





# TABLE OF CONTENTS

IMPORTANT INFORMATION Customer Responsibility	3
Roof Safety Considerations Walking & Working on Roof Panels	5 5
ENGINEER / ARCHITECT INFORMATION	6
GENERAL APPLICATION	7
Sealants Snow Design	7
Delivery and Storage	7
STANDARD PARTS	8
SAFELY AND STORAGE CONSIDERATIONS	14
CARE AND HANDLING OF MUELLER SHEET METAL	15
INSTALLATION DETAILS - PURLIN	17
Floating Rake Details	16
Fixed Eave	19
Floating Eave	20 21
Floating Valley	22
Fixed Ridge	23
Floating Vented Ridge	24
Fixed Hip	26
Floating Hip Floating High Side Fave	27
Side Wall / Parapet Details	20
End Wall / Parapet Details	30
	31
INSTALLATION DETAILS - DECKING	32
Fixed Eave	35
Floating Eave	36
Fixed Valley Floating Valley	37 38
Fixed Ridge & Hip	39
Floating Hip & Ridge	40
Fixed End Wall / Parapet Details	41 42
Fixed High Side Eave	43
Fixed Endlap Design	44
Field Hemming	45
RESIDENTIAL APPLICATION	46
Residential Rake Details	47
Residential Eave	49 50
Fixed Ridge & Hip	50
Side Wall / Parapet Details	52
Fixed End Wall / Parapet Details Fixed High Side Fave	53
Floating Valley	55
Roof Pitch Change Installation	56
Fixed Endlap	57

Read this manual completely prior to beginning the installation of your Mueller Snap Lock (MSL) roof system. Mueller Incorporated details must be followed as a minimum to ensure appropriate warranties be issued. Mueller Incorporated assumes no responsibility for any problems which might arise as a result improper installation or any personal injury or property damage that might occur with the products use.

Mueller is providing the following installation instructions and details as a guideline, to show a knowledgeable, trained erector, parts placement one to another. All local building codes in project specifications should be followed, however, in all cases, good roofing practices, and good workmanship should be employed when constructing a roofing system using Mueller products. These procedures and details are not intended to cover all instances, building requirements, designs, or codes. These details may require changes or revisions for each project, as conditions vary from project to project. The details provided are proven methods of construction.

# Mueller Incorporated does not consider the installation of a standing seam roof to be a do-it-yourself project. Work should be performed by experienced craftsmen familiar with metal roofing products and current industry standards.

This installation guide is provided to Mueller customers and contractors as a basic recommended procedure for the correct assembly of the Mueller Snap Lock Standing Seam Roof System. This guide is intended to be used in conjunction with the erection drawings to help plan and organize the installation of the Mueller Lock Standing Seam Roof System. The erection drawings govern specific part arrangement and identify the applicable roof conditions. The instructions will help identify parts, establish the installation sequence, demonstrate correct assembly, and point out areas or procedures requiring special emphasis or attention.

This installation guide applies to the Mueller Snap Lock Standing Seam Roof System. Custom roof conditions, including custom details and instruction, will be covered by the erection drawings. In case of conflict between this installation guide and the erection drawings, the erection drawings will take precedence.

### **CUSTOMER'S RESPONSIBILITY**

#### Suitability of details

It is the responsibility of the customer (or designer) to ensure that the details meet particular building requirements to assure adequate water tightness. It is the customer's responsibility to determine suitability of supplemental details for any claims arising from improper detail selection by others or faulty installation of any kind.

#### Suitability of substrate or structure

It is the responsibility of the customer (or designer) to determine suitability of structure, or substrate for the MSL panel system. It should be code-compliant and properly engineered and constructed for a structural standing seam roof system. It must be true and aligned to avoid panel distortion. MSL panels offer little or no diaphragm stability to the structure, and may not be relied upon for diaphragm support.

### Suitability of roof accessories

Mueller may pass along vendor information to its customers for insulation, preformed roof curbs, hatches, vents, pipe flashings and other ancillary roof accessory items as well as tools and specialty fasteners. This is done as a convenience to the customer and is not to be construed as an approval of any particular roof accessory item for any given application. It is the responsibility of the customer to qualify other vendors and products with respect to quality and suitability for any particular application. Mueller assumes no responsibility for suitability or performance of materials and accessory items furnished by other vendors.

### **IMPORTANT INFORMATION**

#### Subcontractor selection

4

The customer must select a competent installer that is qualified and experienced in the installation of standing seam metal roof systems. The installer should take time to study and understand this guide and follow the guide's instructions. Mueller, Inc. does not guarantee and is not liable for the qualifications of installer. Mueller, Inc. is not responsible for defects that may be attributed to improper installation or the negligence of other parties, suitability of structure, substrates or adjoining work or materials.

#### Compliance with codes, standards, and sound industry practices

The customer (and/or) installer is responsible for proper installation of the roof in accordance with the erection drawings and this installation guide, and other good construction practices as well as code compliance. In the case of tested and rated panel systems, it is the responsibility of the customer to see that actual construction complies with the tested and rate assembly in every detail.

