



**Supreme-Lok**  
**Standing Seam**  
**Roof System**

**Erection**  
**Manual**

THIS MANUAL APPLIES TO “SUPREME-LOK” SYSTEM.  
“SUPREME-LOK” REQUIRES PANEL SIDELAPS TO BE  
MECHANICALLY SEAMED.

EFFECTIVE JANUARY 1, 2006 / JC & JEN

## IMPORTANT NOTICE

READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE **SUPREME-LOK** ROOFING SYSTEM. USA DETAILS MUST BE FOLLOWED AS A MINIMUM TO INSURE APPROPRIATE WARRANTIES WILL BE ISSUED.

IF THERE IS A CONFLICT BETWEEN PROJECT ERECTION DRAWINGS PROVIDED OR APPROVED BY USA AND DETAILS IN THIS MANUAL, PROJECT ERECTION DRAWINGS WILL TAKE PRECEDENCE.

### THERMAL SPACER DISCLAIMER

The thermal spacer chart on page SL2EM-2 is intended to be used as a general guideline only. Because of the various densities of insulation currently available, the manufacturer cannot guarantee that this chart will be accurate in all situations. Further, the manufacturer does not specifically require that the roofing contractor use thermal spacers with its Supreme-Lok roof system. However, please review the following information:

- Although the manufacturer does not require a thermal spacer, the architect or building owner may.
- In certain environments, the compression of the fiberglass insulation, without a thermal spacer, may create a thermal break which can cause condensation to form on the purlins/ joists.
- On uninsulated buildings, eliminating the thermal spacer: (1) may cause "roof rumble" and (2) you may encounter problems holding panel module.
- When a high clip is used without a thermal spacer: (1) may encounter problems holding panel module and (2) foot traffic on the panel ribs may result in bent clips.
- Using a low clip with too much insulation or too thick a thermal spacer: (1) may cause "purlin read" (2) may cause difficulty in properly installing the panel side laps, and (3) you may encounter problems holding panel module.
- Thermal calculations should be performed on each project to ensure that the thermal movement of the roof is not greater than the floating clip's capacity. Various densities of blanket insulation and or the appearance of a metal roof system. The installer is responsible for selecting the proper clip and thermal spacer for their conditions. THERMAL BLOCKS AND INSULATION ARE OPTIONAL.

Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve Products, USA reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. To insure you have the latest information available, please inquire. Application details are for illustration purposes only and may not be appropriate for all environmental conditions, building designs, or panel profiles. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices. Insulation is not shown in these details for clarity.

# CONTROL OF SUPREME-LOK PANEL MODULE

Standing seam panel modules can vary. The panel clips attach to the locking legs of the panel. This connection point is 3 3/8" or 4 3/8" higher than the base connection. Due to the distance of the connection points, the panel module can change based on personnel working in panels, the thickness of the insulation, etc.

## MEASUREMENT OF PANEL MODULE

- Employee standing in the panel, during the measurement of panel module will change the measurement reading.
- The frame line(s) can be used as a location to measure the panel.

## CLIPS / THERMAL BLOCKS

- Low clips are used for up to 4' of insulation, thermal blocks are not required.
- High clips required the use of thermal blocks.
  - \* Thermal block sizing (high clip)
    1. 4" of insulation requires use of 3/4" thermal blocks
    2. 6" of insulation - USA standard is to supply 3/8" thermal blocks but some erectors prefer 3/4" thermal blocks. The 3/4" thermal block is only supplied when requested on the contract.
- Employees working in the panel during installation of panel clip and backup plates will affect the panel module. If employees are to work in the panel during the installation of the panel, then it is suggested the employee work over a secondary member, not in between the secondary members.

## EAVE (METAL INSIDE CLOSURE)

- The installation of the inside closure is based on field measurement between the inside closures, therefore, the eave module should be at the proper location.
- An overall measurement at various inside closures or at frame line(s) is recommended since individual measurements (deviations between the individual closures) can be cumulative.

## BACK UP PLATES

- The backup plate can be used to help to increase or decrease the panel module. The outer legs of the backup plate can be bent inward (toward the center of the plate) to decrease the panel module or bent outward (away from the center of the plate) to increase panel module.
- NOTE: The panel must form to the shape of the backup plate. The backup plates must remain connected together (tab in slot).

## RIDGE

- Installing the outside closures along the ridge/high eave during panel installation will help to control the panel module at this location. The outside closure can act as a spacer. The outside closure will need to be one run behind the installation. The panel must fully form to the backup plate and the backup plate must remain attached to the previous back up plate.

## OTHER

- Wood blocking can be used to help stretch the panel module at clip locations. The wood blocking will help to control the clips at the wider location.
- Wood blocking can be cut from any available wood at the site.
- The wood blocking will be located between the vertical locking legs of the panel.
- The wood blocking should be cut + 1/4" to + 3/8" longer than required for a 2'-0" module.
- The blocking will remain in panels or 4 - 5 runs. If additional width gain is required, move the first installed block to the current panel run. All intermediate runs will remain.
- Use this method until the desired position is obtained. At this point the use of blocking can be discontinued. The wood blocking can be used, as required, during later stages of installation.
- The panel clips must remain tight to the panels.



# Supreme-Lok

# ERECTION

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# ERECTION

# Supreme-Lok

## ARCHITECT / ENGINEER INFORMATION

- Supreme-Lok** is a mechanically seamed roof system. **Supreme-Lok** panels are 16" wide. Factory applied mastic inside of female leg of panel is standard.
- Supreme-Lok** is a structural roofing panel. This panel can be installed directly over purlins or bar joists. It does not require a solid substructure for support. The **Supreme-Lok** roof system has several different UL90 construction numbers.
- Supreme-Lok** is recommended for roof slopes of ½:12 or greater.
- Watertight and aesthetically pleasing endlaps may be accomplished through the use of swaged and prepunched panels. USA recommends the use of prepunched back-up plates at the endlap for weathertightness. Prepunching of the panels is available for the endlap condition of 16" width panels only. Swaged endlaps require the roof erection to proceed from right to left as viewed from the eave looking toward the ridge. Roofs with no endlaps may be erected from either direction. For panel lengths over 40', please inquire.
- Heavier gauges, striations, embossing and installation over a solid deck minimize oil canning. Industry standard is 24 gauge. Oil canning is not a cause for rejection.
- Substructure must be on an even plane from eave to ridge to avoid panel distortion (¼" in 20', ⅜" in 40' tolerance). Max ¼ shim @ clips.
- All panels require end sealant at eave and valley conditions; however, for illustration purposes, this sealant is not shown on all drawings. See page SL2EM-15 or panel end sealant detail.
- For proper fastener application, see Product Checklist.
- All perimeter trim dimensions in this manual are based on a wall panel thickness of 1 ¼" ("PBR" Panel). Any variation from this wall panel thickness may affect the perimeter trim dimensions.
- The information in this manual is believed to be correct and accurate. It should not be used for any specific application without being reviewed by a registered professional engineer.
- Drawings in this manual utilize the low fixed clip. Clips are available in low or high fixed, low or high floating and utility. Please use the reference chart below to determine the clip required for your particular job.
- Avoid restricting the thermal expansion and contraction of the **Supreme-Lok** panels. (ie: Do not attach panel to the substructure at both the eave and ridge.) However, panels must be attached to the substructure at one end to prevent their sliding downslope.
- Supreme-Lok** panels are not designed to be work platforms. Avoid any unnecessary foot traffic on **Supreme-Lok** panels. If foot traffic is required, protect the roof panels by using some type of roof pad, temporary deck, or walkway.
- WARNING: Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. USA DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand or rest on or near these light transmitting panels or that they comply with any OSHA regulation.**
- A vapor retarder may be necessary to protect roofing components when high interior humidity is a factor. The need for a vapor retarder, as well as the type, placement and location should be determined by an architect or engineer. The following are examples of conditions that may require a vapor retarder: (A) Projects where outside winter temperatures below 40°F are anticipated and where average winter interior relative humidity of 45% or greater is expected. (B) Building usages with high humidity interiors, such as indoor swimming pools, textile manufacturing operations, food, paper or other wet-process industrial plants. (C) Construction elements that may release moisture after the roof is installed, such as interior concrete and masonry, plaster finishes and fuel burning heaters.
- Typically, when wood decks are used, they are temporarily protected by the installation of a moisture barrier over the wood deck. If utility clips are to be used, the **Supreme-Lok** panel will lay tight to the wood deck. If tin tabs are used to attach the moisture barrier to the deck, they must be covered with duct tape or some other material to prevent them from rusting the back side of the panels. Also, plastic washers may "Telegraph" through the panels.

It will greatly facilitate DESIGNING, QUOTING, ORDERING, OR ERECTING the USA Supreme-Lok roof if you determine which system you need or have, based on building width and insulation requirements.

### FIXED

**BUILDING WIDTH**  
 DOUBLE SLOPE 200' WIDE OR LESS  
 SINGLE SLOPE 100' WIDE OR LESS  
**LOW FIXED-** With or without ⅜" thermal spacer  
**HIGH FIXED-** With ⅜", ¾" or 1" thermal spacer for added insulation.  
**UTILITY-** For applications that do not require the clearance provided by the low and high clips.

### FLOATING

**BUILDING WIDTH**  
 DOUBLE SLOPE OVER 200' WIDE  
 SINGLE SLOPE OVER 100' WIDE  
**LOW FLOATING-** With or without ⅜" thermal spacer  
**HIGH FLOATING-** With ⅜", ¾" or 1" thermal spacer for added insulation.

Floating clips have maximum of 1" movement in each direction. Thermal calculations should be performed for each project to ensure that the thermal movement of the roof is not more than the clips can handle.

**FOR ROOF PITCHES GREATER THAN 6:12, CALL USA.**

### NOTES

- The above applies to pre-engineered metal buildings.
- Bar joist construction (all widths) requires a floating system.
- As with all standing seam roof systems, a sound insulator (EXAMPLE: blanket insulation) is required between the panel and substructure. Some composite systems require additional acoustical consideration. Call USA for further information.
- Utility clips require the use of a low profile fastener, ie: pancake head.



# Supreme-Lok ERECTION

## UNDERWRITERS LABORATORIES REQUIREMENTS

### Supreme-Lok

Construction Number	Panel Width (In.)	Gauge	Clip Type	Clip Spacing	Substrate	UL-2218 Impact Resistance	UL-263 Fire Rating	UL-580 Rating
90	16	24 min.	*	5'-0 <sup>1</sup> / <sub>16</sub> "	Open Framing	Class 4	Class A	Class 90
176	16	24 min.	N/A	5'-0 <sup>1</sup> / <sub>4</sub> "	Open Framing	Class 4	Class A	Class 90
180	16	24 min.	**	5'-0 <sup>1</sup> / <sub>16</sub> "	Open Framing	Class 4	Class A	Class 90
238B	16	24 min.	**	2'-6"	Composite System	Class 4	Class A	Class 90
437	16	24 min.	**	5'-0"	Plywood	Class 4	Class A	Class 90
449	16	24 min.	*	5'-0"	Open Framing	Class 4	Class A	Class 90
451	16	24 min.	*	2'-0"	Composite System	Class 4	Class A	Class 90
452	16	24 min.	*	2'-0"	Composite System	Class 4	Class A	Class 90
487	16	24 min.	**	4'-0"	Composite System	Class 4	Class A	Class 90

\* - Fixed or Floating (high or low)

\*\* - Fixed or Floating (high, low or utility)

**Notes:**

1. Test procedures are in accordance with Underwriters Laboratories Standard UL-580 under "Tests For Uplift Resistance of Roof Assemblies".
2. A detailed installation method is available for each Construction Number Above and can be found in the UL Roofing Materials and Systems Directory. The panels must be installed in a certain manner at achieve the published results.
3. The panel qualifies for a Class A fire rating in compliance with Underwriters Laboratories Standard UL-263.
4. The panel system is listed under the following Fire Resistance Design Numbers: P224, P225, P227, P230, P233, P237, P265, P268, P508, P512, P701, P711, P801, P803. Refer to the UL Fire Resistance Directory for specific construction methods and hourly ratings.

## FACTORY MUTUAL APPROVAL

### Supreme-Lok

Panel Width	Gauge	Clip Type	Clip Spacing	Hail Damage Rating	ASTM E108 Fire Rating	FM Windstorm Rating
16	24	Floating	4'-0"	Class 1-SH	Class A	Class 1-90
16	22	Floating	5'-0"	Class 1-SH	Class A	Class 1-105
16	22	Floating	4'-0"	Class 1-SH	Class A	Class 1-135

**Notes:**

1. Test procedures are in accordance with Factory Mutual Research Corporation (FMRC) Standard 4471.
2. A detailed test report is available for each product above. The panels must be installed in a specific manner to achieve the published results. Contact U.S.A. for more information.



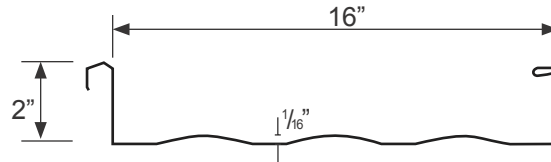
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# ERECTION

# Supreme-Lok

## Supreme-Lok Panel



### SECTION PROPERTIES

PANEL WIDTH	PANEL GAUGE	F <sub>y</sub> (KSI)	WEIGHT (PSF)	TOP FLAT IN COMPRESSION			BOTTOM FLAT IN COMPRESSION		
				I <sub>x</sub> (in. <sup>4</sup> /ft.)	S <sub>e</sub> (in. <sup>3</sup> /ft.)	M <sub>a</sub> (Kip in.)	I <sub>x</sub> (in. <sup>4</sup> /ft.)	S <sub>e</sub> (in. <sup>3</sup> /ft.)	M <sub>a</sub> (Kip in.)
16"	24	50.0	1.38	0.1081	0.0587	1.758	0.0594	0.0519	1.554
	22	50.0	1.72	0.1444	0.0817	2.447	0.0808	0.0669	2.003

### NOTES

- All calculations for the properties of Supreme-Lok panels are calculated in accordance with the 1986 edition of Specifications for the Design of Light Gauge Cold Formed Steel Structural Members - published by the American Iron and Steel Institute (A.I.S.I.).
- I<sub>x</sub> is for deflection determination.
- S<sub>e</sub> is for bending.
- M<sub>a</sub> is allowable bending moment.
- All values are for one foot of panel width.

## ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

24 Gauge (F <sub>y</sub> =50KSI)		16" Wide Panel							
SPAN TYPE	LOAD TYPE	SPAN IN FEET							
		2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
2-SPAN	POSITIVE WIND LOAD	221	153	113	86	68	55	46	38
	LIVE LOAD/DEFLECTION	166	115	85	65	51	41	34	29
3-SPAN	POSITIVE WIND LOAD	276	192	141	108	85	69	57	48
	LIVE LOAD/DEFLECTION	207	144	106	81	64	52	43	34

22 Gauge (F <sub>y</sub> =50KSI)		16" Wide Panel							
SPAN TYPE	LOAD TYPE	SPAN IN FEET							
		2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
2-SPAN	POSITIVE WIND LOAD	285	198	145	111	88	71	59	49
	LIVE LOAD/DEFLECTION	214	148	109	83	66	53	44	37
3-SPAN	POSITIVE WIND LOAD	356	247	182	139	110	89	74	62
	LIVE LOAD/DEFLECTION	267	185	136	104	82	67	55	46

### NOTES

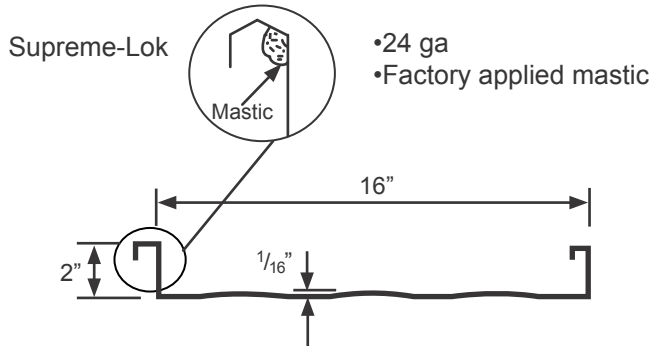
- Allowable loads are based on uniform span lengths and F<sub>y</sub> of 50 KSI.
- Live load is allowable live load.
- Wind load is allowable wind load and has been increased by 33⅓%.
- Deflection loads are limited by a maximum deflection ratio of L/240 of span or maximum bending stress from live load.
- Weight of the panel has not been deducted from allowable loads.
- Load table values do not include web crippling requirements.
- Negative uplift values are available from U.S.A.



