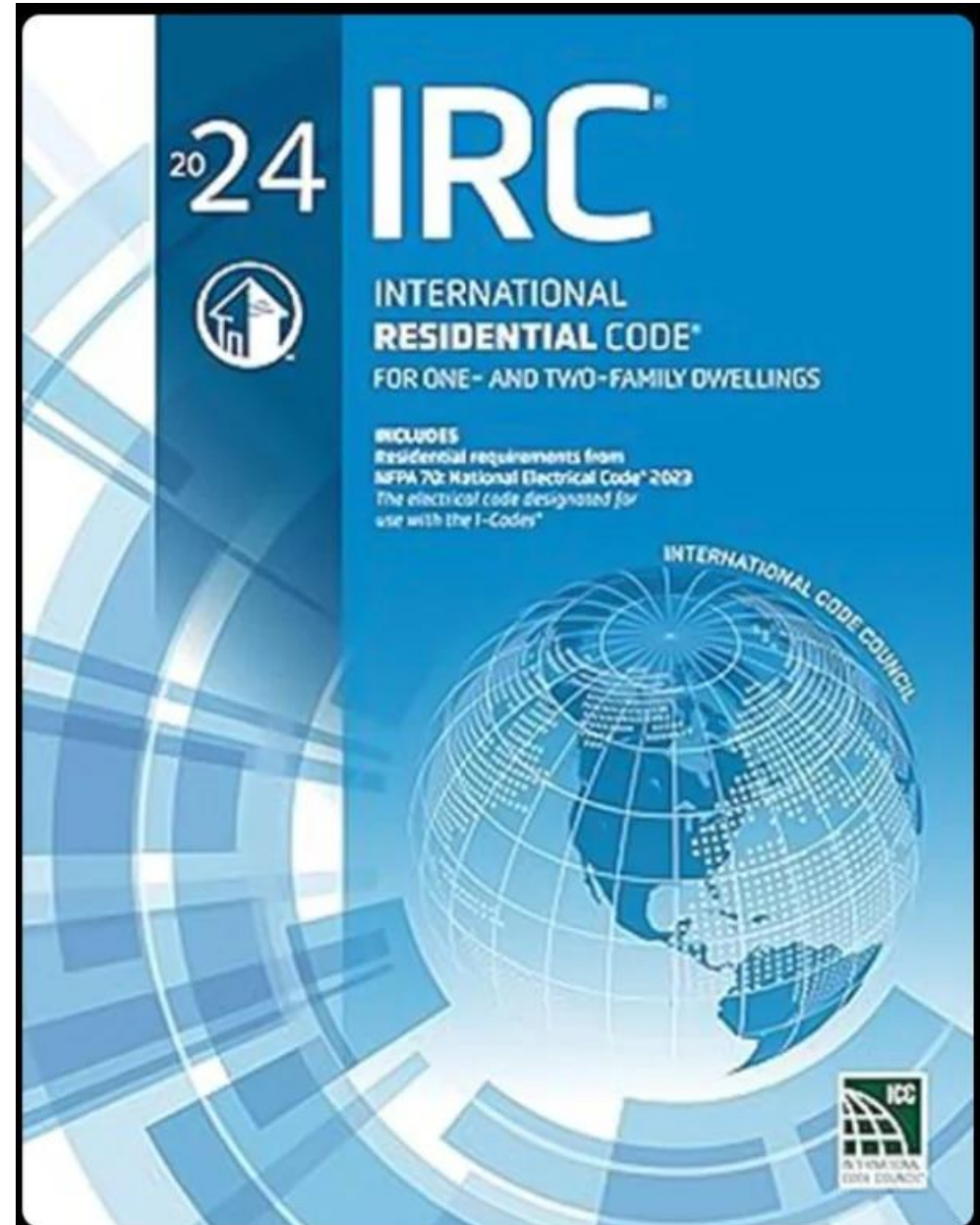


2024 International Residential Code

Significant changes from
the 2018 – 2024

Michael W. Nier CBO, MCP



This page left intentionally blank



Who is the GAHI ?

What are our goals?

What do we recommend to you to safeguard your jobsite?

- Member of GAHI or ASHI
- R-5 Certified – Combination Residential Inspector
- Liability Insurance

Today's Instructor

Michael W. Nier
CBO, MCP

Owner of **Nier Building Inspections Inc.**

43 Certifications from ICC, BOAG,

NFPA & GAHI

- Master Code Professional
- Certified Building Official
- Level 5 Professional Building Official

Over 24 years of experience in the
Inspection Industry

- Municipal Experience
- Third party, Private Provider
- Home Inspection / Testing

Over 13 years in the Construction Industry

Nier Building Inspections Inc.

- Third Party Inspections (TPI)
- Engineering services
- Soil and erosion inspection and review
- Home Inspections
- DET – Duct and envelope testing
- Meth testing, Microbial testing (sewer clean up),
Mold testing
- Radon testing
- Litigation / Arbitration

Classes we have presented:

Electrical Basics 101

Major changes to the 2020 NEC

South Carolina IBC – 2018, 2021

2023 NEC

2024 IRC update

Alabama IRC 2015

Decks and GA deck details

2015 Energy Code

Residential Sprinklers

- EV and solar Installation
- Common code violations IRC
- Inspector certifications
- Framing 2021
- Investor presentation
- IPMC 2018 and 2024
- 2018 Fuel Gas & Trex Pipe
- Solar PV and Thermal
- Plan Review

Classes ongoing and coming soon

Zoom meeting on understanding the IRC

IRC code class – prep for the B1

IPMC certification class

GAHI Conference



GEORGIA DEPARTMENT
of COMMUNITY AFFAIRS

Georgia State Amendments
to the
International Residential Code
(2024 Edition)



Georgia Department of Community Affairs
Community Development Division

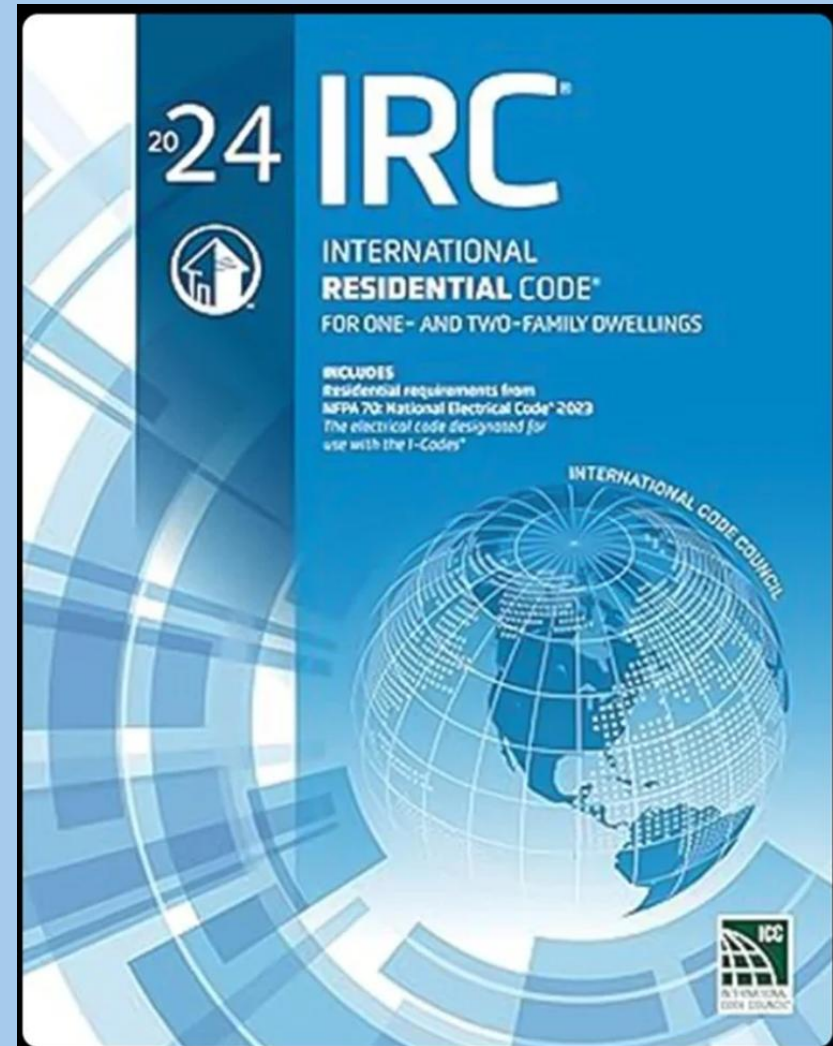
60 Executive Park South, N.E.

Atlanta, Georgia 30329-2231

(404) 679-3118

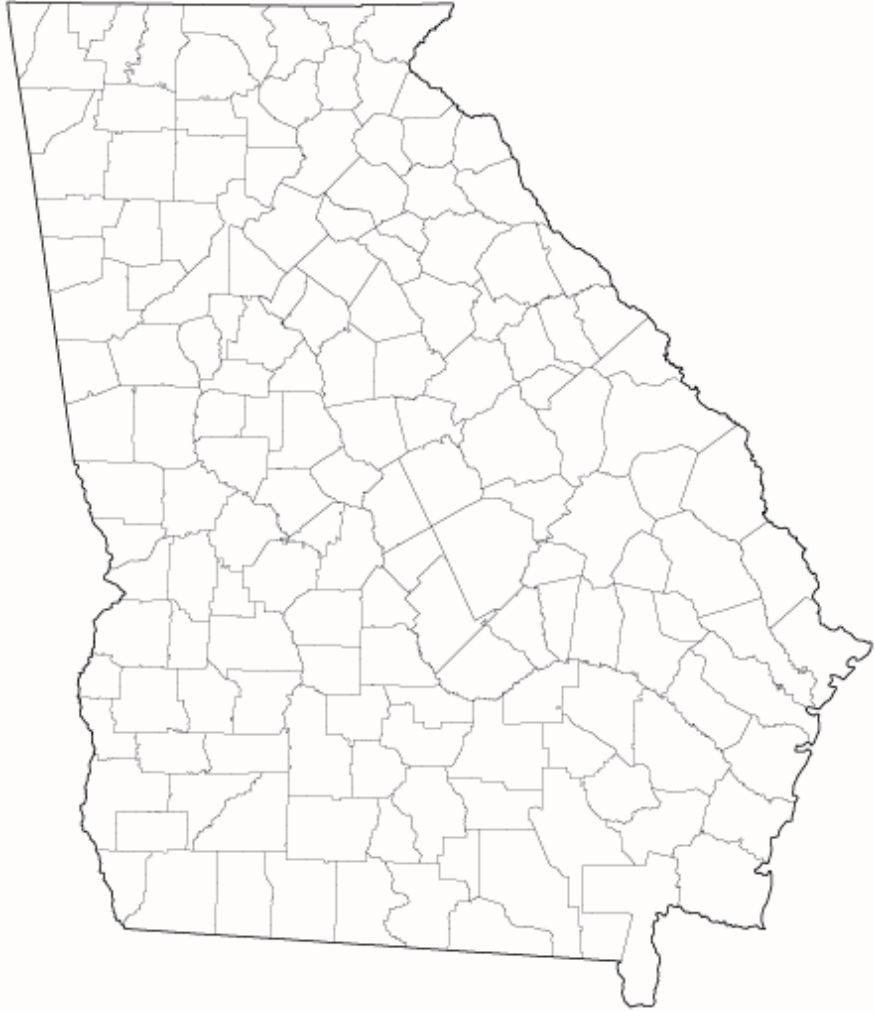
dca.georgia.gov

Revised January 1, 2026



Every Jurisdiction
has its own code.....

Georgia Residential Code



159 counties

535 cities

The Uniform Codes Act
(October 1, 1991)
is codified at

chapter 2 of title 8 of
Official Code of Georgia Annotated.

O.C.G.A. Section 8-2-20(9)(B)

“State Minimum Standard Codes”

Mandatory Codes:

2024 International Building Code

2024 International Residential Code for
One- and Two-Family Dwellings

2024 International Fire Code

2024 International Plumbing Code

2024 International Mechanical Code

2024 International Fuel Gas Code

2023 National Electrical Code

2015 International Energy Conservation Code

2024 International Swimming Pool and Spa Code

Under Georgia law, any structure built in Georgia
must comply with these codes (mandatory),
whether or not the local government
chooses to locally enforce these codes.

8-2-25(c)(1)

Allows the local jurisdiction to revise
the state code and provide requirements that are
“.....not less stringent than....”
the state code



GEORGIA DEPARTMENT
of COMMUNITY AFFAIRS

Georgia State Amendments
to the
International Residential Code
(2024 Edition)



Georgia Department of Community Affairs
Community Development Division

60 Executive Park South, N.E.

Atlanta, Georgia 30329-2231

(404) 679-3118

dca.georgia.gov

Revised January 1, 2026

The INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-
FAMILY DWELLINGS, 2024 Edition,

published by the International Code Council, when used in
conjunction with these and any other Georgia State Amendments to
the INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-
FAMILY DWELLINGS, 2024 Edition,

shall constitute the official Georgia State Minimum Standard One-
and Two-Family Dwelling Code.

Part IV, Energy Conservation (Chapter 11), is deleted from the INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS.

Substitute all references to Chapter 11 ENERGY EFFICIENCY with references to the Georgia State Minimum Standard Energy Code (International Energy Conservation Code with Georgia State Supplements and Amendments).

Part VII, Plumbing (Chapters 25 through 33), is deleted from the INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS.

Substitute for plumbing requirements, the Georgia State Minimum Standard Plumbing Code (International Plumbing Code with Georgia State Amendments).

Part VIII, Electrical (Chapters 34 through 43), is deleted from the INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS.

Substitute for electrical requirements, the Georgia State Minimum Standard Electrical Code (National Electrical Code with any Georgia State Amendments).

SCOPE:

The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses separated by a 2-hour fire-resistance-rated wall assembly, not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

SCOPE:

The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses separated by a 2-hour fire-resistance-rated wall assembly, not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

SCOPE:

The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses **separated by a 2-hour fire-resistance-rated wall assembly, not more than three stories above grade plane in height with a separate means of egress** and their accessory structures.

Exceptions:

- a) Live/work units complying with the requirements of Section 508.5 of the IBC shall be permitted to be built as one- and two-family dwellings or townhouses. Fire Suppression required by Section 508.5.7 of the IBC when construction under the International Residential Code for One- and Two-family Dwellings shall conform to NFPA 13D
- b) Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the IRC for One- and Two-family Dwellings when equipped with a fire sprinkler system in accordance with NFPA 13D.

IMPORTANT NOTE:

The intent of the Georgia amendments is that fire sprinklers **shall not** be mandatory in one- and two-family dwellings.

However, the provisions of the 2024 Edition of the International Residential Code for One- and Two-Family Dwellings regarding automatic fire sprinklers are to remain in the Code for use when the **builder/developer or owner chooses to install** fire sprinklers as an option.

{Ref. O.C.G.A. §8-2-4. Neither the state residential and fire building code nor any residential and fire building code adopted by a political subdivision of the state adopted after May 24, 2010, shall include a requirement that fire sprinklers be installed in a single-family dwelling or a residential building that contains no more than two dwelling units.}

APPENDICES:

Appendices are not enforceable unless they are specifically referenced in the body of the code or adopted by the Department of Community Affairs or the Authority Having Jurisdiction.

CHAPTER 1

SCOPE AND ADMINISTRATION

*Delete Chapter 1 'Scope and Administration' without substitution.

Chapter 1 to remain in the Code as a reference and guide for local governments to use in the development of their own Administrative Procedures.

(Effective January 1, 2026)

SECTION R202

DEFINITIONS

*Revise Section R202 ‘Definitions’ for “[RB] Lodging House” to read as follows:

[RB] LODGING HOUSE. A one-family dwelling ***with five or fewer guestrooms***, where one or more occupants are primarily permanent in nature, and rent is paid for guestrooms.

SECTION R202

DEFINITIONS

*Replace Section R202 ‘Definitions’ for “[RB] Townhouse Unit” to read as follows:

[RB] TOWNHOUSE UNIT. A single-family dwelling unit ***constructed in a group of three or more attached units. Each unit*** extends from foundation to roof, ***not more than three stories in height with a separate means of egress, and*** with an open space/yard or public way on not less than two sides. ***Each townhouse shall be considered a separate building with independent exterior walls and shall be separated by a 2-hour fire-resistance-rated wall assembly.***

(Effective January 1, 2026)

SECTION R302

FIRE-RESISTANT CONSTRUCTION

*Revise section R302.1 'Exterior walls' first paragraph to read as follows:

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings, townhouses and accessory buildings shall comply with Table R302.1(1) based on fire separation distance; or dwellings and townhouses equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D shall comply with Table R302.1(2) based on fire separation distance.

(Remainder of section unchanged).

(Effective January 1, 2026)

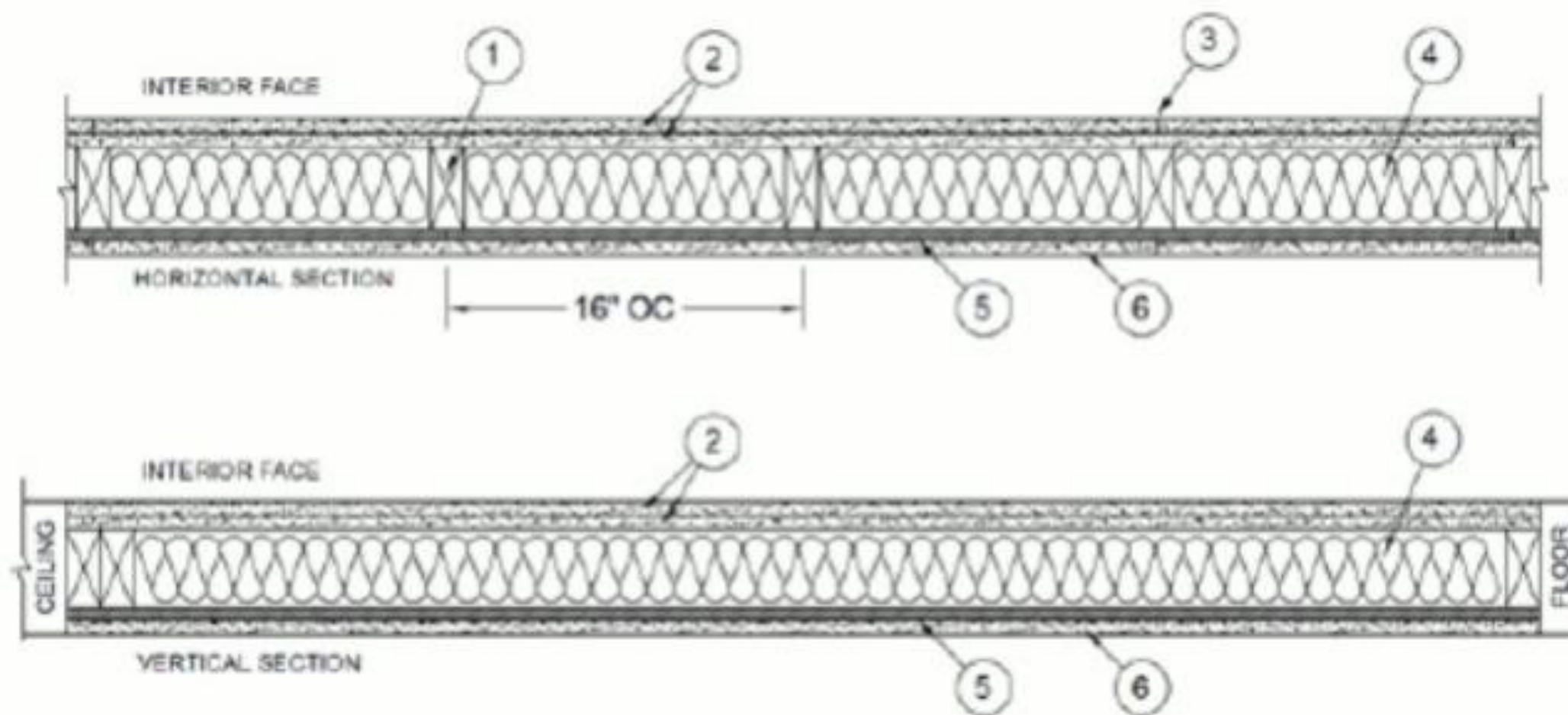
R302.2 Townhouses.

Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

Exception: A common 2-hour fire-resistance rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses, if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with the National Electrical Code (NEC). Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

4/17/23, 11:47 AM

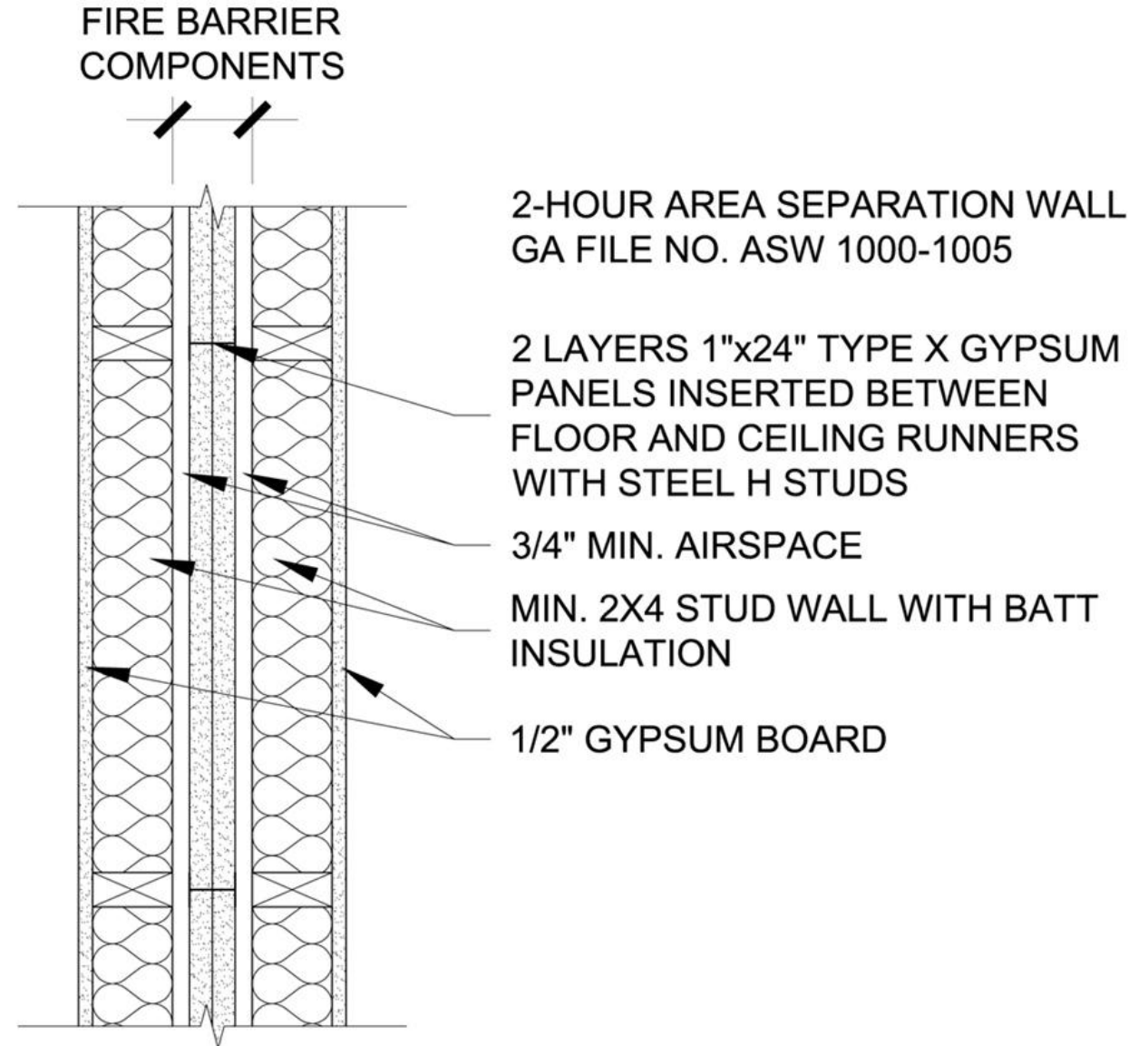
BXUV.V314 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ



Shaft wall



Gypsum
Association
number ASW
1000-1005



R302.5.1 Opening protection.

Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and dwelling unit 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 inches thick, or 20-minute fire-rated doors. ~~Doors shall be self-latching and equipped with a self-closing or automatic-closing device.~~

Revise Table R302.6 ‘DWELLING UNIT-GARAGE SEPARATION’ to add a new footnote “a” under the column ‘SEPARATION’ for ‘Structure(s) supporting floor/ceiling assemblies used for separation required by this section’ as follows:

TABLE R302.6 DWELLING UNIT GARAGE SEPARATION



SEPARATION	MATERIAL
From the dwelling unit and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side
From portions of the dwelling unit above the garage	Not less than 5/8-inch Type X gypsum board or equivalent
Structure supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

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

a. Separation of floor/ceiling assemblies is not required in garages protected by an automatic sprinkler system that meets the following criteria:

1. The sprinkler system shall be connected to a reliable water supply system with or without an automatic operated pump.
2. A piping system serving both sprinkler and domestic needs shall be acceptable.
3. Ordinary-temperature-rated residential or quick response sprinklers (135°F to 170°F [57°C to 77°C]) with a ½-inch (13 mm) orifice shall be installed.
4. The minimum operating pressure of any residential or quick response sprinkler shall be 7 psi (0.5 bar).
5. Walls that resist the passage of smoke shall separate the sprinklered compartment from any other space(s). Openings in this wall shall be regulated by Section R302.5.
6. The maximum area protected by a single sprinkler head shall not exceed 144 ft² (13.4 m²).

a. Separation of floor/ceiling assemblies is not required in garages protected by an automatic sprinkler system that meets the following criteria:

7. The maximum distance between sprinklers shall not exceed 12 feet (3.7 m).

8. The maximum distance to a wall or partition shall not exceed 6 feet (1.8 m).

9. The minimum distance between sprinklers within a compartment shall be 8 feet (2.4 m).

10. Pendent and upright sprinkler heads shall be positioned so that the deflectors are within 1 to 4 inches (25.4 to 102 mm) below framing.

11. Sprinkler heads shall be located on a looped piping configuration.

12. Minimum pipe size, including that for copper, listed chlorinated polyvinyl chloride (CPVC), and polybutylene (PB) piping shall be 3/4-inch (19 mm).

13. Garage doors in the open position shall not interfere with the operation of a sprinkler head.

14. A smoke alarm detector shall be installed in accordance with Section R314.

SECTION R309

AUTOMATIC FIRE SPRINKLER SYSTEMS

(Optional)

R309.1 Automatic fire sprinkler systems (Optional). Installation of an automatic residential fire sprinkler system shall be optional and not mandatory in one- and two-family dwellings and townhouses.

R309.2 Design and installation. When installed, automatic residential fire sprinkler systems for one- and two-family dwellings and townhouses shall be designed and installed in accordance with NFPA 13D.

Delete any other code references to Section P2904 'Dwelling Unit Fire Sprinkler Systems' and substitute NFPA 13D.

(Effective January 1, 2026)

Section R311 Carbon Monoxide Alarms

R311.2.1 New construction.

For new construction, carbon monoxide alarms shall be provided in dwelling units where either or both of the following conditions exist.

1. The dwelling unit contains a fuel-fired appliance.
2. The dwelling unit has an attached garage with an opening that communicates with the dwelling unit.

Section R311 Carbon Monoxide Alarms

R311.2.1 New construction.

For new construction, carbon monoxide alarms shall be provided in dwelling units ~~where either or both of the following conditions exist.~~

~~1. The dwelling unit contains a fuel-fired appliance.~~

~~2. The dwelling unit has an attached garage with an opening that communicates with the dwelling unit.~~

Delete Sections without substitution.

R317.5 Fire sprinklers.

Private garages shall be protected by fire sprinklers

R318.7.12 Alternating tread devices.

Alternating tread devices shall not be used as an element of a means of egress.....

SECTION R321

GUARDS AND WINDOW FALL PROTECTION

*Revise Section 321 Heading to read as follows:

(Effective January 1, 2026)

SECTION R321

GUARDS

*Delete Section R321.2 ‘Window fall protection’ without substitution.

(Effective January 1, 2026)

Section R321 Guards and Window Fall Protection

Section R321 Guards and Window Fall Protection

R321.2 Window fall protection.

Window fall protection shall be provided in accordance with Sections R321.2.1 and R321.2.2.

~~Section R321 Guards and Window Fall Protection~~

~~R321.2 Window fall protection.~~

~~Window fall protection shall be provided in accordance with Sections R321.2.1 and R321.2.2.~~

R321.2.1 Window opening height.

In dwelling units, where the bottom of the clear opening of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable window openings will not allow a 4-inch-diameter (102 mm) sphere to pass through where the openings are in their largest opened position.
2. Operable windows are provided with window opening control devices or fall prevention devices that comply with ASTM F2090.

R321.2.2 Emergency escape and rescue openings.

Where an operable window serves as an emergency escape and rescue opening, a window opening control device or fall prevention device, after operation to release the control device or fall prevention device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Sections R319.2.1 and R319.2.2.

SECTION R323

ELEVATORS AND PLATFORM LIFTS

*Revise Section R323.1 ‘Elevators’ to read as follows:

R323.1 Elevators. Where provided, limited-use and limited-application elevators or private residence elevators shall comply with ASME A17.1/CSA B44.

*Add a new Section R323.1.1.3 ‘Hoistway opening framing’ to read as follows:

R323.1.1.3 Hoistway opening framing. Limited-use/limited-application elevators or private residence elevators shall have hoistway landing openings that meet the Georgia amended requirements of ASME A17.1/CSA B44 Sections 5.3.1.1 and 5.3.1.7.2. The clearance between the hoistway doors or gates and the hoistway edge of the landing sill shall not exceed 3/4 inch (19 mm). The distance between the hoistway face of the landing door or gate and the car door or gate shall not exceed 3 inches (75 mm).

(Effective January 1, 2026)

SECTION R325

LIGHT, VENTILATION AND HEATING

*Delete Section R325.3 ‘Mechanical ventilation’ and replace with the following:

R325.3 Mechanical ventilation. Where the air infiltration rate of a dwelling unit is 3 air changes per hour or less where tested with a blower door at a pressure of 0.2 inch w.c (50 Pa) in accordance with Section N1102.5.1, the dwelling unit shall be provided with whole-house mechanical ventilation in accordance with Section M1505

(Effective January 1, 2026)

SECTION R326

SANITATION

*Add new Section R326.5 'Exterior hose bibs, sill cocks or outside hydrants' to read as follows:

R326.5 Exterior hose bibs, sill cocks or outside hydrants. One and two-family dwellings shall have not less than two exterior hose bibs, sill cocks or outside hydrants with one being located on the side or rear of the structure.

(Effective January 1, 2026)

SECTION R326

SANITATION

*Add new Section R326.6 ‘Construction worker toilet facilities’ to read as follows:

R326.6 Construction worker toilet facilities. Toilet facilities shall be provided for construction workers and such facilities shall be maintained in a sanitary condition. Construction worker toilet facilities of the non-sewer type shall conform to ANSI Z4.3.

(Effective January 1, 2026)

CHAPTER 4

FOUNDATIONS

SECTION R403

FOOTINGS

*Revise section R403.1.6 ‘Foundation anchorage’ to add
new exception 3 to read as follows:

3. Where the basic wind speeddoes not exceed 115 miles per hour, the seismic design category is A or B and **Method GB** is used for a braced wall line on the interior of the dwelling, anchor bolts or positive anchorage with approved fasteners shall be required for the wood sole plates of the braced wall panels.

(Effective January 1, 2026)

Intermittent Bracing Methods	GB Gypsum board	$\frac{1}{2}$ "		Nails or screws per Table R602.3(1) for exterior locations	For all braced wall panel locations: 7"edges (including top and bottom plates) 7" field
				Nails or screws per Table R702.3.5 for interior locations	

R502.6 Bearing.

