

DRY SEAL

INSTALLATION GUIDE



Effective September 2015

Tech Support: 800.523.2347 LaminatorsInc.com

TABLE OF CONTENTS

Handling and Maintenance of Omega-Lite® Panels	1
System Limitations and Pre-Installation Requirements	2
Panel and Extrusion Preparation	3-4
Panel Assembly Fabrication	5
Typical Wall Layout and Stiffening Requirements	6
System Installation	7-11
Essential Equipment and Materials	12
Dry Seal Extrusions	13



Denotes Additional Required Downloadable Content

SYSTEM OVERVIEW

The Dry Seal installation system from Laminators Inc. is a high-performance, pressure-equalized, rainscreen system designed for installation with Omega-Lite panels. The Dry Seal system is designed to manage incidental water by providing an open path for drainage out of the system and ventilation to keep the system dry. This installation system passed the NFPA 285 standard for multi-story fire testing.



WARRANTY DISCLAIMER

Failure to follow ANY of the guidelines contained within this document or those referenced at LaminatorsInc.com will void your warranty. For Laminators Technical Support, call **800.523.2347**.



ELECTRONIC DOCUMENTS NOTICE

Approved product listings, CAD details, and technical bulletins available at LaminatorsInc.com are to be considered a part of this installation manual and are REQUIRED to install this system properly. Contact Laminators Technical Support or visit LaminatorsInc.com to make sure you have the latest documents regarding this panel system before proceeding with installation.

HANDLING AND MAINTENANCE OF OMEGA-LITE® PANELS

Material Receiving

Upon receipt of panels and system accessories, perform a visual inspection and inventory to identify any damages that may have occurred during shipping or any materials that may be missing. Any damages or missing materials must be noted on the bill of lading at the time of receipt and must be immediately reported to the distributor from which the product was purchased.

Storage

Panels are to be stored horizontally on pallets in a dry, well-ventilated environment under the protection of a temporary or permanent roof structure. No more than 1,500 pounds of panels are to be stacked on one pallet. If panels are to be stored in an exterior area, they must be placed under a well-ventilated, waterproof covering. Storage temperatures are not to exceed 120°F. Panels should be stored in an area protected from other construction activities and associated debris. Other materials shall not be stacked or placed in contact with panels to prevent staining, denting, or other damages.

Laminators' warranty does not cover damages to panels caused by improper storage. Storage conditions should be continuously monitored as any water infiltration, standing water, construction debris, or excessive temperatures will cause damage to the panels that will not be covered under warranty.

Handling

Panels are shipped with a protective masking to minimize scratching and staining during installation. Protective masking should be left on the field of the panel during installation to minimize potential damages from construction activities. Note that all masking must be removed within 2 weeks of panel installation, otherwise removal may become difficult and the masking adhesive may affect the appearance of the panel following removal.

Handle panels with clean work gloves to avoid hand injury from any sharp edges and to prevent staining of the prefinished panel surfaces. When moving individual panels from stacks, always lift one panel completely off the next to prevent surface scratches from construction debris. Do not slide one panel across another. Glazing suction cups are recommended to handle panels whenever possible.

Cutting

Panels are shipped in standard sizes that can be cut to required installation size on the jobsite. To cut Omega-Lite panels, use a circular saw or table saw with a sharp, carbide-tipped blade (40-tooth minimum). Do not remove the protective masking from the panel face prior to cutting. After cutting, use a deburring tool (available from Laminators) to remove burrs or sharp edges from the panels.

Cleaning

Omega-Lite panels should be cleaned at regular maintenance intervals following procedures documented in AAMA 609 & 610-02 "Cleaning and Maintenance Guide for Architecturally Finished Aluminum." During installation, mineral spirits can be used to remove uncured caulk and sealants. Never soak panels in solvents or allow solvents to be left in prolonged or continuous contact with panel surfaces as this can cause damages to panel finishes.

Scratches and Rub Marks

Touch-up paints are available from Laminators. Contact Laminators Technical Support for additional information.

Metallic Paint and Anodized Finishes

When installing panels with metallic and anodized finishes, it is very important that the directional arrows on the panel masking are oriented in the same direction. Color variation is a characteristic of aluminum composite panels with metallic paint and anodized finishes. Laminators **DOES NOT** warrant a color match for panels with metallic and anodized finishes.

To ensure good color uniformity in panels with metallic finishes, periodically check adjoining panels by partially removing masking as the installation progresses. The masking should be reapplied to the panel to protect it. Should any defects be found, stop work immediately and contact Laminators for assistance.

Panel Color Coordination and Planning

Coordinate with Laminators for large projects ordered in phases to ensure the most consistent color matches between project phases.



SYSTEM LIMITATIONS AND PRE-INSTALLATION REQUIREMENTS

Limitations

It is important that designers and installers understand certain limitations with Laminators panel installation systems. The Dry Seal installation system with Omega-Lite panels is designed to be installed as cladding for vertical walls and is not intended to function as a primary structural wall panel. The panel system must be installed over a compatible exterior-grade substrate. Installation over open framing is not permitted.

Top-side horizontal applications (i.e., copings, roofing returns, cornices) are not permitted with this panel system due to the potential for water infiltration from snow and rain events. Laminators recommends the installation of flat stock aluminum in place of panels for all top-side horizontal applications in order to eliminate any top-side horizontal panel joints. Color-matched flat stock aluminum is available from Laminators.

Bottom-side horizontal applications (i.e., soffit applications) are permitted provided that the specific requirements delineated within this guide are followed.

Substrate Compatibility and Tolerances

The standard substrate for panel installation is 5/8" exterior-grade plywood sheathing with an air and water barrier.

The following substrates are compatible provided special considerations are followed (contact Laminators Technical Support for additional information): CMU block, concrete, brick masonry, continuous insulation, and exterior-grade gypsum sheathing.

Imperfections in any substrate may transfer through to the installed panel system. Prior to installation, the installer must verify that the framing and substrate are within flatness tolerances. The maximum out-of-plane tolerance for panel installation shall be the smaller of the following:

- 1/4" in any 20' length measured vertically or horizontally
- 1/2" in any building elevation direction

All substrates must be structurally sound, within flatness tolerances, clean of debris, and dry. If unsatisfactory conditions are encountered, **DO NOT** proceed with panel system installation. Unsatisfactory conditions should be immediately reported to the General Contractor and/or Design Professional of Record and must be corrected prior to panel installation. Laminators **DOES NOT** warranty the in-plane condition of the panel system following installation.

