

MDSI

Series 80

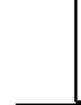
Rear Ventilated Progressive Rainscreen Installation Guidelines



**METAL
DESIGN
SYSTEMS**

**DESIGNED FOR
A PERFECT FIT.**

Metal Design Systems is pleased to offer an Installer's EDGE training course at our home office in Cedar Rapids, Iowa. This class is offered once a month free of charge to the installer. If you are interested in attending or would like more information, please contact MDSI via email at tech@crmdsi.com.

Part Number	Drawing	Description	Stock Length
8001		Male Perimeter	10'-0"
8002		Female Perimeter	10'-0"
8003		Zee Brace	10'-0"
8004		J-Trim .040 Break metal	10'-0"
8005		Inside Corner .040 Break metal	10'-0"
8006		Outside Corner .040 Break metal	10'-0"
8007		Window Trim .040 Break metal	10'-0"
8008		Sill .040 Break metal	10'-0"

Metal Design Systems, Inc. SERIES 80 Installation Guidelines

Required Equipment:

Forklift:

Typically crates are shipped directly to the job site from our fabrication facility via LTL carrier. This means that the crates will arrive in an enclosed trailer which will require either a dock and a fork lift or an extended reach forklift in order to unload the crates. The average crate size is 4' x 10', but they can be up to 5' x 16'. Large shipments can be delivered on flat bed trucks if prior arrangements are made.

Man-lift/Scaffolding/Ladders:

The terrain, accessibility, quantity of work on each area, and height of work will typically determine the type of lift equipment required to complete each project. The preferred option will usually be an all terrain scissor lift because they offer a larger platform allowing for more work space and fewer moves.

Work Table:

You will need a work surface to prep the panels for installation, cut penetrations or make field modifications. The table should be large enough to safely support the largest panels on the project and be covered with a long pile carpet to protect the panels from damage. Some installers prefer to build tables on site using the crating materials. This is perfectly acceptable provided that they are constructed in a sturdy fashion.

Power Tools:

10" or 12" miter saw with 80 tooth non-ferrous metal cutting blade for cutting extrusions; jig saw with plywood cutting blade for cutting penetrations in panels; router with carbide tipped flat point V-bit; drill and various sized drill bits; screw gun with 5/16" hex head driver and #2 Phillips bit.

Hand Tools:

Pop-Rivet gun; rubber mallet; single-cut metal file; countersink bit; hole saw kit for penetrations; caulk gun; utility knife; single edge razor blades; tin snips; flat blade screw driver; tape measure; 4 foot level; torpedo level; (a laser or sight level can be very helpful for layout depending upon the complexity of the project); chalk line; safety glasses; work gloves and hearing protection.

Supplies:

Always have an ample supply of fasteners in various sizes; plastic horseshoe shims in 1/4", 1/8" and 1/16" thicknesses; silicone sealant in the appropriate color; waterproof tarps to cover the crates and shop rags.

Crew Size:

A crew size of three typically works best in most cases. This allows for two in the lift handling and installing the panels on the wall and one on the ground prepping panels, cutting and drilling extrusions, and for general ground support.

Unloading:

Prior to unloading the crates from the delivery truck, inspect the crates for damage.

Note: Report any damage to the carrier and note the damage on the shipping tickets. The receiver must make all claims for damage through the carrier upon receipt. Metal Design Systems, Inc. is not responsible for any damage after the product leaves the factory.

Unload the material one crate at a time, know and follow all safety rules. Use the proper equipment for the weight being unloaded. If unloading with an overhead crane, use a spreader bar and nylon slings, do not "choke" the crates. Do not attempt to lift the crates by hand, drag, drop or stack the crates.

Inspection and Inventory:

Shipping damage should be noted on the Bill of Lading and then reported to Metal Design Systems.

Note: The customer is responsible for filing a claim for freight damage with the shipping company within 24 hours of receipt. Failure to do so may result in forfeiture of the right to receive corrective action.

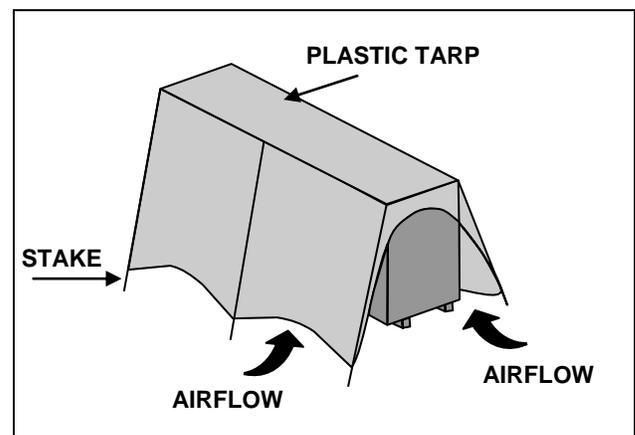
After verifying the condition of the product, inventory the panels and miscellaneous items and compare against the packing slip to ensure that all material is received.

