Installation Guidelines

Deep Reveal System (D-RV)

PAC-CLAD PETERSEN
A CARLISLE COMPANY

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

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.

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.

NOTE:

Some applications of the PAC-4000 D-RV system may incorporate some moldings from the 'standard' RV system. Please refer to those guidelines for additional information.

TECHNICAL ASSISTANCE

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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:

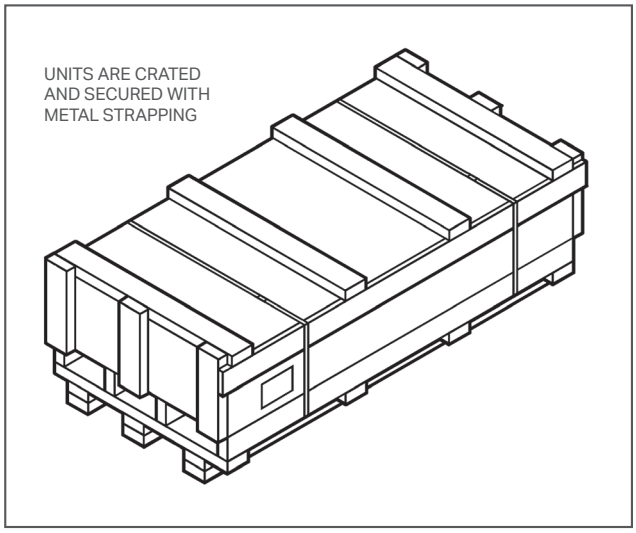
After verifying the condition of the product, inventory units against the packing slip to make sure that all material (including molding and accessory units) is received.

- ☑ **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:

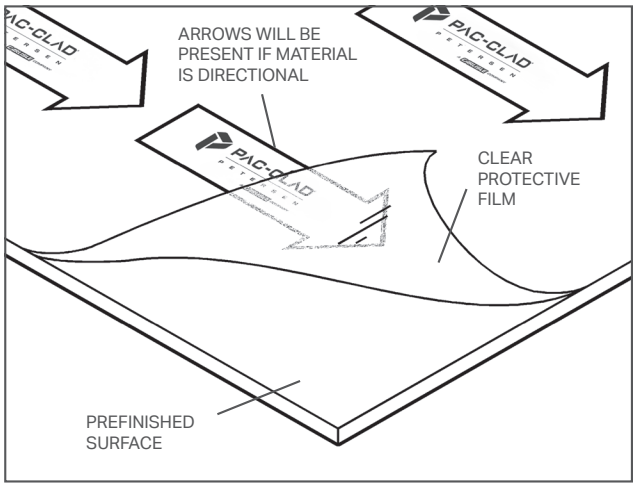
PAC-4000 is packaged from the manufacturer in quantities of 40 pieces (or less) per unit, under cover and secured with metal strapping **(FIG. A)**. If possible, panels should remain in this original packing for transport.

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.

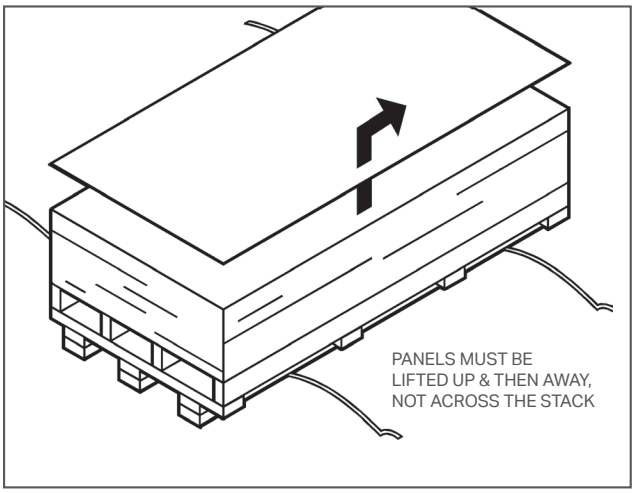
FIGURE B.



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 construction 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.