- Panels should be installed straight and accurately.
- Roof clips shall allow for thermal movement and must be installed in strict accordance with Mueller erection drawings with respect to type and quantity of fasteners as well as clip spacing along the panel seam.
- Thermal movement of panels must be considered when attaching to adjacent constructions and materials.
- All areas of roof must have positive drainage of 3:12 pitch minimum and not allow ponding in any area of the roof.
- Compatibility of adjacent materials (not furnished by Mueller) should be verified.
- No penetrations whatsoever shall be placed in the panel system by fasteners or other roof ancillaries except as shown on the erection drawings.
- Only Mueller furnished or approved sealants shall be used, and only as shown on drawings and within this manual.
- Some field cutting and fitting of panels and flashings is expected and considered part of normal installation.
- "Oil Canning" of the flat portion of metal panels is inherent to metal panels and a common industry phenomenon. It shall not be considered cause for rejection.
- All flashings, closures, and accessories shown on the erection drawings shall be provided by Mueller unless noted otherwise. Installation procedures shall be in accordance with Mueller printed instructions, details, approved shop drawings and the highest industry standards and practices.

### Trade Knowledge and Practices

The customer (and/or) installer of the roof system is responsible for the safe execution of the work. Metal roof installation is a skilled craft requiring considerable trade knowledge and experience. Such knowledge and experience includes general rooftop safety, as well as knowledge of the hazards associated with metal roofing, and the tools and equipment associated there-with. This manual is intended to describe the sequence and proper placement of parts. It is not the intent or purpose of this text or Mueller, Inc. to train individuals for the craft of Metal Roof Assembly, or to convey all necessary trade knowledge and practice of metal roof installation. Although some general safety comments is offered in the following text, it is not intended to prescribe comprehensive safety procedures.

If the installer cannot safely assemble the roof in accordance with these instructions, it is the responsibility of the installer to stop the work and determine alternate safety assembly procedures.

### **Roof Safety Considerations**

### **OSHA**

The Occupational Safety and Health Act (OSHA) has developed many regulations applicable to the installation of this or any other roof system. These regulations, identified as Part 1926, Safety and Health Regulation for Construction, are available from any government book store. The objective of the OSHA standards is to protect the worker from injury or illness. These OSHA regulations should be recognized as job site requirements and fully complied with. Failure to do so may result in substantial fines in the event of an OSHA inspection. Safe installation practices may be further defined and made mandatory by state or local ordinances. Maintaining good housekeeping on the job site is recognized as being important to both OSHA compliance and to successful job completion.

### Walking & Working on Roof Panels

#### **Placing Panels on the Structure**

Do not place bundles of panels on the roof structure without first verifying the structure will safely support the concentrated weight of the panels and the weight of the installation crew. Some roof structures may not be designed to support the weight of a full panel bundle without additional structural support.

#### Walking on Roof Panels

An approved and safe walking platform should be used in high traffic areas to prevent the roof panels from being deformed, scratched, or scuffed.

Do not use a roof panel as a walking platform. An unscrewed panel could collapse under the weight of a person standing between purlins or at the end.

Do not walk on the last installed panel run, as the unsecured edge could collapse under a person's weight. When installing clips or making end lap connections, etc., stand where the roof structure will support your weight.

Do not leave a roof panel edge unattached, always install the clips to the panel before terminating the installation for any period of time.

When using power tools, equipment, lanyards, retractable lines and other installation equipment, ensure that the metal parts are covered in such a manner that they do not scratch the panel surface if dragged along the panel.

### **Panel Overhang**

Do not stand on the end of unsupported (cantilevered) panels at the eave or ridge. Standing on the cantilever portions may result in panel collapse.

### **Construction Loads**

When properly attached to supporting structures and seamed, MSL panels are designed to support uniform loads which are evenly distributed over the panel surfaces. Panels will also support a minimum 300 pound point load over any one square foot area of any part of the panel.

### **ENGINEER/ARCHITECT INFORMATION**



#### Substrate:

24 Gauge Galvalume - Standard Surface.

#### **Panel Configurations:**

Striated

#### **Panel Width:**

15 1/4" ±1/8" Center of rib to center of rib

#### **Panel Length:**

50' Standard Maximum Length. Longer lengths available upon request, 3 foot (3') Minimum Length.

#### **Panel Height:**

1 3/4"

#### **Minimum Slope:**

3:12 Pitch

#### **Clip Spacing:**

See U.L. 90 Classifications - Roof Deck Construction for maximum clip spacing.

U.L. 90 Classifications - Roof Deck Construction:

U.L. Class 90 - 24 Ga. minimum panel on 4' - 0" maximum purlin spacing, per U.L. Construction #255

U.L. Class 60 - 24 Ga. minimum panel on 5' - 0" maximum purlin spacing, per U.L. Construction #255

U.L. Class 90 - 24 Ga. minimum panel with clips spaced 36" on center over plywood decking, per U.L. Construction #343

U.L. Class 90 - 24 Ga. minimum panel with clips spaced 48" on center over rigid insulation on metal deck, per U.L. Construction #468

#### **Impact Resistance:**

UL 2218 - IMPACT: CLASS 4 EXTERNAL FIRE: CLASS A

#### Air and Water Infiltration:

Mueller Snap Lock systems have been tested in accordance with ASTM E1680 and ASTM E1646 procedures.

Oil canning (pan wave) of metal panels is inherent in the product and is not cause for panel rejection.

6

## **GENERAL APPLICATION INFORMATION**

The details shown on the following pages are suggestions or guidelines for installing the Mueller Snap Lock System. The installation details shown here are proven methods of construction, but they are not intended to cover all building requirements, designs or codes. The details may require changes or revisions due to individual project conditions.

Installation procedures shall be in accordance with instructions, details or approved shop drawings. Installers should thoroughly familiarize themselves with all instructions prior to beginning the installation process.