Note: Notify Metal Design Systems immediately if the quantities received do not match the packing list. Failure to do so may result in forfeiture of the right to receive corrective action.

Storage:

Store crates in a clean dry place. If the crates are to be stored outside, cover the crates to protect from the elements and ventilate to minimize heat build up. **(Figure 1)** At the end of each work day, place loose panels back into the open crates, secure the panels, and cover the crate.

Figure 1



Shake Out:

Crate #1 will have a set of shop drawings revised to reflect field measurements and indicating panel part numbers and locations. Each crate will have a packing slip indicating the part numbers and quantities of the panels enclosed. At this time it may be beneficial to boldly write the contents of

each crate on the outside for future reference. If possible, strategically place each crate in a location convenient to the final destination of its contents.

Handling Individual Panels:

When removing panels from the crate, always take care to lift and clear other panels and sidewalls of the crate. **(Figure 2)** Never slide or drag panels out of their location. When carrying a panel, always carry it “on edge” and never flat. **(Figure 3)** Always be aware of your surroundings and take special care when handling panels that have intermediate routs or panels that have welded connections. Do not place the panels in any position that will cause the panel face or edges to come into contact with any surface that will cause damage to the protective film or panel finish. The protective film is designed to prevent minor abrasions. Extreme care should still be taken to avoid dents and scratches.

Figure 2

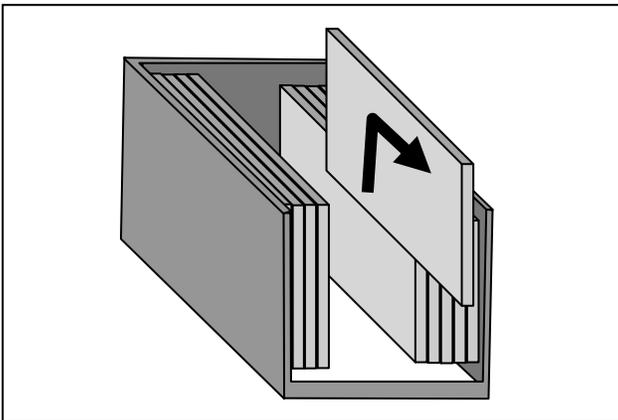
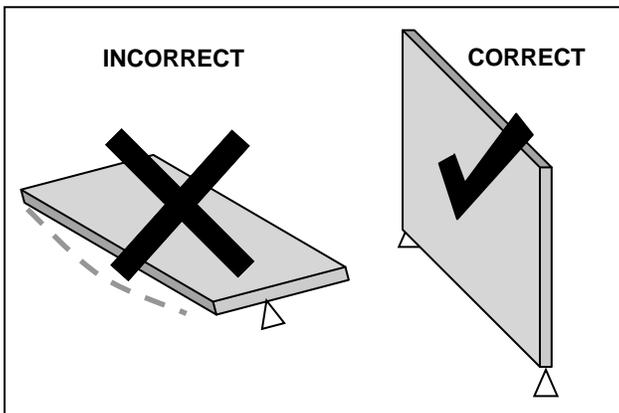


Figure 3



Substrate/Job Inspection:

Inspect the area that is to receive the panels to ensure that all work is complete and satisfactory. All substrates, weather barriers, penetrations, doors, windows, and any other adjacent materials should be in place and cleaned prior to proceeding with panel installation.

Note: Acid wash used for cleaning masonry will cause permanent damage to the panels.

Ensure that all surfaces are plumb, level, square, true, dry and free from defects. Do not begin installation until all unsatisfactory conditions have been corrected.

Installing Flashing & Weather Barrier:

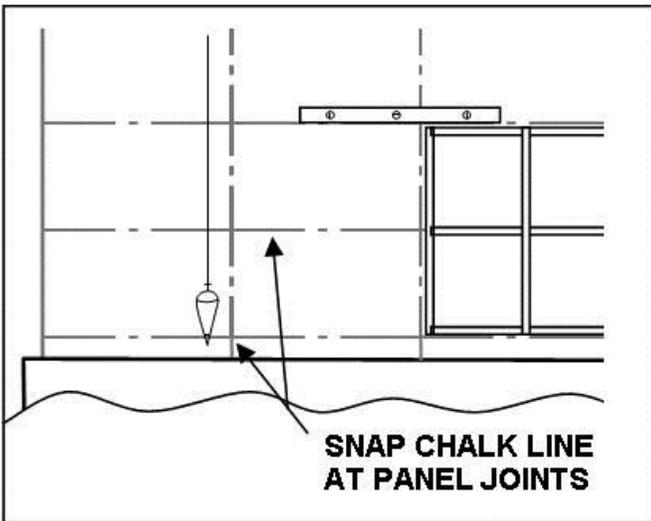
Install flashing using standard sheet metal practices and procedures, ensuring that all joints and seams are weather lapped and sealed. For the weather barrier, follow manufacturer’s written instructions for proper installation. Integrate weather barrier and flashing to allow proper drainage of any moisture that may enter or accumulate within the panel system. At this point the wall should be weather tight.

