

FORTIFIED Home™ – High Wind

FORTIFIED Roof™ – New Roof Requirements



THE ROOF DECK

- All existing roof cover and flashings shall be removed; deck shall be a clean, workable surface free from debris.
- Damaged or rotten roof decking and roof framing members shall be repaired prior to starting work.

Deck Material and Thickness

- **FORTIFIED Roof™ and FORTIFIED Silver™ designations:** minimum roof sheathing thickness is 3/8 in. (with roof framing spaced at 16 in. o.c., maximum).
- **FORTIFIED Gold™ designations:** minimum roof sheathing thickness is 7/16 in. (with roof framing spaced at 24 in. o.c., maximum).

Deck Fastening

Condition 1:

Existing fasteners are staples, 6d nails, or unknown nails

- Entire deck shall be re-nailed with 8d ring shank nails (minimum diameter 0.113 in. and minimum length 2³/₈ in.) at 6 in. o.c.

Condition 2:

Existing fasteners are 8d or larger common nails

- Install 8d ring shank nails (minimum diameter 0.113 in. and minimum length 2³/₈ in.) between existing fasteners as necessary to achieve a maximum spacing between fasteners of 6 in.

SEALING THE ROOF DECK

Use one of the methods described below.

Method 1

Self-Adhering Polymer Modified Bitumen Membrane – “Peel-and-Stick” (appropriate for asphalt shingles, and metal or tile roof covers)

- Must conform to ASTM D1970 requirements.
- If membrane adhesion to OSB is marginal, apply a manufacturer-specified compatible primer to the OSB panels to ensure proper attachment of the membrane.
- For asphalt shingles, a #15 felt bond break tacked over the membrane before shingle installation is recommended. The bond break shall be held back 8 in. from the eave and rake edges to allow application of flashing cement or self-adhering starter strip along the edges to ensure proper sealing of shingles at roof edges. (See Figure 1.)
- If a fully adhered membrane is applied to a ventilated attic, attic ventilation must meet shingle manufacturer and building code requirements.



Figure 1.

Method 2

Tape Seams Between Roof Deck Wood Structural Panels

- Apply a 4-in.-wide ASTM D1970 compliant self-adhering polymer modified bitumen flashing tape or a 3¾-in.-wide AAMA 711-13, Level 3 (for exposure up to 80°C/176°F) compliant self-adhering flexible flashing tape to seal all horizontal and vertical joints in the roof deck.
- If adhesion of self-adhering tape to OSB is marginal, apply a manufacturer-specified compatible primer to the OSB panels to ensure the proper attachment of the self-adhering tape.
- Cover the entire deck with a code-compliant #30 ASTM D226 Type II or ASTM D4869 Type IV underlayment over the self-adhering tape or a reinforced synthetic roof underlayment that has an ICC evaluation report as an alternate to ASTM D226 Type II felt paper. (If synthetic underlayment is being used, it shall have a minimum tear strength of 20 lb per ASTM D5034 or ASTM D4533.)
- Underlayment shall be attached using annular ring or deformed shank roofing fasteners with minimum 1-in.-diameter caps (button cap nails) at 6 in. o.c. spacing along all laps and two equally spaced rows with 12 in. o.c. spacing vertically or horizontally between the laps. More stringent fastener schedules may be required by the manufacturer or for high wind and prolonged exposure installations.
- Horizontal laps shall be a minimum of 2 in. and end laps shall be a minimum of 6 in. Weave underlayment across valleys.
- Double-lap underlayment across ridges (unless there is a continuous ridge vent).
- Lap underlayment with minimum 6-in. leg “turned up” at wall intersections; lap wall weather barrier over turned-up roof underlayment.
- Method 2 is appropriate as described for both asphalt shingle and metal roof covers. When this method is used with clay or concrete tile roof covers, only the ASTM D226 Type II felt is approved as an anchor sheet and must be covered with a self-adhering polymer modified bitumen cap sheet complying with ASTM D1970 or the roof tile underlayment must be hot-mopped using hot asphalt and covered with a #90 mineral surface cap sheet or approved modified cap sheet. See Clay and Concrete Roof Tiles section.

