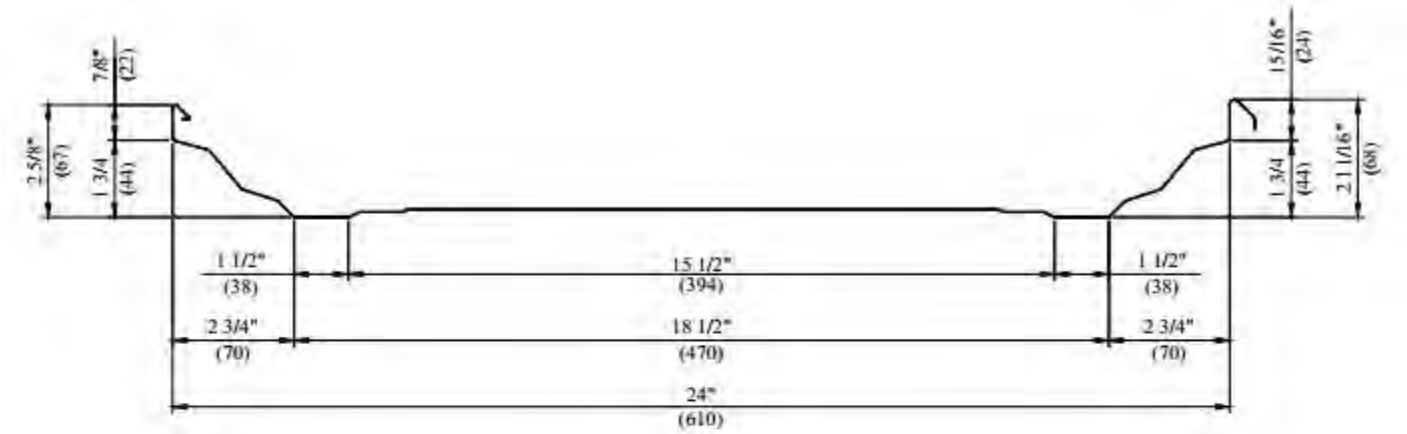
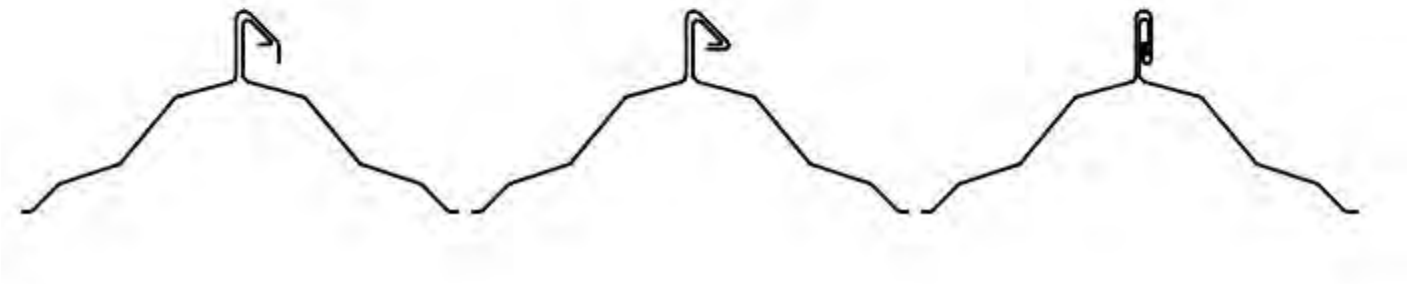
SSR ROOF INSTALL MANUAL

2022

BEHLEN
STEEL BUILDINGS

Standing Seam SSR24





Units

Dimensions and sizes in this Manual are noted in Imperial followed by Metric in brackets. The Metric units are millimeters u/n. For example: the SSR24 Standing Seam Roof Panel has a width of 24" (610).

Certification

To ensure that the Behlen SSR24 system will meet the demands of its application requirements, it has been tested and certified by Factory Mutual. The Behlen SSR24 Roof System carries a Factory Mutual Class 1-SH Hail Rating and a 1-60 Fire Resistance and Wind Uplift rating. Appropriate construction information can be obtained in the Factory Mutual Approval Guides, Building Materials Section.

Test file: J.I. 1Z3A2.AM
Per FMRC Standard 4471

PREFACE

PREFACE

The recommendations and application details contained in this manual illustrate the installation of the Behlen SSR24 Standing Seam Roof System under standard conditions. Because of variations possible with any building, a careful study of the Building Erection Drawings is essential. Custom layout, details, and parts may be required. In case of disagreement between this Manual and the Erection Drawings, the Erection Drawings shall govern.

Always follow all Building Codes applicable to the building area. All Building and Safety Regulations should be strictly adhered to.

The General Contractor and/or Erector is solely responsible for accurate, good quality workmanship in erecting the building in accordance with the Behlen Drawings and Details and Industry Standards pertaining to proper erection, including the proper use of temportary bracing. Behlen Industries is not responsible for errors, omissions, or damages incurred in the erection of the components shown in the Drawings or Details, nor for the inspection of erected components to determine same.

Contact BEHLEN Industries if there are any questions regarding proper installation techniques.

Installation of the Roof System is to be done by experienced, qualified erectors. Installers are expected to be familiar with the contents of this manual, the Building Erection Drawings, and the Behlen Standard Detail Book.

Installation for Long-Term Performance

- Always use accessories that are compatible with the Galvalume roof. Fasteners and flashings should always be made from material designed to last as long as the roof. Beware of installing a galvanized component where rainwater will drain onto it from a Galvalume component. The resulting chemical reaction will corrode the galvanized component in short order.
- When installing fiberglass blanket insulation, carefully seal all vapour barrier seams, penetrations, and tears to prevent condensation of water on the underside of the roof. Always ensure that no insulation is left exposed where it can absorb water from outside the building. Condensation and saturated insulation can corrode the roof from the inside out.
- During installation, and immediately after, the panels must be swept clean to remove construction debris. Unused fasteners, metal filings, pop-rivet steams and pieces of flashings will rust quickly. Not only will unsightly stains be left on the roof, but also the Galvalume coating will sacrifice itself and compromise the panel.
- Use caution when installing rooftop units. Wood, especially treated, should never be installed or left on the roof, as draining or trapped water will react with the metal roof. Condensate from air conditioning units must never be allowed to drain directly onto the roof. Dissolved copper from the condensation coils can cause rapid corrosion.

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SAFETY FIRST

SAFETY MUST BE MADE THE TOP PRIORITY ON ALL JOB SITES

Follow all applicable safety guidelines, both customary and statutory, to ensure worker safety.

This manual illustrates the installation of the various components. It is up to the builder or erector to ensure that the isntallation is carried out safely. If following any of these instructions would endanger any worker(s), another method must be found.

- **Do not use the roof panels as walking platforms. The unseamed panels will not support the weight of a person at the edge. Provide walking platforms for workers who must walk on the unseamed panels.**
- **Provide railings and safety lines for workers and see that they are used at all times.**
- **Exercise extreme caution near the roof edges and openings, including the ridge.**
- **Blanket insulation can offer a false sense of security. Stay alert to avoid stepping or leaning onto that insulation.**
- **Never step on an unsecured panel. Such panels can easily start sliding.**
- **Do not stand at the panel ends before they are seamed.**
- **Pay attention to the worksite. Do not tolerate tripping or falling hazards.**
- **Frost and dw can create an extremely hazardous surface. Do not step onto a frost-covered roof.**
- **The various components have sharp metal edges. Gloves and eye protection should be worn at all times.**
- **Conduct safety meetings regularly.**

PANEL PROPERTIES

SSR24 GRADE 50 PANEL PROPERTIES (IMPERIAL)

Physical Properties

Per Foot Width
In Accordance with CSA Standard S136-94

Base Thickness (in)	Coated Thickness AZ165 (in)	Weight (lbs/ft^2)	Section Modulus Positive Bending (in^3)	Moment of Inertia Positive Bending (in^4)	Section Modulus Negative Bending (in^3)	Moment of Inertia Negative Bending (in^4)	Moment of Inertia Deflection (in^4)
0.0180	0.0195	0.9603	0.0730	0.1559	0.0641	0.1070	0.1314
0.0240	0.0255	1.2543	0.0997	0.2118	0.0864	0.1462	0.1790
0.0300	0.0315	1.5483	0.1257	0.2666	0.1092	0.1871	0.2269

Load Table

Maximum Specified Uniformly Distributed Load
lb/ft^2 (psf)

Span (ft)		Single-Span Base Steel Nominal Thickness (in)			Two-Span Base Steel Nominal Thickness (in)			Three-Span Base Steel Nominal Thickness (in)		
		0.018	0.024	0.030	0.018	0.024	0.030	0.018	0.024	0.030
2.0	B	365	499	629	321	432	546	401	540	683
2.0	D	1075	1464	1856	2589	3526	4470	2029	2764	3504
3.0	B	162	222	279	142	192	243	178	240	303
3.0	D	318	434	550	767	1045	1324	601	819	1038
4.0	B	91	125	157	80	108	137	100	135	171
4.0	D	134	183	232	324	441	559	254	346	438
5.0	B	58	80	101	51	69	87	64	86	109
5.0	D	69	94	119	166	226	286	130	177	224
6.0	B	41	55	70	36	48	61	45	60	76
6.0	D	40	54	69	96	131	166	75	102	130
7.0	B	30	41	51	26	35	45	33	44	56
7.0	D	25	34	43	60	82	104	47	64	82
8.0	B	23	31	39	20	27	34	25	34	43
8.0	D	17	23	29	40	55	70	32	43	55

Notes

- Properties and loads are based on Grade 50 steel with a minimum yield stress of 50,000 psi and a maximum factored stress of 45,000 psi.
- Figures in row B indicate the load capacity based on strength. Strength capacity B should be checked against (Specified Live Load) + (0.833 x Specified Dead Load).
- Figures in row D indicate the load capacity based on deflection of 1/240th span. For allowable deflection of 1/180th span, values in row D may be multiplied by 1.333, but capacity must not exceed the value in row B. Deflection capacity should not be checked against Specified load(s).
- Positive bending indicates top in compression. Negative bending indicates bottom in compression.

PANEL PROPERTIES

SSR24 345 MPa PANEL PROPERTIES (METRIC)

Physical Properties

Per Metre Width
In Accordance with CSA Standard S136-94

Base Thickness (mm)	Coated Thickness AZ165 (mm)	Weight (kg/m^2)	Section Modulus Positive Bending (mm^3x10^3)	Moment of Inertia Positive Bending (mm^4x10^3)	Section Modulus Negative Bending (mm^3x10^3)	Moment of Inertia Negative Bending (mm^4x10^3)	Moment of Inertia Deflection (mm^4x10^3)
0.457	0.495	4.690	3.914	212.9	3.446	146.1	179.4
0.610	0.648	6.120	5.349	289.2	4.645	199.6	244.4
0.762	0.800	7.560	6.747	364.1	5.871	255.5	309.9

Load Table

Maximum Specified Uniformly Distributed Load
kN/m^2 (kPa)

Span (mm)		Single-Span Base Steel Nominal Thickness (mm)			Two-Span Base Steel Nominal Thickness (mm)			Three-Span Base Steel Nominal Thickness (mm)		
		0.457	0.610	0.762	0.457	0.610	0.762	0.457	0.610	0.762
600	B	18.00	24.61	31.04	15.85	21.37	27.01	19.82	26.71	33.76
600	D	53.96	73.51	93.19	129.99	177.09	224.47	101.89	138.79	175.94
900	B	8.00	10.94	13.79	7.05	9.50	12.00	8.81	11.87	15.00
900	D	15.99	21.78	27.61	38.52	52.47	66.51	30.19	41.12	52.13
1200	B	4.50	6.15	7.76	3.96	5.34	6.75	4.95	6.68	8.44
1200	D	6.75	9.19	11.65	16.25	22.14	28.06	12.74	17.35	21.99
1500	B	2.88	3.94	4.97	2.54	3.42	4.32	3.17	4.27	5.4
1500	D	3.45	4.70	5.96	8.32	11.33	14.37	6.52	8.88	11.26
1800	B	2.00	2.73	3.45	1.76	2.37	3.00	2.20	2.97	3.75
1800	D	2.00	2.72	3.45	4.81	6.56	8.31	3.77	5.14	6.52
2100	B	1.47	2.01	2.53	1.29	1.74	2.20	1.62	2.18	2.76
2100	D	1.26	1.71	2.17	3.03	4.13	5.24	2.38	3.24	4.10
2400	B	1.13	1.54	1.94	0.99	1.34	1.69	1.24	1.67	2.11
2400	D	0.84	1.15	1.46	2.03	2.77	3.51	1.59	2.17	2.75

Notes

- Properties and loads are based on Grade 345 steel with a minimum yield stress of 345 MPa and a maximum factored stress of 310.5 MPa.z
- Figures in row B indicate the load capacity based on strength. Strength capacity B should be checked against (Specified Live Load) + (0.833 x Specified Dead Load).
- Figures in row D indicate the load capacity based on deflection of 1/240th span. For allowable deflection of 1/180th span, values in row D may be multiplied by 1.333, but capacity must not exceed the value in row B. Deflection capacity should not be checked against Specified load(s).
- Positive bending indicates top in compression. Negative bending indicates bottom in compression.

