



Bulletin No. 2016-05

First Release:

November 3, 2016

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Plains

Applicable Standards:

- FORTIFIED Commercial™–High Wind & Hail
- FORTIFIED Commercial™–Hurricane
- FORTIFIED Home™–High Wind
- FORTIFIED Home™–High Wind & Hail
- FORTIFIED Home™–Hurricane

Applicable Designation Level:



Asphalt Shingle Installation at Roof Edges, Intersections and Valleys

Abstract

This updated document is intended to provide additional guidance and options for asphalt shingle installations at roof edges, intersections and valleys. The verification and documentation requirement referenced in the original technical bulletin (Technical Bulletin 2016-05, released November 3, 2016) was effective December 5, 2016.

Introduction

Research conducted at the IBHS Research Center on a number of three-year-old roofs with various edge attachment details clearly demonstrated the need to ensure that shingles are properly installed and well adhered along the perimeter of a roof. While this directive has been included in standards and guidance since the beginning of the program, and also addressed in manufacturers’ high-wind guidance for asphalt shingle installation, it has not been specifically spotlighted in compliance forms or in evaluator training.

As a result, IBHS is issuing this updated technical bulletin to provide additional guidance with options that describe alternate methods to help ensure that asphalt shingles are well sealed and connected at roof edges, intersections and valleys. Please make sure you become familiar with the installation requirements outlined below and work with roofers to ensure proper installation instructions are followed. **Additionally, appropriate documentation described at the end of this bulletin continues to be required for all asphalt shingle roof installations.**



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Sealed Roof Deck Installation Options

Taped Sheathing Seams

Tape Installation

Tape must be rolled to help ensure it is installed flat and adheres to the deck. If the tape doesn't stick well, the seams must be primed or a different product that does stick well must be used. Recent IBHS experience suggests that there may be fewer adhesion problems for installations on OSB decks with the high temperature-rated acrylic tape allowed by the program.

Underlayment Installation

Apply a code-compliant ASTM D226, Type II underlayment over the self-adhering tape (felt or synthetic is allowed). This underlayment shall be attached using annular ring or deformed shank roofing fasteners with minimum 1-in.-diameter caps at 6 in. o.c. spacing along all laps and two rows 12 in. o.c. in the field or a more stringent fastener schedule if required by the manufacturer for high-wind installations. Horizontal laps shall be a minimum of 2 in. and end laps shall be a minimum of 6 in. Nails with plastic or metal caps are allowed in areas where the design wind speed is less than 140 mph. Metal caps are required for areas where the design wind speed is greater than or equal to 140 mph.

ASTM D1970 Self-Adhered Membranes

ASTM D1970 Membrane Installation

Cover the entire roof with a full layer of self-adhering polymer-modified bitumen membrane meeting ASTM D1970 requirements.

Recommended Bond Break Installation

It is recommended that #15 felt be installed over the membrane to provide a bond break between the self-adhering membrane and the shingles in order to prevent the shingles from fusing with the self-adhering membrane. The bond break shall be held back 8 in. from the eave and rake edges to allow application of flashing cement along the edges to ensure proper sealing of shingles along the roof edges.



Roof Edges, Intersections and Valleys

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Drip Edge Installation Requirements

1. Provide code-compliant, minimum gauge metal drip edge at eaves and gables.
2. Overlap to be a minimum of 3 in. at joints.
3. Eave drip edges shall extend ½ in. below sheathing and extend back on the roof a minimum of 2 in.
4. The drip edge shall be mechanically fastened to the roof deck. Fasteners shall be fabricated from similar or compatible material. For FORTIFIED–Hurricane compliance, spacing shall be a maximum of 4 in. o.c. For FORTIFIED–High Wind and FORTIFIED–High Wind & Hail compliance, spacing shall be a 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.
5. 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).

Installation of Starter Strips at Eaves (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 ⅛ in. Fasten starter strips parallel to the eaves along a line above the eave line according to the manufacturer’s 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 ¼ in. beyond the drip edge.

Approved Option

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



Shingle Installation at Roof Edge

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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 $\frac{1}{8}$ in. Fasten shingles at the rakes according to the manufacturer's 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 $\frac{1}{8}$ in. Fasten starter strips parallel to the rakes according to the manufacturer's specifications. Position fasteners to ensure they will not be exposed. Starter strips and shingles must not extend more than $\frac{1}{4}$ in. beyond the drip edge.

Approved Option

Shingle manufacturer–approved ASTM D1970 fully adhered (peel-and-stick) 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 $\frac{1}{8}$ in. Cut side of closed valleys shall be set in a minimum 2-in.-wide, $\frac{1}{8}$ -in.-thick strip of flashing cement. Woven valleys to be according to the manufacturer's specifications.



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Verification and Documentation

The contractor shall complete the revised compliance form and provide in-progress photos with identifiable traits or landmarks of the property showing the following:

1. Installation of tape or self-adhered membrane.
2. Fastening of underlayment.
3. Fastening of drip edge metal over underlayment.
4. Application of flashing cement or approved alternate means of attachment along roof edges, intersections and valleys.
5. Installation of approved starter strips at eaves.

The Evaluator shall verify that shingles along the edges of the roof do not overhang more than ¼ in. beyond the drip edge metal.