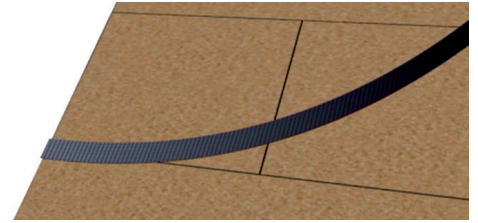


Figure 2. Tape over seams.

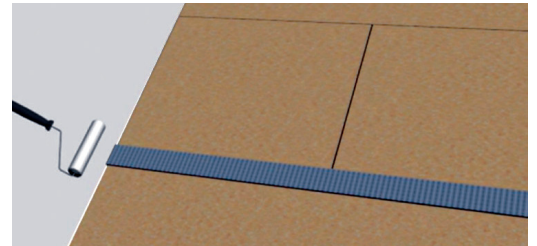


Figure 3. Roller over seam tape.



RIGHT



WRONG

Figure 4. Right and wrong installation of tape over seams.

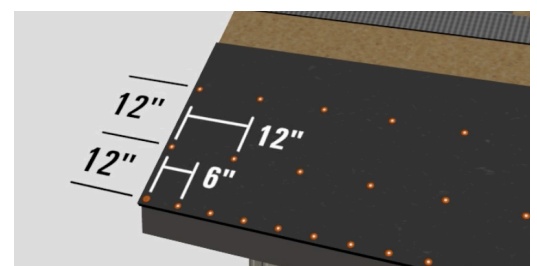


Figure 5. Underlayment fastened at 6 in. o.c. spacing along all laps and two equally spaced rows with 12 in. o.c. spacing vertically or horizontally between the laps.

Method 3

Two Layers of ASTM D226 Type II (#30) or ASTM D4869 Type III or Type IV (#30) Underlayment

- Installation of first course of felt to be installed as described below and shown in Figure 6.
- Cut 17 in. off one side of the roll and install the remaining 19-in.-wide strip of underlayment* along the eave. Safely tack in place. Carefully install a 36-in.-wide roll of underlayment* over the 19-in.-wide course of underlayment along the eave. Follow the same procedure for each, overlapping the sheets 19 in. (leaving a 17-in. exposure). Fasten with one row in the field of the sheet at 12 in. o.c. and one row at the overlaps fastened 6 in. o.c.
- Fasten underlayment at approximately 6 in. o.c. along the laps and at approximately 12 in. o.c. in the field of the sheet between the side laps.
- Secure underlayment using annular ring or deformed shank nails with 1-in.-diameter caps (button cap nails).

Drip Edge Installation Requirements

- Provide corrosion-resistant drip edge with a thickness not less than code minimum at eaves and gables.
- Overlap to be a minimum of 3 in. at joints.
- Eave drip edges shall extend 1/2 in. below sheathing and extend back on the roof a minimum of 2 in.
- The drip edge shall be mechanically fastened to the roof deck at maximum of 12 in. o.c.

- Mechanical fasteners shall be applied in an alternating (staggered) pattern along the length of the drip edge with adjacent fasteners placed near opposite edges of the leg/flange of drip edge on the roof.
- Drip edge at eaves shall be installed over the underlayment (this is compatible with high-wind installations where flashing cement is used to seal the edges).

ROOF COVERINGS

Asphalt Shingles

Asphalt shingles shall be tested in accordance with ASTM D7158 and meet the classification requirements listed in Table 1 for the design wind speed at the building site. Their packaging shall be labeled (Image 6) to indicate compliance with ASTM D7158 and the classification required for the applicable International Residential Code (IRC)/American Society of Civil Engineers (ASCE) Standard 7 design wind speed at the building site.

Shingle attachment

- Install shingles using the number of fasteners required by the manufacturer for high-wind fastening. In areas where the local building code requires more fasteners than required by the manufacturer, fasteners shall comply with the local building code.