Water Controls and Ventilation

The Dry Seal installation system is a pressure-equalized rainscreen system and is therefore designed to manage incidental water by providing an open path for drainage out of the system and ventilation to keep the system dry. The panel system is **NOT** intended to function as a barrier or primary water control. The presence of an established drainage plane with an air and water barrier is required for the system to function properly. Proper flashings at roof interfaces and around wall openings are essential to manage water infiltration into the panel system and weep and base wall flashings are necessary to provide a means for water to exit from the system. Installation of venting is required in order to provide ventilation (air flow) to provide a means of drying any water that does not exit the system from weep and base wall flashings. At a minimum, venting is required at roof and parapet copings, wall opening heads and sills, grade interfaces, soffit panels, and fascia-to-soffit transition panels.

Water control and ventilation requirements will vary from project to project and the details in this guide and its related documents are intended to represent minimum requirements for the Laminators Dry Seal installation system to function as designed. Further considerations for water controls and ventilation will need to be established by the Design Professional of Record to meet specific project needs.

Installer Responsibilities

The panel installer is responsible for confirming the following prior to proceeding with installation of any Laminators panel system:

1. Confirm that the Design Professional of Record has established water controls for the project in the form of a defined drainage plane with an air and water barrier and associated flashings to manage water out of the panel system.
2. Confirm that the Design Professional of Record has established adequate ventilation to allow air flow behind the panel system for drying of any incidental water or condensation that may not be managed out of the panel system via water controls.
3. Confirm that the products specified for installation (caulk, sealants, adhesives, and air and water barrier) have been tested by Laminators for compatibility with our panel system and are listed as Laminators approved products.
4. Confirm that fasteners (type, size, and spacing) and panel stiffener and adhesive layout meet project wind load requirements as established by the Design Professional of Record.
5. Confirm that the panel system is to be installed over a compatible substrate within acceptable installation tolerances.

PANEL AND EXTRUSION PREPARATION

The Dry Seal installation system requires fabrication of Omega-Lite panels into pans with folded edges. Panels can be fabricated on-site or shop-fabricated. If you are a first-time fabricator, contact Laminators Technical Support for more information regarding installation training and fabrication services.

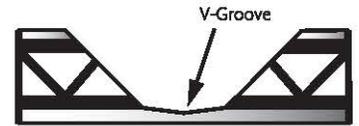
NOTE: For soffit panels or fascia-to-soffit transition panels, contact Laminators Technical Support or refer to Laminators' most recent technical bulletins regarding special fabrication and venting requirements.

Panel Preparation

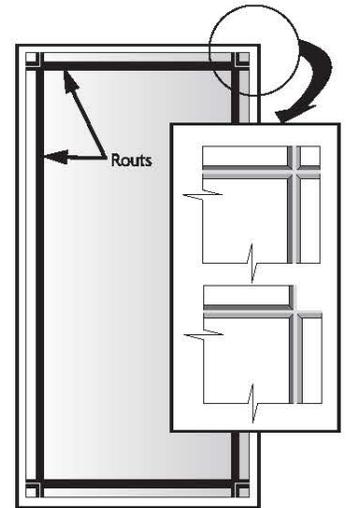
1. Cut panels to size leaving 1" extra material on each side for return legs. Verify required panel installation size prior to cutting.

2. Set up a router table or portable router able to accept a 1/2" carbide shank with Laminators' custom-designed router bit (Part No. RB 1/2). This router bit is only available from Laminators and is required for fabrication of panels for installation with the Dry Seal system.

3. Orient the panel so the router is cutting into the back of the panel (non-finish side). Center the router bit 15/16" from the panel edge and carefully rout the length of the panel, creating a v-groove. The use of a solid edge guard is recommended to maintain a straight v-groove. The depth of the router bit should be set so that the entire panel core is removed and the back of the aluminum face metal is lightly scored during the process.



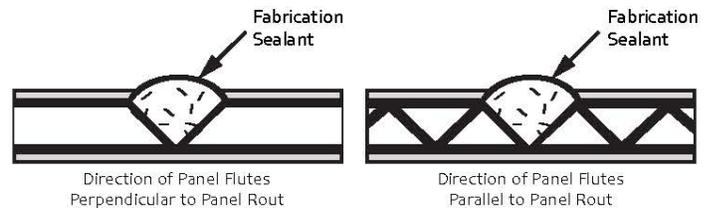
4. After all four sides of the panel are routed, remove the corner pieces using aviation snips or heavy-duty scissors by carefully cutting along the center of the v-groove.



5. Use a deburring tool (available from Laminators) to smooth all edges of the panels after completion of cutting.

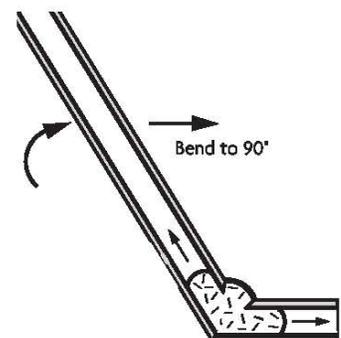
6. Apply Laminators approved fabrication sealant along the v-groove prior to folding the panel legs.

NOTE: Apply Laminators approved fabrication sealant at an approximate coverage rate of 1/2 oz. per foot.



7. Starting with the long panel edges first, bend each edge to a 90° angle. Ensure enough sealant has been installed in the panel groove to force the sealant into the panel flutes during bending.

NOTE: Folding of panel legs is not to be performed by hand as this will not create a smooth fold. The recommended method for folding panel legs is to use rigid members cut 2" shorter than the length of the panel leg to support both faces of the leg during bending, ensuring a smooth fold. Recommended rigid members for bending are: aluminum angle, wood 2x4 with a 1/4"-wide by 3/4"-deep groove cut to receive panel legs, or a 1-Piece, Tight-Fit H-Molding.

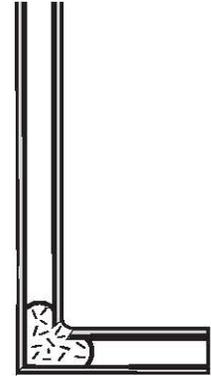


PANEL AND EXTRUSION PREPARATION

8. Tool excess sealant after bending the panel edges to create a flat surface for installation of panel Z-extrusions. Panel Z-extrusions may not seat properly if installed over a protruding bead of cured fabrication sealant.