Note: This wall panel system is a “Rain Screen” system and is not designed with the intent to be weather tight. Therefore it requires an air and water barrier which shall be considered the primary weather seal. Water will come in contact with the weather barrier and it shall be installed in accordance with the manufacturer’s instructions, in order to seal all seams, penetrations, fasteners and flashing integrated with the barrier to properly drain, evacuate and dry any moisture that might come in contact with it.

Layout:

Reference the revised shop drawings and locate key components for panel system alignment (i.e. windows, doors, window mullions or other items that are critical to joint locations) and begin layout from these locations. Snap chalk lines at the center of each panel joint making sure that all lines are level and plumb. **(Figure 4)** This will help to control panel gain or loss over a long run. If the panel system is to be installed over a gypsum board substrate, locate all framing members to ensure that all fasteners engage a structurally sound member.

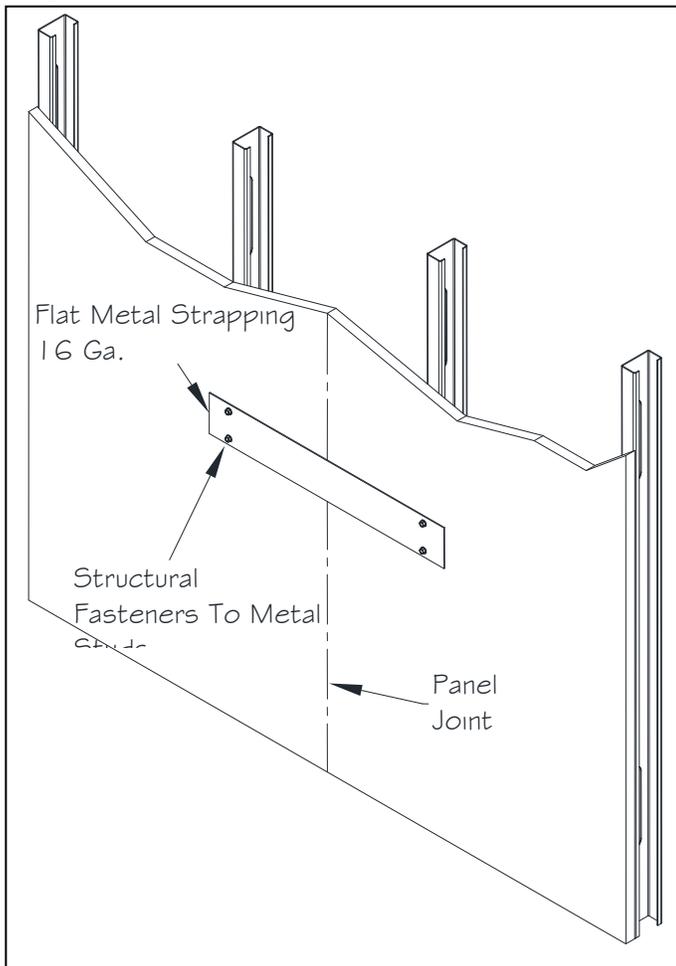
Figure 4



Note: If installing over gypsum board substrate, installer will be required to install flat metal strapping across and attached to at least two studs.

(Figure 5)

Figure 5



Installing Sub-Frame System Metal Design Systems Series 80

Setting up:

Locate work table and miter saw in a safe and convenient location relative to the installation area. Locate and unpack the crate with the sub-frame members, anchors and hardware.

Metal Design Systems, Inc. recommends a minimum #12, 300 series stainless steel self-tapping fasteners for applications into steel or aluminum and #12, 300 series stainless steel T17 point fasteners for wood substrates. The recommended maximum spacing is 16" on center. Please reference the project specific details for fastener type and spacing requirements.

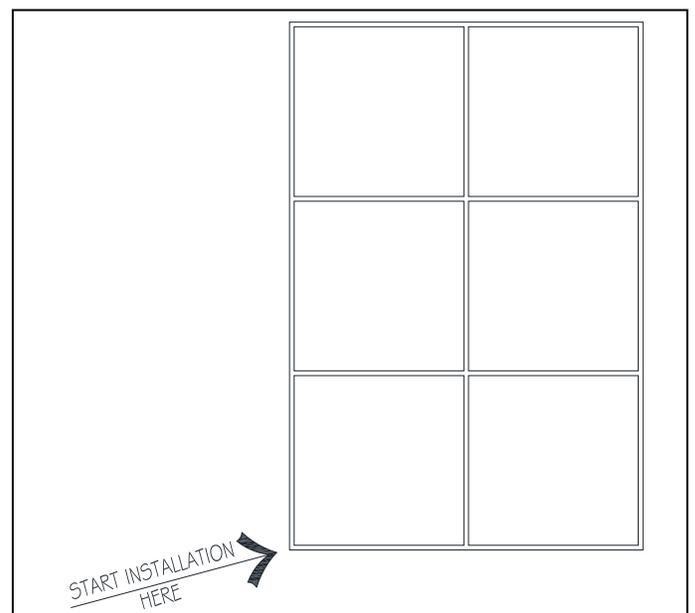
If system is applied directly over a gypsum board substrate, ensure that the fasteners are located and of sufficient length to properly engage a structural member. Wood screws require a minimum of 1" penetration into the wood and tek screws require a minimum of 3 full threads extending past the back side of the metal.

