Installation Guidelines

Reveal System (RV)





WARNING: FAILURE TO FOLLOW THESE GUIDELINES WILL VOID THE STANDARD WARRANTY.





BE SURE TO READ, UNDERSTAND AND FOLLOW ALL GUIDELINES. Manufacturer guidelines may vary depending upon specific application and project conditions. The manufacturer should be contacted with questions regarding conditions which vary from the guidelines set forth. Standard carpentry knowledge is required and good construction practice for health, safety and welfare must be followed when installing PAC-4000.

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MAIN STEPS OF THE INSTALLATION PROCESS

☐ FIRST: UNDERSTAND THE SYSTEM

Understanding the panel system and determining which attachment option has been specified is imperative for completing a proper installation.

NOTE:

To request a complete Product Manual (which includes recommended SECTION and MOLDING INTERSECTION details), contact the manufacturer.

□ SECOND: PRE-PLAN THE INSTALLATION

After receiving and properly storing the material, planning the work schedule, grid layout, and material usage should be performed so that the sequence can proceed without significant delays and/or problems.

☐ THIRD: READ THE GENERAL GUIDELINES

The general guidelines (i.e. fabrication, sealing, etc.) provide a groundwork for all types installations. Thoroughly read and understand these guidelines before beginning the work sequence.

☐ FOURTH: COMPLETE THE WORK SEQUENCE

After reading the instructions set forth in the general guidelines, continue to the appropriate work sequence and complete the installation.

KEY POINTS FOR A SUCCESSFUL INSTALLATION

SAFETY FIRST

Proper protection (i.e. gloves, safety glasses) should be worn at all times to prevent injury from sharp edges and/or metal shavings.

PROTECT MATERIAL

When installation is not in progress, all panel and accessory units must be kept under protective cover and completely dry.

ENSURE PROPER FIT

Proper fit is very important to the appearance of the system. Allowance for expansion is needed, as well as notching and/or mitering of trim.

LIBERALLY APPLY SEALANT

ALL joints must be sealed against moisture intrusion or the warranty will VOID. If done correctly, excess sealant will squeeze from the joints (to be removed later in the sequence).

REMOVE PROTECTIVE FILM

Upon completion, the protective film must be removed from the painted surface. Failure to do so promptly may cause difficulty in removal and possibly leave an adhesive residue.

TECHNICAL ASSISTANCE

Petersen Aluminum Corporation 1005 Tonne Road Elk Grove Village, IL 60007 phone: 800-PAC-CLAD fax: 800-722-7150 www.pac-clad.com info@pac-clad.com

PRE-INSTALLATION: MATERIAL RECEIVING & INVENTORY

VISUAL INSPECTION:

Upon material arrival, all panel units and molding/accessory cartons should be visually inspected to verify that the product is in good condition and free from shipping damage, weather damage or defects.

☑ IS THE PRODUCT IN GOOD CONDITION?

☑ IS THE PRODUCT FREE FROM DEFECTS?

▼ IS THE PRODUCT CLEAN AND DRY?

NOTE:

- Shipping damage and/or packaging issues should be first noted on the bill of lading and then reported to the distributor.
- Should damage occur, the customer is responsible for filing a freight claim with the shipping company WITHIN 24 HOURS from material receipt. Failure to do so may possibly result in forfeit of corrective action.
- Any defective material should be reported directly to the distributor from which the product was purchased.

MATERIAL INVENTORY:

After verifying the condition of the product, inventory units against the packing slip to make sure that all material (including molding and accessory units) is received.

☑ ARE ALL OF THE PANEL UNITS PRESENT?

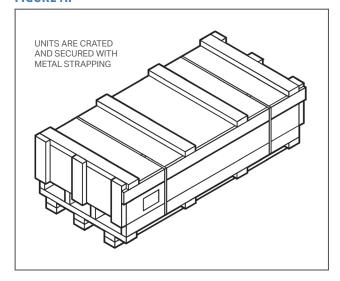
☑ ...THE MOLDING & ACCESSORY UNITS?

