



Arrowhead Rainscreen Panel Systems Installation Instructions

AH -508 / AH-509

04/04/2017



AH-508 & AH-509 Rainscreen Panel General Guidelines

One of the main benefits of the Arrowhead Panel System is that the tedious, inaccurate and time consuming field measuring is virtually eliminated. You also do not have to spend the thousands of dollars to have your project scanned digitally for measurements. The installation concept of these systems is to immediately start attaching the base extrusions on the building and to create the panel frame openings as you go. This gives you accurate panel sizing with no guess work and you find out all the anomalies of your building up front, no miss-sized panels or surprise conditions. You can also accurately place the center of the base extrusions with curtain wall mullions or other material joint that you are required to line up with. The placement of the base extrusions allows protection of the ice and water shields while waiting for panel installation.

- Before you start attaching the base extrusions to the structure, make sure that all ice and water shields are properly applied. All the required flashing should be installed as well. Be sure to follow all the barrier penetration guidelines when attaching the base extrusions. The design and installation of these barriers are beyond Mac Metals AP scope of work and or design and must be designed by others.
- The AH-508 and AH509 systems install the same way.

Skills and Tools Required

The Arrowhead panel systems are easy to install; however, it is recommended that a skilled and experienced panel installer, sheet metal mechanic, roofer or a curtain wall erector conducts the installation.

The basic tools required for installation of the base extrusions and J- sills are as follows: Level, portable power saw, power hand drill, power screw driver, measuring tape, note pad, chalk line, or level laser, mallet, etc.

When you are installing the panels, all you need is a two-pocket pouch for the AH-104 T-Clips and AH-107 Modified T-Clips, and the AH-110 Locking Tool. If you run into conditions where you cannot get the standard reveals in, then you will need the AH-113 Reveal Wheel, (this will be discussed later).

If you have any questions, technical information or require additional consulting and or training, you can contact Mac Metals AP at (530) 276-0608.

Material receiving, material condition and inventory

When material is delivered, you must visually inspect all parts and accessories to verify that material is in good condition and what was received matches the packing list and order confirmation. If the materials are received damaged, note it on the shipping manifest, take photos of damage material or crates. Notify Mac Metals AP immediately. Do not destroy crates as damaged material may be returned utilizing these same crates.

Should freight damage occur, the customer is responsible for filing the freight claim, however Mac Metals AP will assist.

If you are receiving fabricated panels from a third party, please refer to their shipping and receiving policies. Mac Metals AP has no obligation for third party panel shipments or orders.

Storage and handling

Store the materials in a dry place protected from direct sunlight. Finished surfaces of panels and materials MUST NOT be stored directly against each other without protection to prevent scratching.

A strippable protective film may be on the panels (recommended). This film is designed to prevent minor abrasions to the face of the panels. The film must be removed during installation or no later than 24 hours after panels are installed on the



building. This film DOES NOT prevent dents or major scratches, and it is not designed for exposure to sunlight. Film left on panels after installation may cause damage to the panel finish and the protective film could become tedious or impossible to remove.

When handling the panels, do not drag, or slide the panels; they must be lifted up, then away to avoid damaging the finished surface of the panels. In storage, the panels are to be stacked face to face with a foam interleaf or back to back.

Scheduling, shop drawing and job condition review

Before beginning installation of the base and sill extrusions, it is important to plan the overall lay out of the grid pattern. Refer to the panel shop drawings and actual building condition to find, note or correct any deviation that would affect the layout or design. As stated previously, make sure all ice and water shields are properly in place as well as any flashing depicted on the shop drawings. Review all sill and perimeter conditions as well as building centerline joints that panel joints are to align with. Note: Actual job conditions of existing centerlines may change the panel size and spacing from the shop drawings. However, matching the centerlines with the base extrusions will provide the designed look that was designed.

AH – 105 J-Sill and Ah-103 Modified (perimeter) base extrusion installation and layout

It is recommended that the bottom Sill AH-105 be attached to the building first in all locations. This will insure that the whole grid system has a solid plumb and level starting point. Attach the J-Sill per the shop drawing configuration. The recommended shim space is ¼" under each fastener. This will allow extra or less shimming if the building wall surface is bowing in or out. If possible, using a laser or level, find the wall's highest bow, and start planing from there. Also, find the highest sill elevation point and use this elevation bench mark as your control joint dimension. If this point deviates greatly from level, it is recommended that you discuss solutions with the GC and or Architect before installation continues. Large deviations in slopes or elevation may cause extensive unsightly joint spacing that may need redesign configuration. If you run into a large sloping sill, the J- Sill can be installed to match which would result in trapezoid bottom panels.

Attach the J-sills using the fasteners depicted on the shop drawings at a minimum of 16" OC or as calculated by an engineer. Plumb and plane the J-Sill completely around the building. Note: the AH-103 Perimeter base extrusion may be used at non-visual sill conditions if preferred.

When attaching the perimeter extrusion (AH-103) follow all the same rules listed above for the sill except in a vertical direction.

