

ADHESION TESTING GUIDELINES AND PROCEDURES

Purpose

- Testing is required to ensure foam adhesive will bond to a given substrate.
- GAF requires roofing contractors (or a qualified third party) to conduct an adhesion test prior to registering a GAF Diamond Pledge™ Guarantee.

Guidelines

- Do not use adhesive to install roofing materials on any roof deck or other substrate that shows signs of deterioration or loss of integrity.
- GAF recommends that contractors keep test results on file to be submitted to GAF upon request. Submission of results to GAF is not required in the ordinary course; however, GAF may request them on a job-to-job basis. Failure to perform the required testing or to be able to produce the test results may delay or prevent the issuance of a GAF Diamond Pledge™ Guarantee.
- GAF may at its sole discretion require additional testing prior to the job start or prior to issuance of a GAF Diamond Pledge™ Guarantee in accordance with ANSI/SPRI IA-1 2010 Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - V2.

Procedures:

Acceptable Adhesion Test Methods are outlined below:

1. GAF Preferred Test Method: “Shovel Test”

Materials:

- Adhesive - Low Rise Foam (LRF)
 - GAF 2-Part Roofing Adhesive
 - LRF Adhesive M
 - LRF Adhesive O
 - TPO LRF Adhesive M Low Temp
 - OlyBond500® Canister
 - Or other GAF approved adhesive(s)
- Square edge shovel or similar
- Minimum 12" x 12" (305 mm x 305 mm) piece(s) of minimum 1 ½" (38 mm) EnergyGuard™ polyiso roof insulation or minimum 15/32" (25 mm) plywood

Frequency:

- Minimum of 4 tests for the first 50,000 square feet [500 sqs.] (4,650 square meters) of roof surface area.
- 2 additional tests for each additional 50,000 square feet [500 sqs.] (4,650 square meters) of roof surface.
- Tests should not be performed in close proximity to each other.

Directions:

- Install low-rise foam adhesive on roof deck or roof substrate in accordance with GAF or other GAF-approved manufacturer's requirements.
- Place a minimum 12" x 12" (305 mm x 305 mm) piece of polyiso roof insulation or plywood in the foam adhesive (ribbons or spatter pattern) over the roof deck or roof substrate that is being tested. One or more ribbons are required.
- Allow adhesive to cure for a minimum of 1 hour.
- Pull up on the adhered board by placing a shovel under the corner or end of the board. The direction of the adhesive ribbon(s) should not affect adhesion results. Make sure that the shovel* is placed squarely under the board. (Fig. 4-1)

*If the existing substrate is insulation, GAF requires that a piece of plywood be placed under the bottom of the shovel in order to not crush the underlying insulation. Failure to do so can lead to inaccurate test results.

- Gently push down on shovel until the bond between the board and substrate is broken. (Fig. 4-2)
- Examine the board and substrate to determine the location of the bond failure. (Fig. 4-3 & 4-4)
 - Failure should be within the adhesive or board.
 - If the foam adhesive has separated from the substrate, this is unacceptable and foam adhesive should not be used to bond the new roof to this substrate.
 - When testing adhesion to a deck, if the failure occurs in the deck, the deck is not suitable for use with foam adhesive to bond the roof to the deck.
- Record mode of failure and place in project file with:
 - Photographs
 - Date, time & air temperature



Fig. 4-1: Shovel Placement



Fig. 4-3: Broken Bond



Fig. 4-2: Push Down On Shovel



Fig. 4-4: Bond Failure

2. **ANSI/SPRI IA-1 2010** Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - **V2, modified using a 12" x 12" (305 mm x 305 mm) test size**
3. **ANSI/SPRI IA-1 2010** Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - **V2 (no modifications)**