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TECHNICAL BULLETIN: Weather-Tite® One Step™ Foamable Adhesive Field Conditions and Field Questions

This bulletin is intended as a summary of questions and answers regarding various field issues which may arise when using ***Weather-Tite One Step Foamable Adhesive***. Our goal is to provide some general guidelines. If you feel something should be added, please submit your idea so that we make this outline as complete as possible.

1. **What is *Weather-Tite One Step Foamable Adhesive* and how is it packaged?**

Answer: ***Weather-Tite One Step Foamable Adhesive*** is a two-part liquid-applied non-asphaltic urethane adhesive that transforms into low rise foam during the cure process. It is packaged in 1.5L cartridges, four to a case. Each case consists of 6 static mixing nozzles.

2. **What is the standard coverage rate of *Weather-Tite One Step Foamable Adhesive*?**

Answer: Standard application for ***Weather-Tite One Step Foamable Adhesive*** is four ¼" – ½" (0.635 cm – 1.27 cm) beads, 12" (30.5 cm) o.c., per 4 ft (1.2 m) wide board. After foaming, each bead will have expanded to a width of ¾" – 1½" (1.905 cm – 3.81 cm). Bead width is controlled by the individual applying the adhesive. Standard coverage rates are based on 4 straight lines of application. Serpentine or other application patterns will result in divergent coverage rates. When applied in accordance with these guidelines, a case of ***Weather-Tite One Step Foamable Adhesive*** (4 cartridges) will install approximately 600 sq.ft. (56m2) of insulation.

3. **How is *Weather-Tite One Step Foamable Adhesive* Applied?**

Answer: To open a cartridge, use a utility knife to remove the molded tips at the groove from the mixing head. Attach a mixing tip to the threaded mixing head. Place the cartridge into an approved applicator (see below for applicator options). Apply ***Weather-Tite One Step Foamable Adhesive*** directly to the substrate, using a ribbon pattern. As adhesive is applied, immediately place insulation board into wet adhesive. Do not allow the adhesive to skin over. Eliminate uneven surface to ensure positive contact between the insulation board and substrate.

NOTE: Un-used material can be applied at a later date by simply plugging the cartridges (with provided half moon plugs) and using a new mixing nozzle.

Methods of Application

- One Step Battery Powered Multi-Bead Plus Applicator: This applicator is ideal for projects where enhanced coverage rates are/may be specified (coastal areas, FM insured projects, specific wind requirements, etc.). It allows the user the flexibility to apply adhesive in the

standard 12” (30.5 cm) o.c. pattern or in 6” (15.25 cm) or 3” (7.625 cm) o.c. patterns for coverage enhancements. It has 13 cartridge slots, the number of which loaded is determined by the desired bead pattern (i.e., load 4 cartridges for 12” (30.5 cm) o.c. pattern, 7 for 6” (15.25 cm) or 3” (7.625cm)). A speed dial controls the rate of dispensing as does the rate at which the applicator is pulled. Once the cartridges have been fully dispensed, a convenient and easy-to-operate retract dial allows for quick reloading. This applicator is battery-operated and comes equipped with two batteries, a charger, and a Stand Up Manual Applicator.

***Application rate should be 6 squares of insulation installed in approximately 1½ to 2 minutes.**

NOTE: In order to avoid an initial inconsistent mix, the first small amount of material from each cartridge should be predispensed and discarded. Once a consistent color is attained, usually after only a few seconds, ***Weather-Tite One Step Foamable Adhesive*** is ready to be applied.

- One Step Battery Powered Multi-Bead Applicator: This applicator is designed for projects where standard 12” (30.5 cm) o.c. application rates are required. Four cartridges are loaded into the slots of the applicator. Engage the applicator by depressing the trigger and walking backwards at an appropriate rate to achieve proper bead thickness. Once the cartridges have been fully dispensed, a convenient and easy-to-operate retract handle allows for quick reloading. This applicator is battery-operated and comes equipped with two batteries, a charger, and a Stand Up Manual Applicator.

***Application rate should be 6 squares of insulation installed in approximately 1½ to 2 minutes.**

- One Step Battery Powered Single Bead Applicator: This applicator utilizes battery power to mechanically dispense the adhesive. The advantages of this applicator lie in its ease of use, portability (no air hoses), and speed. It is ideal for projects of any size. Each Battery Powered Applicator comes with two rechargeable batteries and a battery charger.