Figure 6.

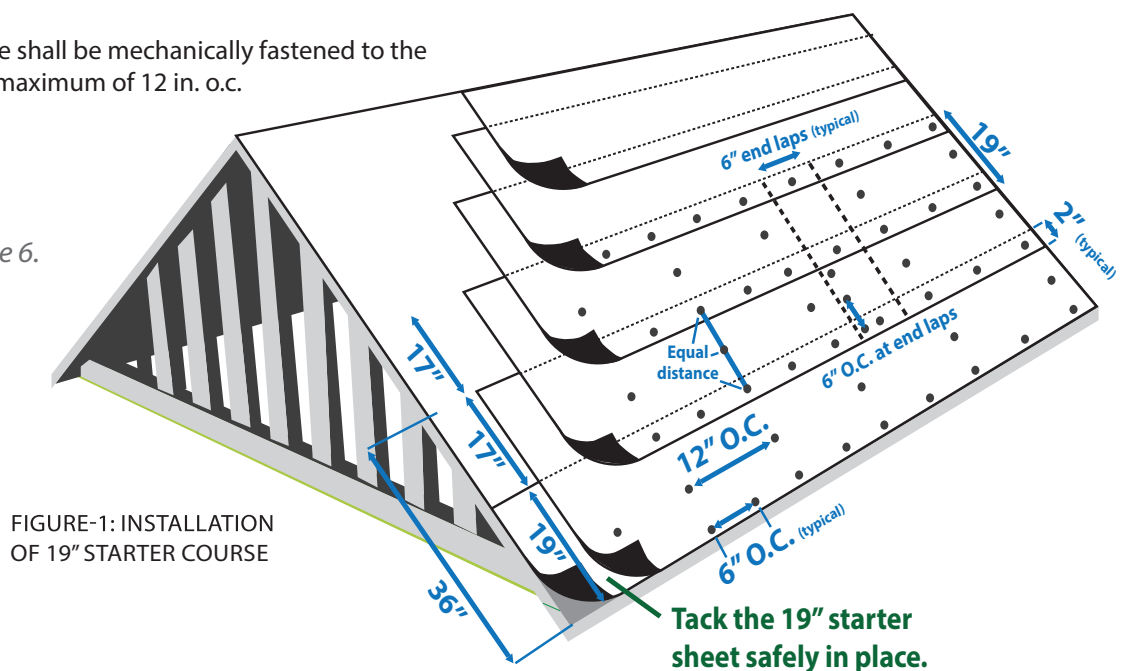


FIGURE-1: INSTALLATION OF 19" STARTER COURSE

Installation of starter strips at eaves is required (drip edge installed over underlayment)

- Manufacturer-approved starter strips at eaves shall be set in a minimum 8-in.-wide strip of compatible flashing cement. Maximum thickness of flashing cement shall be 1/8 in. (See Figure 8.)
- Fasten starter strips parallel to the eaves along a line above the eave line according to manufacturer specifications. Position fasteners to ensure they will not be exposed under the cutouts in the first course.
- Starter strips and shingles must not extend more than 1/4 in. beyond the drip edge.

Approved Option

- Shingle manufacturer–approved ASTM D1970 fully adhered starter strip with asphaltic adhesive strip at **eave**—installed so that starter strip adheres to and covers the drip edge top surface.

Installation of shingles at rakes (drip edge installed over underlayment)

- Install shingles at rakes set in a minimum 8-in.-wide strip of compatible flashing cement. Maximum thickness of flashing cement shall be 1/8 in. Fasten shingles at the rakes according to manufacturer specifications.

Optional installation of starter strips at rakes (drip edge installed over underlayment)

- Manufacturer-approved starter strips at rakes shall be set in a minimum 8-in.-wide strip of compatible flashing cement.
- Maximum thickness of flashing cement shall be 1/8 in. Fasten starter strips parallel to the rakes according to manufacturer specifications. Position fasteners to insure they will not be exposed. Starter strips and shingles must not extend more than 1/4 in. beyond the drip edge.

