



# FOAMULAR® NGX® AIR & WEATHER BARRIER ASSEMBLY WITH TAPED JOINTS

## RESIDENTIAL INSTALLATION GUIDE

### General

Optimum performance of Owens Corning FOAMULAR® NGX® Insulation products 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 that apply to both selection and installation include: The framed assembly onto which the insulation is to be applied must be even. FOAMULAR® NGX® Insulation is a rigid product and not intended for uneven surfaces. Any deformation of the application surface can result in a weakening of the attachment points 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. FOAMULAR® NGX® Insulation is not structural. Structural sheathing or proper bracing must be used when applying to wood or metal framing.



### Safety

Before beginning, read and follow all safety recommendations of the job site including wearing personal protective equipment (PPE) and safe use of all tools and equipment.



### Site 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 water-tight to prevent water becoming trapped behind the air and water barrier assembly. Prior to installation, ensure that the substrate and FOAMULAR® NGX® are clean, dry, sound, and free of any ice, dirt, oils, release agents, or debris that would prevent adhesion.

FOAMULAR® NGX® should be dry and free from UV degradation to ensure adhesion. It is recommended that when the FOAMULAR® NGX® is considered the air and weather barrier (AWB), all flashings should be installed at the time of FOAMULAR® NGX® 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. Ensure studs are at least minimal width to receive fasteners. 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. NGX Air Barrier System is only approved for 16-inch on-center framing.

Note: These instructions apply to installation of FOAMULAR® NGX® when used as an air barrier assembly with taped joints. If FOAMULAR® NGX® is only needed as an insulation, please see FOAMULAR® NGX® commercial/residential wall installation instructions.

## Attachment of XPS

Best practice includes installation of the Owens Corning® Air & Weather Barrier System with HomesealR®, EasySealR®, and FlashSealR® from bottom to top to ensure shingle fashion installation. Regardless of starting point, FOAMULAR® NGX® should be installed continuously moving from one location to ensure continuity, adhesion, and accurate fit without damaging the system. Locate butt joints square to framing members. Center joints over framing. **See Figure 1.**

Provide additional framing as necessary. Stagger vertical joints a minimum of one stud space from adjacent joints. Insulation board edges shall be butted together tightly and fit around openings and penetrations. Cut and fit tightly around obstructions and fill voids with insulation. **See Figure 2.**

**FIGURE 1**



**FIGURE 2**



Extend insulation in thickness indicated to envelop entire area to be insulated. The FOAMULAR® NGX® Air Barrier system should only be a single layer of XPS. Install XPS insulation board in maximum sizes to minimize joints. Fasteners should be attached through the FOAMULAR® NGX® into structural framing at maximum 18-inch o.c. spacing for both field and perimeter. Vertical joints should be supported by or on framing. Fasteners should be self-drilling screw type with a minimum 2-inch washer. Two-inch diameter pronged washers can bridge adjoining board edges. **See Figure 3.**

Locate and mark stud locations. Install self-drilling screws through XPS insulation into framing using a standard drill or auto-feed fastening system. **See Figure 4.**

**FIGURE 3**



**FIGURE 4**



Do not attach with impact driver as fastener holes may strip, and/or overdriven fasteners may create air and water leaks. Drive fasteners so the washer is tight and flush with insulation surface, but do not countersink. Fastener screw should be sized to penetrate framing a minimum 1-1/2 inches in wood stud and a minimum of 1 inch in steel studs. Fastener and washer can be centered to span up to three intersecting boards. **See Figure 5.**

## Air & Weather Barrier Detailing

Before installing tape, ensure XPS insulation surface is clean, dry, sound, and free of any ice, dirt, oils, release agents, or debris that would prevent adhesion. Remove any debris that would damage tape, and ensure that fasteners are driven flush. It is recommended that when the FOAMULAR® NGX® Air Barrier System with taped joints is considered the air & weather barrier (AWB), all flashings should be installed at the time of FOAMULAR® NGX® insulation installation. Owens Corning HomeSealR®, EasySealR®, JointSealR®, and FlashSealR® are the only acceptable tapes for the FOAMULAR® NGX® tape joint Air & Weather Barrier Assembly. 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. Owens Corning HomeSealR®,

EasySealR®, and FlashSealR® are used for the Residential FOAMULAR® NGX® Air & Weather Barrier Assembly with taped joints.

