



# INSTALLATION INSTRUCTIONS

For Residential, Multi-Family and Light Commercial Construction  
for Exterior Continuous Wall Insulation



# CONTENTS

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|                                            |    |
|--------------------------------------------|----|
| Materials & Preparation.....               | 3  |
| General Application.....                   | 4  |
| Preparing Rough Openings.....              | 6  |
| Exterior Cladding Attachment.....          | 7  |
| Detailing as Water Resistive Barrier ..... | 8  |
| Below-Grade Application.....               | 10 |
| Detailing as Air Barrier.....              | 11 |
| Alternative Applications.....              | 11 |

For the purposes of this document, the reference to EnergyShield® is inclusive of EnergyShield, EnergyShield CGF and EnergyShield XR Continuous Insulation products.

### Preparation

- Materials should be delivered to the jobsite undamaged and in original packaging. Inspect EnergyShield for damage related to transportation, handling, or weather. Separate and discard any product damaged or beyond repair as it may not be fit for intended use.
- Confirm compatibility with any components adjacent to EnergyShield. Follow component manufacturer's instructions for specific surface preparation and installation requirements.
- EnergyShield can be ordered precut or scored for project efficiency.
- Plan assembly layout to ensure proper sequencing of material installation and to minimize waste.
- Review applicable manufacturer's application instructions, such as windows, doors, and cladding, to ensure conformance.
- Always refer to local building codes and/or consult with a design professional to ensure compliance with applicable codes & regulations.

### Precautions and Limitations

- EnergyShield is not a structural product; follow local building code requirements. Structural requirements can typically be achieved by code accepted shear or corner bracing methods to meet lateral loads. Consult *ABTG Research Report 1601-01* and *IRC Chapter 6* for appropriate solution.
- EnergyShield is not a nailing base for attachment of any kind.
- EnergyShield may be left exposed up to 60 days from date of installation.
- Refer to Technical Bulletin 16 for detailed information on storage recommendations.
- Prior to installation, ensure that the insulation and substrate are clean, dry and free of ice, dirt, oils, or any other material that could impede correct installation of the insulation or subsequent material layers.
- Do not install if surface conditions of the insulation or adjacent materials will impede correct installation.



#### Materials Checklist

- Proper PPE
- Straight edge
- Measuring tape
- Pencil
- EnergyShield Continuous Wall Insulation
- Fasteners
- Joint sealing and flashing products
- Preferred cutting tools: utility or insulation knife, circular or table saw

### General Application

When installing EnergyShield, be sure the substrate is clean, dry, and free from irregularities that could affect the integrity or performance of the insulation board.

- Orient EnergyShield horizontally or vertically using maximum length of boards to minimize joints.
- Align EnergyShield with bottom of the base wall centering vertical board edges over framing. Stagger vertical joints by at least one stud cavity. Horizontal joints do not require backing, unless FS100 needs to be met.

Recommend installing drip edge along the bottom edge of a masonry brick ledge, or leave 1/2" from the bottom of first course above insulation to allow for proper drainage.

- Secure EnergyShield to the base wall or framing. For mechanical fastening, use a minimum of 12 fasteners per 4' x 8' insulation board. See *Figure 1 and 2*. Drive correct length fastener flush to surface. Do not countersink. Refer to Table 1 and Quick Notes for additional fastener guidance on next page.
- Continue to work across the wall installing insulation board edges tightly together. Install across the entire wall length before beginning the next course above. At corners, create a butt joint alternating between courses. See *Figure 3*.
- When installing EnergyShield around windows and doors, insulation boards can be precut to fit or installed over openings and cut out later. Reference **Preparing Rough Openings** section for further details using picture frame or window buck methods.
- When cutting insulation board for throughwall penetrations, minimize gaps by fitting tight to adjacent materials.