The installer/designer is responsible for ensuring the following:

- That the details here meet the particular building requirements.
- Awareness of and allowance for expansion/contraction of roof panels.
- That adequate water tightness is maintained.
- That a proper uniform substructure is used to avoid panel distortion and that the substructure meets necessary code requirements.
- That all supporting members have been examined and are straight, level, and plumb.

Due to the complexities of a standing seam roof it is the responsibility of the customer (or designer/installer) to determine the suitability of the structure or substrate for a Mueller standing seam roof. It is the customer's responsibility to insure that their building is code compliant, properly engineered and constructed to facilitate the installation of a standing seam roof. Standing seam panels offer little or no diaphragm stability to the structure and cannot be relied upon for diaphragm support. Purlin stability is not provided by a Mueller Snap Lock panel. Accurate sheet lengths and trim components are critical to a successful install and should be confirmed by the designer/installer before any material is ordered.

Mueller can provide all flashings, trim and accessories shown in the installation drawings unless otherwise noted. Panels, flashing and trim shall be installed true and in proper alignment with any exposed fasteners equally spaced for best appearance. Sealant shall be field applied on clean dry surface.

Some field cutting and fitting of panels and flashings is to be expected in to be considered as a part of normal installation work. In some cases extra length has been added to panels to ensure adequate product on the job-site. Workmanship shall be of the best industry standards with installation performed by experienced metal craftsmen.

#### **Sealants**

Sealants not exposed to direct sunlight should consist of either an elastic butyl rubber tape or non-shrinking, nondrying gum applied butyl. Single part urethane should be used when exposed to ultraviolet light. All sealant should be applied clean dry services to ensure weather tightness. Sealant shall be installed as shown without voids.

#### **Snow Design**

The following details do not address snow load conditions. Special design consideration is required when installing a metal roof in heavy snow environments. Contact your Mueller sales representative for more details.

#### **Delivery and Storage**

Handle panels in bundles with care. Do not use ropes or wires for lifting. Long panels (25 feet or more) may require two or more lift points to avoid bending and buckling of panels. Store panels in a dry, well ventilated area. Elevate one end of the panels to allow for drainage of any moisture. Block panels off the ground. Do not store panels in direct contact with the ground. Do not allow strippable film to remain exposed to direct sunlight for any extended period of time. Remove strippable film prior to, or immediately after installation of panels or trim. Do not walk directly on standing seams. Wear shoes with non-marking/scuffing soles. Inspect each and every panel, trim and all accessories before installation. Never install any product if it's quality is in question. Notify your Mueller salesperson immediately if any product is believed to be out of tolerance, specification, or has been damaged during shipment. If there is a conflict between project erection drawings provided by Mueller and details in this manual, project erection drawings will take precedence.

Contents of this manual are subject to change without notice. To confirm this book is the most current copy, please visit the Mueller website at www.muellerinc.com.











Pitch Required



13

## **SAFETY AND STORAGE CONSIDERATIONS**

As with all major construction projects, safety should be a primary concern. The erector or contractor should be sure that all OSHA safety rules are followed and that job safety is strictly adhered to.

The following safety equipment is highly recommended when installing metal roofing:

- 1. Safety rope and harness
- 2. Hand protection
- 3. Eye protection

14

- 4. Hearing protection
- 5. Soft rubber soled shoes

Metal roofing presents several specific safety issues:

- Metal roofing is extremely slick and does not provide firm footing. Extreme care should be taken when:
  A. Working on roofs with very steep pitches.
  - B. Working on roofs when moisture is present.
  - C. Working on roofs when high wind is a factor. D. Working with long panels.
- 2. Metal edges are very sharp and should be handled with care.
- 3. Care should be used when lifting panels due to their weight.
- 4. Always check for overhead electrical lines and exercise care not to have metal sheets come in contact with them.
- All electrical tools should be inspected regularly for damaged cases or frayed electric cords. Extension cords should be inspected for damaged or frayed insulation. Tools which do not meet good safety standards should not be used.

### **Unsecured Panels May Slip If Stepped On!**

Never step on a single unsecured roof panel, or a stack of roof panels laying unattached on the roof. Secure each end of the panel with clamps or appropriate fasteners.

#### CAUTION

Care should be taken when cutting sheets. Eye and hearing protection are important.

#### NOTE

Always wear rubber soled work boots. When on the roof, use OSHA approved protection devices such as safety lines, safety nets or catch platforms.

**Storage:** It is recommended that sheets be kept covered and out of the elements if at all possible. If sheets are to be stored outside, the following precautions should be observed:

- 1. The storage area should be reasonably level, and located so as to minimize handling.
- 2. When stored on bare ground, place plastic ground cover under the bundles to minimize condensation on the sheets from ground moisture.
- 3. Store bundles at least 12 inches above ground level to allow air circulation beneath the bundle, and to prevent damage from rising water.
- 4. Elevate one end of each bundle slightly to permit runoff of moisture from the top of the bundle or from between sheets. A waterproof cover should be placed loosely over the bundles to allow for air circulation under the cover.
- 5. Inspect stored bundles daily and repair any tears or punctures in the waterproof cover.
- 6. Re-cover opened bundles at the end of each work day to prevent subsequent moisture damage.

### Checking order at time of delivery:

Check each order carefully, as it is unloaded. Report any obvious damage or shortages to the carrier immediately. If damage or shortages are noted after delivery (at time of unpacking) notify your Mueller representative immediately. Have invoice numbers and detailed descriptions of the damage or shortage available. These procedures are for your protection. A shortage or damage discovered later can be caused by theft, misplacement, mishandling or other causes and is not the responsibility of Mueller, Inc.

Never Install Material if the Quality is in Question!