# Supreme-Lok

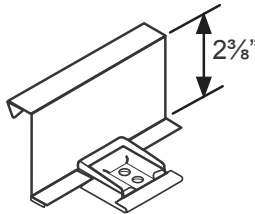
# ERECTION

## PRODUCT CHECKLIST



Clip, Low Floating

Low - For use with or without  $\frac{3}{8}$ " thermal spacer

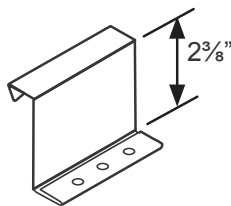


HW-230

2 SCREWS PER CLIP

Clip, Low Fixed

Low - For use with or without  $\frac{3}{8}$ " thermal spacer

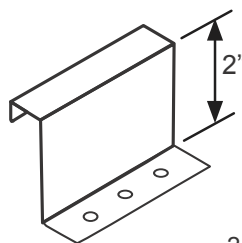


HW-236

2 SCREWS PER CLIP

Clip, Utility

For applications that do not require the clearance provided by the low and high clips.



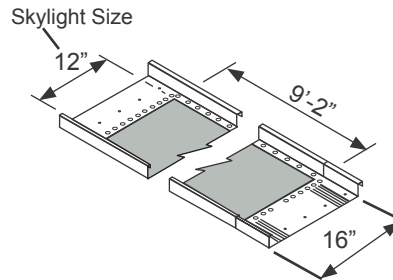
HW-238

2 SCREWS PER CLIP

Light Transmitting Panel

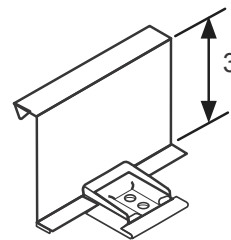
Available in the following:

- Standard Insulated
- Standard Uninsulated
- UL-90 Insulated with stiffener plate
- UL-90 Uninsulated with stiffener plate



Clip, High Floating

High - For use with or without  $\frac{3}{8}$ ",  $\frac{3}{4}$ " or 1" thermal spacer

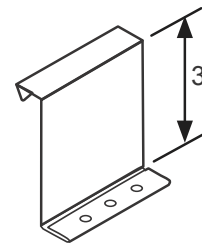


HW-232

2 SCREWS PER CLIP

Clip, High Fixed

High - For use with or without  $\frac{3}{8}$ ",  $\frac{3}{4}$ " or 1" thermal spacer

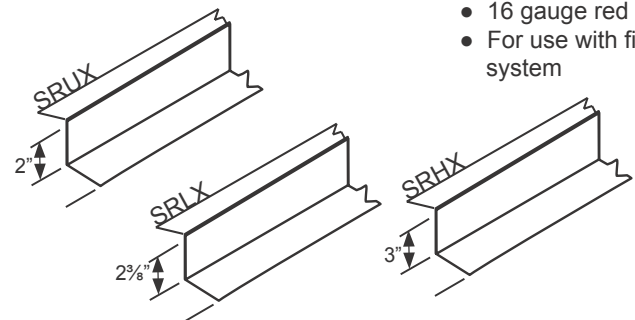


HW-234

2 SCREWS PER CLIP

Rake Support Zee

- 20'-0" length
- 16 gauge red oxide
- For use with fixed system







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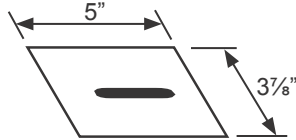
# ERECTION

# Supreme-Lok

## PRODUCT CHECKLIST

### Bearing Plate, Standard

- 16 gauge red oxide
- For use with insulating boards



### Tape Sealer



#### Tri-Bead Tape Sealer

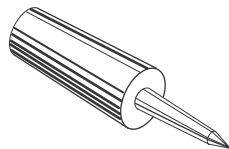
- 3/16" x 7/8" x 25'
- For use at eave, ridge, endlaps and trim connections

#### Triple Bead Tape Sealer

- 3/16" x 2 1/2" x 20'
- For use at valley when using exposed fasteners
- For use with roof curbs
- For use at high rib of panel endlap (swaged panel) 6" long

### Tube Sealant

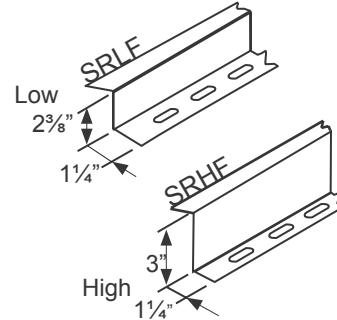
- Clear Urethane
- Paintable



36 lineal feet of 3/8" bead per tube of sealant

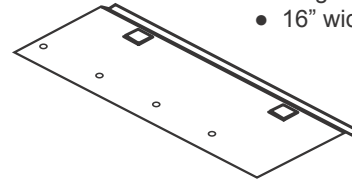
### Rake Support Zee

- 20'-0" length
- 16 gauge red oxide
- Factory Slots
- For use with floating system



### Back-Up Plate

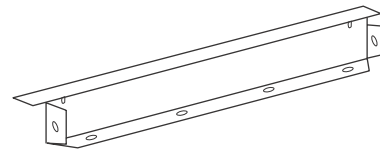
- For use at ridge and endlaps
- Prepunched
- 16 gauge red oxide
- 16" wide



HW-7766

### Outside Closure

(Standard)  
16" wide



HW-440

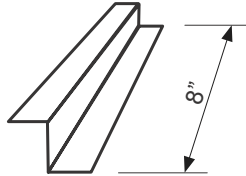


# Supreme-Lok

# ERECTION

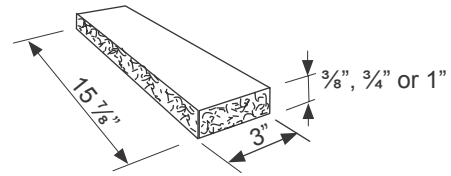
## PRODUCT CHECKLIST

Gutter Strap

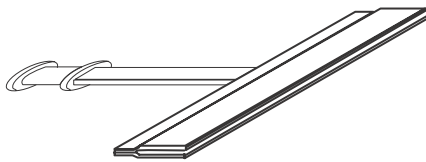


Thermal Spacer

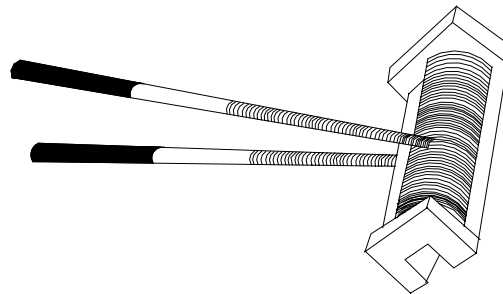
- Polystyrene block used to increase the insulation capacity along the purlins



Panel Hemming Tool

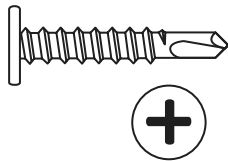


Phase 1 Hand Crimper



10x1" #2 Phillips Pancake Head Self Driller

- Utility clip to purlin
- Offset cleat to valley support plate
- Eave conditions (Optional)



Pop Rivet  
 1/8" diameter X 3/16" grip range

- Stainless steel
- Trim to trim connections

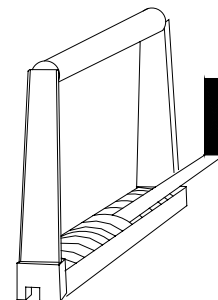


Pop Rivet  
 1/8" diameter X 3/8" grip range

- Outside closure to angle on floating hip detail



Phase 2 Hand Crimper





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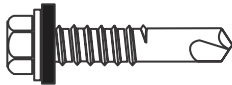
# ERECTION

# Supreme-Lok

## PRODUCT CHECKLIST

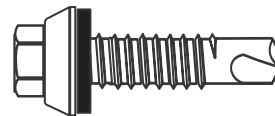
12-14x1" Self Driller  
 $\frac{5}{16}$ " Hex Washer Head, with washer

- Clip to purlin



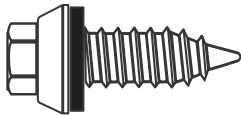
12-14x1 $\frac{1}{4}$ " Driller  
 $\frac{5}{16}$ " Hex Washer Head, with sealing washer

- Panel to eave plate or eave strut
- Rake trim to roof panel
- Standard Endlaps
- Panel to valley plate



17x1" AB  
 $\frac{5}{16}$ " Hex Washer Head, with sealing washer

- Use in place of all stripouts



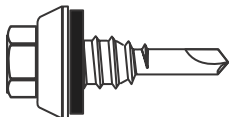
$\frac{1}{4}$ -14x1 $\frac{1}{4}$ " Shoulder TEK® 2  
 $\frac{5}{16}$ " Hex Washer Head, with no washer

- Rake support to purlin - floating system only



STITCH SCREW  
 14x $\frac{7}{8}$ " LAP TEK®  
 with sealing washer

- Ridge and other flashing outside closure
- Gutter to panel
- Gutter to strap
- Trim to trim connections
- Outside closure to panel at ridge (without backup plate)



$\frac{1}{4}$ -20x1 $\frac{1}{4}$ " Shoulder TEK® 4  
 $\frac{5}{16}$ " Hex Washer Head, with no washer

- Rake support to joist - floating system only



12-24x1 $\frac{1}{4}$ " TEK® 4.5 Driller  
 $\frac{5}{16}$ " Hex Washer Head, with no washer

- Clip to joist



12-14x1" Self Driller  
 $\frac{5}{16}$ " Hex Washer Head, with washer

- Outside closure to panel at ridge (with back-up plate)





# Supreme-Lok

# ERECTION

## PRODUCT CHECKLIST

**14x1<sup>5</sup>/<sub>8</sub>" Deck Screw Driller**  
 #3 Phillips Truss Head

- Fastens offset cleat to outside closure at vent material (not plywood)



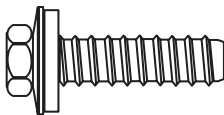
**14x4<sup>1</sup>/<sub>2</sub>" Deck Screw Driller**  
 #3 Phillips Truss Head

- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



**1/4x14x1" Type B**  
 1/4" Hex Washer Head, with 1/2" O.D. washer

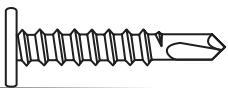
- Special application fastener
- For use on structural steel up to 1/2" thick



**10x1" #2 Phillips Pancake Head Self Driller**

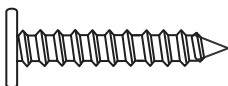


- Utility clip to purlin
- Offset cleat to valley support plate
- Eave condition architectural details



**10x1" Type A #2 Phillips Pancake Head Self Driller**

- Utility clip to plywood



**14x2<sup>7</sup>/<sub>8</sub>" Deck Screw Driller**  
 #3 Phillips Truss Head

- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



**14x6" Deck Screw Driller**  
 #3 Phillips Truss Head

- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



**Pop Rivet**  
 1/8" diameter X 3/16" grip range

- Stainless steel
- Trim to trim connections



**Pop Rivet**  
 1/8" diameter X 3/8" grip range

- Outside closure to angle on floating hip detail





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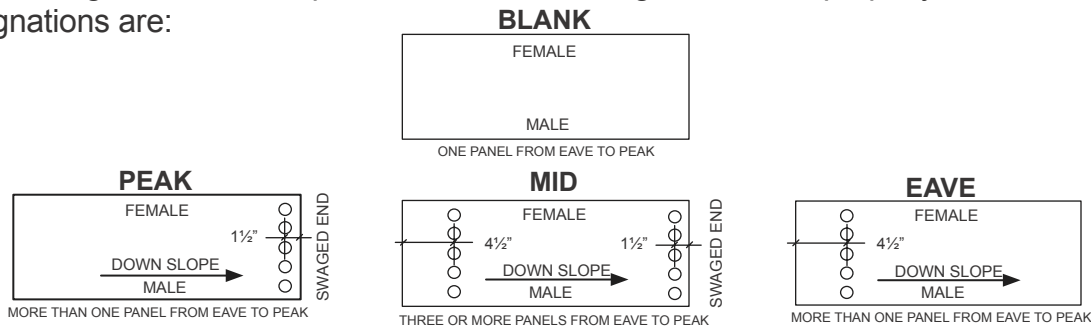
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# ERECTION

# Supreme-Lok

## Supreme-Lok ORDERING INFORMATION

- I When ordering Supreme-Lok panels without technical assistance from USA, the following must be provided:
- A) Panel Length - The length of each panel should include the proper overhang at the eave, endlap, and peak as required. Refer to specific details in this manual for the proper overhang at these locations. If the panels are to be hemmed at the eave, add 1½" to the panel length.
  - B) Standard panel length shall be no more than 45 feet long (for longer length availability, contact USA).
  - C) Panel Designations - Each panel must have a designation to be properly manufactured. These designations are:



- II If your specific detail is not in this manual or if you have questions concerning panel length, designation or product application, call your U.S.A. sales representative.

## INSTALLATION GUIDELINES

### I. Pre-Order

- A. Prior to ordering panels, all dimensions should be confirmed by field measurement.

### II. Jobsite Storage and Handling

- A. Check the shipment against the shipping list.
- B. Damaged material must be noted on Bill of Lading.
- C. Panel crates should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
- D. Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.

### III. Application Checklist

- A. Check substructure for proper alignment and uniformity to avoid panel distortion.
- B. Periodic check of panel alignment is crucial to proper panel alignment.
- C. If there is a conflict between this manual and the project erection drawings; the erection drawings will take precedence.

### IV. LTP Warning

- A. **WARNING:** Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. U.S.A. DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand or rest on or near these light transmitting panels or that they comply with any OSHA regulation.



# Supreme-Lok

# ERECTION

## PREPARATORY REQUIREMENTS

1. USA has field seaming kits available for installation of the Supreme-Lok roof system. To reserve a kit, please complete a Supreme-Lok Seaming Tool Rental Agreement and return it to your USA representative. This form should be submitted as soon as possible to ensure kit availability. Other types of field seaming machines may properly seam the USA Supreme-Lok panels; however, USA cannot be responsible for any damage when another type of field seamer is used.
2. A single pitch eave strut must be used with the Supreme-Lok roof system.
3. A rake angle or an alternate structural flat surface must be installed on top of the purlins to accept the rake support.
4. All primary and secondary framing must be erected, plumbed and squared with bolts tightened according to accepted building practices.
5. The substructure (eave to ridge) must be on plane ( $\frac{1}{4}$ " in 20' or  $\frac{3}{8}$ " in 40' tolerance).
6. It is critical that the purlins or bar joists at the ridge and endlaps be located exactly as detailed and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the ridge or endlaps to foul as the panels expand and contract.
7. Peak Purlin Spacing - 24" (12" from the center line of the ridge to the web of the purlin).
8. For low systems without insulation,  $\frac{3}{8}$ " thermal spacers are recommended. For low systems with up to 4" insulation, thermal spacers are not required. Maximum insulation thickness is 4". For high systems with up to 3" of insulation,  $\frac{3}{4}$ " or 1" thermal spacers are required. For high systems with more than 3" of insulation,  $\frac{3}{8}$ " thermal spacers are required. Maximum insulation thickness is 6".
9. Read recommended installation techniques on page SL2EM-15 and SL2EM-16 before installing panels.
10. USA recommends the use of a screw gun with a speed range of 0-2000 RPM to properly install all fasteners referenced in this manual. Tools rated to 4000 RPM should never be used for self drilling fasteners typically supplied with metal roof and wall systems.
11. Eave plates for high fixed or high floating systems have been omitted. See job drawings for exact details.

