



INSTALLATION INSTRUCTIONS

EnergyShield® Pro and
EnergyShield® CGF Pro

EnergyShield® Pro & EnergyShield® CGF Pro Installation Instructions

Conditions of Use

EnergyShield Pro and EnergyShield CGF Pro foam insulation board complies with, or is a suitable alternative to, the applicable sections of the 2006, 2009 and 2012 IBC and the 2006, 2009 and 2012 IRC and is subject to the following conditions:

- Installed in compliance with:
 - The applicable building code sections, which always supersede this instruction
 - Structural requirements
 - Fire requirements
 - Wind pressure requirements
 - Exterior wall covering requirements
 - Flashing requirements
 - Moisture barrier requirements
 - Air barrier requirements
 - Vapor barrier requirements
- TER No.1205-05—Construction Details for the Use of Foam Plastic Insulating Sheathing (FPIS) in Light-Frame Construction, which always supersedes this instruction.
- TER No.1306-03—EnergyShield Pro and EnergyShield CGF Pro Fire Performance in Buildings of Type I–IV Construction. Dr. J, September, 2013.
- NTA Report ATL041713-23 issued July 11, 2013, “Guide to Attaching Sheathing, Furring and/or Cladding through Atlas Continuous Foam Insulation to Wood Framing, Steel Framing, Concrete and CMU Substrates”.
- Accessory manufacturer’s instructions and recommendations for application over or behind Products. **See Note #1.**
- This installation instruction.
- Products are not a nailing base for attachment of any kind.
- Products are not structural.

Examination

- Inspect Products for damage related to transportation and handling.
- Ensure Products are suitable for installation.
- Segregate and discard Products if damaged beyond repair and not fit for intended use.

Preparation

- Store Products indoors on risers elevated at least 4 inches above floor/grade. When Products must be stored outdoors, completely protect it from moisture (Manufacturer’s packaging is not sufficient protection from moisture).
- If building interior is not protected from exterior moisture, protect Products as if stored outdoors.
- Do not allow standing water to collect on top of protection or below Products.
- Products that have been damaged by moisture are not fit for intended use and must be discarded.
- Take appropriate measure to secure Products from wind events. Do not exceed weight of 25 lbs. per square foot.
- If exterior temperature and/or materials are less than 55°F, a primer may be required prior to installing sheathing tape and/or flashing tape.
- Follow sheathing tape and/or flashing tape manufacturer’s instructions for specific Product preparation, primer application and required installation temperature.
- Install Products over clean, dry suitable framing spaced no more than 24 inches on center.
- Products may be left exposed no more than 180 days from date of installation.
- All wall applications are for above-grade installations only.
- Keep open flame away from Products at all times.

Note #1: Instructions are for EnergyShield Pro and EnergyShield CGF Pro. Any recommendations for accessories are designed to supplement and defer to the window, door, tape, sealant, flashing, water resistive barrier, air barrier and fastener manufacturer’s written instructions. Follow water resistive barrier and air barrier manufacturer’s written instruction for attachment to EnergyShield Pro and EnergyShield CGF Pro. Follow cladding manufacturer’s written instruction for cladding attachment through Products to structure.

APPLICATION #1

Installation of Products over exterior gypsum sheathing fastened to metal stud framing for continuous insulation.

Orientation for Metal Stud Framing

- Fasten Product through sheathing to metal stud framing with printed side facing exterior.
- For footings with a masonry veneer brick ledge, place bottom edge of first course of Product $\frac{1}{4}$ inch– $\frac{1}{2}$ inch above footing to allow clearance for drainage. If metal framing is installed flush with footing, place bottom edge of first course of Product even with bottom of edge of gypsum sheathing board.
- Install Product with long edges perpendicular to framing. Accessories such as masonry ties or other cladding attachments may dictate suitable orientation. **See Note #2.**

Fasteners for Metal Stud Framing

- Self-drilling screws with minimum $1\frac{3}{4}$ inch diameter washer, $\frac{3}{4}$ inch minimum metal framing penetration. Plasti-Grip® CBW by Rodenhouse or equivalent. **See Note #3.**