▼ IS THE PIECE PER UNIT COUNT CORRECT?

NOTE:

Notify the distributor from which the product was purchased of any missing or incomplete shipments IMMEDIATELY. Failure to do so may result in forfeit of corrective action.

FIGURE A.



PRE-INSTALLATION: TRANSPORTING & HANDLING

TRANSPORTING THE MATERIAL:

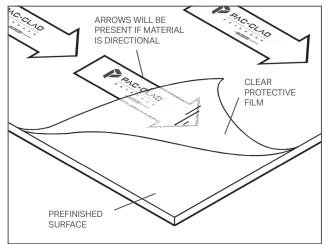
PAC-4000 is packaged from the manufacturer in quantities of 40 pieces (or less) per unit, under cover and secured with metal strapping (FIG. A). If possible, panels should remain in this original packing for transport.

If a forklift or pallet jack is unavailable, panel unit may be broken and carried to storage by hand according to the following guidelines.

HANDLING THE MATERIAL:

A strippable protective film is standard on all panels. This film should remain on the product until instructed to take it off (during installation procedure). This strippable film **(FIG. B)** is designed to prevent minor abrasions to the surface. However, panels should still be handled with care to avoid any major dings, dents or scratches.

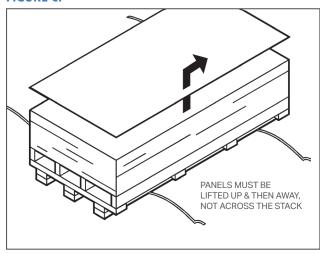
FIGURE B.



NOTE:

- When handling panels, clean work gloves should be worn at all times to protect from sharp edges and to prevent any smudging of the painted finish.
- When removing material from shipping units, DO NOT drag/slide panels across stack underneath. Panels must be lifted up, then away to avoid any permanent damage to the painted surface (FIG. C).

FIGURE C.



PRE-INSTALLATION: STORING THE MATERIAL UNITS

MATERIAL STORAGE:

If the units have been broken, material should be restacked, on a skid. Painted surfaces (strippable film side) should be placed face to face and any interleafed foam must be repositioned.

NOTE:

Failure to properly protect material from moisture intrusion may cause damage to the panel surface and/or core. Such damage is NOT covered under the standard warranty.

If the material has become damp or wet during transportation, the surface should be wiped dry before stacking to prevent any type of corrosion. Once the stacking is completed (or if the original packaging is still intact), the units must be covered with a waterproof covering.

All units must be kept in a dry, well-ventilated area away from exposure to the elements and/or any other construc-tion installations which may cause damage to the product.

PRE-INSTALLATION: SCHEDULING & GRID LAYOUT

COORDINATION OF WORK:

In accordance with good construction practice, schedule the work to coordinate with other trades so that installation can proceed without significant interference/delay.

NOTE:

Once begun, work should not be delayed for long periods of time at a point which might cause damage to the product if acted upon by external conditions (i.e. rain, snow, long periods of exposure to the sun).

DETERMINING THE GRID:

Before beginning the installation procedure, it is important to plan the overall layout of the installation. Architectural drawings should be consulted to determine the correct grid, where applicable.

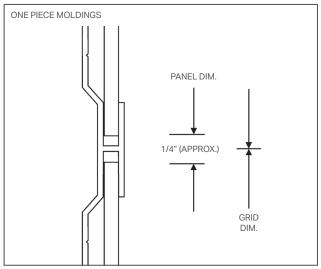
If there are no drawings to work from, measure and verify all field dimensions and develop a pattern to maximize appearance and minimize fabrication. Consideration for aesthetics should be made in locating odd sized panels.

NOTE:

DO NOT use butting panels as a guide for grid layout. Actual panel size will vary slightly from grid size (FIG. D) due to the spacing needed for panel expansion (1/16") and the molding/receiver width.

For example, a 4' \times 10' o.c. grid pattern will result in an actual panel size of slightly less than a full 4' \times 10'.

FIGURE D.



