Installation Procedures for Ultra SL Wall System on Steel Stud

Using Styrofoam™ Brand Ultra SL
General Information

Styrofoam™ Brand Ultra SL Insulation* offers an excellent option for meeting today’s energy code requirements for steel stud or concrete/CMU backup construction.

LiquidArmor™ Flashing and Sealant** used on the horizontal or vertical joints offers exceptional air/vapor protection and water sealing to help seal the building’s envelope.

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.

*Styrofoam™Brand Ultra SL and LiquidArmor™ Flashing and Sealant are former products of The Dow Chemical Company.
** Consult label and Safety Data Sheet carefully before use.
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 exposed to direct sunlight for more than 90 days. Consult a DuPont 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 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

LiquidArmor™ Flashing and Sealant is an innovative, patented liquid flashing solution designed to provide advanced moisture and air sealing protection to commercial buildings.

A unique alternative to flashing tape, the elastomeric spray forms a tight, seamless barrier along the rough openings of windows and doors while helping to significantly reduce labor time.
SYSTEM OVERVIEW

Materials Checklist
To install the Ultra Air Barrier Wall System on a steel stud backup wall, you will need:

- **Styrofoam™ Brand Ultra SL Insulation**
- **LiquidArmor™ Flashing and Sealant**
- **Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealant**
- **Great Stuff Pro™ Series Foam Dispensing Gun**
- **Great Stuff Pro™ Foam Cleaner**
- **Great Stuff™ Work Wipes**
- **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**

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** boards are clean and dry

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

<table>
<thead>
<tr>
<th>Ambient Temperature 25°F or higher for best results</th>
<th>Substrate Temperature 25°F or higher for best results</th>
<th>Moisture % of Wall Do not install while raining</th>
</tr>
</thead>
</table>

To learn more about how to use **Styrofoam™ Brand Ultra SL Insulation, LiquidArmor™ Flashing and Sealant and Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealant**, visit styrofoam.com/ultrasl.

* Consult label and Safety Data Sheet carefully before use.
Ultra Air Barrier Wall System Symbol Key
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.

How to Install Over Steel Stud Walls

Styrofoam™ Brand Ultra SL Insulation
Rodenhouse Fastener
Exterior Gypsum Sheathing
(Optional — please contact your local DuPont representative for installation details on direct to steel stud)
LiquidArmor™ Flashing and Sealant
Brick Facade
Pos-I-Tie ThermalClip
Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealant*
**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 Polyurethane 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.
Starting at the edge of the wall, install a 4’ x 4’ board horizontally on top of gypsum sheathing (with straight edge next to the edge of the wall).

Attach with Rodenhouse fastener to the block wall (this fastener holds the board in place).
5 Install remaining 4’ x 8’ boards horizontally. Properly orient the shiplap joint between each adjoining board, and use one Rodenhouse fastener to temporarily hold the board in place. (See 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.
When course 1 has been erected, snap chalk lines for installation of Pos-I-Tie® fasteners (16” OC). If installing base flashings, 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.

**Note:** 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.
Installing Remaining Courses

1. 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

2. Length of screw into Styrofoam™ Brand Ultra SL insulation board

3. **Note:** If fastener is not in horizontal position, use a pair of pliers to rotate.

4. 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

5. 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” 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.
 www.heckmannbuildingprods.com
 Toll Free (800) 621-4140
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.

9 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.

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

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

12 Install termination bar at top edge of flashing. Attach with block fasteners.

13 Install LiquidArmor™ Flashing & Sealant as a counter flashing over termination bar.
Now you have created the baseline for excellent air/vapor and water barrier properties by using Great Stuff Pro™ Gaps & Cracks Polyurethane 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 and Sealant at all horizontal and vertical joints to complete the system.

**Install LiquidArmor™ Flashing and Sealant** over all vertical and horizontal seams.

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.

Proceed to flash board joints as detailed by the project drawings by spray applying LiquidArmor™ Flashing and Sealant at 50 ±5 wet mils in these areas. A popular technique to attain 50 ±5 wet mils is to apply the product in two passes, although this is not required. Note: A wet mil gauge (below) or will help ensure LiquidArmor™ is applied at 50 +/5 wet mils, optimizing product yields and product performance.

Apply 3 inches (±1 inch) over the joint, making sure that a minimum of 1 inch of LiquidArmor™ Flashing and Sealant covers each side of the joint. Fasteners and washers along the board joints should also be completely covered with LiquidArmor™. Brick anchors can installed after the application of LiquidArmor™. Be sure to follow project drawing details.

**ADDITIONAL TIPS**

Alternative Joint Sealing Option 
Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealants* can be used in place of LiquidArmor™ Flashing and Sealant for joint seal. Please contact your local DuPont representative for alternative installation instructions.

* Consult label and Material Safety Data Sheet carefully before use.
15 Install wire ties on Pos-I-Tie fasteners.

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 Polyurethane Foam Sealant.*
Installing Around Windows and Doors

Window Jamb
1. Attach wood nailer to block as shown in illustration.
2. Apply Great Stuff Pro™ Gaps & Cracks Polyurethane 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. Flash with LiquidArmor™ Flashing and Sealant as necessary at terminations.

See CAD Details for the Ultra Air Barrier Wall System – Window Jamb on styrofoam.com/ultrasl.

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 LiquidArmor™ Flashing and Sealant (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).

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.

See CAD Details for the Ultra Air Barrier Wall System – Ultra Wall Foundation Detail on styrofoam.com/ultrasl.

Use Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealant™ along bottom of insulation to help prevent air and water intrusion.
NOTICE: No freedom from any patent owned by DuPont or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer’s use and for ensuring that Customer’s workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where DuPont is represented. The information herein is not intended for use by non-professional designers, applicators or other persons who do not purchase or utilize this product in the normal course of their business.

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 (MSDS), call DuPont at 1-866-583-2583 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.

WARNING: Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product. FROTH-PAK™ Spray Polyurethane Foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and Material Safety Data Sheets carefully before use. Wear protective clothing (including long sleeves), gloves, goggles or safety glasses, and proper respiratory protection. Do not breathe vapor or mist. Use only with adequate ventilation. It is recommended that applicators and those working in the spray area wear respiratory protection. Increased ventilation significantly reduces the potential for isocyanate exposure; however, supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a particulate filter may still be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure, air-supplying respirator (air line or self-contained breathing apparatus). Spraying large amounts of foam indoors may require the use of a positive-pressure, air-supplying respirator. Contents under pressure. Great Stuff Pro™ ENERFOAM™ and ENERBOND™ 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. Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including DuPont can give assurance that mold will not develop in any specific system.

®Pos-i-Tie is a Registered Trademark of CHICO DL LLC.

ThermalClip is a Registered Trademark of Heckmann Building Products.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™ or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2019 DuPont.

For more information visit Styrofoam.com or call 1-866-583-2583