Fastener Spacing Metal Stud Framing

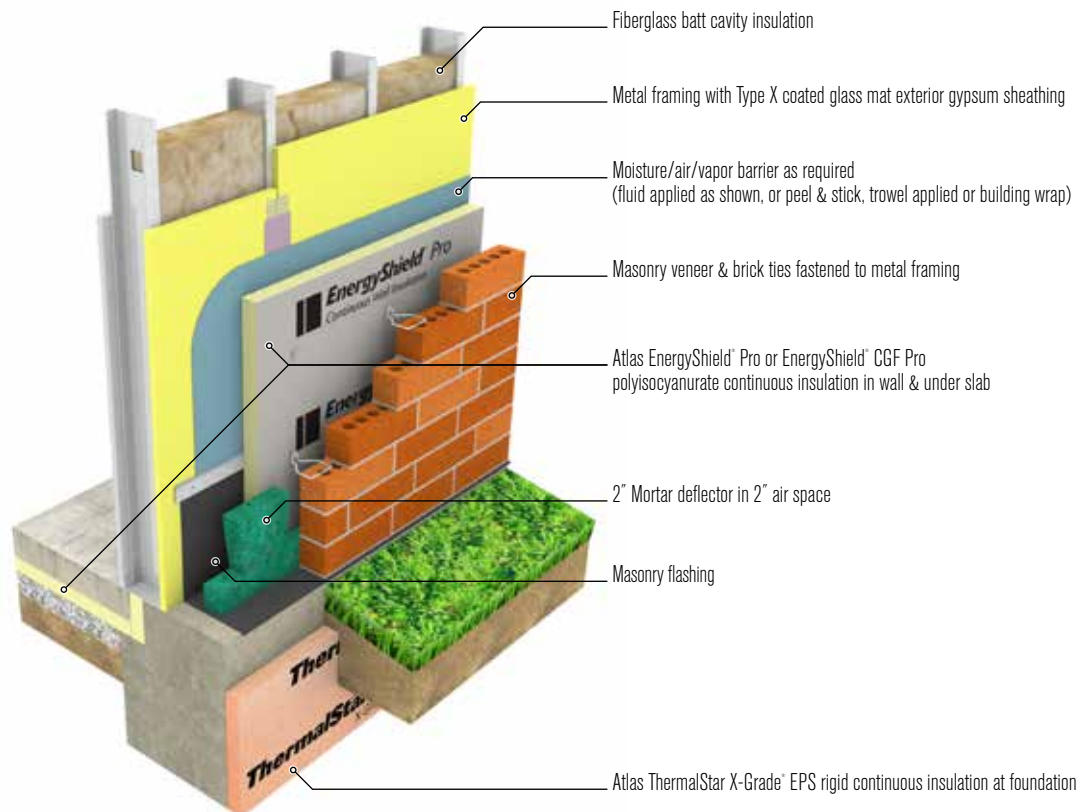
- Product perimeter: every 12 inches on center. One $1\frac{3}{4}$ inch or greater washer style fastener at joint can bridge two Product boards. **See Note #3.**

- Product field: every 16 inches on center.
- Drive correct length fastener flush to Product surface. Do not countersink fasteners or washers.

Layout for Metal Stud Framing

- Use maximum length Product to minimize joints.
- Stagger Product joints from those of underlying exterior gypsum sheathing.
- Stagger vertical Product joints 48 inches apart from previous course.
- Cut or split Product to fit between masonry ties if applicable or purchase Product 16 or 24 inches wide.
- Locate Product so that starting and ending edges center on framing flange or stud face. **See figure A.**
- Overlap Product at corners. **See figure A.**
- Cut Product to fit tight at joints penetrations and features. **See figure A.**
- Install masonry ties and or exterior claddings per cladding manufacturer's instructions and design professional's specification.

IMAGE 1: METAL FRAME, GYPSUM SHEATHING, AIR/MOISTURE BARRIER, ATLAS PRO POLYISO AND BRICK VENEER



Note #2: For multiple layer EnergyShield Pro or EnergyShield CGF Pro installations, be sure to offset vertical joints between first and second layers of Product by at least one stud cavity and horizontal joints by at least 6 inches.

Note #3: When EnergyShield Pro or EnergyShield CGF Pro is not functioning as the air barrier or WRB material installed over a sheathing substrate such as wood/gypsum sheathing, the exterior cladding fastening systems which fasten through Product to structure are often sufficient to fasten Product for a complete installation. In these cases, the installer can determine sufficient fasteners, adhesives or friction fitting between masonry ties to secure Product in-place temporarily to meet project environmental conditions until the cladding system fasteners can anchor Product to structure and complete the fastening of Product. Product left exposed and not secured to structure by the cladding attachment system must be secured appropriately before leaving the installation unattended.