## **CARE AND HANDLING OF MUELLER SHEET METAL**

**Delivery:** Mueller takes every precaution to ensure that material is delivered to the customer damage-free and fully protected from the elements during shipment. When the material is delivered to the customer it then becomes the customer's responsibility to protect the material from the elements, possible theft, and other damage. The following guidelines are recommended:

#### HANDLING: Proper care is required in unloading and handling panel bundles in order to prevent damage.

- 1. Bundles should remain banded (if possible) during the unloading process. Bundles should never be lifted by the banding material.
- 2. Lift each bundle as close as possible to its center of gravity.
- 3. If the bundles are to be lifted with a crane, use a spreader bar of appropriate length and nylon band slings (do not use wire rope slings as they will damage the material).
- 4. Depending on the panel length, some bundles may be lifted by a forklift. When using a forklift, the forks should be spread to their maximum spacing, and the load centered on the forks.

#### Sheets over 25' long require two forklifts.

5. After panel bundles are opened, individual sheets must be handled carefully to prevent panel buckling or damage to the panel coating. When removing a sheet from a bundle it should be rolled off the bundle to prevent scratching of the next sheet. Never drag or slide one sheet over another. Sheets should not be picked up by the ends. Instead, lift the sheet along its longitudinal edge and carry in a vertical position. For sheets over 10' long, two or more people may be required to carry the sheet.

#### Wall and Roof Panels

Mueller's wall and roof panels, including color coated, galvalume and galvanized, provide excellent service under widely varied conditions. All unloading and erection personnel should fully understand that *these panels are quality merchandise which merit cautious care in handling*.

Fabrication and shipping operations ensure that all panel stock is kept dry. However, due to climatic conditions, water formed by condensation of humid air can become trapped between stacked sheets. Water can also be trapped between the stacked sheets when exposed to rain causing discoloration, often called "wet storage stain." The stain is usually superficial and has little effect on the appearance or service life of the panels as long as it is not permitted to remain on the panels. However, moisture in contact with the surface of the panels over an extended period can severely attack the finish and reduce the effective service life. Therefore, it is imperative that all panels be inspected for moisture upon receipt of the order. If moisture is present, dry the panels at once and store in a dry, warm place.

### **INSULATION**

### **Insulation Installation:**

When insulation is installed, the outside edge of the insulation should be tight against the outside edge of the rake angle. A starter role of 4' or 5' is normally used so that approximately 12" of the leading edge will still be exposed when a new run of insulation is installed. This allows easy access to the vapor barrier lapping of the insulation. Four inches of the downhill end of the fiberglass blanket should be removed and the four inches of vapor barrier folded back over the remaining blanket. This starting end of the insulation should be placed on the inside, lower step of the edge plate and can be held in place with double-sided tape along the rake angle and the eave plate.

NOTE: Blanket insulation omitted from the following pages for clarity.



## **FLOATING RAKE DETAILS**

### Installation steps:

- 1. To begin starting panel you must first attach the Slotted Rake Angle to the existing rake using #14x1¼" SD Shoulder tek screws, 12" on center placing screw in the center of the slotted hole.
- 2. Place the female leg of the first panel over the upturned edge of the Slotted Rake Angle.
- 3. Install Rake Trim Support Angle as pictured using tri bead sealant and secure using #12x1¼" SD screws thru the Rake Trim Support Angle, tri bead, panel leg and into the 14 ga. Slotted Rake Angle, 12" on center.



### **FLOATING RAKE DETAILS**

### Installation steps continued:

- 4. Apply tri bead to the top of the Rake Trim Support Angle and install Rake Trim as shown with #14x 7/8" lap screws on 6" centers.
- 5. Attach Rake Slide Trim over bottom edge of the Rake Trim securing with #14x7/8" lap screws on 12" centers.
- 6. For last panel run, field cut the panel if necessary to form a 1 <sup>3</sup>/<sub>4</sub>" up turned leg that will position against the slotted rake angle when installed. Then complete the trim using the above steps.



### FIXED EAVE

### Installation Steps: (use only with floating ridge/hip)

- 1. Install eave trim onto the eave strut using #10 x 1 self drill pan head screws, 3 per 10'.
- 2. Apply butyl tape sealant to top leg of the eave trim as shown.
- 3. Install panel and screw to the eave strut using #12 x 1¼ self drill screws. Panel should overhang the eave trim by 1¼" to accommodate optional gutter.
- 4. Seal the ends of the panel legs using tube sealant.

**NOTE: Blanket insulation omitted for clarity** 



### **FLOATING EAVE**

### Installation Steps: (use only with fixed ridge/hip)

- 1. Install either eave trim or optional gutter onto the eave strut using #10 x 1 self drill pan head screws, 3 per 10'.
- 2. Apply butyl tape sealant to top leg of the eave trim or gutter as shown.
- 3. Install edge plate over butyl tape sealant using #10 x 1 self drill pan head screws into the Eave Strut.
- 4. Field notch, hem and fold the panel and, then slide hemmed edge over edge plate as shown.
- 5. Attached clips as specified.
- 6. Seal the ends of the panel legs using tube sealant.



### **FIXED VALLEY**

### Installation Steps (use only with fixed eave)

- 1. If applicable, install insulation before proceeding (insulation omitted for clarity).
- 2. Install four runs of hat section up the valley as shown, securing to the purlins with # 10 x 1 self drill pan head screws (this step is applicable when insulation or thermal blocks are specified).
- 3. Install the two piece 14 ga. Valley Support Plates with #10 x 1 self drill pan head screws.
- 4. Install Valley trim over the Valley Support Plates. Secure with #10 x 1 self drill pan head screws (5' centers).
- 5. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 6. Attach panel to Valley Support Plate using #12 x 1 ¼ self drill screws, on 4' centers, through the butyl tape sealant and the Valley Trim into the Valley Support Plate.
- 7. Seal the ends of the panel legs using tube sealant.



