Hardboard panel siding		7/16	–	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	6″ panel edges 12″ inter. sup.
Hardboard lap siding		7/16	–	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	Same as stud spacing 2 per bearing
Horizontal aluminum	Without insulation	0.019	Lap	Siding nail 1½″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 1½″ × 0.120″	Not allowed	Same as stud spacing
	Without insulation	0.024	Lap	Siding nail 1½″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nailh 1½″ × 0.120″	Not allowed	
	With insulation	0.019	Lap	Siding nail 1½″ × 0.120″	Siding nail 2½″ × 0.120″	Siding nail 2½″ × 0.120″	Siding nailh 1½″ × 0.120″	Siding nail 1½″ × 0.120″	
Insulated vinyl siding		0.035 (vinyl siding layer only)	Lap	0.120 nail (shank) with a 0.313 head or 16 gauge crown	0.120 nail (shank) with a 0.313 head or 16 gauge crown	0.120 nail (shank) with a 0.313 head or 16 gauge crown	0.120 nail (shank) with a 0.313 head per Section R703.11.2	Not allowed	16 in. on center or specified by manufacturer instructions, test report or other sections of the code

(continued)

Table 7.2 Siding minimum attachment and minimum thickness (*continued*)

Siding material	Nominal thickness (in.)	Joint treatment	Type of supports for the siding material and fasteners					
			Wood or wood structural panel sheathing into stud	Fiberboard sheathing into stud	Gypsum sheathing into stud	Foam plastic sheathing into stud	Direct to studs	Number or spacing of fasteners
Particleboard panels	3/8	–	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	Not allowed	6″ panel edges 12″ inter. sup.
	1/2	–	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ x 0.099″)	6d box nail (2″ × 0.099″)	
	5/8	–	6d box nail (2″ × 0.099″)	8d box nail (2½″ × 0.113″)	8d box nail (2½″ × 0.113″)	6d box nail (2″ x 0.099″)	6d box nail (2″ × 0.099″)	
Polypropylene siding	Not applicable	Lap	Section 703.14.1	Section 703.14.1	Section 703.14.1	Section 703.14.1	Not allowed	As specified by the manufacturer instructions, test report or other sections of this code

Steel		29 ga.	Lap	Siding nail (1¾″ × 0.113″) Staple–1¾″	Siding nail (2¾″ × 0.113″) Staple–2½″	Siding nail (2½″ × 0.113″) Staple–2¼″	Siding nail (1¾″ × 0.113″) Staple–1¾″	Not allowed	Same as stud spacing
Vinyl siding		0.035	Lap	0.120″ nail (shank) with a 0.313″ head or 16 gauge staple with ⅜ –½″ crown	0.120″ nail (shank) with a 0.313″ head or 16 gauge staple with ⅜ –½″ crown	0.120″ nail (shank) with a 0.313″ head or 16 gauge staple with ⅜ –½″ crown	0.120 nail (shank) with a 0.313 head per Section R703.11.2	Not allowed	16 in. on center or specified by the manufacturer instructions or test report
Wood siding	Wood rustic, drop	⅜ Min	Lap	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	8d box or siding nail (2½″ × 0.113″) Staple–2″	Face nailing up to 6″ widths, 1 nail per bearing; 8″ widths and over, 2 nails per bearing
	Shiplap	19/32 Average	Lap						
	Bevel	7/16							
	Butt tip	3/16	Lap						
Wood structural panel ANSI/APA PRP-210 siding (exterior grade)		⅜ –½	–	2″ × 0.099″ siding nail	2½″ × 0.113″ siding nail	2½″ × 0.113″ siding nail	2½″ × 0.113″ siding nail	2″ × 0.099″ siding nail	6″ panel edges 12″ inter. sup.
Wood structural panel lap siding		⅜ –½	–	2″ × 0.099″ siding nail	2½″ × 0.113″ siding nail	2½″ × 0.113″ siding nail	2½″ × 0.113″ siding nail	2″ × 0.099″ siding nail	8″ along bottom edge

Alternative assemblies are permitted if they have been proven to resist wind-driven rain. Additional covering is not required over masonry and concrete walls that are properly flashed.

Water-Resistive Barrier

One layer of No. 15 asphalt felt or other approved water-resistive barrier, such as an approved house wrap, is required over studs or sheathing of all exterior walls. No. 15 asphalt felt must be applied as follows:

- Horizontally
- The upper layers must be lapped over the lower layers at least 2 in.
- Vertical joints must be lapped at least 6 in.

Note: *House wrap must be installed in accordance with the manufacturer's instructions.*

Flashing Requirements Applicable to All Exterior Wall Coverings

To prevent water entering behind exterior wall coverings and penetrating the wall assembly, the code requires corrosion-resistant flashing at the following locations:

- Exterior window and door openings
- The intersection of masonry construction with frame or stucco walls

- Under and at the ends of masonry, wood, or metal copings and sills
- Continuously above all projecting wood trim
- Where exterior porches, decks, or stairs attach to a wall or floor
- At wall and roof intersections

Exterior Insulation and Finish Systems (EIFS)

Installation of EIFS must comply with the referenced ASTM standards and the manufacturer's instructions to provide the code-prescribed weather-resistant exterior envelope. The code permits EIFS without drainage over masonry and concrete construction only. For all other EIFS installations, including those over wood-frame construction, the IRC requires EIFS with drainage. To further protect the integrity of the system, the code also stipulates the following:

- No face nailing of decorative trim through EIFS
- Termination at least 6 in. above the finished ground level

Siding

The code includes installation requirements for both panel and horizontal lapped siding made of wood, hardboard, wood structural panel, fiber cement, and vinyl. Installation must follow the manufacturer's requirements and the code provisions.