APPLICATION #2

Installation of Products over masonry wall for continuous insulation.

Orientation for Masonry Wall

- Fasten or adhere Product to exterior face of masonry wall with printed facer to the exterior.
- For footings with masonry veneer brick ledges, place bottom edge of first course of Product $\frac{1}{4}$ inch– $\frac{1}{2}$ inch above footing to allow clearance for drainage.
- Install Product with long edges parallel to footing. Accessories such as masonry ties or other cladding attachments may dictate suitable orientation.

Fasteners for Masonry Wall When Brick Ties are Installed Through Product

- Masonry fastener with minimum $2\frac{3}{8}$ inch diameter washer, $1\frac{1}{2}$ inch minimum masonry penetration. Plasti-Grip® PMF Fastener by Rodenhouse or equivalent.

Fastener Spacing for Masonry Wall

- Product perimeter: every 12 inches on center. One $2\frac{3}{8}$ inch washer style fastener at joint can bridge two Product boards.
- Product field: every 16 inches on center.
- Drive correct length fastener flush to Product surface. Do not countersink fasteners or washers.

Product Adhered to Masonry Wall

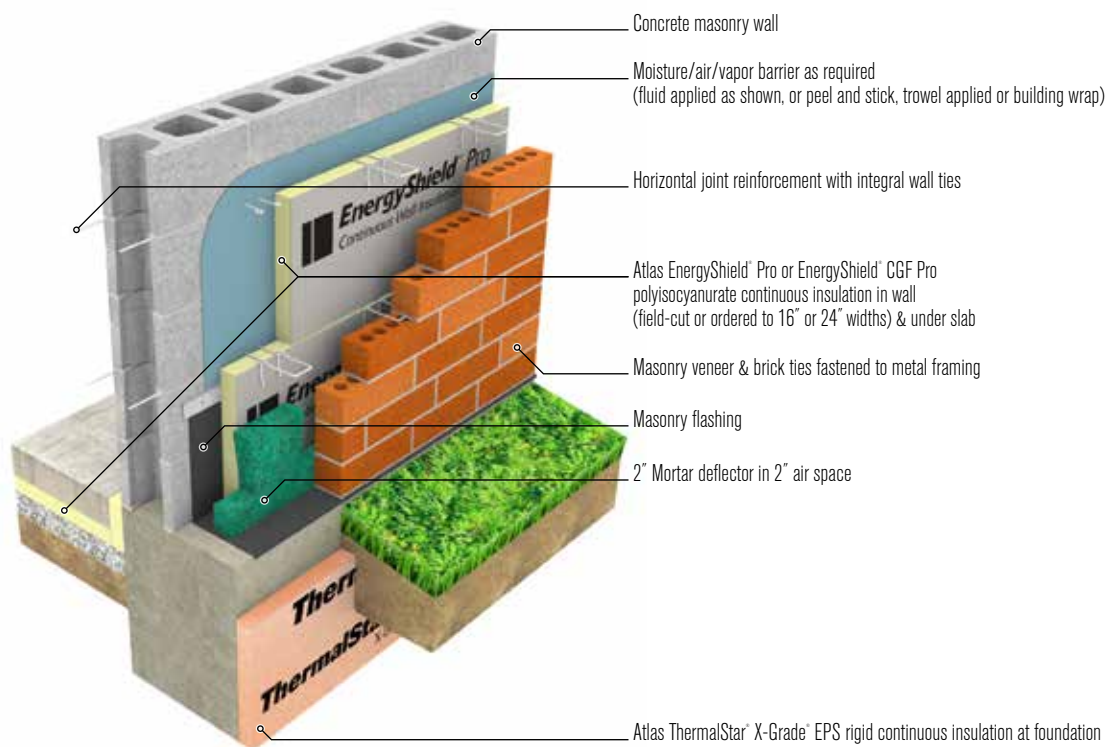
- An alternative to using fasteners alone, adhere Product to masonry wall with suitable construction adhesive. Follow adhesive manufacturer's installation instructions for conditions, preparation, installation and curing time.