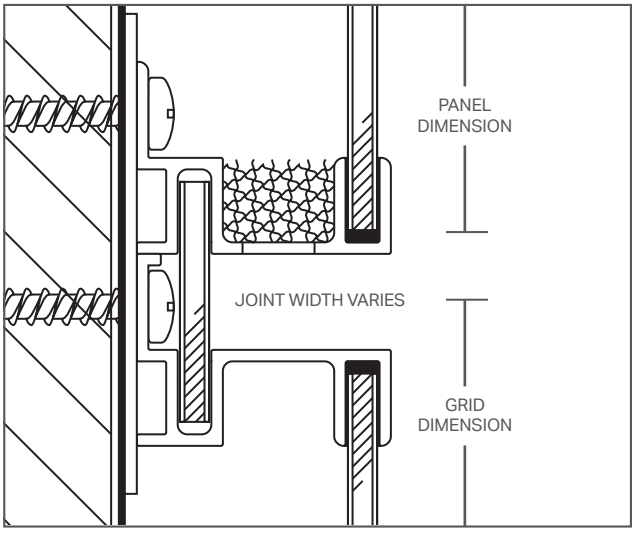
If there are no drawings to work from, measure and verify all field dimensions and develop a pattern to maximize appearance and minimize fabrication. Consideration for aesthetics should be made in locating odd sized panels.

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 width.

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

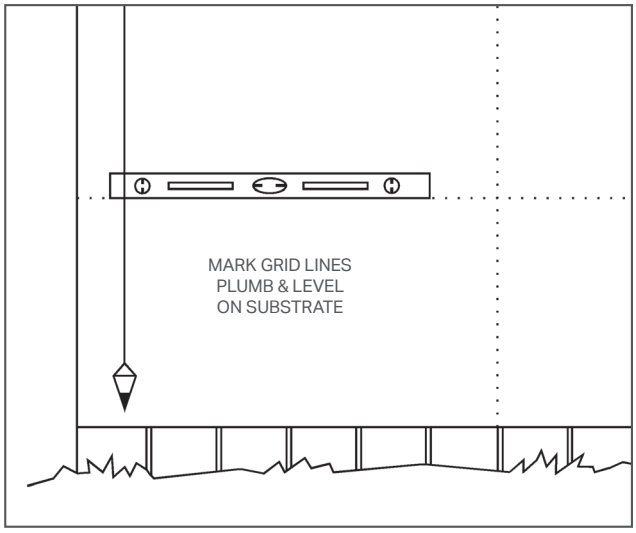
ALIGNING & MARKING THE GRID:

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.

FIGURE F.

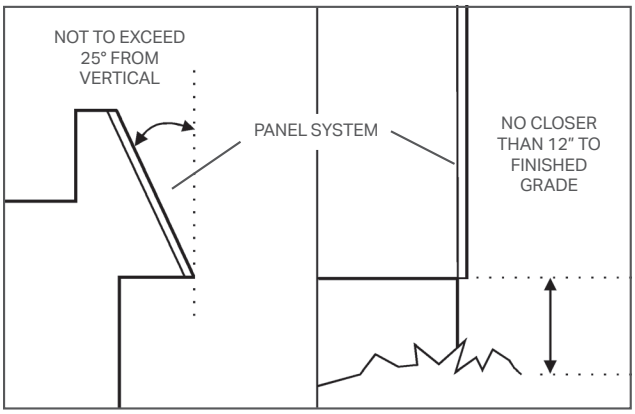


GENERAL WORK: LIMITATIONS OF THE PANEL SYSTEM

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.

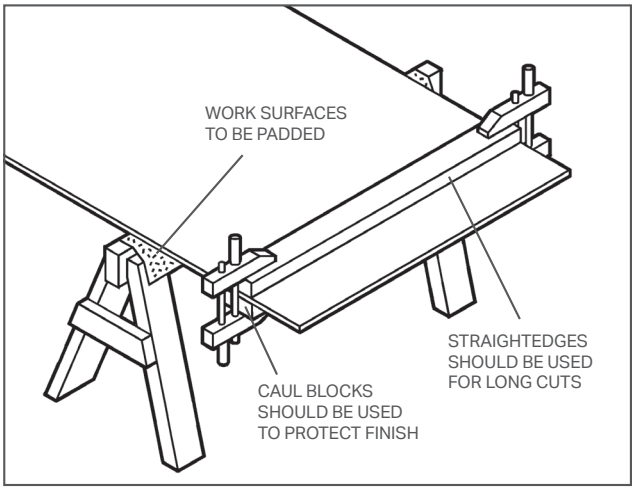
NOTE:

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:

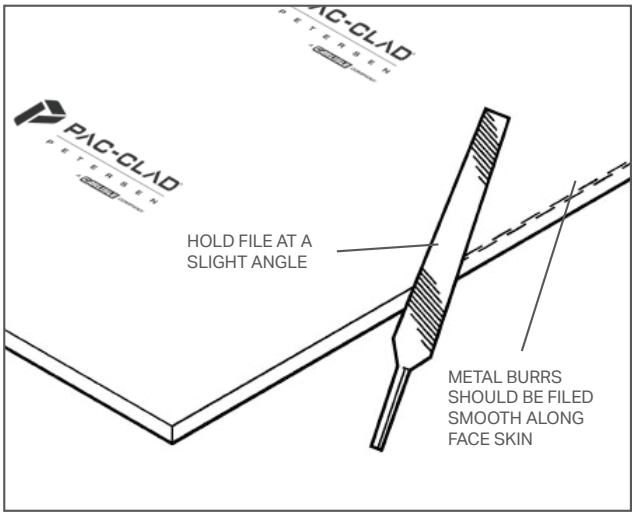
Cut-to-size panels are available from the manufacturer. When field cutting is required, it may be performed using standard carpentry tools equipped with carbide-tipped blades. Work surfaces should be padded **(FIG. H)** and free from any debris which may damage the finish. For cleaner cuts, backer blocks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

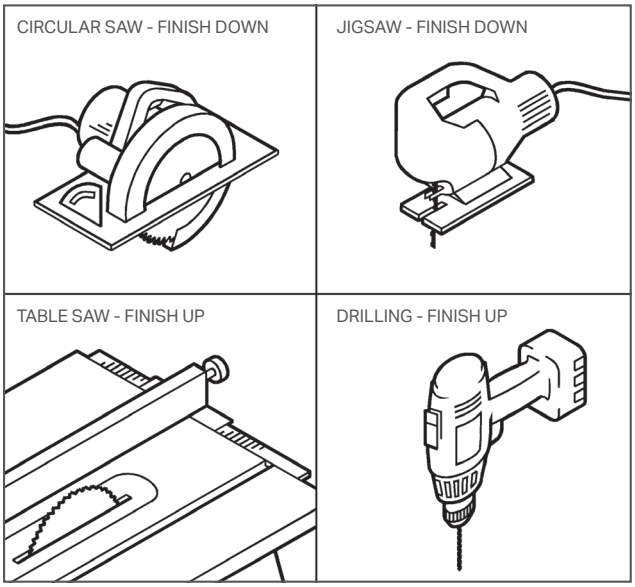
FIGURE I.



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.

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.

GENERAL WORK: INSTALLING WEEP HOLES

In order to allow incidental moisture to escape the system, weep holes must be placed within the bottom extrusion (CRAX-10) of each panel.

These holes should be approximately 1/4" x 3/4" and should be located at least 3" to 5" from the molding end. A minimum of 2 holes per panel is required.

MAKING THE WEEP HOLES:

There are various methods of producing these holes. One of which is drilling multiple 1/4" holes and then "connecting" these holes by filing down the points to make one elongated oval.

However, the preferred and recommended method is to use a table-mounted router with a spiral drilling bit.

Begin by setting the fence on the router table to the correct position (so that the hole ends up centered in the bottom of the extrusion). Then, establish starting and stopping points for the weep hole. Transfer these marks onto the fence or table as a guide (a field made jig may also help for repetitive cuts). Lower the molding onto the bit staring in the middle of the hole. Then move the molding forward and backward to elongate the hole to the proper length.

PLACING THE BAFFLE MESH:

Once the weep holes have been cut, a baffle mesh must be applied to the back side of the moldings to prevent insects from entering the panel cavity. Simply cut and place a small section of mesh and put in over the hole using two small dabs of sealant to hold it in place.

GENERAL WORK: PROPER SEALANT APPLICATION

The PAC-4000 D-RV system is a 'rainscreen' principle attachment method designed to keep water away from the structural wall assembly. As such, any incidental moisture that enters the system is allowed to escape through a serious of weep holes and channels.

Therefore, the main panels are sealed into place using a silicone sealant while the smaller accent strips are allowed to 'free float' in place.