- One Step Pneumatic Single bead Applicator: This applicator utilizes air power to mechanically dispense the adhesive. Simply attach standard fitting and air hose. One significant advantage of the Pneumatic Applicator is that the dispensing speed can be adjusted via a needle valve flow regulator located on the handle of the applicator. This unit is ideal for larger jobs, especially those where an air compressor is already on site.

- One Step Stand Up Single Bead Applicator: This applicator utilizes manual power to dispense the adhesive. The advantage of this applicator is that it is simple to use, works like a caulk gun. It produces in the range of 1100 to 1500 pounds of thrust. It is ideal for smaller roofs or congested areas.

- One Step Manual Single Bead Applicator and Ultra Drive Applicator: This applicator uses manual power to dispense the adhesive. This unit is extremely portable and is ideal for smaller projects.

4. How long after the adhesive is applied should one wait before introducing the insulation board to the adhesive?

Answer: Insulation boards should be placed immediately into the wet adhesive. If left open, the adhesive can skin over within several minutes. Once skinned over, adhesive will not wet into the insulation board, creating a weak bond. Do not allow the adhesive to skin over.

5. **Once the adhesive is applied and the insulation board has been set into the adhesive, what is the recommended waiting time before the insulation is ready to handle foot traffic associated with roof cover application?**

Answer: Once the insulation has been placed into freshly applied adhesive, set-time, the length of time until the adhesive provides sufficient bond to support foot traffic, is fairly consistent. While absolute set-time cannot be pre-determined, 5 to 10 minutes in any temperature is usually enough time. Attempting to slide the insulation boards from side to side is the test method to determine whether they have been locked down sufficiently enough to roof over.

***Each day before use, place a small amount *of Weather-Tite One Step Foamable Adhesive* onto a scrap piece of insulation. Check it periodically to determine the set-time for the conditions of that given day.**

6. **In what temperature can I use *Weather-Tite One Step Foamable Adhesive*?**

Answer: As long as it is stored properly prior to use, ***Weather-Tite One Step Foamable Adhesive*** can be applied in any temperature. There are no temperature restrictions.

7. **How should *Weather-Tite One Step Foamable Adhesive* be stored?**

Answer: Keep temperature of contents between 65°F and 85°F (18°C and 29°C) 24 hours before use. Do not store in direct sunlight or high temperatures (90°F (32°C)).

8. **What can a roofing contractor do at the jobsite to accelerate the curing process when using *Weather-Tite One Step Foamable Adhesive*?**

Answer: Accelerating the cure is not necessary. ***Weather-Tite One Step Foamable Adhesive*** is a two part adhesive chemical cure. Surrounding ambient conditions do not have a significant impact on cure time when compared to a one-part moisture cure formula.

9. **Can *Weather-Tite One Step Foamable Adhesive* be applied to a wet substrate?**

Answer: No. All substrates must be dry prior to application. When adhesives and sealants are applied to a wet substrate, the result is a weak bond. Excessive moisture on the substrate surface can cause the adhesive to skin over at the adhesion line, preventing the adhesive from wetting into the substrate.

10. **Does *Weather-Tite One Step Foamable Adhesive* require the use of a primer?**

Answer: In most applications, no primer is required. Our formulation includes the use of adhesion promoters that allow for excellent adhesion to most surfaces. However, when applying the adhesive over surfaces that are known to be heavily oxidized, such as an existing smooth surfaced BUR or MB, the use of **Weather-Tite Universal Primer** is recommended.

NOTE: Special care should be taken when using a primer other than **Weather-Tite Universal Primer**. Primers that contain solvents must be allowed to flash off entirely prior to adhesive application. Solvents that are not allowed to flash out of the primer will adversely affect the adhesive bond.

11. **When a roofing project's specification includes the removal of the existing roof system, how clean does the substrate need to be prior to the application of *Weather-Tite One Step Foamable Adhesive*?**

Answer: The substrate should be cleaned to as smooth a surface as possible. To secure proper adhesion, insulation boards must lay flat on the surface with no rocking. This is to ensure that the boards are in contact with the adhesive. Remove any heavy build-ups of bitumen, insulation, or other debris. Residual asphalt or coal tar does not need to be removed-***Weather-Tite One Step Foamable Adhesive*** provides excellent adhesion to both materials.

12. What should be done in the event that the substrate is un-even and the insulation board cannot lay flat or is not in contact with the adhesive?