The ends of each joist, beam or girder shall have not less than 1 1/2 inches of bearing on wood or metal, have not less than 3 inches of bearing on masonry or concrete or be supported by approved joist hangers. Alternatively, the ends of joists shall be supported on a 1-inch by 4-inch ribbon strip and shall be nailed to the adjacent stud. The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch-minimum nominal thickness shall be provided under the joist, beam or girder. The sill plate shall provide a minimum nominal bearing area of 48 square inches.

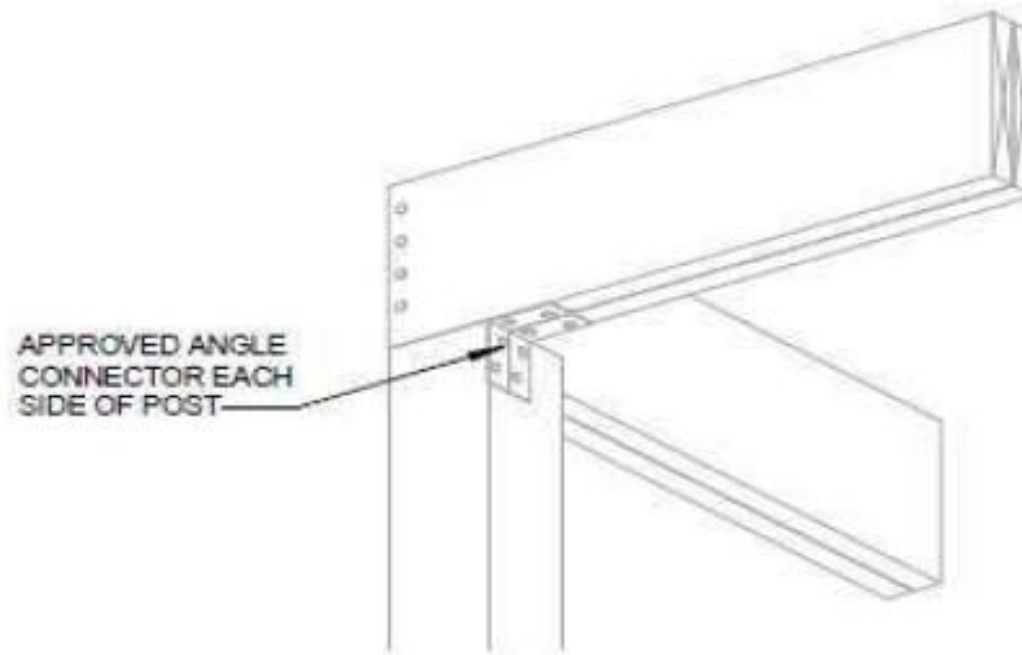
R502.6 Bearing.

The ends of each joist, beam or girder shall have not less than 1 1/2 inches of bearing on wood or metal, have not less than 3 inches of bearing on masonry or concrete or be supported by approved joist hangers. Alternatively, the ends of joists shall be supported on a 1-inch by 4-inch ribbon strip and shall be nailed to the adjacent stud. The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch-minimum nominal thickness shall be provided under the joist, beam or girder. ~~The sill plate shall provide a minimum nominal bearing area of 48 square inches.~~

SECTION R507

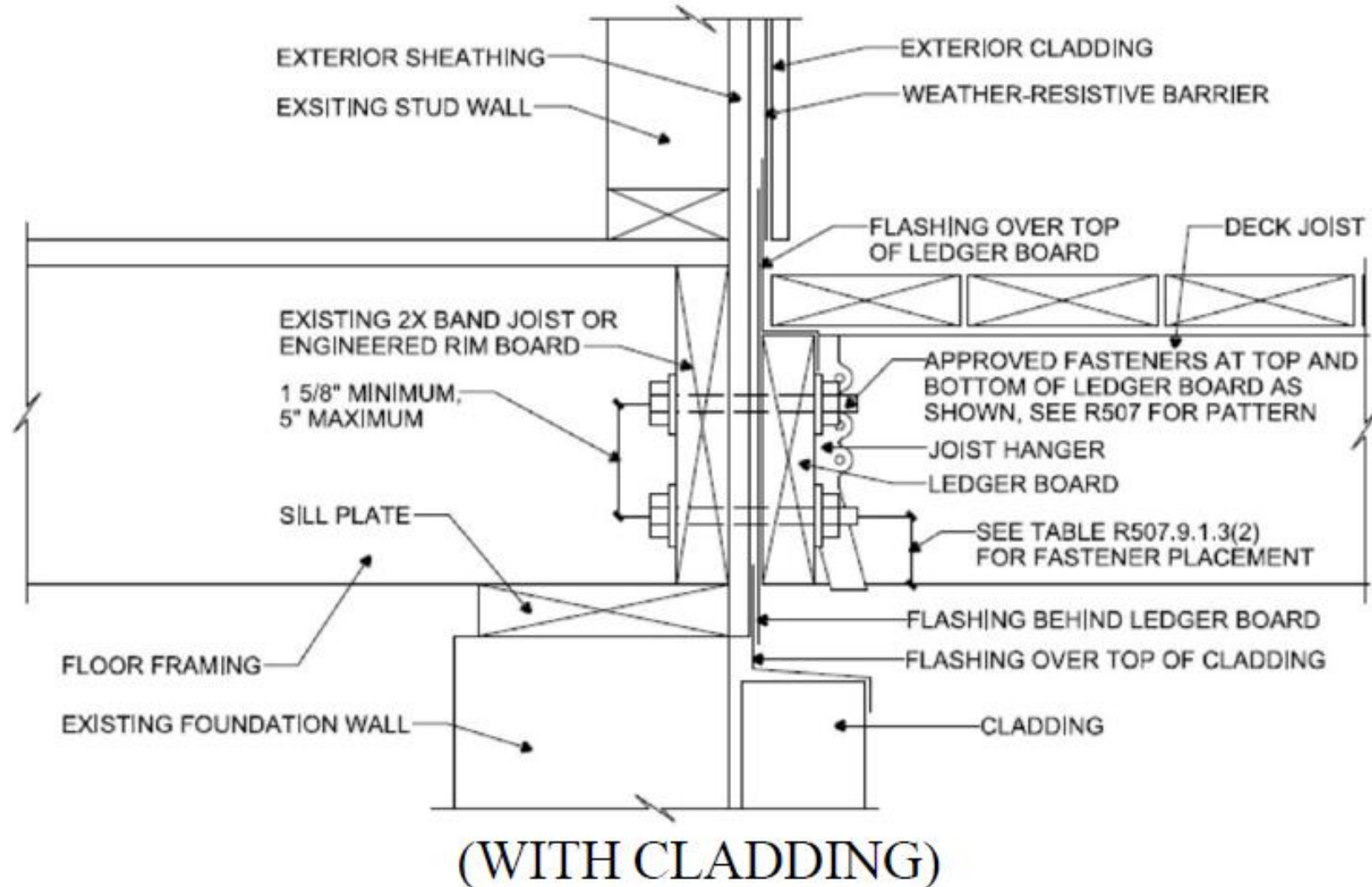
EXTERIOR DECKS

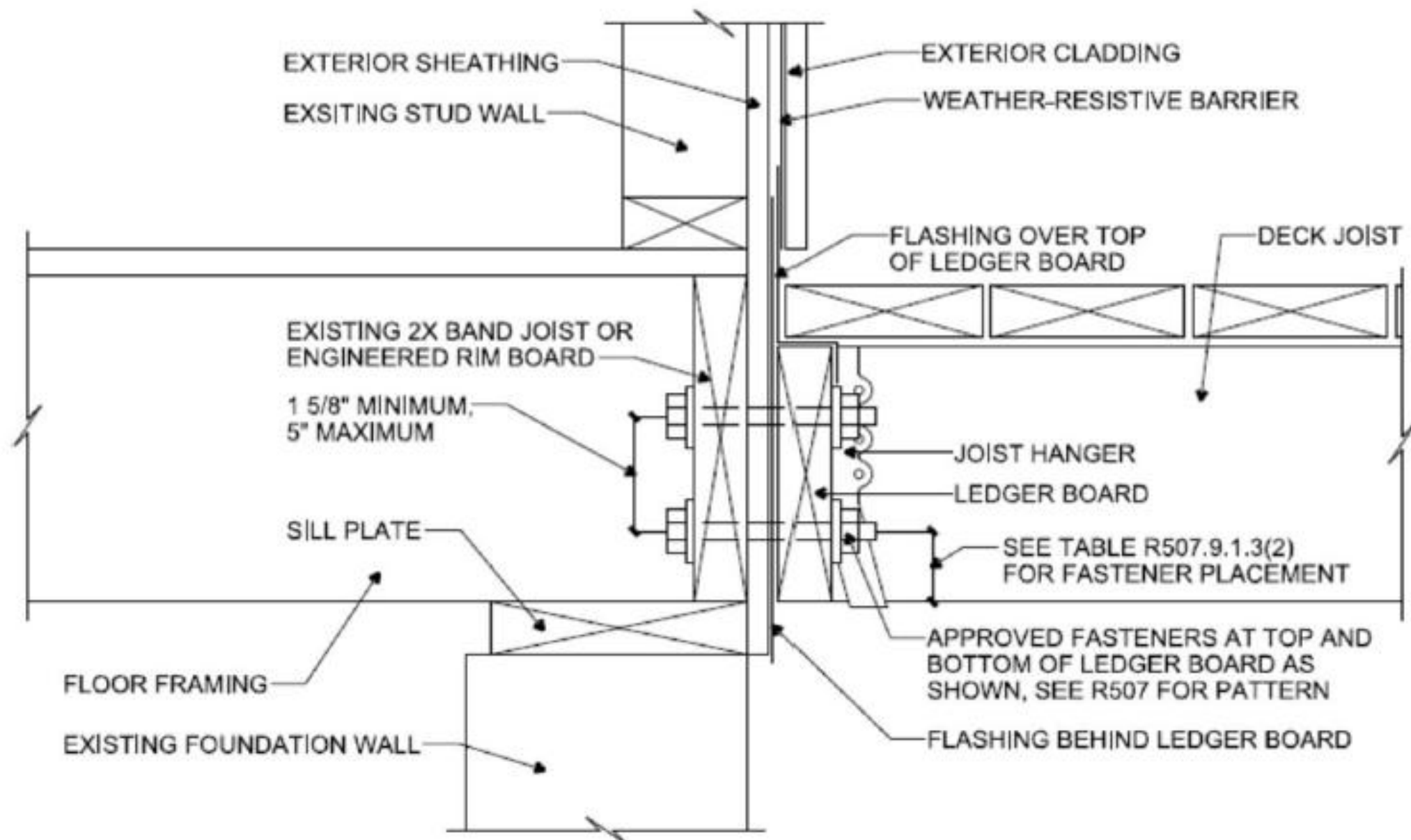
*Revise Figure R507.5.2(1) 'DECK BEAM TO DECK POST' to include a new illustration for "Corner Beam Over Post" as follows:



CORNER BEAM OVER POST

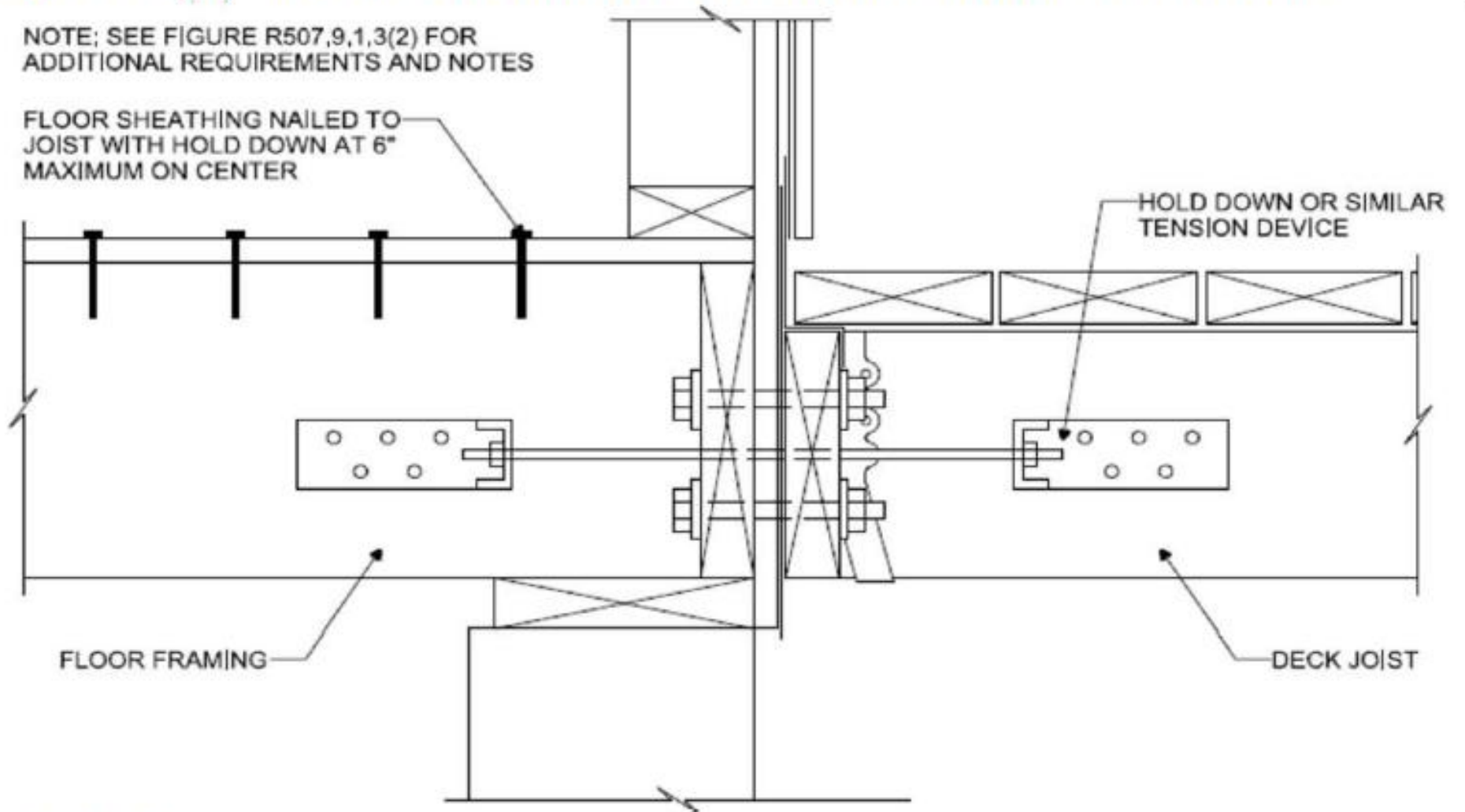
*Revise Figure R507.9.1.3(2) 'Placement of Lag Screws and Bolts in Band Joists' as follows:





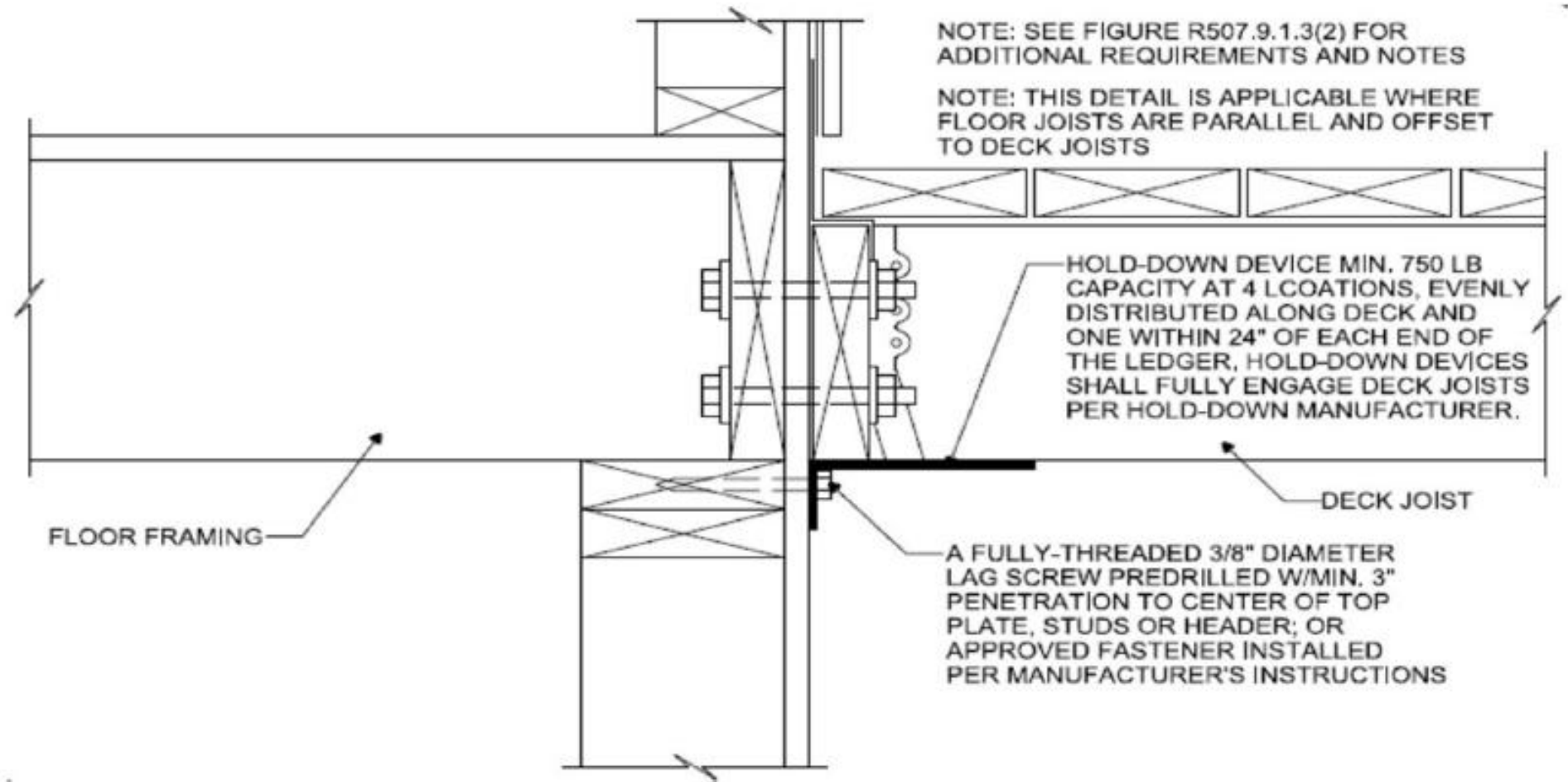
(WITHOUT CLADDING)

*Revise Figure R507.9.2(1) 'Deck Attachment for Lateral Loads' as follows:



(Effective January 1, 2026)

*Revise Figure R507.9.2(2) 'Deck Attachment for Lateral Loads' and Note as follows:



(Effective January 1, 2026)

SECTION R602

WOOD WALL FRAMING

*Add new exception to R602.10 'Wall bracing' to read as follows:

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

Exception: APA Simplified Wall Bracing Method, SR-102 may be used as an alternate method of wall bracing subject to limitations in document.

SECTION R802

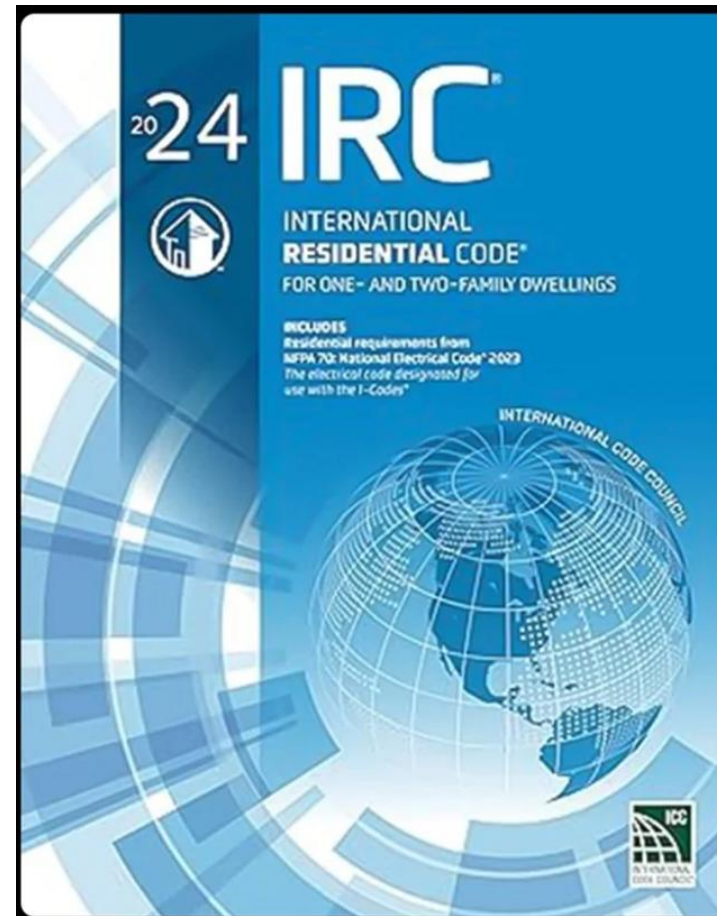
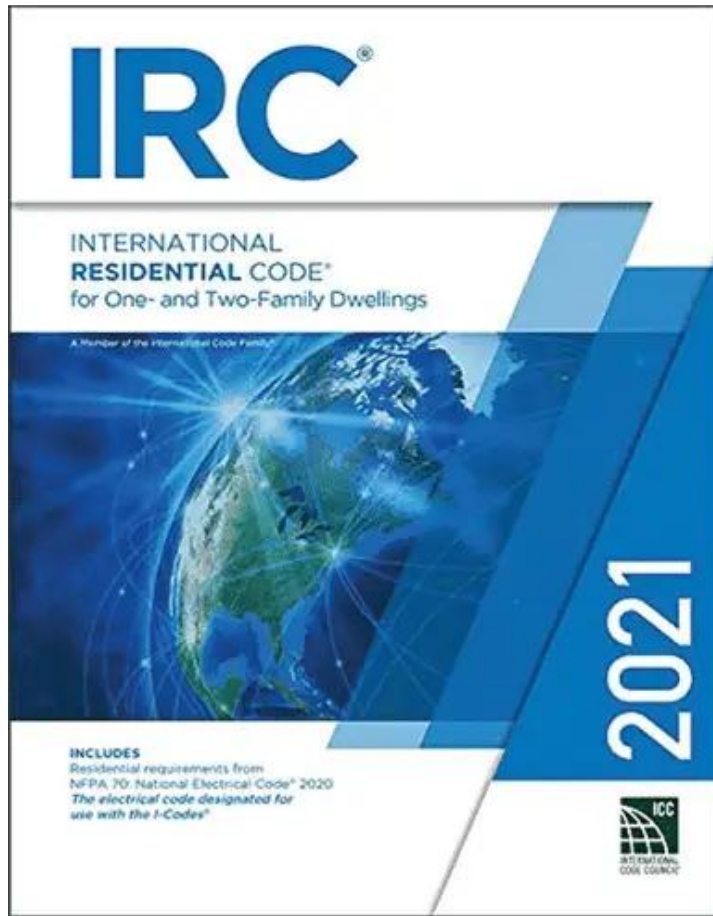
WOOD ROOF FRAMING

*Add new Section R807.1.1 'Attic service access' to read as follows:

R807.1.1 Attic service access. Attics containing appliances or mechanical equipment service shall be accessible by pull-down stairs or other permanent steps and at a minimum be sized to allow the removal of the largest appliance.

(Effective January 1, 2026)

Significant Changes



- Print editions of the 2024 IRC replace margin markings with QR codes to identify code changes
- A QR code is placed at the beginning of a section with changes.

SECTION 104—DUTIES AND POWERS OF BUILDING OFFICIAL

[A] 104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code.

[A] 104.2 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 in order to clarify the application of its provisions. Such interpretations, policies and procedures:

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.

[A] 104.2.1 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.



Definitions

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.
2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure. For the purposes of this exclusion, a historic building shall be any of the following:
 - 2.1. Listed or eligible for listing in the National Register of Historic Places.
 - 2.2. Determined by the Secretary of the US Department of Interior as contributing to the historical significance qualify as a historic district.
 - 2.3. Designated as historic under a state or local historic preservation program

Chapter 3

New organization by subject matter

Structural: R301-R307

Fire Resistance: R308-R311

Rooms and Spaces: R312-R317

Means of Egress: R318-R321

Accessibility: R322-R323

Home Safety: R324-R328

Energy: R329-R332

Chapter 3 Reorganization

	Topic	2024 IRC Section	2021 IRC Section
Structural	Design Criteria	R301	R301
	Fire-Resistant Construction	R302	R302
	Foam Plastic	R303	R316
	Protection of Wood and Wood-Based Products Against Decay	R304	R317
	Protection Against Subterranean Termites	R305	R318
	Flood-Resistant Construction	R306	R322
	Storm Shelters	R307	R323
Fire	Site Address	R308	R319
	Automatic Sprinkler Systems	R309	R313
	Smoke Alarms	R310	R314
	Carbon Monoxide Alarms	R311	R315
Rooms & Spaces	Minimum Room Areas	R312	R304
	Ceiling Height	R313	R305
	Mezzanines	R314	R325
	Sleeping Lofts	R315	-
	Habitable Attics	R316	R326
	Garages and Carports	R317	R309

Chapter 3 Building Planning

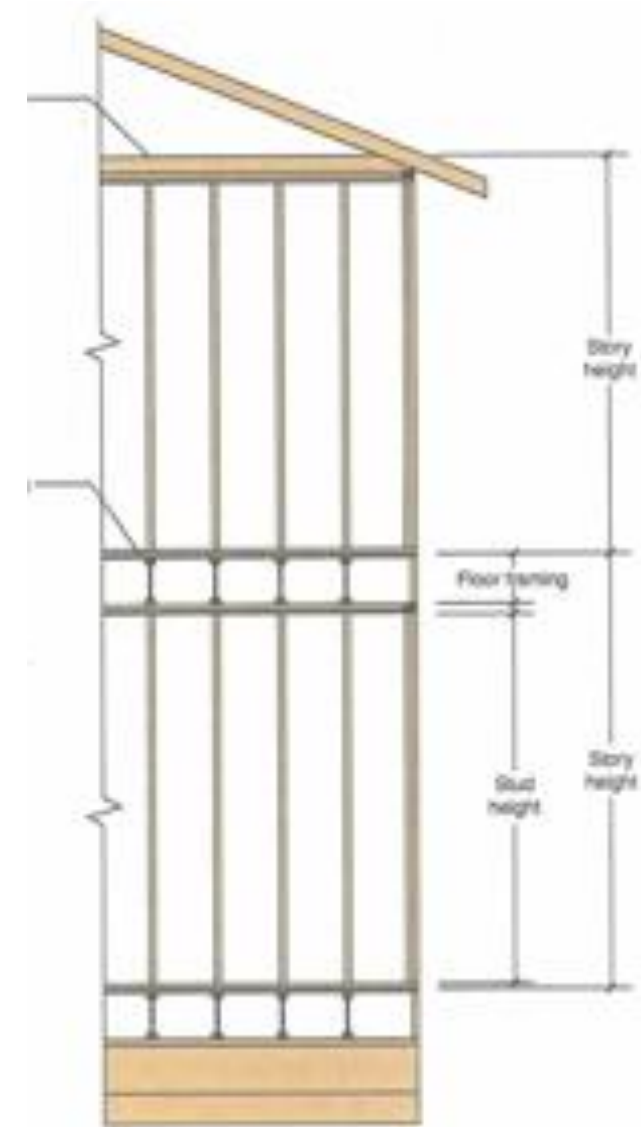
Section R301 Design Criteria

R301.3 Story height.

The wind and seismic provisions of this code shall apply to buildings with story heights not exceeding the following:

1. For wood wall framing, the story height shall not exceed 11 feet 7 inches and the laterally unsupported bearing wall stud height permitted by Table R602.3(5).

Exception: A story height not exceeding 13 feet 7 inches is permitted provided that the maximum wall stud clear height does not exceed 12 feet, the wall studs are in accordance with Exception 2 or 3 of Section R602.3.1 or an engineered design is provided for the wall framing members, and wall bracing for the building is in accordance with Section R602.10. Studs shall be laterally supported at the top and bottom plate in accordance with Section R602.3.



Section R310 Smoke Alarms

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.

R310.3 Location

Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area ...
3. On each additional story ... including basements and habitable attics and not including crawl spaces and uninhabitable attics. ...split levels ... a smoke alarm installed on the upper level shall suffice for the adjacent lower level ... less than one full story below the upper level.
4. Not less than 3 feet from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.
5. In the hallway **and in the room open to the hallway ..where the ceiling height** of a room open to a hallway serving bedrooms **exceeds that of the hallway by 24 inches or more.**
6. **Within the room to which a sleeping loft is open, in the immediate vicinity of the sleeping loft.**

R313.1.2 Habitable attics and basements in existing buildings.

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

Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

2. At beams, girders, ducts or other obstructions, the ceiling height shall be not less than 6 feet 4 inches (1930 mm) from the finished floor.

Section R315 Sleeping Lofts

R315.1 Sleeping lofts.

Where provided in dwelling units or sleeping units, sleeping lofts shall comply with this code as modified by Sections R315.2 through R315.5. Sleeping lofts constructed in compliance with this section shall be considered a portion of the story below. Such sleeping lofts shall not contribute to the number of stories as regulated by this code.

Exceptions: Sleeping lofts need not comply with Section R315 where they meet any of the following conditions:

1. The sleeping loft has a depth of less than 3 feet (914 mm).
2. The sleeping loft has a floor area of less than 35 square feet (3.3 m²).
3. The sleeping loft is not provided with a permanent means of egress.

R315.2 Sleeping loft limitations.

Sleeping lofts shall comply with the following conditions:

1. The sleeping loft floor area shall be less than 70 square feet.
2. The sleeping loft ceiling height shall not exceed 7 feet for more than one-half of the sleeping loft floor area.

R315.3 Sleeping loft ceiling height.

The clear height below the sleeping loft floor construction shall not be less than 7 feet. The ceiling height above the finished floor of the sleeping loft shall not be less than 3 feet. Spaces adjacent to the sleeping loft with a sloped ceiling measuring less than 3 feet from the finished floor to the finished ceiling shall not contribute to the sleeping loft floor area

R315.4 Sleeping loft area.

The aggregate area of all sleeping lofts and mezzanines within a room shall comply with Section R314.3.

Exception: The area of a single sleeping loft located within a dwelling unit or sleeping unit equipped with an automatic sprinkler system in accordance with Section P2904 shall not be greater than two-thirds of the area of the room in which it is located, provided that no other sleeping lofts or mezzanines are open to the room in which the sleeping loft is located.

R315.5 Permanent egress for sleeping lofts.

A permanent means of egress shall be provided for sleeping lofts. The means of egress shall comply with Section R318 as modified by Sections R315.5.1 through R315.5.3.

R315.5.1 Ceiling height at sleeping loft means of egress.

A ceiling height of not less than 3 feet shall be provided for the entire width of the means of egress from the sleeping loft.

R315.5.2 Stairways.

Stairways providing egress from sleeping lofts shall be permitted to comply with Sections R315.5.2.1 through R315.5.2.3.

R315.5.2.1 Width.

Stairways providing egress from a sleeping loft shall not be less than 17 inches in clear width at or above the handrail. The width below the handrail shall be not less than 20 inches.

R315.5.2.2 Treads and risers.

Risers for stairs providing egress from a sleeping loft shall be not less than 7 inches (178 mm) and not more than 12 inches (305 mm) in height. Tread depth and riser height shall be calculated in accordance with one of the following formulas:

1. The tread depth shall be 20 inches minus four-thirds of the riser height.
2. The riser height shall be 15 inches minus three-fourths of the tread depth.

R315.5.2.3 Landings.

