



Dow Building & Construction

Ultra Air Barrier Wall System in Block Wall Construction Installation Procedures



System Overview



STYROFOAM™ Brand Ultra SL Insulation offers an excellent option for meeting today's energy code requirements for block wall or concrete/CMU backup construction. **LIQUIDARMOR™ Flashing and Sealant** is used on the insulation joints and building transitions. It is an innovative liquid flashing alternative to conventional tape. It is designed to provide commercial buildings advanced moisture and air sealing protection.

Together, these two products form the basis of the Ultra Air Barrier Wall System, offering the best of both worlds: a high R-value wall (R-5.6 per inch) of continuous insulation with **exceptional air, vapor and water barrier capabilities**.

With fewer steps than standard construction methods, the Ultra Air Barrier Wall System can save contractors time and money.

System Overview

About STYROFOAM™ Brand Ultra SL Insulation

STYROFOAM™ Brand Ultra SL Insulation uses patented carbon black materials in the foam for greater thermal performance over other extruded polystyrene foam insulations. This enhanced formulation helps the extruded polystyrene foam to absorb infrared radiation, slowing transmission through the foam and lowering heat flow. The special 4' x 8' boards with shiplap edges offer continuous insulation and are quick and easy to install. They also offer high moisture resistance and durability.

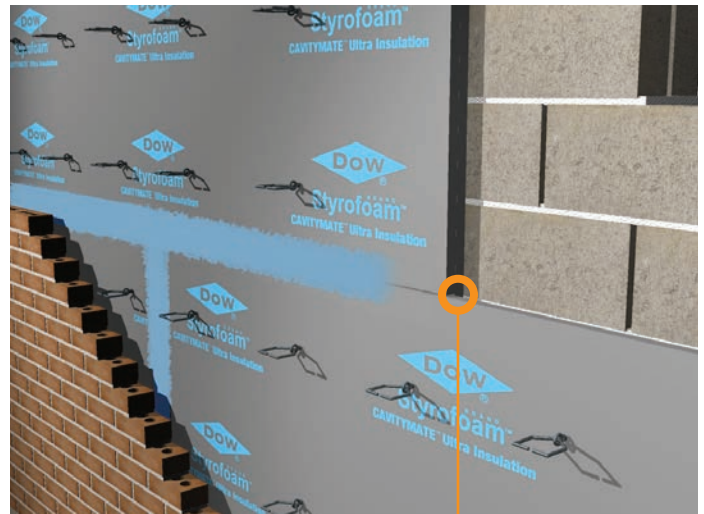


- Do not leave STYROFOAM™ Brand Ultra SL Insulation exposed to direct sunlight for more than 90 days. Consult a Dow representative if exposure is expected to be more than 90 days. Prolonged exposure to ultraviolet radiation may cause the surface of STYROFOAM™ Brand Ultra SL Insulation to become faded and dusty.
- The surface degradation will have no measurable effect on the insulating value of the plastic foam unless the deterioration is allowed to continue until actual foam thickness is lost. Since the dust would impair the performance of adhesives and finishes, dusty surfaces should be brushed off before these products are applied. A light-colored, opaque protective covering should be used if excessive solar exposure is expected. When stored outdoors, keep insulation boards tarped or covered to protect from weather and weighted down to prevent boards from being blown around by the wind.
- Store above standing water.

ABOUT LIQUIDARMOR™ Flashing and Sealant

The elastomeric flashing forms a tight, durable, seamless barrier along the rough openings of windows and doors while helping to significantly reduce labor time compared to tape alternatives. The fluid applied joint treatment option which installs quickly, and easily conforms to complex geometries.

LIQUIDARMOR™ Flashing and Sealant comes in two grades. LIQUIDARMOR™ CM can be quickly sprayed or brushed on and LIQUIDARMOR™ LT is a durable, low-temperature liquid flashing solution.



Efficient: Shiplap edges form a seal that provides continuous insulation

System Overview

Materials Checklist

Appropriate application method for LIQUIDARMOR™ Flashing and Sealant such as a commercial grade sprayer, roller or a 3-inch Chip Brush.