Answer: Determine why the board will not lay flat. If there is debris or heavy build-up, remove it. If the board is cupped or curled, use a different board. If the deck is un-even due to elevation variances, i.e. pre-cast panels, place a relief cut into the insulation board at the point of transition, place temporary weight upon the board, or if possible add a mechanical fastener to assure the board maintains contact with the insulation adhesive.

13. What are the slope limitation for *Weather-Tite One Step Foamable Adhesive*?

Answer: There are no slope limitations for ***Weather-Tite One Step Foamable Adhesive***.

14. What is the maximum insulation board size approved for use with Weather-Tite One Step Foamable Adhesive?

Answer: Insulation boards should be no larger than 4 ft. x 4 ft. However, overlayments such as gypsum boards can be installed in their original 4 ft. x 8 ft. size.

15. What is the shelf life of *Weather-Tite One Step Foamable Adhesive*?

Answer: When stored properly at temperatures between 65°F and 85°F (18°C and 29°C), ***Weather-Tite One Step Foamable Adhesive*** has a shelf life of twelve months from the date of manufacture. However, it is recommended that stock be rotated to eliminate shelf life concerns. Material which is older than 12 months, but is still fluid, is acceptable for use.

16. Once adhesive has cured within the One Step static mixing nozzle, can it be cleaned and reused?

Answer: No. Once adhesive has cured in the static mixing nozzle, the nozzle is no longer usable. Throw it away and use a new nozzle. Each case of ***Weather-Tite One Step Foamable Adhesive*** contains six mixing nozzles.

17. If I don't use the entire cartridge, can remaining material be applied at a later date?

Answer: Yes. Un-used material can be applied at a later date by simply plugging the cartridges (with provided half moon plugs) and using a new mixing nozzle.

18. Can *Weather-Tite One Step Foamable Adhesive* be applied to a gravel surfaced built-up roof?

Answer: Yes. The following procedures must be followed:

1. Existing roof must be completely cleaned of any loose debris and gravel. This may entail vacuuming, power brooming or a combination of both. Hydro vacuuming would be an acceptable method; but if used, it will be necessary to allow the roof surface to dry **completely** before adhering any boards.

2. The existing roof must be inspected for any defects or blisters in the felts. These areas must be cut out and repaired properly to create a flat surface on top of which to place insulation boards.
3. The roof surface must be blown off with a power blower.
4. The surface must be primed using our **Weather-Tite Universal Primer**.
5. Due to anticipated surface irregularities of a gravel surface roof, the application will require more adhesive than our standard rates. The standard rate is 600 sq.ft. (56m2) per case. Anticipated coverage rates will be in the range of 300 to 400 sq.ft. (28 sq.m. to 37 sq.m.) per case.

Contact our Technical Department with any questions.

19. Can *Weather-Tite One Step Foamable Adhesive* be applied over lightweight insulating concrete?

Answer: Yes. The following procedures must be followed:

1. Surface of the Light Weight Insulating Concrete (LWIC) should be clean, dry, smooth, and free of fins, depressions, sharp edges, dirt, dust, debris, oils and other contaminants that may result in a surface that is not sound or uneven.
2. If an existing roof will be removed prior to the installation of the adhesive, all loose material must be removed. Damaged areas to the deck must be repaired with an approved patching compound to create a flat surface to place insulation boards or new roof membranes on top of.
3. The deck surface must be blown off with a power blower.
4. New LWIC must be sufficiently dry to receive the adhesives. Consult the LWIC manufacturer for drying time requirements.
5. Adhesion tests may be required; this will be determined on project criteria and warranty requirements.

All Weather-Tite materials will need to be installed in accordance to our most current written guidelines.

WTT Systems, LLC will not be responsible for the integrity and performance of the existing deck.

Contact our Technical Department with any questions.

20. Can *Weather-Tite One Step Foamable Adhesive* be applied directly to an asphaltic vapor retarder, base sheet, or existing smooth roof?

Answer: Yes. When applying adhesive to an asphaltic vapor retarder it must be either smooth sanded, or granulated surface. If the asphalt is heavily oxidized or fresh, it could require and application of **Weather-Tite Universal Primer** or **Weather-Tite Surface Treatment**. Contact our Technical Department with further questions.

As with most substrates where ***Weather-Tite One Step Foamable Adhesive*** is to be applied, the surface must be clean, dry, and free of dirt, dust, debris, oils, loose gravel, un-adhered coatings, deteriorated membrane and other contaminants that may result in a surface that is not sound or is un-even. Remember, insulation boards must lay flat upon a sound roof surface in order to ensure proper contact between the board and the adhesive.