### CAUTION

**Application and design details are for illustration purposes only, and may not be appropriate for all-environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.**

### CAUTION

**Avoid restricting the thermal expansion and contraction of the Supreme-Lok panels. (i.e., Do not attach panel to the substructure at both the eave and ridge.)**

**WARNING: Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. U.S.A. DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand or rest on or near these light transmitting panels or that they comply with any OSHA regulation.**



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# ERECTION

# Supreme-Lok

## UNLOADING

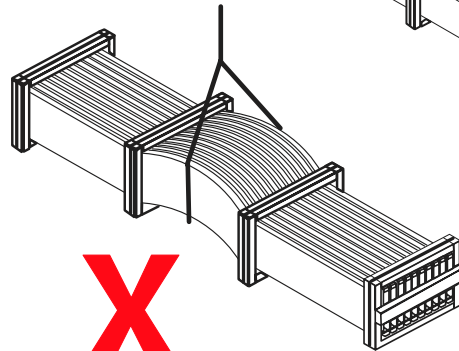
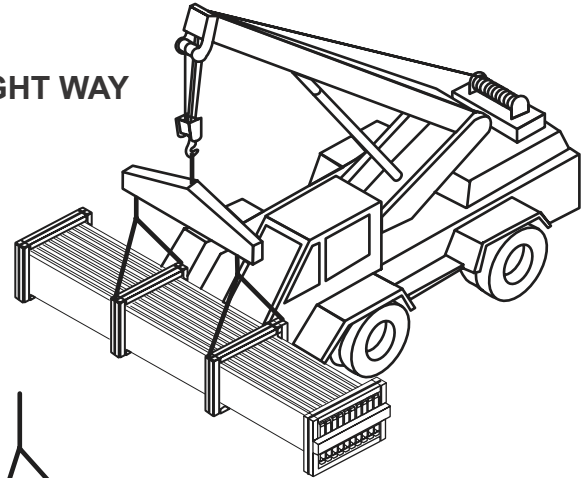
Upon receiving material, check shipment against shipping list for shortages and damages. USA will not be responsible for shortages or damages unless they are noted on the Bill of Lading.

Each bundle should be lifted at its center of gravity. Where possible, bundles should remain banded until final placement on roof. If bundles must be opened, they should be retied before lifting.

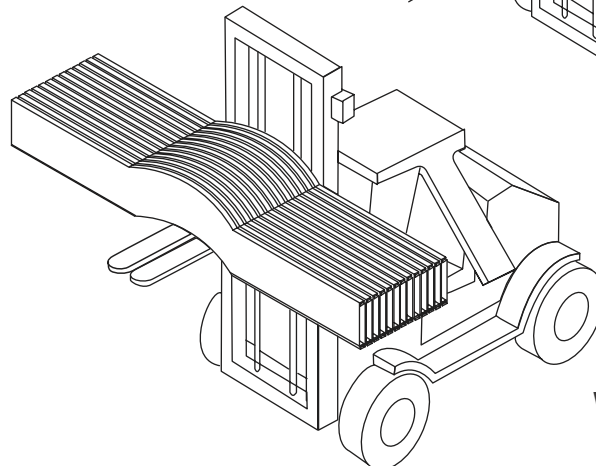
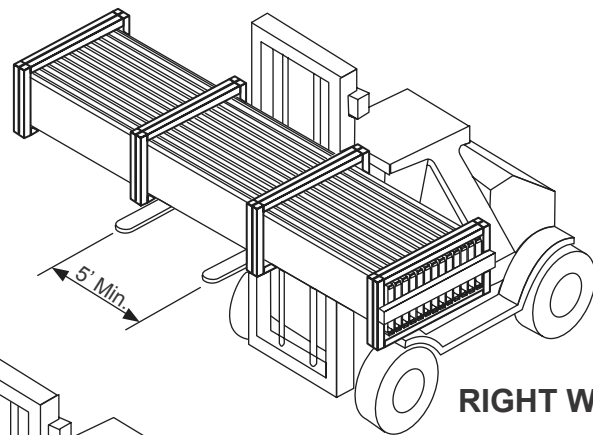
When lifting bundles with a crane, a spreader bar and nylon straps should be used. **NEVER USE WIRE ROPE SLINGS THEY WILL DAMAGE THE PANELS.**

When lifting bundles with a forklift, forks must be a minimum of five feet apart. Do not transport open bundles. Drive slowly when crossing rough terrain to prevent panel buckling.

**RIGHT WAY**



**WRONG WAY**



**WRONG WAY**

**CAUTION**  
 Improper unloading and handling of bundles and crates may cause bodily injury or material damage. The manufacturer is not responsible for bodily injuries or material damages during unloading and storage.

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# Supreme-Lok

# ERECTION

## UNLOADING

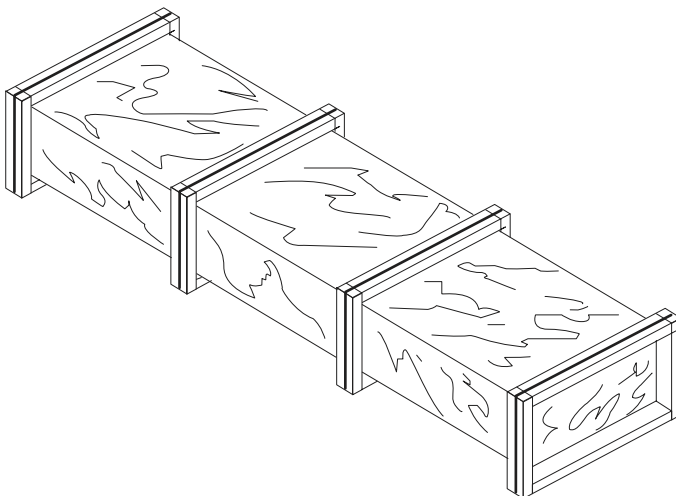
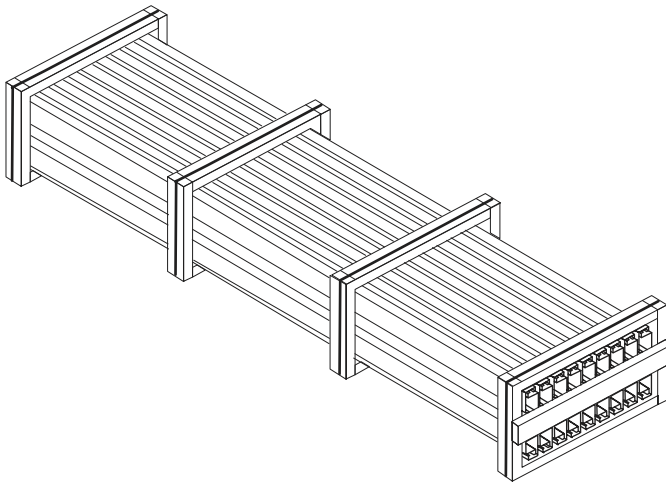
(continued)

### BLOCK AND BAND

This method of bundling is used for orders that are to be picked up by the customer or shipped by common carrier. 2 x 4's are trapped under the bundles to allow access for straps or a forklift. Bundles less than 25' long may be handled by a forklift. The forklift should have at least 5' between forks. Bundles longer than 25' should be lifted utilizing a spreader bar with nylon straps.

### FULL CRATE

This method is used on all overseas shipments or by customer's order. Handling requirements are the same as block and band.







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# ERECTION

# Supreme-Lok

## HANDLING/ PANEL STORAGE

Standing on one side, lift the panel by the seam. If the panel is over 10' long, lift it with two or more people on one side of the panel to prevent buckling.

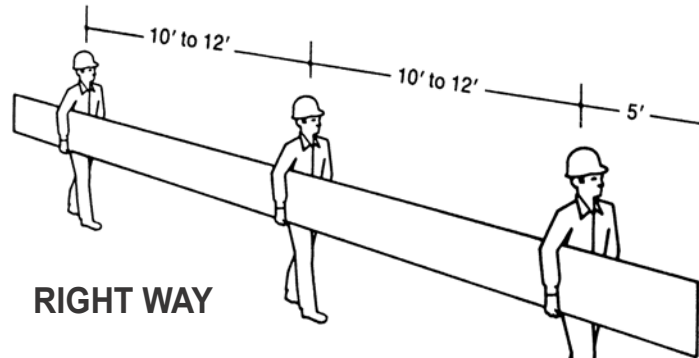
**Do not pick up by the ends.**

### NOTE

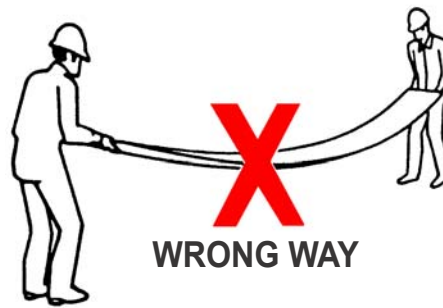
Protective gloves should always be used while handling panels. OSHA safety regulations must be followed at all times.

Store bundled sheets off the ground sufficiently high to allow air circulation beneath bundle and to prevent rising water from entering bundle. Slightly elevate one end of bundle. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground. **PROLONGED STORAGE OF SHEETS IN A BUNDLE IS NOT RECOMMENDED.** If conditions do not permit immediate erection, extra care should be taken to protect sheets from white rust or water marks.

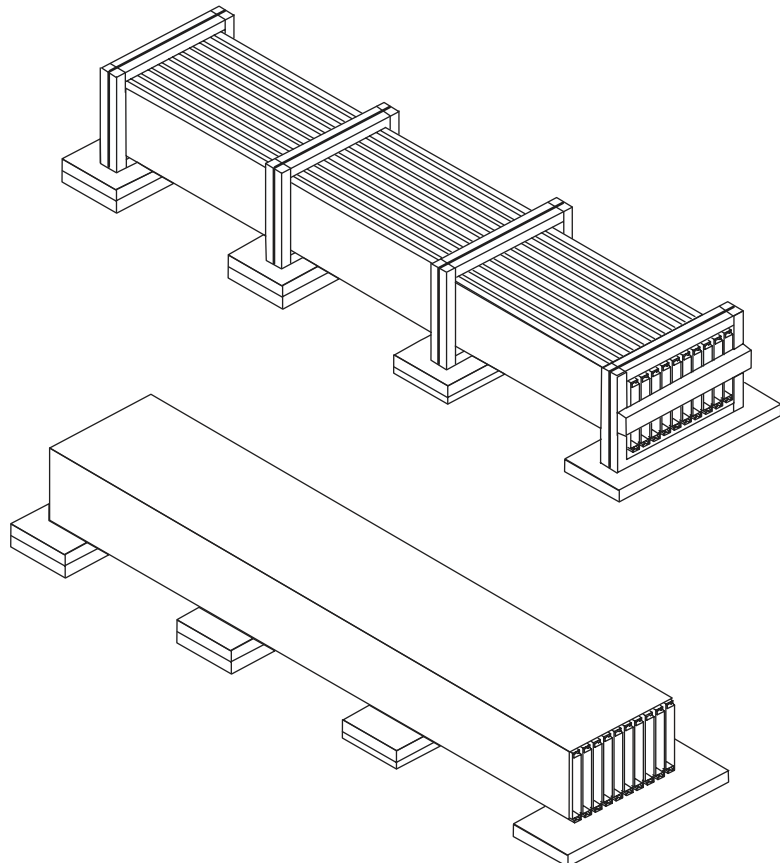
Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be removed from crate and wiped dry, then restack and loosely cover to prevent air from circulating between the panels. Care must be given during handling to avoid damage to the locking edges of the panels.



**RIGHT WAY**



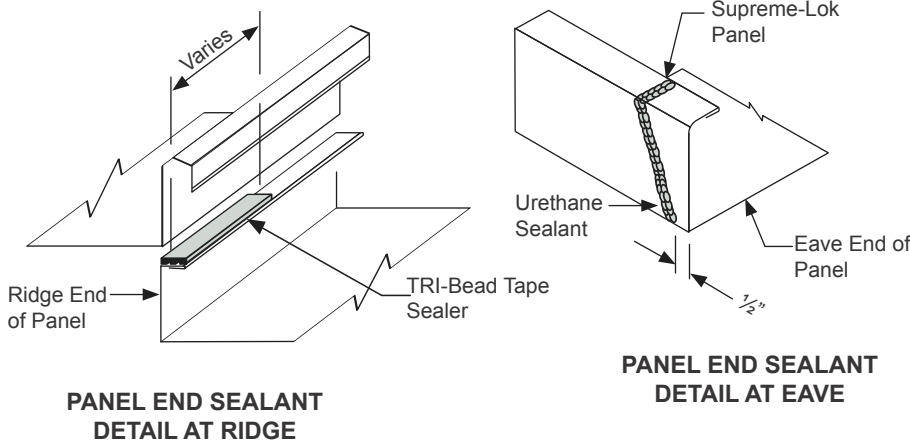
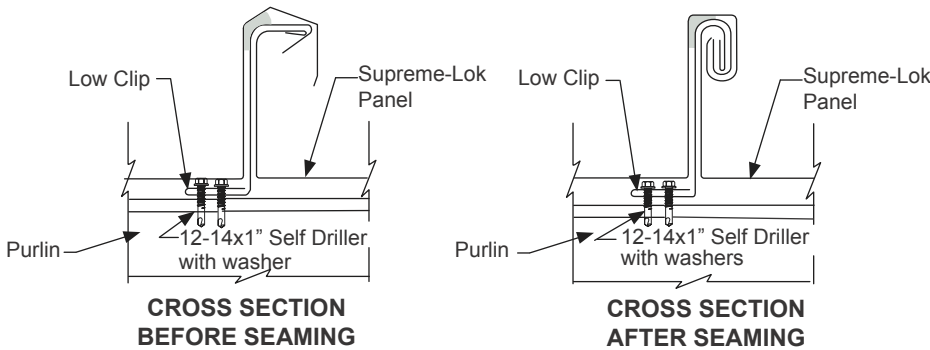
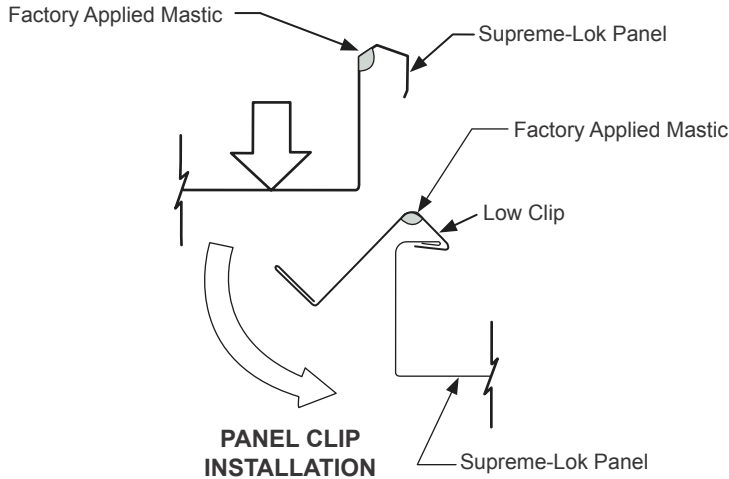
**WRONG WAY**





# Supreme-Lok

# ERECTION



## RECOMMENDED INSTALLATION TECHNIQUES

Supreme-Lok clips are supplied with factory applied mastic. If a clip must be removed from the panel, check factory mastic - if damaged, replace with a bead of urethane sealant.