CALCULATING MATERIAL USAGE:

After identifying/determining the grid, begin to verify that the correct amount of material has been ordered for your specific application. Since material takeoffs and resulting quantities are based upon the grid layout, installing the material in another pattern may result in shortages.

Likewise, an approximate cut plan (for both panels and moldings) should be determined before beginning installation to prevent such shortages which may cause delays in completion of the project.

When calculating molding usage, verticals typically pass through horizontals (**FIG. E**), except at head and sill locations (see Typical Details). If the project is large enough to require several lengths of moldings, splices should be staggered so that they do not match up with horizontal/vertical molding intersections (see General Work: Cutting & Fitting Extrusions).

FIGURE E.

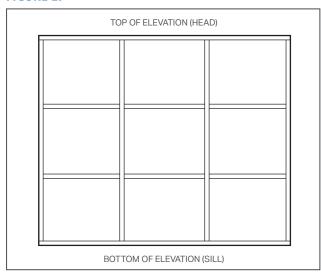
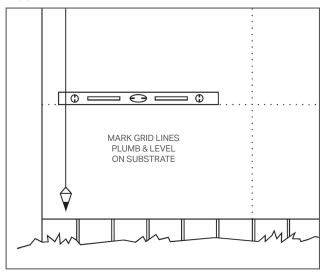


FIGURE F.



ALIGNING & MARKING THE GRID:

Using the grid pattern derived, establish a base point in the lowermost left corner of the elevation (typically). Using a chalk line, level, and a plumb bob, mark the complete grid (**FIG. F**) on the substrate. Doing so will allow for any necessary adjustment to be made prior to installation.

Installation may also be started at the center line of the elevation and worked in both directions from that point.

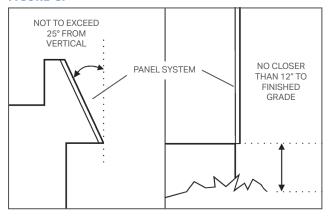
All surfaces of the substrate should be free from any obstructions and/or projections which might interfere with panel application. Note areas where shims may be required to bring the panel system into a plumb, level, and consistent plane.

GENERAL WORK: LIMITATIONS OF THE PANEL SYSTEM

USES & APPLICATIONS:

PAC-4000 is intended for use as a non-structural wall panel. It may also be used in other applications where the slope does not exceed 25° (**FIG. G**) past vertical.

FIGURE G.



Also, the system must be kept a minimum of 12" away from the finished landscaping grade. Other environmental and application limitations may apply. Refer to the *Product Warranty*.

GENERAL WORK: FABRICATION OF THE PANELS

SAFETY PRECAUTIONS:

When performing fabricating procedures, it is necessary to observe all general guidelines for safety. Cutting, drilling, or otherwise machining the panels and trim moldings may produce flying chips, shavings, or dust.

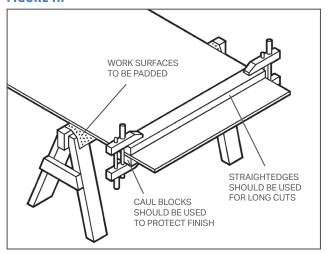
NOTE:

In addition to work gloves and proper clothing, safety goggles, ear protection, and possibly dust masks may be needed when fabricating system components.

CUTTING & DRILLING OF PANELS:

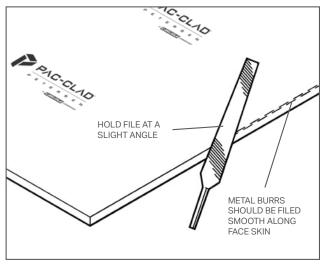
Cut-to-size panels are available from the manufacturer. When field cutting is required, it may be performed using standard carpentry tools equipped with carbide-tipped blades. Work surfaces should be padded (FIG. H) and free from any debris which may damage the finish. For cleaner cuts, backer blocks and straightedges may be

FIGURE H.



clamped to the panel surface. Caul blocks should be used when necessary to protect the painted finish. After cutting, aluminum edges may need filing to remove sharp projections and/or metal burrs (FIG. I) that might prevent the panel from sliding into the molding channel properly. Doing so will also reduce the risk of personal injury.