## **FLOATING VALLEY**

### Installation Steps: (use only with fixed Ridge/Hips)

- 1. Install four runs of hat section/channel up the valley as shown, securing to the purlins with #10 x 1 self drill pan head screws (this step is applicable only when insulation or thermal blocks are specified).
- 2. Install the two piece 14 ga. Valley Support Plates with #10 x 1 self drill pan head screws.
- 3. Install Valley Trim over the Valley Support Plates. Secure with #10 x 1 self drill pan head screws (5' centers).
- 4. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 5. Install edge plates over the butyl tape sealant using #10 x 1 self drill pan head screws on 12" centers.
- 6. Field cut and hem panel ends. Install over edge plate.
- 7. Seal the ends of the panel legs using tube sealant.



### **FIXED RIDGE**

### Installation Steps: (use only with floating eave and valley)

Note: On this application the ridge purlins must be set by manufacturing to accommodate the standard ridge trim or the ridge trim must be custom made wider to fit the standard ridge purlin spacing.

- 1. Install the butyl tape sealer across the flat of the panel, aligned over the top purlin.
- 2. Fasten end dam through butyl tape sealant and panel to purlin using #12 x 1 ¼ self drill screws on 4" centers.
- 3. Use butyl caulk to seal the ends of the end dam.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Fasten Ridge trim to end dam using #14 x 7/8 lap screws on 6" centers.



### **FLOATING RIDGE**

### Installation Steps: (use only with fixed eave and valley)

- 1. Slide the backup channel underneath the end of the panel as shown.
- 2. To accommodate the width of the Ridge Trim, apply the butyl tape sealant across the pan of the panel, aligned over the backup channel.
- 3. Install the end dam using #12 screws on 4" centers through the panel and the backup channel as shown.
- 4. Use tube sealant to seal the ends of the end dam.
- 5. Apply butyl tape sealant to the top of the end dam.
- 6. Fasten Ridge trim to end dam using #14 x 7/8 Lap screws on 6" centers.



### **FLOATING VENTED RIDGE**

### Installation Steps: (use only with fixed eave and valley)

- 1. Slide the backup channel underneath the end of the panel as shown.
- 2. To accommodate the width of the ridge trim and vent trim, apply the butyl tape sealant across the pan of the panel, aligned over the backup channel.
- 3. Install the end dam using #12 screws on 4" centers through the panel and the backup channel as shown.
- 4. Use butyl caulk to seal the ends of the end dam.
- 5. Apply butyl tape sealant to the top of the end dam.
- 6. Attach vent trim to the top of end dam as shown using #14 lap screws on 6" centers.
- 7. Apply butyl tape sealant to the top of vent trim.
- 8. Attach Ridge Trim with #14 lap screws on 2' centers.



### FIXED HIP

### Installation Steps: (use only with floating eave or valley)

- 1. Install 14 ga. Hip support plate using #10 x 1 self drill pan head screws to attach to purlin. The 1" leg should be pointing to the top.
- 2. Install the panels with the ends bevel cut to the slope of the hip.
- 3. To accommodate the width of the hip trim and the placement of the Z closures, apply the butyl tape sealant to the panel as shown.
- 4. Field cut and attach Z closure to panel and hip support plate using #12 screws on 4" centers.
- 5. Seal the ends of the Z closure using butyl caulk.
- 6. Apply butyl tape sealant to the top of the Z closure.
- 7. Attach hip trim to the Z closure using  $#14 \times 7/8$  lap screws on 6" centers.



### **FLOATING HIP**

### Installation Steps: (use only with fixed eave or valley)

- 1. Install 14 ga. Hip support plate using #10 x 1 self drill pan head screws to attach to purlin. The 1" leg should be pointing to the top.
- 2. Install the panels with the ends bevel cut to the slope of the hip.
- 3. Slide the backup angle under the bottom of the panels at least 2" from the purlin clips as shown, 4" leg down.
- 4. To accommodate the width of the hip trim, apply the butyl tape sealant to the panel over the backup angle as shown.
- 5. Field cut and attach Z closure to panel and backup angle using pop rivets on 4" centers.
- 6. Seal the ends of the Z closure using tube sealant.
- 7. Apply butyl tape sealant to the top of the Z closure.
- 8. Attach hip trim to the Z closure using  $\#14 \times 7/8$  lap screws on 6" centers.



### **FLOATING HIGH SIDE EAVE**

### Installation Steps: (use only with fixed eave)

- 1. Using temporary clamps, attach backup channel to panel 2" below the eave strut. This step should occur as panels are applied. Locate backup channel to accommodate attachment of rake trim.
- 2. Apply butyl tape sealant to the panel, centered on the backup channel.
- 3. Apply end dam and attach using #12 x 1 ¼ self drill screws on 4" centers.
- 4. Seal the end dam sides with tube sealant.
- 5. Apply butyl tape sealant to the top of the end dam.
- 6. Attach High side eave trim to the end dam using #14 x 7/8 lap screws on 6" centers as shown.