- STYROFOAM™ Brand Ultra SL Insulation
- LIQUIDARMOR™ Flashing and Sealant
- GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant*
- GREAT STUFF PRO™ Series Foam Dispensing Gun
- GREAT STUFF PRO™ Gun Cleaner
- Spray Adhesive, such as 3M High-Strength 90
- Pos-I-Tie ThermalClip Fasteners
- Hammer/Drill Bits
- Rodenhouse Fasteners
- Screw Gun with Pos-I-Tie Sleeve
- Table/Skill Saw for Cutting Insulation
- Smoothing Tool
- Chalk Line
- Tape Measure
- Safety Gloves
- Safety Glasses
- A wet mil gauge

Wall Preparation

Making sure the wall surface is properly prepared is a key step to a successful installation of the Ultra Air Barrier Wall System. To allow the system to function at maximum effectiveness, first make sure that:

- The wall surface is clean and free of any dirt and debris
- The temperature and moisture levels fall within acceptable parameters; refer to Table 1 for recommended conditions
- STYROFOAM™ Brand Ultra SL Insulation boards are clean and dry

TABLE 1: Suggested Conditions for Optimal Installation of the Ultra Air Barrier Wall System

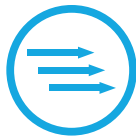
Ambient Temperature 25°F or higher for best results	Substrate Temperature 25°F or higher for best results	Moisture % of Wall Do not install while raining
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* Consult label and Safety Data Sheet carefully before use.

System Overview

Ultra Air Barrier Wall System Symbol Key How to Install Over Block Walls

The Ultra Air Barrier Wall System combines exceptional thermal performance with air and moisture barrier capabilities — in one system. The following symbols are used throughout the installation instructions to highlight a particular benefit.