NOTE:

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

SELECTING THE RIGHT SEALANT:

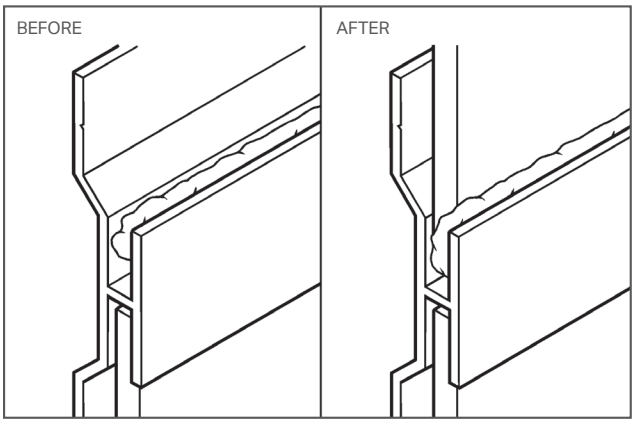
In order for the proper bond to be created between the sealant and the system components, be sure to use only the sealant recommended by the manufacturer.

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:

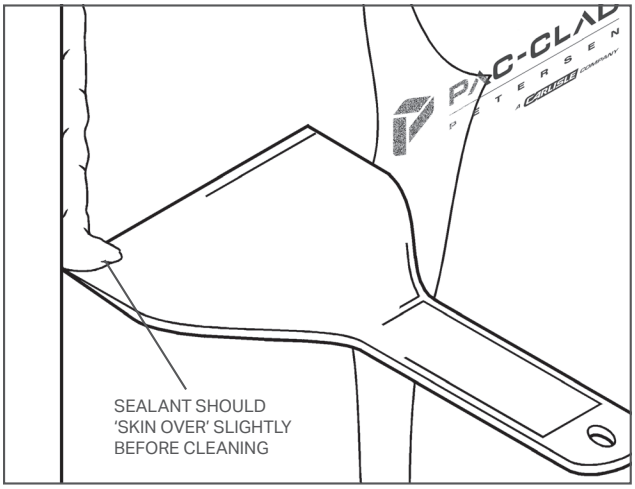
In general, sealant should be liberally applied wherever water may be able to infiltrate the system (e.g. joints, molding splices, dissimilar material abutments, etc.). The only exception to this rule is the accent strips located between the panels.

FIGURE M.



The sealant should fill enough of the molding channel **(FIG. M)** so that squeeze out will occur when the panel is inserted. Excess sealant may be cleaned up **(FIG. N)** after it 'skins over' (approx. 45 minutes) using a non-marring scraper, a clean rag, 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.

When required, a bead of adhesive must be placed on each hat channel 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. The bead should be large enough to ensure proper contact with the back of the panel.

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 characteristics 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, RainScreen Principle 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:
- #10 TEK Screw (or equivalent)

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"-16" along length of molding

ADHESIVE:
- Franklin Titebond™ Heavy Duty Construction Adhesive

SEALANT:
- Tremco® Spectrem® 2
  The panels within the system must be properly sealed against moisture for the warranty to remain valid. The accent strips are not sealed in but rather 'free float' within the channel.

☐ STEP 1: INSTALLING WEEP HOLES IN THE LOWER HORIZONTAL MOLDINGS

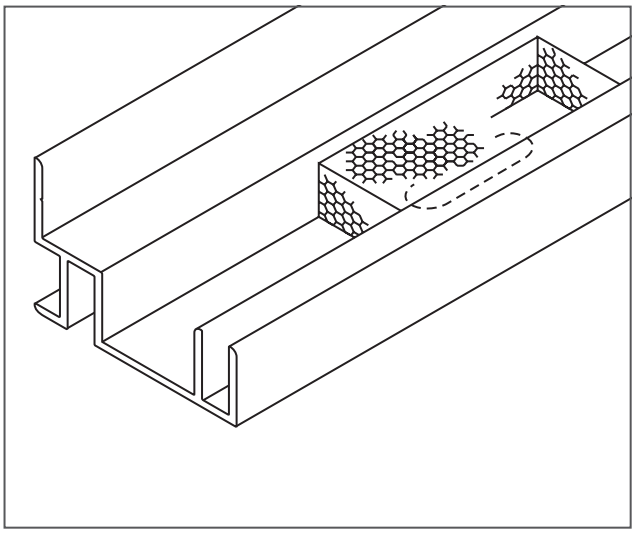
This system is designed to serve as a 'rainscreen principle' cladding. Therefore, weep holes must be installed within each bottom horizontal molding (CRAX-10) to allow any incidental moisture that may enter the system to escape.