# SIDE WALL / PARAPET DETAILS

#### Installation steps:

- 1. To begin starting panel first attach the Slotted Rake Angle to the existing rake using #14 x 1<sup>1</sup>/<sub>4</sub>" SD Shoulder tek screws.
- 2. Place the female leg of the first panel over the upturned edge of the Slotted Rake Angle.
- 3. Install Rake Trim Support Angle as pictured using tri bead sealant and secure using #12 x 1<sup>1</sup>/<sub>4</sub>" SD screws thru the Rake Trim Support Angle, tri bead, panel leg and into the 14 ga. Slotted Rake Angle.
- 4. Apply tri bead to the top of the Rake Trim Support Angle and install side wall trim as shown with  $#14 \times 7/8''$  lap screws on 6'' centers.
- 5. Attach the appropriate counter flashing as required by the application. This is supplied by others.
- 6. For last panel run, field cut the panel if necessary to form a 1 <sup>3</sup>/<sub>4</sub>" up turned leg that will position against the slotted rake angle when installed. Then complete the trim using the above steps.



## END WALL / PARAPET DETAILS

### Installation Steps: (use only with fixed eave)

- 1. Slide the backup angle underneath the end of the panel as shown.
- 2. To accommodate the placement of the End Wall trim, apply the butyl tape sealant across the pan of the panel, aligned over the backup channel.
- 3. Install the end dam using #12 screws on 4" centers through the panel and the backup channel as shown.
- 4. Use butyl caulk to seal the ends of the end dam.
- 5. Apply butyl tape sealant to the top of the end dam.
- 6. Fasten End Wall trim to end dam using #14 x 7/8 Lap screws on 6" centers.



#### **Installation Steps:**

- 1. Install lower panel as detailed in the installation instructions.
- 2. Attach the backup channel underneath the panel with clamps, align the center of the channel 4 <sup>1</sup>/<sub>2</sub>" down from the top end of the lower panel. The channel must be 2" min. from the nearest purlin as shown.
- 3. Install butyl tape sealer on the lower panel, centered over the backup channel 4 1/2" from the upper end of the panel. Start at the outside bottom of the female rib, extending up and over the rib, down to the pan of the panel, across the width of the panel, and up and over the male rib as pictured.
- 4. Install the upper panel by snapping it over the lower panel. Fasten using five self drill screws in the fastener sequence shown above.





## FLOATING RAKE DETAILS WOOD DECK

#### Installation steps:

**End View** 

- 1. To begin starting panel you must first attach the Slotted Rake Angle to the existing rake using #14x1¼" SD Shoulder tek screws, 12" on center.
- 2. Place the female leg of the first panel over the upturned edge of the Slotted Rake Angle.
- 3. Install Rake Trim Support Angle as pictured using tri bead sealant and secure using #12x1¼" SD screws thru the Rake Trim Support Angle, tri bead, panel leg and into the 14 ga. Slotted Rake Angle, 12" on center.



## FLOATING RAKE DETAILS | WOOD DECK

### Installation steps continued:

- 4. Apply tri bead to the top of the Rake Trim Support Angle and install Rake Trim as shown with #14x 7/8" lap screws on 6" centers.
- 5. Attach Rake Slide Trim over bottom edge of the Rake Trim securing with #9 wood-grip screws on 12" centers.
- 6. For last panel run, field cut the panel if necessary to form a 1 <sup>3</sup>/<sub>4</sub>" up turned leg that will position against the slotted rake angle when installed. Then complete the trim using the above steps.



## FIXED EAVE WOOD DECK

### Installation Steps: (use only with floating ridge/hip)

- 1. Install eave trim onto the eave using #10 x 1 pan head screws, 3 per 10'.
- 2. Apply butyl tape sealant to top leg of the eave trim as shown.
- 3. Install panel and screw to the eave using 1 1/2" screws. Panel should overhang the eave trim by 1 1/4" to accommodate optional gutter.
- 4. Seal the ends of the panel legs using tube sealant.



## FLOATING EAVE | WOOD DECK

### Installation Steps: (use only with fixed ridge/hip)

- 1. Install either eave trim or optional gutter onto the eave using #10 x 1 wood-grip pan head screws, 3 per 10'.
- 2. Apply butyl tape sealant to top leg of the eave trim or gutter as shown.
- 3. Install edge plate over butyl tape sealant using #10 x 1 wood-grip pan head screws, on 1' centers.
- 4. Field notch, hem and fold the panel, then slide hemmed edge over edge plate as shown.
- 5. Attached clips as specified.
- 6. Seal the ends of the panel legs using tube sealant.



36

# FIXED VALLEY | WOOD DECK

### Installation Steps (use only with fixed eave)

- 1. Install Valley trim over the Underlayment and deck. Secure with #10 x 1" wood-grip pan head screws (5' centers).
- 2. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 3. Field cut and attach panel to Valley using 1 1/2" wood grip screws, on 4" centers, through the butyl tape sealant and the Valley Trim into the deck.
- 4. Seal the ends of the panel legs using tube sealant.



### FLOATING VALLEY | WOOD DECK

### Installation Steps: (use only with fixed Ridge/Hips)

- 1. Install Valley Trim over the Valley from the bottom up. Secure with #10 x 1 wood-grip pan head screws (5' centers).
- 2. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 3. Install edge plates over the butyl tape sealant using #10 x 1 wood-grip pan head screws on 12" centers.
- 4. Field cut and hem panel ends. Install over edge plate as shown.
- 5. Seal the ends of the panel legs using tube sealant.