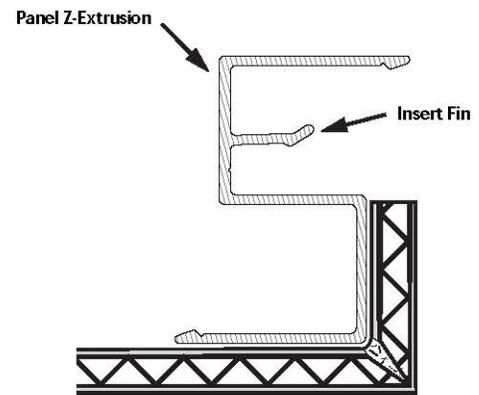
 **NOTE:** Take care not to remove any sealant from the panel rout during tooling.

9. Repeat steps 1 thru 8 to prepare the next panel. Place folded panel pans in a clean, dry area until extrusions are prepared and ready for assembly.



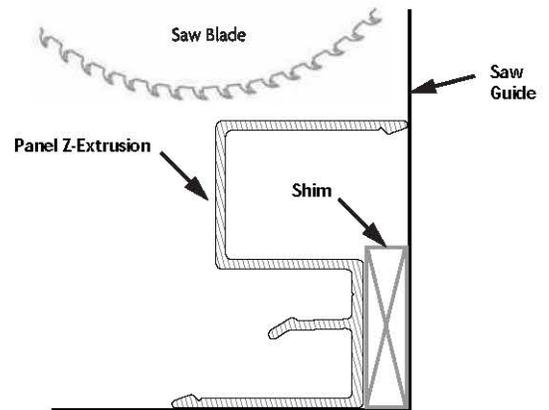
Extrusion Preparation

1. Panel Z-extrusions are mitered and installed tight to the inside corner of the folded panel pan. Before cutting Z-extrusions, measure the length of the inside pan dimension. The insert fin will be exposed to the joint side of the panel with the box end of the extrusion seated in the inside corner of the panel pan.



2. For cutting Z-extrusions, insert a shim between the extrusion and the miter saw's guide to keep the extrusion seated squarely. Set the miter saw at 45° and make the first cut.

NOTE: For safety purposes, be sure to cut the box edge of the panel Z-extrusion first. If the blade hits the insert fin first, it may bend or throw the extrusion.



3. Once the first cut has been made, advance the Z-extrusion to the length needed from the pan measurement and rotate the Z-extrusion 180° (keep the Z-extrusion oriented so that the saw is cutting the box side first) or rotate the miter saw 90°. This will be the second and final cut needed for the extrusion.

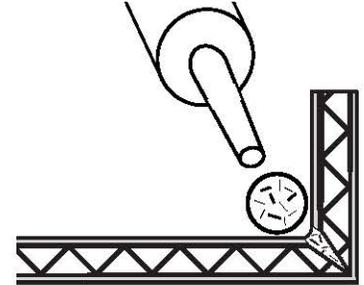
4. Repeat steps 1 thru 3 to prepare the next extrusion.

PANEL ASSEMBLY FABRICATION

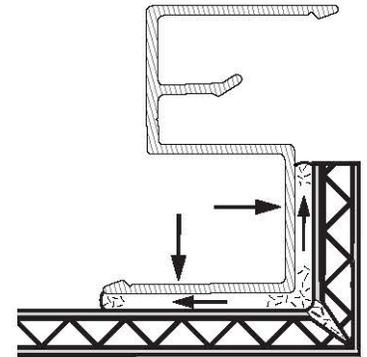
NOTE: For soffit panels or fascia-to-soffit transition panels, contact Laminators Technical Support or refer to Laminators' most recent technical bulletins regarding special fabrication and venting requirements.

Panel Assembly

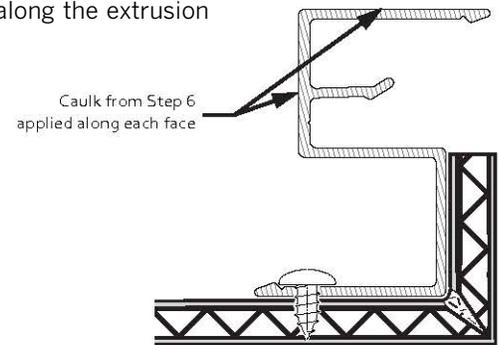
1. Place mitered Z-extrusions into the panel pan to verify proper fit.
2. Apply a 3/8"-diameter bead of fabrication sealant along the inside corner of the panel pan.



3. Insert appropriate mitered Z-extrusion into the wet sealant bead and seat squarely within the inside corner of the panel pan and tight to the return leg. The sealant should squeeze out between the bottom of the Z-extrusion and the panel pan. Sealant should also be forced between the vertical face of the Z-extrusion along the inner 1" of the panel pan leg.

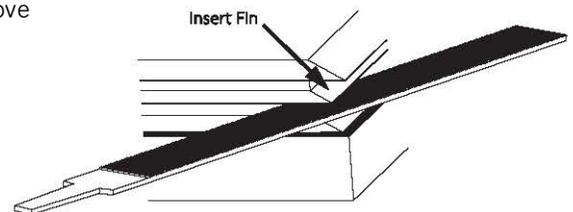


4. Insert remaining Z-extrusions and adjust corners as necessary. Gaps in the mitered Z-extrusion corners shall not exceed 1/16".
5. Using #6 x 1/4" PPH screws, attach Z-extrusions to back of panel pan along the extrusion screw line at every 6" O.C.
6. Apply a bead of Laminators approved caulk along the top side and upper vertical section of the Z-extrusions at each mitered corner and tool flush.



7. Allow fabrication sealant and caulk to cure per manufacturer's recommendations.

8. File the mitered joint of the Z-extrusions using a metal file to remove any burrs and unevenness. A burr-free and smooth joint will allow the insert strips to slide into place without interference.



9. Panel assembly is now ready for installation. Repeat steps 1 thru 8 to prepare the next panel assembly.

TYPICAL WALL LAYOUT AND STIFFENING REQUIREMENTS

The Dry Seal installation system relies on compartmentalization of the air cavity behind the panels to achieve pressure equalization. Compartmentalization is created through installation of foam tape grids and extrusions fastened to the substrate for connection of the panel system pans.