Installing Starter Extrusions PN 8001:

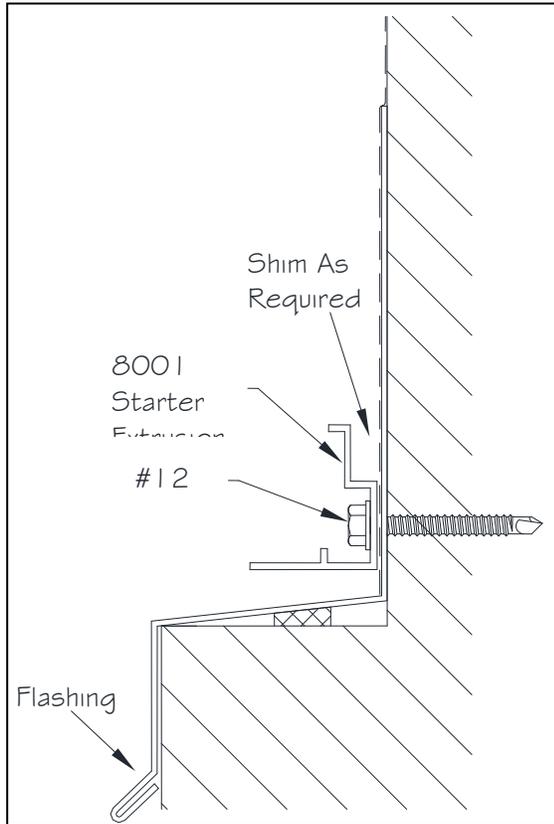
Most installation sequencing will start at the bottom left and work up and right. Some cases will dictate different sequencing. Check your project shop drawing for start locations and work directions.

(Figure 6)

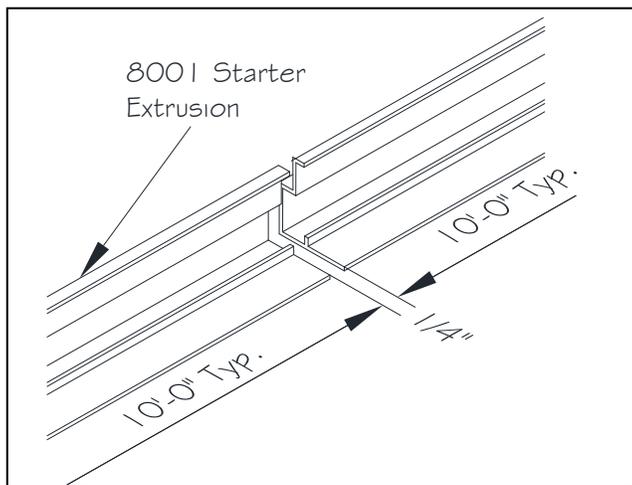
Figure 6



Start by installing the sill starter extrusion. Install level and true to line using # 12 tek fasteners. **(Figure 7)** Check project specific shop drawings for recommended fastener spacing. Figure 7