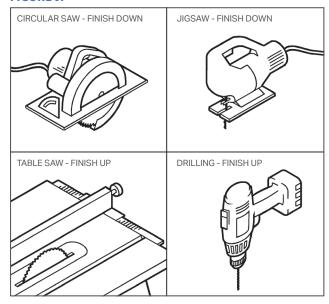
FIGURE I.



When using a table saw to cut panels, the finished side (protective film) should be placed facing upward. For hand held circular saws and jigsaws, the finish side should be facing down **(FIG. J)**.

For drilling operations, the finished side should be placed facing upward and a backer block should be used when necessary to minimize any tearout.

FIGURE J.



GENERAL WORK: CUTTING & FITTING MOLDINGS

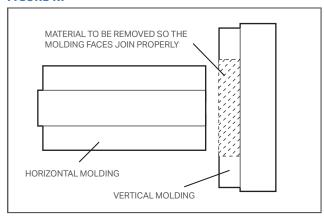
The appearance, quality and soundness of the panel system depends in large part upon the quality and fit of the trim moldings.

For accurate cutting, a miter or chop saw (with carbide tipped blade) is recommended to cut the moldings to length. Notching of moldings may also be required for some intersections. Metal snips and/or a miter saw may be used to remove portions of the moldings so that the intersection can fit together properly (FIG. K).

NOTE:

Whenever cutting, trimming, or installing moldings, it is important to make sure the joints are well fitted and the intersections formed provide a clean channel into which the panel can be placed.

FIGURE K.



A visual representation of the most common intersections can be found in the Typical Details section of the Product Manual. If you have any questions about how your particular intersection should be fitted, contact our technical staff for assistance.

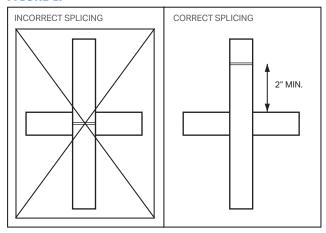
SPLICING OF MOLDINGS:

Depending on the grid size, several lengths of moldings may be required to complete a horizontal and/or vertical run. Planning should be done to minimize the number of splices required.

NOTE:

When necessary, splices must occur no closer than 2" away from a horizontal/vertical intersection (FIG. L). Splices must be completely sealed against moisture. This does not apply if the molding intersections are being mitered.

FIGURE L.



GENERAL WORK: PROPER SEALANT APPLICATION

As a barrier system, PAC-4000 is an exterior cladding system designed to keep water away from the structural wall system. Therefore, it is imperative that the following guidelines be followed accurately to ensure the integrity of the system against moisture intrusion.

NOTE:

Failure to adequately seal ALL panel edges, molding intersections & splices, cutouts, etc., will cause the installation to fail and will VOID THE WARRANTY.

SELECTING THE RIGHT SEALANT:

In order for the proper bond to be created between the sealant and the system components, be sure to use only the sealant recommended by the manufacturer.

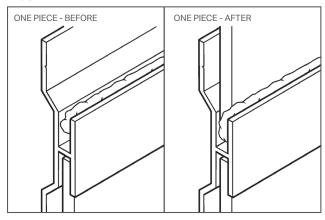
The use of other sealants may require additional steps (such as priming of materials) or cause the installation to fail due to poor weatherability, staining and/or lack of adequate bonding.

SEALANT APPLICATION:

In general, sealant should be liberally applied wherever water may be able to infiltrate the system (e.g. joints, molding splices, dissimilar material abutments, etc.).

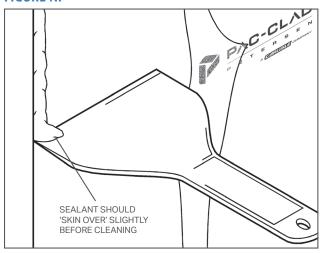
For the one piece system, the sealant should fill enough of the molding channel **(FIG. M)** so that squeeze out will occur when the panel is inserted.

