

Bulletin No. 2015-04

First Release:

October 13, 2015

Prepared by:

Fred Malik, Vice President,
FORTIFIED Programs

Applicable Standards:

2020 FORTIFIED Home™–Hurricane
2020 FORTIFIED Home™–High Wind

Applicable Designation Level:



Using 2-Part Closed-Cell Foam Adhesive

Abstract

Strengthening the attachment of roof sheathing and installation of a sealed roof deck system can be achieved simultaneously by applying an ASTM or TAS tested two-part, spray polyurethane foam adhesive to the underside of the roof deck as shown in Figure 1.

This system can satisfy two FORTIFIED Roof™ requirements:

1. Sealing the roof deck.
2. Supplemental deck attachment, when the roof deck is fastened with staples, 6d common nails or 8d common nails at 12 in. on center in the field.



Figure 1. Closed-cell polyurethane foam adhesive applied to the underside of the roof sheathing at the joints between the sheathing panels and along all intersections between roof sheathing and all roof framing members.

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Requirements

A 2-part closed-cell foam polyurethane adhesive can be used on new or existing homes. This system is most commonly used on existing homes where the roof cover is deemed to be in good condition and NOT in need of replacement. When the roof cover is not being replaced, other systems that are installed from the topside cannot be used. Spray foam allows for improvements to be made from within the attic. This system can be used to satisfy two FORTIFIED Roof requirements:

1. Sealing the roof deck.
2. Supplemental deck attachment, when the roof deck is fastened with staples, 6d common nails or 8d common nails at 12 in. on center in the field.

The minimum requirements for spray adhesives are:

- Product must be tested and evaluated in accordance with either ASTM E330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference (applied to roof sheathing), or TAS 202-94, Criteria for Testing Impact and Non- Impact Resistant Building Envelope Components Using Uniform Static Air Pressure. The minimum allowable Design Uplift Pressure must be greater than or equal to those listed below.
 - FORTIFIED Home–Hurricane: at least 110 psf (proof test of at least 165 psf)
 - FORTIFIED Home–High Wind: at least 80 psf (proof test of at least 120 psf)
- Two-component spray polyurethane foam system with a minimum core density of 1.5–3.0 pcf in accordance with ASTM D1622, Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- Spray polyurethane foam adhesive system must be installed by a properly trained and qualified applicator in accordance with the manufacturer’s maintenance and installation guidelines.



Sealed Roof Deck Supplemental Deck Attachment

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To provide enhanced roof sheathing attachment and to seal the roof deck, apply a 1.5- to 3-in. fillet of 2-part spray-applied polyurethane foam adhesive to:

- All joints between sheathing
- All intersections between roof sheathing and roof framing members
- All valleys

Use the minimum density and installation requirements prescribed by the manufacturer to meet a minimum Design Uplift Pressure on the sheathing of 80 psf or 110 psf; as appropriate to the applicable standard.

All installations must be in accordance with the manufacturer’s instructions.

Note: In order for this method to be accepted for sealing the roof deck and for adding supplemental roof deck attachment, access to the entire underside of the roof deck within the attic must be available. If the slope of the roof is low, such that eaves are inaccessible, or any portion of the underside of the deck is obstructed by equipment or ductwork, or is otherwise inaccessible, it will be necessary to use an alternative qualified method to seal the portion of the deck that is unreachable by the spray foam installer.

Compliance Verification Requirements

It is not possible to determine the chemistry of a spray foam product by visual inspection. Therefore, it is necessary to collect documentation from the installing contractor identifying the manufacturer and product used for the improved roof sheathing attachment/sealed roof deck.

Documentation must be provided to the Certified FORTIFIED Home Evaluator and be included with the FORTIFIED Home evaluation checklist. Documentation must state the installation meets the manufacturer’s requirements for an allowable Design Uplift Pressures detailed below.

- FORTIFIED Home–Hurricane: at least 110 psf (proof test of at least 165 psf)
- FORTIFIED Home–High Wind: at least 80 psf (proof test of at least 120 psf)



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Minimum Documentation Required

- Letter from installing contractor, on company letterhead, that the material was applied by a trained installer and the installation meets the manufacturer’s requirements for an allowable Design Uplift Pressure specified for the appropriate standard.
- Documentation from Miami-Dade, FBC, TDI product approvals or ICC Evaluation Reports, if applicable (invoices and/or product labels identifying product name and manufacturer may be substituted in the absence of product test documents).
- A minimum of 4 photos of the material applied to the entire underside of the roof deck. Pictures must be taken at 4 different locations of the attic to show complete coverage.

Note: Although 4 photographs is the minimum number of pictures required, the goal is to achieve a complete view of the underside of the roof deck. Photographs must be taken from inside the attic and show product installed in accordance with the requirements listed above. Site conditions may dictate that more than the minimum required number of photographs be provided.