STANDING SEAM ROOF PARTS

SSR24 STANDING SEAM ROOF PARTS

SEALANTS

The sealants supplied and specified have been carefully chosen for their suitability to their application. Behlen Industries recommends that the highest quality of non-skinning butyl, urethane or silicone polymer sealants be used to assure lasting performance on the roof. It is important that the sealants do not contain any acid residue, as it may react with the Galvalume finish.

Clean all surfaces to be weather sealed. Remove all fabricating oils, moisture, ice, dust and dirt prior to application of mastics or sealant.

NOTE:
Joint preparaion is key to sealant performance. All surfaces must be sound, clean, dry, and free of any oily residue.
After applying an exposed bead of caulking, use a small spatula or similar tool to feather the edges of the bead to the base material. This will improve the seal and extend the life of the joint.

STANDING SEAM ROOF PARTS

SEALER CALCULATION

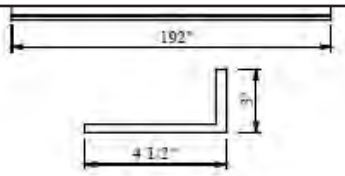
*Note that the sealer for special details must be added to the quantities calculated below. *

Standing Seam Roof Sealer Count

1/8" x 1/2" (3x13) SEALER (3209030) (30' (9144) ROLLS)			
GUTTER STRAPS	Under Strap	TOTAL LENGTH OF LOW EAVE X 0.6	
EAVE CLOSURES	Top of Closure	TOTAL LENGTH OF LOW EAVE X 0.5	
GABLES	T & B of Rake Zee	TOTAL LENGTH OF GABLES x 2	
SLIDING STEP	Rake Zee & Closures	LENGTH OF SLIDING STEP x 4	
	High Wall Seams	LENGTH OF SLIDING STEP x 1.67	
LEAN-TO HIGH EAVE	Hip Flash & Closures	LENGTH OF LEAN-TO CONN x 3	
	High Wall Seams	LENGTH OF LEAN-TO CONN x 1.67	
HIGH EAVE	Under Eave Trim	LENGTH OF HIGH EAVE	
RIDGE	Under Ridge Cap	RIDGE LENGTH x 2	
TOTAL			
3/32" x 1 1/2" (2x3) MASTIC PAD (40' (12 192) ROLLS)			
LOW EAVE	Under Panel	TOTAL LENGTH OF LOW EAVE x 1.0	
ENDLAPS	Between Panels	BUILDING LEN. x ROWS OF ENDLAPS x 1.11	
HIGH EAVE	Under End Dam	LENGTH OF HIGH EAVE x 1.11	
RIDGE	Under End Dam	BUILDING LENGTH x 2.22	
TOTAL			
GUN GRADE MASTIC (995053)		**Len. Per Tube** = 20' @ 1/4" Ø or 35' @ 3/16" Ø (6096 @ 60 or 10 668 @ 50)	
LOW EAVE	Top of Closure	TOTAL LENGTH OF LOW EAVE x 0.5	
	Primary Trim Laps	TOTAL LENGTH OF LOW EAVE x 0.125	
ENDLAPS	End of Panel	BUILDING LEN. x ROWS OF ENDLAPS x 1.11	
GABLE	Rake Zee Laps	TOTAL LENGTH OF GABLE	
HIGH EAVE	@ End Dam	LENGTH OF HIGH EAVE x 1.5	
RIDGE	@ End Dam	LENGTH OF RIDGE x 3.0	
TOTAL			
SIKA TUBE CAULK (995051)		**Len. Per Tube** = 20' @ 1/4" Ø or 35' @ 3/16" Ø (6096 @ 60 or 10 668 @ 50)	
LOW EAVE	Face of Male Rib	TOTAL LENGTH OF LOW EAVE x 0.5	
	INSIDE TOP OF RIB: 1/4:12 (2.08:100)	TOTAL LENGTH OF LOW EAVE x 10	
	INSIDE TOP OF RIB: 1/2:12 (4.17:100)	TOTAL LENGTH OF LOW EAVE x 5	
	INSIDE TOP OF RIB: 1:12 (8.33:100)	TOTAL LENGTH OF LOW EAVE x 2.5	
	INSIDE TOP OF RIB: Steeper	TOTAL LENGTH OF LOW EAVE x 0.25	
ENDLAPS	Panel Rib	BUILDING LEN. x ROWS OF ENDLAPS x 1.11	
SLIDING STEP	Behind Hip Flash	WALL WIDTH	
HIGH EAVE	Inside Male Rib	LENGTH OF HIGH EAVE x 0.25	
RIDGE	Inside Male Rib	LENGTH OF RIDGE x 0.5	
SSR CLIPS	Under Tab	# OF CLIPS / 3 (UNPERFORATED CLIPS ONLY)	
RIDGE CAP	Expansion Detail	RIDGE LENGTH x 0.05	
LEAN-TO HI EAVE	Ice Damming Protection	LENGTH OF HIGH EAVE x 5	
TOTAL			
POLYURETHANE CAULK (995056)		**Len. Per Tube** = 20' @ 1/4" Ø or 35' @ 3/16" Ø (6096 @ 60 or 10 668 @ 50)	
GUTTERS	Gutter Laps & End Caps	GUTTER LEN. x 0.25 + END CAPS x 3.0	
TOTAL			

STANDING SEAM ROOF PARTS

STANDARD SSR24 PARTS (IMPERIAL)



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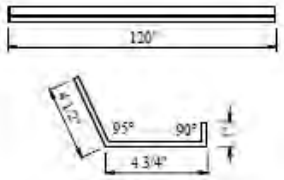

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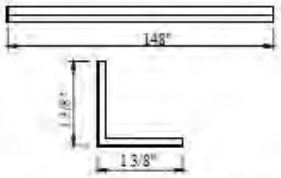

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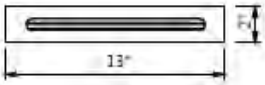

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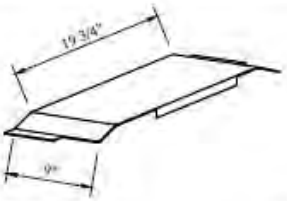

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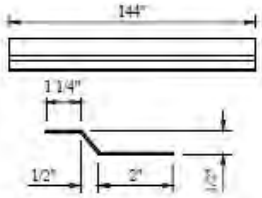
HIP FLASHING SUPPORT 22 GA. 556091



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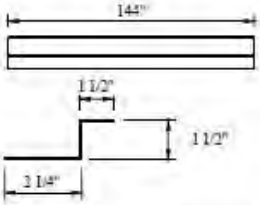
PLATE(SSR) 556094



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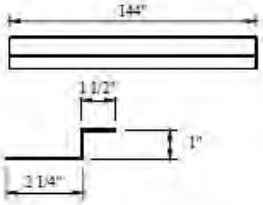

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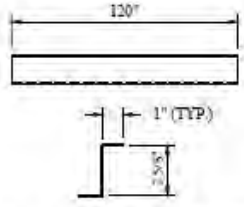

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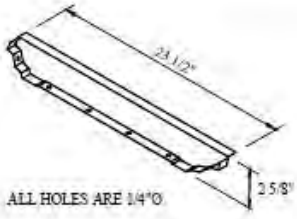
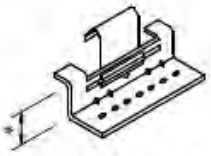
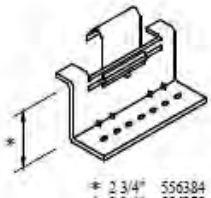


END DAM 18 GA. 556380

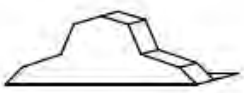


STANDING SEAM ROOF CLIP 556382 / 383



STANDING SEAM ROOF CLIP 556384 / 379

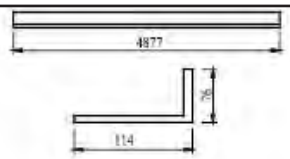
FLEXIBLE
STANDING SEAM ROOF END CELL 556391



SSR CLOSURE BLOCK 556369

STANDING SEAM ROOF PARTS

STANDARD SSR24 PARTS (METRIC)



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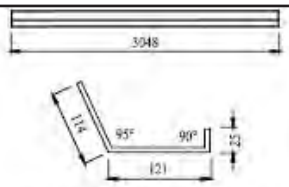

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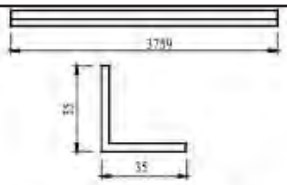

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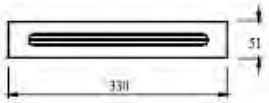
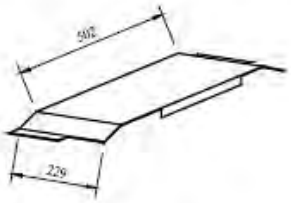
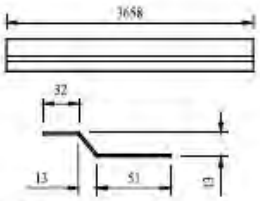


GUTTER HANGER STRAP 1.90mm 556031



ENDLAP PLATE (SSR) 1.21mm 556076

HIP FLASHING SUPPORT 0.76mm 556091



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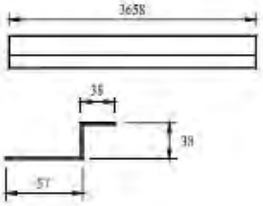

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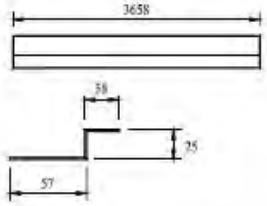

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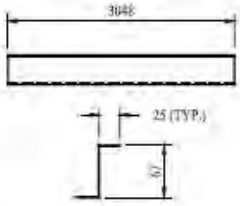
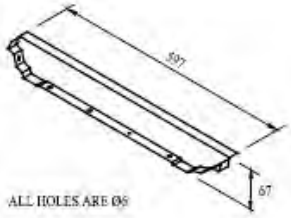
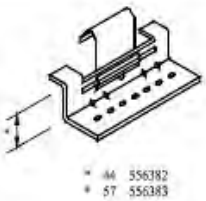


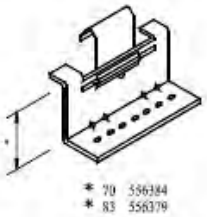
RAKE Z (SSR) 0.61mm 556355



END DAM 1.21mm 556380

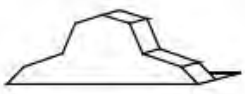


STANDING SEAM ROOF CLIP 556382 / 383



STANDING SEAM ROOF CLIP 556384 / 379

FLEXIBLE STANDING SEAM ROOF END CELL 556391



SSR CLOSURE BLOCK 556369

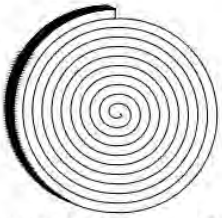
STANDING SEAM ROOF PARTS

STANDARD SSR24 PARTS & TOOLS

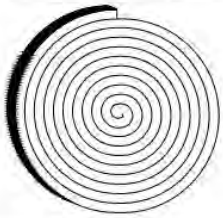
SIKA 995051
APPROX. 20' @ 1/4" BEAD OR 35' @ 3/16" BEAD
(6096 @ 6mm BEAD OR 10 6688 @ 5mm BEAD)

GUN GRADE MASTIC 995053
APPROX. 20' @ 1/4" BEAD OR 35' @ 3/16" BEAD
(6096 @ 6mm BEAD OR 10 6688 @ 5mm BEAD)

POLYURETHANE CAULK 995056
APPROX. 20' @ 1/4" BEAD OR 35' @ 3/16" BEAD
(6096 @ 6mm BEAD OR 10 6688 @ 5mm BEAD)

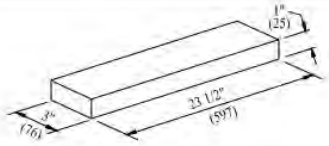


MASTIC - 40' (12192) ROLL 3209055
3/32" x 1 1/2" (2 x 38)