FIGURE M.



Excess sealant may be cleaned up (**FIG. N**) after it 'skins over' (approx. 45 minutes) using a non-marring scraper, a clean raq, and mineral spirits (if necessary).

FIGURE N.



When abutting dissimilar material (i.e. glazing, brick, etc.), allowances must be made for expansion/contraction (minimum 1/4"). Bond breaker tape should be applied to the sheathing prior to the application of the sealant.

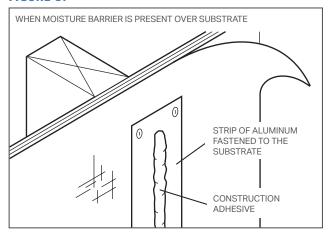
GENERAL WORK: PROPER ADHESIVE APPLICATION

Depending upon the panel size, an adhesive may be required in the field of the panel. Either double-sided tape or construction adhesive may be used to adhere the panel to the substrate.

In general, a bead (or strip) of adhesive must be placed at each intermediate location within the field of the panel (16"-24"o.c.). The approximate size of the bead should be 3/8" diameter (min.) x 2/3 of the panel height. How-ever, due to the design of the molding, the panels are held away from the substrate by approximately 1/4". Therefore, the substrate must be shimmed out (using scrap pieces of panel) in order for the adhesive bead to bond properly with the back of the panel. The adhesive is then applied to the shim (or panel scrap).

When a moisture barrier is present, a strip of aluminum (approx. 2"-3" wide x 2/3 panel height) must be mechanically fastened to the substrate (FIG. 0). The adhesive is then applied to the aluminum.

FIGURE O.



GENERAL WORK: THE PROTECTIVE FILM

When directed to do so (see Work Sequence), the protective film must be removed from the panel surface. For ease of removal, pull the film back against itself in the same plane as the panel.

NOTE:

Failure to remove the protective film promptly after installation (or exposure to long periods of sunlight) may cause difficulties in removal and possibly leave an adhesive residue.

MAINTENANCE OF THE PANEL FINISH

REPAIR/TOUCH UP:

Any minor scratches or dings which may occur during installation can be repaired using touch-up paint available from the manufacturer. Repainting of large areas with the touch-up paint is not recommended. Finish characteris-tics of the repainted surface may vary from the prepainted aluminum.

MAINTENANCE:

Panels should be incorporated into an overall building washing/maintenance schedule and cleaned in accordance with AAMA 610.1, Voluntary Guide Specification for Cleaning and Maintenance of Painted Aluminum Extrusions and Curtain Wall Panels. In general, panels may be cleaned using warm water and a mild detergrent (if necessary). For more aggressive materials, a gentle brushing/scrubbing action may be required. Abrasive detergents and/or harsh solvents should not be used.

WORK SEQUENCE: DEEP REVEAL SYSTEM (D-RV)



STOP! READ BEFORE PROCEEDING WITH WORK SEQUENCE



These guidelines are set forth to show the intent and general sequence of installation. The procedure for each individual application and condition may vary. For special conditions or for those not discussed (parapet, dissimilar material, etc.), refer to the General Work Guidelines, Typical Details or contact the manufacturer.

INSTALLATION SPECIFICATIONS:

SYSTEM TYPE:

- Non-Structural, Barrier System

WORK FLOW:

- Progressive, moving up and across the elevation beginning at a bottom corner (typical).

POSSIBLE SUBSTRATES:

- Nailable Substrate
- Non-Nailable Substrate (fastened directly to studs)
- Substrate (either type) with Moisture Barrier (special instructions apply)

EXPANSION/CONTRACTION SPACING:

- 1/16" between panel perimeter edge and molding

TYPES OF FASTENERS:

- Metal Framing: #S-1000 (1") or #S-1580 (1-5/8")
- Wood Framing & Sheathing: #S-1001 (1-5/8")

FASTENING SCHEDULES:

- Panel Fastening (non-mechanical):
 Panels are attached to the substrate using construction adhesive and are held in place by the perimeter molding.
- Molding Fastening:
 Every 12" along length of molding

ADHESIVE:

- #5000 (Franklin Titebond™)
- #5003-D (Double Sided Tape)
 A bead (or strip) approx. 2/3 the panel height is placed at intermediate (16"-24"o.c.) locations.