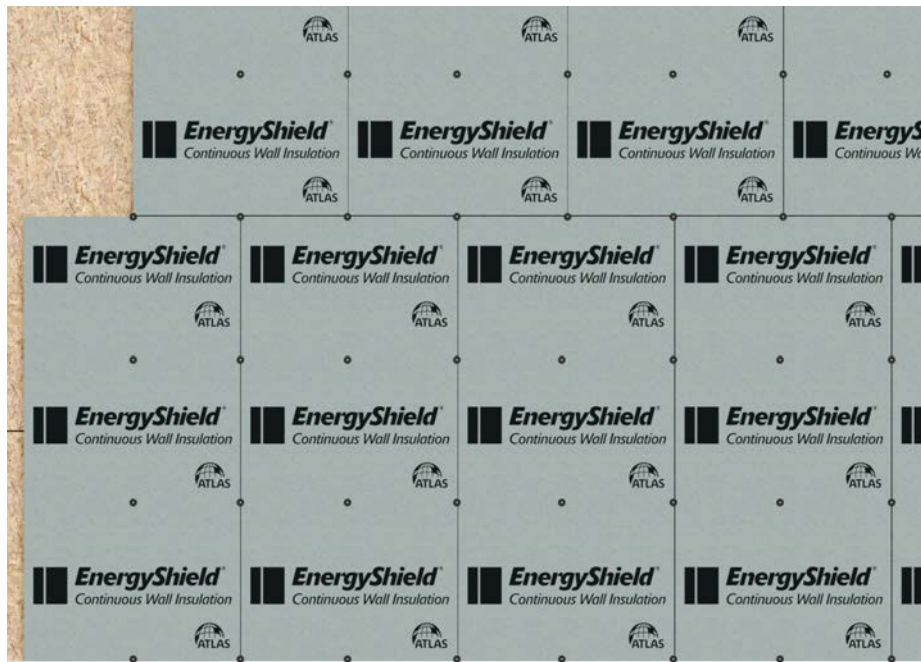


Figure 1: Mechanical Fastening Pattern.



Figure 2: A single washer-style fastener can be used to bridge adjacent insulation boards.



Figure 3: Alternate butt joints at outside corners.

## Quick Notes:

- Additional fasteners may be required in areas experiencing high winds or additional loading, or as dictated by code. Reference *DrJ TER 2202-01* and *ICC-ES ESR-1375* for additional information.
- When exterior cladding or furring strips are installed immediately, EnergyShield can be temporarily secured with a sufficient number of fasteners to meet environmental conditions.
- As an alternative, quality-grade construction adhesive can be used to attach insulation boards to base wall. Supplement with mechanical fasteners at corners.
- Any insulation left exposed must be mechanically secured before leaving jobsite unattended.
- When using multiple layers of EnergyShield, stagger horizontal joints by at least 6" and vertically by at least one stud cavity. First layer may be tacked in place until second layer is installed. Choose length of fasteners based on total thickness to ensure proper penetration into structural framing.

## Special Considerations

Repair minor facer damage with compatible spray foam, sealant or flashing component. Any area of installed board and/or facer with major damage should be removed and replaced with a new board piece large enough to be backed by framing for proper attachment.

**Table 1: Fastener Selection**

Choose length of fastener based on thickness of insulation and sheathing plus minimum penetration required for base wall. Shown are commonly used fastener options and not an exhaustive list. Contact Atlas for further recommendations.

| FASTENER                                                             | RECOMMENDATION OR EQUIVALENT                   | REQUIRED PENETRATION* | BASE WALL |            |                          |
|----------------------------------------------------------------------|------------------------------------------------|-----------------------|-----------|------------|--------------------------|
|                                                                      |                                                |                       | WOOD STUD | METAL STUD | MASONRY / CONCRETE / CMU |
| 16-ga staples with min 7/16" crown                                   |                                                | ¾" MIN                | ▪         |            |                          |
| 3/8" head galvanized roofing nail                                    |                                                | ¾" MIN                | ▪         |            |                          |
| 6D ring shank nail with min 15/16" diameter plastic washer           |                                                | ¾" MIN                | ▪         |            |                          |
| Corrosion-resistant fastener with min 1" diameter washer             | TRUFAST® Plasti-Grip® CBW Washer               | ¾" MIN                | ▪         | ▪          |                          |
|                                                                      | TRUFAST® Thermal-Grip® ci Prong Washer         | ¾" MIN                | ▪         | ▪          |                          |
|                                                                      | TRUFAST® Thermal-Grip® MVA Brick Tile          | ¾" MIN                | ▪         | ▪          | ▪                        |
|                                                                      | TRUFAST® Grip-Deck® TubeSeal™                  | ¾" MIN                | ▪         | ▪          |                          |
|                                                                      | TRUFAST® Plasti-Grip® FMF Anchor               | 1 ½" MIN              |           |            | ▪                        |
|                                                                      | TRUFAST® Thermal-Grip® IFS Insulation Pin      | 1" MIN                |           |            | ▪                        |
| Corrosion-resistant self-drilling screw with min 1¾" diameter washer | TRUFAST® Grip-Deck® SDS Ceramic Coated Screw   | ½" MIN                |           | ▪          |                          |
| Corrosion-resistant thread point screw with min 1¾" diameter washer  | TRUFAST® Grip-Deck® Hi-Lo Ceramic Coated Screw | ¾" MIN                | ▪         |            |                          |