This weep hole may be placed into the molding in a variety of ways (consult the general guidelines for more information).

Each panel should have a minimum of 2 oval shaped (not round) weep holes at least 3" to 5" from the edge of the panel. Consideration for appearance should be taken when laying out the holes.

Once these holes are made, place the baffle mesh over the hole from the inside and use small dabs of silicone to keep it in place.

FIGURE 1.



☐ STEP 2: ATTACHING THE BOTTOM HORIZONTAL & THE LEFT VERTICAL MOLDINGS

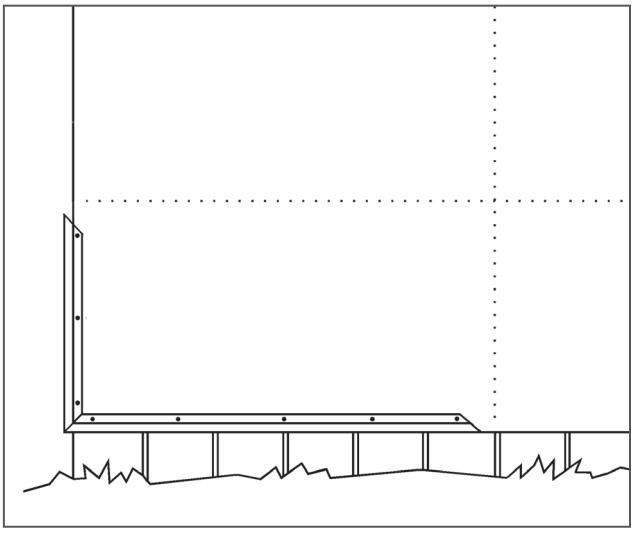
The next step in the work sequence is creating an 'L' shaped pocket into which the panel will be placed.

In order to move the installation up, and then across the elevation, the first two moldings (both CRAX-10) to be attached are the bottom horizontal and the left vertical **(FIG. 1)**. If working from right to left, the bottom and right vertical will be CRAX-10s.

Miter the moldings as needed and then fasten them to the substrate every 12"-16".

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

FIGURE 2.

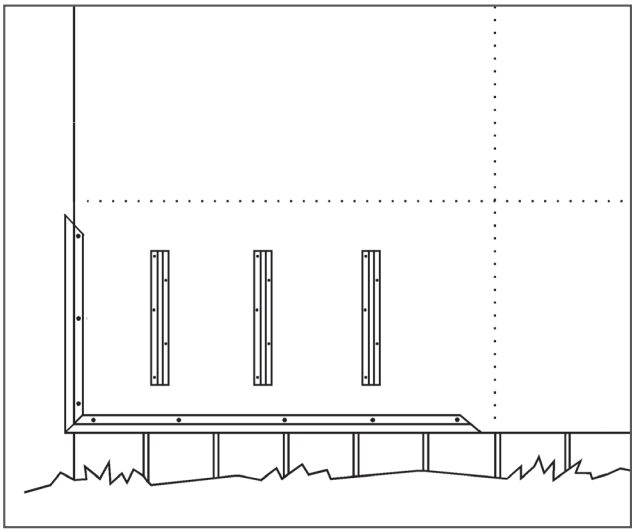


☐ STEP 3: FASTEN THE HAT CHANNELS TO THE SUBSTRATE IN THE FIELD OF THE PANEL

Hat channels are required 16" to 24" o.c. at each intermediate location. Therefore, one or more may be required for each panel.

Cut the required hat channels to 2/3 the height of the panel and mechanically fasten them to the substrate (or through the substrate to the studs if the substrate is a non-nailable type). Fasteners should be located every 8"-12" **(FIG. 2).**

FIGURE 3.