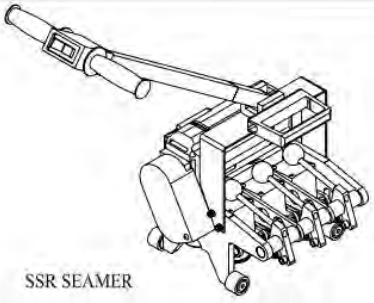
SEALER - 30' (9144) ROLL 3209030
1/8" x 1/2" (3 x 13)

DEK TITE



1"x3"x23 1/2" (25mm X 76mm X 597mm)
THERMAL BLOCK (NOT BY BEHLEN)

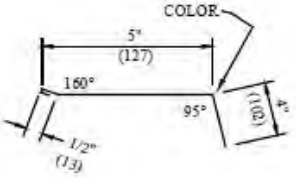
SSR CRIMPER



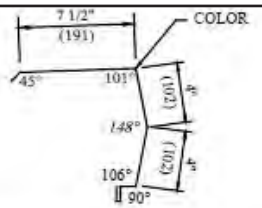
SSR SEAMER

STANDING SEAM ROOF PARTS

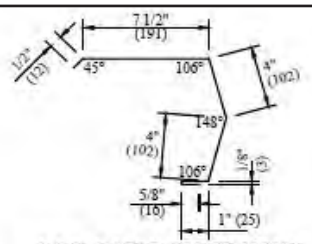
STANDARD SSR24 TRIMS (SUPPLIED IN 26 GAUGE U/N)



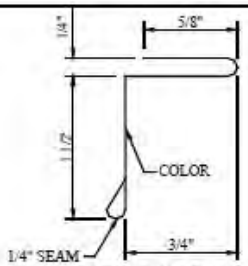
EAVE TRIM 556313



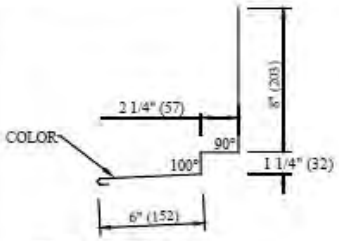
GABLE COVER (SSR) 556349
HIGH EAVE



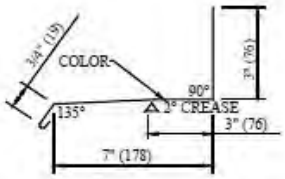
S.S.R. GABLE COVER 556357



GABLE LOCK 556358

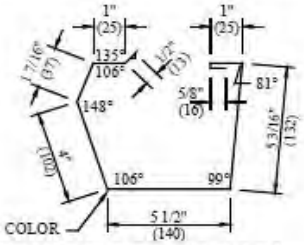


HIP FLASHING 556405

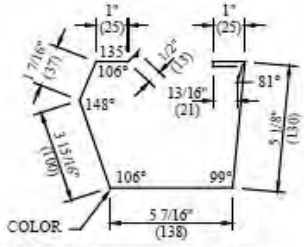


HIP FLASHING 556411

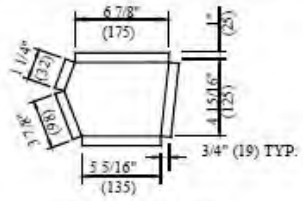
SSR EAVE TRIM 556419



FEMALE GUTTER (SSR) 556421

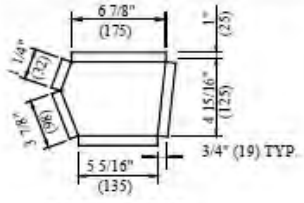


MALE GUTTER (SSR) 556422



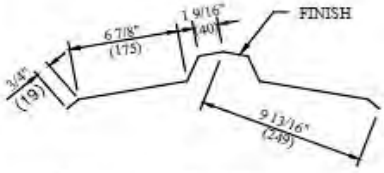
ALL BENDS DOWN 90°

END CAP L.H. (SSR) 556423

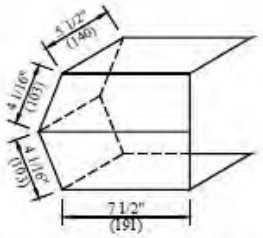


ALL BENDS UP 90°

END CAP R.H. (SRR) 556424



ROOF CAP(SSR) 556426



GABLE CORNER BOX 556427
STANDING SEAM ROOF

PRIMARY EAVE TRIM 556428

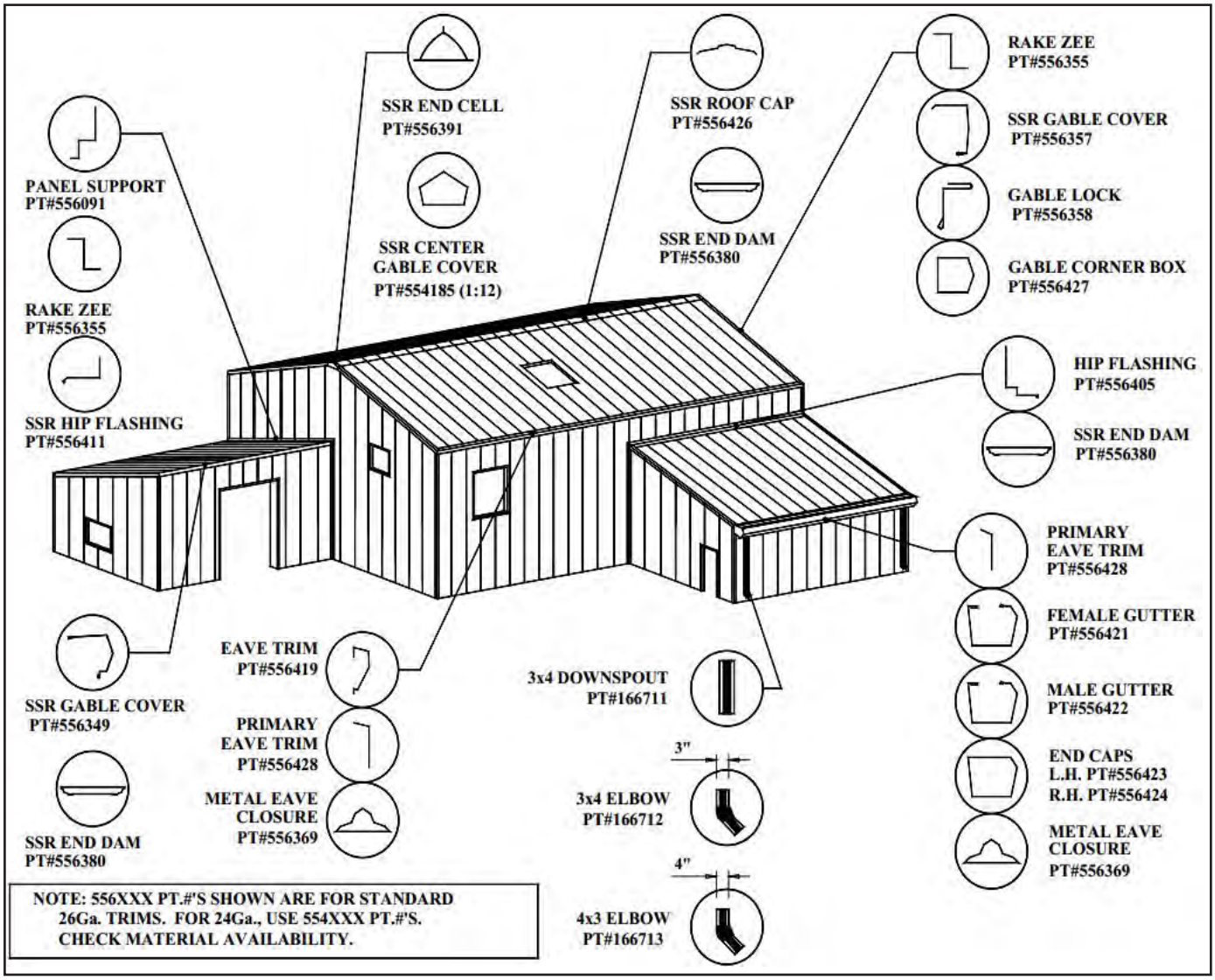
(STANDING SEAM ROOF)
CENTER
GABLE COVER 24 GA. 1:12 554185

STANDING SEAM ROOF PARTS

SSR24 TRIM SELECTION

The following diagram indicates the general location of the various stnadard SSR24 trims on a typical building. The Building Erection Drawings will indicate if any custom parts have been supplied, or if standard parts are to be used in non-typical locations.

Refer to the body of the Manual for detailed installation instructions.



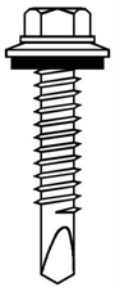
STANDING SEAM ROOF PARTS

SSR24 SPECIALTY FASTENERS

1/4-14 x 7/8" MAC LAP

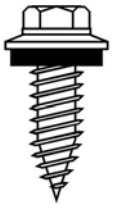
PT#: ST10001140875
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: STAINLESS CAP
USE: Fastening panel and trims to panel and trims on SSR roofs.
DRILL POINT: #1
MAX MATERIAL: 0.320" (8.1)
DRILL/TAP CAPACITY: 0.03" - 0.095" (0.75 - 2.4)

#12-14 x 1 1/4" SD TEK (Endlap)



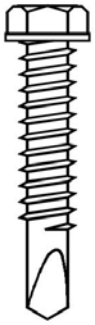
PT#: 556376
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: STAINLESS CAP
USE: SSR Panel Screw. Use at Endlaps, Enddams, and Eave support.
DRILL POINT: #3
MAX MATERIAL: 0.560" (14.2)
DRILL/TAP CAPACITY: 0.035" - 0.210" (0.89 - 5.33)

#12-14 x 1 1/2" SD TEK SCREW



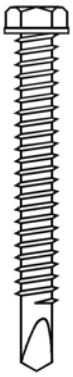
PT#: ST0001170750
DRIVE: HEX HEAD - 3/8"
WASHER: EPDM
MATERIAL: 304 STAINLESS
USE: Replacement screw for stripped #12, #14, or 1/4 screws. Panel and/or light gauge applications.
POINT: Type AB
MAX MATERIAL: 0.375" (9.52)
TAP CAPACITY: Up to 3/16" (4.80) (1/4" Pilot Hole Required)

1/4-14 x 1/4" SD (Clip Screw)



FACTORY MUTUAL APPROVED FASTENER
PT#: 556378
DRIVE: HEX HEAD - 5/16"
WASHER: NONE
MATERIAL: 1022 CARBON STEEL
USE: Fastening SSR Clips to light gauge framing. Fastening roof and wall thermal system components.
DRILL POINT: #2
MAX MATERIAL: 0.710" (18.0)
DRILL/TAP CAPACITY: 0.036" - 0.210" (0.91 - 5.3)

#12-14 x 1 1/4" SD TEK (Endlap)



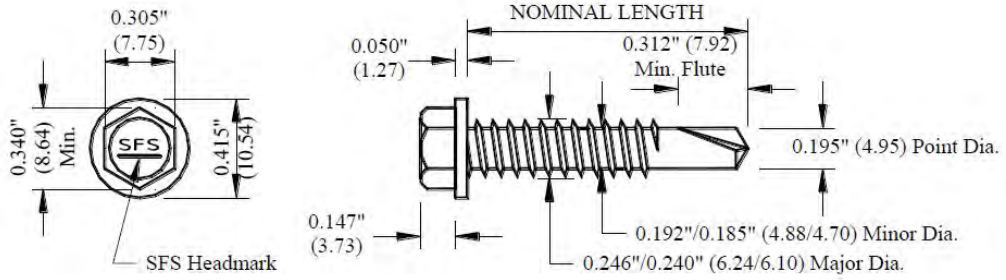
FACTORY MUTUAL APPROVED FASTENER
PT#: 556377
DRIVE: HEX HEAD - 5/16"
WASHER: NONE
MATERIAL: 1022 CARBON STEEL
USE: Fastening SSR Clips to light gauge framing. Fastening roof and wall thermal system components.
DRILL POINT: #2
MAX MATERIAL: 1.46" (37.1)
DRILL/TAP CAPACITY: 0.036" - 0.210" (0.91 - 5.3)

NOTES:

1. All exposed fasteners supplied for us on the Standing Seam Roof surface have 300-series stainles caps or solid 300-series bodies. These fasteners are supplied for maximum service life. Substituting these screws with non-stainless alternates may jeopardize the roof warranty.
2. 300-series stainless steel is non-magnetic. Magnetic drive sockets may not hold these screws as well as carbon steel screws.