\* Where installed against a nailable substrate, such as minimum 7/16" thick OSB, fasteners are not required to penetrate the framing provided the fastener penetrates the back side of the structural panel by at least 1/4"

### Preparing Rough Openings

- Consideration of the window and/or door position relative to the thickness of the continuous insulation is necessary to determine if additional support is needed.
  - If the insulation thickness is 1½" or less, install insulation to the edge of the rough opening and follow standard instruction of the window installation.
  - If the insulation thickness is greater than 1½", jamb extensions may be required when windows are intended to be aligned with exterior cladding. See jamb extension methods below.
- Prepare rough openings prior to EnergyShield installation following window manufacturer's installation requirements.
  - In the absence of window manufacturer's instructions for installation over foam sheathing, reference *QuickGuide: Window Installation Instructions for Walls with Continuous Insulation* available at [continuousinsulation.org](http://continuousinsulation.org) or AAMA 500 at [wdma.com](http://wdma.com).

Similar installation steps can be used around door openings. Always ensure thresholds are fully supported.



**Picture Frame Method:** Ideal when aligning window installation to exterior insulation with a thickness of up to 1½".

Using wood studs, furring strips, or equivalent materials that are the same thickness as the insulation boards, install a "picture frame" around the perimeter flush to the rough opening.



**Window Buck Method:** Common method used when additional support is necessary for window installation with insulation thickness is greater than 1½".

The rough framed opening should accommodate the additional window buck material before window installation.

Using wood studs, or equivalent framing materials, the same width as the rough opening plus the insulation thickness, install a support extension into the rough opening. The extension should be flush to the interior framing and extend outward to support the window.



**Rainscreen Method:** Used in conjunction with rainscreen furring over insulation prior to exterior cladding installation.

Using the same furring materials to be installed over insulation boards, install a "picture frame" around the perimeter flush to the rough opening.

## **Exterior Cladding Attachment**

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Exterior cladding materials must be securely attached through insulation boards to structural framing or base wall. Install all cladding materials according to cladding manufacturer's written instructions. Refer to *2021 IRC Chapter 7, Sections 703* prescriptive table, *Table 703.3.3*, for installing cladding directly against EnergyShield or using furring strips. Reference *DrJ TER 2305-04* for more detailed information about exterior cladding attachment at [wall.atlasrwi.com](http://wall.atlasrwi.com).

### **Best Practices**

#### **SIDING**

When furring strips are installed, attach to structural framing or base wall over insulation boards to secure installation of cladding materials before clip or bracket is installed.

#### **STUCCO**

When installing behind stucco finishes, EnergyShield may be covered with a bond break layer, such as grade-D felt, before attaching metal lath and stucco system.

#### **MASONRY**

When installing masonry veneer anchors before insulation boards, cut EnergyShield horizontally to fit between wall ties to allow for proper attachment of pintle and exterior brick wythe.

- EnergyShield can be ordered precut or scored at 16" or 24" o.c. for project efficiency.
- Masonry veneer anchors can be installed after insulation board.



### Water Resistive Barrier Application

EnergyShield is an approved code-compliant water resistive barrier (WRB) when proper installation details are followed. If installing a separate WRB, follow manufacturer's written instruction for proper sequence and attachment method. Joint treatment or other sealing of insulation boards is not required when a separate WRB is installed.

Component products used to seal joints may be self-adhered tapes or liquid-applied sealants. See *Atlas Technical Bulletin 15* for a list of approved joint sealing products for installing EnergyShield as a WRB. Reference component manufacturer's written instructions for proper installation preparation, techniques, and requirements in addition to these written instructions.