☐ STEP 4: PREPARING THE PANEL AND APPLYING THE SEALANT

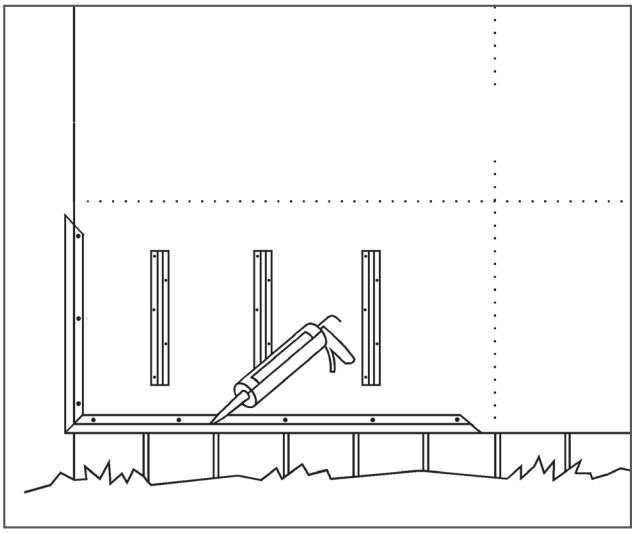
Begin by cutting the panel to the proper dimension with allowance made for expansion/contraction. Peel the protective film away from all four edges of the panel. Do not remove it completely at this point.

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)**.

FIGURE 4.



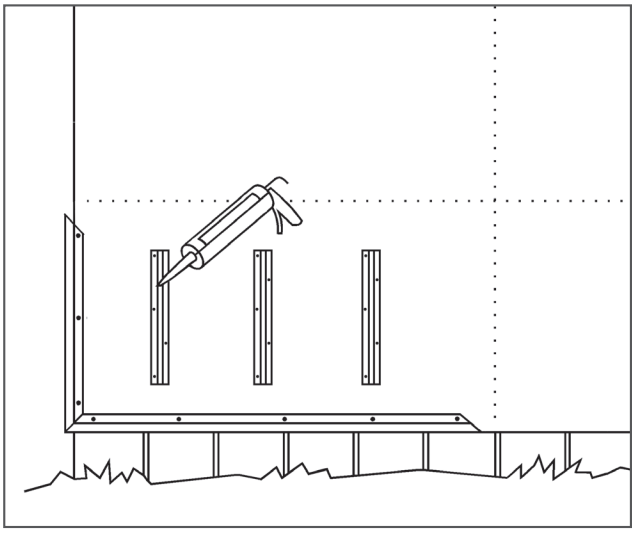
☐ STEP 5: APPLYING THE PANEL ADHESIVE

Place a large bead of adhesive (enough to ensure proper contact with the back of the panel) onto the face of each hat channel.

NOTE:

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

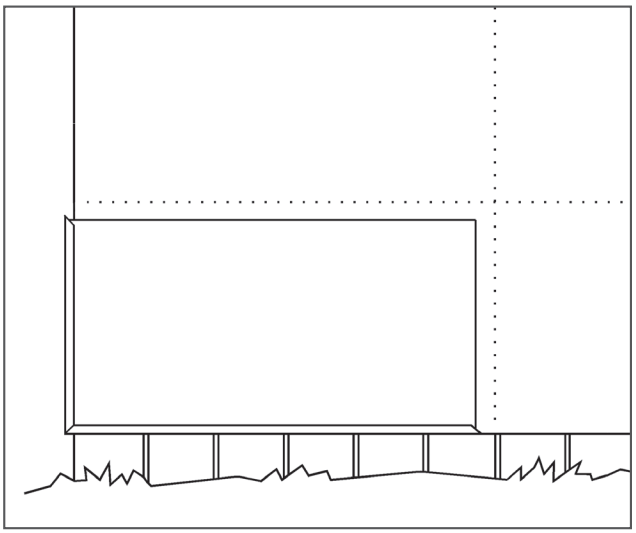
FIGURE 5.



☐ STEP 6: INSERTING THE PANEL INTO THE MOLDING CHANNELS

Insert the panel into the moldings (a non-marring scraper may assist you in guiding the panel into the channel). If the correct amount of sealant was 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.

FIGURE 6.