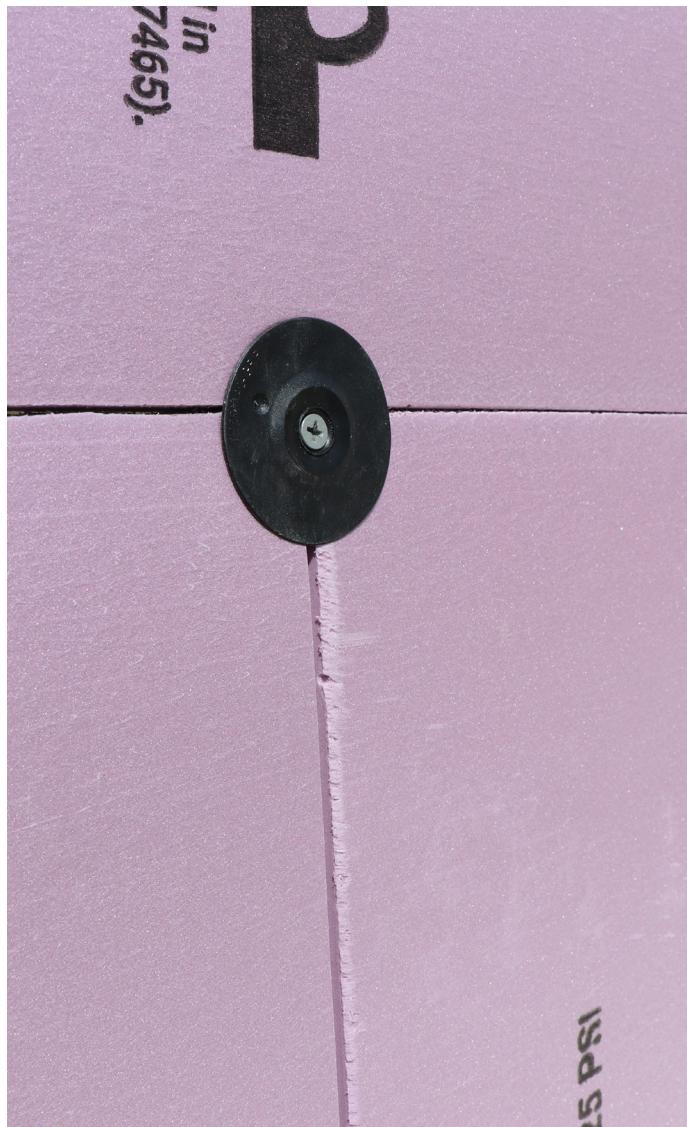
### Joints

Install all joint sealing tapes at the time of the XPS insulation. Fill any annular space larger than 3/8 inch 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. **See Figure 6.**

Tape shall overlap joints a minimum of 1-3/4 inches on both sides of joint. Install the tape in a "shingle" fashion to facilitate drainage. Lap tape intersections a minimum of 2 inches. Lap tape changes in plane a minimum of 2 inches.

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

**FIGURE 5**



**FIGURE 6**



# Transitions

## Outside/Inside Corners

Corners must be flashed with Owens Corning FlashSealR®. HomeSealR®, EasySealR®, or other tapes cannot be used. Ensure insulation corners meet flush with adjacent insulation. Install corner flashing by attaching flashing tape a minimum 3 inches into both faces of insulation. Lap tape intersections a minimum of 2 inches. Lap tape changes in plane a minimum of 2 inches. 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 activate the adhesive and to remove any trapped air or fish mouths.

## Penetration Flashing

General: Fill any annular space larger than 3/8 inch with backer rod. **See Figure 7.**

Caulk is not required at space beneath this tape system; however, if it is used, verify compatibility and curing time prior to installation. Best practices include cutting openings with hole saws, oscillating tools, jigsaws, or other tools that leave controlled, even edges. **See Figure 8.** See Tips & Tricks at the end of this document.