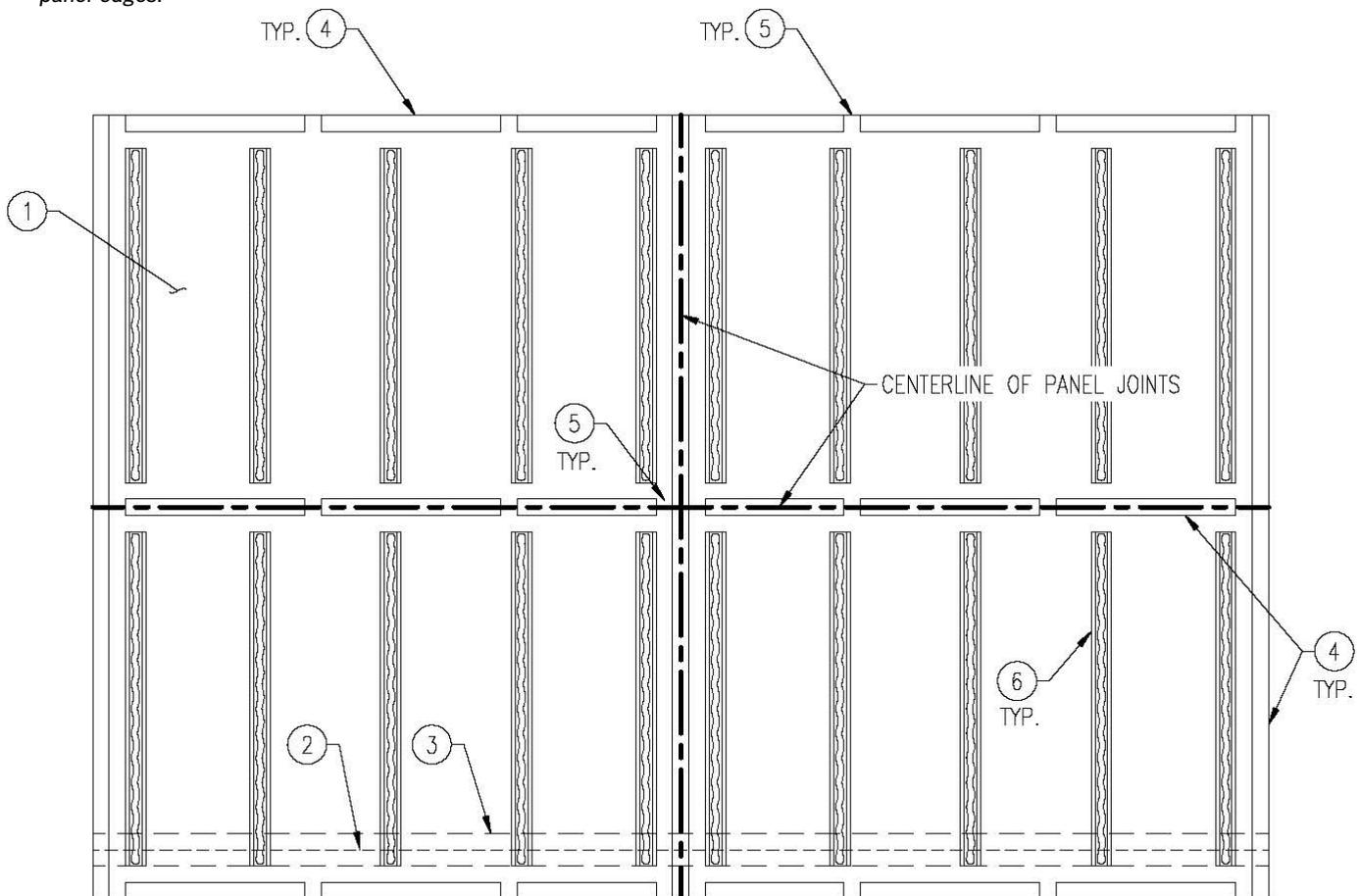
NOTE: For soffit panels or fascia-to-soffit transition panels, contact Laminators Technical Support or refer to Laminators' most recent technical bulletins regarding special installation requirements.

NOTE: For the purposes of this guide, installation layout will be shown over exterior-grade plywood sheathing with an air and water barrier. Installation over CMU block, concrete, brick masonry, continuous insulation, and exterior-grade gypsum sheathing may be possible provided that special considerations are followed. Please note that these considerations may increase the labor and cost necessary to install the Dry Seal system. Contact Laminators Technical Support for additional information when installing over these substrates. An established drainage plane with an air and water barrier is required for the system to function properly regardless of substrate.

Typical Wall Layout

1. Exterior-grade plywood sheathing (5/8" minimum) with an air and water barrier. Type and permeability of air and water barrier to be determined by Design Professional of Record.
2. Fasten base wall flashing to plywood sheathing.
3. Lap air and water barrier splice over metal flashing in shingle fashion.
4. Apply 2-1/2"-wide foam tape to plywood sheathing along centerline of panel joints. Firmly press tape against sheathing to ensure proper bond. Peel paper masking off back of tape.
5. Maintain 2"-wide gaps in horizontal foam tape for venting and drainage at 24" O.C. (max.) and at interfaces with vertical foam tape. Vertical foam tape to be continuous.
6. Hat channels (1-1/2" depth, 18-gauge minimum) with applied panel adhesive installed as panel stiffeners.

NOTE: Required panel stiffening and panel adhesive layout to be based on project-specific wind loads as determined by the Design Professional of Record. Refer to Laminators technical documentation or contact Laminators Technical Support for additional information. Typical stiffener layouts are 16" to 32" O.C. (depending on wind load requirements) and at 3" from panel edges.

