PART 3

International Residential Code

Chapters 3, 5 and 11

International Energy Conservation Code

Chapter 2 [RE] and Chapter 4

[RE] (RE is for Residential Energy)

- Chapter 3 Building Planning
- Chapter 5 Floors
- Chapter 11 Energy Efficiency

The *International Residential Code*® (IRC®) contains provisions for residential one- and two-family dwellings less than 3 stories in height. it contains building planning, framing, mechanical, plumbing, fuel gas and electrical provisions for the design, construction and administration of residential one- and two-family dwellings. Chapter 3 includes provisions for separation from lot lines, fire resistance of exterior walls and openings and egress from the building. Chapter 5 incudes provisions for floor construction both conventional wood and cold-formed steel construction and Chapter 11 contains provisions for energy efficncy. ■

IRC R302.1

Exterior Walls

IRC R316.5.11

Sill Plates and Headers

IRC R317.1.4

Wood Columns (Protection when Subject to Decay)

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Decking

IRC R507.2.4 (2009 IRC R502.2.2.3)

Deck Lateral Load Connection

IRC R507.5, R507.6, R507.7 (No 2009 Sections)

Deck Joists and Beams

IRC R507.8 (No 2009 Sections)

Deck Posts

IRC N1101.6 - IECC R202
(2009 IECC 202; 2009 IRC R202),
IRC N1102.1.3 - IECC R402.1.3
(2009 IECC 402.1.2; 2009 IRC N1102.1.1)

R-Value Computation—Insulated Siding

IRC N1102.2.4 - IECC R402.2.4
(2009 IECC 402.2.3; 2009 IRC N1102.2.3)

Access Hatches and Doors

IRC N1102.2.8 -IECC R402.2.8
(2009 IECC 402.2.6; 2009 IRC N1102.2.6),
Table N1102.4.1.1 - IECC R402.4.1.1
(2009 IECC Table 402.4.2; 2009 IRC Table N1102.4.2

Floor Framing Cavity Insulation

IRC M1503.4

Makeup Air for Range Hoods

IRC M1601.4.1

Duct Joints and Seams

IRC R302.1

Exterior Walls

CHANGE TYPE: Modification

CHANGE SUMMARY: Penetrations of exterior walls do not require fire-resistant protection unless they are located less than 3 feet from the property line.

2015 CODE: **R302.1 Exterior Walls.** Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1.

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the fire separation distance.
2. Walls of dwellings and accessory structures located on the same lot.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.
4. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

TABLE R302.1 Exterior Walls

Exterior Wall Element		Minimum Fire-Resistance Rating	Minimum Fire Separation Distance
Walls	Fire-resistance rated	1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure from both sides	< 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Fire-resistance rated	1 hour on the underside	≥ 2 feet to 5 feet
	Not fire-resistance rated	0 hours	5 feet
Openings in walls	Not allowed	N/A	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< ~~5~~ 3 feet
		None required	~~5~~ 3 feet

For SI: 1 foot = 304.8 mm.
N/A = Not Applicable

CHANGE SIGNIFICANCE: The code has long recognized the effectiveness of providing space between the exterior wall and the lot line in preventing the spread of fire from a building on one property to a building on another property. Unless the exterior wall is constructed to provide a 1-hour fire-resistance rating in accordance with either ASTM E-119 or UL 263, a minimum fire separation distance is required from the lot line. The consensus as to the minimum distance necessary to provide a sufficient buffer against the spread of fire has changed somewhat over the years, settling on a minimum distance of 5 feet in the 2006 edition of the IRC. The choice of providing either adequate fire separation distance or fire-resistant-rated construction also extends to openings, penetrations and projections—some fire resistance measures must be provided where the fire separation distance to the property line falls below the code-prescribed dimension.

