

D. Fasteners for Use in Roof Construction

1. *Fasteners used to Secure Roof Covers and Insulations*

The fasteners are for use with the decks, plates and/or batten bars indicated. They may be designed with a shank which lodges in the deck or a toggle which opens and lodges against the underside of the deck. Fasteners may be punched (clip type), driven (nail type) or screwed (predrilled or self-drilling type) into the deck and must provide a strong resistance to withdrawal or backout. Special proprietary tools are available to drive the fasteners.

They utilize a distribution plate, disk or batten bar under the fastener head to distribute the wind uplift force transferred from the roof cover or insulation. The disk, plate or batten bar must prevent the roof cover or insulation from being pulled over the fastener head.

A minimum number of fasteners are required for each specific use to resist failure of the completed roof assembly. The minimum number of fasteners required for a given roof assembly is based on the pullout capacity of the fastener or the insulation board strength when used with a given roof covering or on the membrane strength in combination with the withdrawal strength of the deck used. Care must be used when installing fasteners to insure that they are not overdriven.

In assemblies where only two or three fasteners per insulation board are calculated to meet uplift requirements, additional consideration (e.g., additional fastening, taping of joints) may be needed to prevent the insulation board from curling under varying field conditions.

When a mechanically attached single-ply roof cover is used without an vapor/air retarder, the insulation is less susceptible to uplift and fewer insulation fasteners are required to meet the required uplift resistance.

For Structural Concrete Decks, fasteners are acceptable when used with 2500 psi (176 kg/cm²) minimum compressive strength concrete. Minimum fastener embedment shall be 1 in. (25 mm) unless otherwise noted.

For Steel Deck, fasteners and their listed installation requirements are Approved only when used with Factory Mutual Research Approved 18 (0.0474 in., 1.20 mm), 20 (0.0358 in., 0.91 mm) and 22 gauge (0.0295 in., 0.75 mm) steel deck, unless otherwise noted.

For Cementitious Wood Fiber Roof Deck, fasteners are Approved only when used with Factory Mutual Research Approved Cementitious Wood Fiber Roof Decks. Minimum fastener embedment shall be 2 in. (50 mm) for Class 1-75 and Class 1-90 windstorms and 1.5 in. (38 mm) for Class 1-60 windstorms. Fasteners shall not be driven into the deck joints for Class 1-75 or Class 1-90 construction unless otherwise noted. Refer to specific listings for wind uplift rated assemblies above Class 1-90.

The Approved manufacturers of Fasteners used to Secure Roof Covers and Insulations are:

Johns Manville Corp, Roofing Systems Group, Box 5108 Denver CO 80217

Stress Plates

Trade Name: UltraFast Metal Plate
Material: Steel, Galvalume AZ 55
Size: 3 in. (76 mm) square or 3 in. (76 mm) round
Fasteners: UltraFast #12 or 14, CD-10 with round only, UltraGard AP
Special Application: UltraFast ASAP metal plate may be used interchangeably with UltraFast metal plate fasteners

Trade Name: UltraFast Plastic Plate
Material: High Density Polyolefin or Polypropylene (blue)
Size: 3 in. (76 mm) round
Fasteners: UltraFast #12 or 14 or CD-10, UltraGard AP
Special Application: UltraFast ASAP plastic plate may be used interchangeably with UltraFast plastic plate fasteners

Trade Name: Glasfast
Material: Red polypropylene copolymer
Size: 3 in. (76 mm) round
Fasteners: UltraFast #12 or 14, UltraGard AP

Trade Name: Johns Manville N.T.B. Plate
Material: Steel, Galvalume AZ 55
Size: 3 in. (76 mm) round x 0.024 in. (0.6 mm)
Fasteners: N.T.B. Magnum with 1 in. Head

Trade Name: Johns Manville N.T.B. Plastic Plate
Material: Polypropylene
Size: 3 in. (76 mm) round
Fasteners: N.T.B. Magnum with 2 in. Head

Trade Name: 2" EPDM Polymer Locking Plate
Material: Nylon
Size: 2 in. (51 mm) dia.
Fasteners: UltraFast #12, UltraGard AP