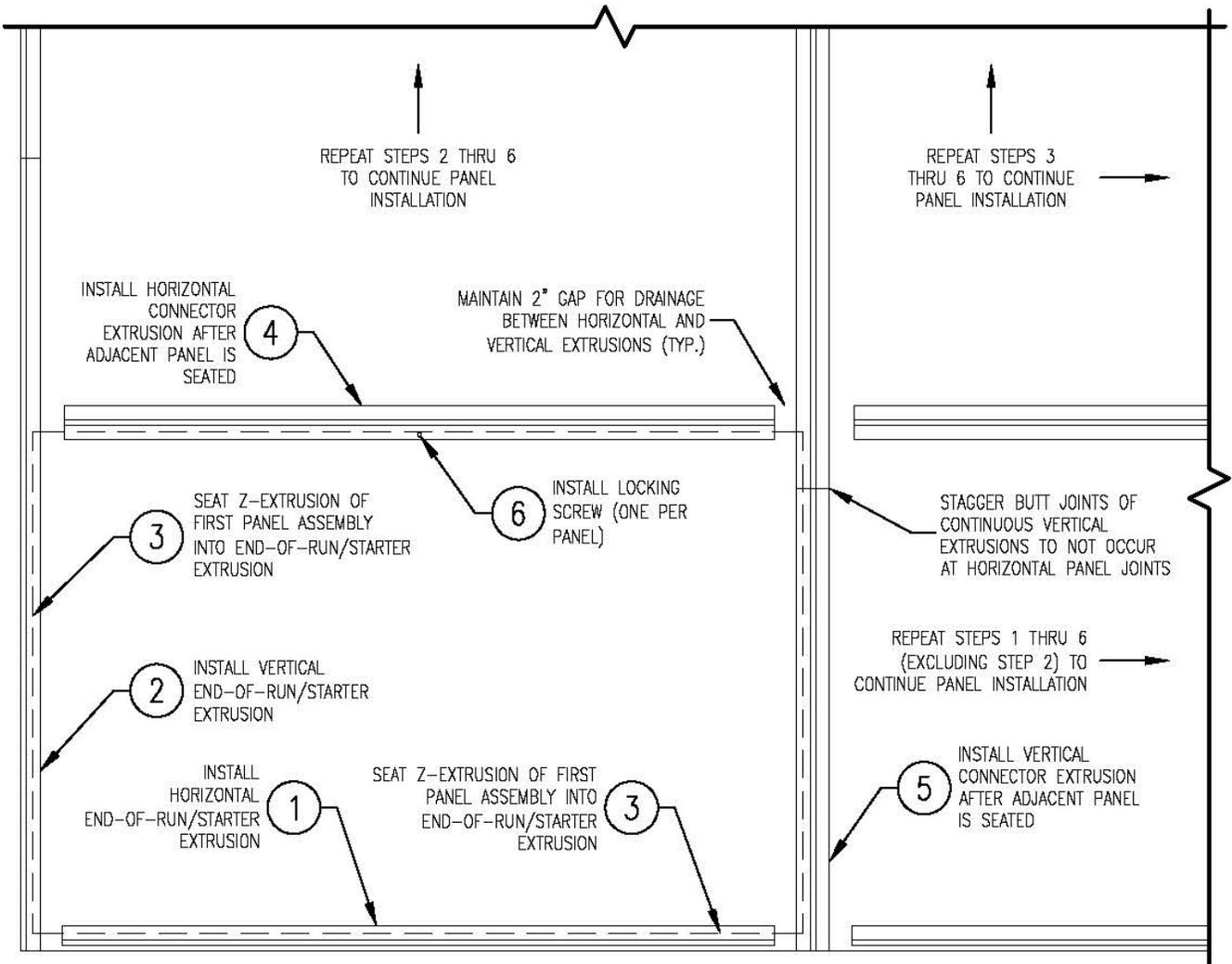


SYSTEM INSTALLATION

The Dry Seal installation system is a progressive-build system that is designed to encapsulate prefabricated Omega-Lite panel assemblies on all four sides with connector and end-of-run (or starter) extrusions. Planning for panel system layout is required to make sure the appropriate extrusions are used during the installation process. Sequencing of extrusion installation is necessary to avoid creating a “trapped” condition where installation of a panel assembly cannot be performed. Panel assemblies are seated into connector extrusions on perpendicular sides with the remaining two extrusions installed around the panel assembly perimeter. System installation should begin at the base of a wall at the side or edge of the proposed installation area and progress across the wall and then upward.

NOTE: The Dry Seal installation system and its extrusions are designed to create a 3/4" joint between panel assemblies. Joints smaller than 3/4" do not allow for adequate thermal movement and are not recommended. Joints larger than 3/4" are possible, but require special considerations that will increase system installation cost. Contact Laminators Technical Support for additional information.

NOTE: Substrate fastening requirements for connector and end-of-run/starter extrusions to be based on project-specific wind loads as determined by the Design Professional of Record. Refer to Laminators technical documentation or contact Laminators Technical Support for additional information.



SYSTEM INSTALLATION

Extrusion and Panel Installation Steps

1. Install horizontal end-of-run/starter extrusion over foam tape. Placement of the end-of-run/starter extrusion should be placed to leave a 1/4" gap from the bottom of the base wall flashing.
2. Install vertical end-of-run/starter extrusion over foam tape.
3. Insert panel assembly into vertical and horizontal end-of-run/starter or connector extrusions by placing the vertical and horizontal Z-extrusion flanges between the foam tape and the backside of the end-of-run/starter extrusions.
4. Install the next horizontal connector extrusion over the foam tape along the top of the installed panel assembly. Maintain 2" gaps for venting and drainage between the horizontal connector extrusions and vertical extrusions.
5. Install the next vertical connector extrusion over the foam tape along the side of the installed panel assembly. Vertical connector extrusions are to be installed continuously with butt joints occurring outside of horizontal panel system joints. Vertical connector extrusions installed along the final side of a panel assembly should not be longer than that side to allow for easier installation of the next panel assembly in the sequence.
6. Using a long 1/8" drill bit protected by polypropylene tubing, predrill a hole for a locking screw by drilling through the edge of the connector extrusion and Z-extrusion. Insert a 1" screw into the predrilled hole to lock the panel assembly into place. Each panel assembly should have one (1) locking screw.

Repeat steps 1 thru 6 to continue panel system installation as shown above.



Refer to CAD details at LaminatorsInc.com for details on flashing installations for interfacing the panel system with wall openings, roofs, parapets, and dissimilar materials.

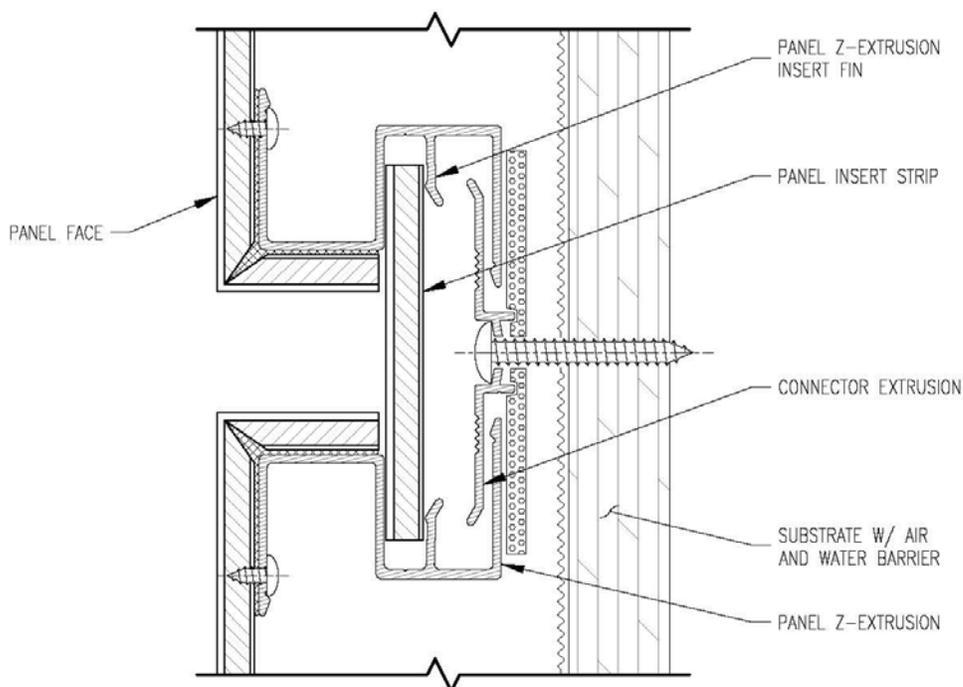
Insert Strip Installation

Measure and size horizontal and vertical insert strips for panel system joints based on joint location. After cutting the insert strips, use a deburring tool on the edges and remove masking.