Air Barrier

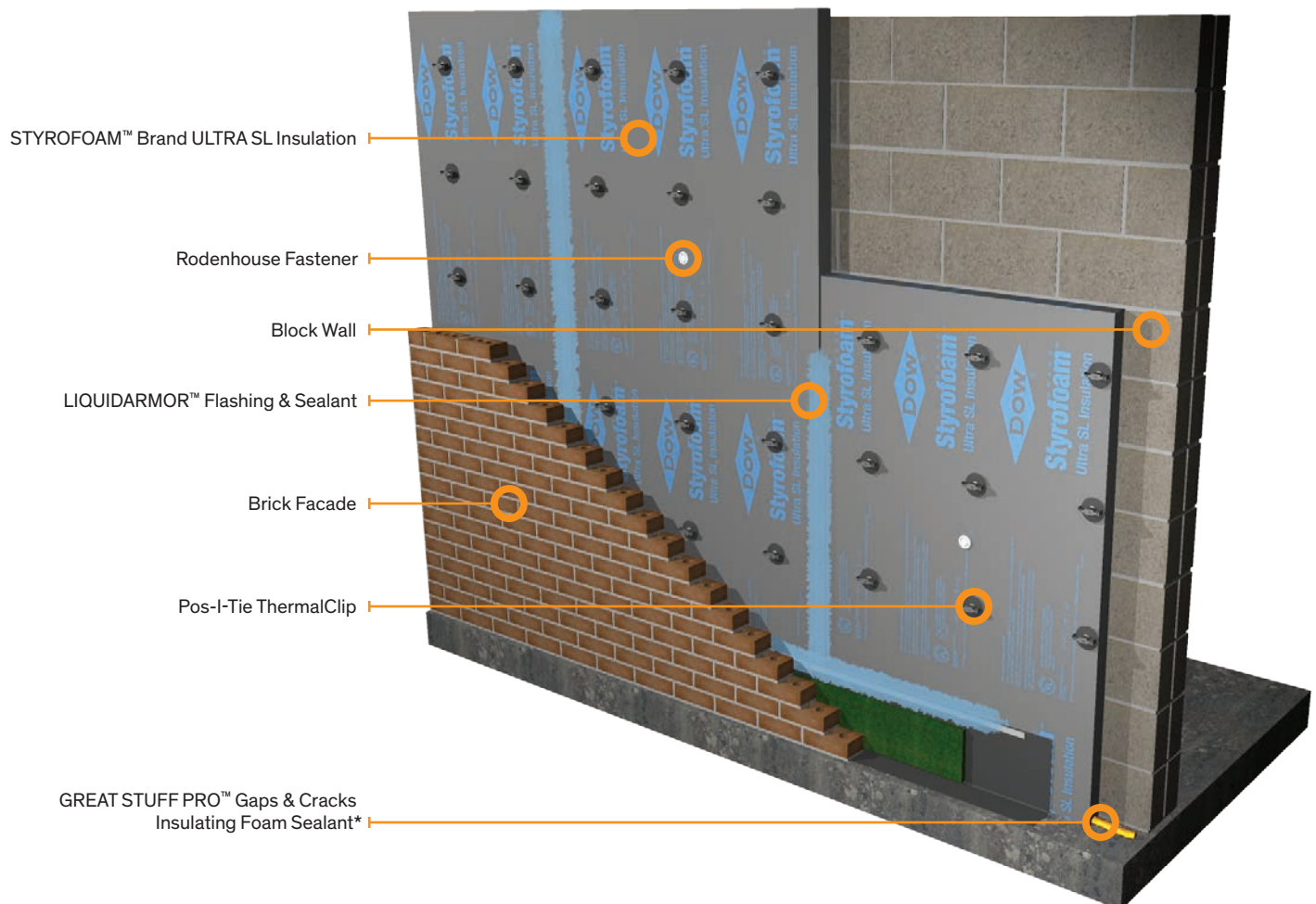


Thermal



Water Barrier

How to Install Over Block Walls



* Consult label and Safety Data Sheet carefully before use.