- As a guide, apply adhesive in $\frac{3}{8}$ inch thick by 3 inch diameter pads to the back of Product in four rows with a minimum of seven pads per row. Space adhesive pads evenly across the length of the Product at no more than 16 inches on center. Space pads in rows no more than 16 inches on center and no more than 3 inches from Product ends and edges. Immediately place insulation Product against the wall surface before adhesive "skins". If adhesive "skins," remove and apply fresh material.
- Supplement Product adhesive attachment with 3–5 Rodenhouse Plasti-Grip® PMF Fastener $2\frac{3}{8}$ inch diameter masonry fasteners or equivalent per board.

Layout for Masonry Wall

- Use maximum length Product to minimize joints.
- Stagger Product joints in horizontal rows from one course to the next—a minimum of 6 inches so no two vertical Product joints meet.
- Cut or split Product to fit between masonry ties if applicable or purchase Product 16 or 24 inches wide.
- Overlap Product at corners. **See figure A.**
- Cut Product to fit tight at joints penetrations and features. **See figure A.**
- Install masonry ties and/or exterior claddings per cladding manufacturer's instructions and design professional's specification.

IMAGE 2: CMU, AIR/MOISTURE BARRIER, ATLAS PRO POLYISO INSULATION WITH BRICK VENEER CLADDING



Flashing Tape

- Follow all the requirements in Application #1 or #2 then proceed as follows. **See Note #7.**
- Prepare facer at joints of Product per tape manufacturer's recommended instructions to ensure a clean, dry, bondable surface. Use a sample of flashing tape to test adhesion prior to taping. Only prepare as much Product facer as you intend to tape in a day's work.
- Apply minimum 4 inch wide flashing tape to joints of clean, dry Product. **See Note #4.**
- Use tape manufacturer's recommended primer for improved adhesion.
- Use 3 inch "J" Roller with firm pressure to apply flashing tape centered over all joints, corners, fastener heads and joints between dissimilar materials.
- Center flashing tape on vertical joints starting at lowest point and work upward in shingle fashion to ensure correct lap of intersecting tapes for water shed.
See figure B.
- "Terminate" horizontal flashing joints by adhering $\frac{2}{3}$ of a self flashing 2–3 mil acrylic sheathing tape to Product and remaining $\frac{1}{3}$ to the thicker flashing tape. **See figure C and Note #5.**
- Cut 4 inch by 4 inch pieces of flashing tape to cover each fastener head which is not already covered with flashing tape.
See figure B.

Prepare Rough Openings

- Install pan flashing tape in rough opening prior to installation of window, door, feature and/or penetration.
- Pan flash the window sill with flashing tape to direct moisture to face of foam board. Extend pan flashing tape no less than 6 inches up each side of the rough jam and no less than $1\frac{1}{2}$ inches onto Product. **See figure C.**

Windows and Doors

- Use flange-type windows and doors. **See figure C.**
- Install window, door, feature and penetration according to applicable code and/or window/door manufacturer instructions.
- Prior to setting window/door into rough opening, apply a continuous bead of sealant to the header and side window flanges only. **See Note #6.**
- After window has been properly installed in rough opening and fastened to structure, install window side flashing tape. Completely cover the window side flanges extending a minimum of 2 inches onto the face of the Product. **See figure C.**
- Install window head flashing tape completely covering the window head flange and each window side flashing to extend onto Product no less than 2 inches past side window flashing tape. **See figure C.**
- "Terminate" header flashing tape with a self flashing 2–3 mil acrylic sheathing tape by adhering $\frac{2}{3}$ sheathing tape to Product and remaining $\frac{1}{3}$ to the thicker flashing tape. **See Figure C.**

Penetrations and Features

- Seal wall penetrations and features such as pipe, electrical access and dryer vents with compatible sheathing tape, flashing tape, caulk and/or sealant. **See figure A.**
- "Terminate" uppermost horizontal flashing tape with a self flashing 2–3 mil acrylic sheathing tape by adhering $\frac{2}{3}$ tape to Product and remaining $\frac{1}{3}$ to the thicker flashing tape.
See Figure C.