SEALANT:

- #5002 (Tremco® Spectrem® 2)
The entire system must be properly sealed against moisture for the warranty to remain valid.

☐ STEP 1: ATTACHING THE BOTTOM HORIZONTAL & THE LEFT VERTICAL MOLDINGS

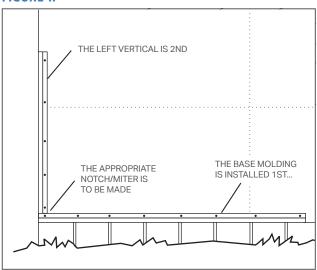
Since the installation is progressive, the panel is encapsulated on all four sides by the one piece moldings. Therefore, the first step in the work sequence is creating an 'L' shaped pocket into which the panel will be placed.

In order to move the installation up, and then across the elevation, the first two moldings to be attached are the bottom horizontal and the left vertical (FIG. 1).

Miter or notch the moldings as needed and then fasten them to the substrate. Keep in mind that verticals 'pass through' horizontals except at head and sill locations.

The required molding length will vary dependent upon condition and grid layout.

FIGURE 1.



☐ STEP 2: PREPARING THE PANEL & **APPLYING THE SEALANT**

Begin by cutting the panel to the proper dimension with allowance made for expansion/contraction. Peel the protective film away from all four edges of the panel. Do not remove it completely.

NOTE:

Failure to adequately seal ALL panel edges will cause the installation to fail and will VOID THE WARRANTY.

Place a large, continuous bead of approved sealant into both the bottom horizontal and left vertical moldings (FIG. 2). If the moldings extend past the first panel length/ width, apply only enough sealant for one panel.

□ STEP 3: APPLYING THE PANEL ADHESIVE

Begin by fastening the appropriate shims (panel scraps) to the substrate at the intermediate locations (shimming reduces the gap between panel and the substrate created by the molding offset). Then, place a large bead (or strip if using double-sided tape) of panel adhesive onto each shim (FIG. 3).

NOTE:

The adhesive bead should not be allowed to set up before the panel is applied.

☐ STEP 4: INSERTING THE PANEL INTO THE MOLDING CHANNELS

Insert the panel into the moldings (a non-marring scraper may assist in guiding the panel into the channel). If the correct amount of sealant is applied, it should squeeze (FIG. 4) from the molding in a continual bead around the panel perimeter. The excess will be removed in a later step.

NOTE:

Failure to adequately seal ALL panel edges will cause the installation to fail and will VOID THE WARRANTY.

FIGURE 2.

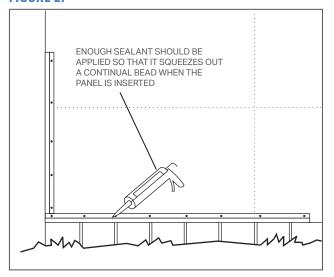


FIGURE 3.

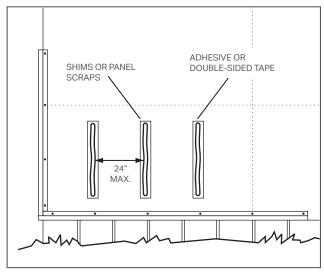
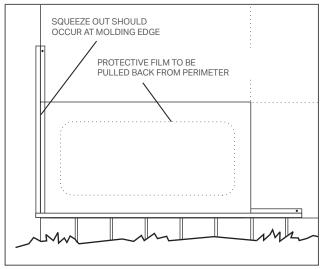


FIGURE 4.



☐ STEP 5: ATTACHING THE TOP HORIZONTAL MOLDING

Since verticals typically dominate, the top horizontal molding should be notched/mitered to 'dive into' the left vertical molding. Likewise the other end of the molding should be notched/mitered after being cut to length to receive the right vertical molding to be attached next.