Wood, Hardboard, and Wood Structural Panel Siding

For panel siding, horizontal joints must occur over solid blocking or wood structural panel sheathing and comply with one of the following:

- Lapped at least 1 in.
- Shiplapped
- Flashed with z flashing

Vertical joints must occur over framing members or wood structural panel sheathing and be either shiplapped or covered with a batten.

For horizontal lap siding, laps must comply with the manufacturer's recommendations or, if there are no recommendations, the lap must be at least 1 in. (or ½ in. if *rabbeted*). End joints must be made weather tight with one of the following methods:

- Caulked
- Covered with a batten
- Sealed and installed over a strip of flashing

Fiber Cement Siding

Fiber cement siding is manufactured of portland cement, sand, wood fiber, and specialty additives. For vertical panel applications, vertical and horizontal joints must

- Occur over framing members
- Be sealed, covered with battens or flashed

For horizontal lap siding applications, the code requires at least a 1¼ in. lap. End joints require one of the following treatments:

- Sealed with caulking
- Covered with an H-section joint cover
- Located over a strip of flashing
- Tongue and groove

Vinyl Siding

The IRC references the manufacturer's instructions for installing vinyl siding, soffit, and accessories. Each soffit panel must be fastened to framing or supporting components such as:

- Nailing strips
- Fascia or sub-fascia

When vinyl siding is installed over foam plastic sheathing that is not backed with structural sheathing, the code sets specific criteria for resisting design wind pressure. For locations with a wind speed not greater than 115 mph that fall within Exposure Category B, the minimum fastener requirements are:

- 1¼ in. penetration into wood framing
- 0.120-in. diameter nail
- 0.313-in. diameter head
- Nails spaced 16 in. O.C.

Vinyl siding installation in locations with a greater wind speed or exposure category must be

- Adjusted according to the design wind pressures or
- Comply with the manufacturer's specifications for the applicable wind pressure rating

Wood Shakes and Shingles

As with other exterior wall coverings, wood shakes and shingles require an approved water-resistive barrier, such as felt or house wrap. Other installation requirements are as follows:

- Shakes and shingles are attached to wood-based sheathing or furring strips.
- Spacing between shingles is ⅛ to ¼ in.
- Spacing between shakes is ⅜ to ½ in.
- Each shingle or shake requires two hot-dipped, zinc-coated steel, stainless steel, or aluminum fasteners.
- Fasteners shall penetrate sheathing or furring strips at least ½ in.
- Bottom courses must be doubled.
- The offset of joints in adjacent courses must be at least 1½ in.

Stone and Masonry Veneer

In general, stone and masonry veneers are limited to the first story and are not greater than 5 in. thick,

according to the prescriptive provisions of the IRC. Exceptions allow veneers up to 3 stories and 30 ft. above noncombustible foundations (plus 8 ft. for gables) for wood frame construction depending on the SDC, the nominal thickness and weight of the veneer, and the use of the building (tables 7.3 and 7.4).

Support

Masonry veneer typically is supported by a continuous concrete or masonry foundation. In seismic design categories A, B, and C, the code permits the following methods of support:

Table 7.3 Stone or masonry veneer limitations and requirements, wood or steel framing, seismic design categories A, B, and C

Seismic design category	Wood or steel framing	Number of stories	Maximum height of veneer above noncombustible foundation (ft.)	Maximum nominal thickness of veneer (in.)	Maximum weight of veneer (psf)
A, B, or C	Steel	1 or 2	30	5	50
	Wood	1, 2, or 3	30	5	50

Note: An additional 8 ft. of height is permitted for gable end walls.

Table 7.4 Stone or masonry veneer limitations and requirements, one- and two-family detached dwellings, wood framing, seismic design categories D_0, D_1, and D_2

Seismic design category	Number of wood framed stories	Maximum height of veneer above noncombustible foundation (ft.)	Maximum nominal thickness of veneer (in.)	Maximum weight of veneer (psf)
D_0	1 or 2	20	4	40
	3	30	4	40
D_1	1 or 2	20	4	40
	3	20	4	40
D_2	1 or 2	20	3	30

Note: An additional 8 ft. of height is permitted for gable end walls.

- Directly on wood frame or steel frame construction when designed to limit deflection to 1⁄600 of the span of the supporting members
- On a steel angle support measuring at least 6 × 4 × 5⁄16 in. and attached to wall construction as follows:
  - Long leg of angle placed vertically
  - Attached to double 2 × 4 studs with two 7⁄16 × 4 in. lag screws at 16 in. O.C.
  - Bearing of at least 2⁄3 of veneer width

- Flashing and weep holes above the angle
- Maximum 12 ft., 8 in. veneer height

Lintels

To support veneer above openings, the code requires noncombustible lintels with a bearing of at least 4 in. at each end. Table 7.5 provides spans for both steel angle and reinforced masonry lintels based on the number of stories above the lintel. Steel angle lintels must be installed with the long leg of the

Table 7.5 Allowable spans for lintels supporting masonry veneer

Size of steel angle (in.)	No story above (ft.-in.)	One story above (ft.-in.)	Two stories above (ft.-in.)	No. of ½" or equivalent reinforcing bars
3 × 3 × ¼	6-0	4-6	3-0	1
4 × 3 × ¼	8-0	6-0	4-6	1
5 × 3½ × 5⁄16	10-0	8-0	6-0	2
6 × 3½ × 5⁄16	14-0	9-6	7-0	2
2–6 × 3½ × 5⁄16	20-0	12-0	9-6	4

Note: Long leg of the angle shall be placed in a vertical position.
Depth of reinforced lintels shall not be less than 8 in., and all cells of hollow masonry lintels shall be grouted solid.
Reinforcing bars shall extend not less than 8 in. into the support.
Steel members indicated are adequate typical examples; other steel members meeting structural design requirements may be used.