As panels are installed, hand seam at each clip with hand tool. Panels should be completely seamed with electric seamer as soon after installation as possible. Refer to pages SL2EM-30 through SL2EM-33 for seaming information.

Seal panel seams at eave and valleys with urethane sealant.

Seal panel seams at ridge by applying a piece of Tri-Bead tape sealer along the top of the male leg before the next panel is installed. Tape sealer should begin at the upper end of the peak panel and extend downslope 7" when using a high side eave detail. For all other ridge details, tape sealer will extend 3" downslope.



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# ERECTION

# Supreme-Lok

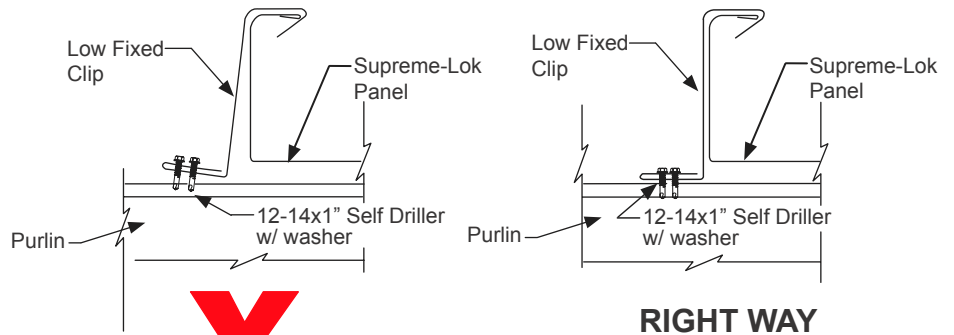
## RECOMMENDED INSTALLATION TECHNIQUES

(continued)

When installing clips, be sure to push them tight to the panel before installing fasteners. If you leave a gap between the clip and the panel, it will affect panel module.

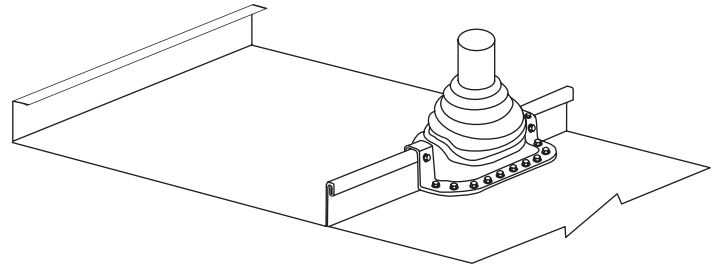
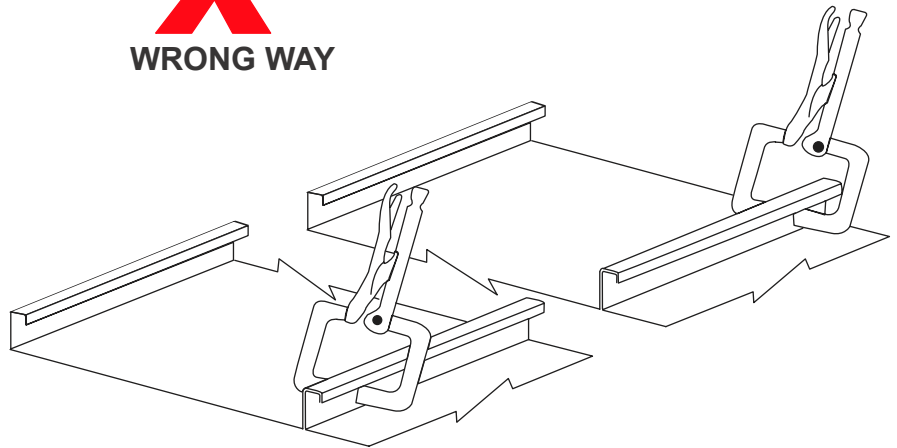
Before installing clips to second and all following panels, C clamp the panel seam at both ends. Long panels may require one or more C clamps in the middle. This will help hold panel module.

Never install plumbing vent pipes through the panel seam. Always install in the pan of the panel. If the pipe is too large to allow adequate water flow down the panel, install the pipe in a roof curb.

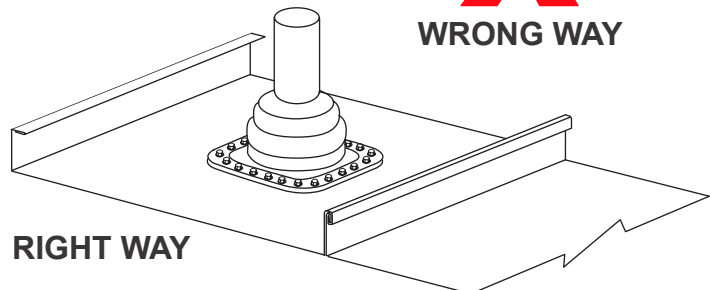


**X**  
WRONG WAY

RIGHT WAY



**X**  
WRONG WAY

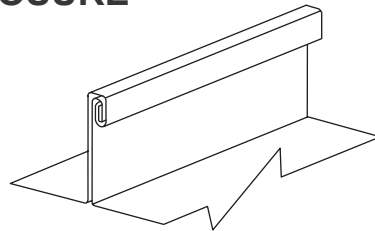
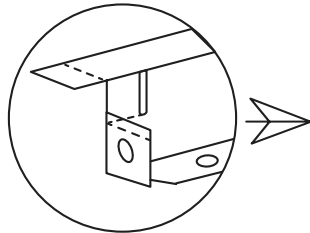


RIGHT WAY

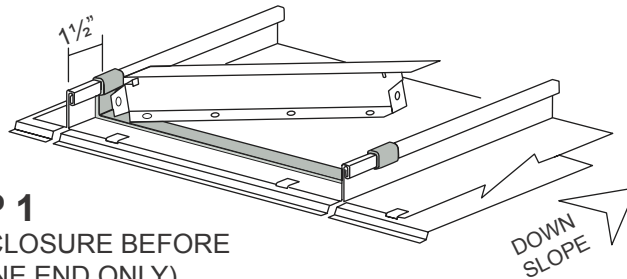
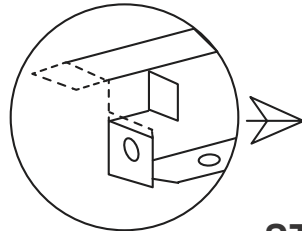
# Supreme-Lok

# ERECTION

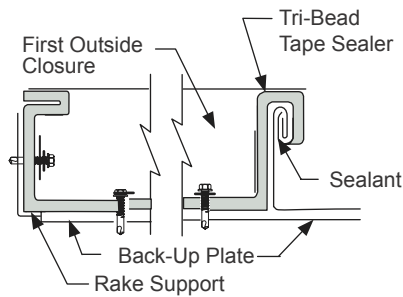
## TYPICAL DETAILS OUTSIDE CLOSURE



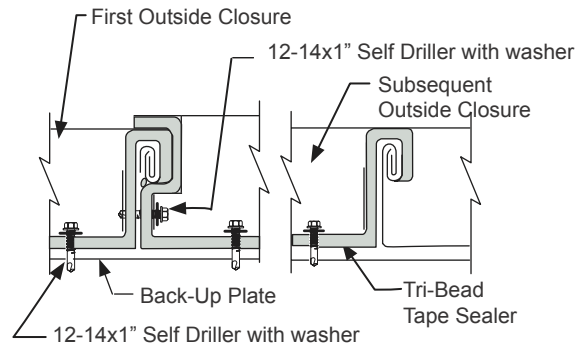
FINISHED SEAM



**STEP 1**  
 FIELD CUT OUTSIDE CLOSURE BEFORE  
 INSTALLATION (ONE END ONLY)



**STEP 2**  
 INSTALLATION OF TAPE SEALER AT  
 FIRST OUTSIDE CLOSURE



**STEP 3**  
 INSTALLATION OF TAPE SEALER AT  
 SUBSEQUENT OUTSIDE CLOSURES

### NOTES

1. Panels must be seamed before the outside closures are installed.
2. Install Tri-Bead tape sealer across width of panel. Center of tape sealer should be 1 1/2" from end of panel. Begin tape sealer at top of seam. Tape sealer will continue down seam, across width of panel, up to and across the top of the adjacent seam. Field cut the end of the outside closure that accepts the seam of the panel in Step 1. Cut the top leg off even with the tab on the end of the closure. Notch the vertical leg of the closure to fit the panel seam.
3. Install first outside closure. Attach to panel with Fastener 12-14x1" Self Driller with washer (with back-up plate or hip plate) or Fastener - 12-14x1" Self Driller with washer at all prepunched holes. Vertical leg of outside closure should be 2" from end of panel.
4. Install Tri-Bead tape sealer across top leg of first outside closure where it laps over seam and continue tape sealer across next panel as outlined in Step 2. Field cut and install next and all subsequent outside closures as outlined in Steps 2 and 3.



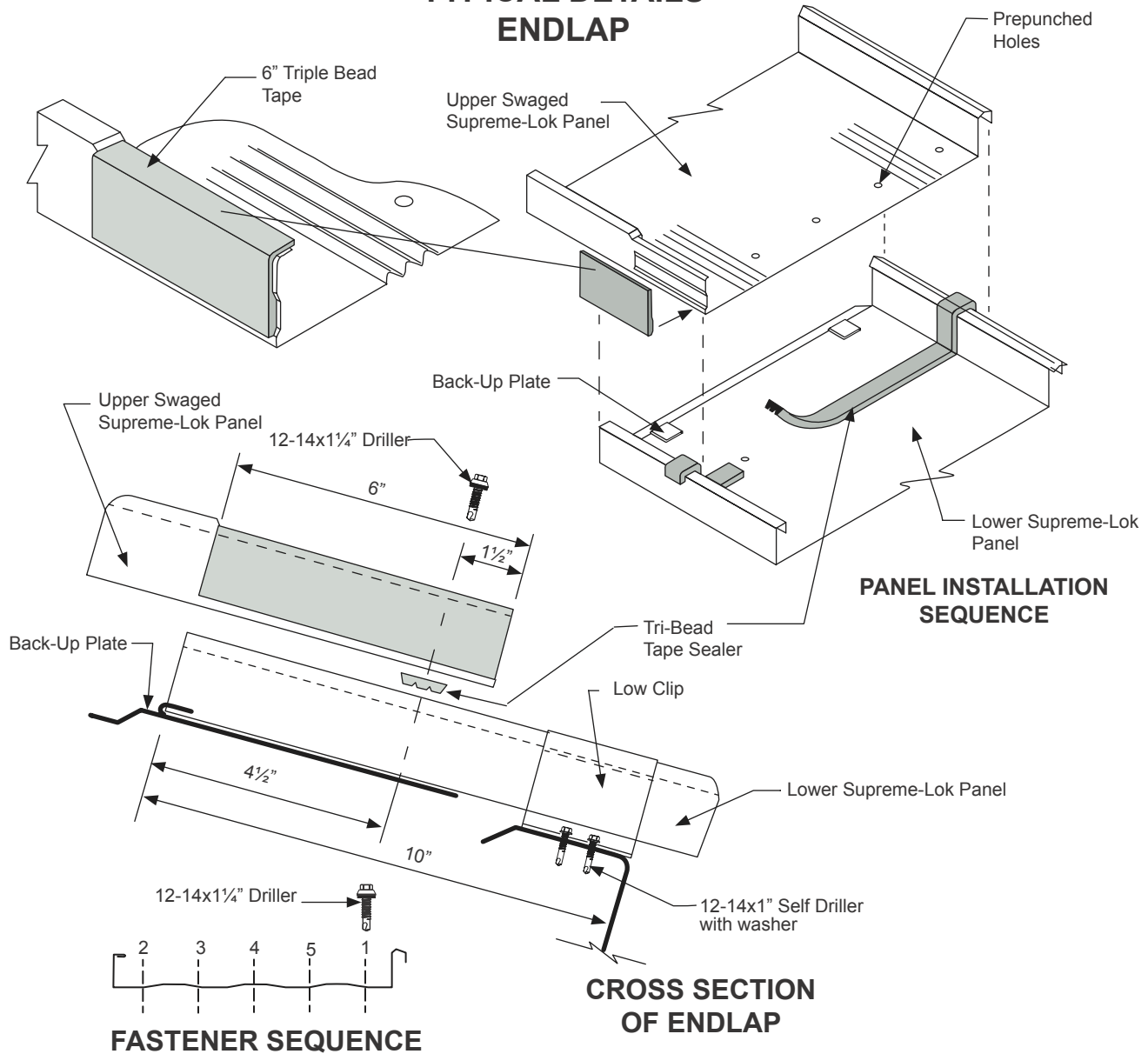
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# ERECTION

# Supreme-Lok

## TYPICAL DETAILS ENDLAP



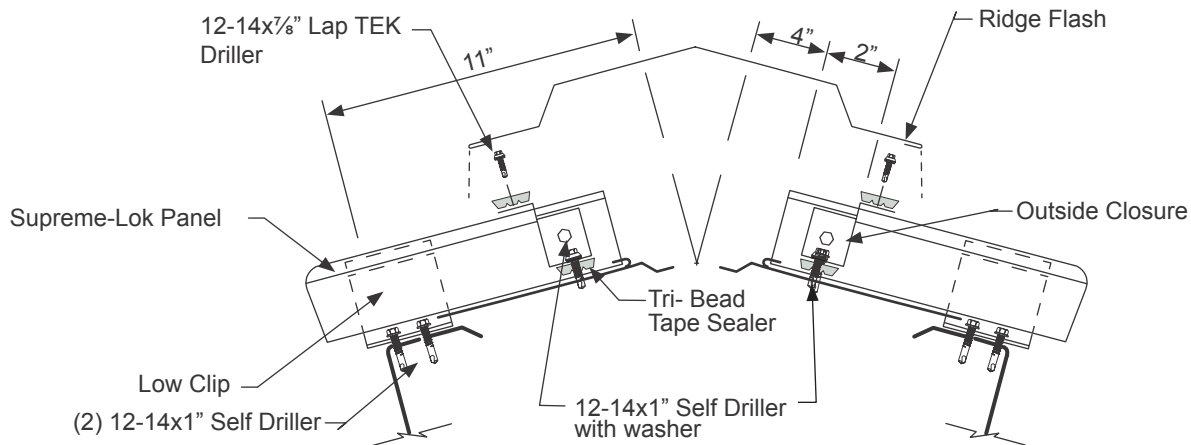
### NOTES

1. Install bottom panel so that the eave has the proper overhang (refer to eave details). The upslope end of the panel should be 10" from the web of the purlin.
2. Slide a prepunched back-up plate onto the end of the panel; make sure the teeth on top of the back-up plate are on top of the panel. Visually check to see that the holes in the back-up plate align with the prepunched holes in the panel.
3. Place Tri-Bead tape sealer over the entire width of the panel. It must be centered directly over the prepunched holes.
4. Apply triple bead tape sealer to swaged vertical leg of upper panel. Pigtail portion of tape sealer must lap over vertical leg of panel.
5. Using an awl to align the holes, install top panel by nesting it over the lower panel. Install Fastener - 12-14x1¼" Drillers in the prepunched holes in the proper sequence.
6. Endlaps require roof erection to proceed from right to left as viewed from the eave looking toward the ridge.
7. Use hand crimper to crimp seam at all endlaps before using electric seamer. Refer to page SL2EM-30 - SL2EM-33.