Landings at stairways providing egress from sleeping lofts shall comply with Section R318.7.6, except that the depth of landings in the direction of travel shall be not less than 24 inches.

R315.5.3 Ladders.

Ladders used as a means of egress from sleeping lofts shall comply with Sections R315.5.3.1 and R315.5.3.2.

R315.5.3.1 Size and capacity.

Ladders providing egress from sleeping lofts shall have a rung width of not less than 12 inches, and 10-inch to 14-inch spacing between rungs. Ladders shall be capable of supporting a 300-pound load on any rung. Rung spacing shall be uniform within 3/8 inch.

R315.5.3.2 Incline.

Ladders shall be inclined at 70 to 80 degrees from horizontal.

Section R316 Habitable Attics

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 R312 and a ceiling height in accordance with Section R313

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.**

R318.7 Stairways

Where required by this code or provided, stairways shall comply with this section.

Exceptions:

1. Stairways not within or serving a building, porch or deck.
2. Stairways leading to non-habitable attics.
3. Stairways leading to crawl spaces.

R318.7.6 Landings for stairways.

There shall be a floor or landing at the top and bottom of each flight of stairs. The width perpendicular to the direction of travel shall be not less than the width of the flight served.

For landings of shapes other than square or rectangular, the depth at the walk line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width.

Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches.

Exceptions:

Exceptions:

- 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.
- 2.At an enclosed garage, the top landing at the stair shall be permitted to be not more than 7 3/4 inches 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 inches, provided that the stairway is not the required access to grade serving the required egress door.

R318.7.7 Stairway walking surface.

The walking surface of treads and landings of stairways shall be sloped not steeper than 1 unit vertical in 48 units horizontal (2-percent slope).

Exception: Where the surface of a landing is required elsewhere in the code to drain surface water, the walking surface of the landing shall be sloped not steeper than 1 unit vertical in 20 units horizontal (5-percent slope) in the direction of travel.

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.

R319.5 Replacement windows for emergency escape and rescue openings.

Replacement for emergency escape and rescue openings installed 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.

R319.6 Dwelling additions

Where dwelling unit additions contain sleeping rooms, an emergency escape and rescue opening shall be provided in each new sleeping room. Where dwelling unit additions have basements, an emergency escape and rescue opening shall be provided in the new basement.

Exceptions:

1. An emergency escape and rescue opening is not required in a new basement that contains a sleeping room with an emergency escape and rescue opening.
2. An emergency escape and rescue opening is not required in a new basement where there is an emergency escape and rescue opening in an existing basement that is accessed from the new basement.
3. An operable window complying with Section R319.7.1 shall be acceptable as an emergency escape and rescue opening.

R319.7 Alterations or repairs of existing basements.

New sleeping rooms created in an existing basement shall be provided with emergency escape and rescue openings in accordance with Section R319.1. Other than new sleeping rooms, where existing basements undergo alterations or repairs, an emergency escape and rescue opening is not required.

Exception: An operable window complying with Section R319.7.1 shall be acceptable as an emergency escape and rescue opening.

R319.7.1 Existing emergency escape and rescue openings

Where a change of occupancy would require an emergency escape and rescue opening operable windows serving as the emergency escape and rescue opening shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 4 square feet with a minimum net clear opening height of 22 inches and a minimum net clear opening width of 20 inches.
2. A replacement window where such window complies with both of the following:
 - 2.1. The replacement window meets the size requirements in Item 1.
 - 2.2. 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.

Section R320 Handrails

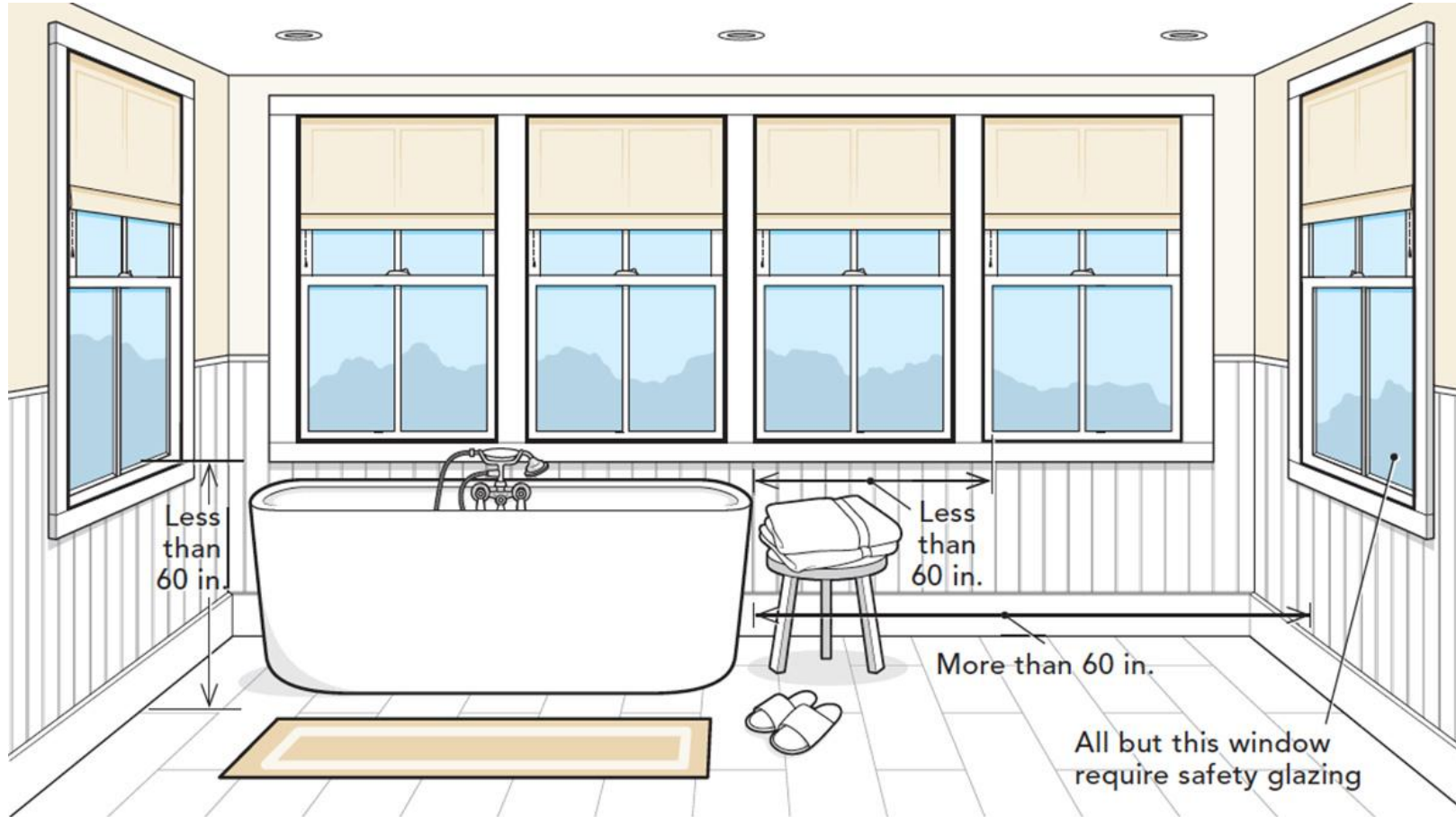
R320.5 Continuity

Handrails shall be continuous for the full length of the flight, from a point directly above the nosing of the landing at the top of the flight to a point directly above the lowest nosing of the flight. Handrails where required for ramps shall be continuous for the full length of the ramp. **A handrail end shall be returned continuous to itself or toward a wall, guard or walking surface. Handrail returns shall not form a gap more than 1/4 inch from the adjacent wall.**

R324.4.5 Glazing and wet surfaces.

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

Exception: Glazing that is more than 60 inches, measured horizontally, from the water's edge of a bathtub, hot tub, spa, whirlpool or swimming pool or from the edge of a shower, sauna or steam room.



Section R330 Energy Storage Systems

R330.2 Equipment listings. Energy storage systems (ESS) shall be listed and labeled in accordance with UL 9540.

Exception: ...unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located not less than 5 feet from exterior walls, property lines and public ways.

R330.3 Installation. ESS shall be installed in accordance with the manufacturer's instructions and their listing.

R330.4 Locations

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 feet 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-inch 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 inches 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.

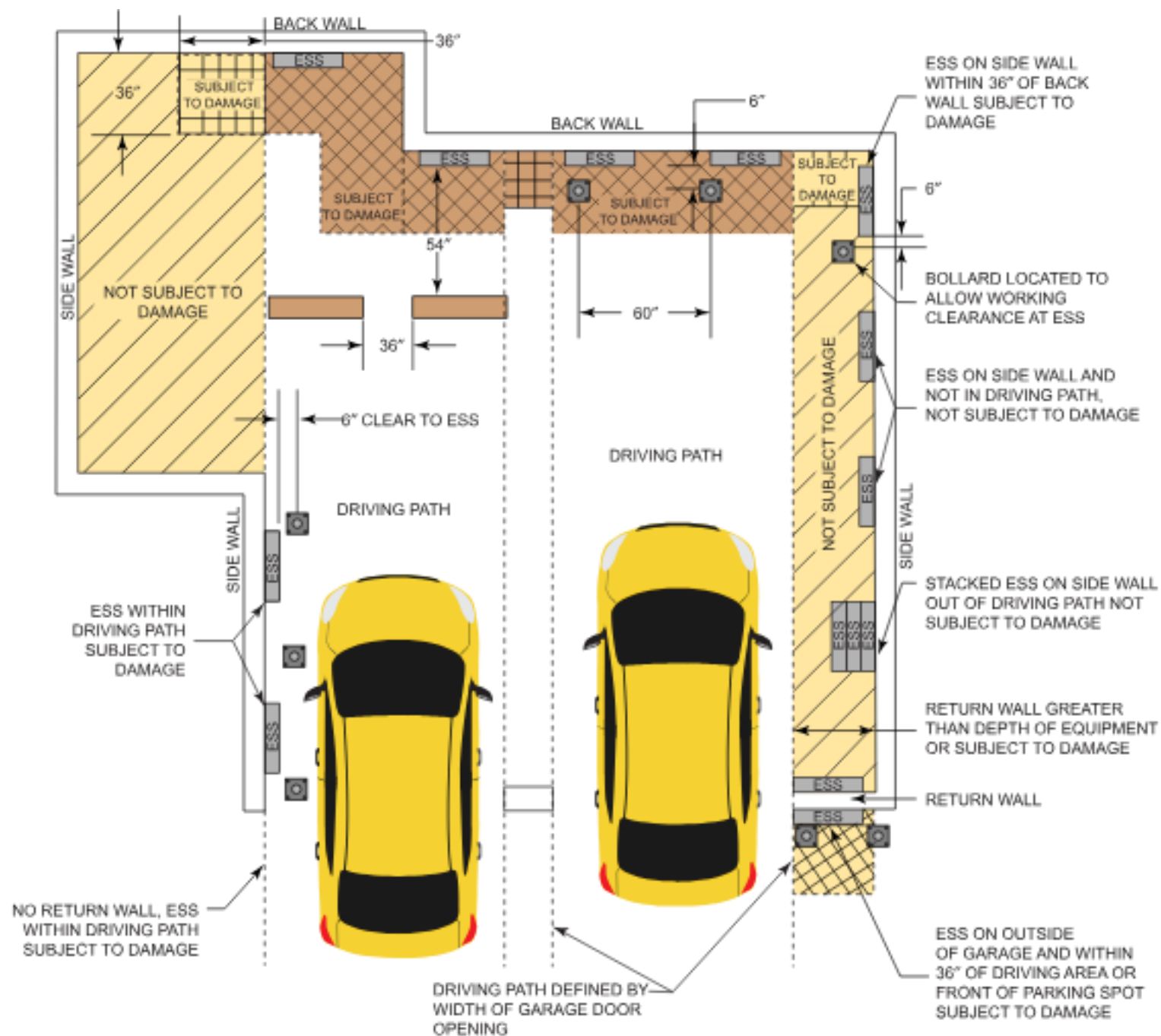


R330.8.1 Garages

Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection ...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 inches 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 inches 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 inches from the back wall and 36 inches of the normal driving path.

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



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 by 3” in diameter Schedule 80 steel pipe embedded in a concrete

1.2. Minimum 36” in height by 3” in diameter Schedule 80 steel pipe ...bolted to a concrete floor by means of 4 ½” concrete anchors imbedded not less than 3 inches

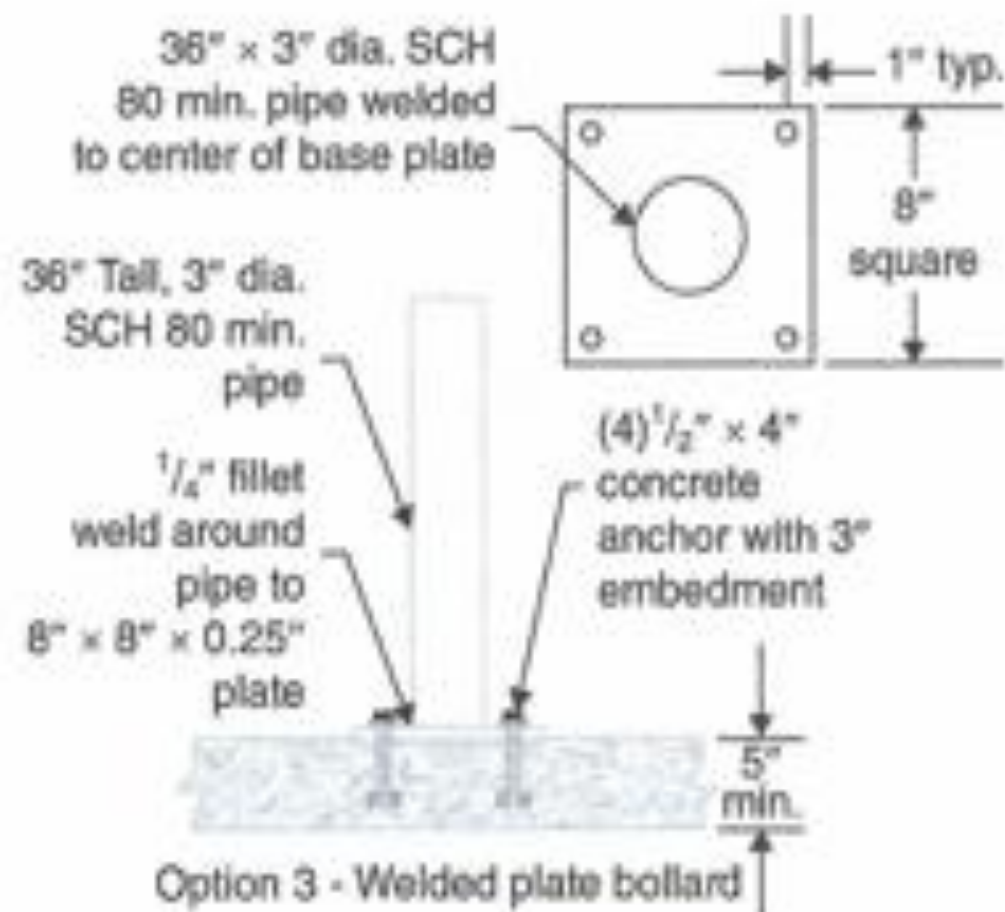
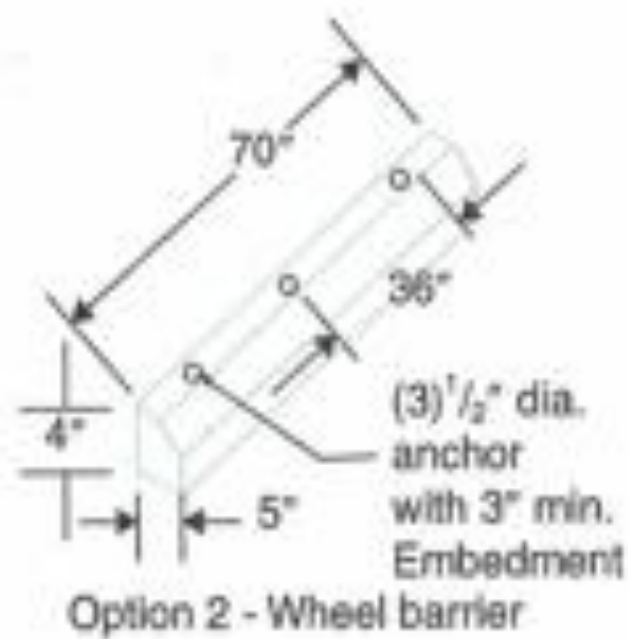
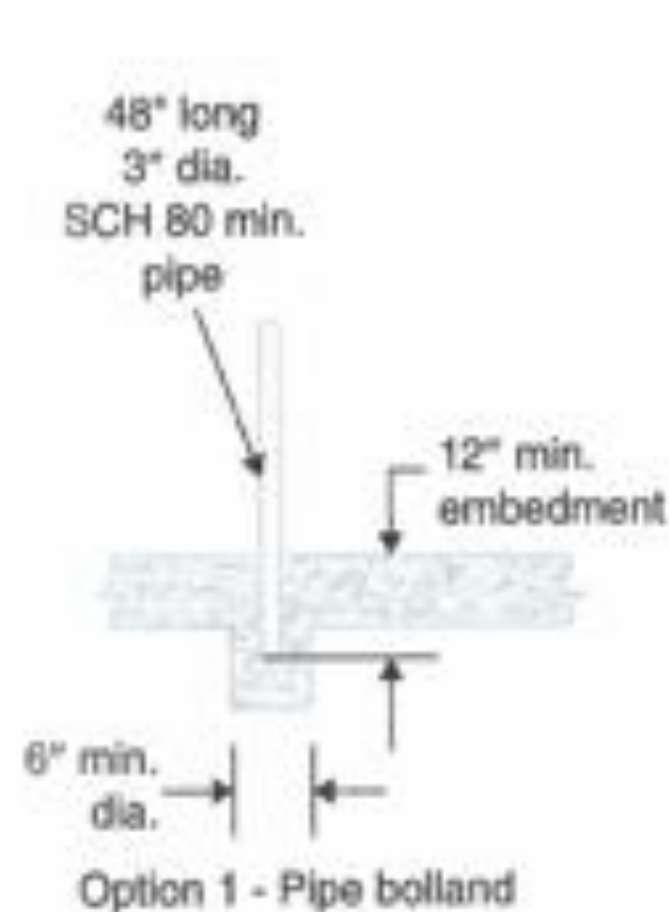
1.3. Premanufactured steel pipe bollards filled with concrete and anchored in accordance with the manufacturer’s installation instructions....

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 the concrete floor ...every 36”Concrete anchors not less than 3 ½” in diameter with 3” embedment

2.2. Premanufactured wheel barriers ...anchored in accordance with the manufacturer’s instructions.

3. **An approved method designed to resist an impact** of 2,000 pounds per square foot in the direction of travel at 24 inches above grade.



Attachment of bollard or curbstop to garage slab.

Chapter 4 Foundations

Section R403 Footings

R403.1 General.

All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, crushed stone footings, wood foundations, or other approved structural systems that shall be of sufficient design to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill. Concrete footing shall be designed and constructed in accordance with the provisions of Section R403 or in accordance with ACI 332.

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



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

TABLE R403.1(2) MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION WITH BRICK VENEER OR LATH AND PLASTER (inches)^{a, b, c, d}

GROUND SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH BRICK VENEER	LOAD-BEARING VALUE OF SOIL (psf)					
		1,500	2,000	2,500	3,000	3,500	4,000
20 psf roof live load or 25 psf ground snow load	1 story—slab-on-grade	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	18 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	18 × 6	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	20 × 6	15 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	23 × 8	17 × 6	14 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	23 × 8	17 × 6	14 × 6	12 × 6	12 × 6	12 × 6
	3 story—with crawl space	25 × 9	19 × 6	15 × 6	13 × 6	12 × 6	12 × 6
	3 story—plus basement	29 × 11	21 × 7	17 × 6	14 × 6	12 × 6	12 × 6

TABLE R403.1(3) MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS WITH CAST-IN-PLACE CONCRETE OR PARTIALLY GROUTED MASONRY WALL CONSTRUCTION (inches)^{a, b, c, d}



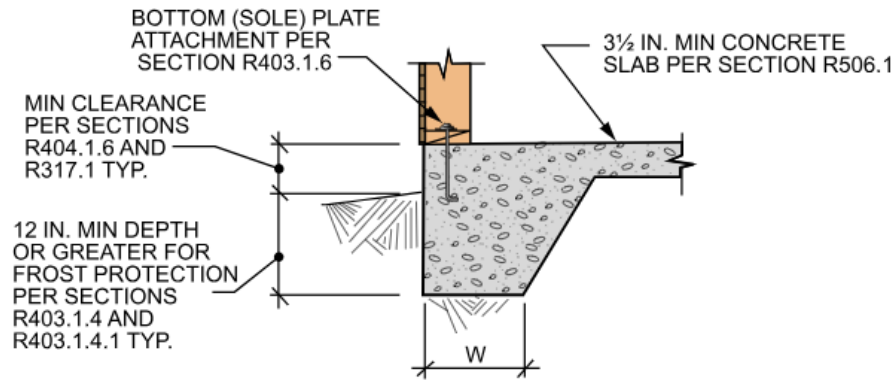
GROUND SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH CMU OR CONCRETE	LOAD-BEARING VALUE OF SOIL (psf)					
		1,500	2,000	2,500	3,000	3,500	4,000
20 psf roof live load or 25 psf ground snow load	1 story—slab-on-grade	13 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—with crawl space	16 × 6	12 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	1 story—plus basement	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—slab-on-grade	19 × 6	14 × 6	12 × 6	12 × 6	12 × 6	12 × 6
	2 story—with crawl space	22 × 7	16 × 6	13 × 6	12 × 6	12 × 6	12 × 6
	2 story—plus basement	25 × 9	19 × 6	15 × 6	12 × 6	12 × 6	12 × 6
	3 story—slab-on-grade	25 × 9	19 × 6	15 × 6	13 × 6	12 × 6	12 × 6
	3 story—with crawl space	28 × 10	21 × 7	17 × 6	14 × 6	12 × 6	12 × 6
	3 story—plus basement	31 × 12	23 × 8	18 × 6	15 × 6	13 × 6	12 × 6

R404.1.1 Design required

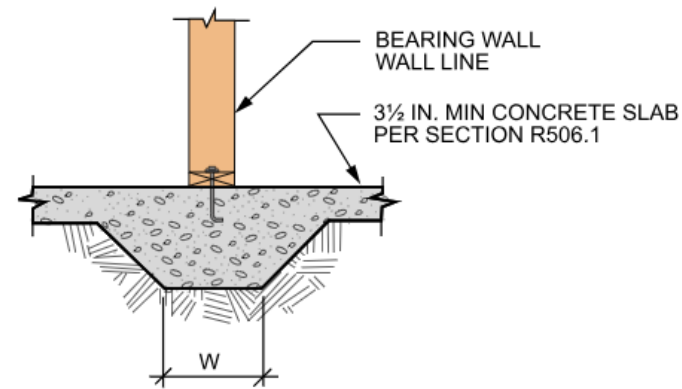
Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where either of the following conditions exists:

1. Walls are subject to hydrostatic pressure from ground water.
2. Walls supporting more than 48 inches of unbalanced backfill that do not have permanent lateral support at the top or bottom.

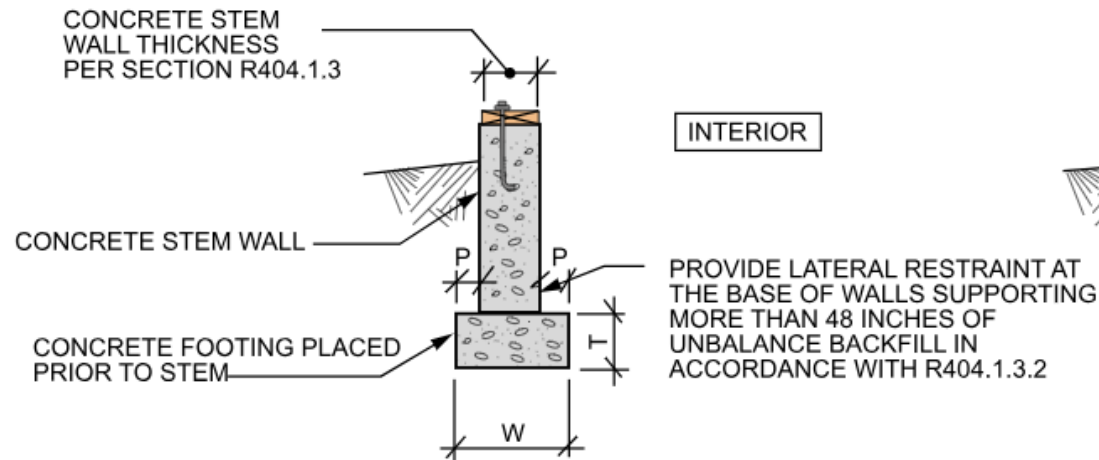
FIGURE R403.1(1) PLAIN CONCRETE FOOTINGS WITH MASONRY AND CONCRETE STEM WALLS IN SEISMIC DESIGN CATEGORIES A, B AND C^{a, b, c, d, e, f}



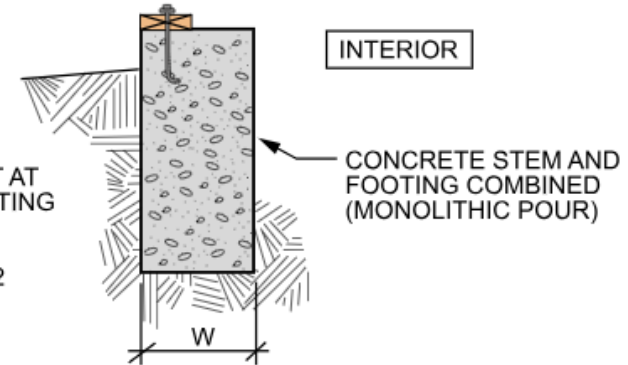
1 MONOLITHIC SLAB-ON-GROUND WITH TURNED-DOWN FOOTING
SCALE: NOT TO SCALE



2 THICKENED SLAB-ON-GROUND FOOTING AT BEARING WALLS OR BRACED WALL LINES
SCALE: NOT TO SCALE



5 BASEMENT OR CRAWL SPACE WITH CONCRETE WALL AND SPREAD FOOTING
SCALE: NOT TO SCALE



6 BASEMENT OR CRAWL SPACE WITH FOUNDATION WALL BEARING DIRECTLY ON SOIL
SCALE: NOT TO SCALE

PROVIDE LATERAL RESTRAINT AT THE BASE OF WALLS SUPPORTING MORE THAN 48 INCHES OF UNBALANCE BACKFILL IN ACCORDANCE WITH R404.1.3.2

R404.1.3.2 Reinforcement for foundation walls

Concrete foundation walls **shall be laterally supported at the top and bottom**. Horizontal reinforcement shall be provided in accordance with Table R404.1.3.2(1). Vertical reinforcement shall be provided in accordance with Table R404.1.3.2(2), R404.1.3.2(3), R404.1.3.2(4), R404.1.3.2(5), R404.1.3.2(6), R404.1.3.2(7) or R404.1.3.2(8). Vertical reinforcement for flat basement walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.3.2(9). For basement walls supporting above-grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.3.2(2) through R404.1.3.2(8) or by Section R608.6 for the above-grade wall. In buildings assigned to seismic design category D0, D1 or D2, concrete foundation walls shall also comply with Section R404.1.4.2.

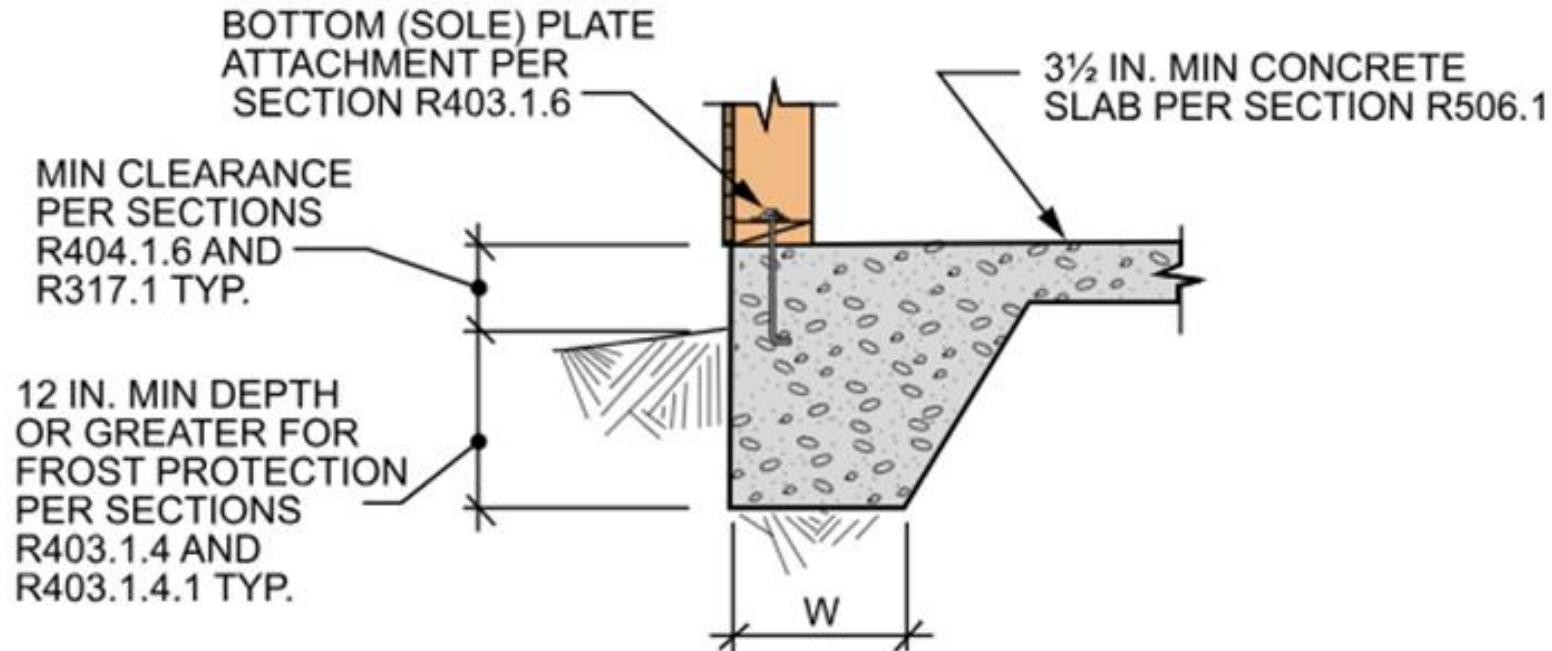
TABLE R404.1.3.2(9) MINIMUM SPACING FOR ALTERNATE BAR SIZE AND ALTERNATE GRADE OF STEEL^{a, b, c}



BAR SPACING FROM APPLICABLE TABLE IN SECTION R404.1.3.2 (inches)	BAR SIZE FROM APPLICABLE TABLE IN SECTION R404.1.3.2														
	#4					#5					#6				
	Alternate bar size and alternate grade of steel desired														
	Grade 60		Grade 40			Grade 60		Grade 40			Grade 60		Grade 40		
	#5	#6	#4	#5	#6	#4	#6	#4	#5	#6	#4	#5	#4	#5	#6
	Maximum spacing for alternate bar size and alternate grade of steel (inches)														
8	12	18	5	8	12	5	11	3	5	8	4	6	2	4	5
9	14	20	6	9	13	6	13	4	6	9	4	6	3	4	6
10	16	22	7	10	15	6	14	4	7	9	5	7	3	5	7
11	17	24	7	11	16	7	16	5	7	10	5	8	3	5	7
12	19	26	8	12	18	8	17	5	8	11	5	8	4	6	8
13	20	29	9	13	19	8	18	6	9	12	6	9	4	6	9
14	22	31	9	14	21	9	20	6	9	13	6	10	4	7	9
15	23	33	10	16	22	10	21	6	10	14	7	11	5	7	10
16	25	35	11	17	23	10	23	7	11	15	7	11	5	8	11
17	26	37	11	18	25	11	24	7	11	16	8	12	5	8	11
18	28	40	12	19	26	12	26	8	12	17	8	13	5	8	12

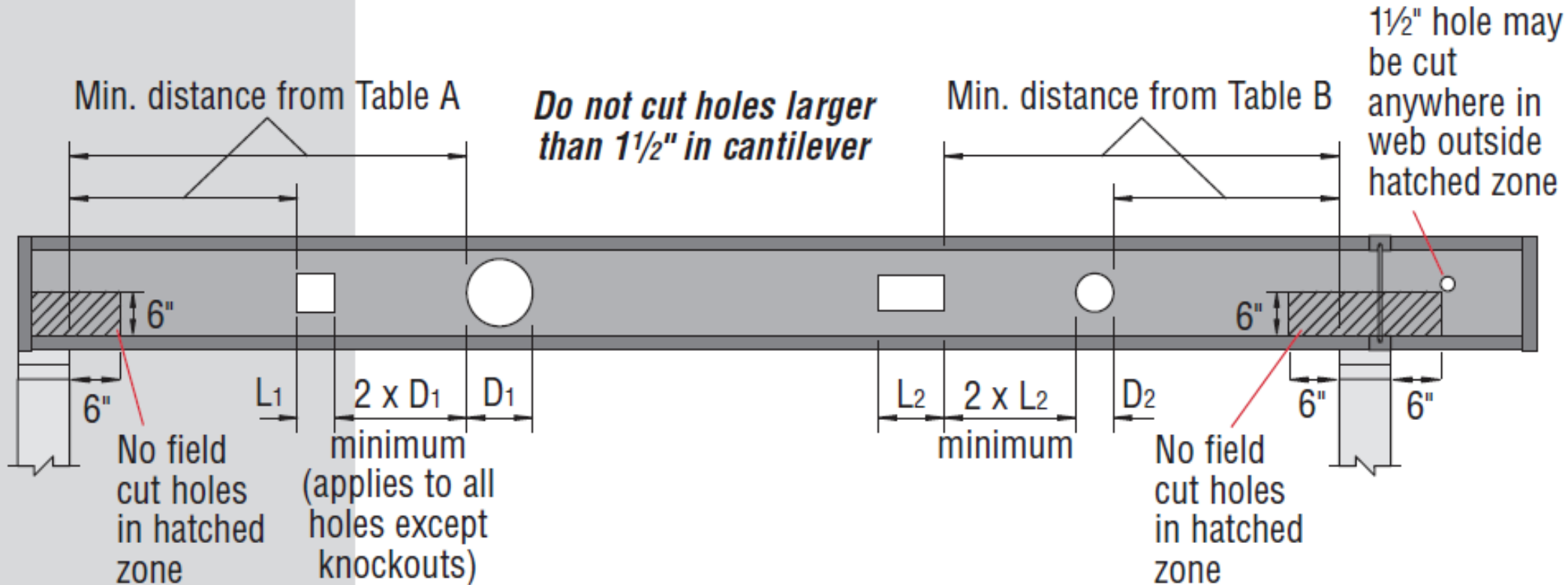
R404.1.6 Height above finished grade

Concrete and masonry foundation walls shall extend above the finished grade adjacent to the foundation at all points not less than 4 inches where masonry veneer is used and not less than 6 inches elsewhere.

