquid and Sprayed Roofing – R905.12, R905.13, R905.14

2024 IRC

New Code & Addition

Table R905.12 Single-Ply Roofing Material Standards

MATERIAL	STANDARD
Chlorosulfanated polyethylene (CSPE) or polyisobutylene (PIB)	ASTM D5019
Ethylene propylene diene monomer (EPDM)	ASTM D4637
Ketone Ethylene Ester (KEE)	ASTM D6754
Polyvinyl chloride (PVC) or (PVC/KEE)	ASTM D4434
Thermosplastic polyolefin (TPO)	ASTM D6878

RB266 AM, RB274 AS

218

Roof Replacement - R908.3

2024 IRC

New Code Exceptions

- Roof Replacement: Exceptions 1-3
- Ice-barrier membrane and self-adhered underlayment is permitted to stay in place if all material is in good shape. Without remove and another overlay.
  - Sheathing **not** water soaked or deteriorated
  - **Permitted** by manufacturer
  - Second layer applied

RB281-22 AM

220

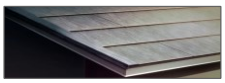
BIPV Roofs - R905.15, R905.16

2024 IRC

Clarification and Addition

R905.15.1 Sheathing requirements. *BIPV shingles* shall be fastened to *wood structural panels*, solid lumber sheathing or closely fitted lumber sheathing, except where the *roof covering* is specifically designed to be applied over spaced lumber sheathing.

R905.16.1 Sheathing requirements. *BIPV roof panels* shall be fastened to *wood structural panels*, solid lumber sheathing or closely-fitted lumber sheathing, except where the *roof covering* is specifically designed to be applied over spaced lumber sheathing.



RB254 AS, RB261 AS,
RB266 AM, S35-22 Part II AS

219

Roof Coatings - R909

2024 IRC

New Section in Code

- Chpt 2 Definition: **ROOF COATING.** A fluid-applied, adhered coating used for roof maintenance or *roof repair*, or as a component of a *roof covering* system or *roof assembly*.
- A **new section** lists the ASTM standard applicable to each roof coating referenced in the IRC standards in Table 902.2.

RB280-22 AS

221

New Section in Code

Roof Coatings - R909

2024 IRC

- **R909.1 General.**

The installation of a *roof coating* on a *roof covering* shall comply with the requirements of Section R902, Section R904 and this section. *Roof coatings* shall be installed in accordance with the manufacturer's installation instructions.

- **R909.2 Material standards.**

Roof coating materials shall comply with one of the standards in Table R909.2.

Table R909.2 Roof Coating Material Standards

COATING MATERIAL	STANDARD
Acrylic coating	ASTM D6083
Asphaltic emulsion coating	ASTM D1227
Asphalt coating	ASTM D2823
Asphalt roof coating	ASTM D4479
Aluminum-pigmented asphalt coating	ASTM D2824
Silicone coating	ASTM D6694
Moisture-cured polyurethane coating	ASTM D6947

222

Some of the Updates

Summary

- Key changes to stairway landings, egress openings, and area wells.
- Important updates to foundation requirements, especially for seismic categories and crushed stone footings.
- Comprehensive additions for deck construction, including framing, ledger connections, and flashing.
- Clarifications on braced wall lines and panel locations, emphasizing the "on the physical wall" concept.
- New guidance on vapor retarders and water-resistive barriers, including for stucco and deck ledgers.
- Specific installation requirements for vinyl siding, soffits, and fascia.
- Major changes to roof assemblies, ice barriers, and wind resistance for various roofing materials.
- Introduction of roof coatings.

224

Some of the Updates

Summary

- We've covered significant changes across various chapters, including the major reorganization of Chapter 3 for usability.
- New definitions like: Sleeping Lofts and Rainscreen Systems.
- Updates to wind design criteria and application.
- Clarifications on story heights and stud load-bearing capacities.
- Extensive revisions in fire protection, including new rules for two-family dwellings, shared accessory rooms, and floor membranes.
- New requirements for smoke and CO alarms, including placement in common spaces and near cooking appliances, 24 inches.
- Details on EV charging systems and automotive lifts in garages, ESS.

223

Summary

- **Verify all code requirements.**
- **Call upon one another for uniformity of code enforcement.**
- **…And remember: "Life is good." (Brent Snyder 2006)**

225

THANK

YOU

FOR

LISTENING