# Supreme-Lok

# ERECTION

## TYPICAL DETAILS RIDGE



### NOTES

#### Standard Ridge Conditions

1. Do not use this detail with the hemmed panel method of attachment at the eave or valley.
2. Install back-up plate onto end of panel.
3. Install outside closures as shown on page SL2EM-17.
4. Install Tri-Bead tape sealer to top leg of outside closure.
5. Attach ridge flash to outside closure with a 14x7/8" Lap TEK at 6" o.c.
6. See "Panel End Sealant Detail at Ridge" on page SL2EM-15 to seal panel seams at ridge.



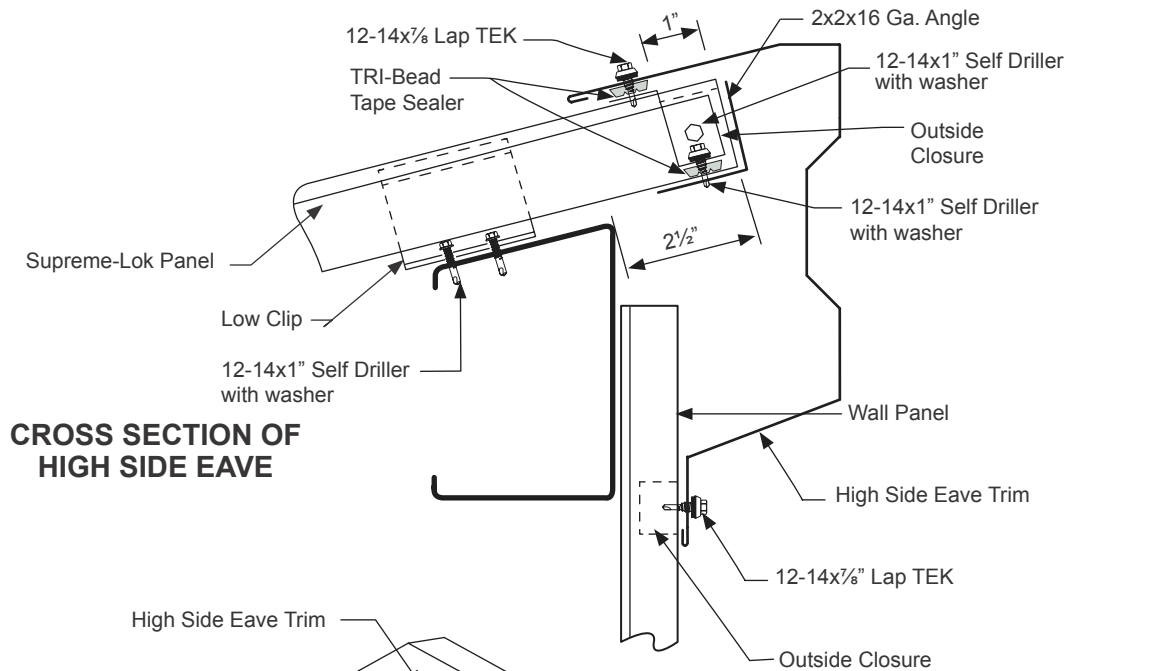
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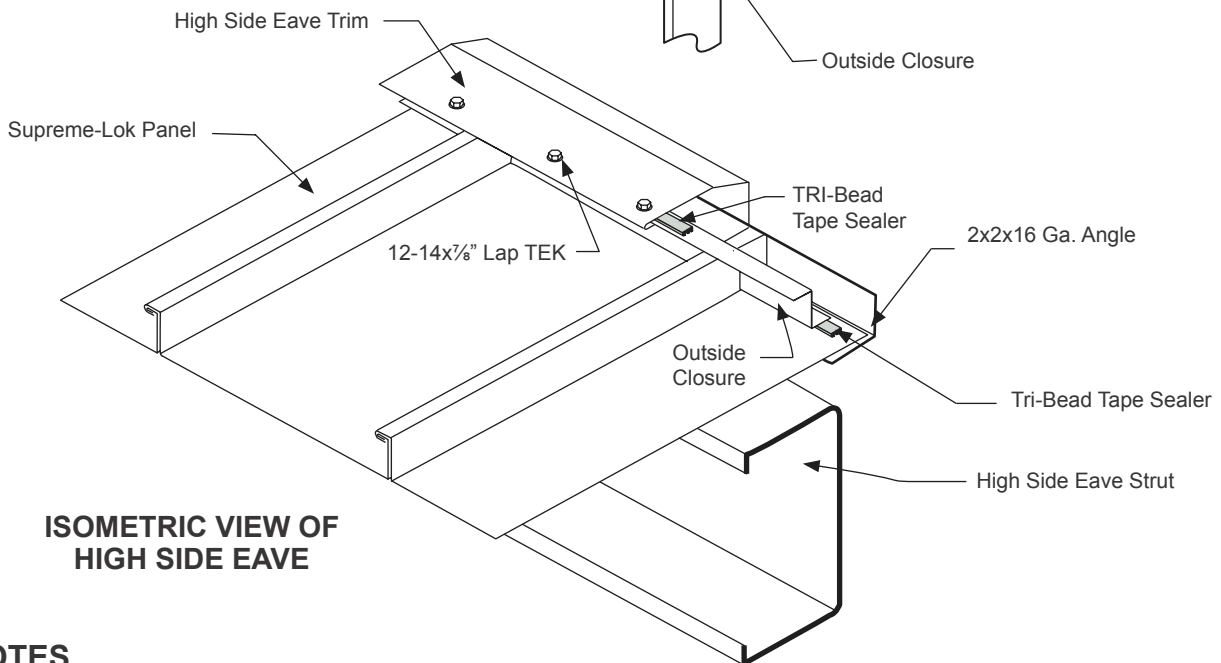
# ERECTION

# Supreme-Lok

## TYPICAL DETAILS HIGH SIDE EAVE



## CROSS SECTION OF HIGH SIDE EAVE



## ISOMETRIC VIEW OF HIGH SIDE EAVE

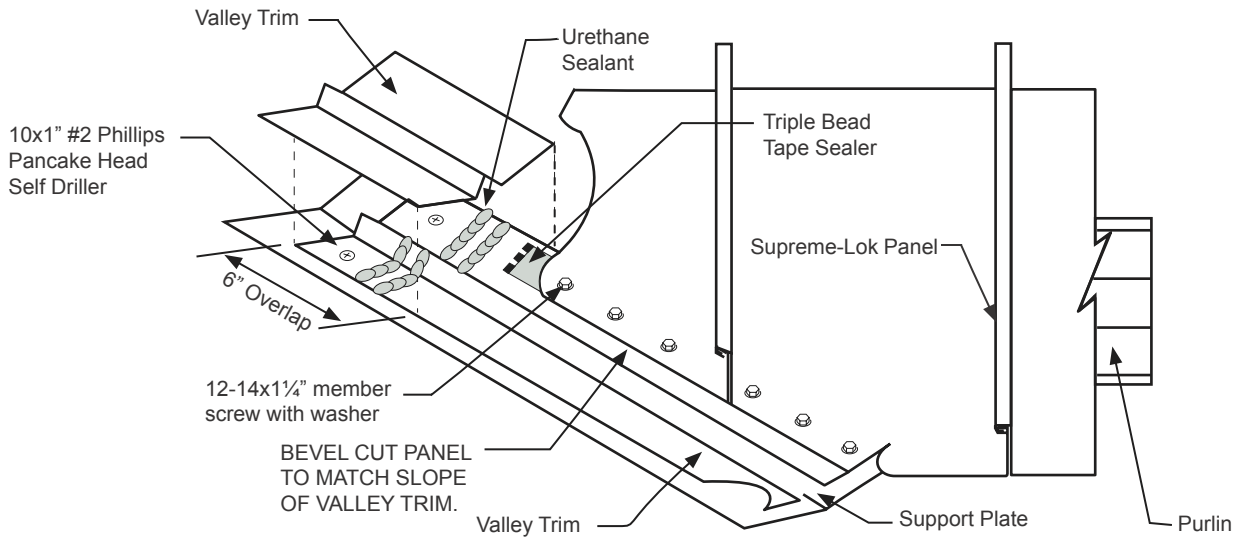
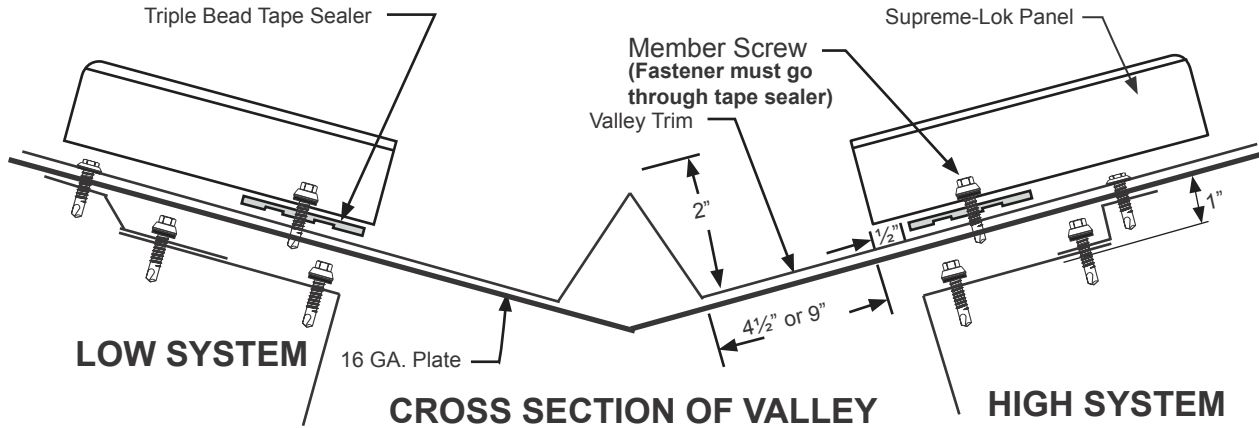
### NOTES

1. Do not use this detail with the hemmed panel method of attachment at the eave or valley.
2. Install outside closures as shown on page SL2EM-17 with the following exceptions:
  - A. Align edge of tape sealer with end of panel.
  - B. Vertical leg of outside closure is 1" from end of panel.
  - C. Attach outside closure to 2"x 2" angle with 12-14x1" Self Driller with washer.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach high side eave trim to outside closures with 14x7/8" Lap TEK at 6" o.c.
5. Attach eave trim to wall panels with 14x7/8" Lap TEK at each high rib.
6. See "Panel End Sealant Detail at Ridge" on page SL2EM-15 to seal panel seams at ridge.

# Supreme-Lok

# ERECTION

## TYPICAL DETAILS VALLEY



### NOTES

1. For valleys over 30', use extended valley trim.
2. Install 16 gauge valley plate to top of purlins. Attach valley trim to valley plate with 1/8"x3/8" Pop Rivet to hold in place until panels are installed.
3. Bevel cut panels to match slope of valley.
4. Mark panel line location on valley trim and install triple bead tape sealer 1/2" back from this mark.
5. Use a 12-14x1 1/4" Member Screw with washer at valley 3" o.c. Fastener must go through tape sealer.
6. To prevent condensation, valley plate should be insulated.
7. See "Panel End Sealant Detail at Eave" on page SL2EM-15 to seal panel ends at valley.
8. The valley trim shown in the High System detail should not be used with "Dead Valleys".
9. On High Systems, overhang the panels 1/2" downslope from the 1" vertical leg of the valley trim to keep water off of upper leg of valley trim.





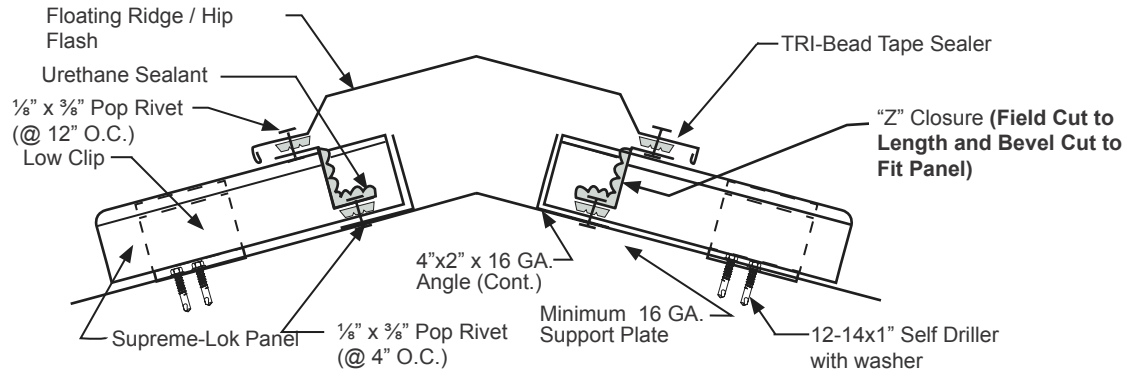
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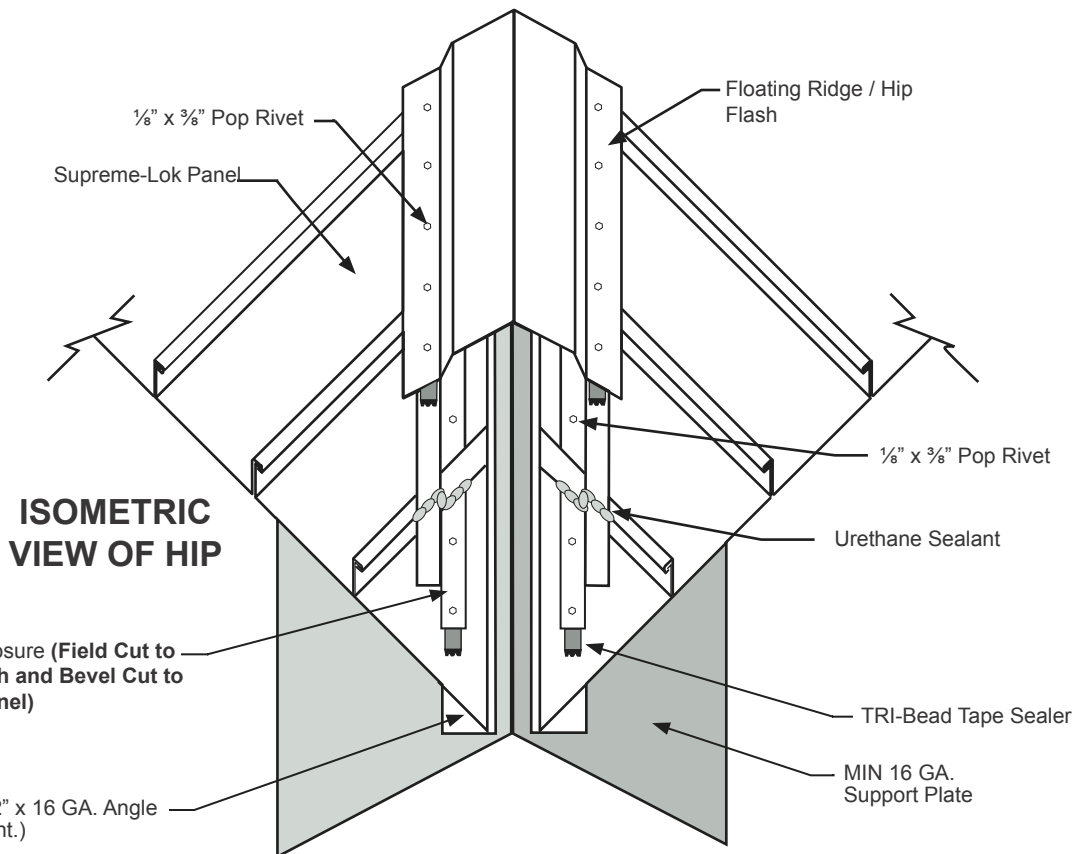
# ERECTION