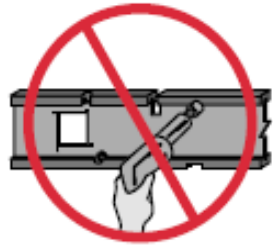


Chapter 5 Floors

Allowable Holes – TJI® Joists *Does not apply to vented 16" joists*



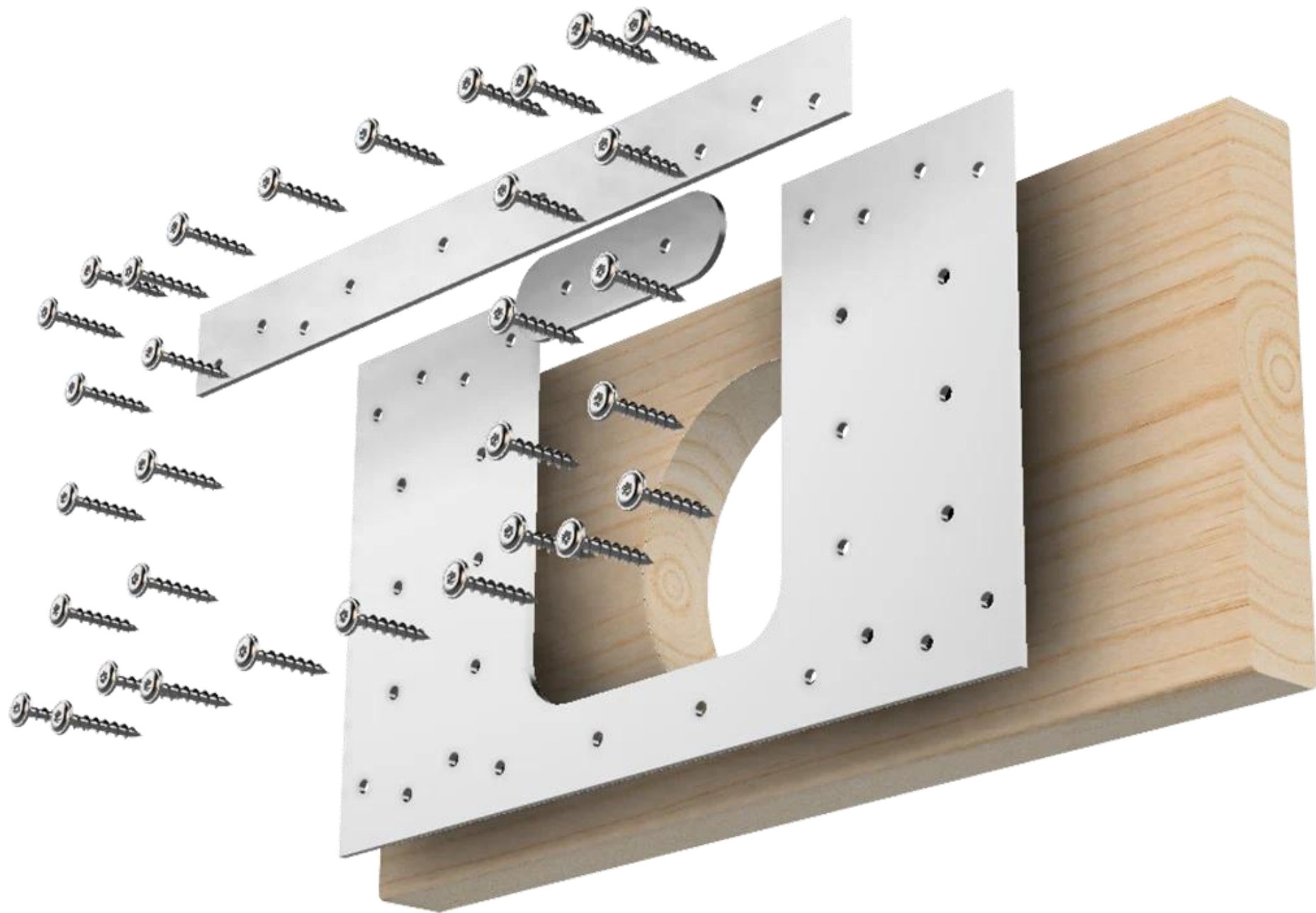
DO NOT cut holes in cantilever reinforcement.



DO NOT cut or notch flange.



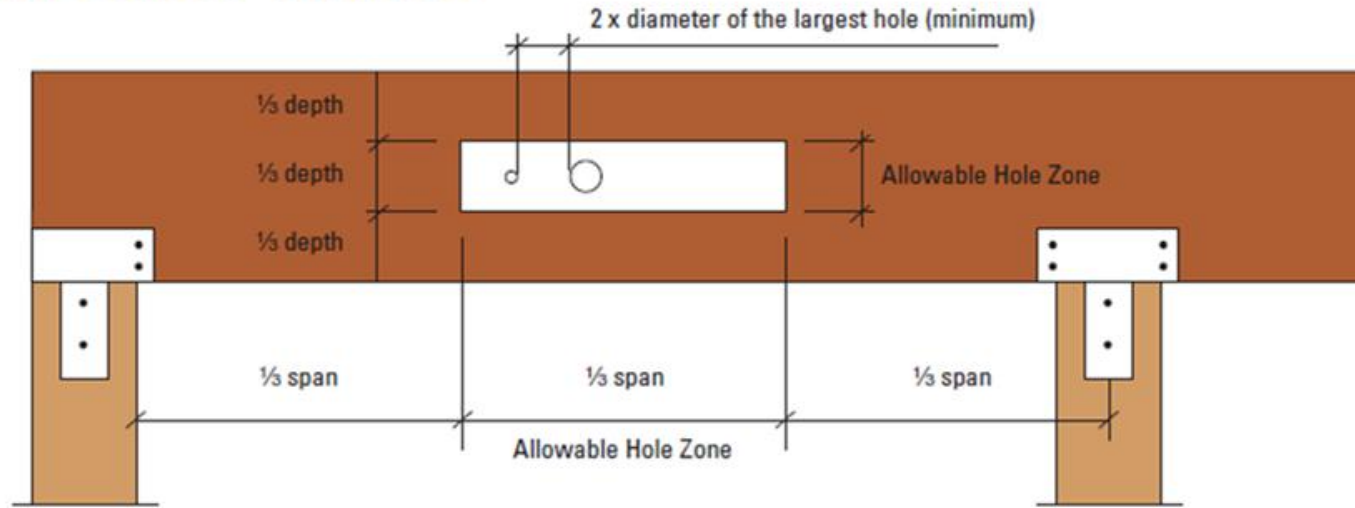






LVL Beams

Allowable Holes



GENERAL NOTES

- The Allowable Hole Zone is suitable for uniformly loaded beams using maximum loads from any table in this guide. For other load conditions or hole configurations, please contact your Broadspan representative.
- If more than one hole is to be cut in the beam, the length of the uncut beam between holes must be a minimum of twice the diameter of the largest hole. No more than three holes are allowed per span.
- Rectangular holes are not allowed.
- Holes in cantilevers require additional analysis.
- Required hole clearance and the effects of beam deflection must be considered to prevent problems with utilities that penetrate the holes.



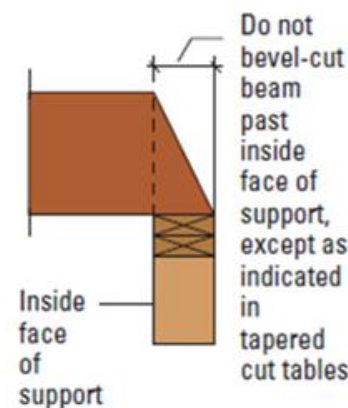
Do not cut, notch or drill holes in Broadspan LVL except as indicated in illustration for allowable holes



Do not overhang seat cuts on Broadspan LVL beams from inside face of support member



Do not notch underside of beam at bearing location



Allowable Hole Sizes

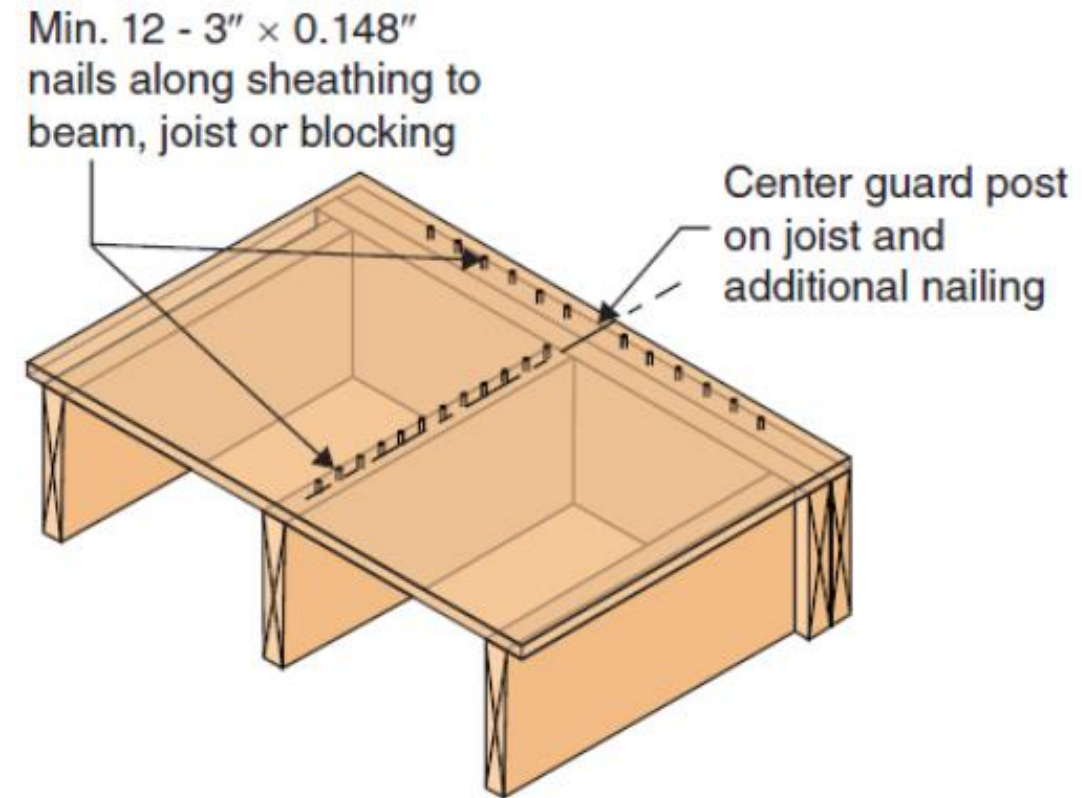
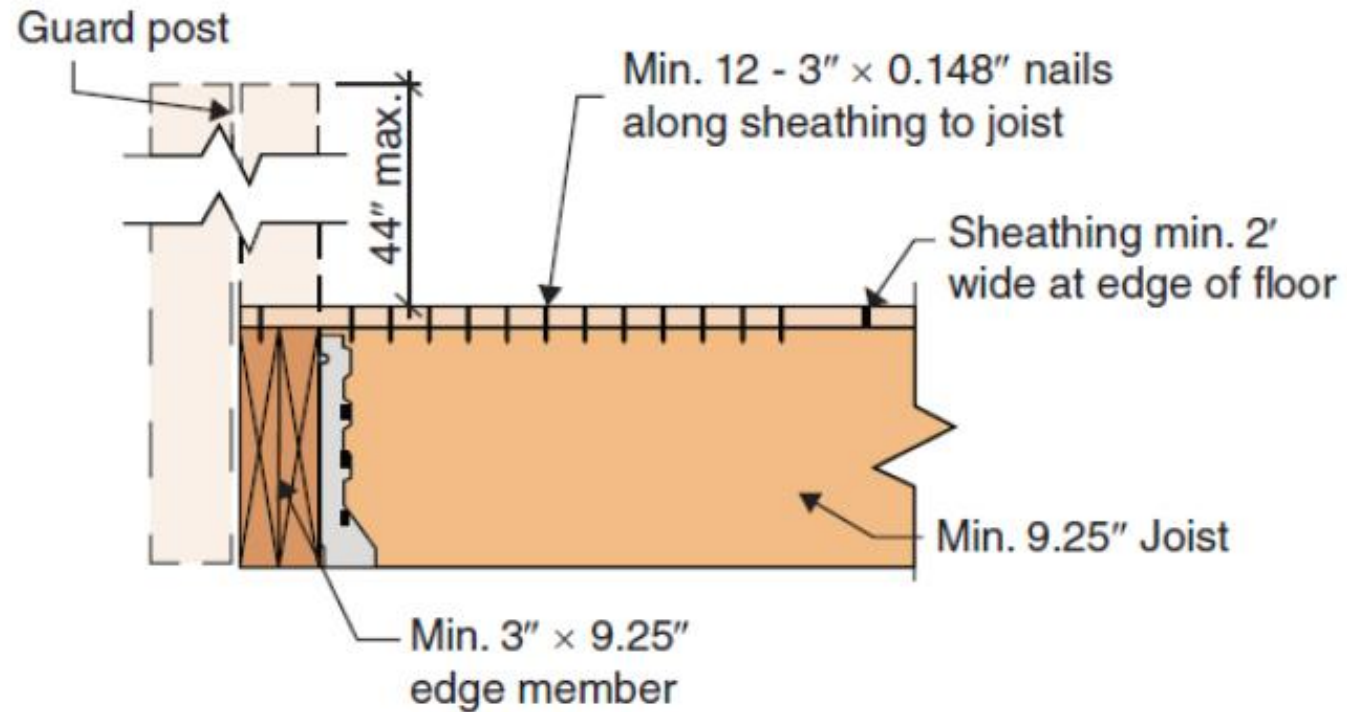
Beam Depth	Maximum Round Hole Diameter
3½" - 7"	¾"
7¼" - 9¼"	1½"
9½" - 16"	2"
deeper than 16"	3"

R502.11 Floor framing supporting guards

The framing at the **open edge of a floor supporting a required guard** assembly shall be constructed in accordance with Section R502.11.1 or R502.11.2 for guard assemblies not exceeding 44 inches in height or shall be designed in accordance with accepted engineering practice to support the guard assembly. Where trusses and I-joists are used as edge framing members supporting guards, the effects of the guard loads shall be specifically considered in the design of the edge member.

R502.11.1 Conventional edge framing

Where a roll brace is aligned with each guard post, the framing at the edge of the floor shall consist of a solid or built-up member of lumber, structural glued-laminated timber or structural composite lumber having a net width of not less than 3 inches and a net depth of not less than 9 1/4 inches, and shall be braced to resist rotation by roll bracing as described in Section R502.11.3.



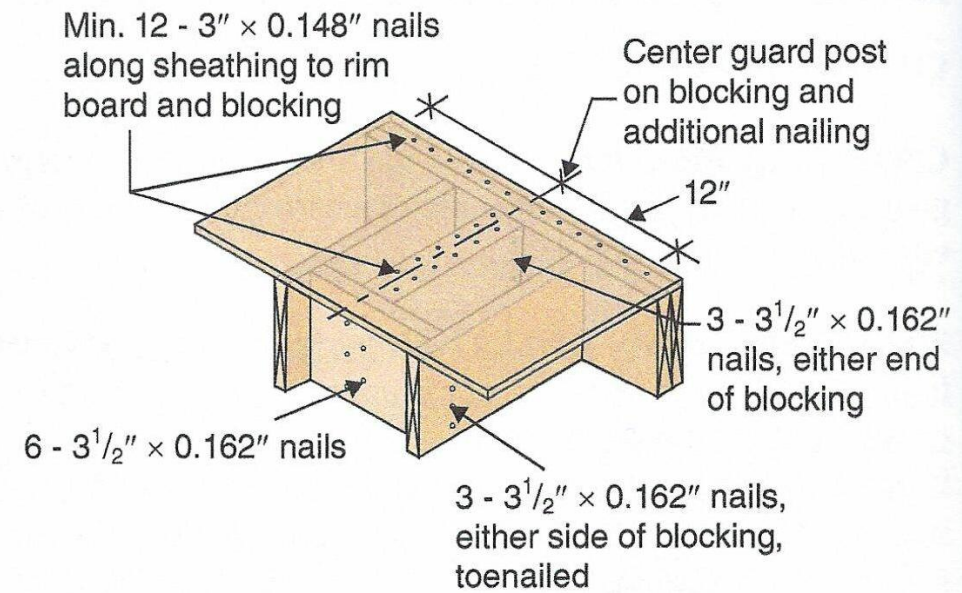
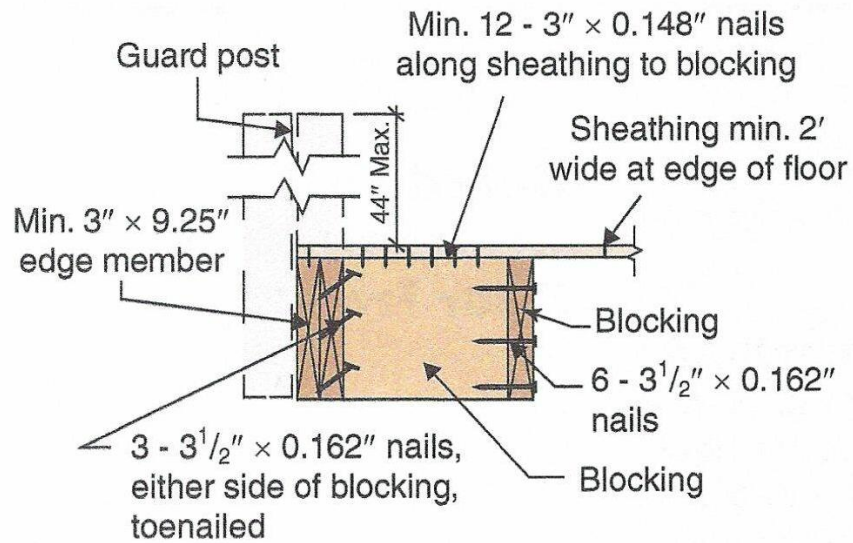
Guard posts aligned with joists perpendicular to the floor edge.

R502.11.2 Timber edge framing.

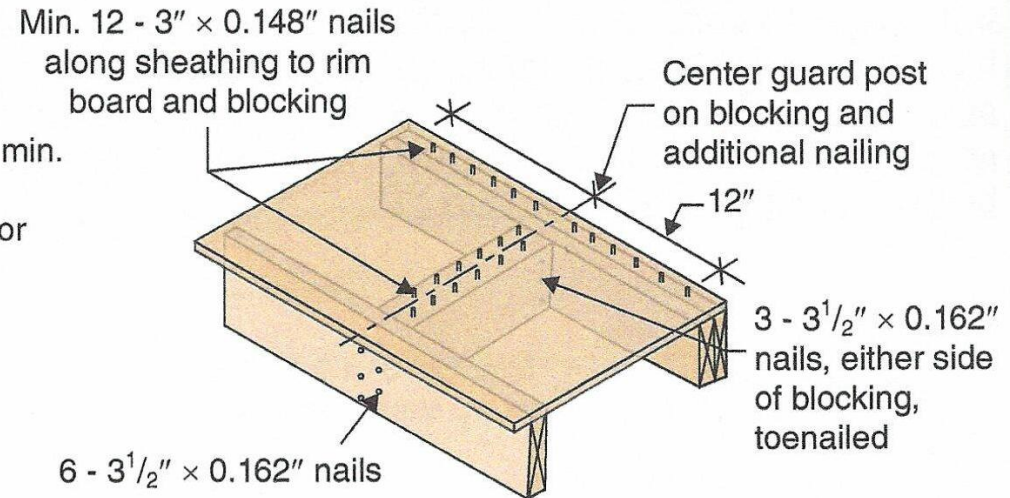
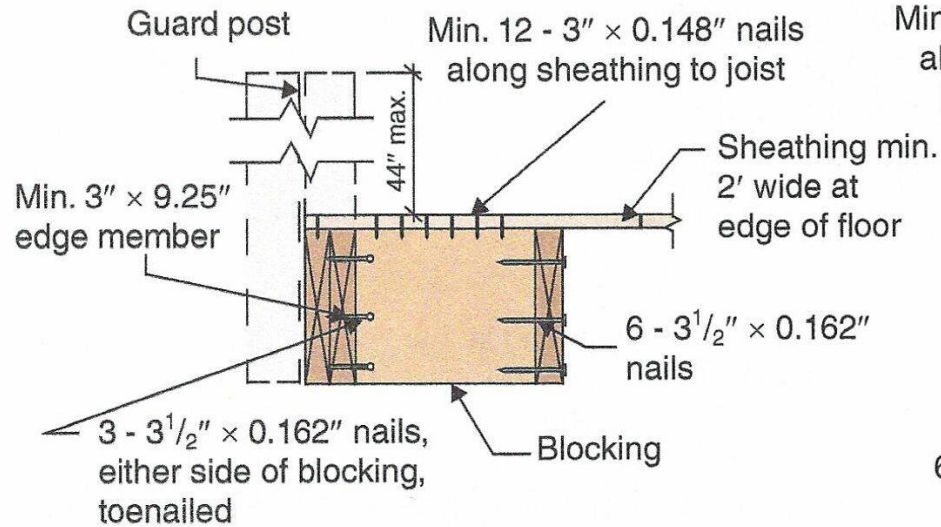
Where a roll brace is not aligned with each guard post, the framing at the edge of the floor shall consist of a minimum 6-inch by 10-inch sawn timber or a minimum 5 1/8-inch by 9 1/4-inch structural glued laminated timber and shall be braced to resist rotation by roll bracing as described in Section R502.11.3 at intervals of 48 inches or less.

R502.11.3 Roll bracing.

Each roll brace shall be a joist or blocking matching the depth of the edge member and extending perpendicular to the edge member not less than 16 inches from the edge. Blocking shall have end connections with not fewer than six 16d common nails. Floor sheathing shall be continuous for not less than 24 inches from the edge and shall be fastened to each roll brace with not fewer than 12 (twelve) 10d common nails and shall be fastened to the edge member with a minimum of 12 (twelve) 10d common nails within 12 inches (305 mm) of the roll brace.



Roll bracing for guard posts not aligned with joists.



Roll bracing for joists parallel to the floor edge.

Section R507 Exterior Decks

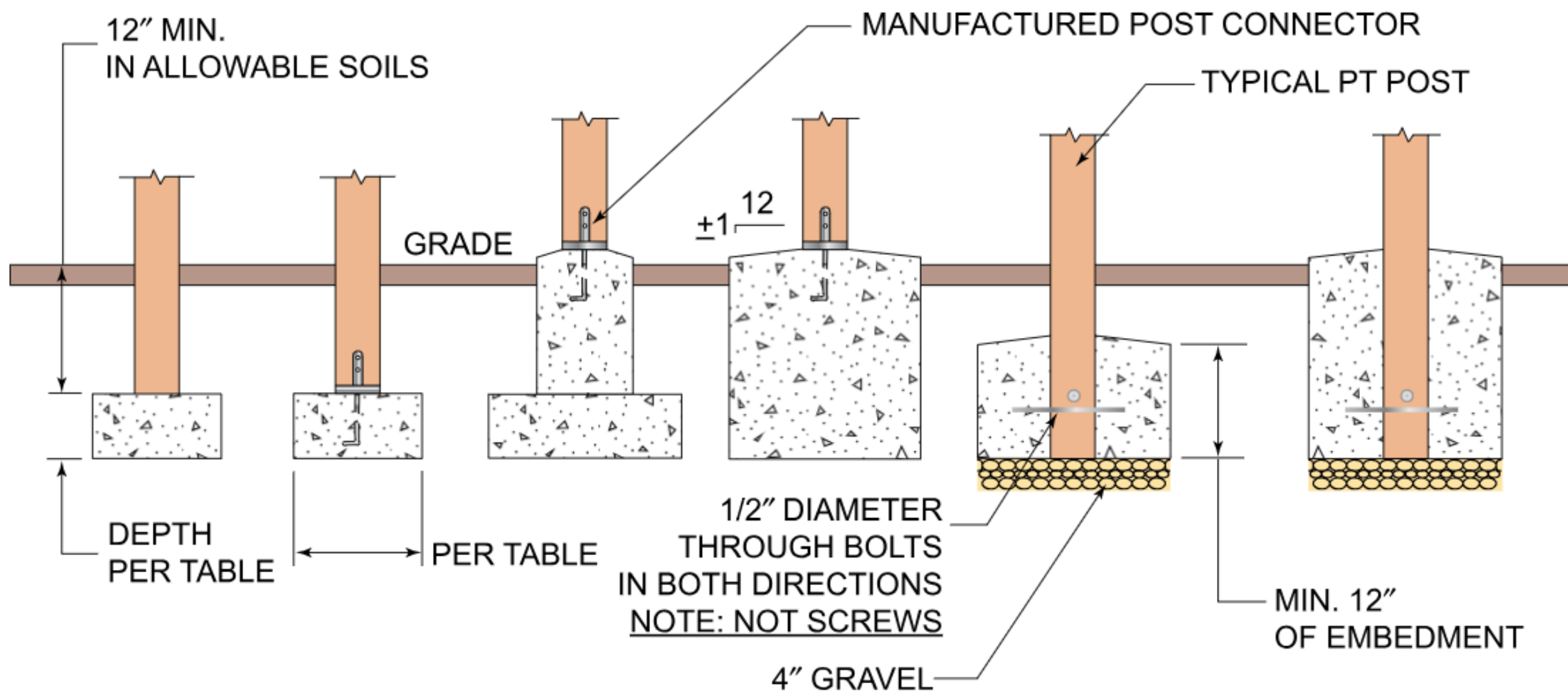
R507.3 Footings.

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
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 square feet.
 - 2.3. The walking surface is not more than 20 inches above grade at any point within 36 inches measured horizontally from the edge.

FIGURE R507.3 DECK POSTS TO DECK FOOTING CONNECTION



NOTE: POSTS MUST BE CENTERED ON OR IN FOOTING

TABLE R507.3.1 MINIMUM FOOTING SIZE FOR DECKS

LIVE OR GROUND SNOW LOAD ^b (psf)	TRIBUTARY AREA ^e (ft ²)	LOAD-BEARING VALUE OF SOILS ^{a, 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
	-	-	-	-	-	-	-	-	-	-

R507.3.2 Minimum depth.

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

Tributary load area for posts

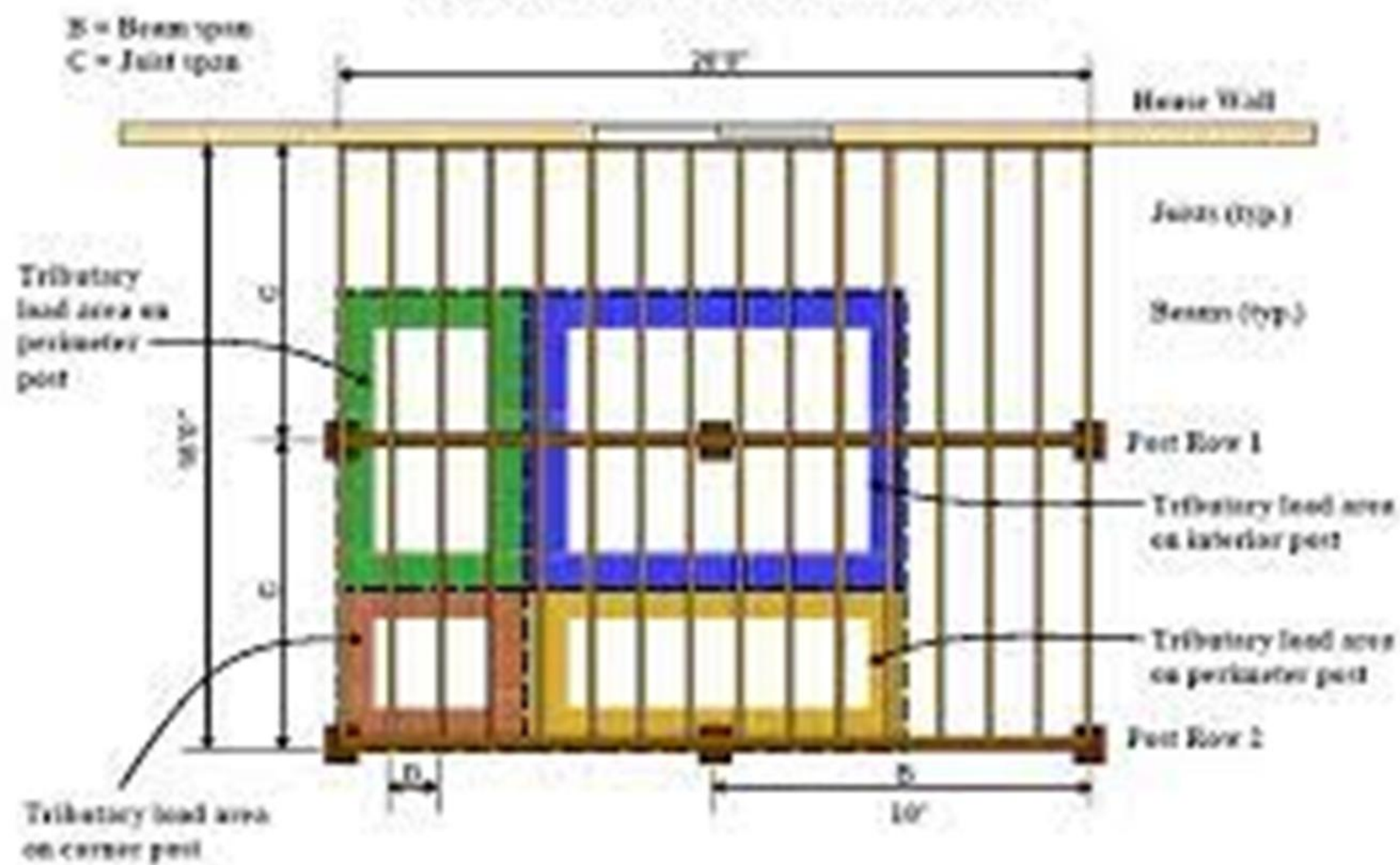


Figure 3

Standard Diameters:

6", 8", 10", 12", 14", 16", 18", 20", 24",

26", 28", 30", 36", 42", 48", and 60"

are common.