☐ STEP 7: APPLYING THE NEXT TWO MOLDINGS

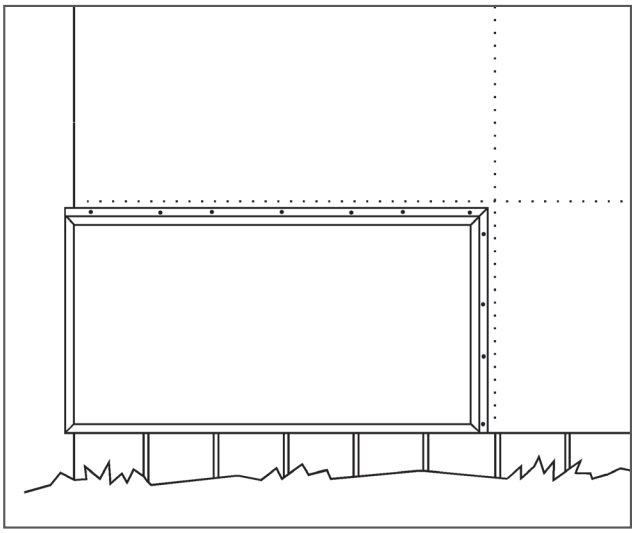
After preparing (cutting, applying sealant), the top horizonal and the right vertical should be slid over the top of the panel and then fastened to the substrate **(FIG. 6)**.

Be sure the proper allowances are made for expansion/ contraction of the panel.

NOTE:

Since the panel is 'picture framed' by the moldings, it may be easier to cut both moldings and then slide both moldings over the panel edge before fastening. This will allow for minor adjustment at the corners.

FIGURE 7.



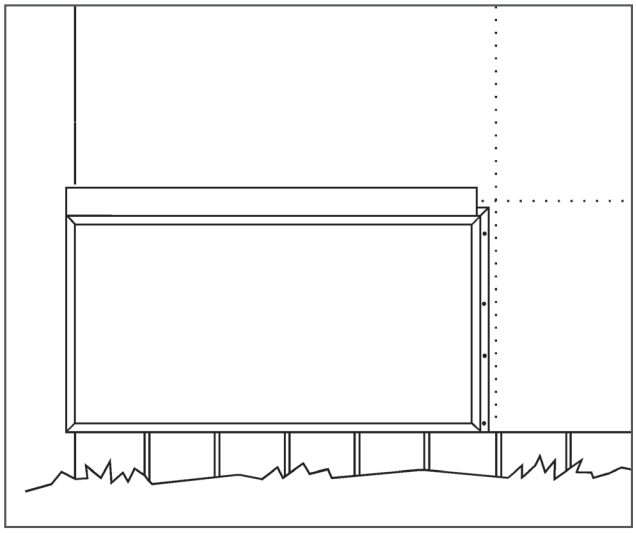
☐ STEP 8: INSERTING THE ACCENT STRIPS

Depending upon the desired joint width, cut a piece of panel or 'accent strip' (taking into account the amount that will be slid into the molding channel).

Insert the accent strip into the channel of the molding.

NOTE:
Because the system is designed to serve as a rain-screen type system, the baffle strips are not sealed into place (with the exception being where they abut dis-similar materials at the end of a run). They are designed to 'free float' within the extrusion channel.

FIGURE 8.



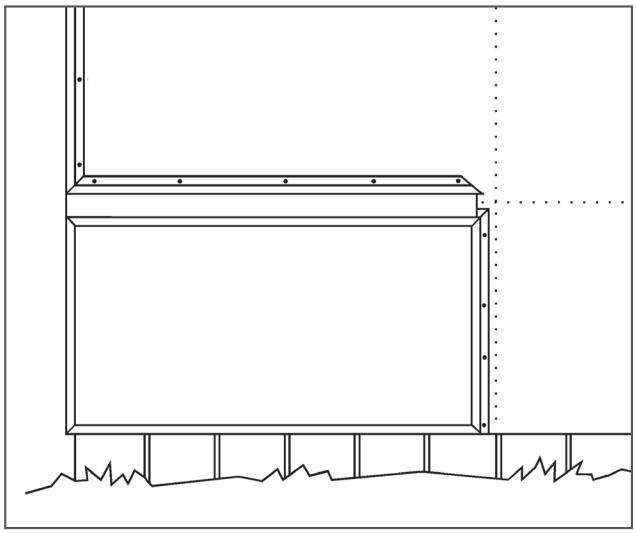
☐ STEP 9: MOLDINGS FOR THE NEXT PANEL

Once the baffle strip has been placed, the next panel in the series is ready to be installed.

Begin by preparing the molding, making the appropriate miter and then slide it over the baffle strip (no sealant). Then fasten the molding into place onto the substrate.

After the horizontal molding is fastened, cut and miter the left vertical and secure it to the substrate.

FIGURE 9.