# Supreme-Lok

## TYPICAL DETAILS FLOATING or FIXED HIP



## CROSS SECTION OF HIP



## ISOMETRIC VIEW OF HIP

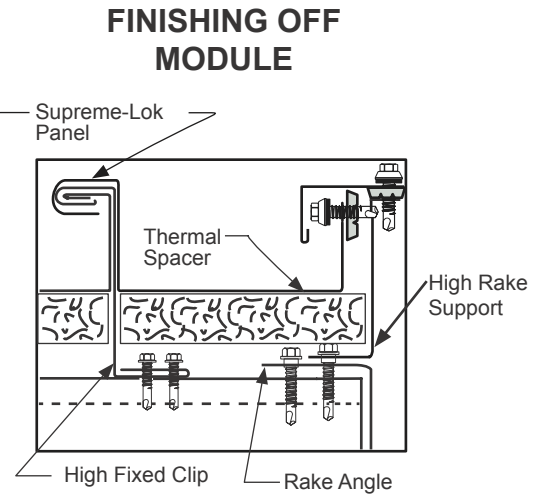
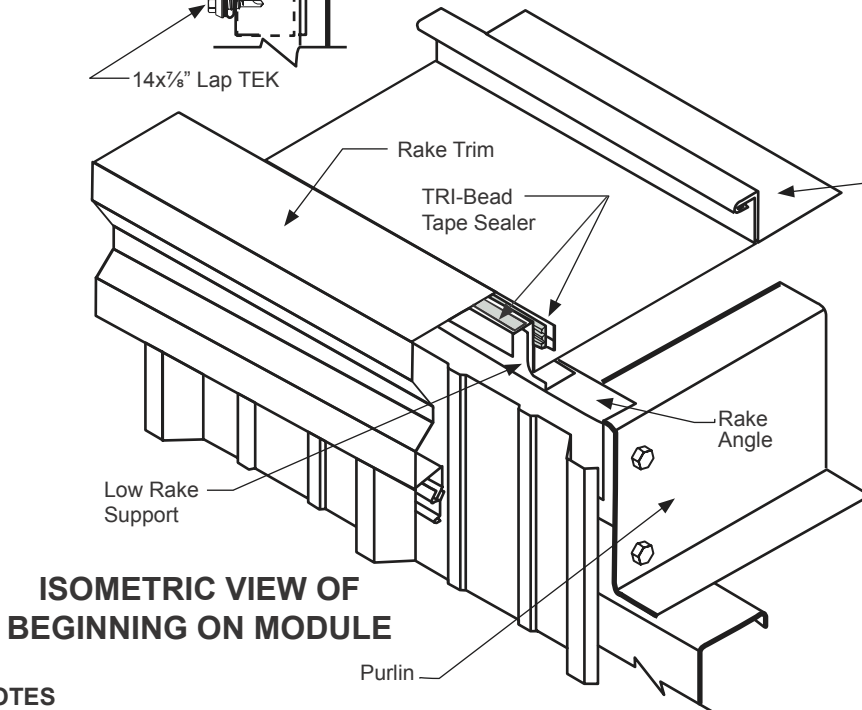
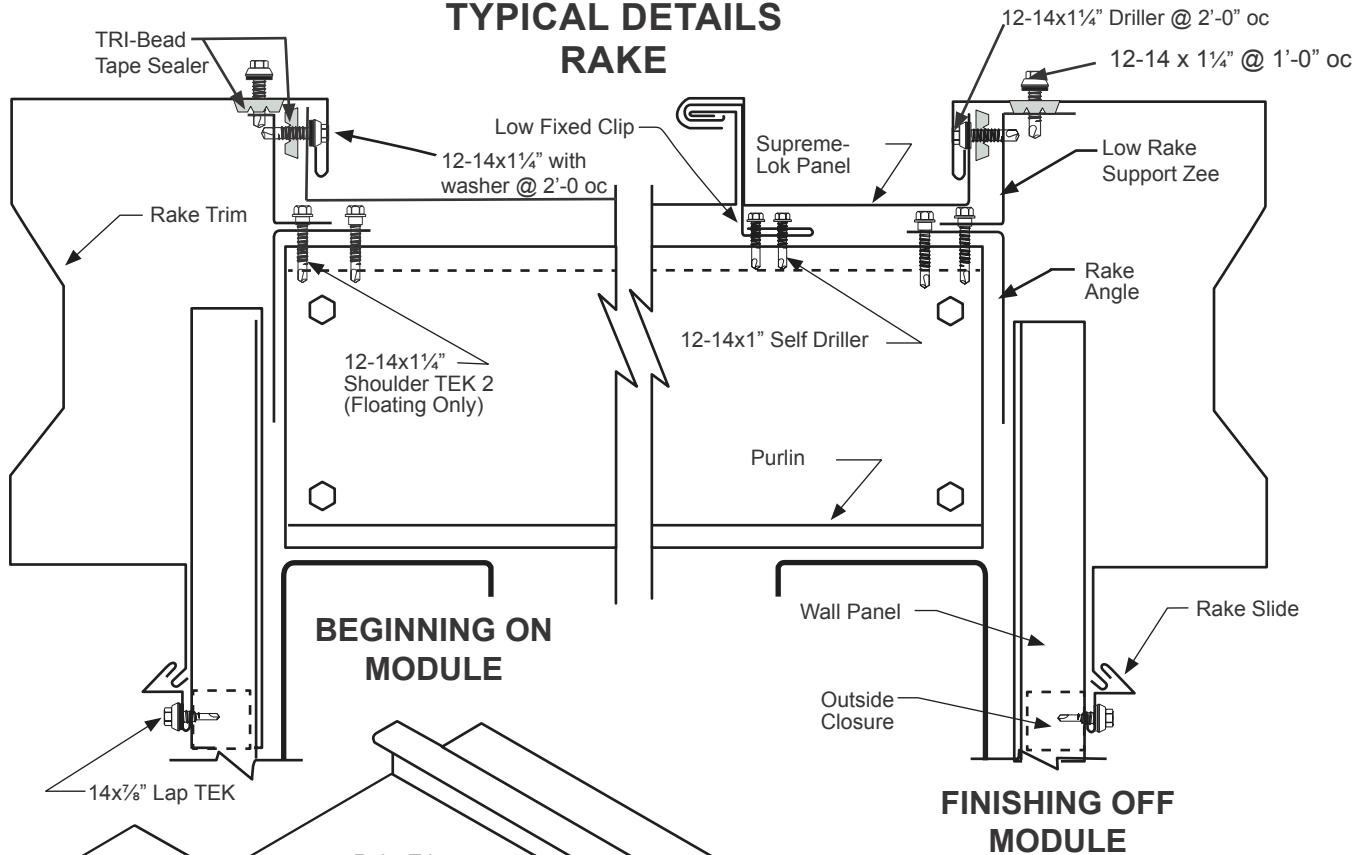
### NOTES

1. Hip must have a support plate to reinforce panels between purlins.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be  $5\frac{1}{2}$ " from center of hip.
4. Slide a length of 4" x 2" x 16 gauge angle under pan of panels. Do not fasten 4" x 2" angle to hip support plate. This will restrain the panels from floating.
5. Bevel cut and install "Z" closures to panels and 4" x 2" angle with  $\frac{1}{8}$ " x  $\frac{3}{8}$ " Pop Rivet at 4" o.c. Vertical leg of "Z" closure should be 6" from center of hip. Seal sides and top of "Z" closures to panel seams with urethane caulk.
6. See "Panel End Sealant Detail at Ridge" on page SL2EM-15 to seal panel seams at ridge.

# Supreme-Lok

# ERECTION

## TYPICAL DETAILS RAKE



## HIGH SYSTEM FINISHING OFF MODULE

### NOTES

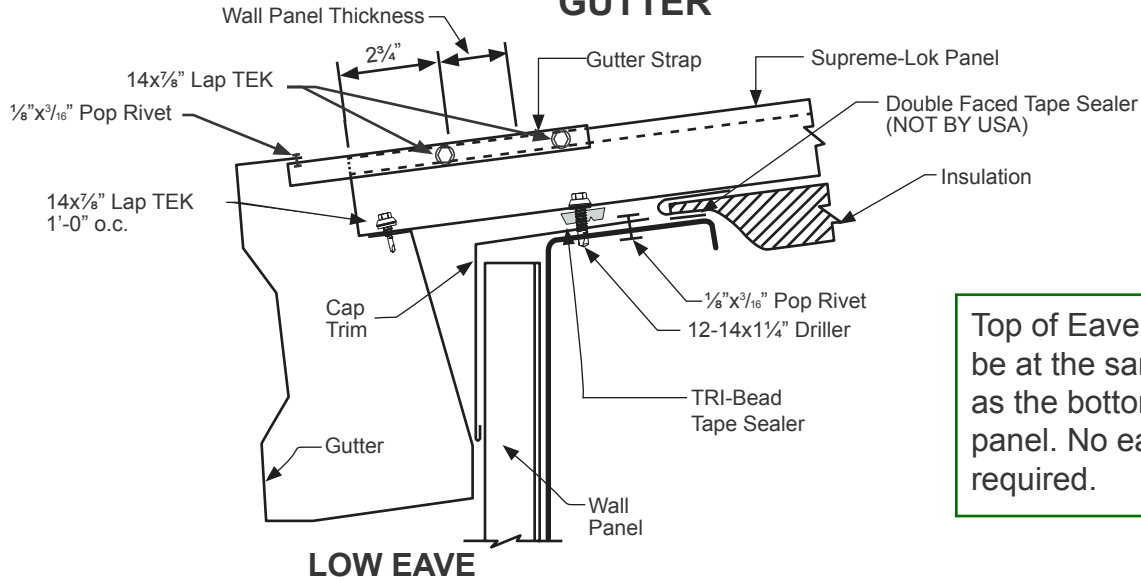
1. Install rake support with 12-14x1 $\frac{1}{4}$ " Shoulder TEK 2 at 2'-0" o.c.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel.
4. Install rake trim with 12-14x1 $\frac{1}{4}$ " at 1'-0" o.c. Fastener must go through rake support.
5. Attach rake slide to wall panels with 14x $\frac{7}{8}$ " Lap TEK at each high rib.
6. If roof finishes on module, finishing detail will be similar to starting detail except, field cut top of panel rib so only the vertical leg of the panel remains. If roof finishes off module, field cut and bend last panel to fit against rake support.
7. Attach roof panel to rake support with 12-14x1 $\frac{1}{4}$ " Driller at 2'-0" o.c.



# ERECTION

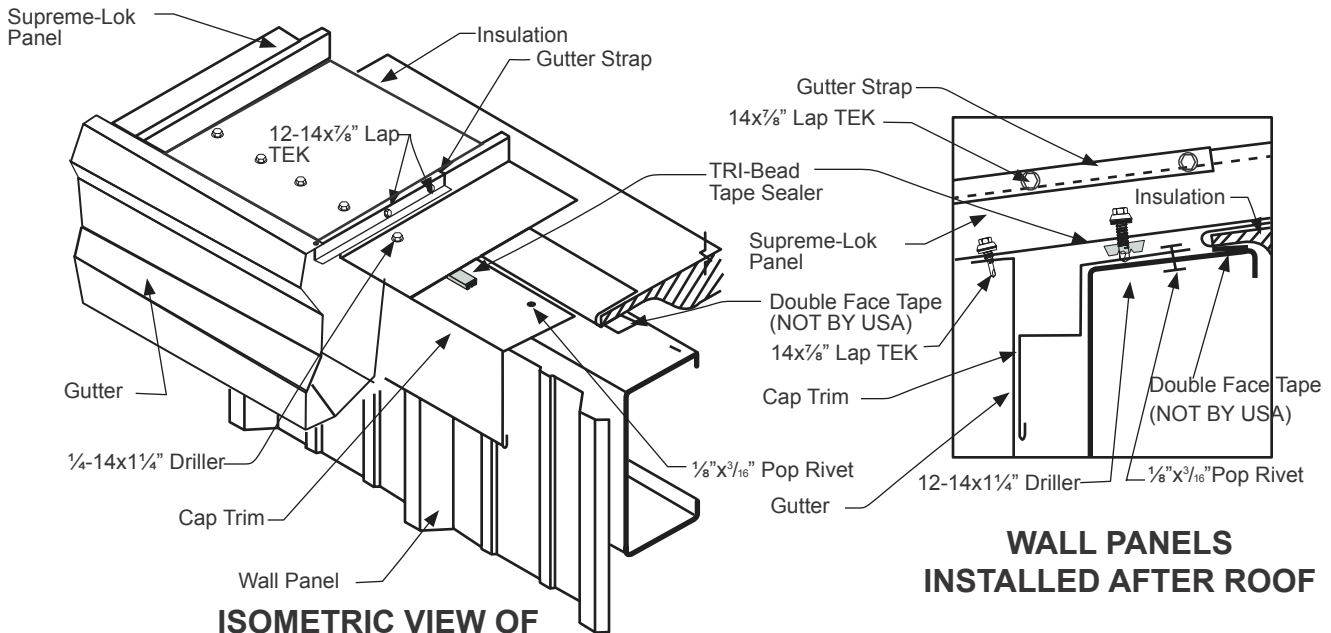
# Supreme-Lok

## TYPICAL DETAILS GUTTER



Top of Eave Strut should be at the same elevation as the bottom of the roof panel. No eave plates required.