1. Size and Weight Limitations:

Not Designed for Larger Decks:

Concrete blocks are designed for smaller decks.

Weight Restrictions:

There are inherent weight restrictions on deck blocks....

2. Soil Conditions:

Stable Ground Required:

Concrete blocks work best on stable, firm ground. They are not suitable for use on clay or loose soil, as they can shift and become unstable.

Potential for Shifting:

Not for use in areas with freeze-thaw cycles

3. Structural Issues:

Not Designed for Higher Decks:

Concrete blocks are best for ground-level decks.

Limited Anchorage:

Many concrete deck blocks don't have built-in mechanisms for securing posts,.

Water Seepage:

Concrete blocks can be prone to water seepage....

4. Code Compliance and Alternatives:

Local Building Codes:

Building codes may have specific requirements for deck foundations, and local regulations may not allow the use of pier blocks.

Section R507 Exterior Decks

Exceptions:

1. Footings shall not be required for free-standing decks consisting of joists directly supported on grade
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 square feet.**
 - 2.3. **The walking surface is not more than 20 inches above grade at any point within 36 inches measured horizontally from the edge.**

R507.4 Deck posts

For single-level decks, wood post size shall be per Table R507.4.

TABLE R507.4 DECK POST HEIGHT[illegible]

Tributary load area for posts

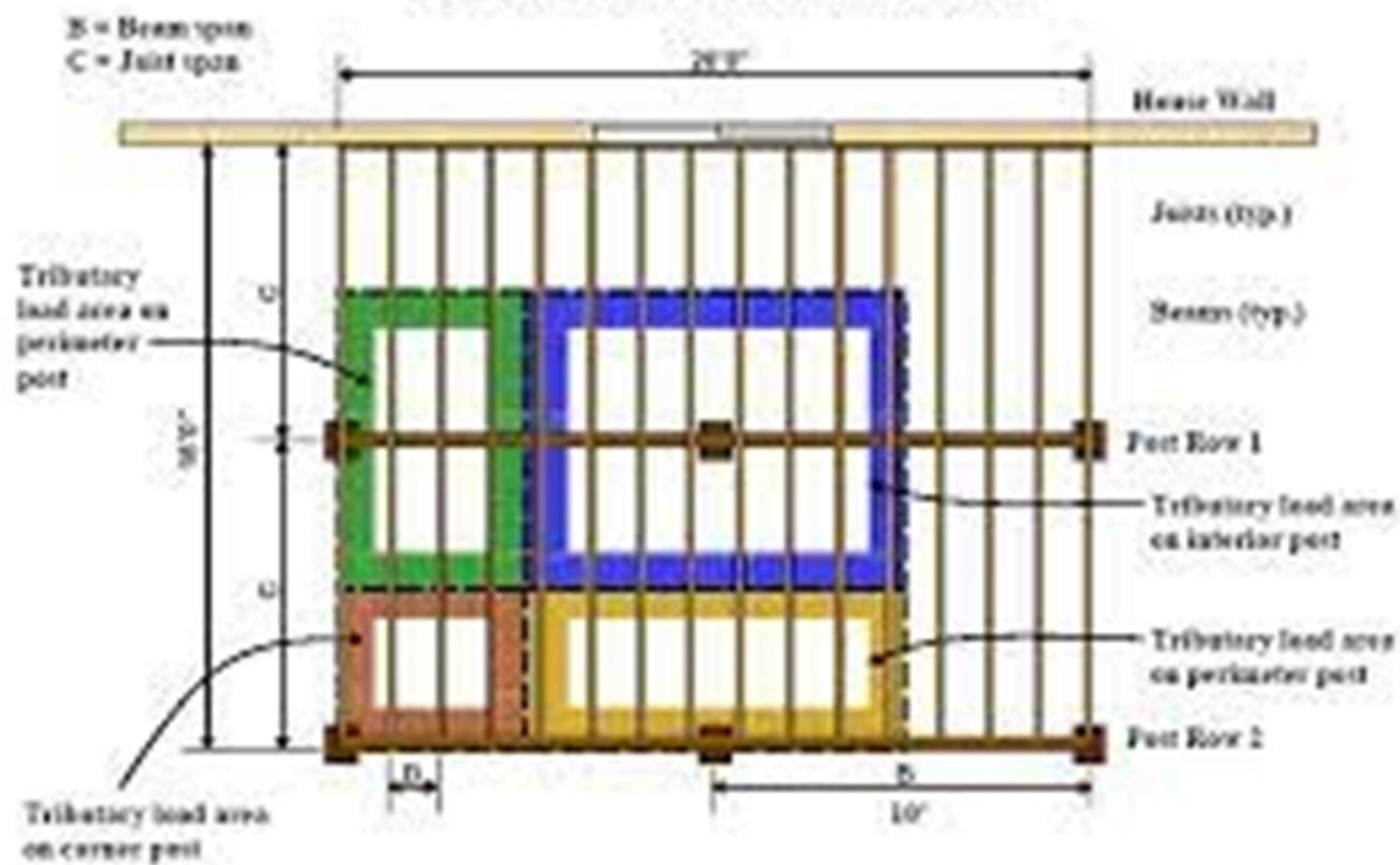
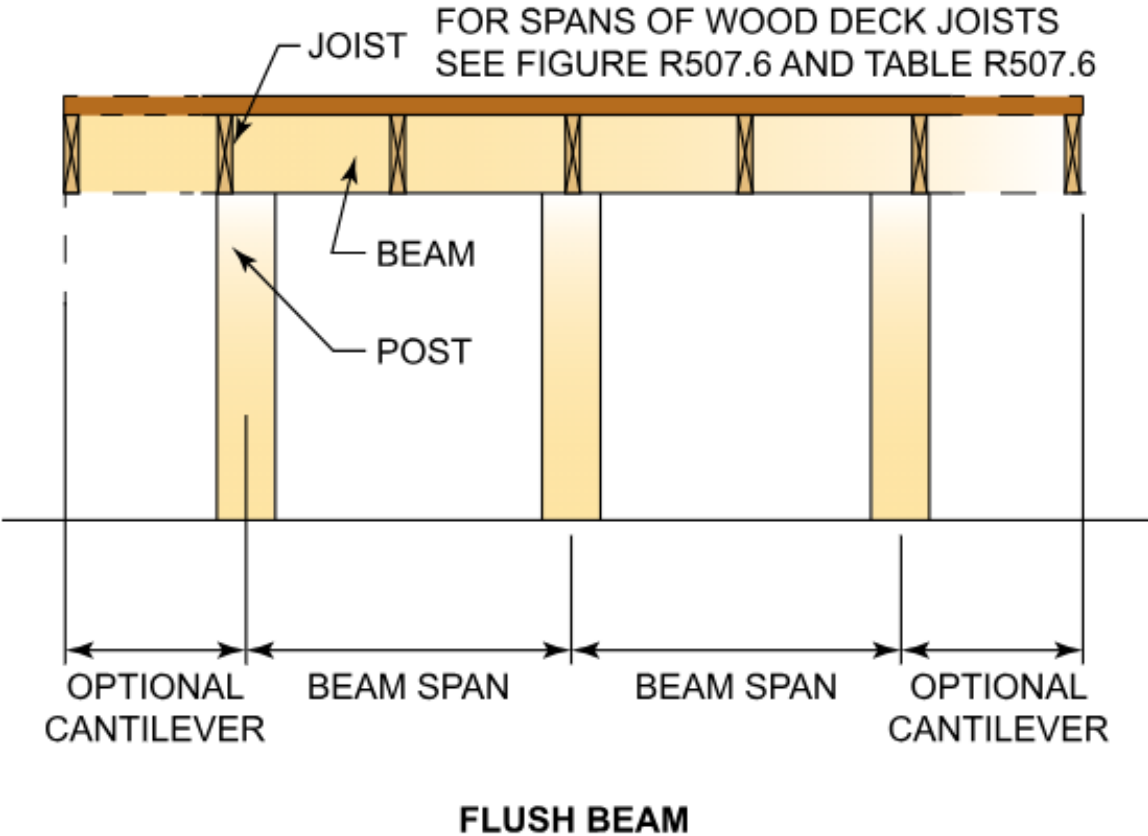
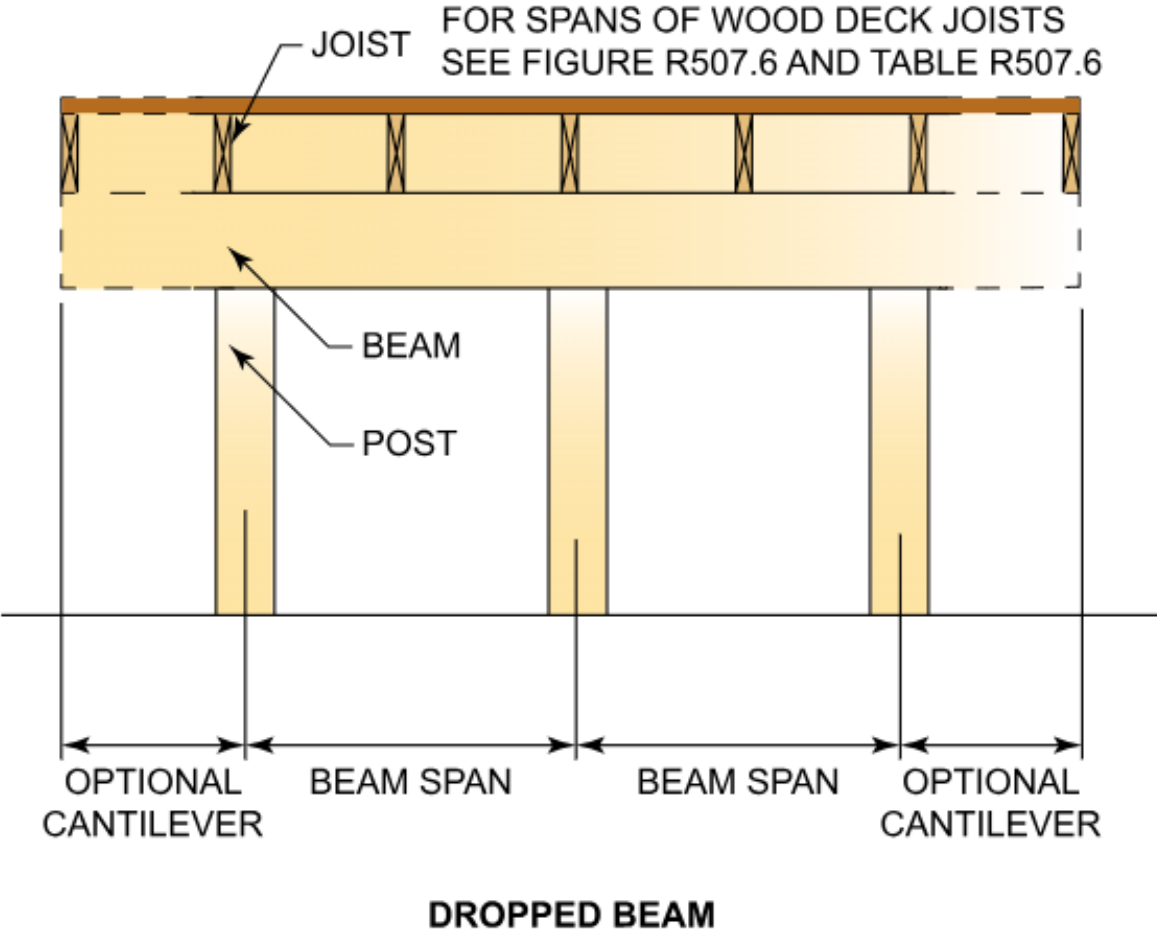


Figure 3

FIGURE R507.5 TYPICAL DECK **BEAM** SPANS



	JOIST SPAN		JOIST SPAN LENGTH AND JOIST CANTILEVER LENGTH ^{a, i} (feet & feet)								
	6	6 & 0	6 & 1.5	—	—	—	—	—	—	—	—
	8	—	8 & 0	8 & 1	8 & 2	—	—	—	—	—	—
	8	—	—	10 & 0	10 & 1	10 & 2.5	—	—	—	—	—
	12	—	—	—	12 & 0	12 & 1	12 & 2	12 & 3	—	—	—
	14	—	—	—	—	14 & 0	14 & 1	14 & 2	14 & 3.5	—	—
BEAM SPECIES ^d	BEAM SIZE ^e	MAXIMUM DECK BEAM SPAN LENGTH ^{a, b, f} (feet-inches)									
Southern pine	1 – 2 × 6	4-10	4-7	4-3	4-0	3-7	3-5	3-3	3-0	2-10	2-8
	1 – 2 × 8	6-4	5-11	5-6	5-1	4-7	4-4	4-2	3-10	3-7	3-5
	1 – 2 × 10	7-6	7-0	6-6	6-0	5-5	5-2	4-11	4-7	4-3	4-0
	1 – 2 × 12	8-8	8-3	7-8	7-1	6-4	6-1	5-10	5-5	5-0	4-9
	2 – 2 × 6	7-4	6-11	6-5	5-11	5-4	5-1	4-10	4-6	4-3	4-0
	2 – 2 × 8	9-4	8-9	8-2	7-7	6-9	6-5	6-2	5-9	5-4	5-0
	2 – 2 × 10	11-0	10-4	9-8	9-0	8-0	7-8	7-4	6-9	6-4	6-0
	2 – 2 × 12	13-0	12-2	11-4	10-7	9-5	9-0	8-7	8-0	7-5	7-0
	3 – 2 × 6	9-0	8-6	7-11	7-5	6-8	6-4	6-1	5-8	5-3	4-11
	3 – 2 × 8	11-7	10-11	10-3	9-6	8-6	8-1	7-9	7-2	6-8	6-4
	3 – 2 × 10	13-11	13-0	12-1	11-2	10-0	9-7	9-2	8-6	7-11	7-6

R507.5.2 Deck beam connection to supports

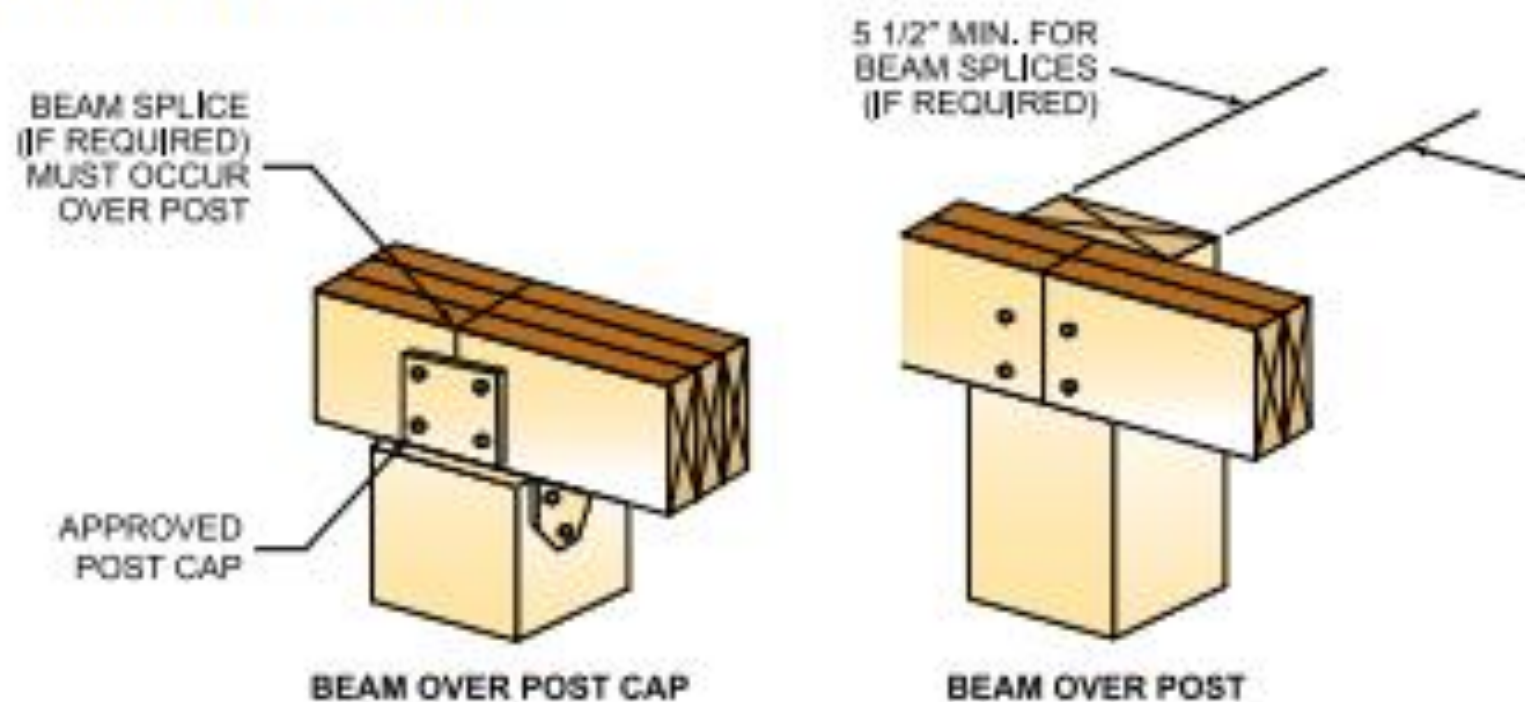
Deck beams shall be connected to supporting members to prevent lateral displacement. Deck beam connections to wood posts shall be in accordance with Figures R507.5.2(1)) and R507.5.2(2).

Manufactured post-to-beam connectors shall be sized for the post and beam sizes. Bolts shall have washers under the head and nut.

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

FIGURE R507.5.2(1) DECK BEAM TO DECK POST

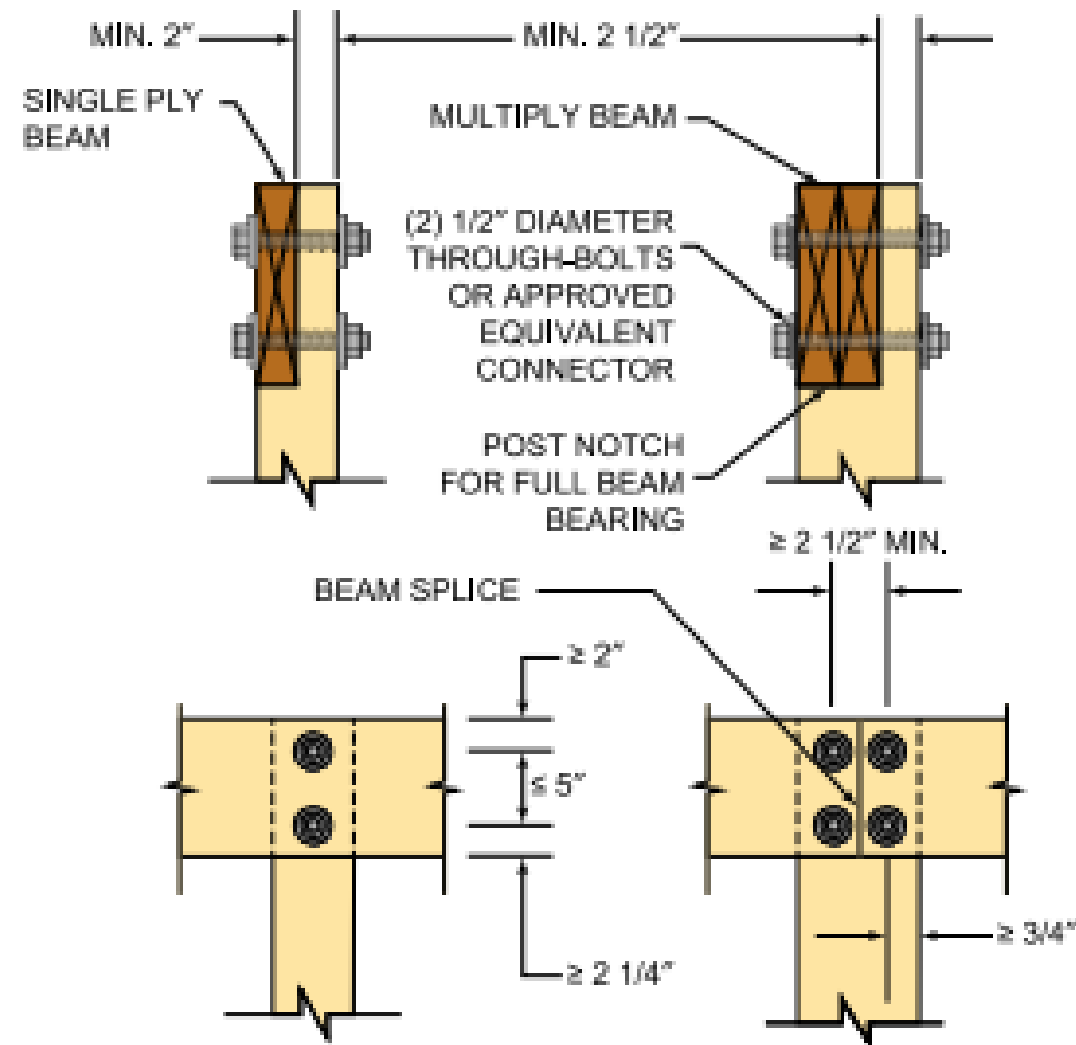


For SI: 1 inch = 25.4 mm.

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

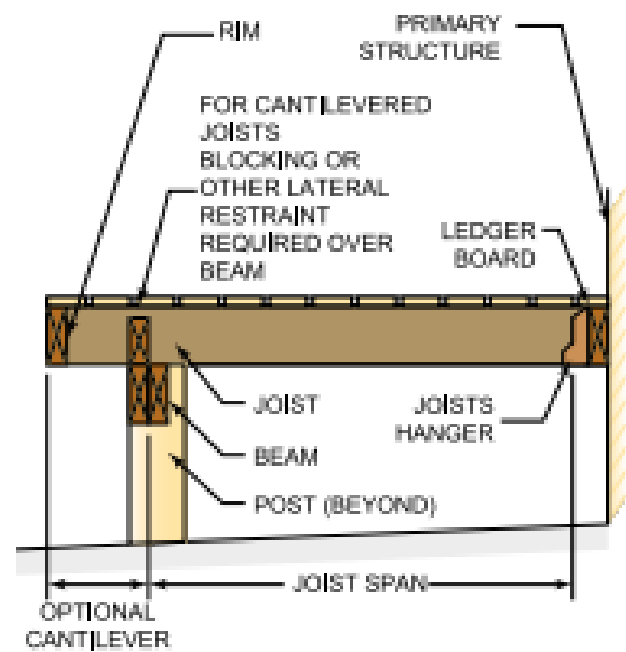
FIGURE R507.5.2(2) NOTCHED POST-TO-BEAM CONNECTION



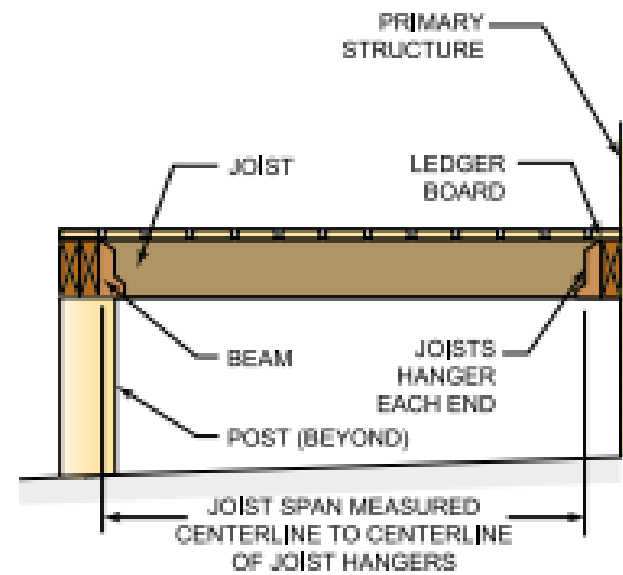
For SI: 1 inch = 25.4 mm.

R507.6 Deck joists.

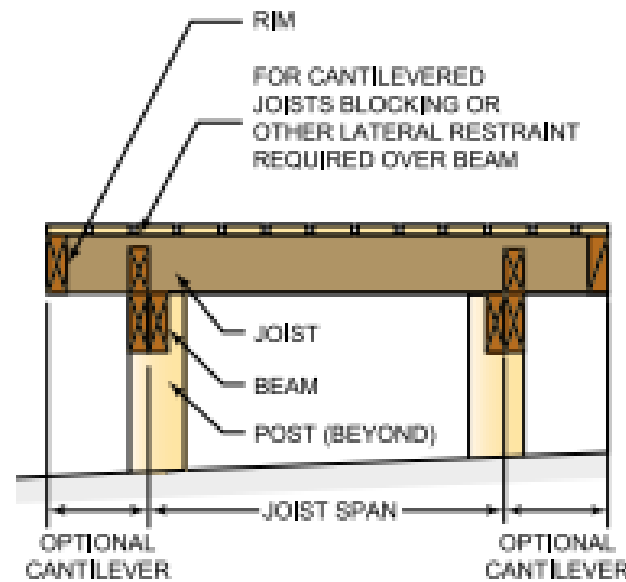
Maximum allowable spans for wood deck joists, as shown in Figure R507.6, shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking materials in accordance with Table R507.7.



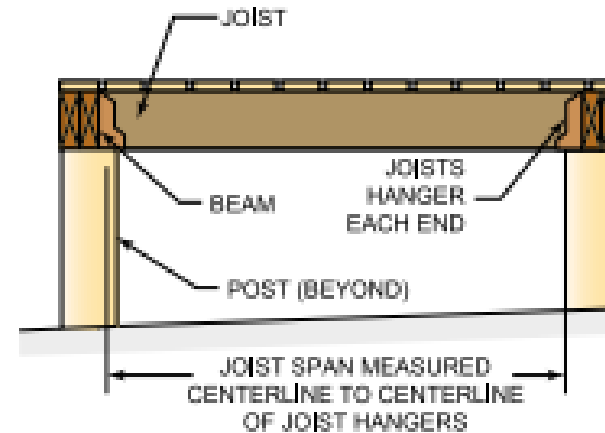
CANTILEVERED JOISTS WITH DROPPED BEAM



JOISTS WITH FLUSH BEAM



JOISTS ON FREESTANDING DECK WITH DROPPED BEAM



JOISTS ON FREESTANDING DECK WITH FLUSH BEAM

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

TABLE R507.6 MAXIMUM DECK JOIST SPANS

LOAD ^a (psf)	JOIST SPECIES ^b	JOIST SIZE	ALLOWABLE JOIST SPAN ^{b, c} (feet-inches)			MAXIMUM CANTILEVER ^{d, f} (feet-inches)							
			Joist spacing (inches)			Joist back span ^g (feet)							
			12	16	24	4	6	8	10	12	14	16	18
	Southern pine	2 × 6	9-11	9-0	7-7	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	13-1	11-10	9-8	1-0	1-6	2-0	2-6	2-3	NP	NP	NP
		2 × 10	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-4	3-4	NP
		2 × 12	18-0	16-6	13-6	1-0	1-6	2-0	2-6	3-0	3-6	4-0	4-1
						1-	1-						

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.

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

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.

1. a.
Maximum angle of 45 degrees from perpendicular for wood deck boards.
2. b.
Other maximum span provided by an accredited lumber grading or inspection agency also allowed.
3. c.
Individual wood deck boards supported by two joists shall be considered single span and three or more joists shall be considered multiple span.

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

TABLE R507.9.1.3(1) DECK LEDGER CONNECTION TO BAND JOIST

LOAD ^c (psf)	JOIST SPAN ^a (feet)	ON-CENTER SPACING OF FASTENERS ^b (inches)		
		1/2-inch diameter lag screw w i t h 1/2-inch maximum sheathing ^{d, e}	1/2-inch diameter bolt with 1/2-inch maximum sheathing ^e	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
	6	30	36	36

2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

TABLE R507.9.1.3(1) DECK LEDGER CONNECTION TO BAND JOIST

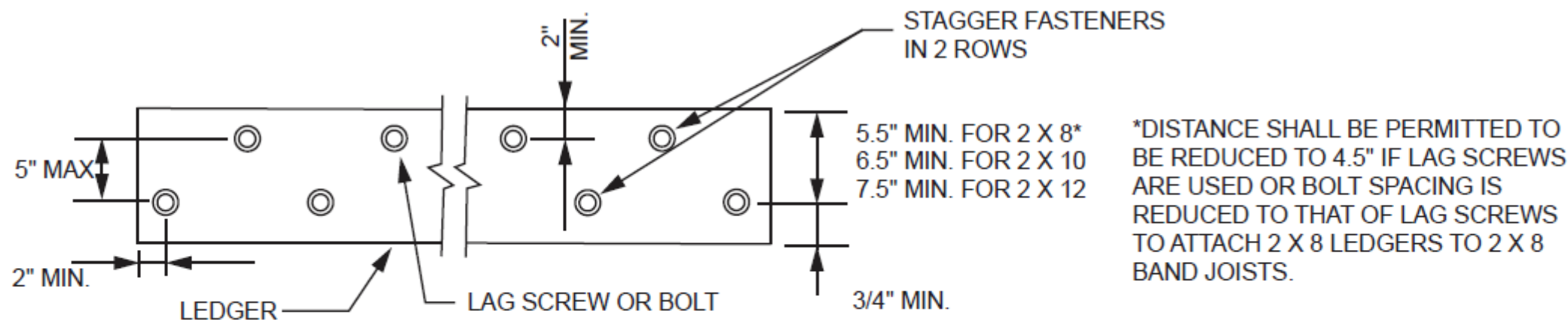
LOAD ^c (psf)	JOIST SPAN ^a (feet)	ON-CENTER SPACING OF FASTENERS ^b (inches)		
		1/2-inch diameter lag screw with 1/2-inch sheathing ^{d, e}	1/2-inch diameter bolt with 1/2-inch sheathing ^e	1/2-inch diameter bolt with 1-inch sheathing ^f
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16
	6	30	36	36

TABLE R507.9.1.3(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger ^a	2 inches ^d	$\frac{3}{4}$ inch	2 inches ^b	$1\frac{5}{8}$ inches ^b
Band Joist ^c	$\frac{3}{4}$ inch	2 inches	2 inches ^b	$1\frac{5}{8}$ inches ^b

For SI: 1 inch = 25.4 mm.