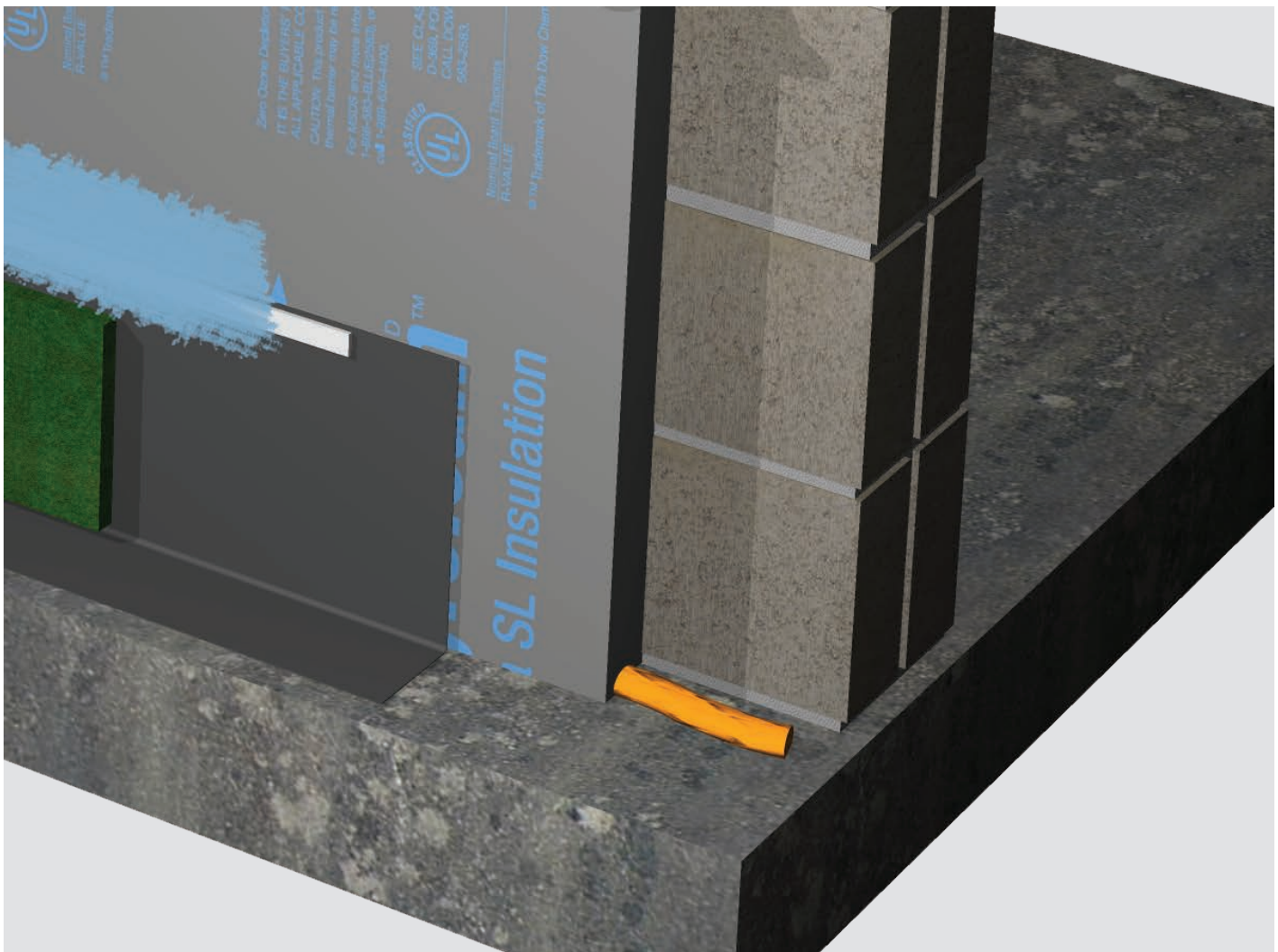
Installation

General Recommendations



All boards are installed vertically (4' x 8' orientation).

Note: Boards can be installed horizontally, if preferred. However, vertical installation is recommended for speed and ease of install.



- 1 Cut the first board in half to a 2' x 8' dimension (this allows for staggering of joints later).
- 2 Apply a 1" bead of GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant* at the foundation with a PRO™ Series Foam Dispensing Gun. Locate this horizontal bead of foam so that the bottom edge of each insulation board will seat and create a seal between the bottom face of the foam and the foundation. This step is critical to creating an air seal and is to be performed ONLY on the bottom first course of installation.

* Consult label and Safety Data Sheet carefully before use.

Installation

General Recommendations



- 3 Starting at the edge of the wall, install a 2' x 8' board on top of the block vertically (with flat side next to the edge of the wall).



- 4 Attach with Rodenhouse fastener to the block wall (this fastener holds the board in place).

Installation

Installing Remaining Courses



- 5 Install remaining 4' x 8' boards vertically. Properly orient the shiplap joint between each adjoining board, and use one Rodenhouse fastener to temporarily hold the board in place. (See fastener manufacturer's installation instructions.)



Note: One Rodenhouse fastener will not support the board on the wall long term. Wall ties must be installed immediately after the board is in place.