1. Ensure that EnergyShield surface at joints is dry and free of debris to create a bondable surface.
2. Apply joint sealing product where EnergyShield boards meet extending a minimum of 2" across each side of the joint. Cover horizontal joints then vertical joints starting from the bottom to ensure proper shingle-fashion.
3. Apply joint sealing product to all inside and outside corners extending a minimum of 2" onto the face of the insulation boards. Any exposed foam, typically prevalent on outside corners, does not support adhesion. Ensure joint sealing products extend a minimum of 2" beyond any exposed foam and onto the board facer.
4. Cover each fastener head with joint sealing product extending a minimum of 1" from edge of the fastener head onto the face of the board in all directions. When using a washer-style fastener, such as TRUFAST® Grip-Deck® TubeSeal™ or equivalent, with a minimum of 1" diameter cap, sealing each fastener head is not necessary. When using flashing tapes, lap ends by a minimum of 1" in proper shingle-fashion starting from the bottom. Apply firm pressure to all flashing tapes using standard J-Roller or equivalent to ensure proper bond. It is recommended to counter-flash the top edge of all horizontal joint sealing product above fenestrations with termination sealant or thin sheathing tape.
5. When using joint sealing tapes, ensure proper bond after installation by applying firm pressure using standard J-Roller or equivalent.



**Figure 5:** Apply joint sealing product at joints and all inside and outside corners, extending at least 2" on the face of board.

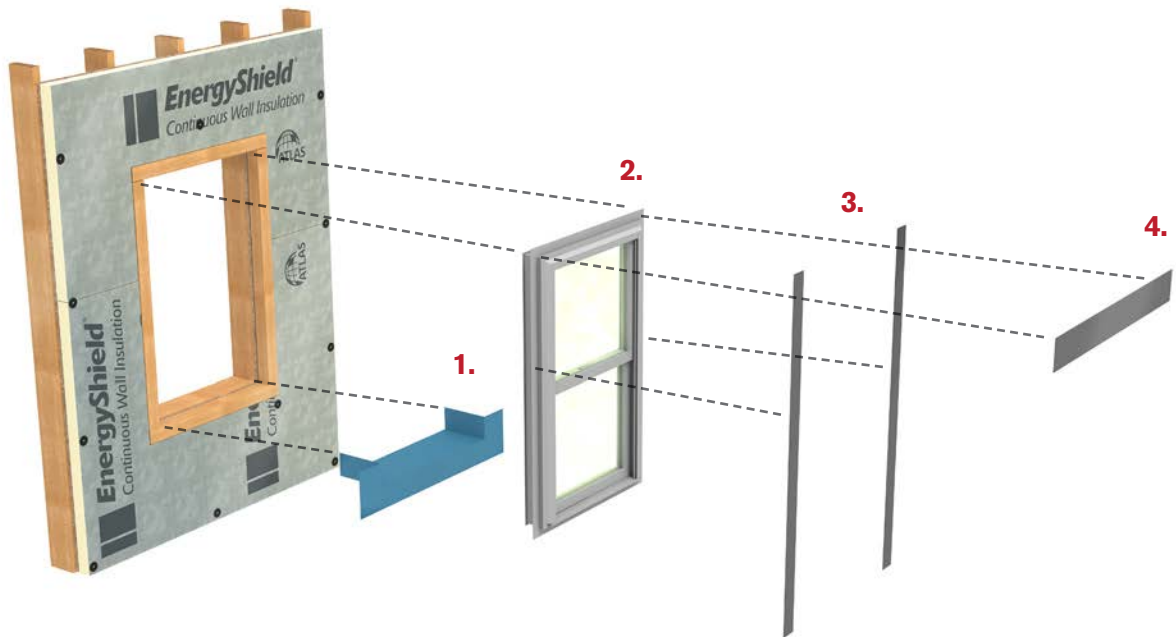


## **Rough Openings**

1. Install sill pan or use flashing across bottom of rough opening extending a min. of 6" up the jambs and at least 2" onto the face of the insulation boards.
2. Install windows according to manufacturer's written installation requirements, including, but not limited to, bedding sealants, shims, and fasteners.
3. Install jamb flashing then header flashing (4.) extending onto the foam board at least 2". Do NOT apply flashing over the sill flange to allow for any water to drain properly.