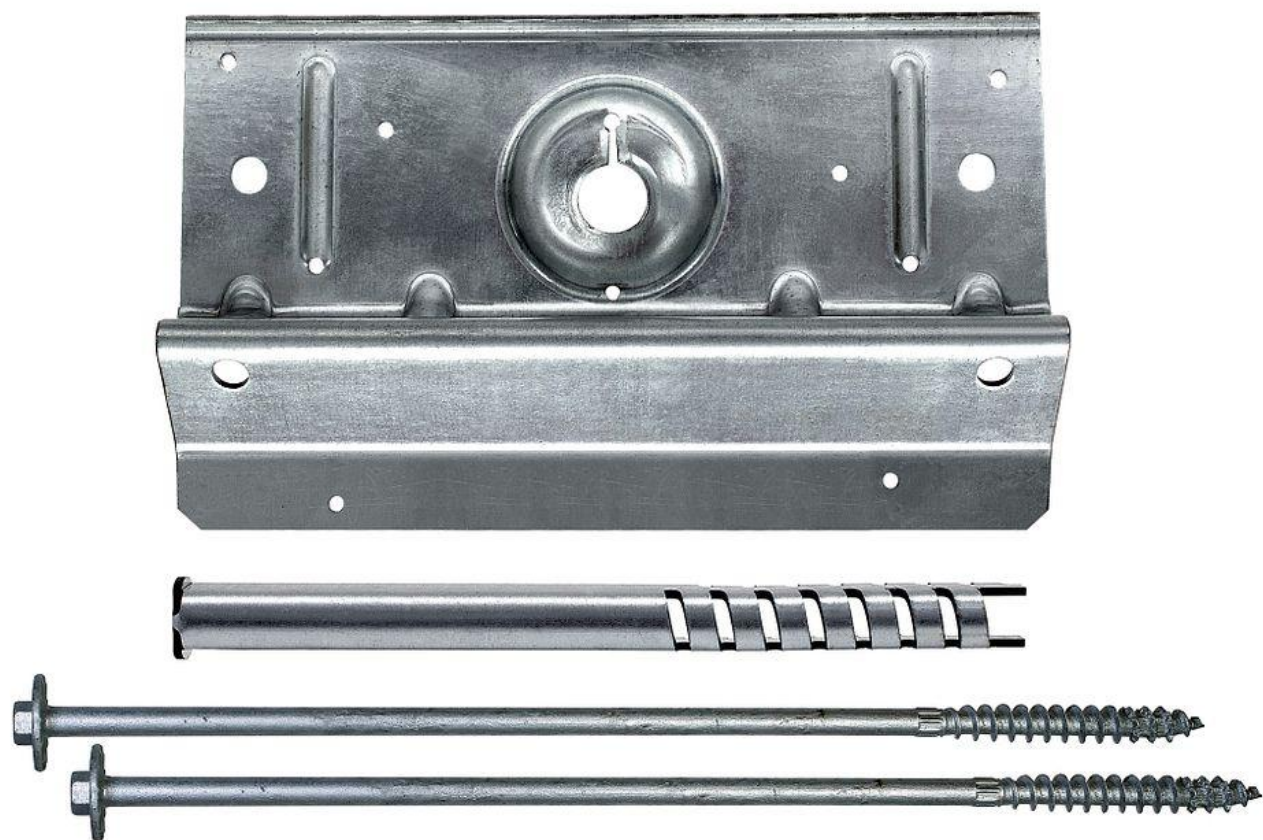
- a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1).
- b. Maximum 5 inches.
- c. For engineered rim joists, the manufacturer's recommendations shall govern.
- d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.9.1.3(1).

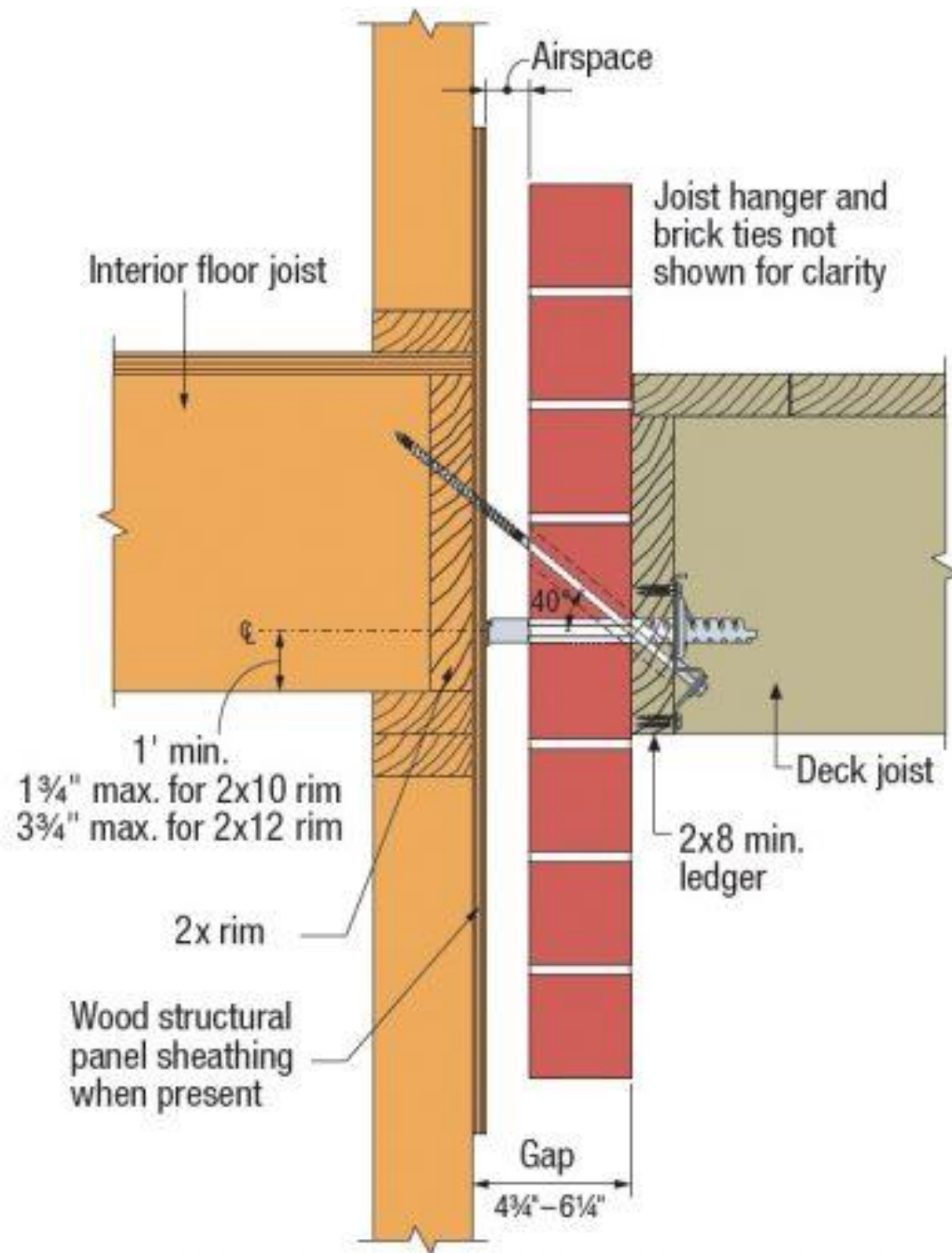


For SI: 1 inch = 25.4 mm.

FIGURE R507.9.1.3(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS







It's important to note that the BVLZ is somewhat fussy to install correctly and addresses the vertical loads only, not the lateral load pulling the deck away from the house – a critical point mentioned in a footnote on the Simpson website.

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 1/4 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.

New Section R507.9.1.5, Ledger flashing, requires flashing to extend at least 2 inches above the ledger, which coincides with standard “shingle fashion” laps required for water-resistive barriers (WRB) (AKA house wrap) in Section R703.2.

Two common flashing practices are recognized for the lower termination of the ledger flashing.

An “L” flashing extends out 4 inches beyond the face of the ledger, which provides added protection to the fasteners and any hangers from moisture. This distance appears sufficient to break the surface tension of water rolling under the flashing so that it drips in front of the ledger. Four inches was selected to accommodate a 1 1/2-inch-thick ledger spaced 1/2-inch from the sheathing and common 4 x 6 L flashing.

Another option provided is for “Z” flashing that turns down the face of the ledger.

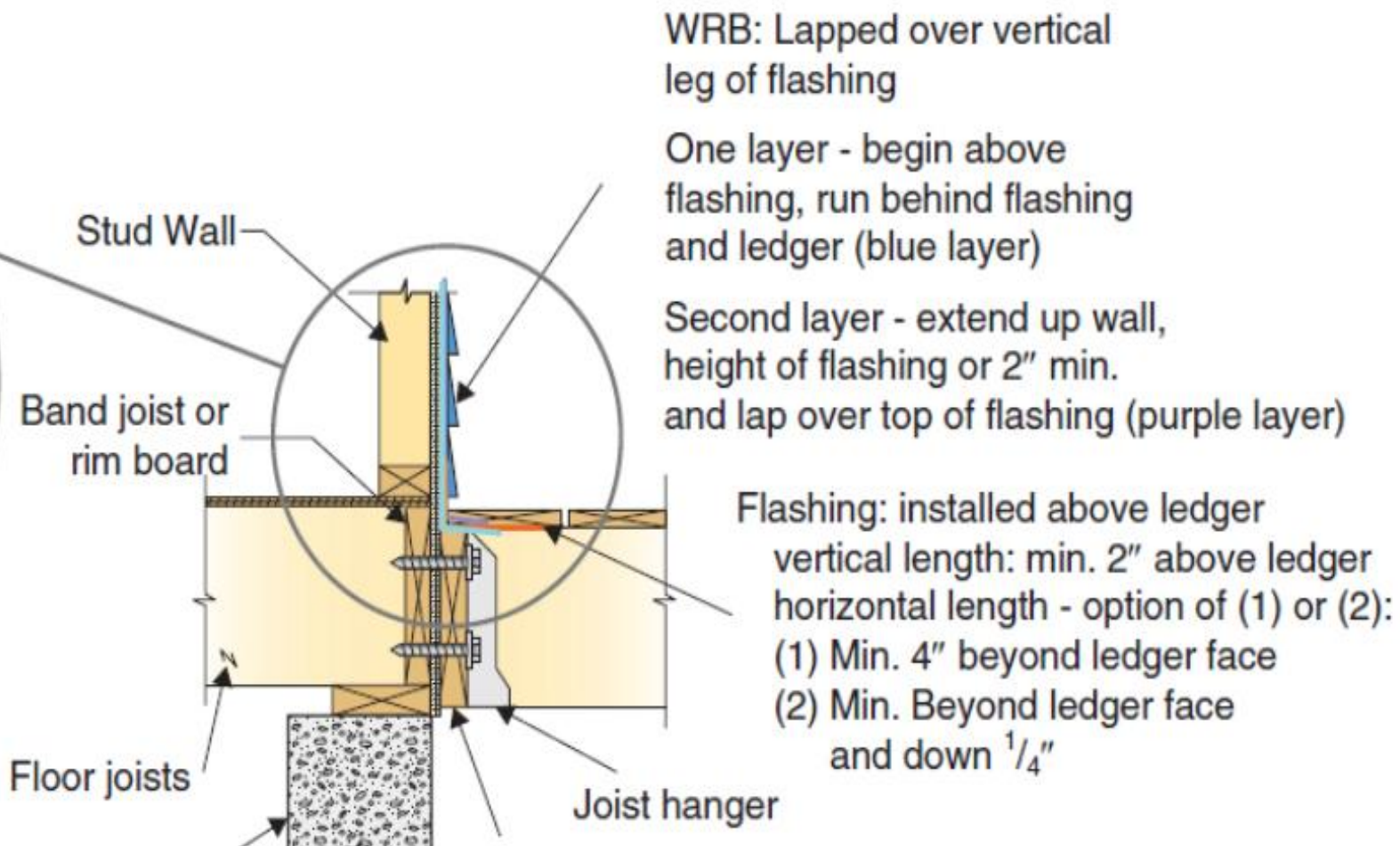
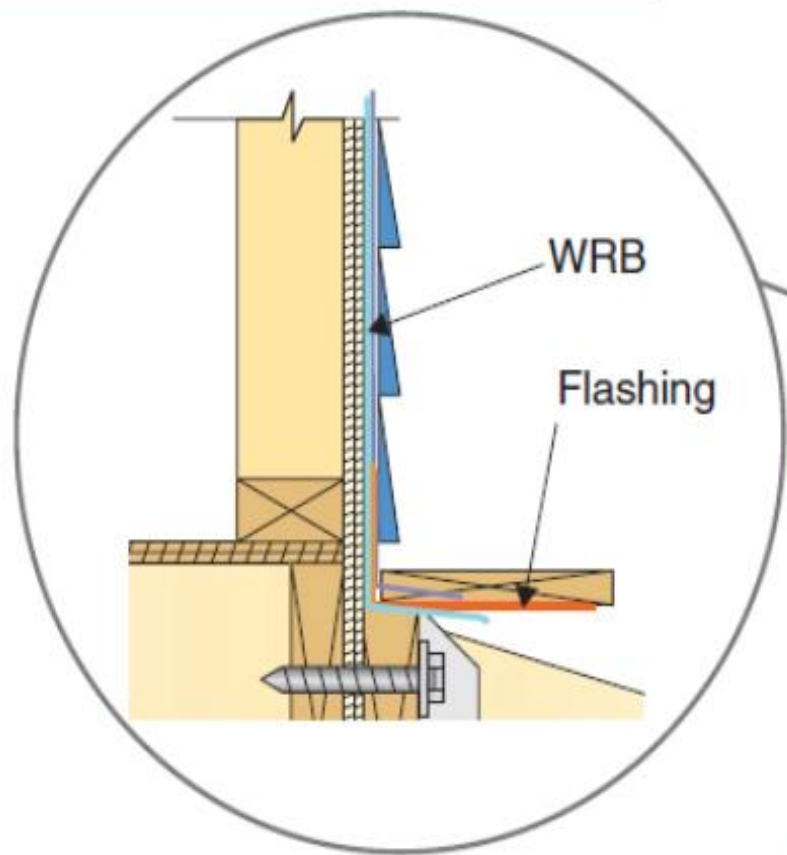
A 1/4-inch edge extension was selected as it is currently the minimum required downward distance of drip edge flashing at the edges of roofs, Drip edge. This vertical leg must be installed **between** the joist and ledger, so it is not bent out horizontally on top of the joist.

R507.9.1.6 Water-resistive barrier

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.

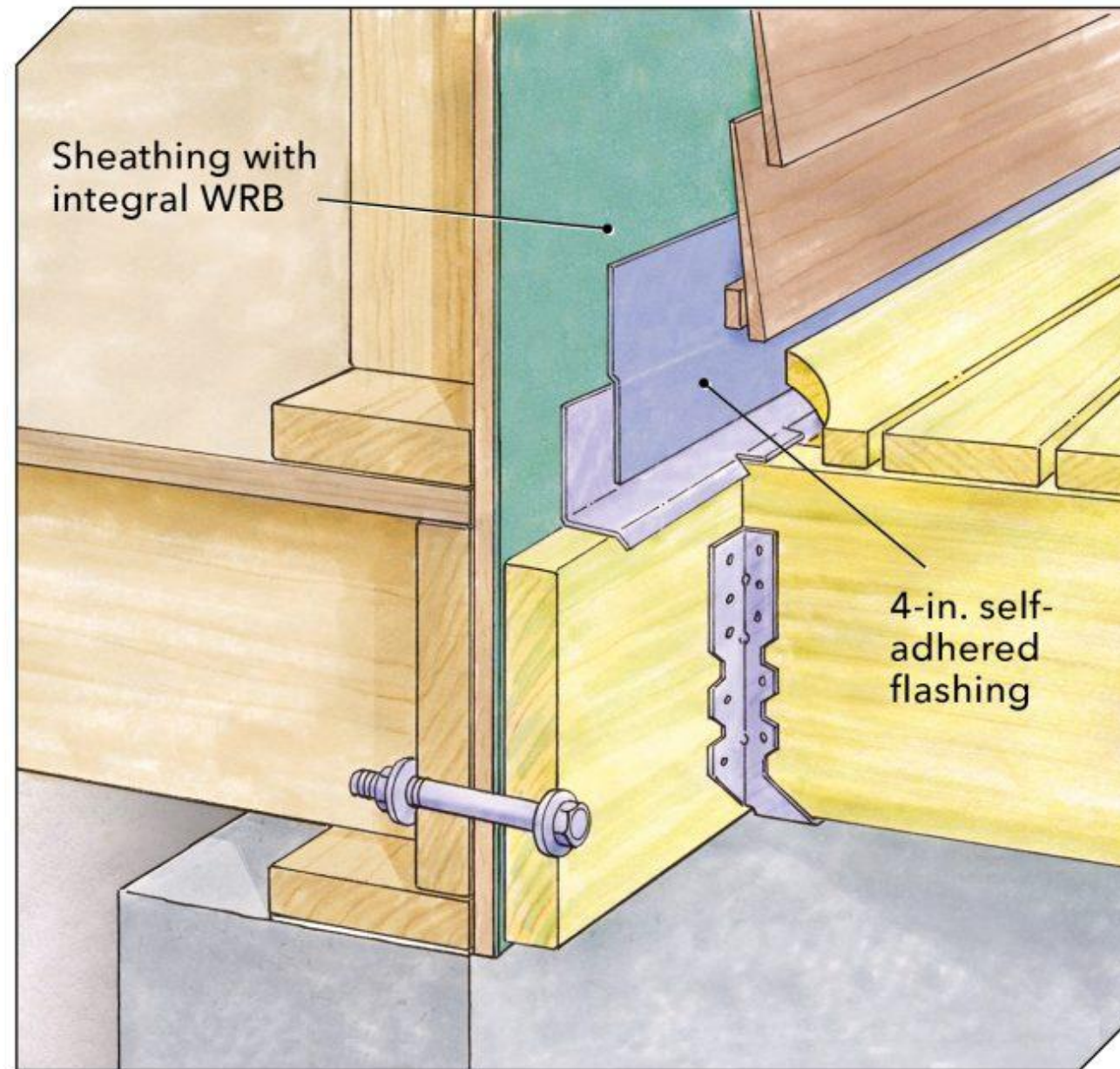


New **Section R507.9.1.6**, Water-resistive barrier (house wrap) , requires the outer layer of house wrap to lap a minimum of 2 inches over the top of the flashing or counterflashing on the wall, regardless of the height of this flashing above the ledger. In this option, the vertical leg of the flashing must be aligned in a lap in the house wrap so that the outer sheet of house wrap laps both the flashing and the next sheet by a minimum of 2 inches. The inner layer of house wrap is continuous behind the ledger flashing.

Exceptions to Section R507.9.1.6 allow for other arrangements of the house wrap and flashing.

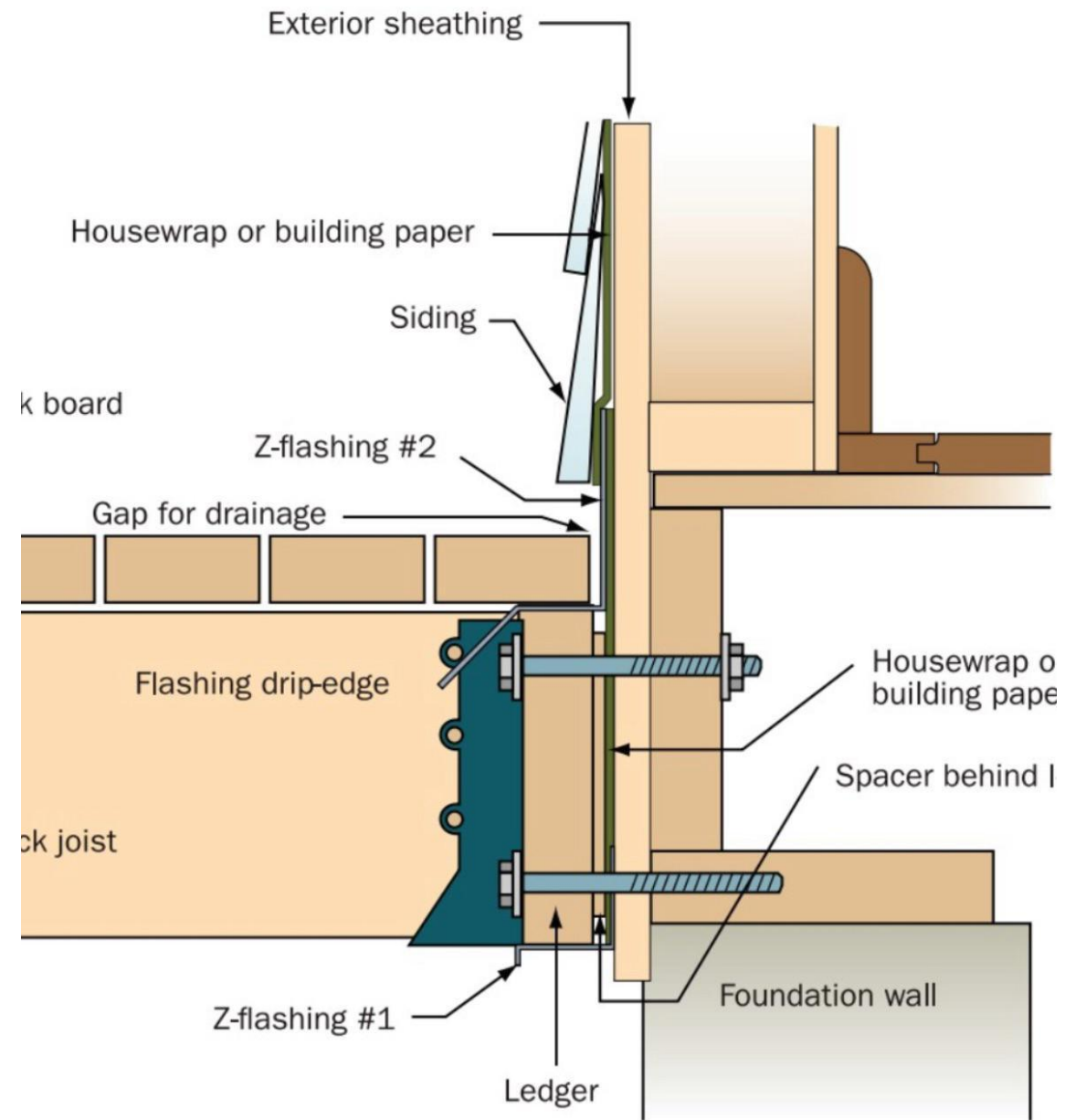
In **Exception 1**, as it can be impractical for the house wrap lap to be at the ledger flashing location, a self-adhering counterflashing may be installed over the flashing and sealed onto the house wrap.

The counterflashing must meet requirements in Section R507.2.4, Flashing, and be compliant with FGIA 711, Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products. FGIA is the Fenestration and Glazing Industry Alliance, formerly known as the American Architectural Manufacturers Association (AAMA).



The **second exception** allows ledgers spaced off the wall with a drainage plane behind the ledger to be accepted as built.

Table R507.9.1.3(1), Deck ledger connection to band joist, allows for up to 1/2-inch of space behind the ledger. This option works with vented claddings and back-drained claddings held off the wall. In these conditions, the ledger flashing does not need to seal to the house wrap, but rather is placed behind the cladding. Water traveling on the surface of the house wrap and behind the spaced ledger can freely drain and vent in these assemblies.



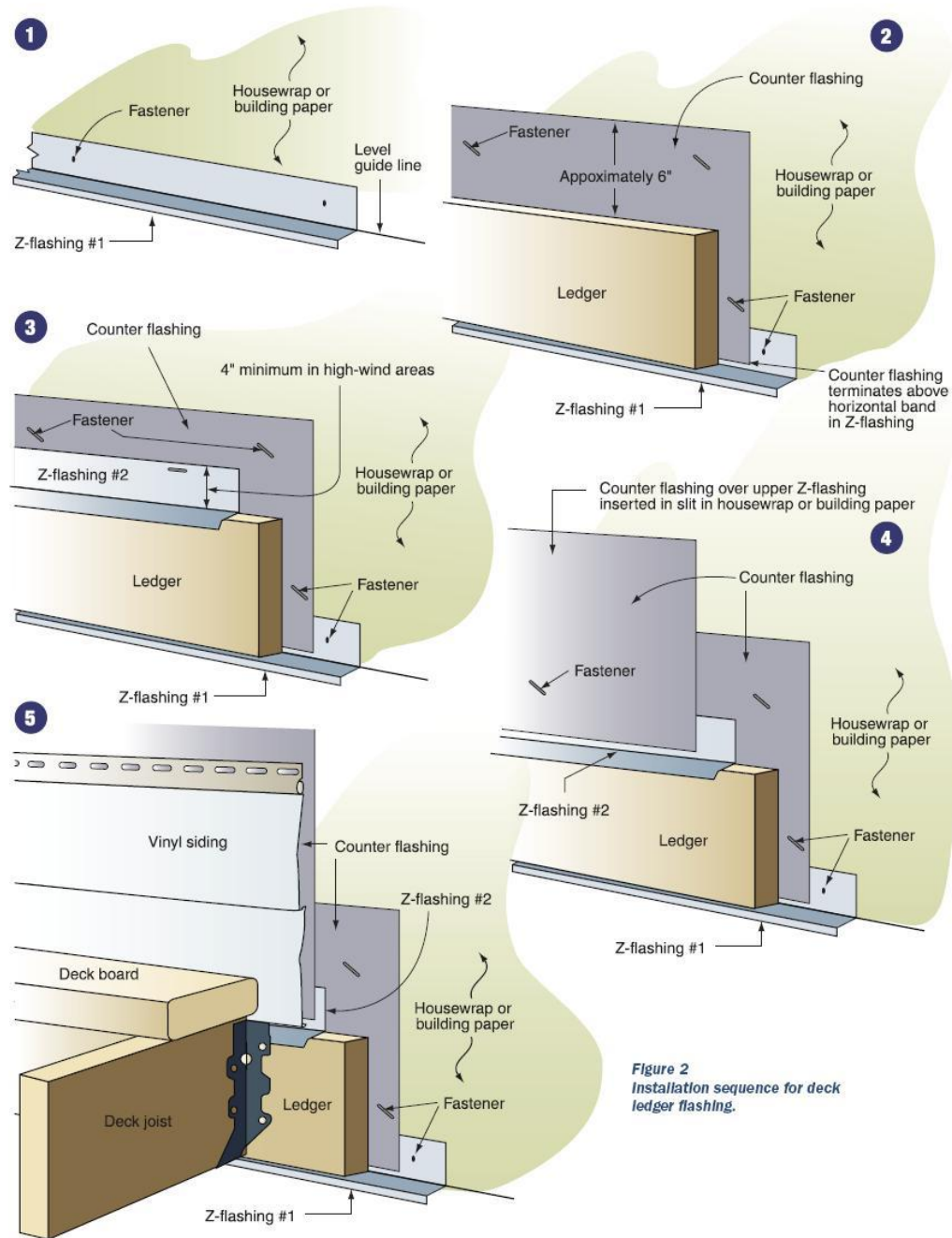


Figure 2
Installation sequence for deck
ledger flashing.

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 1/2 inch beyond the sides and bottom of the ledger. A self-adhering membrane counterflashing shall be installed not less than 2 inches over the vertical leg of the ledger flashing and not less than 2 inches onto the existing sheathing.

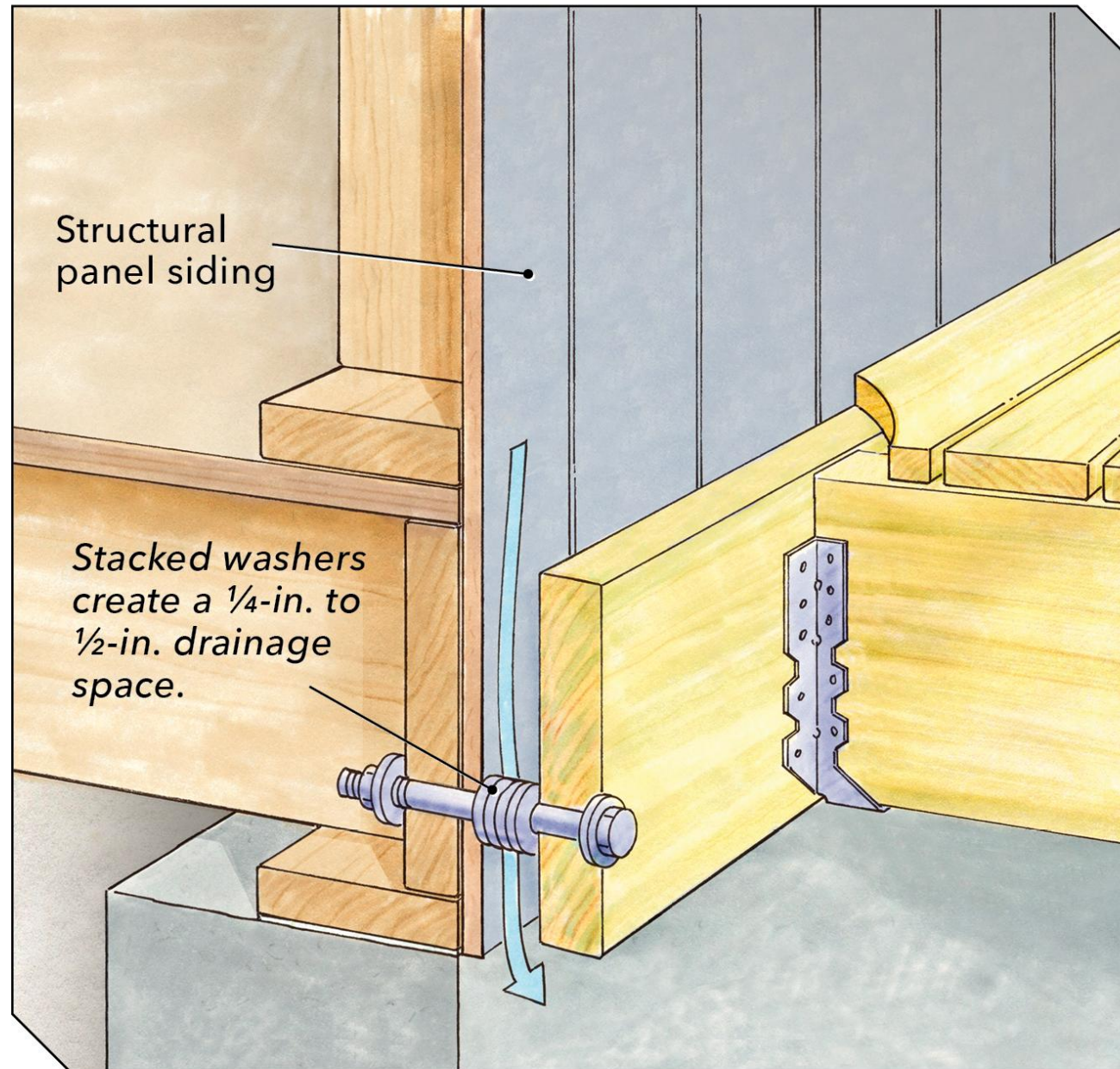
Exceptions:

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.

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.



R507.9.2 Lateral connection

Lateral loads shall be transferred to the ground or to a structure capable of transmitting them to the ground.

Where the lateral load connection is provided in accordance with Figure R507.9.2(1), hold-down tension devices shall be installed in not less than two locations per deck, within 24 inches of each end of the deck.

Each device shall have an allowable stress design capacity of not less than 1,500 pounds.

Where the lateral load connections are provided in accordance with Figure R507.9.2(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds.

Lateral loads are horizontal forces that act on a deck, trying to pull it away from the house.