## Pipes

Pipe Penetrations may be flashed with FlashSealR® or HomeSealR®. Ensure insulation is butted tightly to pipe around entire circumference. Tape a minimum of 2 inches of pipe protruding from exterior face and 2 inches 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 inches 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 inches. Roll all tape joints with a J-Roller or Cabinet Roller to remove any trapped air or fish mouths. **See Figures 9 and 10.**

**FIGURE 7**



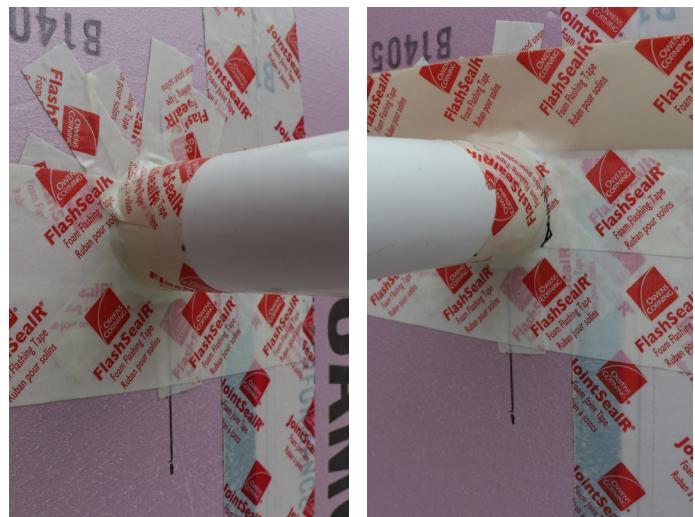
**FIGURE 9**



**FIGURE 8**



**FIGURE 10**



## Ducts and Junction Boxes

Duct and Junction Box Penetrations may be flashed with FlashSealR® or HomeSealR®. Ensure insulation is butted tightly to duct or box perimeter. Install flashing tape in a "shingle fashion" from bottom to top to shed water and properly lap seams. Beginning on lowest surface, tape a minimum of 2 inches onto face of insulation and penetration surface to create change in plane.

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 insulation. **See Figure 11.** Repeat process on adjacent sides of penetration to create a minimum of 2-inch "shingled" laps over first flashing tape. **See Figure 12.**

Complete tape flashing at top of penetration by attaching tape as previously described and turning tape onto face of insulation and face of penetration to create a minimum of 2-inch "shingle" lap. Roll all tape joints with a J-Roller or Cabinet Roller to remove any trapped air or fish mouths.

**FIGURE 11**



**FIGURE 12**



## Windows

Ensure insulation is tightly butted and flush to window or opening. All Window and Door Openings must be flashed with Owens Corning FlashSealR®. HomeSealR® or other tapes cannot be used.

### Flangeless/Punched Windows

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 of 3 inches into horizontal surface of sill and 3 inches 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 of 3 inches up the side of the jambs. **See Figure 13.**

Flash jambs by attaching tape a minimum of 3 inches into the vertical surface of the jamb and a minimum of 3 inches across the face of the insulation. 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). **See Figure 14.**

**FIGURE 13**



**FIGURE 14**



Repeat flashing at other jamb as described. Complete head transition by attaching flashing a minimum of 3 inches on the interior horizontal opening of header and a minimum of 3 inches 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 a minimum of 3 inches down jamb flashing. Repeat flashing at other jamb as described. Any subsequent through wall flashing at header should flash a minimum of 3 inches onto the sheathing face and the drip cap at header. **See Figures 15 and 16.** Roll all tape joints with a J-Roller or Cabinet Roller to remove any trapped air or fish mouths.

### Flanged Windows

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 of 3 inches into horizontal surface of sill and 3 inches 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 of 6 inches up the side of the jambs.

Once window has been installed per manufacturer's written instructions, flash jambs of window, extending tape a minimum of 3 inches on either side of transition of flange to wall and a minimum of 3 inches over sill flashing at bottom of window creating a shingled lap joint. Complete installation by lapping header flashing a minimum of 3 inches across jamb flashings and a minimum of 3 inches 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.