Installation

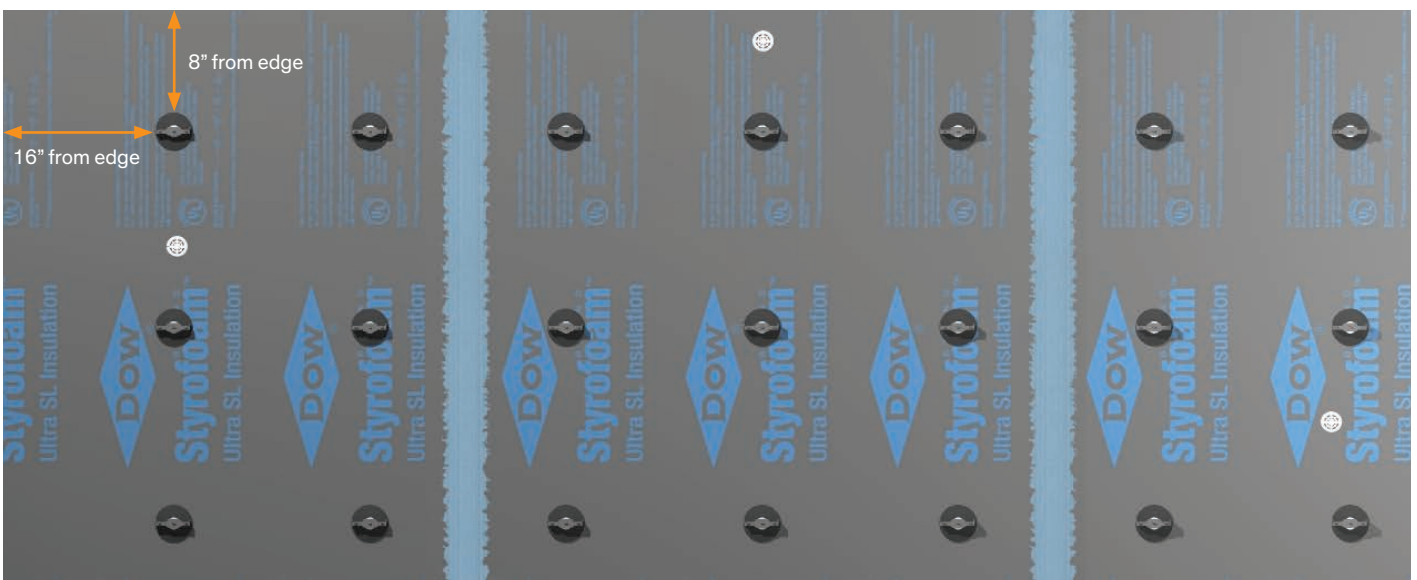
Installing Remaining Courses



6 When course 1 has been erected, snap chalk lines for installation of Pos-I-Tie fasteners (8" from edge and 16" OC).

7 Drill pilot holes for location of each fastener.

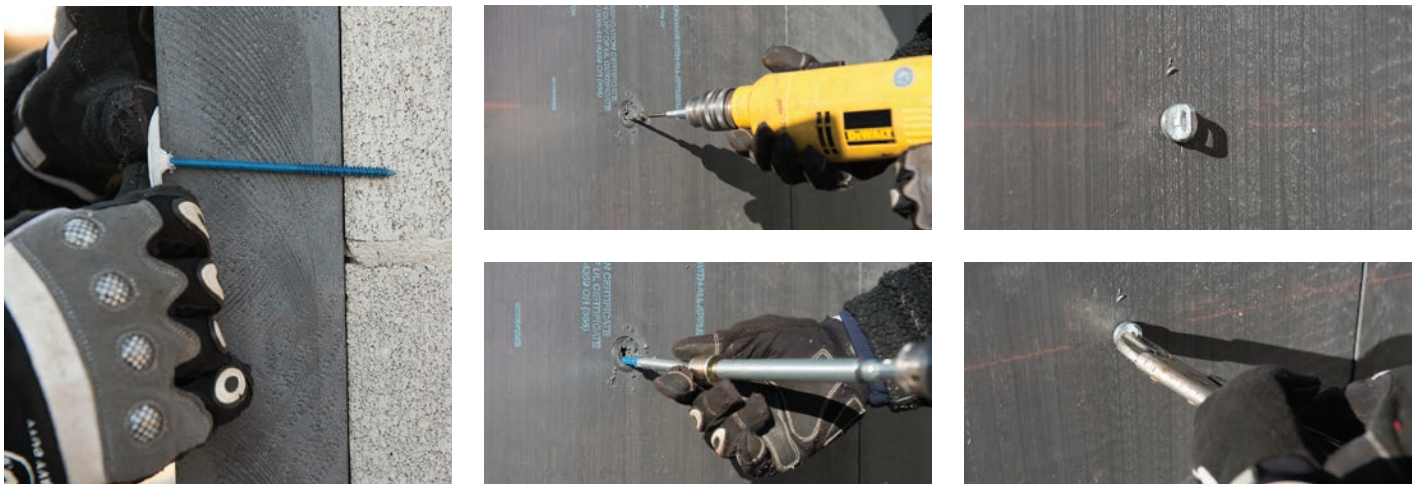
Note: It is critical that you drill the pilot hole deep enough and that the bit is 1/4" to 1/2" larger in diameter than the screw.



Remember to install LIQUIDARMOR™ Flashing and Sealant at joint seal before installing fasteners. The flashing helps to create an air- and water-tight seal at the seam locations.

Installation

Installing Remaining Courses



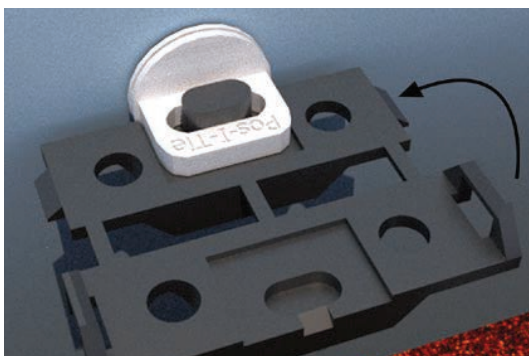
8 Screw in Pos-I-Tie fasteners with screw gun.

Note: If installing base flashing, use Rodenhouse fasteners in place of Pos-I-Tie fasteners for the first row from the bottom. This will allow for a flush mount of the installed base flashing and termination bar.



Benefits of Pos-I-Tie fasteners:

- Resist moisture penetration with EPDM sealing washer
- Easy to install
- Flexible for use with various wire ties and stone anchors



9 Install Pos-I-Tie ThermalClip over each Pos-I-Tie fastener.

- Insert tab up through hole at the bottom, and make sure to press the fastener at both sides until you hear it snap.
Installation video can be seen at:
http://www.youtube.com/watch?v=6RwAE_meSdQ
- Snap-on design locks the Pos-I-Tie ThermalClip to the barrel loop, creating a thermal break between the wire tie and the Pos-I-Tie Barrel Screw
- Pos-I-Tie ThermalClip also creates a dissimilar metals break, allowing the use of Stainless Steel Ties or Stone Anchors with the Original Pos-I-Tie

Note: The edge of the insulation board should not be more than 8" away from the Pos-I-Tie anchor. If the edge of the board is greater than 8" away from the anchor, then fasteners need to be installed between the anchor and the board edge.