### LOW EAVE



### WALL PANELS INSTALLED AFTER ROOF

### ISOMETRIC VIEW OF LOW EAVE

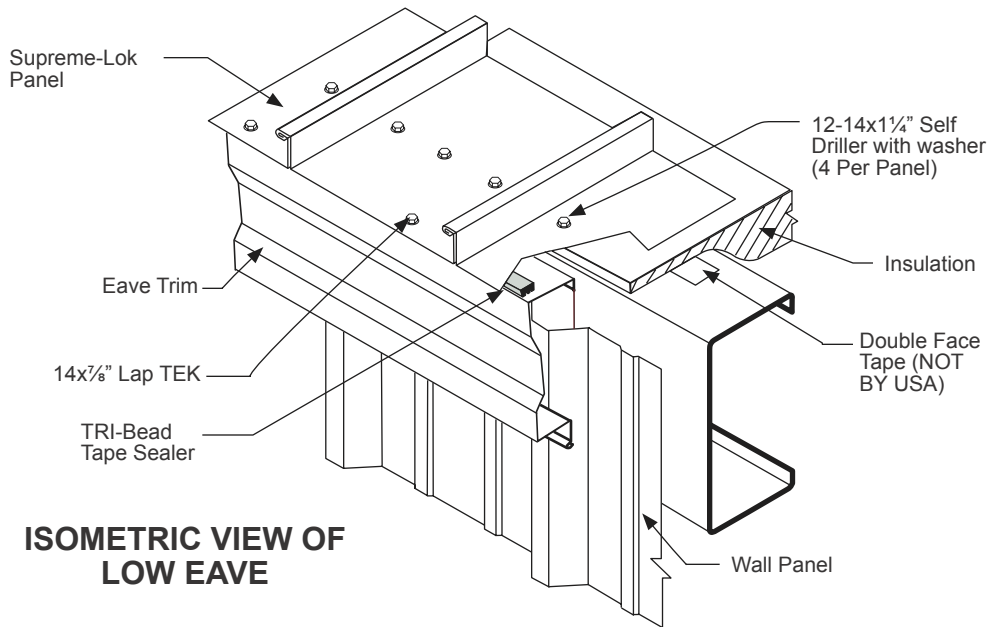
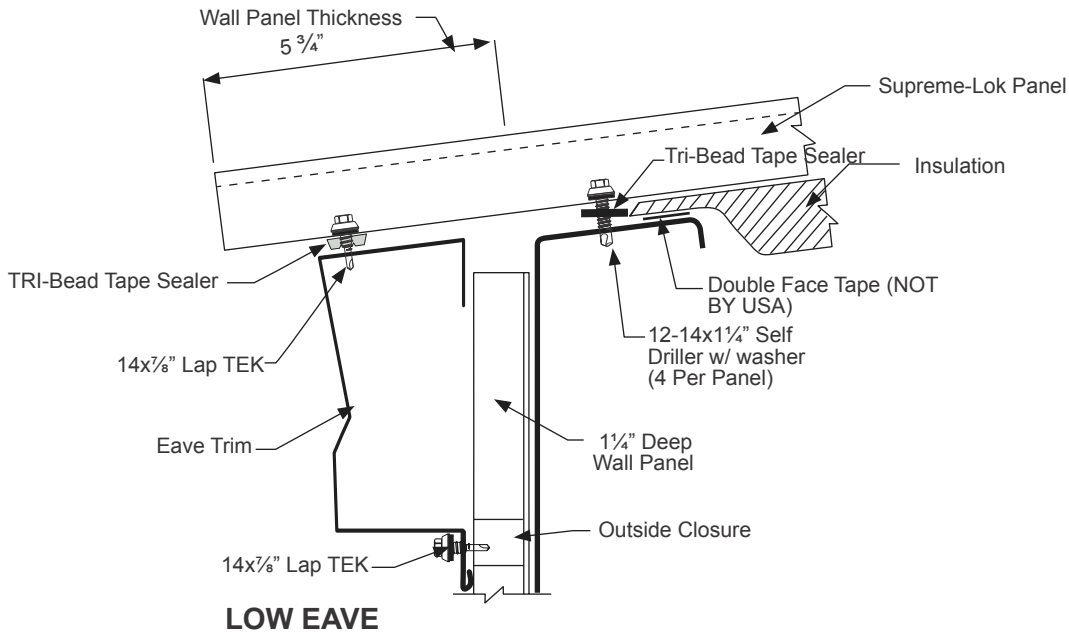
#### NOTES

1. Panel overhang at eave is 2 3/4" plus wall panel thickness.
2. Fasten the box panel cap trim to the eave strut with Fastener 1/8"x3/16" Pop Rivet at both ends and the middle. Locate the fastener 1/2" from the rear sheared edge of the trim.
3. Attach panel to eave strut with Fastener 12-14x1 1/4" Driller. Four fasteners are required at this location.
4. Fasten gutter to Supreme-Lok panels with Fastener 14x7/8" Lap TEK at 1'-0" o.c.
5. Gutter straps should be installed every other panel seam with Fastener 14x7/8" Lap TEK.
6. See "Panel End Sealant Detail at Eave" on page SL2EM-15 to seal panel ends.
7. When wall panels are to be installed after roof, use offset panel cap trim in lieu of box panel cap trim. The offset panel cap is designed to work with "PBR" or "PBA" panels. Other panel types will require a special offset panel cap trim.

# Supreme-Lok

# ERECTION

## TYPICAL DETAILS EAVE TRIM



### NOTES

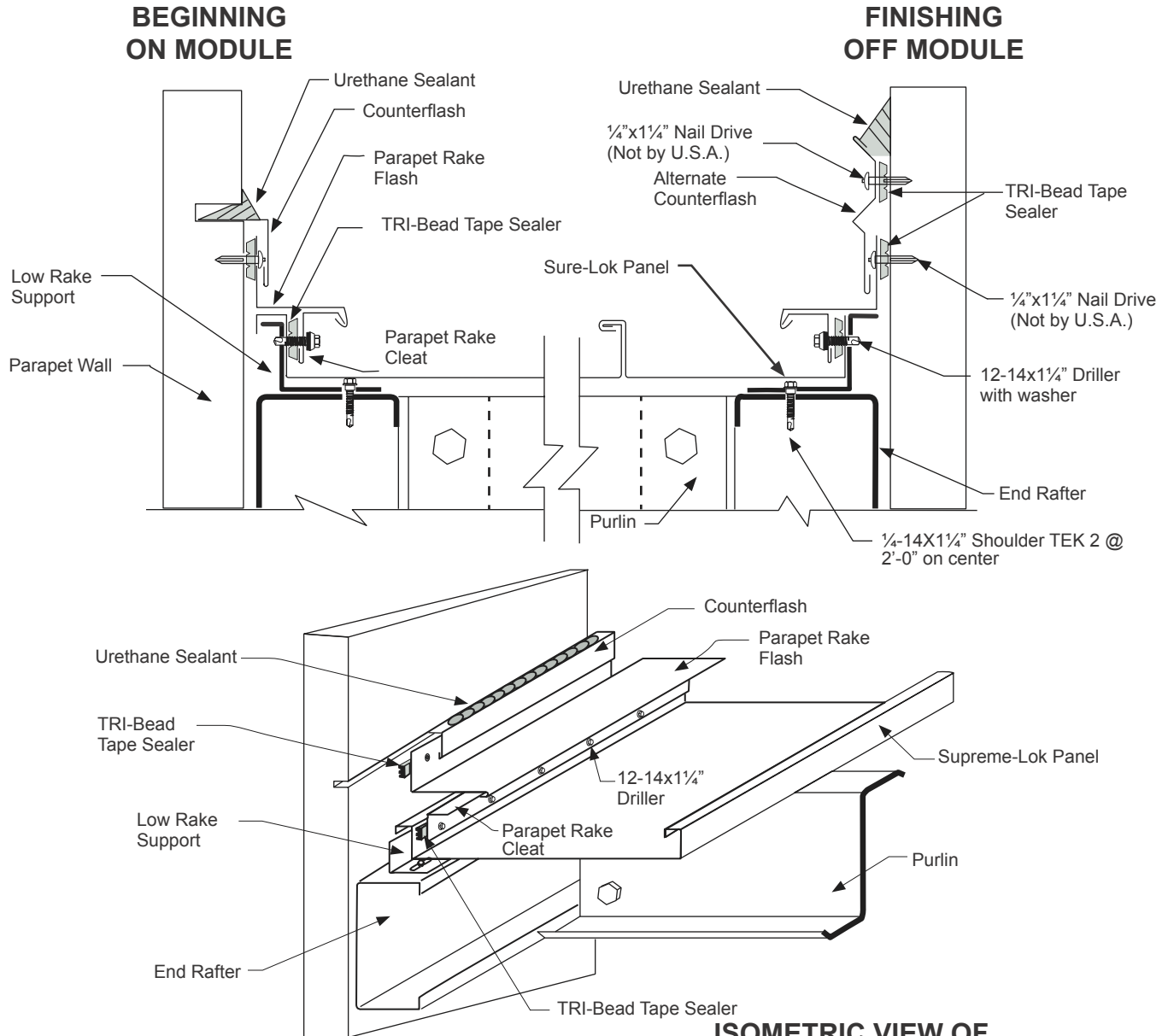
1. Panel overhang is 4 1/2" plus wall panel thickness.
2. Attach sculptured eave trim to Supreme-Lok panel with Fastener 14x7/8" Lap TEK at 12" o.c.
3. Attach bottom of sculptured eave trim to wall panels with Fastener 14x7/8" Lap TEK at each high rib.
4. See "Panel End Sealant Detail at Eave" on page SL2EM-15 to seal panel ends.



# ERECTION

# Supreme-Lok

## TYPICAL DETAILS PARAPET RAKE



### ISOMETRIC VIEW OF BEGINNING ON MODULE

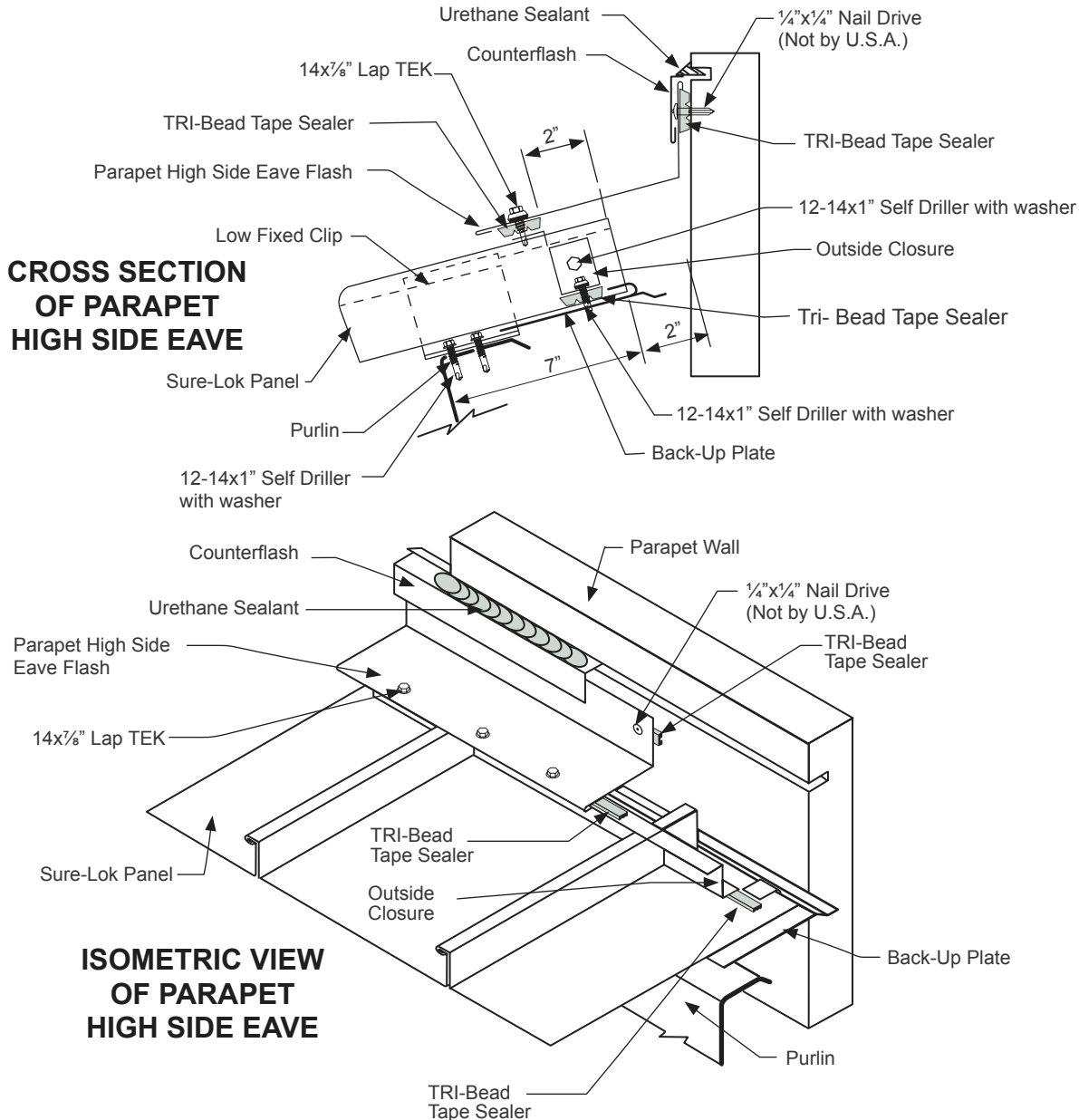
**NOTES**

1. Install rake support with Fastener 12 -14x1 1/4" Shoulder TEK 2 at 2'-0" o.c.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener 12-14x1 1/4" Driller at 2'-0" o.c. Fasteners must go through rake support.
4. Install parapet rake flash by engaging open hem over parapet rake cleat. Tie vertical leg of parapet rake flash to parapet wall with Fastener - 1/4"X1 1/4" Nail Drive (Not by U.S.A.).
5. If roof finishes on module, finishing detail will be similar to starting detail except, field cut top of panel rib so only the vertical leg of the panel remains. If roof finishes off module, field cut and bend last panel run to fit against rake support. Install tape sealer, parapet rake cleat, and parapet rake flash as previously described.
6. If parapet rake flash is not to be immediately installed, temporarily fasten panels to rake support to prevent wind damage.

# Supreme-Lok

# ERECTION

## TYPICAL DETAILS PARAPET HIGH SIDE EAVE



### NOTES

1. Do not use this detail with the hemmed panel method of attachment at the eave or valley.
2. Install back-up plate onto end of panel.
3. Install outside closures as shown on page SL1EM-17.
4. Install Tri-Bead tape sealer to top leg of outside closure.
5. Attach parapet high side eave flash to outside closure with Fastener - 14x7/8" Lap TEK at 6" o.c. Tie vertical leg of parapet high side eave flash to parapet wall with Fastener - 1/4"x1/4" Nail Drive (Not by U.S.A.).
6. See "Panel End Sealant Detail at Ridge" on page SL1EM-15 to seal panel seams at ridge.



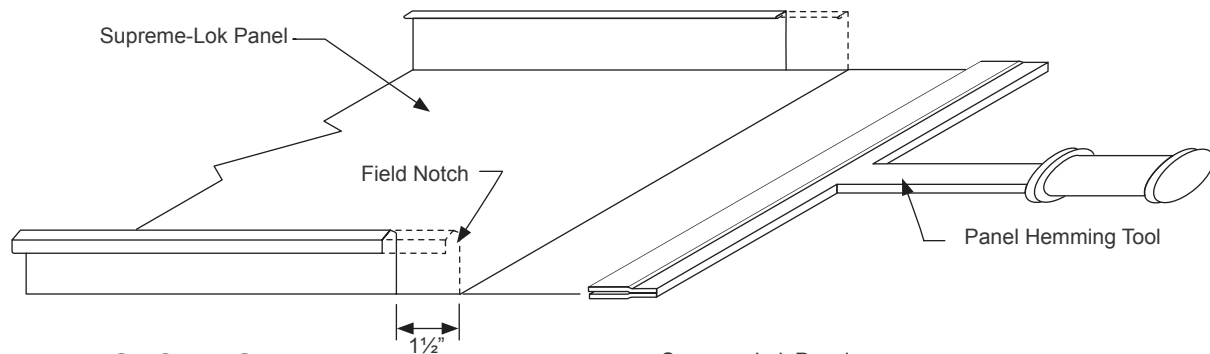
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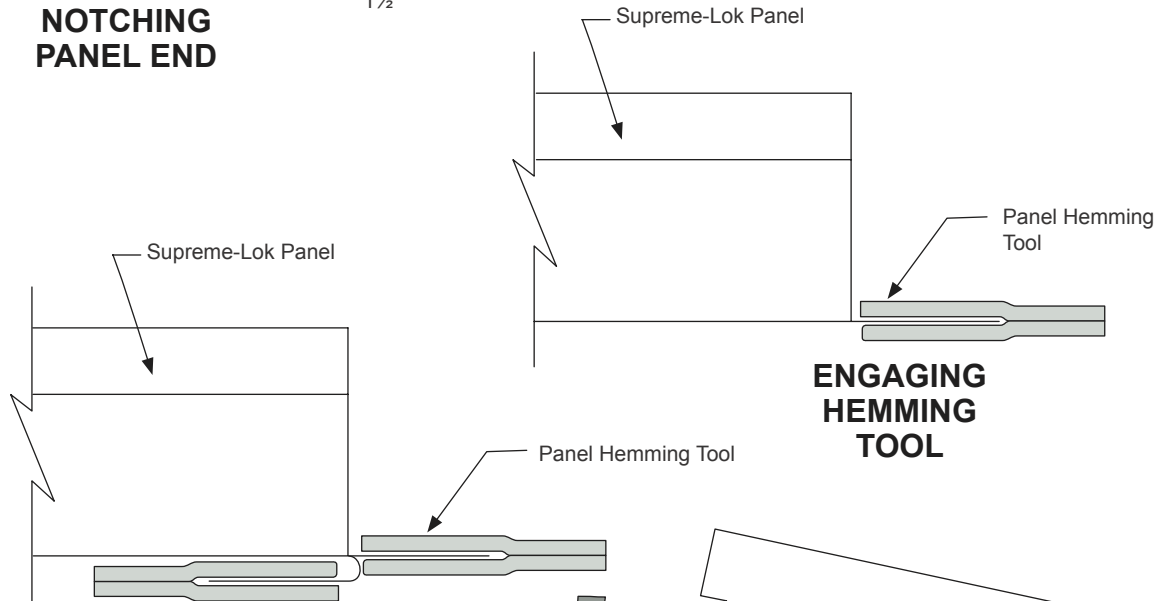
# ERECTION