The IRC has allowed a limited amount of unprotected openings such as windows and doors in exterior walls of unsprinklered dwellings where the fire separation distance was less than 5 feet but not less than 3 feet. In the 2015 IRC, this same allowance is applied to penetrations—fire protection of the penetration is not required unless the exterior wall is less than 3 feet from the lot line. This is considered a reasonable accommodation for small penetrations such as hose bibbs, dryer vent terminations, mechanical draft terminals, and electrical equipment without impairing the effectiveness of the fire-resistant-rated assembly. For penetrations less than 3 feet from the lot line, Section R302.4 prescribes the methods of protection to prevent the passage of flame and hot gases at the penetrations.

IRC R316.5.11

Sill Plates and Headers

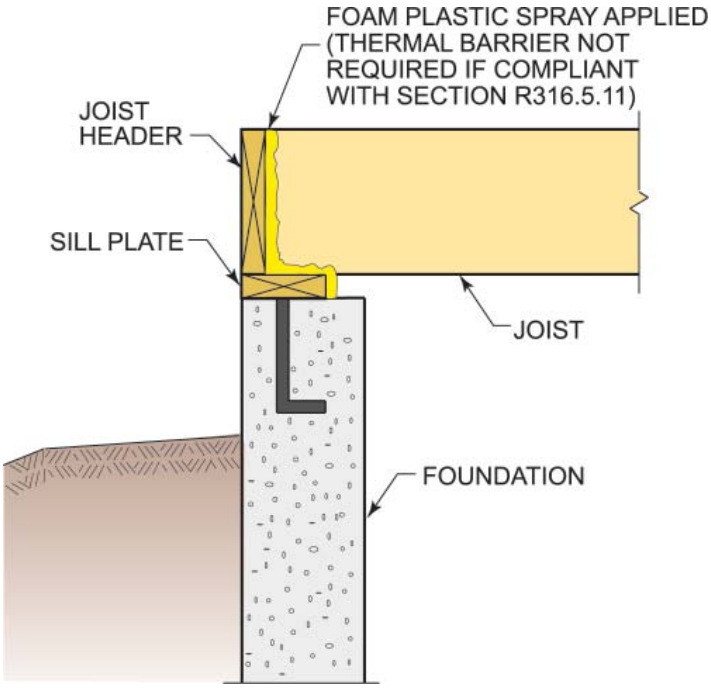
CHANGE TYPE: Modification

CHANGE SUMMARY: Application of foam plastic is expanded to also be allowed to be installed in perimeter joist spaces.

2015 CODE: **R316.5.11 Sill plates and headers.** Foam plastic shall be permitted to be spray applied to ~~a~~ sill plate<u>s</u> and headers <u>or installed in the perimeter joist space</u> without the thermal barrier specified in Section R316.4 subject to all of the following:

1. The maximum thickness of the foam plastic shall be $3^1/_4$ inches (83 mm).
2. The density of the foam plastic shall be in the range of 0.5 to 2.0 pounds per cubic foot (8 to 32 kg/m^3).
3. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke developed index of 450 or less when tested in accordance with ASTM E 84.

CHANGE SIGNIFICANCE: This change clarifies that sill plates and headers are allowed to be applied with spray applied foam plastic. Installation of foam plastic in rigid form is now also allowed in the perimeter joist space.



Foam plastic spray applied to sill plate and header

IRC R317.1.4

Wood Columns (Protection When Subject to Decay)

CHANGE TYPE: Modification

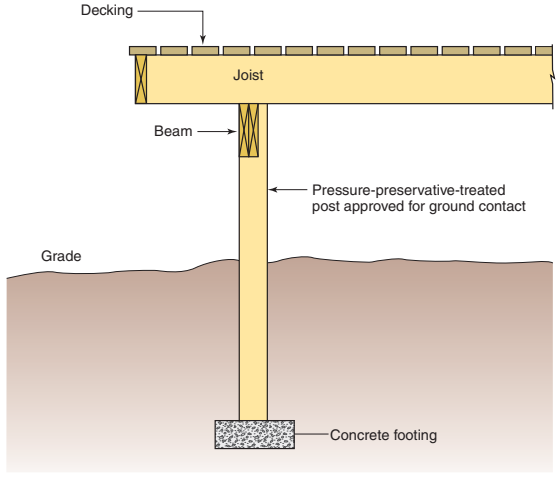
CHANGE SUMMARY: A new exception has been added for deck posts supported by concrete piers or metal pedestals to where wood of natural resistance to decay or approved pressure-preservative-treated wood need not be used.