Heckmann Building Products, Inc.; Toll Free (800) 621-4140
www.heckmannbuildingprods.com

Installation

Installing Base Flashing



Now that the STYROFOAM™ Brand Ultra SL Insulation has been installed on the walls and the Pos-I-Tie ThermalClip is in place, the next step is to install the base flashing.



- 10** Snap line at desired length for top edge of base flashing where it will be installed.

Note: System design may or may not require a termination bar, depending on architect's specification.



- 11** Install double-sided butyl flashing tape across top back edge of base flashing.



- 12** Press flashing at chalk line and press firmly on tape to adhere (double-sided tape adheres back side of flashing to insulation board).



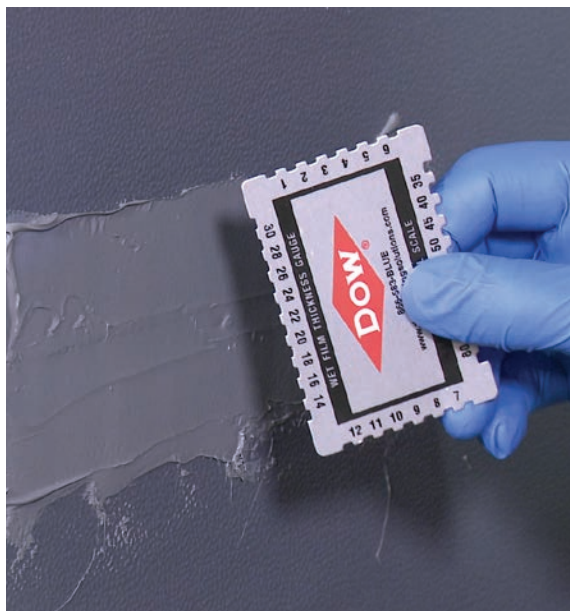
- 13** Install termination bar at top edge of flashing. Attach with block fasteners. Install LIQUIDARMOR™ Flashing & Sealant as a counter flashing over termination bar

Installation

Installing Joint Flashing



You now have created the baseline for excellent air/vapor and water barrier properties by using GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant* at the base of the first course of insulation and by properly installing the base flashing. The last critical step is to install LIQUIDARMOR™ Flashing & Sealant at all horizontal and vertical joints to complete the system.



- 14** Install LIQUIDARMOR™ Flashing & Sealant over all vertical and horizontal seams.

LIQUIDARMOR™ LT Flashing and Sealant

Flash board joints, penetrations and/ or fenestration openings as detailed by the project drawings by applying LIQUIDARMOR™ LT Flashing and Sealant from either a sausage gun or directly from a pail onto the substrate. Trowel LIQUIDARMOR™ LT to 30 ±5 wet mils.

TIP: LIQUIDARMOR™ LT has an average tooling time of 30 minutes.

LIQUIDARMOR™ CM Flashing and Sealant

LIQUIDARMOR CM is commonly spray applied. Follow the usage instructions according to the sprayer. As you first begin, it is helpful to first spray a pass or two of material on scrap piece of foam board or OBS to dial an appropriate sprayer pressure and check for good flow through the spray tip.

TIP: A popular technique to attain 50 ±5 wet mils with LIQUIDARMOR CM is to apply the product in two passes. This is not required, though, and the target application thickness can be attained in one pass.

Application guidelines for LIQUIDARMOR™ LT and CM Flashing and Sealant

Foam Board Joints: Apply 3 inches +/- 1 inch over board joint, making sure that a minimum of 1 inch of LIQUIDARMOR™ LT and CM Flashing and Sealant covers each side of the joint and completely cover fasteners and washers.

Penetrations & Counterflashing: Apply LIQUIDARMOR™ LT and CM Flashing and Sealant a minimum of 2 inches onto the insulation face at penetrations and a minimum of 2 inches onto the penetration substrate or primary flashing substrate.