1/4-14 SD2 SSR CLIP SCREW SPECIFICATIONS *FACTORY MUTUAL APPROVED*

NOTE: These screws have been Factory Mutual Approved for use on FM-rated roof systems to fasten the SSR Clips into the roof framing. On FM-rated roofs, do not substitute these screws with any other screws.



ABOUT THE SPECIALTY FASTENER TABLE

The Fastener Table above shows the screws commonly supplied for SSR24 roof installation, their use and their material and drilling capacities. Special applications may require the use of the uncommon screw types, and these will be indicated in the For Construction Drawings, if required. The Maximum Material Capacity indicates the total thickness of material that the screw can effectively fasten, including all plies of metal and any wood and/or compressed insulation, etc. The Drill/Tap Capacity indicates the total thickness of base metal that the screw can drill into the form threads without breaking.

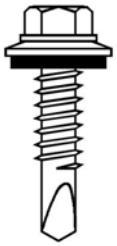
STANDING SEAM ROOF PARTS

SSR24 ASSOCIATED FASTENERS

1/4-14 x 3/4" STITCH SCREW

PT#: SSXXXX140750
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel and trims to panel and trims.
DRILL POINT: #1
MAX MATERIAL: 0.255" (6.5)
DRILL/TAP CAPACITY: 0.03" - 0.095" (0.75 - 2.4)

#12-14 x 1" SD TEK SCREW



PT#: TSXXXX121000
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel, light gauge and clips to light gauge framing.
DRILL POINT: #2
MAX MATERIAL: 0.310" (7.9)
DRILL/TAP CAPACITY: 0.036" - 0.210" (0.91 - 5.30)

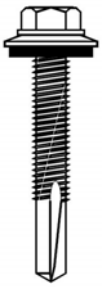
#12-14 x 1 1/2" SD TEK SCREW

PT#: TSXXXX121500
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel, light gauge and clips to light gauge framing.
DRILL POINT: #2
MAX MATERIAL: 0.810" (20.6)
DRILL/TAP CAPACITY: 0.036" - 0.210" (0.91 - 5.30)

#12-14 x 2" SD TEK SCREW

PT#: TSXXXX122000
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel, light gauge and clips to light gauge.
DRILL POINT: #3
MAX MATERIAL: 1.310" (33.3)
DRILL/TAP CAPACITY: 0.036" - 0.210" (0.91 - 5.30)

#12-24 x 1 1/2" STRUCTRUAL



PT#: 3228052
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel, light gauge and clips to heavy framing.
DRILL POINT: #5
MAX MATERIAL: 0.625" (15.9)
DRILL/TAP CAPACITY: 0.250" - 0.500" (6.35 - 12.70)

#12-24 x 2" STRUCTURAL

PT#: 3228054
DRIVE: HEX HEAD - 5/16"
WASHER: EPDM
COATING: DT2000
USE: Fastening panel, light gauge and clips to heavy framing.
DRILL POINT: #5
MAX MATERIAL: 1.125" (28.6)
DRILL/TAP CAPACITY: 0.250" - 0.500" (6.35 - 12.70)

#10 x 1" MDP WOOD SCREW

PT#: MDP1010xxx
DRIVE: HEX HEAD - 1/4"
WASHER: EPDM
COATING: DT2000
SE: Panel, framing, or clips to wood framing.
POINT: Mini Drill Point
MAX MATERIAL: 0"-0.25" (0.0 - 6.4)
DRILL CAPACITY: High Tensile Steel (up to 16 Gauge)

#10 x 1 1/2" MDP WOOD SCREW

PT#: MDP1015XXX
DRIVE: HEX HEAD - 1/4"
WASHER: EPDM
COATING: DT2000
ISE: Panel, framing, or clips to wood framing.
POINT: Mini Drill Point
MAX MATERIAL: 0" - 0.75" (0.0 - 19.0)
DRILL CAPACITY: High Tensile Steel (up to 16 Gauge)

#10 x 2" MDP WOOD SCREW

PT#: MDP1020XXX
DRIVE: HEX HEAD - 1/4"
WASHER: EPDM
COATING: DT2000
ISE: Panel, framing, or clips to wood framing.
POINT: Mini Drill Point
MAX MATERIAL: 0.5" - 1.25" (12.0 - 32.0) (See Note 3.2)
DRILL CAPACITY: High Tensile Steel (up to 16 Gauge)

FASTENER TABLE NOTES:

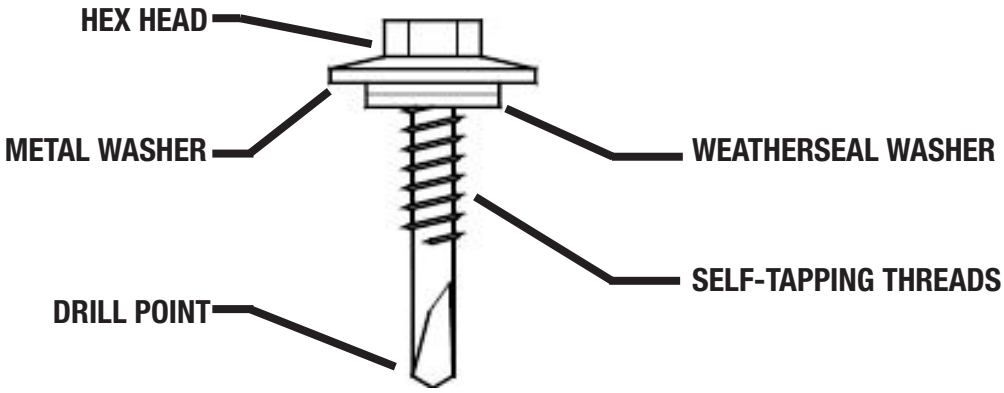
1. Part Numbers: (part numbers for some screw are "built" from their properties)
   - 1.1. Stitch Screws SS(XXXX)(14)(YYYY) (XXXX=Colour Code)(14=Screw Size)(YYYY=Len. in Inches (0.75"=0750))
   - 1.2. Tek Screws TS(XXXX)(12)(YYYY) (XXXX=Colour Code)(12=Screw Size)(YYYY=Len. in Inches (1.5"=1500))
   - 1.3. Wood Screws MDP(10)(YY)(XXXX) (10=Screw Size)(YY=Len. in Inches (1.0"=10))(XXX=Colour Code)
2. Drive: Hex Head sizes are shown across flats (socket size)
3. Maximum Material Capacity:
   - 3.1. Self Drilling (SD) Screws - Indicates the total thickness of material that the screw can effectively fasten, including all plies of metal, thermal block, etc.
   - 3.2. Wood Screws - Indicates the total thickness of material that the screw can effectively fasten, excluding the base wood framing.
4. Drill/Tap Capacity: Indicates the total thickness of base metal that the screw can drill through and form threads without breaking.

ABOUT THE ASSOCIATED FASTENER TABLE

The Associated Fastener Table above shows the screws commonly supplied with SSR24 roof packages, their use and their material and drilling capacities. These screws are supplied for various applications around the Standing Seam Roof, but not on the roof surface itself. Special applications may require the use of uncommon screw types. These will be indicated in the For Construction Drawings for the building, if required.

SELF-DRILLING SCREW INSTALLATION

SELF-DRILLING SCREW INSTALLATION



PROPER SEATING OF SCREWS

OVERDRIVEN	PROPERLY DRIVEN	UNDERDRIVEN
The weatherseal washer has been damaged by too much compression and/or cut by the turning metal washer. The seal will only be short-term.	The weatherseal washer has been compressed but not damaged. Washer is just visible.	The weatherseal washer has not been compressed enough to seal.

EQUIPMENT

For best results, use proper screw guns operating at 1900-2500 RPM rated at 4 amps or higher. Always use a positive clutch and a magnetic, depth-locating socket. Ensure that the screw head fits snugly into the socket and is completely engaged. If the screw head cannot be fully inserted, tap the magnet deeper into the socket.

SELF-DRILLING SCREW INSTALLATION

INSTALLATION TECHNIQUE

Proper installation technique will greatly improve the performance of the self-drilling screws. The following tips should be followed.

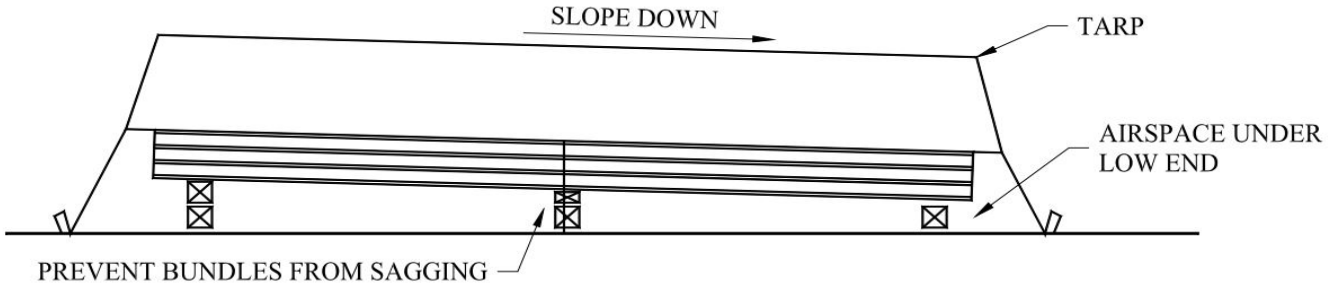
- Adjust the depth locator for the proper washer seating.
- Use the proper fastener for the job. If the threads engage before the hole has been completed, the plies will separate and/or the drill point will break. If the material is too heavy, the screw will break before tapping. If the material is too light, the screw will not provide long-term service. The **SSR24 FASTENERS** table gives Total Material and Drill/Tap Capacities of the various screws.
- Do not push too hard when drilling, as too much pressure will burn out the drill point. Correct pressure will allow the screws to drill and tap without binding.
- When drilling through insulation, ease up on the pressure until the drill point contacts the framing. Striking the framing can damage the drill point.
- Keep the plies in contact when fastening. Whenever possible, locking pliers should be used to hold the parts in position and in firm contact.
- Lapped purlins may not be in close contact. Avoid striking the bottom purlin with the drill point when the top purlin is penetrated. If the bottom purlin cannot be drilled through before the threads engage, pre-drilling may be required.
- In the event that a screw strips out, it must be replaced by another screw; either in another location using the same size screw, or in the same location using a larger screw. At locations exposed to the weather, the stripped screw must be removed and replaced with a larger screw. The #17-14 x 1" AB tapper is commonly used to replace stripped screws.

ON-SITE HANDLING

ON-SITE HANDLING

It is the erector's responsibility to properly inspect the building components after they have been delivered to site. Upon receipt of building materials, inspect the shipment carefully for damage or missing parts. Compare the shipment to the accompanying Load Summary to ensure that all materials are accounted for. Any damage or shortage is to be reported to Behlen Industries Customer Service within 48 hours of receipt of load. Phone (204) 728 1188.

CAUTION:
Proper loading, unloading, and handling techniques must be used at all times. Handle panel bundles carefully to avoid damage to shape or finish. Panel bundles are especially large and unwieldy, and care must be taken to avoid material damage or personal injury. Behlen Industries is not responsible for damages and/or injury resulting from improper handling or storage.



NOTE:
Wet panels or bundles must be dried before storage to avoid unsightly water marks.

Galvanized, aluminized, and coloured materials are subject to corosion and discolouration if they are improperly stored. Short-term job site storage of purlins, roof and wall covering may be tolerated, provided care is taken to keep these materials dry at all times. When materials are to be stored outdoors, they should be placed at an angle sufficient to promote good drainage. In addition, several inches of clearance must be provided between the lower-end and ground to allow ventilation. Long panels should be blocked in the centre to prevent centre sag and resultant water accumulation.