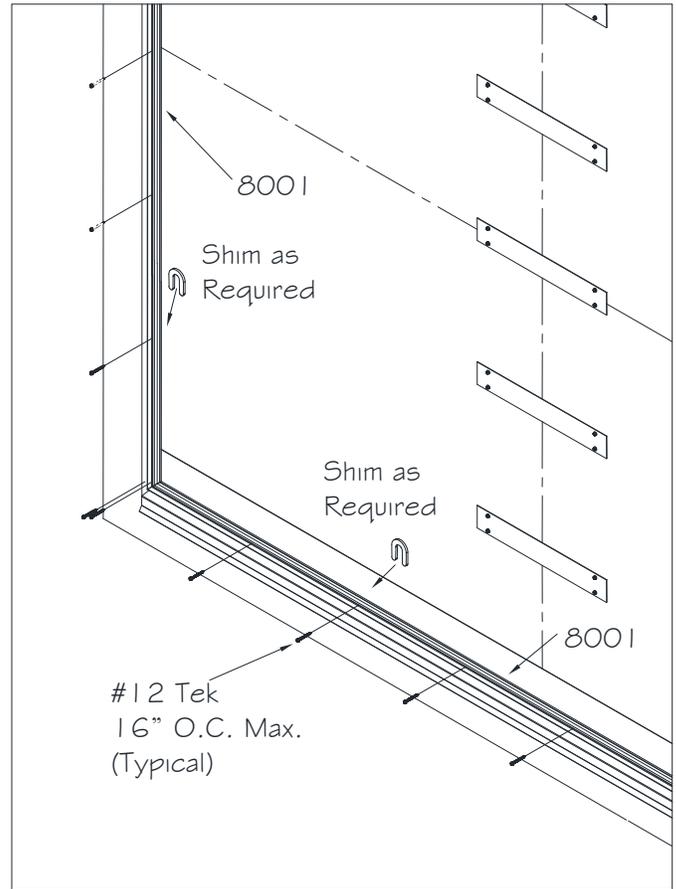


Gap the butt ends of the extrusions $\frac{1}{4}$ " for every 10' length of extrusion to allow for thermal movement. **(Figure 8)** Figure 8



Install jamb starter extrusions. Install plumb and true to line using # 12 tek fasteners. **(Figure 9)** Check project specific shop drawings for recommended fastener spacing. If project details

indicate backer rod and sealant between starter extrusion and the interfacing material, install it at this time in order to prevent having to mask off the panels if you caulk after they are installed. Figure 9



Installing Panels Metal Design Systems Series 80

Setting up:

Locate work table and miter saw in a safe and convenient location relative to the installation area.

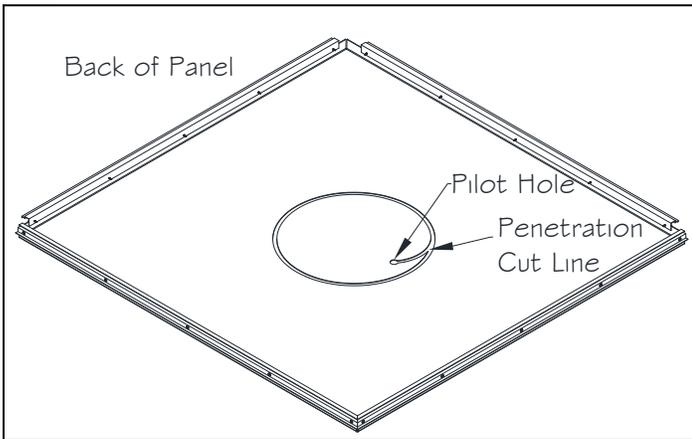
Panel Prep:

Remove panel from crate and inspect again for damage. If penetrations need to be cut in the panel it should be done at this time.

Cutting Penetrations:

Verify location and size of penetration. Mark penetration on the back of the panel and drill a pilot hole within the penetration large enough for a jig saw blade. Cut the opening from the back side of the panel using a variable speed jig saw with a fine tooth metal cutting blade. **(Figure 10)** Smooth the cut with a single cut metal file.

Figure 10

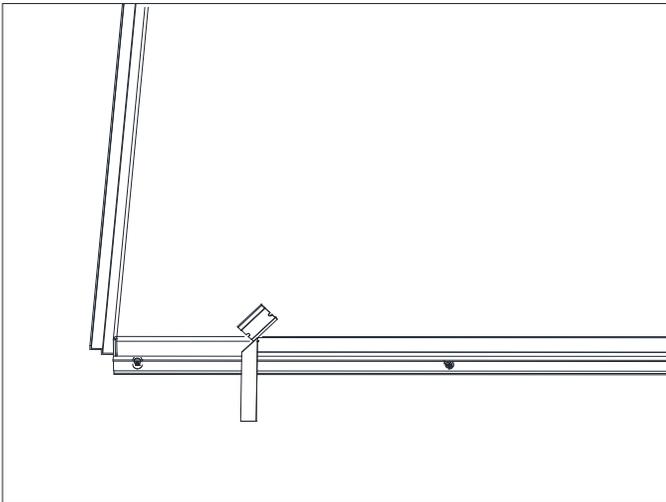


Note: If the object penetrating the panel does not have a weatherproof escutcheon, you will need to caulk around the penetrating object.

Place the panel on the work table and peel back the protective film from the panel return legs. Trim off the loose film using a single edge razor blade taking care not to scratch the panel finish.

(Figure 11)