Panel-to-Panel Joints

Slide insert strips into the outermost slot of Z-extrusions between the panel assembly return legs and insert fins as shown.

NOTE: Insert strips 2-3/8" wide (2-5/8" max.) work well for typical 3/4" panel-to-panel joints.

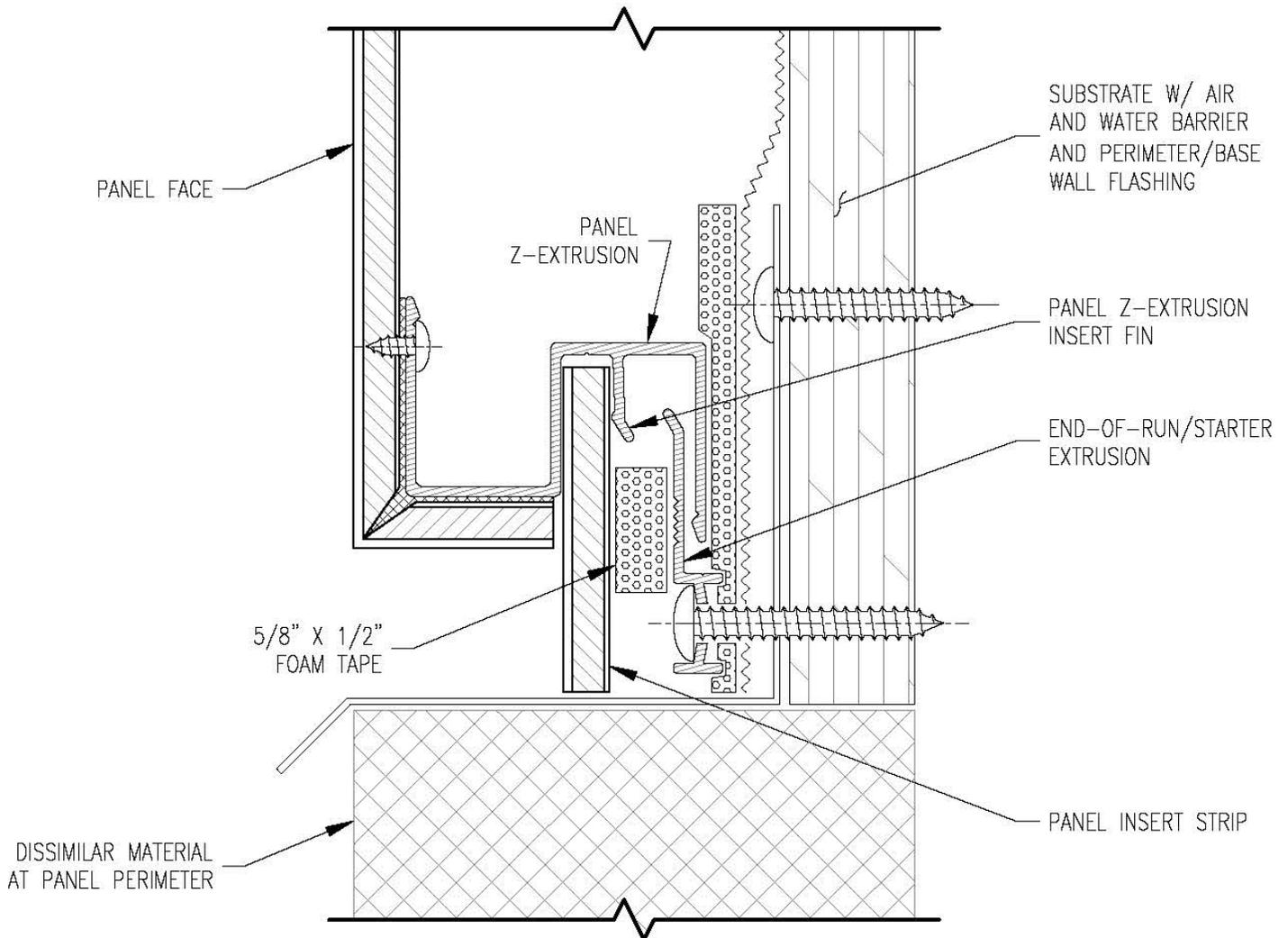


SYSTEM INSTALLATION

Perimeter Panel Joints

To maintain in-plane condition of the insert strips installed at the perimeter of the panel system, install 3"-long segments of 5/8"-thick x 1/2"-wide foam tape at 36" O.C. along the end-of-run/starter extrusion of the perimeter joint. Slide the perimeter insert strip into the outermost slot of the Z-extrusion between the panel assembly return leg and the insert fin as shown.