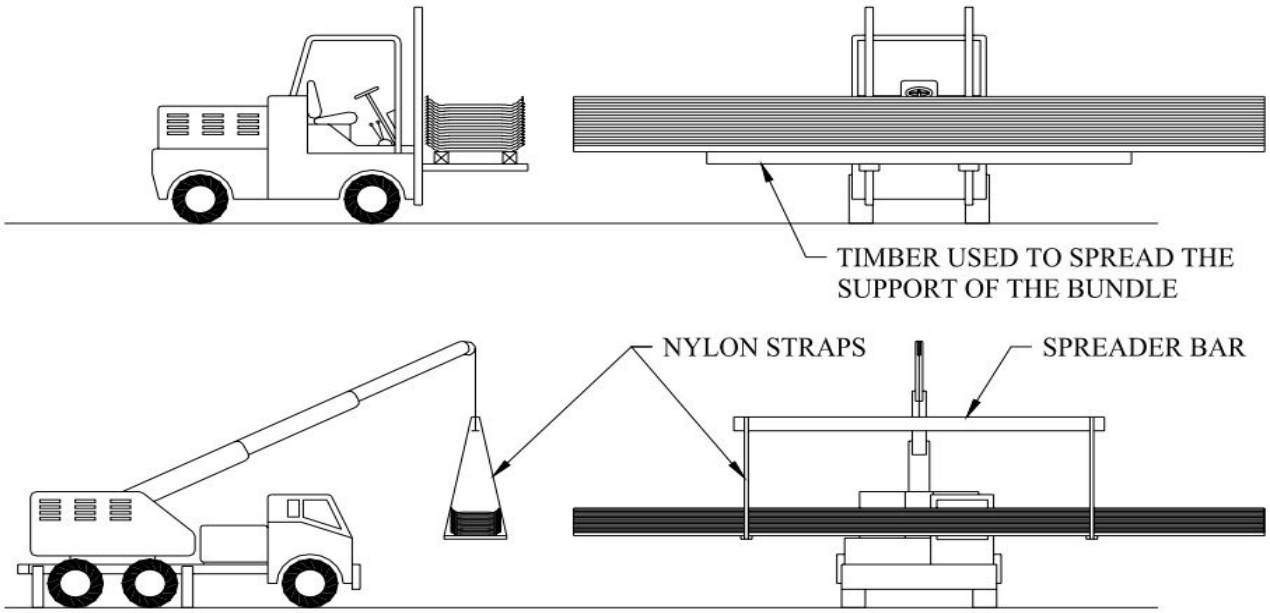
BEHLEN Industries LP will not be held responsible for materials that are improperly protected after delivery.

ON-SITE HANDLING

HANDLING PANEL BUNDLES

Bundles of panels are heavy and unwieldy and must be handled by crane or forklift. The bundle must be properly supported to avoid buckling the panels. Panels up to 20'-0" long may be handled by forklift, keeping the forks spread as far as possible. However, some means of supporting the load beyond the forks may be required. Do not attempt to transport open bundles; re-bundle the panels before moving.

Panels over 20'-0" should be lifted by a crane. Use a spreader bar to distribute the weight of the bundle. Use nylon straps, not wire rope, to support the panels every 10'-0". **Wire rope will damage the panels.** Do not leave more than 1/3 of the panel length unsupported.



Normally, two people can handle individual panels easily. The weight of a 45'-0" panel is approximately 124 pounds (57 kg). Long panels should be supported in the middle by a third person, dolly, or other means. To avoid buckling, carry the panel on it's edge, not on the flat.

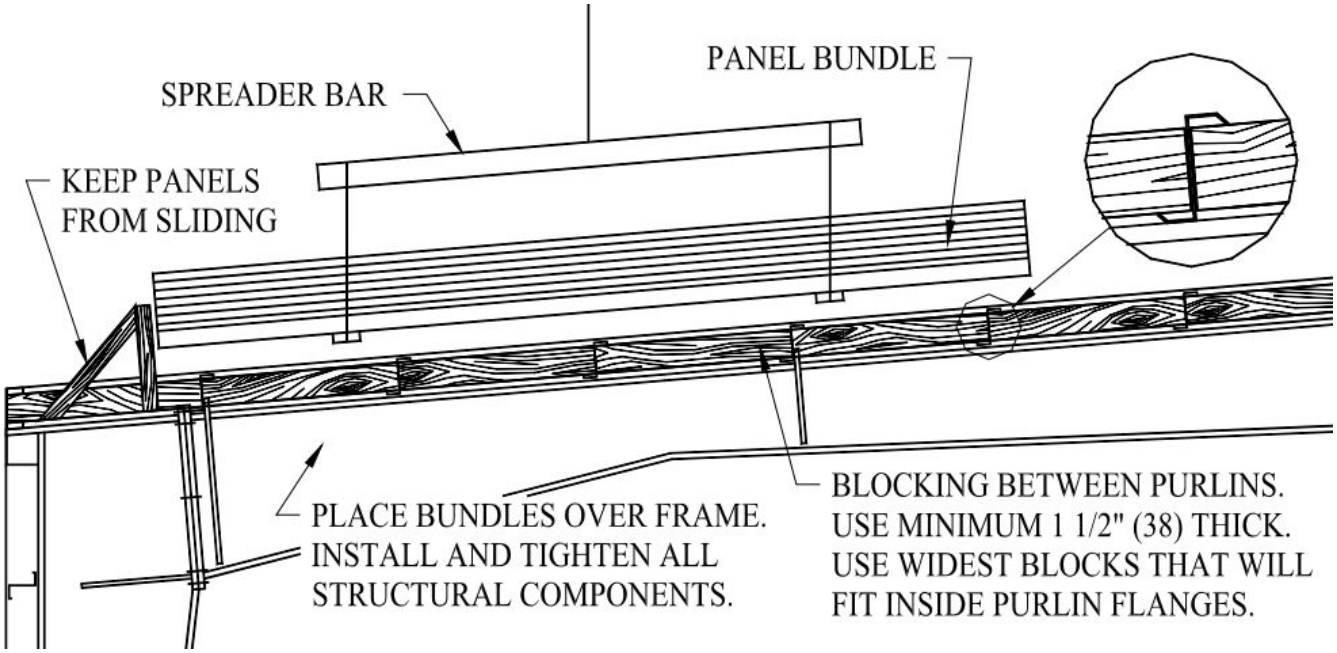
Installers should wear gloves when handling unpainted Galvalume panels. The salts from bare skin will react with the finish, leaving blemishes. Also, wear rubber-soled shoes on the roof to avoid marking the finish.

ON-SITE HANDLING

LOADING PANELS ONTO ROOF

To facilitate installation of the roof panels, panel bundles may be lifted to the roof if precautions are taken to prevent damage to the structure.

- **Locate the panel bundles directly over a frame.** Purlins may not be designed to carry the concentrated load imposed by bundles of roof panels.
- **Do not place bundles over jack beams.**
- **Install and tighten all bolts, flange braces, cross-bracing and purlins on the frame before placing panel bundles.**
- **Install blocking under the purlins where the panel bundles will be placed.** This is to prevent the extra weight from causing the purlins to roll over.
- **Remove blocking after the panels have been placed.**



Carefully consider the arrangement of the bundles on the roof. Determine how much roof will be covered by each bundle and space them accordingly. Orient the bundles the same way they will be installed (refer to **"PREPARATION: START POINT AND DIRECTION OF INSTALLATION"**). Avoid placing bundles where they will interfere with string lines, traffic, equipment, etc.

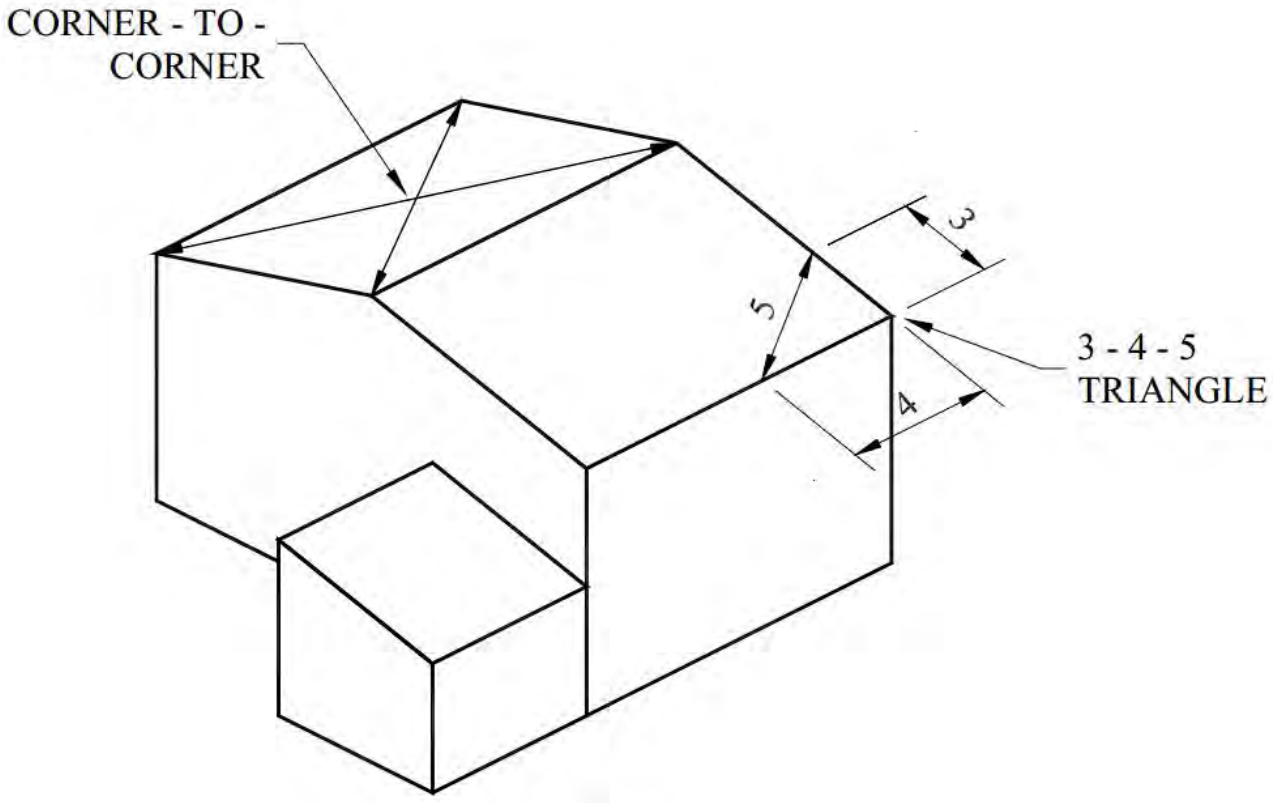
CAUTION:

- **Some method must be used to prevent the panels from sliding or blowing off the roof.**
- **Do not leave loose panels unattended. Bundles must be secured before leaving the job site.**

PREPARATION

ROOF GEOMETRY

The roof surfaces must be straight and square before beginning to install the standing seam roof. Proper installation of the first panel run is imperative, as it will set the alignment for the rest of the roof. Two suggested methods of determining roof squarness are: **corner-to-corner** and the **3-4-5 triangle.**



Corner-to-corner

Check the roof geometry by measuring diagonally across the roof surface from ridge to eave. The two dimensions should be identical. This is the easiest way to check roof geometry, but may be impractical on large roofs.

3-4-5 Triangle

Check the roof geometry by measuring along the gable from the eave at a multiple of 3. Next, measure along the eave, from the same point, a multiple of 4. The diagonal distance between the two points should be an exact multiple of 5. Repeat this process as required to determine building geometry.

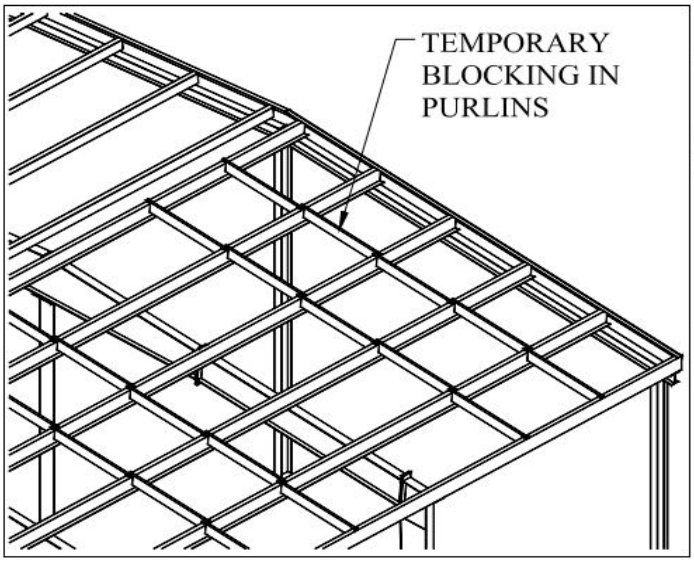
PREPARATION

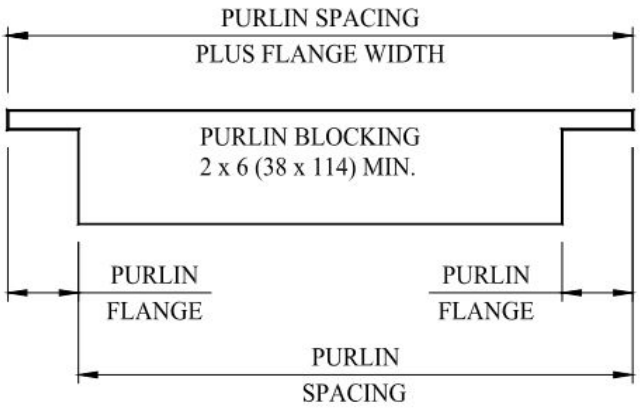
Purlin/Joist Alignment and Stabilization

NOTE: Installation On Purlins Versus OWS Joists

Installation of the SSR24 roof system on purlins is similar to installation on OWS joists. In this manual, reference to purlins also applies to OWS joists unless special instruction has been given.

