NATURAL POLYMERS® NATURAL-THERM® PRO

SPRAY POLYURETHANE FOAM AIR AND WEATHER BARRIER ASSEMBLY WITH TAPED JOINTS

INSTALLATION INSTRUCTIONS COMMERCIAL

Note: These instructions apply to the installation of the Natural-Therm® Pro system when used as an air barrier assembly with taped joints. If Natural-Therm® Pro is only needed as an insulation, please see Natural-Therm® Pro Product Application Guide for Closed Cell Spray Foam.

Preparation and Inspection

Read all installation instructions and data sheets prior to installation. Application of the air and water barrier system should occur only after the roof and back of the wall are made watertight designed to prevent water becoming trapped behind the air and water barrier assembly. Prior to installation, ensure that the substrates are clean, dry, sound, and free of any ice, dirt, oils, release agents, or debris that would prevent adhesion.

It is required that when the Natural-Therm® Pro is considered the air and weather barrier (AWB), all flashings should be installed at the time of Natural-Therm® Pro installation. Do not install system if ice or frost exists on surface or rain, snow, wind, or other adverse weather would prevent or threaten correct installation. If not part of the air barrier installer's responsibility, bring any deficiencies to the attention of the general contractor in writing for remedy and do not proceed until corrected. Prior to installation, verify compatibility of adjacent products such as below-grade waterproofing, through-wall flashing, and roof membranes. Natural-Therm® Pro is approved for exterior-grade wood, exterior-grade gypsum sheathing, steel free from oils, concrete masonry units (CMU), and concrete substrates.

Safety

Before beginning, read and follow all safety recommendations of the jobsite, including wearing personal protective equipment (PPE) and safely using all tools and equipment.

Exposure: Read and understand the Safety Data Sheet (SDS) for this product before use. Personnel must use appropriate respiratory, skin, and eye Personal Protective Equipment (PPE) when handling and applying polyurethane spray foam systems. For interior applications: Full body protection and supplied air respirators (SAR) are required. A comprehensive review of Spray Polyurethane Foam (SPF) safety and handling can be found on the CPI website.[1]

Fire: Polyurethane foam may present a fire hazard if exposed to fire or excessive heat (i.e., cutting torches). Polyurethane foam systems should not be left exposed and must be protected as prescribed by applicable building code(s). Proper authorities with jurisdiction over a particular area should always be consulted for additional or specific requirements prior to beginning any project. In addition, excessive thickness applications of product (> 4 inches) or insufficient dwell time between lifts (< 5 minutes) may lead to scorching or combustion of foam. See details in Application of SPF section.

Training

All people who are installing this product must be trained by either Natural Polymers, LLC, an authorized distributor training program, the Spray Polyurethane Foam Alliance PCP, or an equivalent classroom and hands-on program in addition to having taken and passed the ACC CPI online SPF training course. If the customer is buying and installing this product through a secondary party, distributor, or manufacturer's representative, the secondary party and the installer are responsible for the necessary training and certification to properly install this product.

Read the Natural-Therm® Pro Product Application Guide for additional requirements.

General

Optimum performance of Natural Polymers® Natural-Therm® Pro Insulation is dependent on 1) Selection of the correct product for the assembly or application into/on which it is to be placed and 2) Following these installation instructions. General rules which apply to both selection and installation include: The framed assembly or masonry surface onto which the insulation is to be applied must be even. Natural-Therm® Pro Insulation is a rigid product and is not intended for flexural surfaces. Any deformation of the application surface can result in a weakening of the attachment and/or cracking of the insulation. There should be no voids or gaps in the insulation itself, around any objects that penetrate the insulation, or at the interface of the insulation and framing members. Natural-Therm® Pro Insulation is not structural. Structural sheathing or proper bracing must be used when applying to wood or metal framing. If tape and liquid flashing materials are used on the same assembly, liquid materials may only be applied over tape — never apply tape over liquid flashing.

Air and Weather Barrier Detailing

Before installing flashings and SPF, ensure substrate surfaces are clean, dry, sound, and free of any ice, dirt, oils, release agents, or debris that would prevent adhesion. Remove any debris that would damage flashing materials or foam and ensure that fasteners are driven flush. It is recommended that when the Natural-Therm® Pro air barrier system with taped joints is considered the air and weather barrier (AWB), all flashings should be installed at the time of Natural-Therm® Pro insulation installation. Owens Corning® JointSealR®, EasySealR®, and FlashSealR® are the only acceptable tapes for the Natural-Therm® Pro air barrier system with taped joints. Do not install system if ice or frost exists on surface or rain, snow, wind, or other adverse weather would prevent or threaten correct installation.