These materials are supplied in 12'-0" lengths and are designed to run end to end and or cut off at termination points. Fasteners are recommended at 1" from each end and 16" O.C. with shimming under each fastener. A minimum diameter of the fasteners is ¼". If the project was engineered and or has stamped calculations, use the calculated spacing and fastener diameter as required in the calculations.

ah-102 intermediate base extrusion attachment (vertical and horizontal)

The horizontal base extrusions are recommended to be run at full length end to end and cut to fit end points as the J-sill has been installed. The horizontal should be attached at the designed panel center line dimensions or adjusted to an adjacent building condition such as curtain wall mullions (Centerlines, sills, or heads) or concrete joints or other features. The base extrusion must be planed and level. Use the same attachment and shimming guidelines listed above for the J-Sills.

You may utilize center to center marking dimensions or use precut spacing jigs or actual vertical base extrusions as your spacing guide. A jig/vertical cut dimension guide is available from Mac Metals AP.

Once you have the horizontal base extrusion attached you can proceed to measure and cut your verticals or have pre-cut verticals on hand. Be sure to plane and level all verticals as they are attached.



You may elect to attach all horizontal base extrusions first and attach all the verticals last; or proceed row by row attachment of the horizontals and attach the intermediate verticals as you go.

Measuring the frame opening for panel sizing

As you install the verticals and form the base grid, measure the frame opening per the attached panel size guide. Make sure to write down all measurements from both sides and top and bottom. Check the Squareness of the frame opening. If panels are to be non-rectangular, measure the same way and note the angles of each corner.

Measure corner conditions per the panel size guides.

Note: This whole process insures that you have accurate panel sizes and that the time to install and measure these base extrusions takes approximately the same amount of time to accurately field measure and convert the panel sizes of other panel systems. The other panel systems you still must plane and layout as you go when installing panels. You will also run into areas where your panels have been made incorrectly with the other panel systems.

Installing Panels

Please refer to the installation video found at www.macmetalsap.com on the products page.

The Arrowhead Panel Systems panels can be installed in any order or in multiple locations simultaneously with multiple crews. The Arrowhead Panels System is a true non-progressive system.

The most expedient method to installing the panels is to start at the lower left or right corner of the wall and start working your way across the wall, then coming back and installing the next row of panels above and continue in this manner until all the panels are installed. You may also work your way horizontally and vertically as you go.

The horizontal reveal strips are usually applied in full length end to end in the horizontal joints with the vertical reveals cut to run between the horizontal reveals in the vertical joints.

Panels may be installed by a one-person crew based on the size of panels being installed. The most expedient installation is to have a two-person crew to work in tandem. Both scenarios will be addressed as follows:

- Two Person Crew: Person #1 to take the first panel, insert panel frame groove over sill lip and push panel into place. Lock panel in place with one T-Clip (AH-104) at the center location on top of the panel. To Lock T-clips into place, you will be using the locking Tool (AH-110). It is recommended that you tie off this tool with a safety cord if you are working overhead. No placement measuring of the T-Clips are required as you place a T-Clip(AH-104) or a Modified T-Clip (AH-107) at each rivet or screw location on the panels. Person #1 then grabs the second panel and sets and locks this panel into place the same way. Person #1 moves on across the wall placing and locking in panel after panel. On the first panel, person #2, locks all the required T-Clips and Modified T-Clips into place around the panel. This also results in locking in the second panel on the left reveal joint. Person #2, then attaches a reveal keep (AH-111) to the s-clip at the bottom of the joint. This allows the bottom vertical reveals to remain in place and not slip down or out. Then Person #2, takes the cut to size reveal strip and insert it from the top of the reveal joint until it slides down and engages with the reveal keep. Repeat these steps following the panel row that person #1 is installing. At any point in the row when you have a few panels installed, person #2 can place a horizontal reveal strip into place bridging the tops of the installed panels. Horizontal can be placed end to end at full lengths or cut to match the center of joints or center of panels. Once person #1 reaches the designated panel row stopping point, he can then proceed back to the first panel and start the next row of panels above the one that have been installed. Person #1 lifts the panel into place above the bottom panel, slips the bottom panel frame extrusion over the reveal strip and T-clips. (Note: The T-Clips help guide the reveal strips into the frame extrusions.) Now lock



panel into place at the top center of the panel at the corresponding fastener on the panel. Then repeat down this row. Person #2, then locks all the T-Clips into place and slides the pre-cut vertical reveal strips into place. Repeat this process until wall is complete. By utilizing this method, a two-person crew should be able to install between 100-200 panels depending on surrounding jobsite conditions. When you reach the point where you cannot slide a reveal strip into the reveal joint, (due to a perimeter obstruction), you will use the AH-112 split reveal strips that will allow you to insert the strip components into the affected frame panel extrusions, lock them into place and then apply the center reveal strip component using a bonding agent and the AH-113 to complete the reveal installation. You can find more detailed information on this application in the "How to replace a damaged panel video"; or contact Mac Metals AP for technical support.

- One Person Crew: Follow the same instructions as the two-person crew, but with person #1 providing all the work steps alone.

Panel Film Removal

Make sure that by the end of the day, that all protective film are removed and disposed of properly. Person #2 can remove the film as he proceeds down the rows performing his installation tasks.

seal perimeter joints

Insert backer rod and seal perimeter joints per shop drawing details and specifications.

End of Instructions