Before beginning panel installation in any bay, ensure that the purlins are straight and perpendicular to the roof surface (not plumb). Allowing the purlins to rotate or sweep out of line will affect the SSR Clip placement and structural integrity of the roof. Panel endlaps, roof transitions, and ridges are particularly sensitive to the alignment of the substructure. Members that have rotated will have a reduced load-bearing capacity and can make panel installation difficult.





REFER TO THE FRAME ELEVATIONS IN THE BUILDING ERECTION DRAWINGS FOR PURLIN/JOIST SPACINGS.

One **temporary** method of maintaining purlin alignment is to cut and install 1 1/2" (38) thick blocks as shown. The blocks should be as wide as possible (5 1/2" (114) minimum). At least one row of blocking in a bay should be used. Use additional rows as required. **This temporary blocking must be replaced by permanent purlin stabilizers as roofing progresses.**

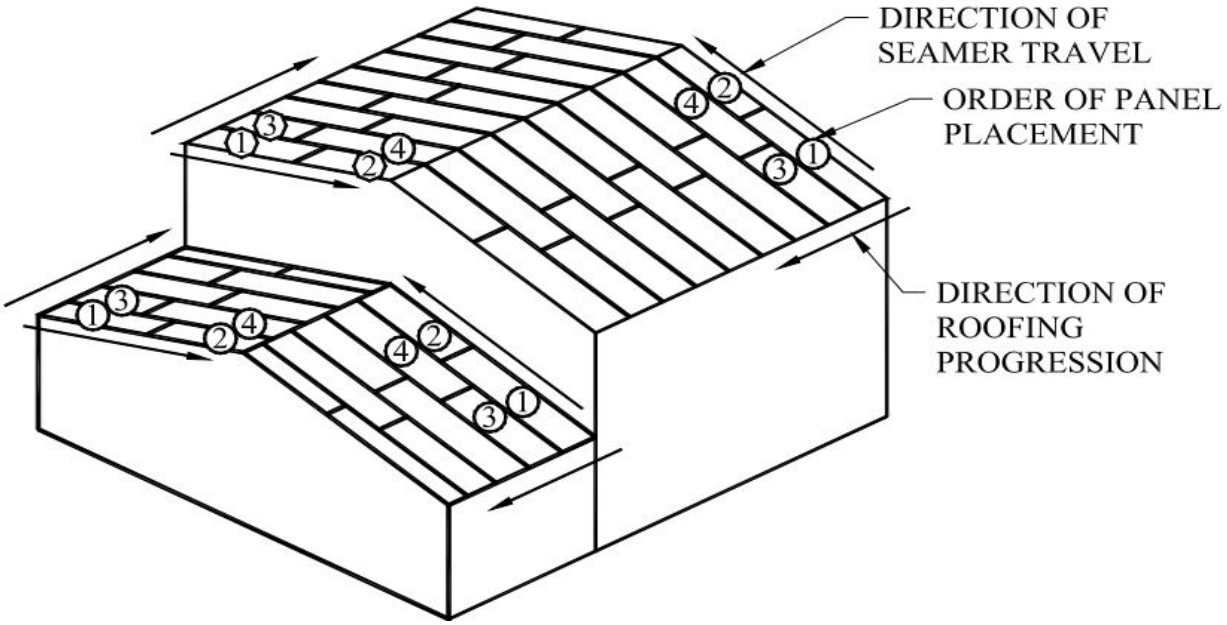
IMPORTANT

For conformance with Canadian Code CSA S136, permanent purlin stabilizers must be installed on a Standing Seam Roof system to develop the full strength of the purlins. These stabilizers also provide a means of aligning the purlins before panel installation in lieu of temporary blocking. Refer to the Building Erection Drawings and the Standard Detail Booklet for purlin stabilizer installation.

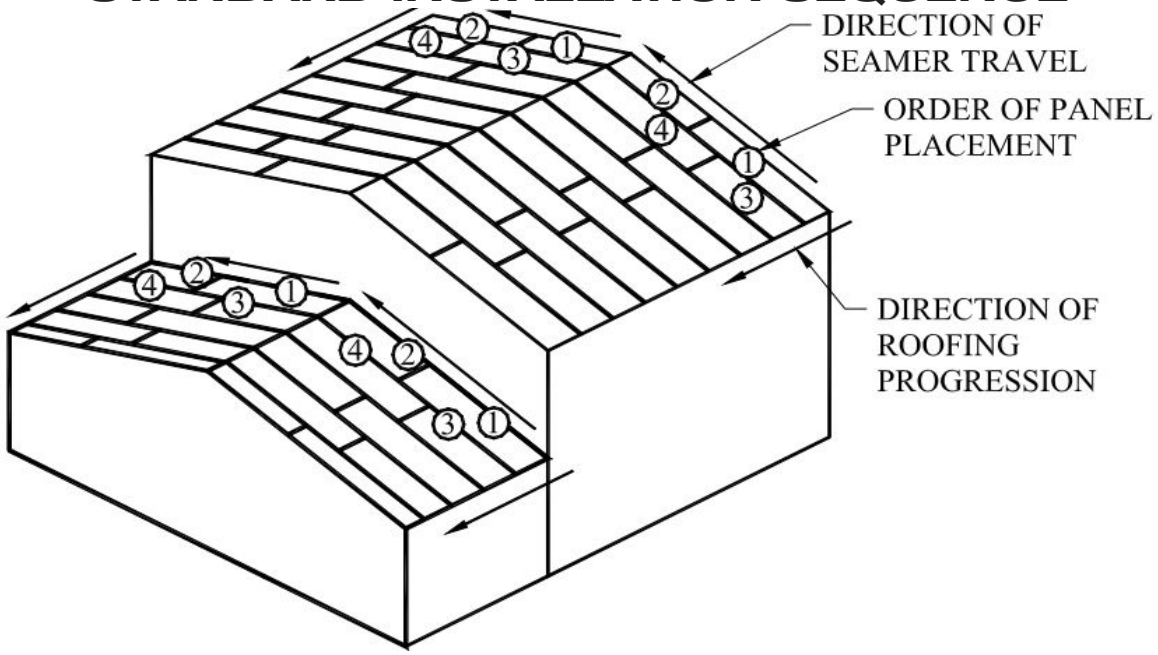
PREPARATION

START POINT AND DIRECTION OF INSTALLATION

The starting instructions given here indicate standard procedure. If it is desirable to start and install the panels other than shown, indicate intended procedure when ordering. Check the building erection drawings to determine if a non-standard start location or paneling direction has been specified. If endlaps are required, panels will be factory notched, and must be installed as intended.



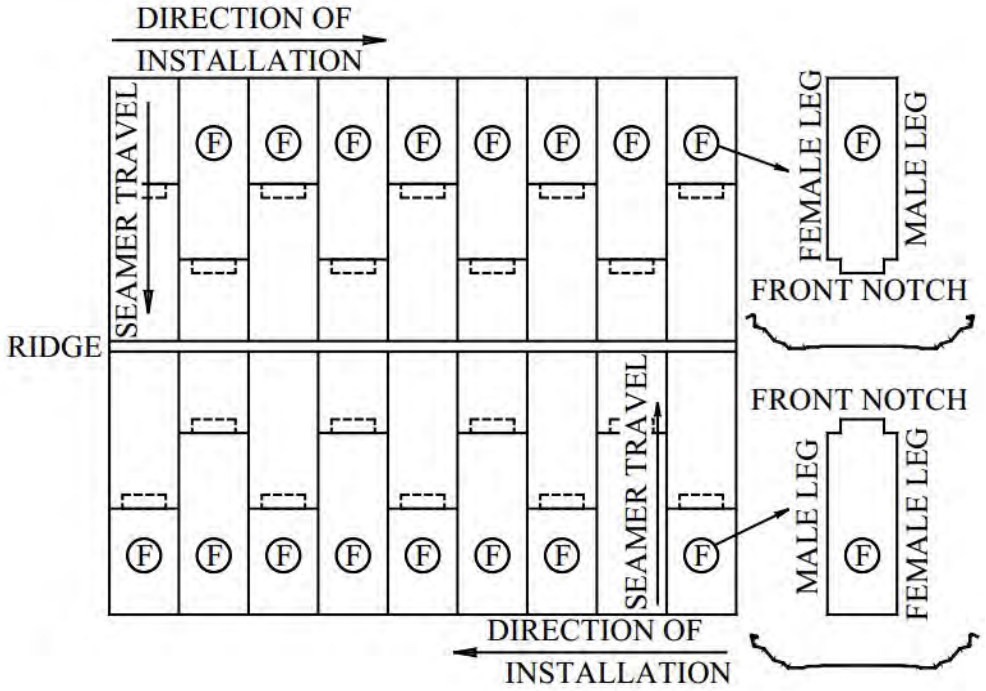
STANDARD INSTALLATION SEQUENCE



OPTIONAL INSTALLATION SEQUENCE (SPECIFY WHEN ORDERING)

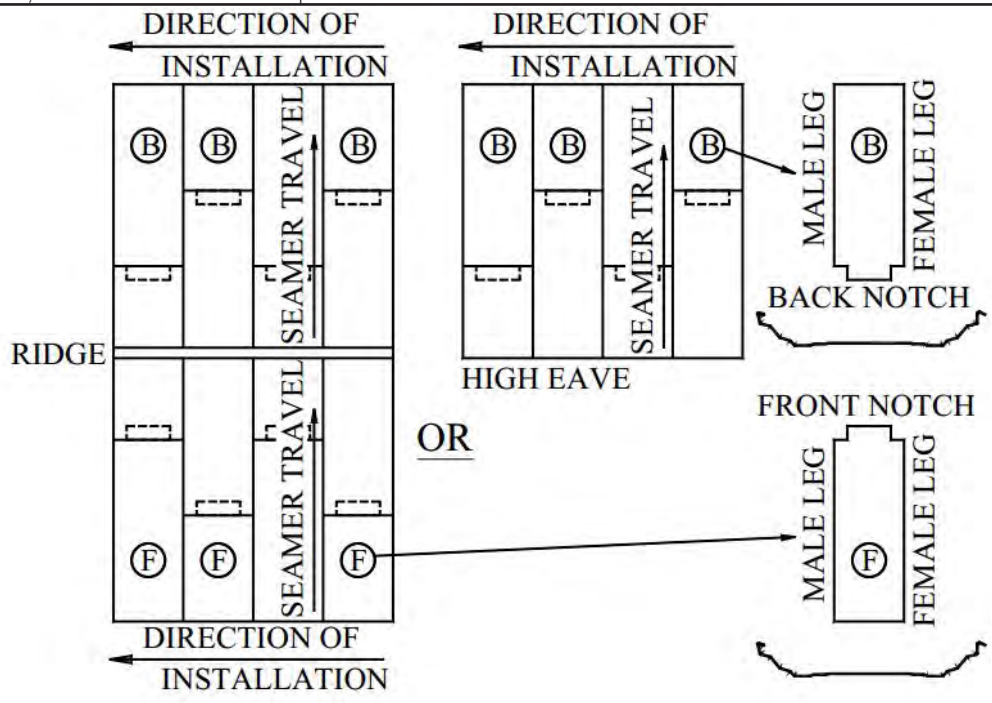
PREPARATION

ENDLAP NOTCHING



Standard Notching: UPSLOPE SEAMING ONLY

For this procedure, the front end of all eave panels are notched.