Joints

Tape: Install all joint sealing tapes prior to the SPF insulation application.

Fill any annular space larger than ⅜" with backer rod. Caulk is not required at space beneath this tape system, however, if it is used, verify compatibility and curing time prior to installation. Remove any release film for workable length of material and center tape over joint. **Fig. A.** Tape shall overlap joints a minimum of 1 ¾" on both sides of joint. Install the tape in a "shingle" fashion to facilitate drainage. Lap tape intersections a minimum of 2". Lap tape changes in plane a minimum 2". **Fig. B.**

Fig. A

Fig. B

Continue from bottom to top, ensuring shingle-lapped joints until all joints are sealed.
Fasteners at joints should be fully covered by tape flashing. Fasteners in field do not need to be taped unless compromised.
Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Transitions

Outside/Inside Corners

Corners must be flashed with Owens Corning® FlashSealR®. HomeSealR®, JointSealR®, EasySealR®, or other tapes cannot be used. Ensure substrate corners meet flush with adjacent substrate.

Tape

Install corner flashing by attaching flashing tape a minimum 3" into both faces of corner. Lap tape intersections a minimum 2". Lap tape changes in plane a minimum 2". **Fig. B. and Fig. C.**


Fig. B


Fig. C

Continue from bottom to top, ensuring shingle-lapped joints until all corners are sealed. Fasteners should be fully covered by tape. Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Penetration Flashing

General: Fill any annular space larger than 3/8" with backer rod. Best practices include cutting openings with hole saws, oscillating tools, jigsaws, or other tools that leave controlled, even edges. See Tips and Tricks at the end of this document.

Pipes

Pipe penetrations may be flashed with FlashSealR® or JointSealR®. Ensure sheathing is butted tightly to pipe around entire circumference.

Tape

Tape a minimum 2" of pipe protruding from exterior face and 2" along exterior face of insulation by cutting radiating "fingers" from penetration. Cover the junction of the taped pipe and the "fingers" with tape a minimum of 2" from pipe circumference. If more than one piece of tape is used to cover these taped junctions, install tape in a "shingle" fashion overlapping tape a minimum of 1.5". Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Ducts and Junction Boxes

- Duct and junction box penetrations may be flashed with FlashSealR® or JointSealR®. Ensure substrate joints are butted tightly to duct or box perimeter.
- Tape: Install flashing tape in a "shingle fashion" from bottom to top to shed water and properly lap seams. Beginning on lowest surface, tape minimum 2" onto face of substrate and penetration surface to create change in plane. **Fig. C., Fig. D., Fig. E. and Fig. F.**


Fig. C


Fig. D


Fig. E


Fig. F

- Create transition to change in plane at corner by smoothly slicing tape parallel to bottom of penetration and tape edge beginning slightly outside corner of penetration (tape will stretch to cover corner.) Turn up surface of penetration and across face of substrate. **Fig. G.** Repeat process on adjacent sides of penetration to create minimum 2" "shingled" laps over first flashing tape. **Fig. H., Fig. I and Fig. J.** Complete tape flashing at top of penetration by attaching tape as previously described and turning tape onto face of substrate and face of penetration to create a minimum 2" "shingle" lap.


Fig. G


Fig. H


Fig. I


Fig. J

Fig. K., Fig. L and Fig. M Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.


Fig. K


Fig. L


Fig. M

Windows

- Ensure sheathing is tightly butted and flush to window or opening. All window and door openings must be flashed with Owens Corning® FlashSealR®. HomeSealR®, JointSealR®, EasySealR®, or other materials cannot be used.

Flangeless/Punched Windows

- Tape: Best practice includes beginning installation with an extra reinforcing tape joint at the transition of both jambs and sill — this is not required but highly recommended. Install sill flashing by attaching flashing tape a minimum 3" into horizontal surface of sill and 3" on vertical face of sill. **Fig. N. and Fig. O.** Create transition to change in plane at jamb by smoothly slicing tape parallel to sill and tape edge beginning slightly outside corner of window (tape will stretch to cover corner.)


Fig. N


Fig. O

Repeat process with both jambs, extending flashing a minimum 3" up the side of the jambs. **Fig. P, Fig. Q, Fig. R, and Fig. S.** Flash jambs by attaching tape minimum 3" into the vertical surface of the jamb and minimum 3" across the face of the substrate. Transition tape from jamb to sill in a shingle fashion by smoothly slicing tape parallel to tape edge and jamb beginning slightly outside corner of window (tape will stretch to cover corner). Cover all bucks completely in shingle fashion.