Note #4: There are several building tapes that may be used on EnergyShield Pro or EnergyShield CGF Pro. Consult tape manufacturer for specific compatibility. For the purposes of these instructions, flashing tape is typically opaque, commonly butyl, but often acrylic, 10 mil thick or greater; whereas sheathing tape is thin, often translucent, acrylic type, 2–3 mils thick. Following is a partial list of tapes with good adhesion and long term performance:

FLASHING TAPES

- Polyester metalized foil acrylic adhesive tapes (Protecto Super Stick Building Tape)
- Polypropylene backed, self-adhering tape with acrylic adhesive (such as 3M 8067, Dow WEATHERMATE™, DuPont™ Tyvek™ Tape)
- Butyl, self-adhering flashing tape (such as Protecto BT20XL Butyl™, BT25XL™, Protecto Form Flash 1™, Protecto Sill Pan Flashing™, Protecto Flex™)

SHEATHING TAPES

- Polyethylene backed contractors sheathing tape (ThermalStar™ 007, IPG Sheathing Tape, 3M 8087)
- Aluminum foil coated, acrylic adhesive self-adhering tape (hard foil tapes, such as VentureTape™ 1519CW, IPG Cold Weather Aluminum Foil Tape)

Note #5: Leading building science experts often recommend thicker flashing tapes such as an 18 mil or greater flashing tape be "terminated" with a second application of thinner "self-flashing" sheathing tape. The second application of a self-flashing sheathing tape is a "belt and suspenders" approach that promotes water shed and prevents any moisture from getting behind header and other horizontal flashing tapes due to separation from fish mouth or poor adhesion. Thinner acrylic or butyl flashing tapes such as 10–15 mils tend to be self-flashing and may not need to be terminated with a sheathing tape to promote water shed.

Note #6: Common trade practice is to not apply sealant to bottom window flange so that any trapped moisture may escape the sill pan flashing and drain. For the same reason, the bottom window flange is also not typically flashed with tape. Consult window manufacturer's instructions for specific flashing guidance when installing flange type windows over EnergyShield Pro or EnergyShield CGF Pro.

Note #7: In applications where a WRB is installed over EnergyShield Pro or EnergyShield CGF Pro, follow WRB manufacturer's instructions for attaching to or through Product. In applications where WRB is installed behind Product, taping of Product seams is not recommended unless all other Product flashing details are followed. It is strongly advised that penetrations in the wall envelope, such as windows, doorways, etc., are flashed to the exterior surface of Product, regardless of the presence of a separate WRB under the Product layer.

IMAGE 3: METAL FRAME, GYPSUM SHEATHING, ATLAS PRO POLYISO INSULATION AS WRB AND DRAINAGE PLANE WITH ACM/MCM METAL PANEL CLADDING