Causes:

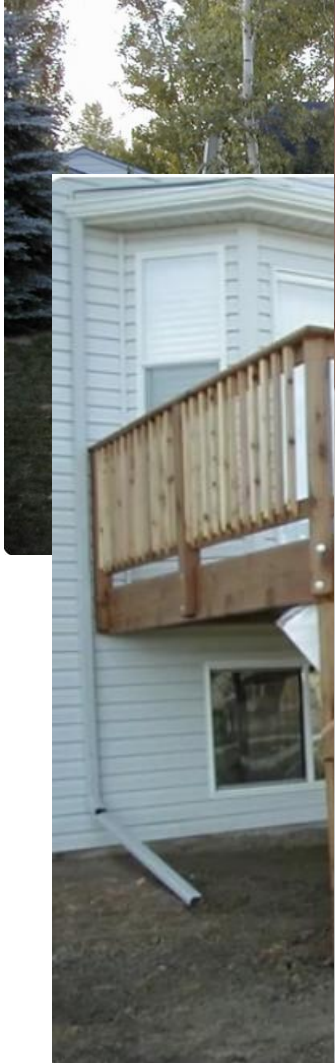
Wind: Strong winds can exert significant sideways forces on a deck.

Earthquakes: Earthquakes can cause horizontal shaking, which can lead to lateral loads on a deck.

Human activity: People moving around on a deck can create lateral loads, especially when they are moving quickly or abruptly.

Soil settlement: Uneven soil settlement below the deck's foundation can also cause lateral forces.

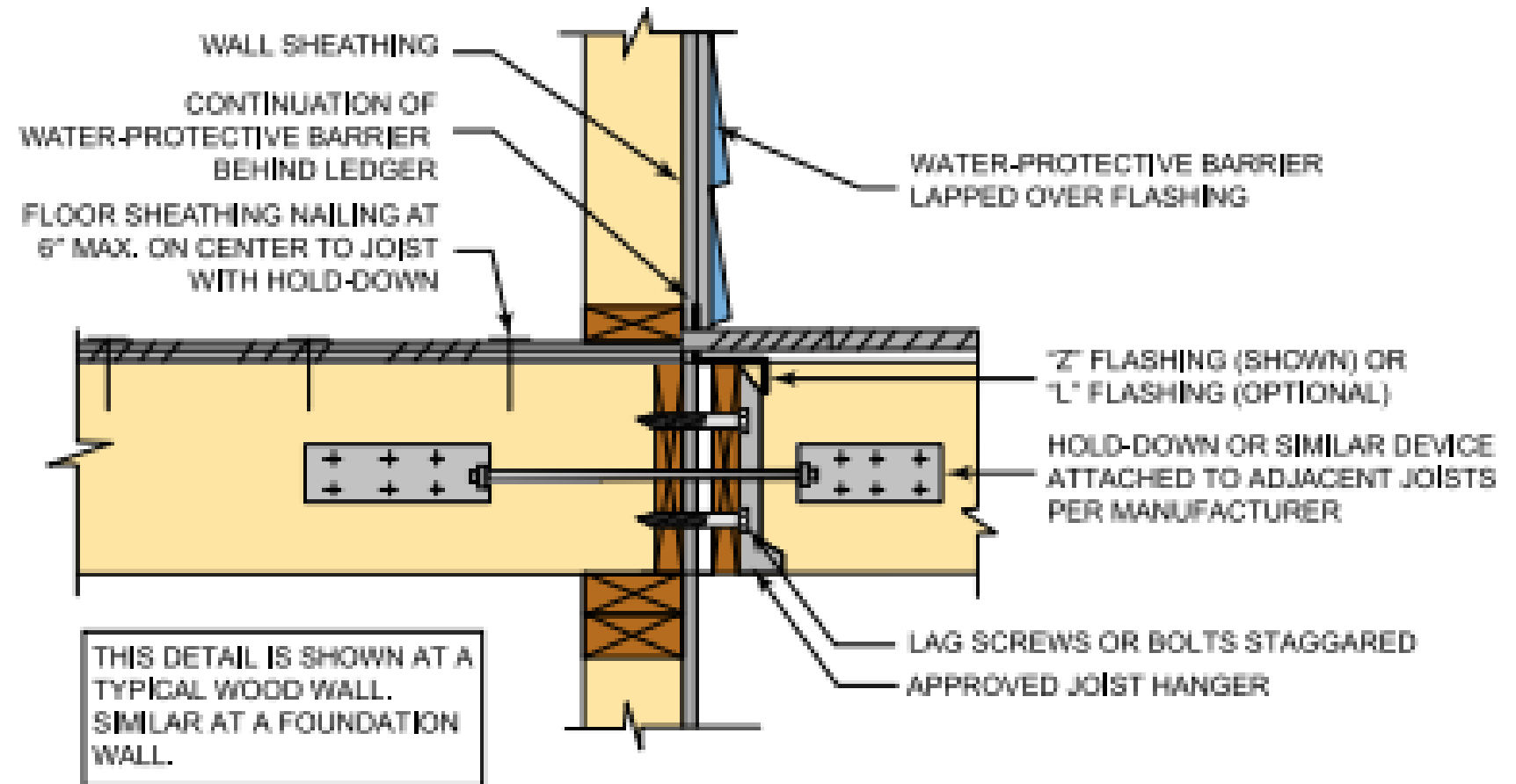
When is it necessary?



2024 International Residential Code (IRC)

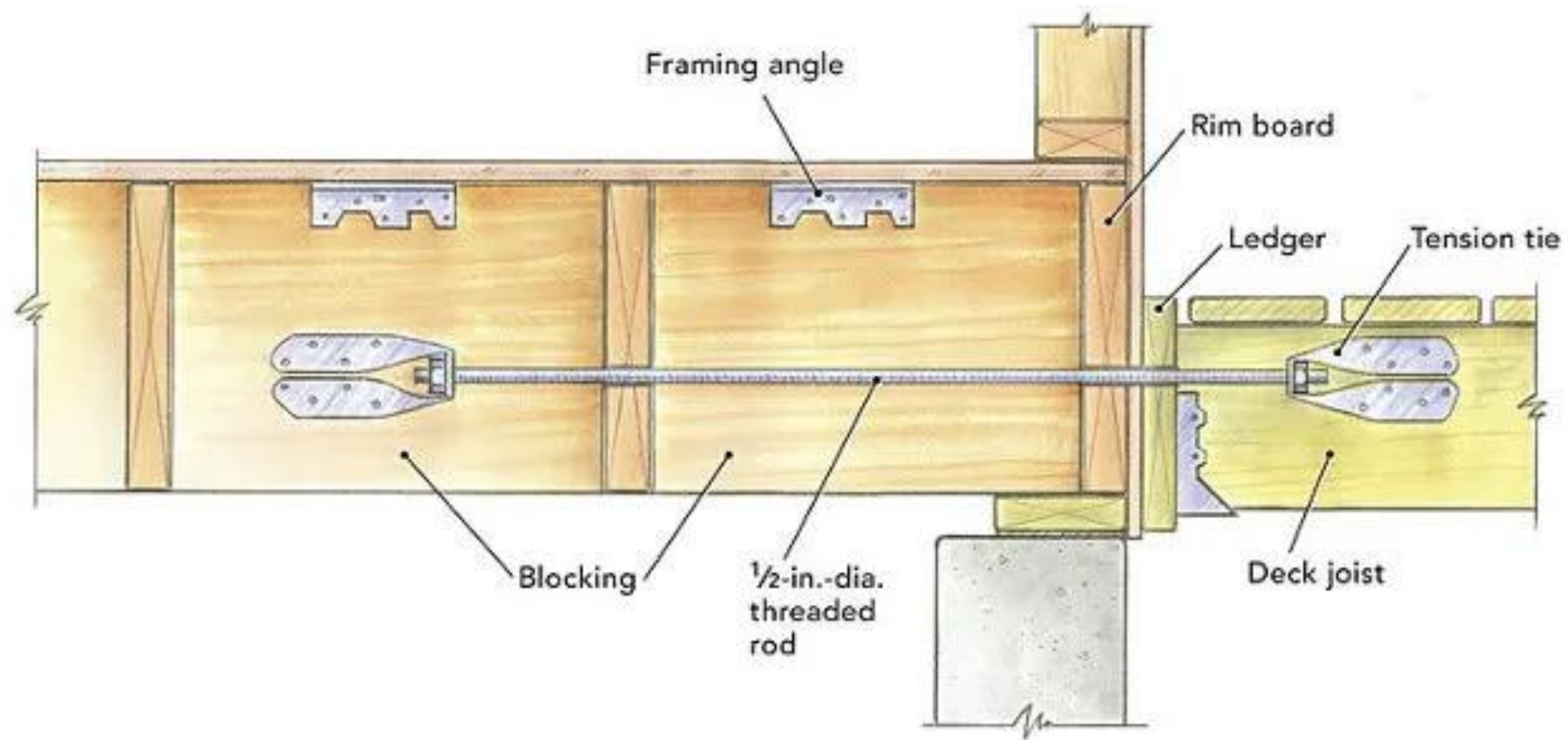
CHAPTER 5 FLOORS

FIGURE R507.9.2(1) DECK ATTACHMENT FOR LATERAL LOADS



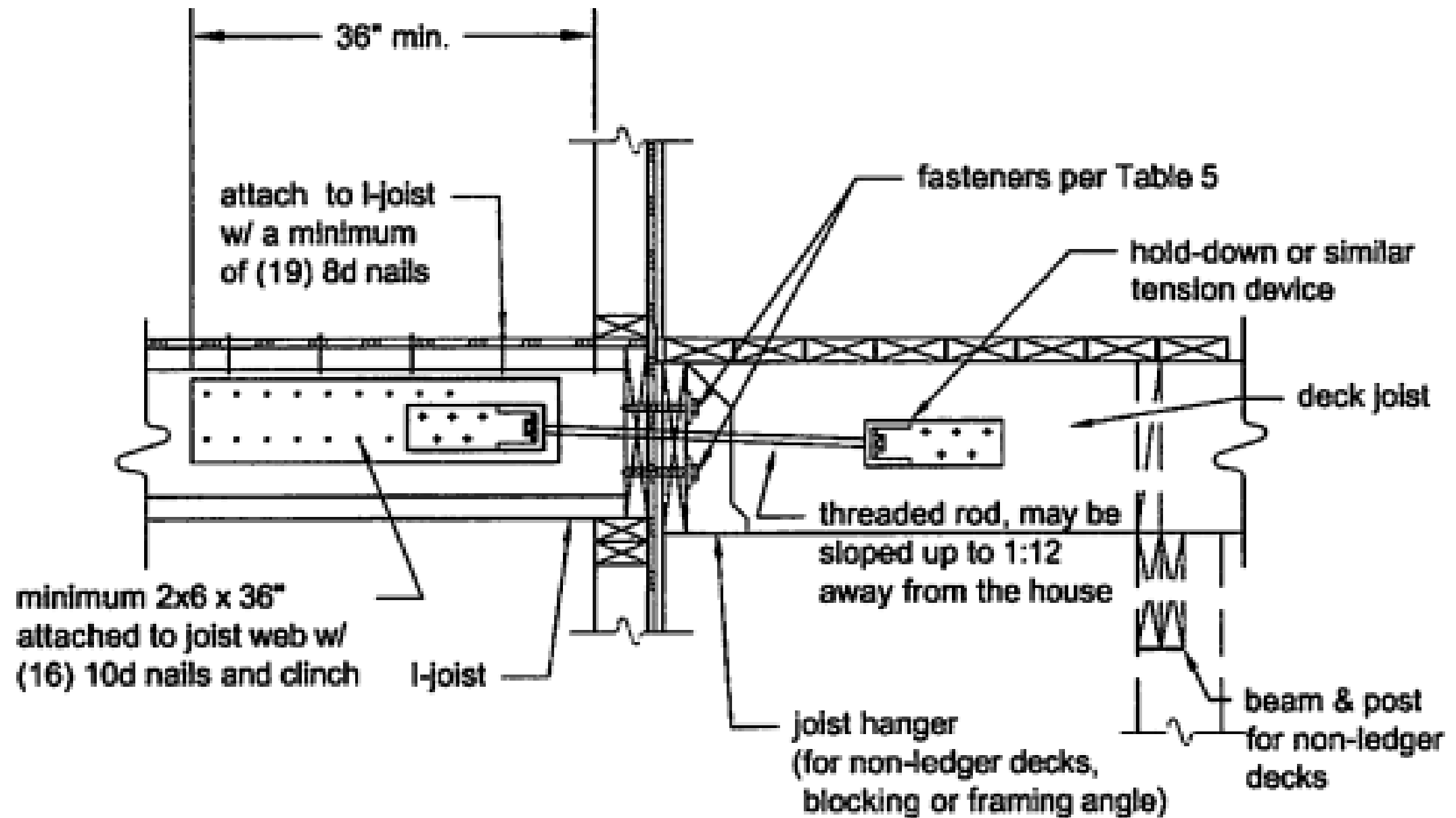
For SI: 1 inch = 25.4 mm.

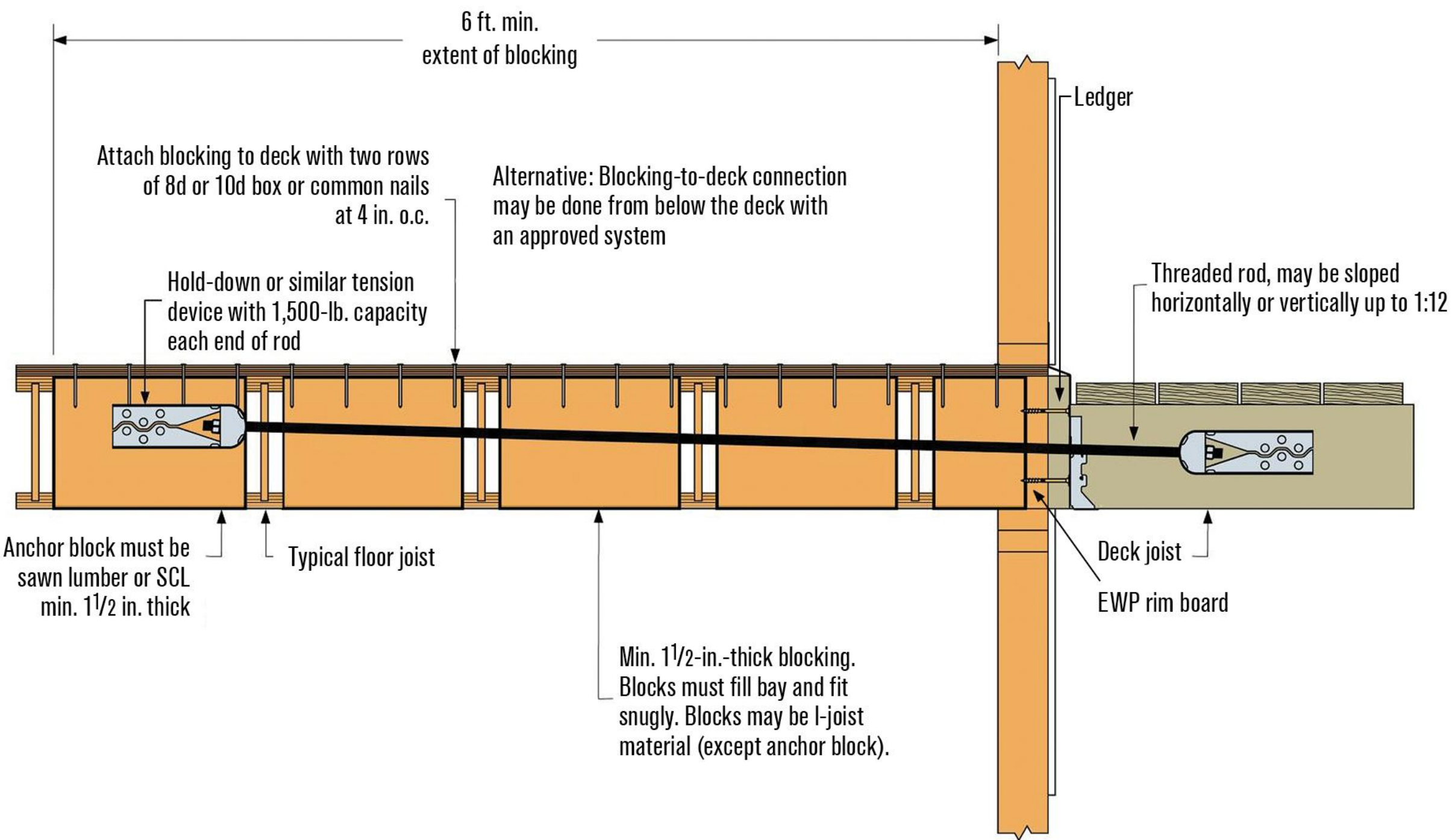




What about I-Joists?



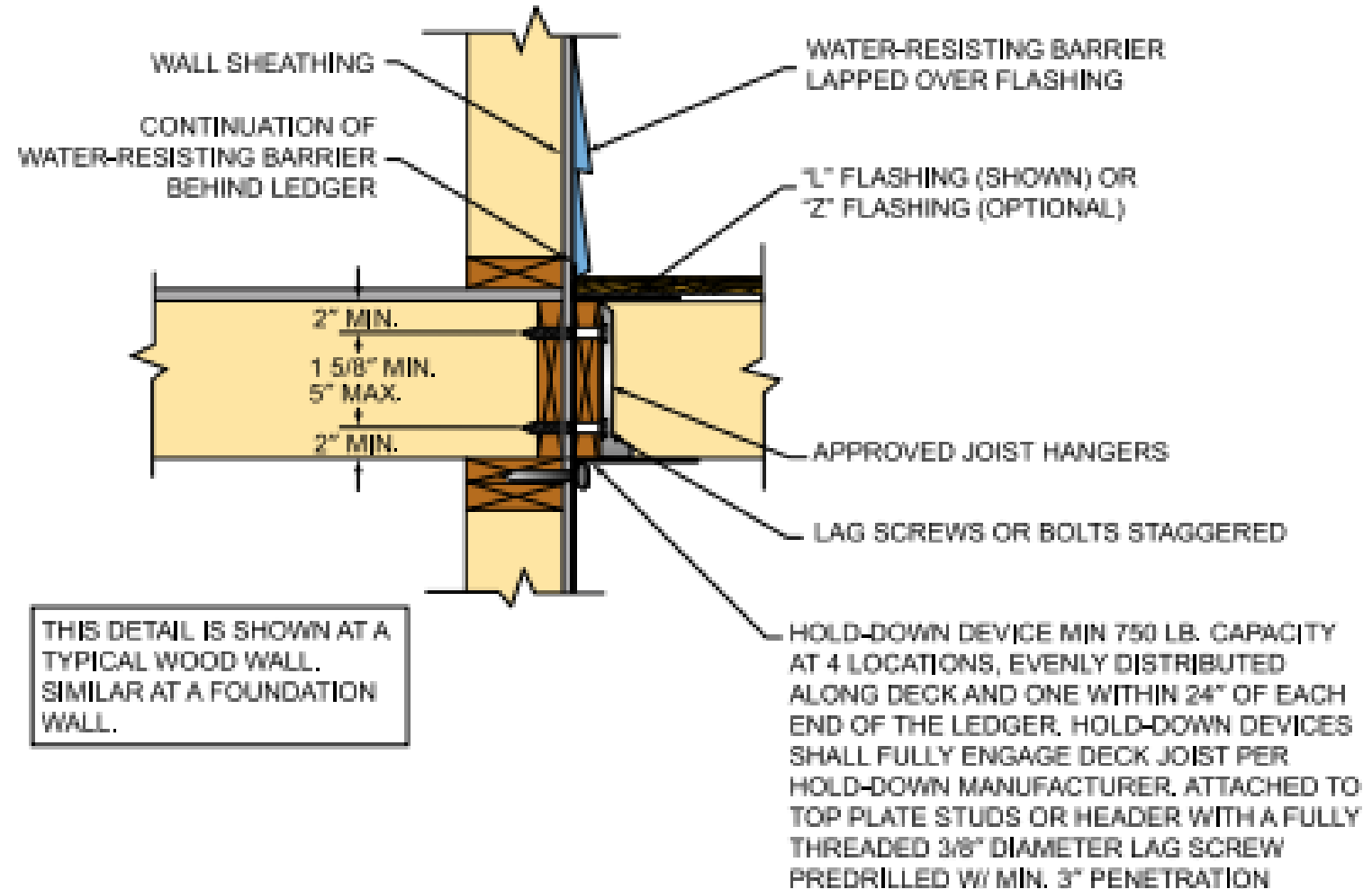




2024 International Residential Code (IRC)

CHAPTER 5 FLOORS

FIGURE R507.9.2(2) DECK ATTACHMENT FOR LATERAL LOADS



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



R507.10 Exterior guards

Guards shall be constructed to meet the requirements of Sections R301.5 and R321, and this section.

What are those again?

R301.5 Live load

- The minimum uniformly distributed live load shall be as provided in Table R301.5.

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)

USE	UNIFORM LOAD (psf)	CONCENTRATED LOAD (lb)
Uninhabitable attics without storage ^b	10	—
Uninhabitable attics with limited storage ^{b, g}	20	—
Habitable attics and attics served with fixed stairs	30	—
Balconies (exterior) and decks ^e	40	—
Fire escapes	40	—
Guards	—	200 ^{h, i}
Guard in-fill components ^f	—	50 ^h
Handrail ^d	—	200 ^h
Passenger vehicle garages	50	2,000 ^a
Areas other than sleeping areas	40	—
Sleeping areas	30	—
Stairs	40 ^c	300 ^c

Section R321 Guards

R321.1 Guards.

R321.1.1 Where required.

R321.1.2 Height.

R321.1.3 Opening limitations.

R321.1.4 Exterior plastic
composite guards

Back to 507.10

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 (102 mm by 102 mm) 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

Plastic composite guards shall comply with the provisions of Section **R507.2**.

R507.2.2.5 Installation of plastic composites.

Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with **this code** and the **manufacturer's instructions**.

R507.10.4 Other guards.

Other guards shall be in accordance with **either manufacturer's instructions or accepted engineering principles**.

TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^{a, b, c}	SPACING AND LOCATION
Roof			
1	Blocking between ceiling joists, rafters or trusses to top plate or other framing below	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
	Blocking between rafters or truss not at the wall top plates, to rafter or truss	2-8d common (2 1/2" × 0.131"); or 2-3" × 0.131" nails	Each end toe nail
		2-16d common (3 1/2" × 0.162"); or 3-3" × 0.131" nails	End nail
	Flat blocking to truss and web filler	16d common (3 1/2" × 0.162"); or 3" × 0.131" nails	6" o.c. face nail
1 2	Adjacent full-height stud to end of header	4-16d box (3 1/2" × 0.135"); or 3-16d common (3 1/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	End nail

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 framing]

3 1	3/8" – 1/2"	6d common or deformed (2" × 0.113" × 0.266" head); or 2 3/8" × 0.113" × 0.266" head nail (subfloor, wall) ⁱ	6	12
		8d common (2 1/2" × 0.131" × 0.281" head) nail (roof); or RSRS-01 (2 3/8" × 0.113" × 0.281" head) nail (roof) ^b	6 ^f	6 ^f
3 2	19/32" – 3/4"	8d common (2 1/2" × 0.131") nail (subfloor, wall)	6	12
		8d common (2 1/2" × 0.131" × 0.281" head) nail (roof); or RSRS-01; (2 3/8" × 0.113" × 0.281" head) nail (roof) ^b	6 ^f	6 ^f
		Deformed 2 3/8" × 0.113 × 0.266" head (wall or subfloor)	6	12
3 3	7/8" – 1 1/4"	10d common (3" × 0.148") nail; or (2 1/2" × 0.131 × 0.281" head) deformed nail	6	12

Fastening table - complete

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^{a, b, c}	SPACING AND LOCATION
Roof			
1	Blocking between ceiling joists, rafters or trusses to top plate or other framing below	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
	Blocking between rafters or truss not at the wall top plates, to rafter or truss	2-8d common (2 1/2" × 0.131"); or 2-3" × 0.131" nails	Each end toe nail
		2-16d common (3 1/2" × 0.162"); or 3-3" × 0.131" nails	End nail
	Flat blocking to truss and web filler	16d common (3 1/2" × 0.162"); or 3" × 0.131" nails	6" o.c. face nail
2	Ceiling joists to top plate	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions [see Section R802.5.2 and Table R802.5.2(1)]	4-10d box (3" × 0.128"); or 3-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) [see Section R802.5.2 and Table R802.5.2(1)]	Table R802.5.2(1)	Face nail
5	Collar tie to rafter, face nail	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box (3 1/2" × 0.135"); or 3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ⁱ
7	Roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d box (3 1/2" × 0.135"); or 3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
Wall Test			

Wall Test			
8	Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162")	24" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
		16d common (3 1/2" × 0.162")	16" o.c. face nail
10	Built-up header (2" to 2" header with 1/2" spacer)	16d common (3 1/2" × 0.162")	16" o.c. each edge face nail
		16d box (3 1/2" × 0.135")	12" o.c. each edge face nail
11	Continuous header to stud	5-8d box (2 1/2" × 0.113"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toe nail
12	Adjacent full-height stud to end of header	4-16d box (3 1/2" × 0.135"); or 3-16d common (3 1/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	End nail

1 3	Top plate to top plate	16d common (3 1/2" × 0.162")	16" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	12" o.c. face nail
1 4	Double top plate splice	8-16d common (3 1/2" × 0.162"); or 12-16d box (3 1/2" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
1 5	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2" × 0.162")	16" o.c. face nail
		16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
1 6	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	16" o.c. face nail
1 7	Top or bottom plate to stud	4-8d box (2 1/2" × 0.113"); or 3-16d box (3 1/2" × 0.135"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
1 8	Top plates, laps at corners and intersections	3-10d box (3" × 0.128"); or 2-16d common (3 1/2" × 0.162"); or 3-3" × 0.131" nails	Face nail
1 9	1" brace to each stud and plate	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-(3" × 0.131"); or 2-10d box (3" × 0.128")	Face nail
2 0	1" × 6" sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
2 1	1" × 8" and wider sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
		Wider than 1" × 8" Face nail 4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 4 staples, 1" crown, 16 ga., 1 3/4" long	

Floor			
2 2	Joist to sill, top plate or girder	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
2 3	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d box (2 1/2" × 0.113")	4" o.c. toe nail
		8d common (2 1/2" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails	6" o.c. toe nail
2 4	1" × 6" subfloor or less to each joist	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
2 5	2" subfloor to joist or girder	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	Blind and face nail
2 6	2" planks (plank & beam—floor & roof)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	At each bearing, face nail
2 7	Band or rim joist to joist	3-16d common (3 1/2" × 0.162"); or 4-10 box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" × 14 ga. staples, 7/16" crown	End nail
		20d common (4" × 0.192"); or	Nail each layer as follows: 32" o.c. at top and bottom and staggered.
2 8	Built-up girders and beams, 2-inch lumber layers	10d box (3" × 0.128"); or 3" × 0.131" nails	24" o.c. face nail at top and bottom staggered on opposite sides
		And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Face nail at ends and at each splice
2 9	Ledger strip supporting joists or rafters	4-16d box (3 1/2" × 0.135"); or 3-16d common (3 1/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	At each joist or rafter, face nail
3 0	Bridging or blocking to joist, rafter or truss	2-10d box (3" × 0.128"); or 2-8d common (2 1/2" × 0.131"); or 2-3" × 0.131" nails	Each end, toe nail
SPACING OF FASTENERS			

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 framing]

3 1	3/8" – 1/2"	6d common or deformed (2" × 0.113" × 0.266" head); or 2 3/8" × 0.113" × 0.266" head nail (subfloor, wall) ^l	6	12
		8d common (2 1/2" × 0.131" × 0.281" head) nail (roof); or RSRS-01 (2 3/8" × 0.113" × 0.281" head) nail (roof) ^b	6 ^f	6 ^f
3 2	19/32" – 3/4"	8d common (2 1/2" × 0.131") nail (subfloor, wall)	6	12
		8d common (2 1/2" × 0.131" × 0.281" head) nail (roof); or RSRS-01; (2 3/8" × 0.113" × 0.281" head) nail (roof) ^b	6 ^f	6 ^f
		Deformed 2 3/8" × 0.113" × 0.266" head (wall or subfloor)	6	12
3 3	7/8" – 1 1/4"	10d common (3" × 0.148") nail; or (2 1/2" × 0.131" × 0.281" head) deformed nail	6	12

Other wall sheathing⁹

3 4	1/2" structural fiberboard sheathing	cellulosic	1 1/2" × 0.120" galvanized roofing nail, 7/16" head diameter; or 1 1/4" long 16 ga. staple with 7/16" or 1" crown	3	6
3 5	25/32" structural fiberboard sheathing	cellulosic	1 3/4" × 0.120" galvanized roofing nail, 7/16" head diameter; or 1 1/4" long 16 ga. staple with 7/16" or 1" crown	3	6
3 6	1/2" gypsum sheathing ^d		1 1/2" × 0.120" galvanized roofing nail, 7/16" head diameter; or 16 ga. staple galvanized, 1 1/2" long 7/16" or 1" crown; or 1 1/4" screws, Type W or S	7	7
3 7	5/8" gypsum sheathing ^d		1 3/4" × 0.120" galvanized roofing nail, 7/16" head diameter; or 16 ga. staple galvanized, 1 5/8" long, 7/16" or 1" crown; or 1 5/8" screws, Type W or S	7	7

Wood structural panels, combination subfloor underlayment to framing

3 8	3/4" and less	Deformed (2" × 0.113") or Deformed (2" × 0.120") nail; or 8d common (2 1/2" × 0.131") nail	6	12
3 9	7/8" – 1"	8d common (2 1/2" × 0.131") nail; or Deformed (2 1/2" × 0.131"); or Deformed (2 1/2" × 0.120") nail	6	12
4 0	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or Deformed (2 1/2" × 0.131"); or Deformed (2 1/2" × 0.120") nail	6	12

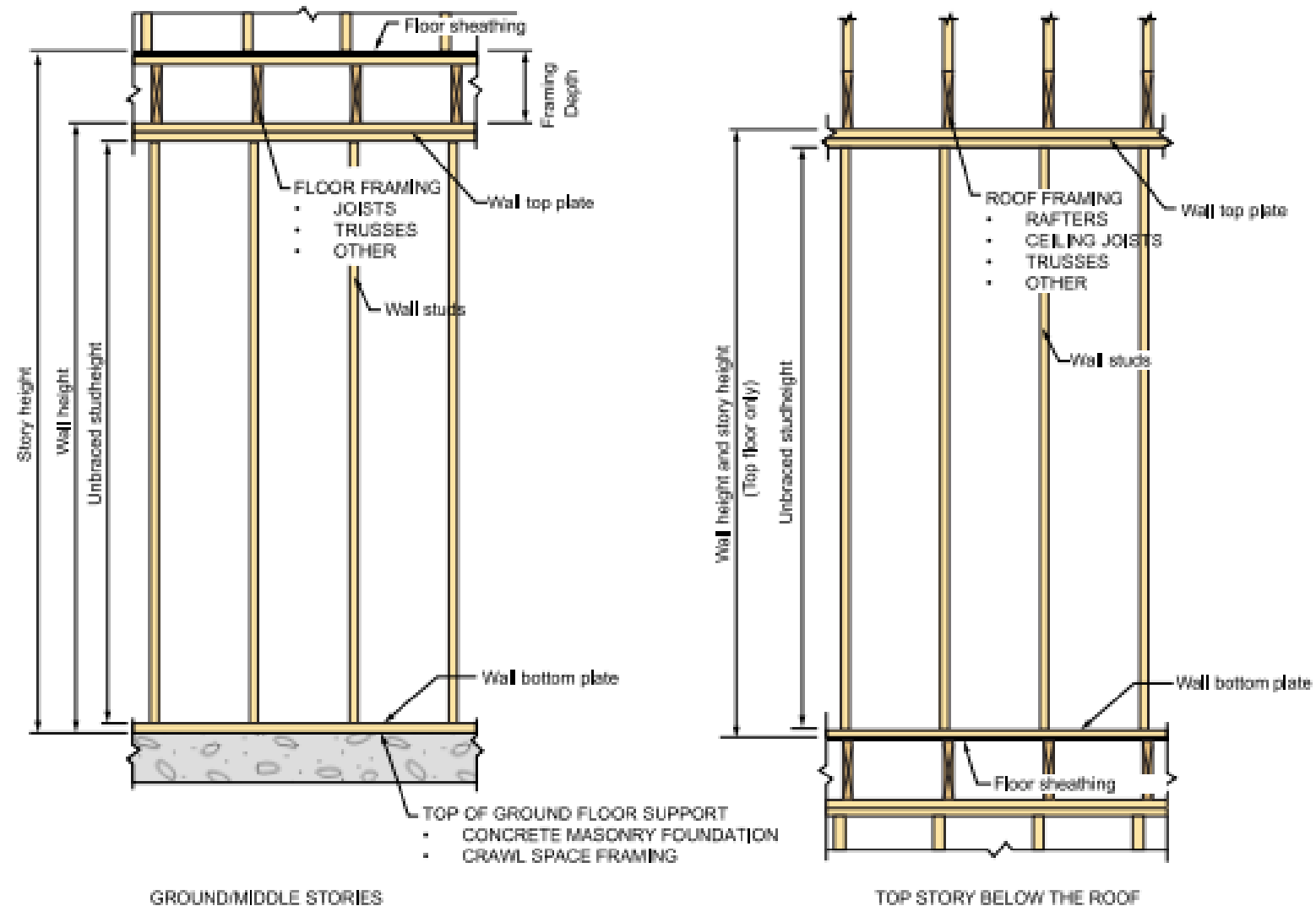
R602.10.3.1 Wall height for wood framing

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 determined in accordance with Figure R602.10.3.1.