Fig. P


Fig. Q


Fig. R


Fig. S


Fig. T

Minimum 3" on both planes. Repeat flashing at other jamb as described. **Fig. T.** Complete head transition by attaching flashing minimum 3" on the interior horizontal opening of header and minimum 3" on the exterior face of header surface. Create transition from head to jamb in a shingle fashion by smoothly slicing tape parallel to header and tape edge beginning slightly outside corner of window (tape will stretch to cover corner) and extending tape minimum 3" across jamb flashing and minimum 3" down jamb flashing. Repeat flashing at other jamb as described. Any subsequent through-wall flashing at header should flash a minimum 3" onto the sheathing face and the drip cap at header. Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Flanged Windows

- Tape: Best practice includes beginning installation with an extra reinforcing tape joint at the transition of both jambs and sill — this is not required but highly recommended. Install sill pan by attaching flashing tape a minimum 3" into horizontal surface of sill and 3" on vertical face of sill. Create transition to change in plane at jamb by smoothly slicing tape parallel to sill and tape edge beginning slightly outside corner of window (tape will stretch to cover corner.) Repeat process with both jambs extending flashing a minimum 6" up the side of the jambs.
- Once window has been installed per manufacturer's written instructions, flash jambs of window extending tape minimum 3" on either side of transition of flange to wall and minimum 3" over sill flashing at bottom of window creating a shingled lap joint. Complete installation by lapping header flashing minimum 3" across jamb flashings and minimum 3" on either side of flanges and window head surface to create a shingle fashion. Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Doors

- Doors should be flashed as flangeless windows described above with through-wall flashing or other material tied into threshold at jambs in a shingle fashion. Roll all tape joints with a J-Roller or cabinet roller to remove any trapped air or fish mouths.

Application of SPF

Prior to application of SPF, inspect all air and weather barrier flashing details. Best practice includes photographing detailing for records. Ensure all through-insulation fasteners such as barrel screw anchor masonry ties are installed securely and at correct depth.

Best practice includes installation of the Natural-Therm® Pro Air and Weather Barrier System from bottom to top to ensure shingle fashion installation. Regardless of starting point, Natural-Therm® Pro should be installed continuously moving from one location to ensure continuity, adhesion, and accurate fit without damaging the system. Natural-Therm® Pro Air and Weather Barrier System must be installed at a minimum 1.5" thickness to achieve air and weather barrier performance. To prevent "shadowing" flash spray foam around penetrations from all angles as the field of spray foam is installed. **Fig. U, Fig. V, Fig. W and Fig. X.**


Fig. U


Fig. V


Fig. W


Fig. X

Provide additional framing as necessary. Extend insulation in thickness indicated to envelop entire area to be insulated and air sealed. The Natural-Therm® Pro Air and Weather Barrier System should only be a single layer. **Fig. Y, Fig. Z, Fig. A1, Fig. A2 and Fig. A3.**


Fig. Y


Fig. Z


Fig. A1


Fig. A2

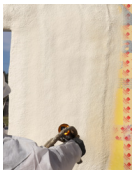
Fig. A3

Apply Natural-Therm® Pro at required thickness per standard published instructions. Check and record thickness regularly at intervals appropriate to the phase of installation. Allow to cure.

Protection

Install exterior cladding as soon as possible, best within 60 days. Help protect insulation from damage due to weather and physical abuse until permanent construction is complete. Cover dark surfaces as soon as possible to avoid damage due to potential solar heat buildup on the dark surface. Do not permit Natural-Therm® Pro Air and Weather Barrier System to come into contact with surfaces or temperatures in excess of 180°F, open flame, or sparks.[2]

Repair

Cover penetrations such as missed studs with compatible sealant a minimum of 2" on all sides of penetration. Do not apply tapes over existing sealant and foam. Any cut edges of foam should be resealed with sealant.

TIPS AND TRICKS

Monitoring Devices

Though not required, monitoring devices are recommended to document and ensure correct temperatures, ratios, and curing of SPF.

Cutting Pipe Penetrations

When cutting pipe penetrations, hole saws with increased number or teeth can help in creating more precise openings with smooth annular space.

1. www.americanchemistry.com/industry-groups/center-for-the-polyurethanes-industry-cpi/resources/library/health-and-safety-product-stewardship-workbook-for-high-pressure-application-of-spray-polyurethane-foam-spf
2. According to DuPont Test Data and TGA (Thermogravimetric Analysis) illustrating stability at 200 F or less (PUR-H Foams)

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