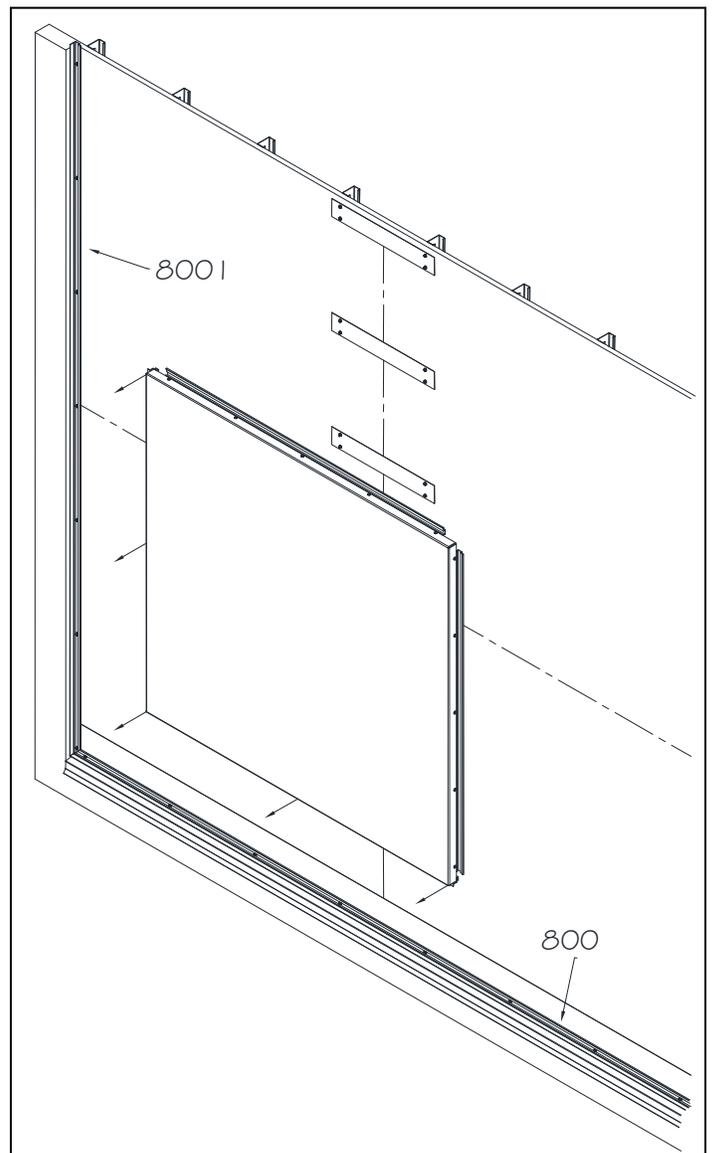
Figure 11



Setting panels:

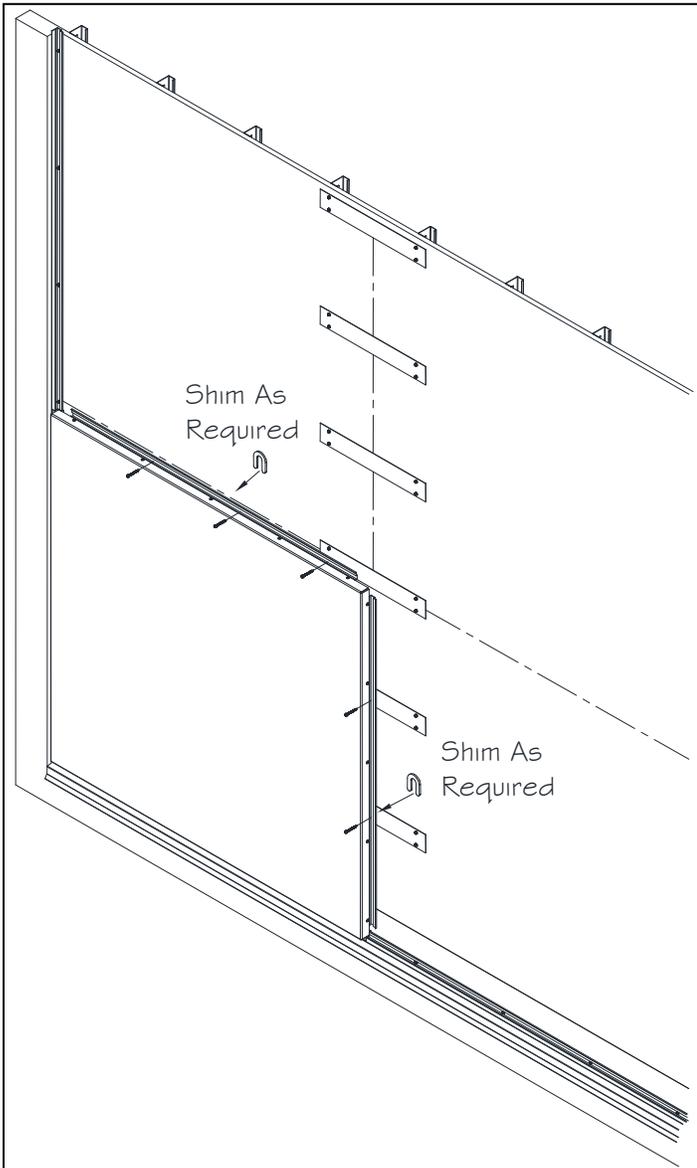
Starting at the location recommended on the shop drawing, engage the edges of the panels with the 8002 extrusions over the pre-installed 8001 extrusions. **(Figure 12)**