After the molding has been prepared, apply the proper amount of sealant into the channel (only the side facing the panel) and place it over the edge (FIG. 5). As in the previous step, sealant squeeze out should occur.

Fasten the top molding to the substrate.

☐ STEP 6: ATTACHING THE RIGHT VERTICAL MOLDING

After preparing (cutting, applying sealant), the right vertical should be fastened to the substrate (FIG. 6).

NOTE:

The final molding in the sequence (the right vertical) should never extend past the top horizontal (FIG. 6). Doing so will create a 'U' shaped channel and prevent the next panel in the vertical sequence from being installed properly.

☐ STEP 7: CLEANING UP THE EXCESS SEALANT AND REMOVING THE PROTECTIVE FILM

Once the fastening is complete, the excess sealant can be cleaned from the panel surface using a non-marring scraper, clean rag, and mineral spirits (if necessary).

The scraper should be held at a low angle (FIG. 7) and run along the perimeter of the panel using the molding as a guide.

Once completed, remove the protective film by pulling it back against itself along the panel.

FIGURE 5.

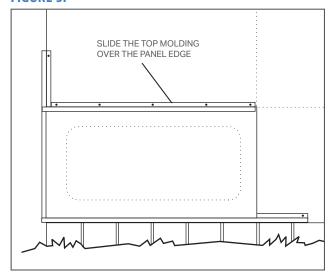


FIGURE 6.

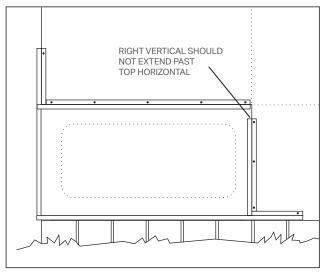
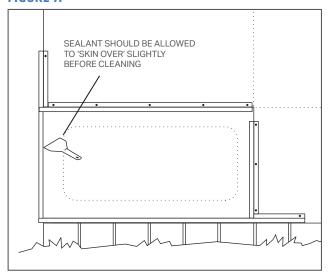


FIGURE 7.

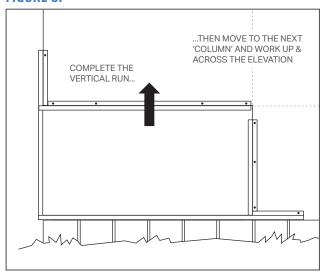


☐ STEP 8: MOVING UP AND ACROSS THE ELEVATION

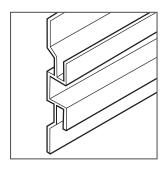
Once the first panel is installed, repeat the work sequence and move vertically in the grid. Upon completion of the first column, move again to the bottom of the elevation and begin at the next column.

Each individual application may vary depending upon layout. However, moving vertically across the elevation requires the least amount of setup and may prove the most efficient use of scaffolding and/or power lifts.

FIGURE 8.

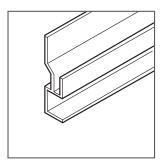


ONE PIECE EXTRUDED ALUMINUM MOLDINGS



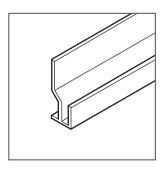
CR-AX1 HORZ/VERT

Height: 3-1/8" (79mm) Reveal: 1/2" (13mm) Length: 12'-6" (3810mm)



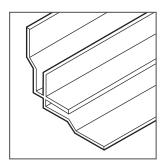
CR-AX2 PERIMETER J

Height: 1-/8" (48mm) Reveal: 1/2" (13mm) Length: 12'-6" (3810mm)



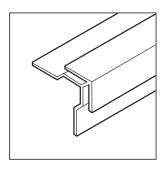
CR-AX3 PERIMETER J

Face Leg: 1/2" (13mm) Height: 1-3/8" (35mm) Length: 12'-6" (3810mm)



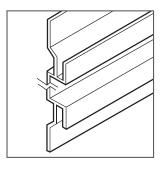
CR-AX4 I/S CORNER

I/S Legs: 1/2" (13mm) Height: 1-5/8" (41mm) Length: 12'-6" (3810mm)