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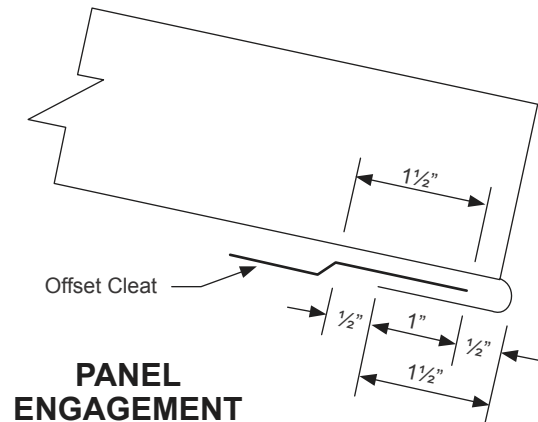
## TYPICAL DETAILS FIELD HEMMING PANEL END



### NOTCHING PANEL END



### FORMING OPEN HEM



### NOTES

1. Field notch male and female legs of panel 1 1/2".
2. Engage panel hemming tool onto protruding pan of panel.
3. Bend pan of panel down to form an open hem.
4. Hem may be tightened with a pair of vise grip "duck bills".
5. Panel engagement shown above is for panel runs up to 100' long. For panel runs over 100' long, please call USA.

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# ERECTION

## Supreme-Lok SEAMING INFORMATION

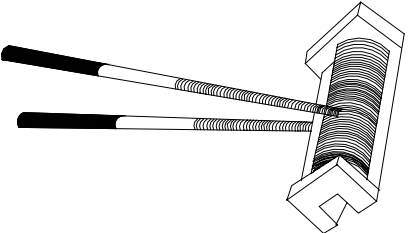
To reserve Seamer kit, please complete a Supreme-Lok Seaming Tool Rental Agreement and return it to your USA representative . This form should be submitted as soon as possible to ensure kit availability.

The seamer comes in a specially designed box accompanied by a field manual and a Phase 2 Hand Crimper. **READ THE FIELD MANUAL THOROUGHLY BEFORE STARTING THE SEAMING OPERATION. FAILURE TO ADHERE TO THESE INSTRUCTIONS WILL RESULT IN DAMAGE TO THE SEAMER AND / OR PANELS. THE CUSTOMER WILL BE HELD LIABLE FOR ANY COSTS INCURRED FOR REPLACEMENT OR REPAIR.**

### PRE-SEAMING INFORMATION

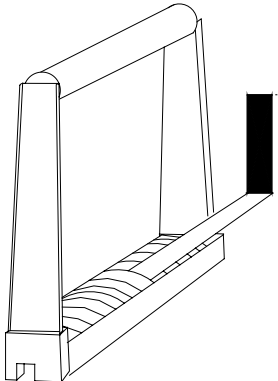
1. Locate field manual in seamer box and review operational procedures.
2. Locate power source and check against power requirements in field manual.
3. Check seams for proper engagement.
4. Clean dirt, debris and excess sealant from seams and panel surfaces to avoid interfering with the seaming operation.
5. Panels must be hand crimped at each clip as they are installed to prevent their separation by a strong wind. Also, crimp seams at all endlaps. Panels should be seamed with electric seaming tool as soon as possible after installation.

### EQUIPMENT CHECKLIST

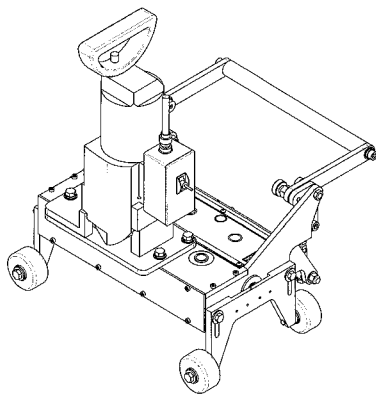


Phase 1 Hand Crimper

#### KIT CONTENTS



Phase 2 Hand Crimper



Seaming Tool

When handling seamer tool, always use the handles to lift or pull it.  
**NEVER PULL IT BY THE ELECTRIC CORD.**





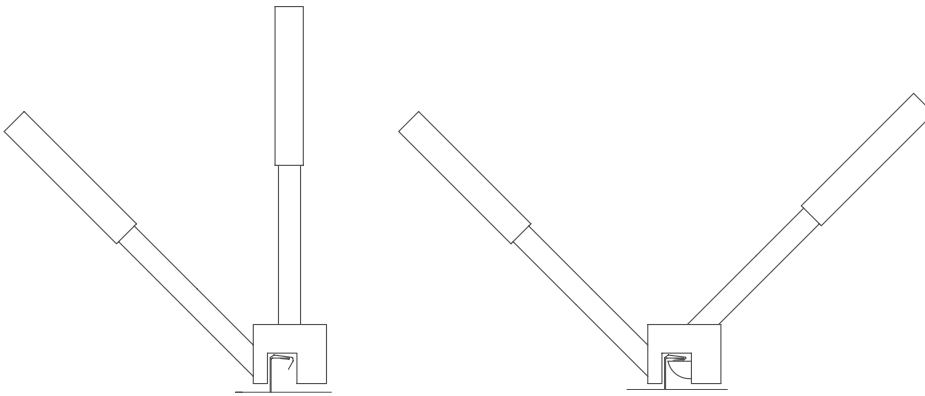
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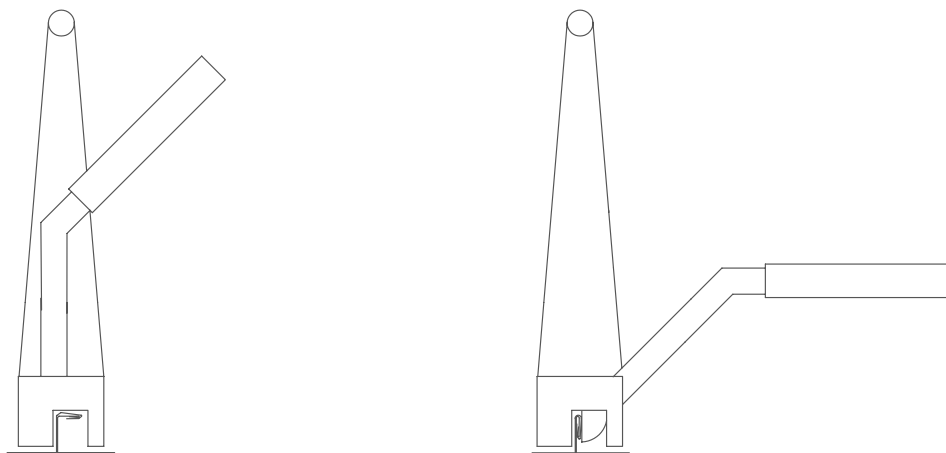
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## CRIMPING OPERATION



Phase 1 Hand Crimper



Phase 2 Hand Crimper

As panels are installed, hand crimp with Phase 1 hand crimper at each clip. Panels should be completely seamed with electric seamer as soon as possible. It is critical that the panel seams are crimped and folded as shown before using the electric seamer. Failure to follow these guidelines will result in damaged seams.

Set the hand crimper on the seam. Align the edge of the crimper with the end of the panel. The fixed handle on the hand crimper should be at an angle on the smooth side of the seam. The movable handle should be vertical. Move the movable handle away from the fixed handle to its full allowable movement, crimping the female leg. This should be done three times for a total of 18 inches.

Return to the end of the panel to begin the second stage. Set the Phase 2 Crimping Tool on the seam. Align the edge of the crimper with the end of the panel. The fixed loop handle should be vertical with the movable handle also vertical and to the open side of the seam. Rotate the movable handle down away from the fixed handle to rotate the horizontal leg down into a vertical position. This should be done one time which produces a finished 6 inch long seam. The relationship of the 6 inch finished seam to the 24 inch of crimped seam is critical to proper alignment of the rolls in the electric seamer. The seam is now ready to accept the electric seamer.

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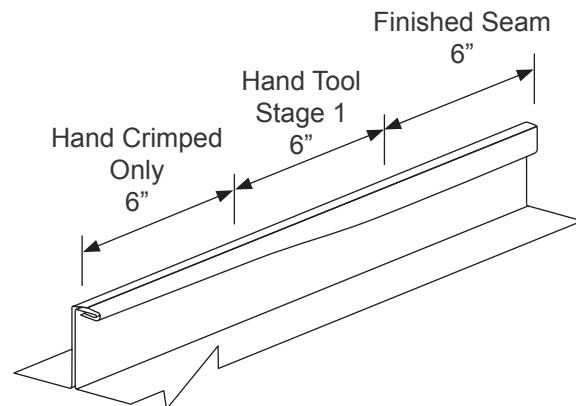
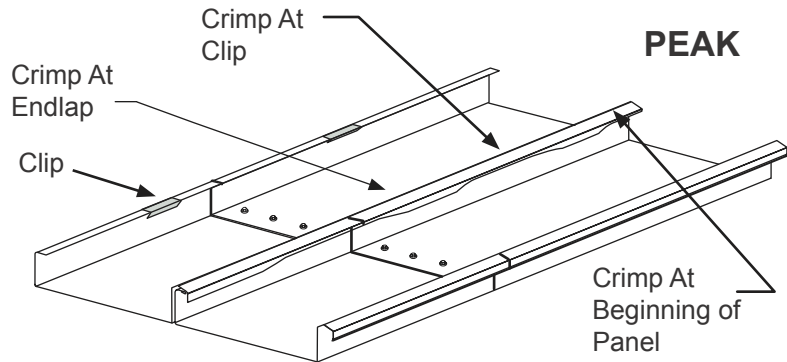
## SEAMING OPERATION

Before using the electric seamer, panel seams must be crimped with the Ph1 & Ph2 hand crimpers at all clips, end laps and the end of the panel that the electric seamer will start on. Refer to page SL2EM-31 for instructions on how to use the hand crimpers.

After crimping end of seam for 18" with hand crimper, set hand tool from field seaming kit onto seam with upper portion of tooling engaging seam. Align edge of hand tool with end of panel. Pull handles apart to form first stage of seam. This should be done twice to produce 12" of first stage formed seam.

Return to end of panel to begin second stage. Set hand crimper onto seam with lower portion of tooling engaging seam. Pull handles apart. This will produce 6" of finished seam.

The seam is now ready to accept the electric seamer.



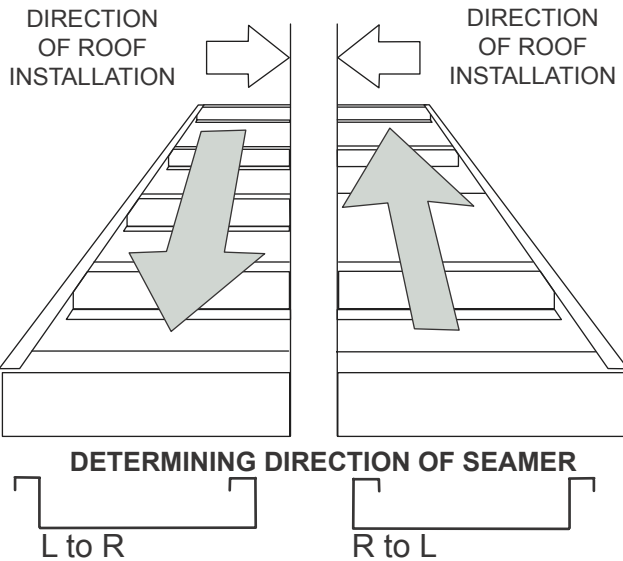


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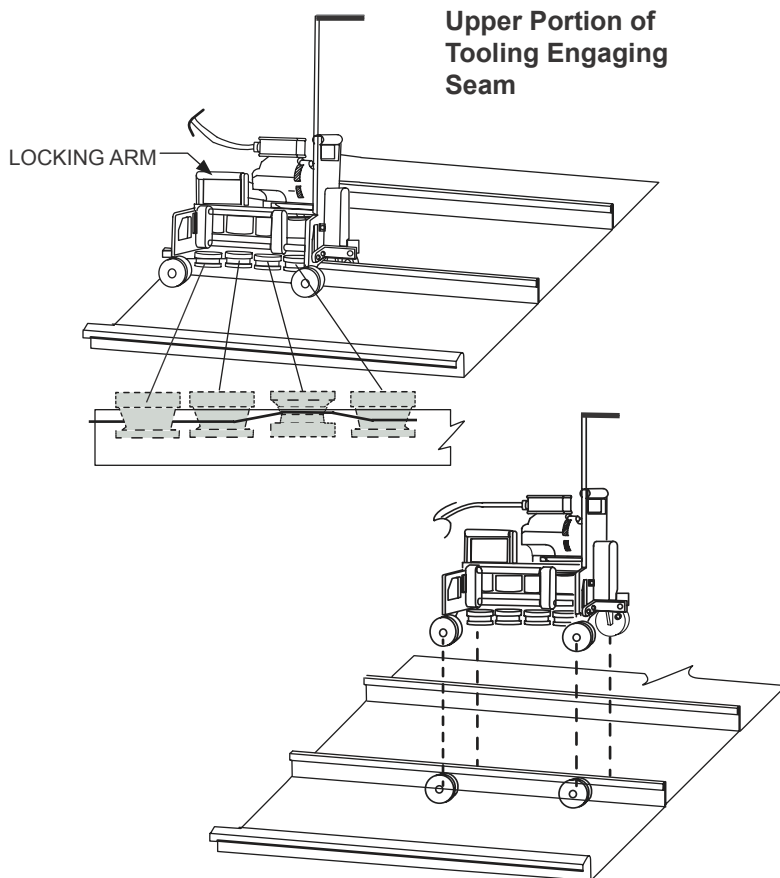
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## SEAMING OPERATION

The electric seamer will run in one direction only. To determine the direction of the seamer, stand at the eave and look downslope. If the roof is being installed left to right, the seamer will run downslope. If the roof is being installed right to left, the seamer will run upslope. An orientation plate is on the seamer to assist you in placing the seamer onto the seam properly. **When roof has endlaps, panel will always run left to right. When roof slope is 4 on 12 or greater, panels must run left to right.**

**CAUTION**  
Seamer operation should be closely supervised at all times. A safety tag line should be attached to the seamer.



To begin seaming, set seamer on seam with the locking bar up, and to the flat side of the seam. The rear wheels should be even with the edge of the roof panel. Push the locking bar down to engage the rolls and turn the seamer on. Stop seamer about 6" to 12" from end of panels. Disengage locking bar and remove the electric seamer. Finish seam with hand crimper.

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