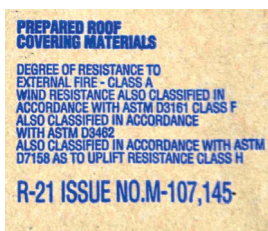


Figure 7.



Figure 8.

Approved Option

- Shingle manufacturer–approved ASTM D1970 fully adhered starter strip with asphaltic adhesive strip at **rake**—installed so that starter strip adheres to and covers the drip edge top surface.

Attachment of shingles at intersections and valley

- Shingles installed at all intersections and both sides of open valleys shall be set in a minimum 8-in.-wide strip of flashing cement. Maximum thickness of flashing cement shall be 1/8 in. Cut side of closed valleys shall be set in a minimum 2-in.-wide, 1/8-in.-thick strip of flashing cement. Woven valleys to follow manufacturer specifications.

Clay and Concrete Roof Tiles

Clay and concrete roof tile systems shall be installed over continuous 19/32-in.-thick plywood roof decking and one of the acceptable sealed roof deck underlayment methods (note additional requirement for Method 2). Clay and concrete roof tile systems and their attachment (mortar set tile or mortar set hip and ridge tiles are not permitted) shall meet the requirements of the site design wind speed and exposure category.

Roof Tile Systems shall be installed for 140 mph wind speed in accordance with FRSA/TRI installation guidelines, “Florida High Wind Concrete and Clay Roof Tile Installation Manual Fifth Edition FRSA/TRI April 2012 (04-12).”

Other Roof Coverings

For all other roof coverings, the designer must provide documentation showing the roof covering and the attachments were designed for the component and cladding wind pressures corresponding to to $V_{ult}=140$ mph ($V_{asd}=110$ mph).

All roof coverings, regardless of type, shall be installed in accordance with manufacturer installation guidelines for the higher wind speed shown above.

When applicable (e.g., wood shakes, slate roofs), the roof deck shall be sealed using one of the options provided that is compatible with the manufacturer installation requirements for the roof covering selected.

VERIFICATION AND DOCUMENTATION

The contractor shall provide the evaluator with in-progress photos with identifiable traits or landmarks of the property showing the following:

- Installation of tape or self-adhered membrane
- Fastening of underlayment
- Fastening of drip edge metal over underlayment
- Application of flashing cement along roof edges
- Installation of starter strips at eaves



Figure 9.

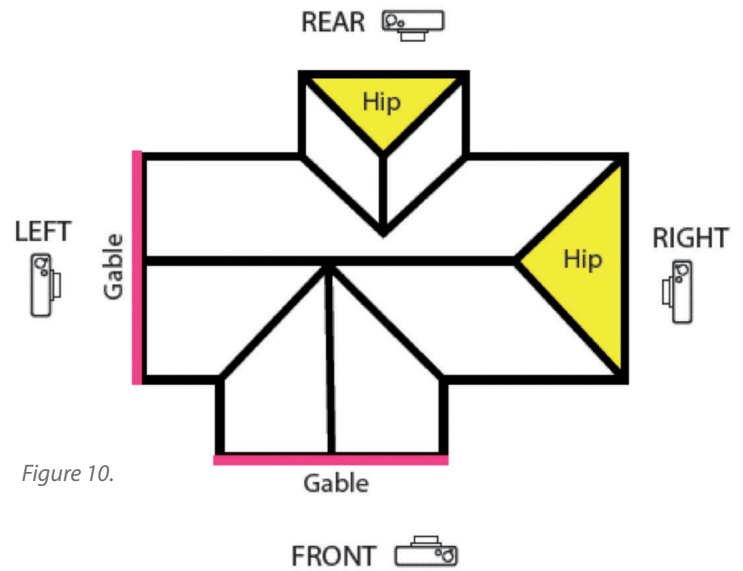


Figure 10.

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For more information about FORTIFIED Home™, please visit fortifiedhome.org.
For more information about IBHS, please visit IBHS.org.