Allow Time to Cure

LIQUIDARMOR™ CM to cure 1-4 hours. LIQUIDARMOR™ LT Flashing and Sealant is a moisture cure product and will skin over in 30-45 minutes. This time can be extended to ~60 minutes at colder temperatures. LIQUIDARMOR™ LT only needs to cure for 15 minutes before rain exposure.

Note: LIQUIDARMOR™ LT and LIQUIDARMOR™ CM can span gaps up to ¼". Seal any gaps ¼" or greater with GREAT STUFF PRO™ Gaps & Cracks, GREAT STUFF PRO™ Window & Door or foam backer rod. If either GREAT STUFF PRO™ Gaps & Crack or GREAT STUFF PRO™ Window & Door is used, be sure it is fully cured before applying LIQUIDARMOR™ Flashing & Sealant.

Remember to install LIQUIDARMOR™ Flashing and Sealant at joint seals before installing anchors/wall ties. The flashing helps to create an air- and water-tight seal at these locations.

* Consult label and Safety Data Sheet carefully before use.

Installation

Installing Joint Flashing



- 15 Install wire ties on Pos-I-Tie fasteners.

Installing Around Penetrations



To install STYROFOAM™ Brand Ultra SL Insulation around penetrations such as ducts, electrical boxes and pipes:



- 16 Cut opening in board approximately ½" to 1" larger than the measured penetration.

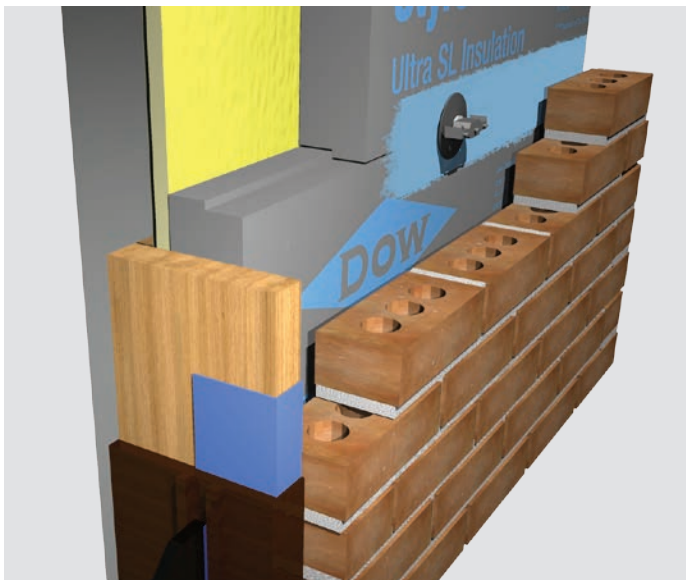


- 17 Slide board over the penetration. Fill the void between the penetration and the board with GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant.*

* Consult label and Safety Data Sheet carefully before use.

Installation

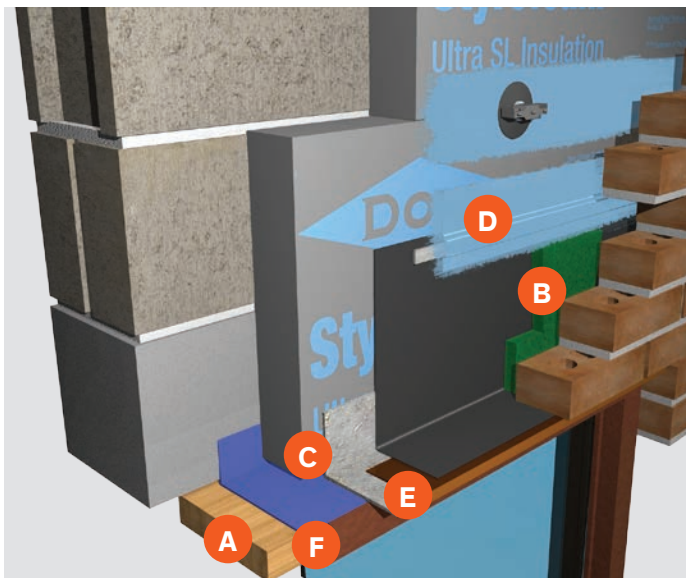
Installing Around Windows and Doors



Window Jamb

1. Attach wood nailer to block as shown in illustration.
2. Apply GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant* to the interface between the wood nailer, block and STYROFOAM™ Brand Ultra SL Insulation.
3. Install window per window-manufacturer installation instructions.
4. Seal window as necessary, depending on window design.
5. LIQUIDARMOR™ Flashing and Sealant as necessary at terminations.