Optional Notching: DOWNSLOPE SEAMING REQUIRED

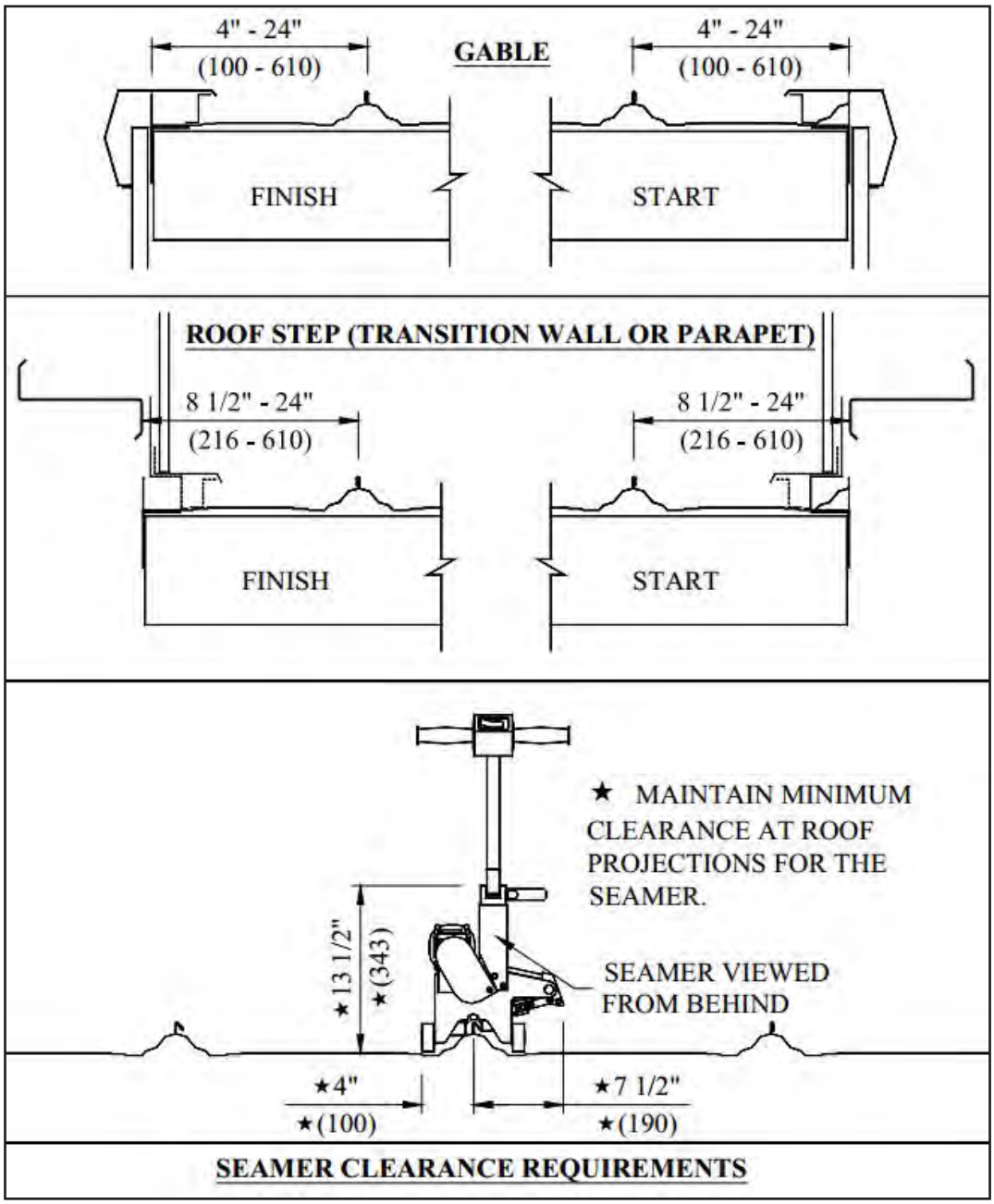
For this procedure, the front end of the eave panels are notched for upslope seaming, and the back ends are notched for downslope seaming.

PREPARATION

ACCEPTABLE START AND END LOCATIONS

Before beginning installation, verify that the panels can be installed as planned. Check that the first and last seams will fall within acceptable distances of endwalls, parapets, transitions, and other obstructions.

NOTE:
Maintain minimum clearances at roof projections for the seaming machine.



PANEL LAYOUT

PANEL LAYOUT (GENERAL)

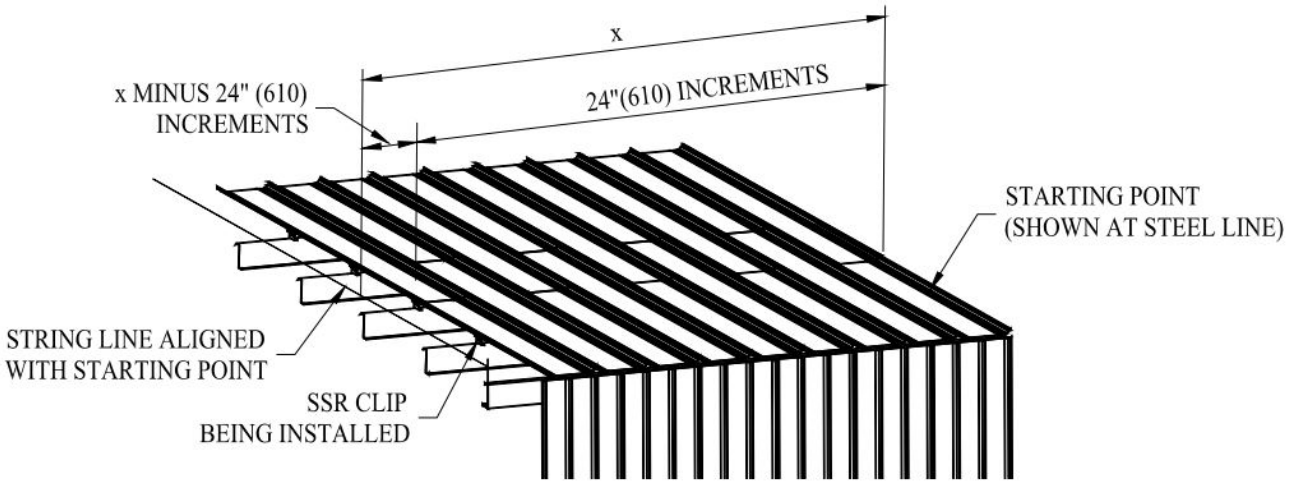
It is imperative that panels are located properly, both from an aesthetic and practical point-of-view. Consistently maintaining accuracy at the following locations will pay off in trouble-free installation, roof performance, and appearance.

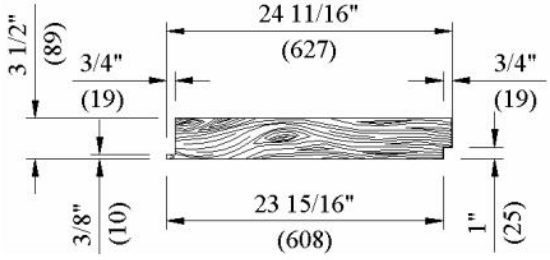
SEAMS

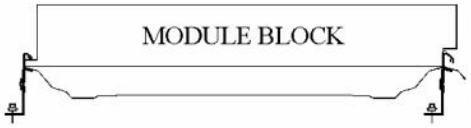
IMPORTANT:

- **Seams must be kept straight and at exactly 24” (610) o/c. The seamer will not operate properly if the geometry of the ribs is not correct, resulting in serious problems, including damage to the seams, and an expensive repair job.**
- **Allowing the seams to wander will give a low-grade appearance to the final product. Serious problems can be encountered when seaming and when trying to install the last panel and trims if the seams have not been aligned properly.**

As each row of SSR Clips is installed, ensure that they are at exactly 24” (610) increments from the starting point of the roof. This can be done by measuring to the starting point or to a string line that has been carefully aligned with the starting point. A Module Block can be made as shown and used as a guide. The purlins can also be pre-drilled @ 24” (610) o/c using a 3/16” (10) bit.



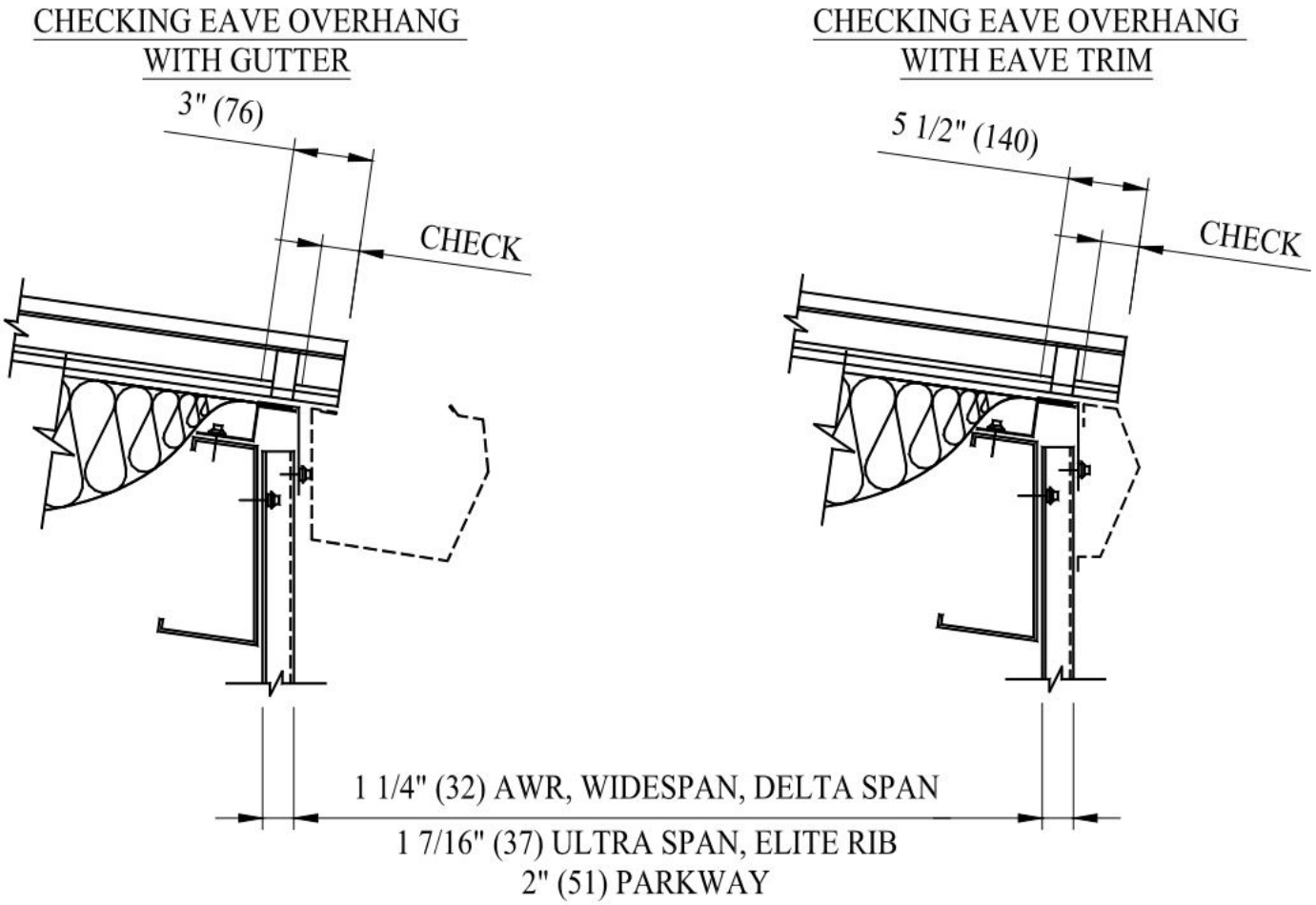




PANEL LAYOUT

EAVE

Set the panel overhang at the eave as shown. Keep the panel ends even, especially if they will be visible from the ground.