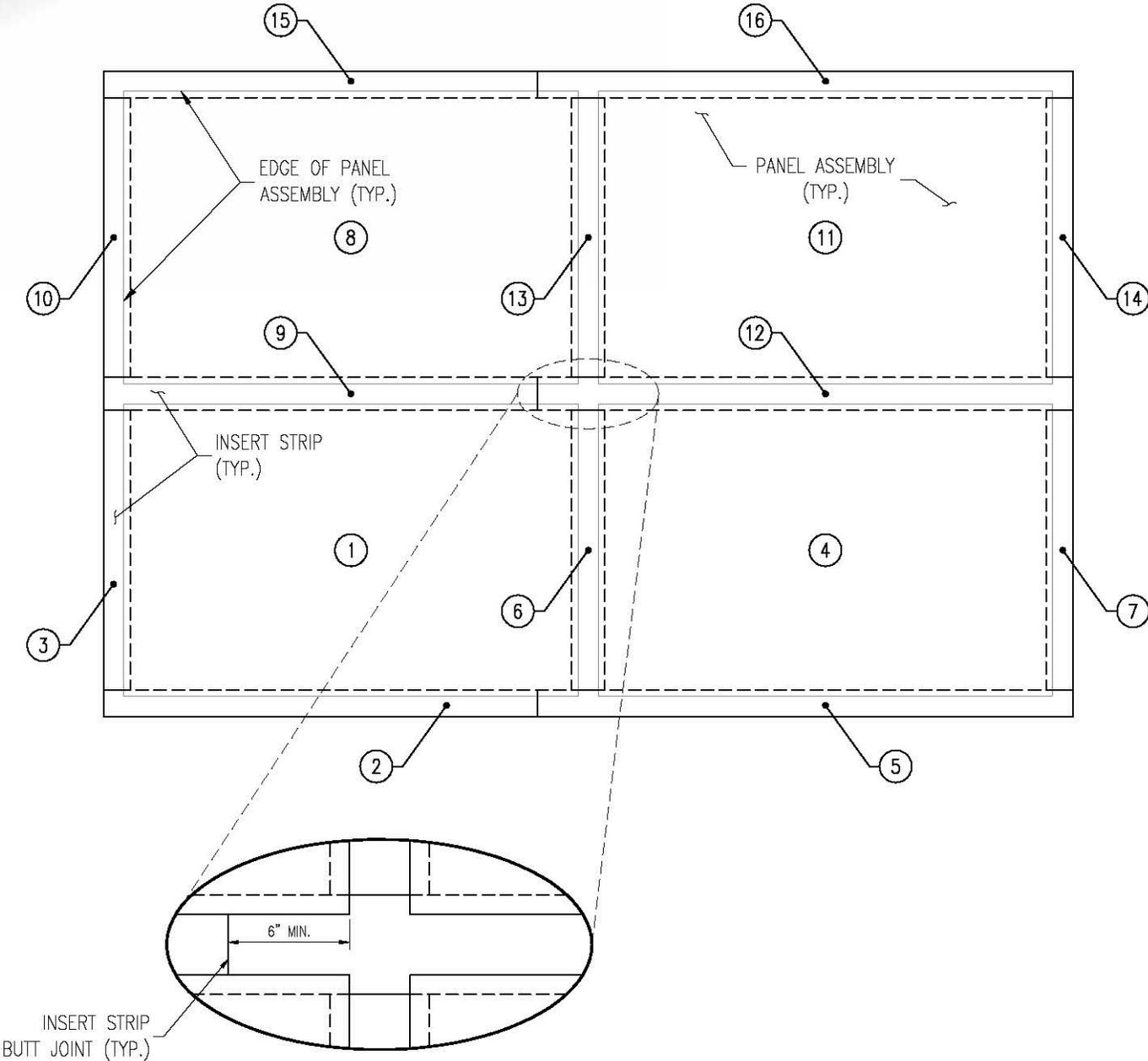
NOTE: Insert strips at the bottom, top, and sides (perimeter) of installation areas are required to be smaller than those used for panel-to-panel joints. Insert strips 1-5/8" wide work well for typical 3/4" joints at perimeter locations.



SYSTEM INSTALLATION

Insert Strip Installation Sequencing

Sequence installation of insert strips as shown so that horizontal strips are continuous between sections of vertical strips. Butt joints in horizontal insert strips must fall a minimum of 6" outside of vertical panel system joints.



SYSTEM INSTALLATION

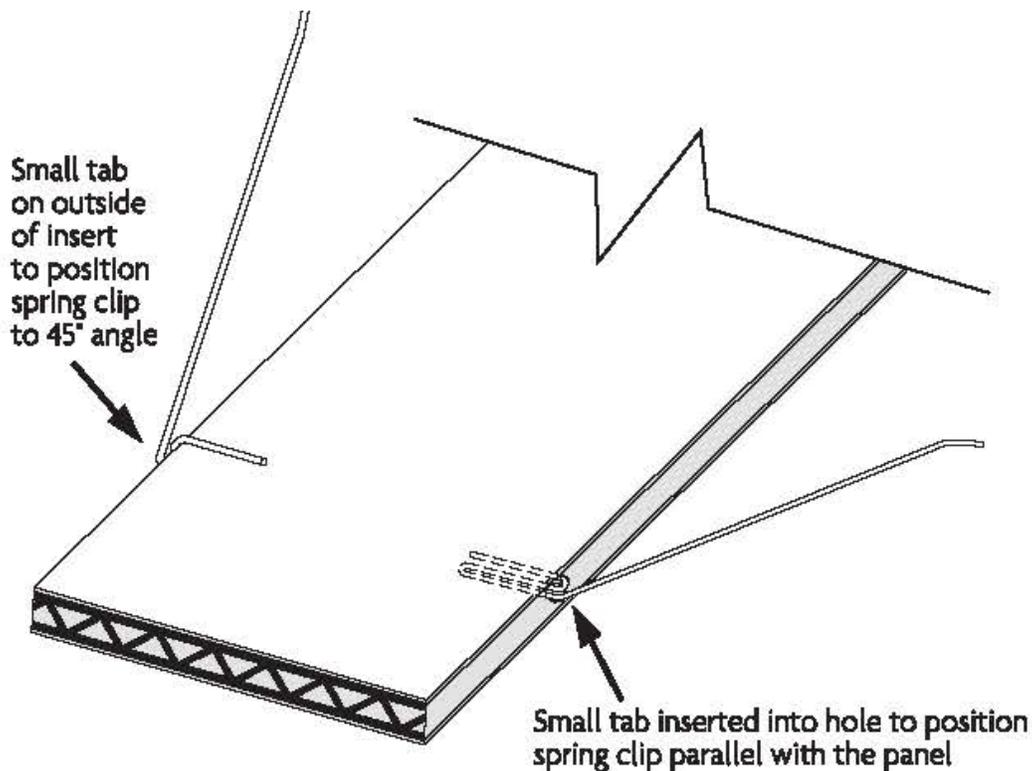
Alternate Installation Method for Insert Strips

1. In the event that insert strips cannot be slid into place, Laminators provides a method to “snap in” insert strips after panel assemblies are installed and secured.
2. Apply a 3" strip of 1/2" foam tape at 36" O.C. along the exposed connector or end-of-run/starter extrusion in the panel system joint.
3. Prepare a 1-1/4"-wide insert strip by drilling 1/8" holes in the panel core on both sides of the strip every 24" O.C. and then pushing springs into place. The springs on the side of the insert strip to be placed into the joint first are inserted at a 45° angle down toward the back of the insert (the small tab of the spring goes on the outside of the insert making the 45° angle). Springs are inserted on the other side of the insert strip parallel and forward.