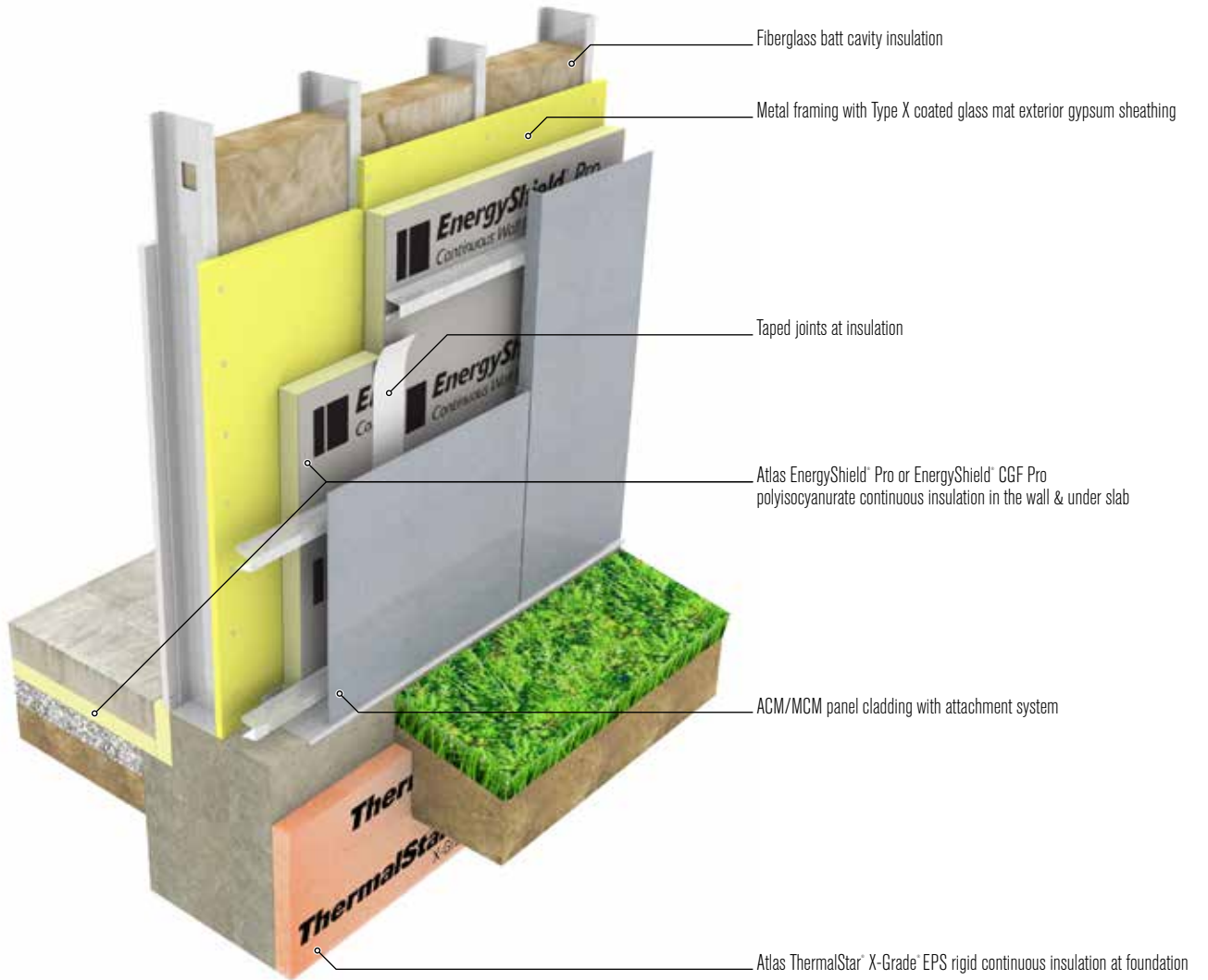


FIGURE A: FOAM BOARD AS CONTINUOUS INSULATION—CORNER AND PENETRATION CONDITIONS

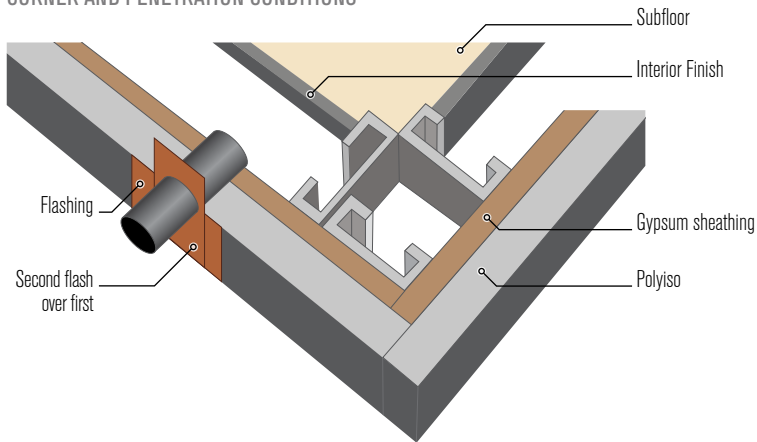