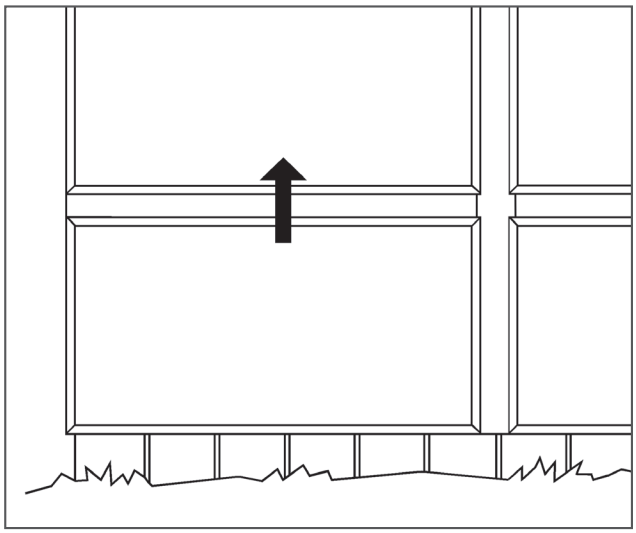


☐ STEP 10: MOVING UP AND ACROSS THE ELEVATION

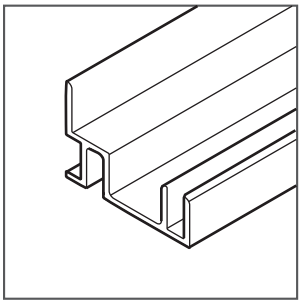
Repeat the previous steps to install the next panels in the sequence. Upon completion of the first column, move again to the bottom of the elevation and begin at the next column.

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 10.

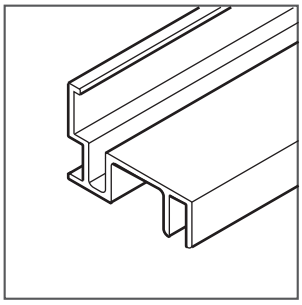


ONE PIECE EXTRUDED ALUMINUM MOLDINGS



CRAX-10 EXTRUSION

Height: 1-5/16" (33mm)
Face: 1/2" (13mm)
Length: 12'-6" (3810mm)



CR-AX-11 EXTRUSION

Height: 1-5/16" (33mm)
Face: 1/2" (13mm)
Length: 12'-6" (3810mm)

TOOLING & EQUIPMENT

RECOMMENDED TOOLING:

Measuring/Marking:
- ☐ Tape Measure (16' minimum)
- ☐ Laser/Handheld Level (4' minimum)
- ☐ Chalk Line
- ☐ Plumb Bob
- ☐ T-Square
- ☐ Framing Square

Hand Tools:
- ☐ Framing Hammer (non-marring tip)
- ☐ Rubber Mallet
- ☐ Caulking Gun
- ☐ Box Knife
- ☐ Metal File
- ☐ Metal Snips

Power Tools:
(carbide tipped blades)
- ☐ Table Saw
- ☐ Circular Saw
- ☐ Miter/Chop Saw
- ☐ Jigsaw
- ☐ Power Drill
- ☐ Screw Gun

RECOMMENDED EQUIPMENT:

Safety:
- ☐ Safety Glasses
- ☐ Work Gloves
- ☐ Dust Mask
- ☐ Hearing Protection

Fabrication:
- ☐ Sawhorses
- ☐ Scrap Sheets Of Plywood (3/4")
- ☐ Clamps (with cauls)
- ☐ Straightedge
- ☐ Plastic/Wood Shims

Jobsite:
- ☐ Scaffolding
- ☐ Power Lift
- ☐ Plastic/Canvas Cover(s)

CleanUp:
- ☐ Mild Detergent
- ☐ Mineral Spirits
- ☐ Non-Marring Scraper
- ☐ Clean Shop Rags

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

MECHANICAL FASTENERS

ITEM #	APPLICATION
#10 TEK SCREW 	Fastening the moldings to the substrate and/or stud framework.

SEALANTS, ADHESIVES AND TOUCH-UP

ITEM #	DESCRIPTION	APPLICATION
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.
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.
WEEP BAFFLE	7/8" x 1" x 152' roll	Placed inside of the bottom molding (CRAX-10), this baffle strip prevents insects from entering the cladding cavity through the weepholes.

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