Note: Illustrations and details shown are for window applications, but can be utilized for doors or other through-wall openings.



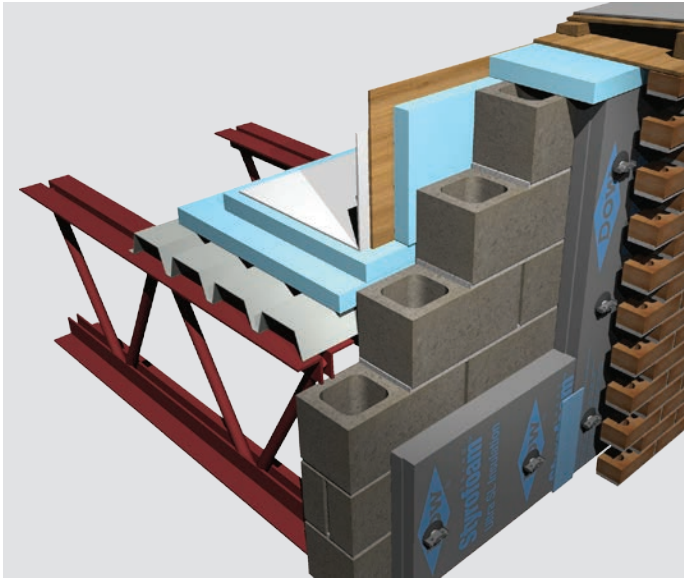
Window Header

1. Install solid fire-rated 2X continuous wood blocking (no joints), and attach to the steel angle on the front side and the block at the back side. (A)
2. Install window per window-manufacturer installation instructions.
3. Install loose-laid structural steel angle. (C)
4. Install preformed metal drip edge (E) with required separation between drip edge and steel angle.
5. Install flashing (D) with termination bar at top.
6. Install cavity drainage net as needed. (B)
7. Install weeps as required.
8. Install closure angle (F) to match window material and finish (e.g., aluminum clad, vinyl clad).

* Consult label and Safety Data Sheet carefully before use.

Installation

Installing Around Parapet (Roof/Wall)



Follow previous instructions for course installation to the top of the wall.

Note: Parapet should be completely wrapped in foam insulation: STYROFOAM™ Brand Ultra SL Insulation on the front side, and the specified roof insulation on the top and back side to the roof line, as shown at left.

Installing at Foundation



Follow previous instructions for first-course installation when installing at foundation.

Use GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant* along bottom of insulation to help prevent air and water intrusion.

* Consult label and Safety Data Sheet carefully before use.



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STYROFOAM™ Extruded Polystyrene Foam Insulation

CAUTION: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

LIQUIDARMOR™ Flashing and Sealant

Read the instructions and (Material) Safety Data Sheets ((M)SDS) carefully before use. It is recommended that spray applicators and those working in the spray area wear eye protection. Contact with exposed skin may cause skin discoloration and dryness. Gloves are recommended for prolonged exposures. Ensure adequate ventilation during spray applications.

GREAT STUFF PRO™ Insulating Foam Sealants

CAUTION: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult (Material) Safety Data Sheet ((M)SDS), call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada. Products contain isocyanate and a flammable blowing agent. Read all instructions and (Material) Safety Data Sheet ((M)SDS), carefully before use. Eliminate all sources of ignition before use. Cover all skin. Wear long sleeves, gloves, and safety glasses or goggles. Not for use in aviation, or food/beverage contact, or as structural support in marine applications. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure. Not to be used for filling closed cavities or voids such as behind walls and under tub surrounds; this improper use of the product could result in the accumulation of flammable vapors and/or uncured material. Failure to follow the warnings and instructions provided with the product, and/or all applicable rules and regulations, can result in injury or death.

GREAT STUFF PRO™ Insulating Foam Sealant and adhesive products contain isocyanate and a flammable blowing agent. Read the label and MSDS carefully before use. Eliminate all sources of ignition before use. Wear long sleeves, gloves, and safety glasses or goggles. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure.

GREAT STUFF PRO™ Gun Cleaner is flammable and contains acetone and propane. Read all instructions and (Material) Safety Data Sheet ((M)SDS) carefully before use. Eliminate all sources of ignition before use. Cover all skin. Wear gloves, and goggles or safety glasses. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure.

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