# FIXED RIDGE & HIP | WOOD DECK

### Installation Steps: (use only with floating eave and valley)

- 1. Install the butyl tape sealer across the panel, aligned to accommodate ridge trim and end dam.
- 2. Fasten end dam through butyl tape sealant and panel to deck using 1 <sup>1</sup>/<sub>2</sub>" wood grip screws on 4" centers.
- 3. Use butyl caulk to seal the ends of the end dam.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Fasten Ridge trim to end dam using pop rivets.



### FLOATING HIP & RIDGE | WOOD DECK

### Installation Steps: (use only with fixed eave or valley)

- 1. Install the panels with the ends bevel cut to the slope if applying to hip.
- 2. Slide the backup angle under the bottom of the panels at least 2" from the purlin clips with 2" leg turned up as shown.
- 3. To accommodate the width of the hip/ridge trim, apply the butyl tape sealant to the panel over the backup angle as shown.
- 4. Field cut and attach Z closure on hips, use end dams on ridges, attach the closure to the backup angle using pop rivets on 4" centers as shown.
- 5. Seal the ends of the closures or the end dams using tube sealant.
- 6. Apply butyl tape sealant to the top of the Z closure or end dam.
- 7. Attach ridge/hip trim to the Z closure or end dam using #14 x 7/8 lap screws on 6" centers.



### 40

# SIDE WALL / PARAPET DETAILS | WOOD DECK

#### Installation steps:

- 1. To begin starting panel first attach the Slotted Rake Angle to the existing wood deck using #14 x 11/4" SD Shoulder tek screws as shown.
- 2. Place the female leg of the first panel over the upturned edge of the Slotted Rake Angle.
- 3. Install Rake Trim Support Angle as pictured using tri bead sealant and secure using #12 x 1¼" SD screws thru the Rake Trim Support Angle, tri bead, panel leg and into the 14 ga. Slotted Rake Angle.
- 4. Apply tri bead to the top of the Rake Trim Support Angle and install side wall trim as shown with Pop Rivets on 12" centers.
- 5. Attach the appropriate counter flashing as required by the application. This is supplied by others.
- 6. For last panel run, field cut the panel if necessary to form a 1 <sup>3</sup>/<sub>4</sub>" up turned leg that will position against the slotted rake angle when installed. Then complete the trim using the above steps.



## FIXED END WALL / PARAPET DETAILS | WOOD DECK

### Installation Steps: (use only with floating eave)

- 1. To accommodate the placement of the End Wall trim and end dam, apply the butyl tape sealant across the pan of the panel.
- 2. Install the end dam using wood-grip screws on 4" centers through the panel and end dam as shown.
- 3. Use butyl caulk to seal the ends of the end dam.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Fasten End Wall trim to end dam using Pop Rivets on 12" centers.



## FIXED HIGH SIDE EAVE | WOOD DECK

### Installation Steps: (use only with floating eave)

- 1. Apply butyl tape sealant to the panel, to accommodate the high side eave trim and end dam.
- 2. Apply end dam and attach using 1 1/2" wood-grip screws on 4" centers.
- 3. Seal the end dam sides with tube sealant.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Attach High side eave trim to the end dam using Pop Rivets as shown.



# FIXED ENDLAP | WOOD DECK

### Installation Steps (Both the ridge and eave are floating):

1. Install lower panel as detailed in the installation instructions.

44

- 2. Install butyl tape sealer on the lower panel, centered over the backup channel 4 <sup>1</sup>/<sub>2</sub>" from the upper end of the panel. Start at the outside bottom of the female rib, extending up and over the rib, down to the pan of the panel, across the width of the panel, and up and over the male rib as pictured.
- 3. Install the upper panel by snapping it over the lower panel. Fasten using five screws in the fastener sequence shown.



# **DESIGN & FIELD HEMMING**





## **MSL RESIDENTIAL RAKE DETAILS**

- 1. Starting at the corner, install the adjustable gable trim along the sloping gable, placing it on top of the underlayment.
- 2. Attach with wafer head screws 5' on centers (adjustable strip applied after valley trim).
- 3. Slide gable trim over eave trim at corner.
- 4. At the peak, one gable trim should be cut vertical to the ground and overlap at the junction of the two gable trims.

NOTE: Alternate trim profiles are acceptable using the screw pattern shown.



- 1. If valley trim is intersecting the gable, the gable must be installed first.
- 2. Pre-drill 1/8" holes on 12" centers along the length of adjustable gable strip #1476.
- 3. Butyl tape should be applied to the bottom of the strip covering pre-drilled holes. Place the strip the desired distance from the outside edge of the gable trim (optimal distance 2"), making sure it is aligned parallel to the gable, perpendicular to the eave line and between the open hem at the edge of the adjustable gable trim and the outside of the trim.
- 4. The adjustable strip is attached to the roof with wafer head screws on 12" centers from eave to ridge using pre-drilled holes, making sure the screws are applied through the butyl tape. This condition exists in both Starting Panel and End Panel Installation.

**NOTE:** Alternate trim profiles are acceptable using the screw pattern shown.



#### **Starting Panel**

- 1. Apply adjustable strip as previously instructed.
- 2. Remove the overlap rib of the panel, making a straight cut the length of the panel.
- 3. Apply butyl tape continuously down the length of the adjustable strip, covering the wafer head screws.
- 4. Insert the cut edge of the panel into the strip, making sure the panel is seated fully into the strip.
- 5. Attach the standing seam clips on the required centers.

**NOTE:** Alternate trim profiles are acceptable using the screw pattern shown.

#### **Ending Panel**

- 1. Remove the underlap rib of the panel at a point that is inside the adjustment portion of the gable trim, making a straight cut the length of the panel (optimal 2" from gable edge).
- 2. Apply adjustable strip as previously instructed.
- 3. Test apply the panel to assure proper fit.
- 4. Apply butyl tape and insert last panel into strip, making appropriate panel lap.