2015 CODE: **R317.1.4 Wood columns.** Wood columns shall be approved wood of natural decay resistance or approved pressure-preservative-treated wood.

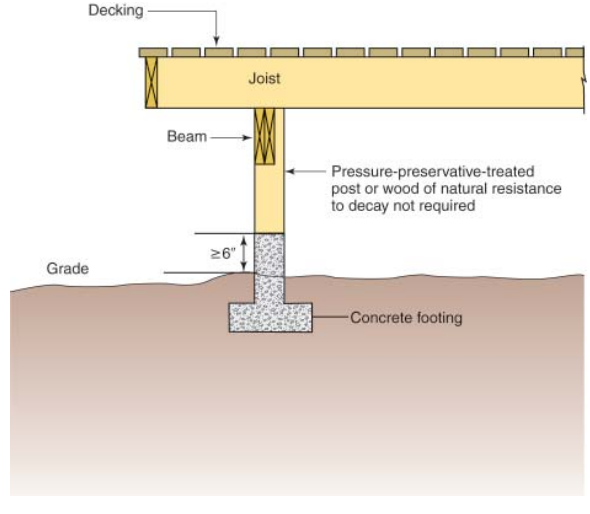
Exceptions:

1. Columns exposed to the weather or in basements when supported by concrete piers or metal pedestals projecting 1 inch (25.4 m) above a concrete floor or 6 inches above exposed earth and the earth is covered by an approved impervious moisture barrier.
2. Columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building when supported by a concrete pier or metal pedestal at a height more than 8 inches from exposed earth and the earth is covered by an impervious moisture barrier.
3. Deck posts supported by concrete piers or metal pedestals projecting a minimum of 1 inch above a concrete floor or 6 inches above exposed earth.

CHANGE SIGNIFICANCE: Wood exposed to the elements must be protected against decay by using wood of natural resistance to decay or approved pressure-preservative-treated wood. Historically, however, there have been some exceptions because experience had shown decay is not a problem if certain conditions were met. Exceptions 1 and 2 in the 2009 IRC addressed two such conditions and the 2015 Exception 3 has been added to treat deck posts similarly to other wood columns where separation from concrete floors or exposed earth is provided.



Protection against decay for wood decks-1
(None of the exceptions apply)



Protection against decay for wood decks-2
(Exception 3)

IRC R507.1
(2009 IRC R502.2.2),

IRC R507.4
(No 2009 Section)

Decking

CHANGE TYPE: Modification

CHANGE SUMMARY: The code sets the maximum allowable spacing for deck joists supporting the various types of common decking materials. 2009 IRC R502.2.2 Decks was relocated to Section R507.1 in 2015 code.

2015 CODE: **R507.1** (2009 IRC R502.2.2) **Decks.** Wood-framed decks shall be in accordance with this section or Section R301 for materials and conditions not prescribed herein. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads, as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.

R507.4 Decking. Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.4. Wood decking shall be attached to each supporting member with not less than (2) 8d nails or (2) No. 8 wood screws.

TABLE R507.4 Maximum joist spacing

Material type and nominal size	Maximum on-center joist spacing	
	Perpendicular to joist	Diagonal to joist[a]
1¼-inch thick wood	16 inches	12 inches
2-inch thick wood	24 inches	16 inches
Plastic composite	In accordance with Section R507.3 (2009 IRC R502.1.7and R502.2.2.4)	In accordance with Section R507.3 (2009 IRC R502.1.7 and R502.2.2.4)

For SI: 1 inch 5 25.4 mm, 1 foot 5 304.8 mm, 1 degree 5 0.01745 rad.

a. Maximum angle of 45 degrees from perpendicular for wood deck boards

Decking