FIGURE B: FOAM BOARD AS CONTINUOUS INSULATION AND WRB OVER EXTERIOR GYPSUM SHEATHING FASTENED TO METAL STUD FRAMING

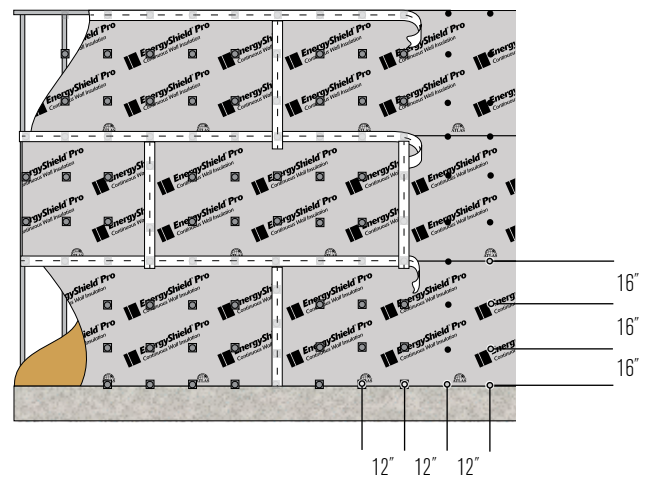
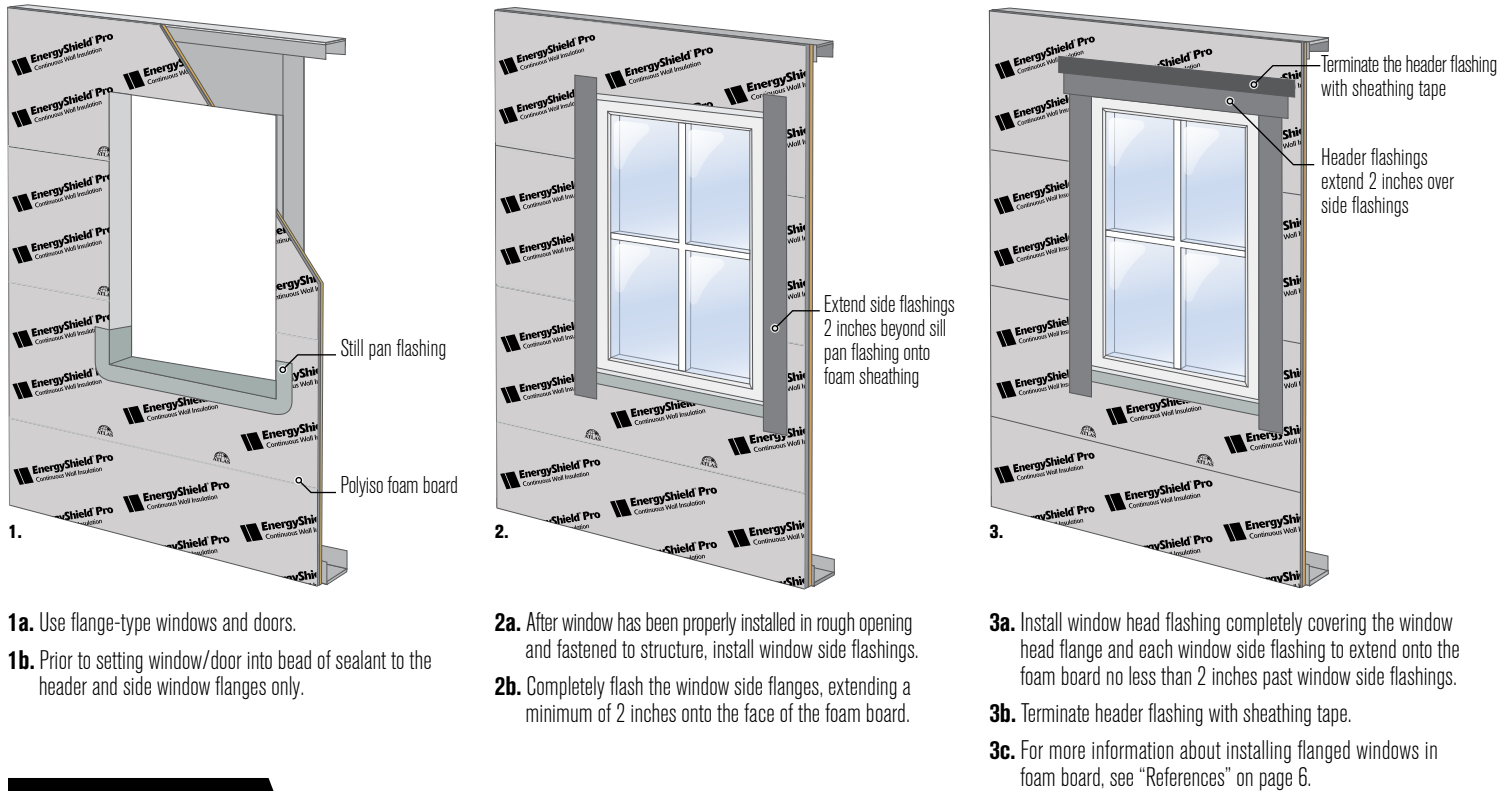