NOTE: Alternate trim profiles are acceptable using the screw pattern shown.



SECTION VIEW

# **RESIDENTIAL EAVE | WOOD DECK**

- 1. Install the eave trim by sliding it underneath the underlayment and securing it to the roof surface with wafer head screws on 12" centers.
- 2. There are no screws or nails to be placed in the exposed fascia of the trim.
- 3. At the corners, cut the eave trim  $1 \frac{1}{2''}$  long and prepare the ends with tabs to receive the gable trim.
- 4. Hem panel ends. Install over eave trim using tube sealant as shown.

**NOTE:** Alternate trim profiles are acceptable using the screw pattern shown.



### FLOATING VALLEY | WOOD DECK

### Installation Steps: (use only with fixed Ridge/Hips)

- 1. Install Valley Trim over the Valley from the bottom up. Secure with #10 x 1 wood-grip pan head screws (5' centers).
- 2. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 3. Install edge plates over the butyl tape sealant using #10 x 1 wood-grip pan head screws on 12" centers.
- 4. Field cut and hem panel ends. Install over edge plate as shown.
- 5. Seal the ends of the panel legs using tube sealant.



# FIXED RIDGE & HIP | WOOD DECK

### Installation Steps: (use only with floating eave and valley)

- 1. Install the butyl tape sealer across the panel, aligned to accommodate ridge trim and end dam.
- 2. Fasten end dam through butyl tape sealant and panel to deck using 1 <sup>1</sup>/<sub>2</sub>" wood grip screws on 4" centers.
- 3. Use tube sealant on the ends of the end dam.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Fasten Ridge trim to end dam using pop rivets.



# SIDE WALL / PARAPET DETAILS | WOOD DECK

#### Installation steps:

- 1. To begin starting panel first attach the Slotted Rake Angle to the existing wood deck using #14 x 1¼" SD Shoulder tek screws as shown.
- 2. Place the female leg of the first panel over the upturned edge of the Slotted Rake Angle.
- 3. Install Rake Trim Support Angle as pictured using tri bead sealant and secure using #12 x 1¼" SD screws thru the Rake Trim Support Angle, tri bead, panel leg and into the 14 ga. Slotted Rake Angle.
- 4. Apply tri bead to the top of the Rake Trim Support Angle and install side wall trim as shown with pop rivets on 12" centers.
- 5. Attach the appropriate counter flashing as required by the application. This is supplied by others.
- 6. For last panel run, field cut the panel if necessary to form a 1 <sup>3</sup>/<sub>4</sub>" up turned leg that will position against the slotted rake angle when installed. Then complete the trim using the above steps.



# FIXED END WALL / PARAPET DETAILS | WOOD DECK

### Installation Steps: (use only with floating eave)

- 1. To accommodate the placement of the End Wall trim and end dam, apply the butyl tape sealant across the pan of the panel.
- 2. Install the end dam using wood-grip screws on 4" centers through the panel and end dam as shown.
- 3. Use butyl caulk to seal the ends of the end dam.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Fasten End Wall trim to end dam using pop rivets on 12" centers.



53

## FIXED HIGH SIDE EAVE | WOOD DECK

### Installation Steps: (use only with floating eave)

- 1. Apply butyl tape sealant to the panel, to accommodate the high side eave trim and end dam.
- 2. Apply end dam and attach using 1 1/2" wood-grip screws on 4" centers.
- 3. Seal the end dam sides with tube sealant.
- 4. Apply butyl tape sealant to the top of the end dam.
- 5. Attach High side eave trim to the end dam using pop rivets as shown.



## FLOATING VALLEY | WOOD DECK

### Installation Steps: (use only with fixed Ridge/Hips)

- 1. Install Valley Trim over the Valley from the bottom up. Secure with #10 x 1 wood-grip pan head screws (5' centers).
- 2. Install butyl tape sealant 4" to 5" from center of the valley trim.
- 3. Install edge plates over the butyl tape sealant using #10 x 1 wood-grip pan head screws on 12" centers.
- 4. Field cut and hem panel ends. Install over edge plate as shown.
- 5. Seal the ends of the panel legs using tube sealant.



# **ROOF PITCH CHANGE INSTALLATION**

- 1. Apply lower panels.
- 2. Apply butyl tape sealant to lower panel to accommodate the end dam and transition flashing.
- 3. Apply end dam and attach using wood-grip screws on 4" centers an seal end dam sides with tube sealant.
- 4. Apply butyl tape to top of end dam.
- 5. Attach lower transition flashing to top of end dams using pop rivets, making sure to maintain roof pitch on the lower flashing.
- 6. Place a row of butyl tape at a point that will accommodate the upper edge plate.
- 7. Hem and install the appropriate upper panels.

**NOTE:** Alternate trim profiles are acceptable using the screw pattern shown.



### FIXED ENDLAP | WOOD DECK

### **Installation Steps:**

- 1. Install lower panel as detailed in the installation instructions.
- 2. Install butyl tape sealer on the lower panel, centered over the backup channel 4 <sup>1</sup>/<sub>2</sub>" from the upper end of the panel. Start at the outside bottom of the female rib, extending up and over the rib, down to the pan of the panel, across the width of the panel, and up and over the male rib as pictured.
- 3. Install the upper panel by snapping it over the lower panel. Fasten using five screws in the fastener sequence shown.





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