When using flashing tapes, lap ends by a minimum of 1" in proper shingle fashion starting from the bottom. Apply firm pressure to all flashing tapes using standard J-Roller or equivalent to ensure proper bond.

It is recommended to counter-flash the top edge of all horizontal joint sealing product above fenestrations with termination sealant or thin sheathing tape.



## **Throughwall Penetrations**

1. Cut EnergyShield to accommodate a tight fit around penetrations allowing a maximum of 1/8" gap from adjoining materials.
2. Install flashing at least 2" from any penetrations onto the face of the board in proper shingle-fashion.

### Below-Grade Application

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EnergyShield XR is engineered for below-grade applications. Unlike polystyrene foam products, the polyisocyanurate foam core and durable facers will not degrade if exposed to chemical, UV or high heat. Consideration for compressive strength, moisture resistance and vapor control help minimize the effectiveness of long-term thermal performance in below-grade applications.

### Exterior Foundation Wall

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EnergyShield XR is engineered to insulate exterior foundation walls below-grade. Insulating block or concrete walls on the exterior surface helps eliminate effect of thermal bridging providing energy efficiencies for interior spaces.

1. Prepare exterior foundation walls with damp proofing or waterproofing membrane or coating.
2. Install EnergyShield XR extending the full height of the exterior foundation wall from top of footing. Tightly fit board joints together working across the foundation wall.
3. Secure insulation boards to exterior foundation wall with construction adhesive or mechanical fasteners. Alternatively, backfill is often adequate to hold insulation boards in place without the need for fasteners.
4. If desired, install a composite drainage material over insulation to promote adequate drainage in predominately wet climates.
5. Backfill to secure in place. Avoid damage to the insulation board surface.

### Under Slab

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EnergyShield XR can be installed horizontally to insulate under concrete foundation slabs.

1. Prepare level aggregate base or grade for proper drainage.
2. Install EnergyShield XR with joints tightly together and against perimeter walls and/or vertically installed insulation boards. Stagger joints if installing multiple layers.
3. If required, cover entire floor slab area with a vapor barrier, such as a polyethylene protective membrane or equivalent.
4. Set rebar and/or pour concrete as appropriate. Bury or backfill, as required.

## Air Barrier Application

EnergyShield is an approved air barrier when proper installation details are followed. This includes sealing all insulation board joints and around all openings and throughwall penetrations on the exterior wall. Additional sealing steps are required on the interior framed wall, such as around fenestration openings, before sheathing or drywall installation.

- Follow steps outlined in *Detailing as Water Resistive Barrier* section on page 8.
- Sealing fasteners is required using compatible sealants unless installing self-sealing fasteners or compatible sealants.
- Install joint sealing products when insulation board transitions to adjacent surfaces, including at foundation and roof-to-wall interface.
- Apply compatible sealant or caulk at all transitions, around openings and throughwall penetrations as needed to meet air exchange requirements per local building code.
- Seal on the interior side for air leakage at all penetrations, especially large penetrations like windows, using expanding foam sealant or caulk. Air being able to easily move through walls at penetrations allows water to make its way into walls. Air-sealing the interior side of these penetrations helps reduce water intrusion by keeping the wall from being under negative pressure.

## Alternative Applications

### Knee Wall and Vaulted Ceiling Application in Unoccupied Attics

EnergyShield can be installed exposed to the interior space of an attic or crawlspace areas without requiring an ignition barrier, provided the attic or crawlspace is separated from the rest of the building by an approved thermal barrier, such as 1/2" gypsum or equivalent. Reference *DrJ TER 1306-03* for more detailed information at [wall.atlasrwi.com](http://wall.atlasrwi.com).

1. Install EnergyShield across framing to eliminate thermal bridging. Notch insulation boards to fit over floor and/or ceiling joists with edges tightly fit together.
2. Fasten to framing to secure in place. Choose length of fasteners based on EnergyShield thickness to ensure proper penetration into structural framing. Reference *Table 1 (Page 5)*.
3. Install knee wall before vaulted ceiling.
4. Follow similar steps for crawlspace area installation.



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