FIGURE C: FLANGED WINDOW INSTALLATION



- 1a. Use flange-type windows and doors.
- 1b. Prior to setting window/door into bead of sealant to the header and side window flanges only.
- 2a. After window has been properly installed in rough opening and fastened to structure, install window side flashings.
- 2b. Completely flash the window side flanges, extending a minimum of 2 inches onto the face of the foam board.
- 3a. Install window head flashing completely covering the window head flange and each window side flashing to extend onto the foam board no less than 2 inches past window side flashings.
- 3b. Terminate header flashing with sheathing tape.
- 3c. For more information about installing flanged windows in foam board, see "References" on page 6.

APPLICATION #4 Installation of Products as under slab insulation.

Site Preparation

- Prepare suitable, drainable sub-grade, aggregate base or a combination of both.
- Cover installation area with protective membrane, minimum 10 mil polyethylene or equivalent.
- Overlap membrane joints by 24 inches and tape overlapping membrane joints with compatible tape.
- Extend membrane 6 feet on all sides of installation area.

Orientation

- Place first course of Product on membrane with printed side visible.

Layout

- Stagger joints of subsequent layers so that no two joints meet.

Joint Treatment

- Taping joints of initial, intermediate through final layers of foam board is recommended.

Membrane Cover

- Fold the 6 foot extensions of membrane over the last course of Product taping membrane ends to board facer.
- Apply a layer of 10 mil membrane over the last course of Product. Overlap membrane joints by 24 inches and tape overlapping membrane joints with compatible tape. Ensure membrane extends 6 inches past each edge and down each side and secure to membrane with compatible tape or bury/back-fill with sub-grade or aggregate.

REFERENCES AND HELPFUL LINKS

- Technical Evaluation Report—TER #1205-05, Construction Details for the Use of Foam Plastic Insulating Sheathing (FPIS) in Light-frame Construction, SBC Research Institute, November 2012.
- ICC-ES Evaluation Report—ESR-1375. Reissued June 1, 2006. Revised September 2012.
- Installing Windows with Foam Sheathing on a Wood-frame Wall, Building Science Corporation/Building America U.S. Department of Energy, May 2005. NREL/SR-550-37583.
- Guidance on Taped Insulating Sheathing Drainage Planes: Final Report, Aaron Grin and Joseph W. Lstiburek, Building Science Corp., December 2012.
- Stuck On You, by Joseph W. Lstiburek, ASHRAE Journal, February 2013.
- Engineering Evaluation Report-Guide to Attaching Sheathing, Furring and/or Cladding through Continuous Foam Insulation to Wood Framing, Steel Framing, Concrete and CMU Substrates with Trufast SIP TP, SIP LD and Tru-Grip Fasteners, NTA, Inc., March 2012.
- ASTM E2112-07 Standard Practice for Installation of Exterior Windows, Doors and Skylights.

About Atlas

Atlas EnergyShield® products are designed and manufactured in the United States and Canada by Atlas Roofing Corporation for the ultimate utility in modern building envelopes. For 30-plus years, Atlas Roofing Corporation has served as an innovative, customer-oriented manufacturer of residential and commercial building materials. Atlas Roofing Corporation promotes 18 state-of-the-art manufacturing plants in North America, with eight dedicated to the Atlas EnergyShield product family.

Atlas International Polyiso Manufacturing

Coverage to support LEED and local building needs. Most U.S. and Canada locations can help earn LEED credit for local/regional materials, with <500 mile distance from project to production facility.

Why Atlas EnergyShield?

Leading performance compared with Extruded Polystyrene (XPS), Expanded Polystyrene (EPS) and rock wool. True CI with no thermal bridging.

Air and moisture barriers that are field proven, code compliant and material tested. Energy efficiency levels to match IECC and current building codes, as well as ASHRAE 90.1, required per LEED

Meets fire ratings and codes with low flame/smoke propagation, and a preferred response to fire over polystyrenes. It's stable, durable, non-corrosive and compatible with solvents.

Atlas EnergyShield is lightweight and easy to work with standard tools and available fasteners, and can be installed in almost any temperature.

Atlas provides a 15-year thermal performance warranty—for CI that lasts.

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