2024 International Residential Code (IRC)

CHAPTER 6 WALL CONSTRUCTION

FIGURE R602.10.3.1 WALL HEIGHT FOR WOOD FRAMING



Section R609 Exterior Windows and Doors

R609.4.1 Garage door labeling

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

Chapter 7 Wall Covering

R702.3.7 Water-resistant gypsum backing board

Gypsum board used as the base or backer for adhesive application of ceramic tile or other required nonabsorbent finish material shall conform to ASTM C1178, C1278 or C1396.

Use of water-resistant gypsum backing board shall be permitted on ceilings.

Water-resistant gypsum board **shall not be installed** over a **Class I or II vapor retarder in a shower or tub compartment**.

Cut or exposed edges, including those at wall intersections, shall be sealed as recommended by the manufacturer.

R702.3.7.1 Limitations.

Water-resistant gypsum backing board shall not be used where there will be direct exposure to water, or in areas subject to continuous high humidity.

R702.7 Vapor retarders

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 listed 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 listed Climate Zones 1, 2 and 3.
5. In listed Climate Zones 4 through 8, a vapor retarder shall not be required where the assembly complies with Table R702.7(5).

2024 International Residential Code (IRC)

CHAPTER 7 WALL COVERING

TABLE R702.7(1) VAPOR RETARDER MATERIALS AND CLASSES

CL AS S	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.

2024 International Residential Code (IRC)

CHAPTER 7 WALL COVERING

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 ^c	Permitted
Marine 4, 5, 6, 7, 8	Permitted ^{b, c}	Permitted ^c	See Table R702.7(3)

1. a.
A responsive vapor retarder shall be allowed on the interior side of any frame wall in all climate zones.
2. b.
In frame walls, use of a Class I vapor retarderthat is not a responsive vapor retarder on the interior sidewith a Class I vapor retarder on the exterior side shall require an approved design.
3. c .
Where a Class I or II vapor retarder is used in combination with foam plastic insulating sheathingor 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 shallbe a responsive vapor retarder.

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, in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer and behind deck ledgers. The listedmaterial 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 Where the listed water-resistive barrier also functions as a component of aair barrier, the ...barrier shall be installed as air barrier 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.

R703.3.1 Siding clearance at wall and adjacent surfaces

Unless otherwise specified by the cladding manufacturer or this code, polypropylene, insulated vinyl and vinyl claddings shall have clearance of not less than 6 inches from the ground and not less than 1/2 inch from other adjacent surfaces (decks, roofs, slabs).

R703.4.1 Flashing installation at exterior window and door openings

Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish shall be installed in accordance with one or more of the following:

1. The fenestration **manufacturer's installation and flashing instructions.....** **Where flashing instructions or details are not provided, pan flashing shall be installed at the sill of exterior window and door openings.** Pan flashing shall be sealed or sloped ...to direct water to the surface of the exterior wall finish or to the listed water-resistive barrier
2. In accordance with the flashing design or method of a registered design professional.
3. In accordance with other approved methods.

R703.8.2.2 Support by ledger or roof construction

A steel angle shall be placed directly on top of the ledger or roof construction. The ledger or roof construction **three 2-inch by 6-inch wood members** anchored with not fewer than three 5/8-inch diameter by 5-inch lag screws to every wood stud spacing. Each additional wood roof member shall be anchored bytwo 10d nails at every wood stud spacing.Not less than two-thirds the width of the masonry veneer thickness shall bear on the steel angle. Flashing and weep holes shall be in the masonry veneer The maximum height of the masonry veneer above the steel angle support shall be 12 feet 8 inches.....

The maximum slope of a **steel angle installed without stops shall be 7:12**. A steel angle installed with a **slope greater than 7:12 but not more than 12:12 shall have stops of a minimum 3-inch by 3-inch by 1/4-inch steel plate welded to the angle at 24 inches on center** along the angle or as approved by the building official.



Do you install masonry above roof construction?

If you do, are you using lintels with stops?

**Ameristeel manufactures a variety of raked lintels
with stops that relate to IRC R703.7.**

The International Residential Code R703.7.2.2 states

"EXTERIOR MASONRY VENEER SUPPORT BY STEEL ANGLES

R703.7.2.2 Support by roof construction.

'A minimum of 6 inches by 4 inches by 5/16 inch (152 mm by 102 mm by 8 mm) steel angle, with the long leg placed vertically' shall be placed directly on top of the roof construction.

The maximum slope of the roof construction without the stops shall be 7:12. Roof construction with slopes greater than 7:12 but not more than 12:12 shall have stops of a minimum 3 inch by 3 inch by 1/4 inch (76mm by 76mm by 6 mm) steel plate welded to the angle at 24 inches (610 mm) on center along the angle or as approved by the building official."

See the other side of this flyer for several examples of lintels with stops that Ameristeel offers.



6x4x5/16" primed lintel
with 3x3x1/4" stops

o you install masonry above r

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 the manufacturer's installation instructions. Backer units shall be installed using corrosion-resistant fasteners. Finish materials shall be installed in accordance with the manufacturer's instructions.

CHANGE SIGNIFICANCE: Fiber-mat reinforced cementitious backer board is **often used** on the interior of a residence **in bathrooms or the kitchen**. Any location that may potentially become a wet area may use one of the backing materials in Table R702.4.2. The exterior surface of exterior walls is also an area that can become wet. Backer board or cement board meeting ASTM C1325, Standard Specification for Fiber-Mat Reinforced **Cementitious Backer Units**, **may also be used 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 ASTM C1325 ,AC376 or AC59. Cement board conforming with ASTM C1325 can be used as a substrate in exterior applications following these three standards.

Section R704 Exterior Soffits and Fascia

R704.2.1 Vinyl and aluminum exterior soffit panels.

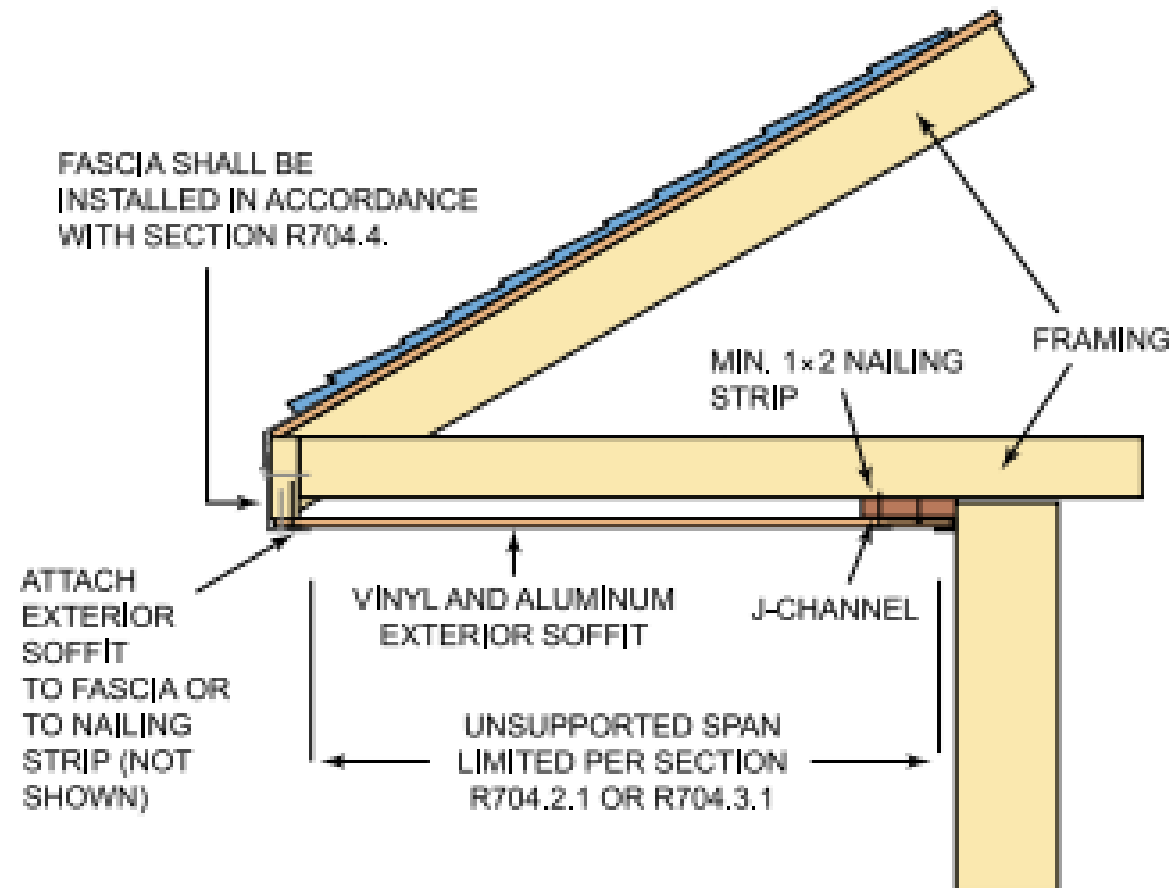
Vinyl and aluminum exterior soffit panels shall be installed using aluminum, galvanized, stainless steel or rust-preventative coated nails or staples or other listed approved corrosion-resistant fasteners specified by the manufacturer and shall be fastened at both ends to a supporting component such as a nailing strip, fascia or subfascia component in accordance with Figure R704.2.1(1).

Where the unsupported span of exterior soffit panels is greater than 16 inches, intermediate nailing strips shall be provided in accordance with Figure R704.2.1(2). Vinyl and aluminum exterior soffit panels shall be installed in accordance with the manufacturer's installation instructions. Fascia covers shall be installed in accordance with the manufacturer's installation instructions.

2024 International Residential Code (IRC)

CHAPTER 7 WALL COVERING

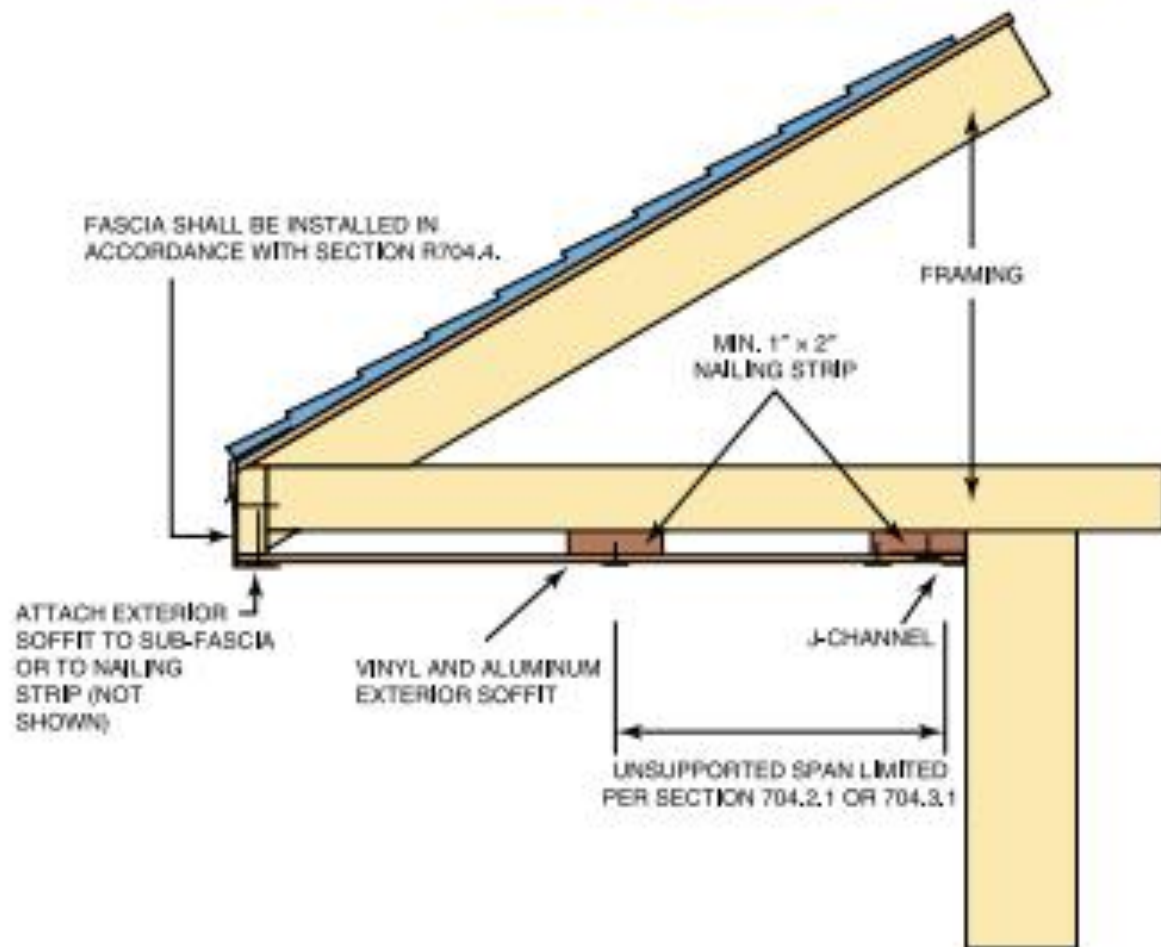
FIGURE R704.2.1(1) TYPICAL SINGLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT



2024 International Residential Code (IRC)

CHAPTER 7 WALL COVERING

FIGURE R704.2.1(2) TYPICAL DOUBLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT



R704.2.2 Fiber-cement exterior soffit panels

Fiber-cement exterior soffit panels shall be a minimum of 1/4 inch in thickness and shall comply with the requirements of ASTM C1186, Type A, minimum Grade II, or ISO 8336, Category A, minimum Class 2. Panel joints shall occur over framing or over listed wood structural panel sheathing. Exterior soffit panels shall be installed with spans and fasteners in accordance with the manufacturer's installation instructions.

R704.2.3 Hardboard exterior soffit panels.

Hardboard exterior soffit panels shall be not less than 7/16 inch in thickness and shall be fastened to framing or nailing strips with 2 1/2-inch by 0.113-inch siding nails spaced not more than 6 inches on center at panel edges and 12 inches on center at intermediate supports.

R704.2.4 Wood structural panel exterior soffit.

The minimum nominal thickness for wood structural panel exterior soffits shall be 3/8 inch and shall be fastened to framing or nailing strips with 2-inch by 0.099-inch nails. Fasteners shall be spaced not less than 6 inches on center at panel edges and 12 inches on center at intermediate supports.

R704.4 Fascia.

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

R704.4.1 Aluminum fascia.

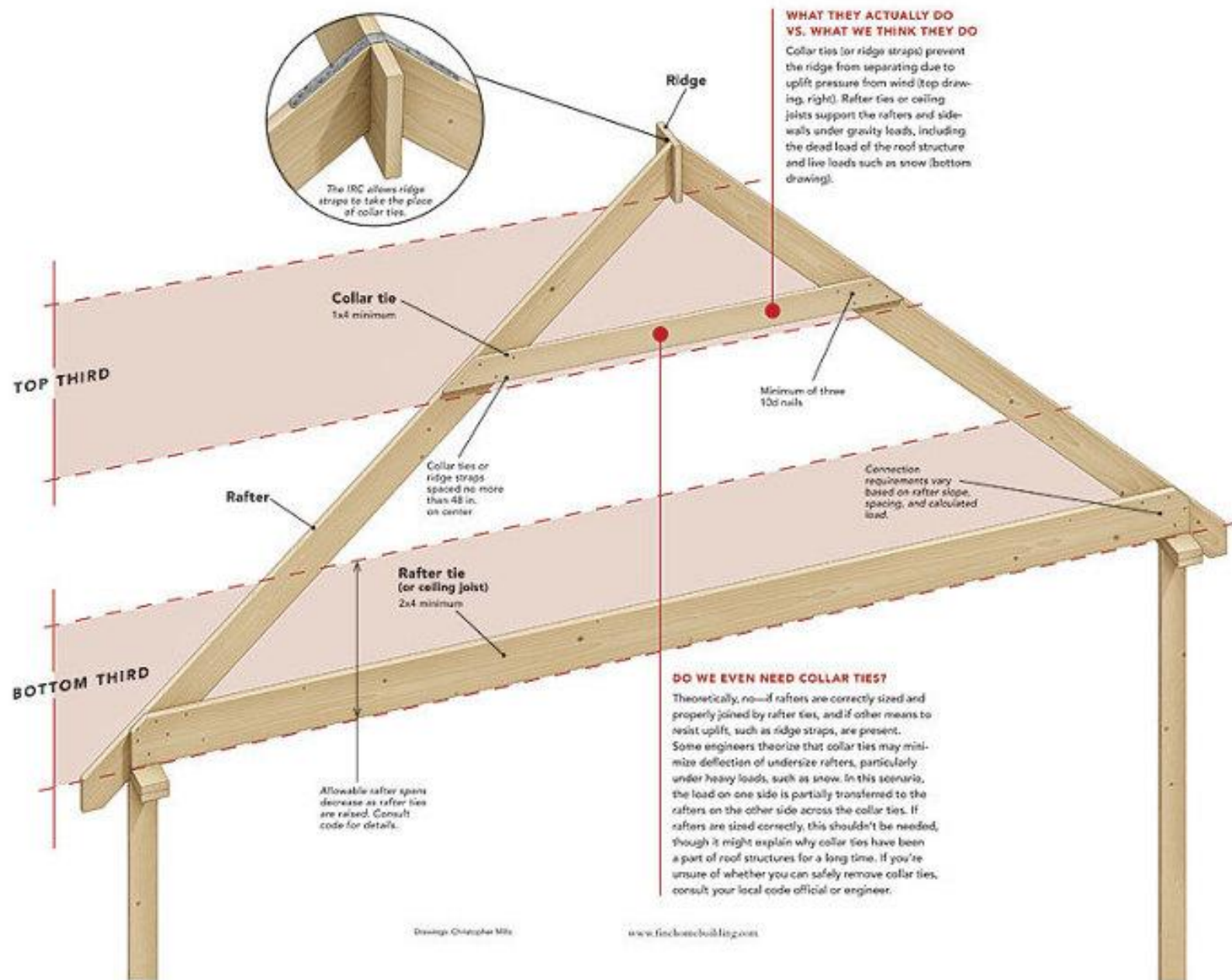
Aluminum fascia shall be installed in accordance with the manufacturer's installation instructions and comply with Section R704.4.1.1 or R704.4.1.2.

Chapter 8 Roof-Ceiling Construction

R802.3 Ridge

A ridge board used to connect opposing rafters shall be not less than 1 inch nominal thickness and not less in depth than the cut end of the rafter.

Where ceiling joist or rafter ties do not provide continuous ties across the structure, the ridge shall be supported by a wall or ridge beam ... and supported on each end by a wall or column.



R802.5.2 Ceiling joist and rafter connections

Where ceiling joists run parallel to rafters and are located in the bottom third of the rafter height, they shall be installed in accordance with Figure R802.4.5 and fastened to rafters in accordance with Table R802.5.2(1).

Where the ceiling joists are installed above the bottom third of the rafter height, the ridge shall be designed as a beam in accordance with Section R802.3. Where ceiling joists do not run parallel to rafters, rafters shall be tied across the structure with a rafter tie in accordance with Section R802.5.2.2, or the ridge shall be designed as a beam in accordance with Section R802.3.

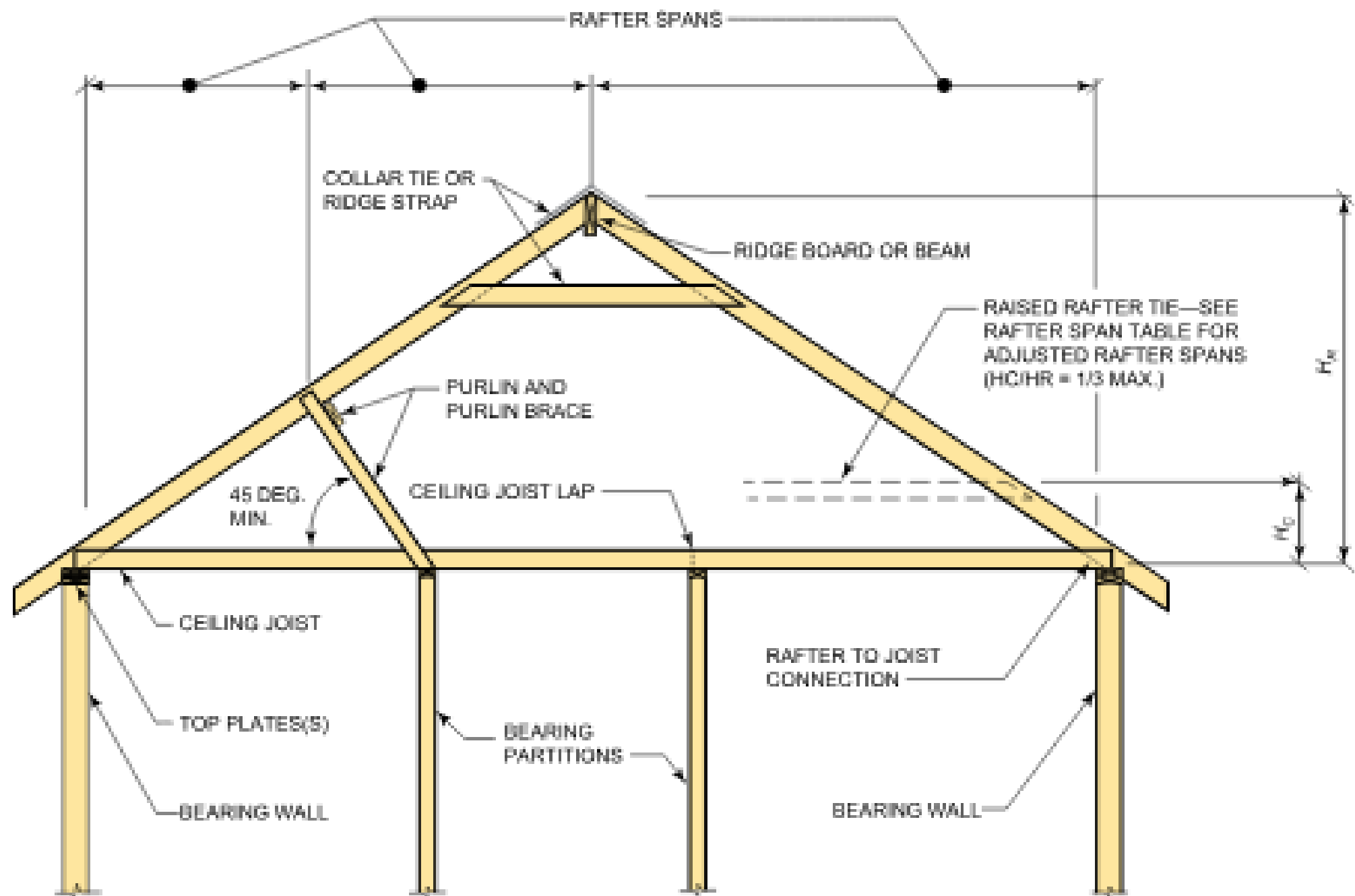


TABLE R802.5.2(1) RAFTER/CEILING JOIST HEEL JOINT CONNECTIONS⁹

RAFTER SLOPE	RAFTER (inches)	SPACING	GROUND SNOW LOAD (psf)											
			20 ^e			30			50			70		
			Roof span (feet)											
			12	24	36	12	24	36	12	24	36	12	24	36
			Required number of 16d common nails per heel joint connection ^{a, b,}											
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	6	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
7:12	12		3	3	4	3	3	4	3	4	6	3	5	8
	16		3	3	5	3	4	5	3	5	8	4	7	10
	19.2		3	4	5	3	4	6	3	6	9	4	8	12
	24		3	5	7	3	5	8	4	8	11	5	10	15
	12		3	3	3	3	3	3	3	3	5	3	4	6

R908.3 Roof replacement

Roof replacement shall include the removal of existing layers of roof coverings down to the roof deck.

Exceptions:

1. Where the existing roof assembly includes an ice barrier ... that is adhered to the roof deck and the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane
2. Where the existing roof includes a self-adhered underlayment and the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, the existing self-adhered underlayment shall be permitted to remain in place and covered with an underlayment).
3. Where the existing roof includes one layer of self-adhered underlayment and the existing layer cannot be removed without damaging the roof deck, a second layer of self-adhered underlayment is permitted to be installed over the existing self-adhered underlayment provided that the following conditions are met:
 - 3.1. It is permitted by the roof covering manufacturer
 - 3.2. The existing sheathing is not water soaked or deteriorated
 - 3.3. The second layer of self-adhered underlayment is installed such that buildup of material at walls, valleys, roof edges, end laps, and side laps does not exceed two layers.



GEORGIA DEPARTMENT
of COMMUNITY AFFAIRS

Georgia State Amendments

to the

National Electrical Code

(2023 Edition)



Georgia Department of Community Affairs

Community Development Division

60 Executive Park South, N.E.

Atlanta, Georgia 30329-2231

(404) 679-3118

dca.georgia.gov

Revised January 1, 2026

210.8(A) Dwelling Units. All 125-volt through 250-volt receptacles installed in the locations and supplied by single-phase branch circuits rated 150 volts or less to ground shall have ground-fault circuit-interrupter protection for personnel.

(1) Bathrooms

(2) Garages and also accessory buildings that have a floor located at or below grade level not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use

(3) Outdoors

(4) Crawl spaces — at or below grade level

(5) Basements

(6) Kitchens — where the receptacles are installed to serve the countertop surfaces

~~(7) Areas with sinks and permanent provisions for food preparation, beverage preparation or cooking~~

(7) Sinks — where receptacles are installed within 1.8 m (6 ft) from the top inside edge of the bowl of the sink

(8) Boathouses

(9) Bathtubs or shower stalls — where receptacles are installed within (6 ft) of the outside edge of the bathtub or shower stall

(10) Laundry areas

(11) Indoor damp and wet locations

210.8(D) Specific Appliances. GFCI protection shall be provided for the branch circuit or outlet supplying the following appliances rated 150 volts or less to ground and 60 amperes or less, single- or 3-phase:

- (1) Automotive vacuum machines
- (2) Drinking water coolers and bottle fill stations
- (3) High-pressure spray washing machines
- (4) Tire inflation machines
- (5) Vending machines
- (6) Sump pumps
- (7) Dishwashers
- ~~(8) Electric Ranges~~
- ~~(9) Wall mounted ovens~~
- ~~(10) Counter mounted cooking units~~
- ~~(11) Clothes Dryers~~
- ~~(12) Microwave Units~~

(Effective January 1, 202

210.8(F) Outdoor Outlets. For dwellings, all outdoor outlets, other than those covered in

210.8(A), Exception No. 1, including outlets installed in the following locations, and supplied by single-phase branch circuits rated 150 volts or less to ground, 50 amperes or less, shall be provided with GFCI protection:

- (1) Garages that have floors located at or below grade level
- (2) Accessory buildings
- (3) Boathouses

If equipment supplied by an outlet covered under the requirements of this section is replaced, the outlet shall be supplied with GFCI protection.

Exception No. 1: GFCI protection shall not be required on lighting outlets other than those covered in 210.8(C).

Exception No. 2: GFCI protection shall not be required for listed HVAC equipment.

210.12(B) Dwelling Units. All 120 volt, single-phase, 10-, 15-, and 20-ampere branch circuits supplying outlets or devices installed in the following locations shall be protected by any of the means described in 210.12(A)(1) through (A)(6): (AFCI Protection)

~~(1) Kitchens~~

(1) Family rooms

(2) Dining rooms

(3) Living rooms

(4) Parlors

(5) Libraries

(6) Dens

(7) Bedrooms

(8) Sunrooms

(9) Recreation rooms

(10) Closets

(11) Hallways

(12) Similar areas

[The exceptions remain unchanged.]

*Revise Article 210.52(C)(2) ‘Island and Peninsular Countertops and Work Services’ to read as follows:

210.52(C)(2) Island and Peninsular Countertops and Work Surfaces.

At least one receptacle shall be installed at each island and peninsular countertop space with a long dimension of (24 in.) or greater and a short dimension of (12 in.) or greater.

A peninsular countertop is measured from the connected perpendicular wall.

(Effective January 1, 2026)

210.52(C)(3) Receptacle Outlet Location. Receptacle outlets shall be located in one or more of the following:

- (1) On or above, but not more than (20 in.) above, a countertop or work surface
- (2) In a countertop using receptacle outlet assemblies listed for use in countertops
- (3) In a work surface using receptacle outlet assemblies listed for use in work surfaces or listed for use in countertops

Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or range-tops as covered in 210.52(C)(1), Exception No. 1, or appliances occupying assigned spaces shall not be considered as these required outlets.

Exception: To comply with the following conditions (1) and (2), receptacle outlets shall be permitted to be mounted not more than (12 in.) below the countertop or work surface.

Receptacles mounted below a countertop or work surface in accordance with this exception shall not be located where the countertop or work surface extends more than (6 in.) beyond its support base.

ARTICLE 215
FEEDERS

And

ARTICLE 225
OUTSIDE BRANCH CIRCUITS AND FEEDERS

And

ARTICLE 230
SERVICES

215.18 (A) Surge-Protective Device. Where a feeder supplies any of the following, a surge protective device (SPD) shall be installed:

- (1) Dwelling units
- (2) Dormitory units
- (3) Guest rooms and guest suites of hotels and motels
- (4) Areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

Exception: One- and two-family dwellings are exempt.

(Effective January 1, 2026)

*Add new Article 517.45 (F) 'Assisted Living Community, Nursing Homes and Long-Term Care Facilities' to read as follows:

517.45(F) Assisted Living Community, Nursing Homes and Long-Term Care Facilities. All Category 3 Assisted Living Community, Nursing Homes and Long-Term Care Facilities licensed by the Department of Community Health shall be served by an essential electrical distribution system in accordance with 517.40 through 517.45. The required life safety and equipment branches shall be arranged for either delayed-automatic or manual connection to the alternate power source. The heating and cooling systems supplying these spaces shall be connected to the equipment branch of the essential electrical distribution system.

Nier Building Inspections



[www:Nierbuildinginspections.com](http://www.Nierbuildinginspections.com)

404-277-6612

Services

- Third Party Inspection and Plan Review services
 - Building, MEP, Fire, Sprinkler, Energy, soil and water
- Municipal Services
- DET (duct and envelope testing) services
- Energy compliance Inspections
- ADA guidance and evaluation
- Litigation / Expert Witness / Conflict Resolution



Nierbuildinginspections.com

404-277-6612