Figure 12



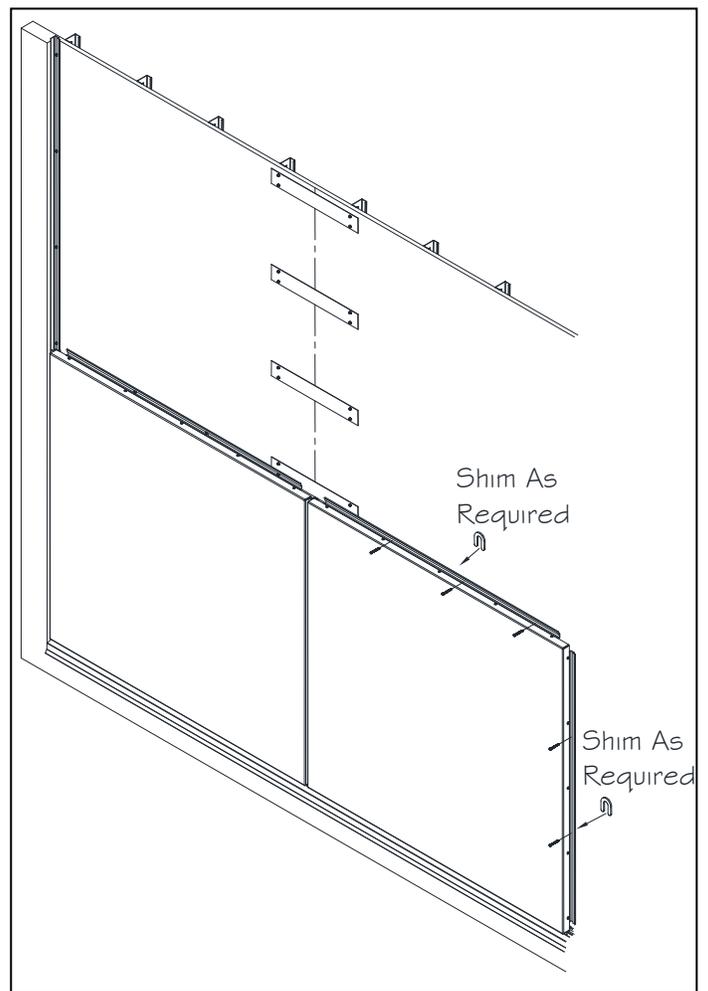
Shift the panel to align the witness groove in the leading edge extrusions with the joint centerline established earlier. Shim the panel as necessary to ensure the panel is level and plumb. Then fasten the panel through the leading edge extrusions at the witness groove using #12 fasteners. Maintain a maximum fastener spacing of 16" on center. **(Figure 13)**

Figure 13



Engage the next panel over the perimeter 8001 extrusion and the 8001 extrusion of the previous set panel. Continue to shim and fasten the leading edges of the panels as previously stated, working towards the terminating end of the panel system. **(Figure 14)**

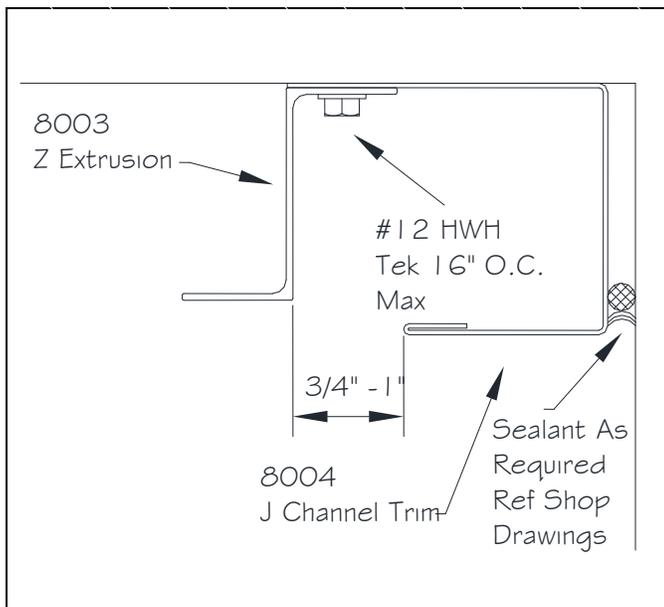
Figure 14



Prior to setting the last panel of the course, install the 8004 J Channel Trim. Temporarily secure the J Trim into position using a minimum number of fasteners.