NOTE: For an end-of-run, springs are only needed on the side against the panel assembly.

4. Put the 45° angle side in between the panels first. Push the strip into the joint at an angle. The springs will slide into position and the insert strip will drop below the edge of the other panel assembly and stay in place.
5. Push the trailing springs down into the joint until they snap down into the joint between the two panel assemblies. The insert strip should now be centered in position.



ESSENTIAL EQUIPMENT AND MATERIALS

Essential Equipment

- Aluminum brake capable of bending 0.060" aluminum
- Laminators router bit (Part No. RB 1/2)
 - Custom-designed carbide router bit with 1/2" shank only available from Laminators
- Miter saw or chop saw with 10" (min.) diameter blade rated for cutting non-ferrous material
- Circular saw or table saw with 40-tooth blade (min.)
- Caulking gun (automatic gun recommended for consistent application)
- Screw gun/drill
 - Insert bit holder with 1-1/2"-long Phillips bit
 - 5" (min.)-long 1/8" drill bit with polypropylene tubing as guard
- Deburring tool (Part No. DEBURRING TOOL)
- Aviation snips or heavy-duty scissors
- Plastic putty knife to remove excess caulk and adhesive from panels
- Metal file
- Utility knife
- Tape measure
- Protective gear (safety glasses, gloves to handle panels, etc.)
 - *Jobsite safety is the responsibility of the panel installer*

Essential Materials

- Panels
- Extrusions
 - Panel Z-extrusions (Part No. 44DS-Z)
 - Connector extrusions (Part No. 44DS-CONNECTOR)
 - End-of-run/starter extrusions (Part No. 44DS-ENDRUN)
 - 1-Piece Tight-Fit H-Molding (Part No. 4505X) – optional for use in folding panel legs
- Color-matched flat stock aluminum for fabrication of flashings and copings
- Panel stiffeners
 - 1-1/2" cold-formed hat channels recommended (18 gauge min., heavier gauge may be required based on wind-load requirements)
- Closed-cell, 7 lb.-density PVC foam tape
 - 3/16"-thick x 2-1/2"-wide (Part No. 44DS-TAPE 2 1/2)
 - 5/8"-thick x 1/2"-wide (Part No. 44DS-TAPE 1/2)
- Springs for alternate installation of insert strips (Part No. 44DS-SPRING)
- Touch-up paint
- Mineral spirits and rags

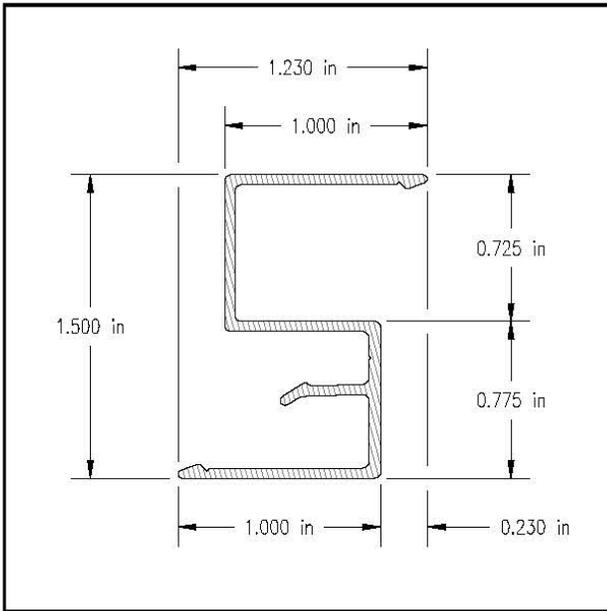


- Fabrication sealant*
- Panel adhesive* (required if installing panel stiffeners)
- Fasteners*

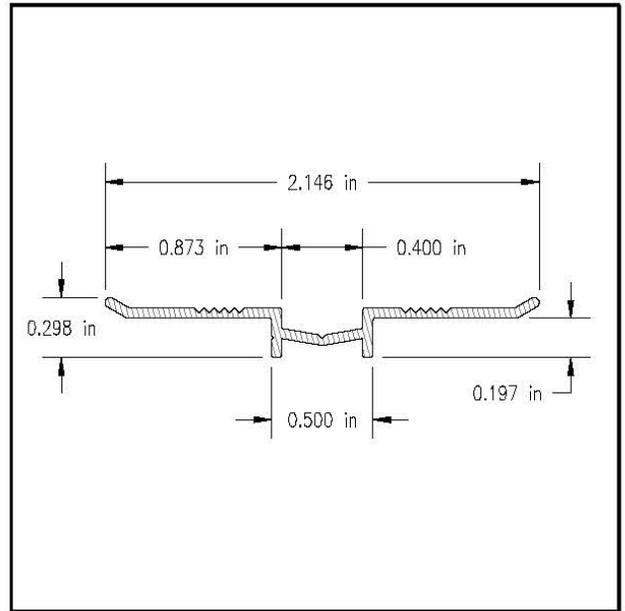


***For the most current list of approved fabrication sealants, adhesives, and fasteners, visit LaminatorsInc.com.**

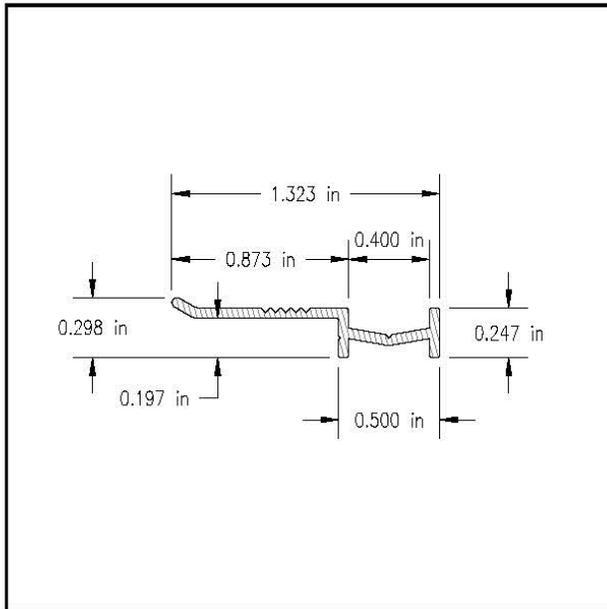
DRY SEAL EXTRUSIONS



Z-EXTRUSION (PART NO. 44DS-Z)



CONNECTOR EXTRUSION (PART NO. 44DS-CONNECTOR)



END-OF-RUN / STARTER EXTRUSION (PART NO. 44DS-ENDRUN)



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