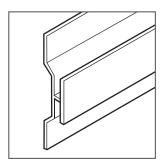
CR-AX5 O/S CORNER

O/S Legs: 1/2" (13mm) Height: 1-1/2" (38mm) Length: 12'-6" (3810mm)



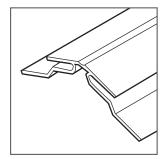
CR-AX6 HORZ/VERT

Height: 5-5/8" (143mm) Reveal: 3" (76mm) Length: 12'-6" (3810mm)



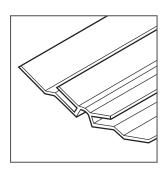
CR-AX7 HORZ/VERT

Height: 2-1/2" (64mm) Face: 1" (25mm) Length: 12'-6" (3810mm)



CR-AX8 ADJ O/S CORNER

O/S Legs: 3/4" (19mm) Adj Range: 100° to 155°



CR-AX9 ADJ I/S CORNER

Height: 1/2" (13mm) Face: 100° to 155°

TOOLING & EQUIPMENT

RECOMMENDED TOOLING:		RECOMMENDED EQUIPMEN	T:
Measuring/Marking: □ Tape Measure (16' minimum) □ Laser/Handheld Level (4' minimum) □ Chalk Line □ Plumb Bob □ T-Square □ Framing Square Hand Tools: □ Framing Hammer	☐ Caulking Gun ☐ Box Knife ☐ Metal File ☐ Metal Snips Power Tools: (carbide tipped blades) ☐ Table Saw ☐ Circular Saw ☐ Miter/Chop Saw ☐ Jigsaw ☐ Power Drill	Safety: Safety Glasses Work Gloves Dust Mask Hearing Protec Fabrication: Sawhorses Scrap Sheets G Plywood (3/4") Clamps (with co	Power Lift Plastic/Canvas Cover(s) CleanUp: Mild Detergent Mineral Spirits Non-Marring Scraper
(non-marring tip) □ Rubber Mallet	☐ Screw Gun	☐ Plastic/Wood S	Shims

Note: Depending upon your installation, some items may be optional.

MECHANICAL FASTENERS

ITEM #	DESCRIPTION	APPLICATION
S-1000 CLIMASEAL SCREW	Length: 1" (25mm) Pieces Per Box: 500 Weight: 2 lbs.	Fastening the panel to metal framing
S-1580 CLIMASEAL SCREW	Length: 1-5/8" (41mm) Pieces Per Box: 500 Weight: 2 lbs.	Fastening the panel to metal framing
S-1001 HI-LO SCREW	Length: 1-5/8" (41mm) Pieces Per Box: 500 Weight: 2 lbs.	Fastening the panel to wood framing

Small nails or brads (available at a local hardware store) may be used for temporarily attaching the plastic receivers to the substrate. Note: Fasteners shown actual size.

SEALANTS, ADHESIVES AND TOUCH-UP

ITEM#	DESCRIPTION	APPLICATION
5000 CONSTRUCTION ADHESIVE Franklin Titebond™ Heavy Duty	Tube Size: 10.5 oz. (approx. 12 lineal ft. per tube at a 3/8" bead)	Along with mechanical fasteners, the panel is adhered to the substrate/stud framework using construction grade adhesive.
5002 SEALANT Tremco° Spectrem° 2	Tube Size: 11 oz. (approx. 30 lineal ft. per tube at a 1/4" bead)	Proper application of approved sealant is critical to the integrity of the panel system. Failure to do so will void the product warranty.
5003-D DOUBLE SIDED TAPE	1/8" x 1" x 54' roll	As an alternative to construction adhesive, double sided tape may be used in some applications to adhere the panel to the substrate.
PA-46 POLYESTER TOUCH-UP PAINT	Container: 7 oz.	During installation, minor scratches, abrasions, and/or dings may occur. If necessary, repairs can be performed using small bottles of color matched paint. Touch-up paint should not be used for painting large areas or trim.