Cut a length of 8003 Z extrusion approximately 3" short of the panel face dimension. Position the 8003 Z onto the J Trim and approximately to center the length on the panel face and $\frac{3}{4}$ "-1" away from the exposed edge of the J Trim. Secure it through the J Trim using #12 tek fasteners at 16" on center. **(Figure 15)**

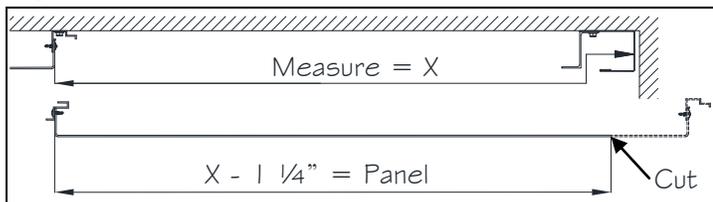
Figure 15



To determine the cut length of the last panel of the row, measure the distance from the edge of the last installed panel to the inside face of the J Channel Trim. Subtract 1 1/4\"

(Figure 16)

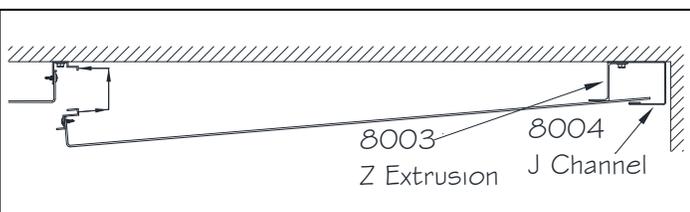
Figure 16



Slip the cut edge of the panel between the Z extrusion and the J Channel and rotate the back edge into alignment with the other panels. Align the 8002 extrusions of the new panel with the 8001 extrusions of the previously installed panels. Shift the panel back and down to engage the extrusions until the panel edges align with the other panels and the layout lines.

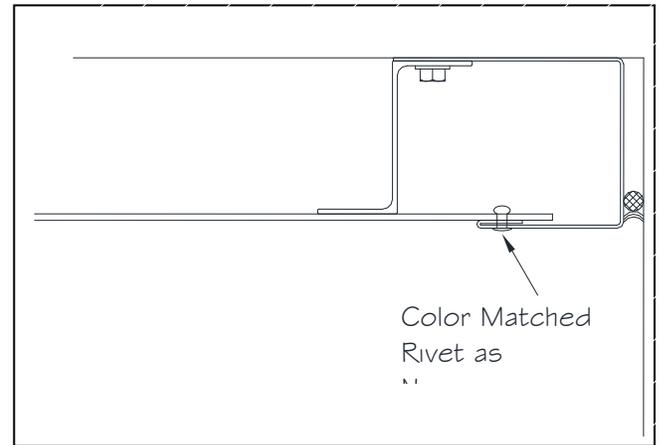
(Figure 17)

Figure 17



Shim the panel as necessary and fasten through the top edge extrusion using the #12 fasteners. If necessary, color matched rivets can be used to secure the panel to the J Channel. (Figure 18)

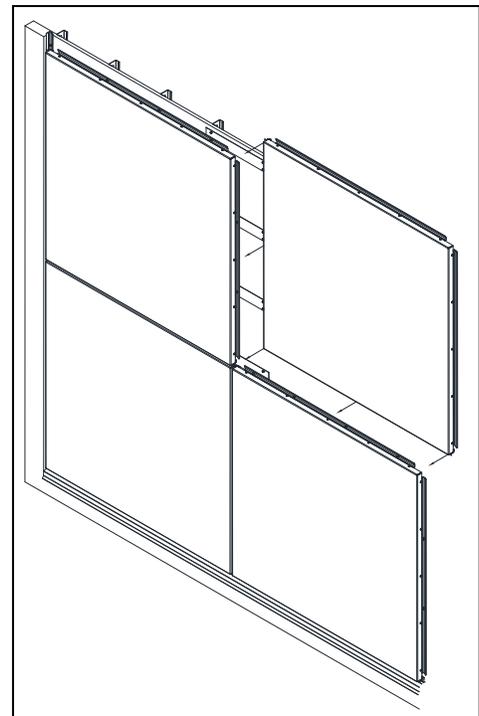
Figure 18



Continue to install the panels by engaging the mating extrusions and fastening the leading edge extrusions.

(Figure 19)

Figure 19



The top row of panels will be installed similarly to the end row panels using the J Channel Trim and the Z extrusions. In this condition, the panels must be fastened to the J Channel to hold the panels in position.

Note: Check your shop drawings for project specific details and fastening requirements.

Removing Protective Film:

The protective film should be removed immediately after final installation of the panel or at least at the end of each work day. Peel the film back against itself on the same plane as the panel face.

Note: The film removal process may cause a static charge to build. To reduce the possibility of static shock, ground your self against the portion of the panel with the film removed.

Note: Panels with film left exposed to UV for extended periods of time may become difficult to remove. Panels with film partially removed and left exposed to UV may become discolored.

Cleaning Panels:

In most cases, never use anything more than mild detergent and a soft cloth to clean the panels. Rinse with clean water immediately afterwards. See panel manufacturer's recommendations for proper cleaning methods.

Clean up:

Keep work areas free of objects that could cause injury or damage to the panels. At the end of each work day, place all trash and debris into the appropriate containers for disposal.

These guidelines are intended to convey the general sequences and procedures. Each application may vary and require specialized procedures. Refer to the project specific details for specialized instruction or contact Metal Design Systems, Inc. at 319-362-7454

Revised: 5/27/15