Trade Name: UltraGard EPDM Locking Plate
Material: Steel, Galvalume AZ 55. Plastic center insert and plastic perimeter ring.
Size: 2.0 in. (51 mm) dia.
Fasteners: UltraFast #12 or 14, UltraGard AP

Trade Name: UltraGard High Load Plate
Material: Steel, Galvalume AZ 55
Size: 2.37 in. (60 mm) dia. round by 0.037 in. (0.94 mm) thick
Fasteners: UltraGard High Load Fastener, UltraFast #12 or 14

Trade Name: UltraGard APB
Material: Steel, Galvalume AZ 50
Size: 2.0 in. (51 mm) dia. x 0.036 in. (0.9 mm)
Fasteners: UltraFast #12 or 14, UltraGard AP

Fasteners

Trade Name: UltraGard High Load Fastener
Material: Carbon Steel (black)
Size: #15; 1.25 to 12 in. (32 to 305 mm) long
Drive Head: #3 Phillips
Plates: High Load Plate
Decks: Steel

Trade Name: UltraGard AP
Material: Carbon Steel
Size: #14: 1.5 to 8 in. (38-203 mm)
Drive Head: #3 Phillips
Plates: UltraFast metal or plastic, GlasFast, UltraGard APB, UltraGard EPDM Locking, 2" EPDM Polymer Locking
Decks: Steel, Wood, Concrete

Trade Name: UltraFast
Material: Carbon Steel with SPEX (black) coating
Size: #12 or #14; #12, 1 5/8 to 8 in. (4.1 to 20.3 cm); #14 1 1/4 to 8 in. (3.2 to 20.3 cm)
Drive Head: 1/4 in. (6.4 mm) Hex Washer or #3 Phillips
Plates: UltraFast Steel or Plastic
Decks: Steel, Wood, Concrete (#14 only)

Trade Name: Johns Manville N.T.B. Magnum with 1 or 2 in. Head
Material: Glass Reinforced Nylon
Size: 0.75 in. (19 mm) major thread dia.
Drive Head: 1 in. (25 mm) or 2 in. (51 mm) dia. with double 0.375 in. (10 mm) Hex Recess
Plates: N.T.B. Plate (1 in. head dia.), N.T.B. Plastic Plate (2 in. head dia.)
Decks: Gypsum, Cementitious Wood Fiber

Trade Name: Johns Manville LWC CR Base Sheet Fastener
 Material: Steel, CR-10
 Size: 1¾ or 12 in. (44 or 305 mm) long rectangular shank
 Drive Head: 1x1½ in. (25x29 mm) rectangular
 Plates: Base Sheet Disc (1-90 only)
 Deck: Gypsum (1.2 in. long only), Lightweight Concrete

Trade Name: Johns Manville CD-10
 Material: Carbon Steel, CR-10
 Size: Min 0.214 in. or 0.240 in. (5.4 or 6.1 mm) dia. nail with split shank, 2 to 12 in. (5 to 30.5 cm), 0.24 dia. >12 to 14 in. (30.5 to 35.6 cm)
 Drive Head: 0.425 or 0.5 in. (11 or 13 mm) Wafer Head
 Plates: UltraGard plastic and round metal, UltraGard High Load
 Deck: Concrete

Pre-Assembled Systems

Trade Name: UltraGard High Load ASAP, Includes 2.37 in. (60 mm) dia. round galvalume AZ 55 barbed plate and #15 dia.x1¼-12 in. (32-305 mm) screw with #3 Phillips drive head for use in steel and wood deck or Johns Manville CD-10 fastener for use in concrete deck.

Trade Name: UltraGard APB ASAP, includes 2 in. (51 mm) dia. round galvalume AZ 55 barbed plate preassembled with a #14 UltraFast screw
 Deck: Per screw

Trade Name: UltraFast ASAP, Includes 3 in. (76 mm) dia. round or square UltraFast metal plate or 3 in. (76 mm) round UltraFast plastic plate preassembled with a #12 or 14 UltraFast screw
 Deck: Per screw
 Special Application: UltraFast ASAP metal or plastic plate fasteners may be used interchangeably with UltraFast metal or plastic plate fasteners

Trade Name: UltraGard EPDM ASAP, includes 2" EPDM Polymer Locking Plate preassembled with a #12 UltraFast screw
 Deck: Per screw