**FIGURE 15**



**FIGURE 16**



Transitions to:

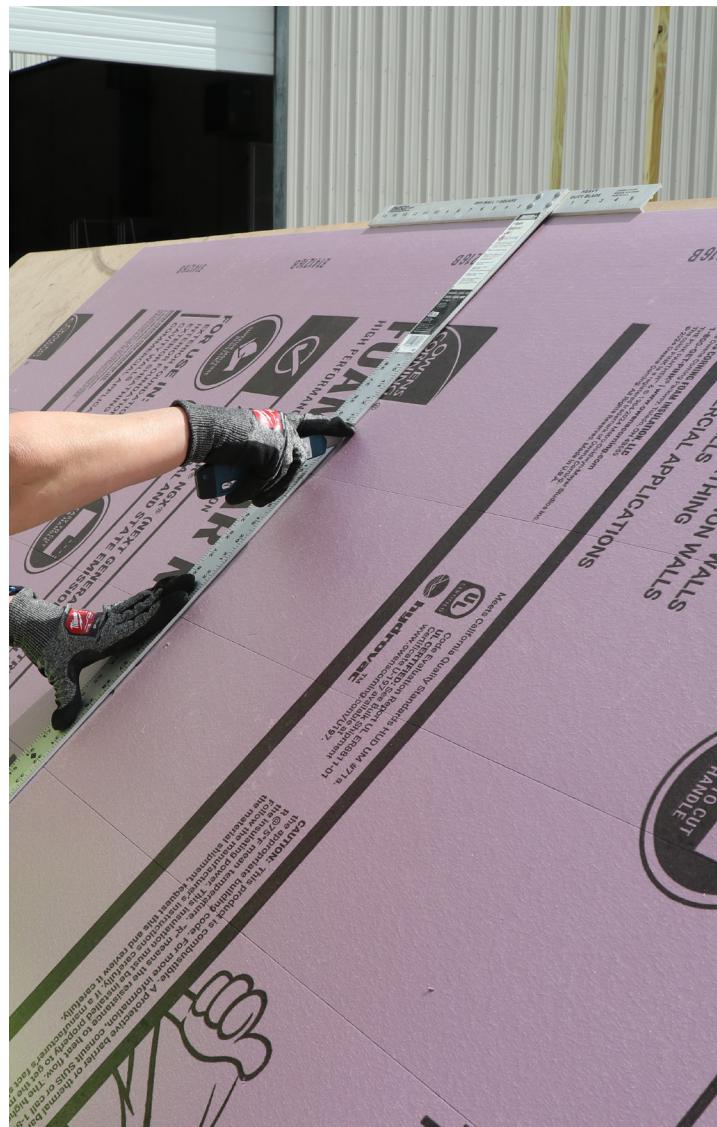
- Foundations
  - Tie compatible through wall flashing and waterproofing to Owens Corning® Air & Weather Barrier System with HomesealR® and FlashSealR® using compatible flashing tape and attached in a shingle fashion.
- Roofs
  - If Attic is encapsulated, tie compatible through wall flashing and roof membrane to Owens Corning® Air & Weather Barrier System with HomesealR® and FlashSealR® using compatible flashing tape at top plate and soffit transition.

## Protection

Install exterior cladding as soon as possible, best within 60 days. Protect insulation from damage due to weather and physical abuse until protected by permanent constructions. Cover dark surfaces as soon as possible to avoid damage due to potential solar heat build-up on the dark surface. Do not permit extruded polystyrene insulation board to come into contact with surfaces or temperatures in excess of 165°F.

Refer to Owens Corning Technical Bulletin: Heat Build Up Due to Solar Exposure.

**FIGURE 17**



## Protection & Repair

Cover penetrations such as missed studs with FlashSealR® or HomeSealR® a minimum of 1-3/4 inches on all sides of penetration.

## Tips & Tricks

### Cutting Panels

FOAMULAR® NGX® can be easily cut by "scoring and snapping." When working with large boards, an elevated surface and T square help to ensure accuracy and reduce strain. **See Figure 17.**

### Cutting Pipe Penetrations

When cutting pipe penetrations, hole saws with increased number of teeth can help in creating more precise openings with smooth annular space. Some saws may create less damage when drilled in reverse with slower pressure. It is recommended to practice cutting until satisfactory on-site prior to cutting actual sheathing.



## Cutting Junction Box/Ductwork/Windows/Other Penetrations

When cutting openings, various hand saws may help in creating precisely butting cuts, including oscillating saws, jigsaws, and small circular saws. Finer toothed blades help to create smoother edges.

Windows and other openings flush with foam and framing may be cut after foam is attached with an oscillating tool. **See Figure 18.**

Fastener washers overlapping washers may be trimmed to opening as long as the integrity of the washer is not compromised.

**See Figure 19.**

**FIGURE 18**



**FIGURE 19**