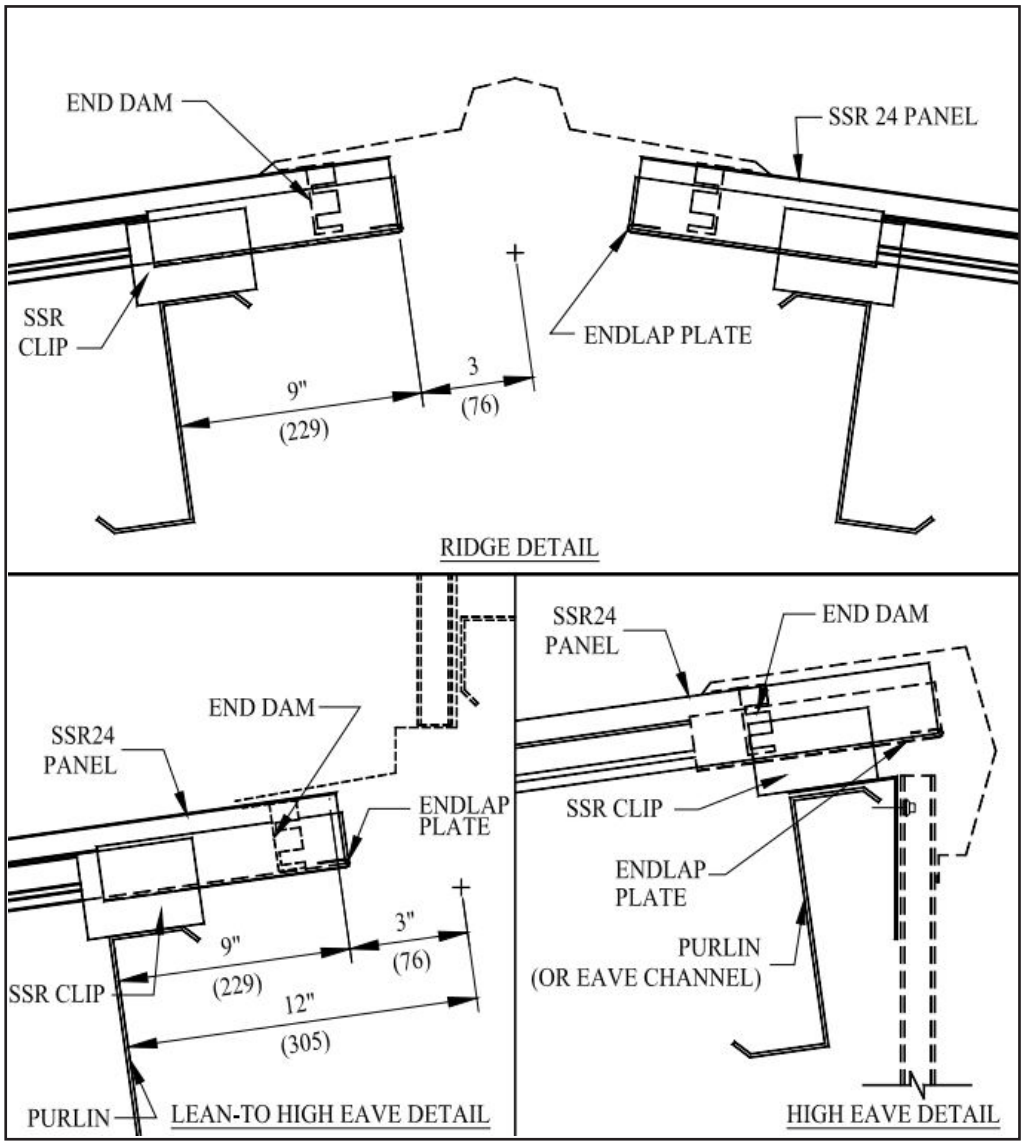


EAVE OVERHANG CHECK DIMENSIONS			
OVERHANG (GUTTER)		**OVERHANG (NO GUTTER)**	
CHECK	**WALL PANEL**	**CHECK**	**WALL PANEL**
1 3/4" (44)	AWR, WIDESPAN, DELTA SPAN	4 1/4" (108)	AWR, WIDESPAN, DELTA SPAN
1 9/16" (40)	ULTRA SPAN, ELITE RIB	4 1/16" (103)	ULTRA SPAN, ELITE RIB
1" (25)	PARKWAY	3 1/2" (89)	PARKWAY

PANEL LAYOUT

RIDGE/HIGH EAVE

The SSR24 panel will run past the ridge/high eave purlin as shown. The Endlap Plate will hook onto the panel end and rest on the purlin or thermal block beneath the panel. This is a good spot to allow for any irregularities in panel length as long as the Endlap Plate is supported and the End Dam screw do not fall over any roof framing. **See "ENDLAPS: PANEL OVERHANG TOLERANCE" page 29.**

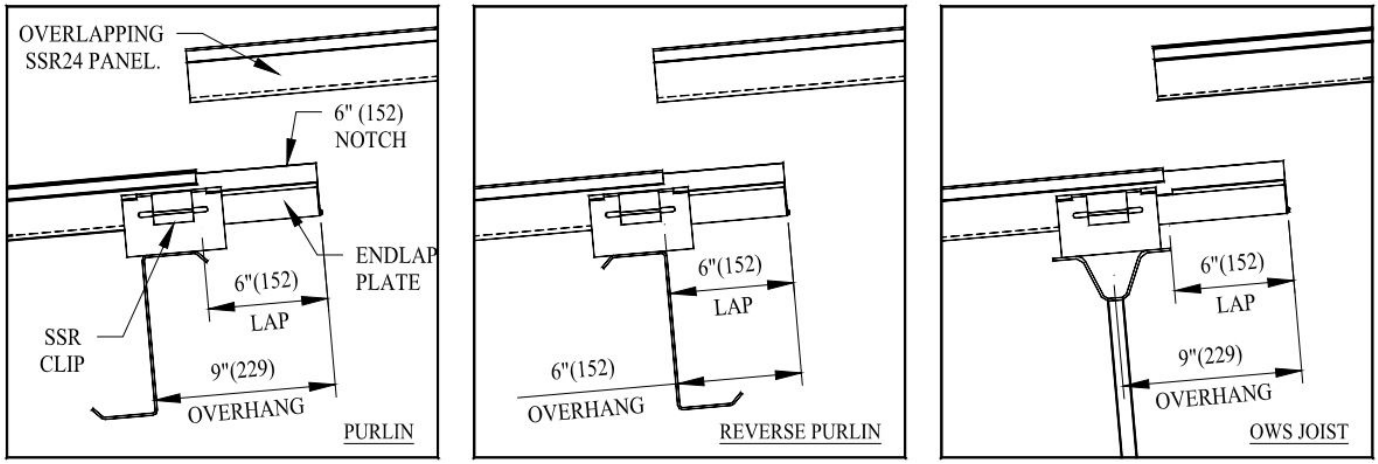


PANEL LOCATION AT RIDGE/HIGH EAVE

PANEL LAYOUT

ENDLAPS

When endlaps are required, the notched end of the SSR24 panel will run past the lap purlin as shown. The Endlap Plate will hook onto the panel end and rest on the purlin or thermal block benearth the panel. The panel lap will be 6" (152).



PANEL LOCATION AT ENDLAPS

PANEL OVERHANG TOLERANCE

If the panel overhang is too great, the Endlap Plate will be unsupported, allowing the endlap screws to work loose or pull through. The Endlap Plate must bear on the purlin enough so that it will not come off when the roof moves. If it does, the screws could tear when the roof moves back.

If the overhang is too small, the endlap screws will be over, or too near, the purlin. This will also cause tearing as the roof moves. Lap screws must not penetrate the support members or otherwise prevent free movement of the SSR roof panels.

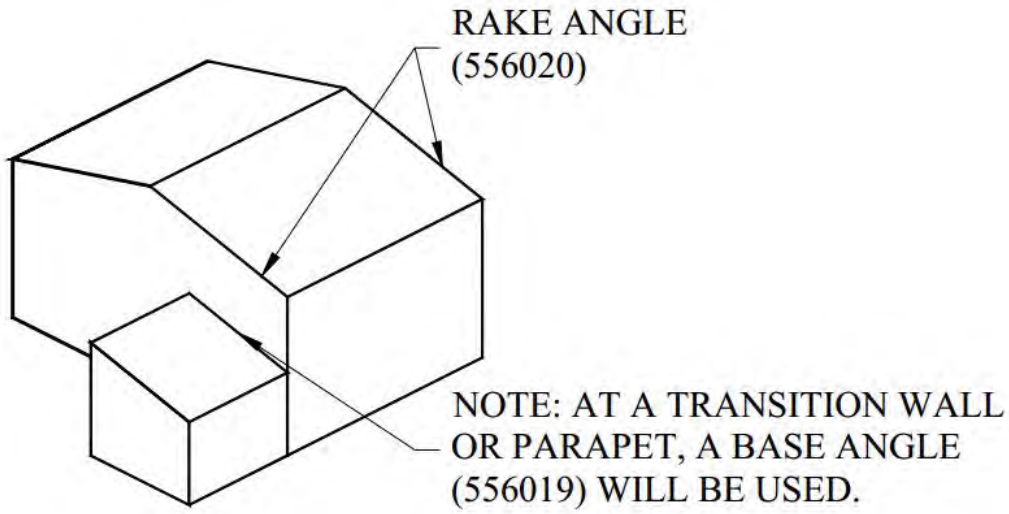
Always position roof components to accommodate 3/4" (19) of movement both up-and-down slop (1 1/2" (38) total).

Endlaps of adjacent SSR24 panels are staggered by a minimum of one purlin space. This prevents a build-up of plies at a lap and improves the structural capacity of the panel system.

NOTE:

The most important aspects of panel layout are seam and endlap location. Paying particular attention here to locate the panels properly will go a long way towards a quality installation.

RAKE ANGLE INSTALLATION



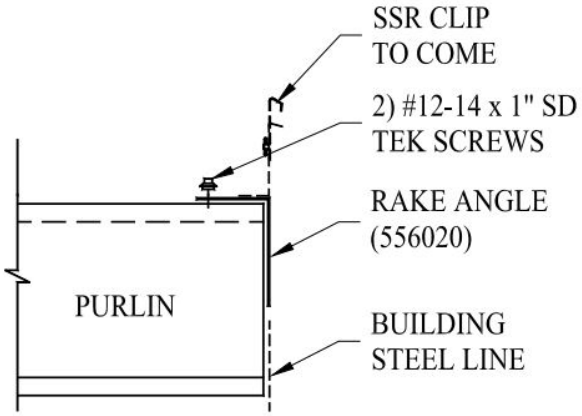
PURPOSE:

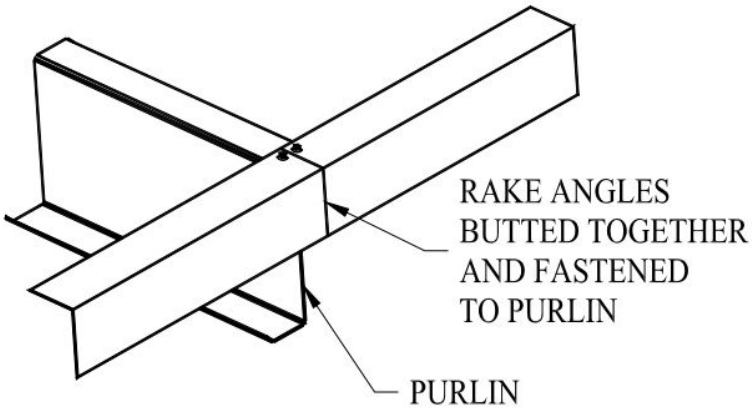
The **Rake Angle (556020)** will be set at the steel line of the building (outside face of girts) to support the top of the wall panel and stabilize the purlins. A Base Angle will be required at a transition wall or parapet.

RAKE ANGLE INSTALLATION

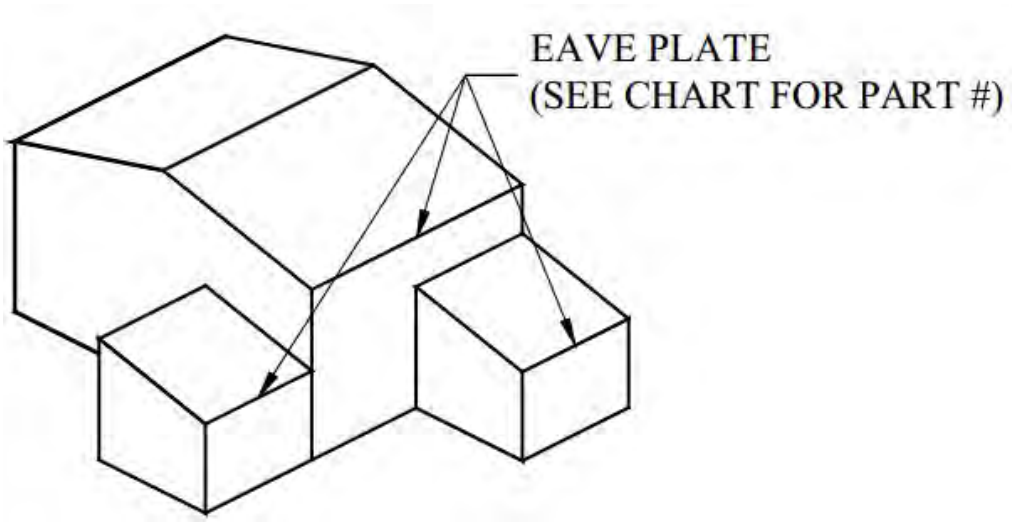
Set the Rake Angle (or Base Angle) flush with the steel line and fasten to each purlin using (2) #12-14 x 1" SD Tek screws. Keep the screws at least 1 1/2" (38) from the steel line to avoid interference with the SSR Clips.

Do not splice Rake Angles between purlins. Cut the Rake Angle at the purlin and butt the next one to it. The Base Angles at a transition wall or parapet will not be used to support the wall panels and may be spliced between the purlins using (2) #12-14 x 1" SD Tek screws.





EAVE PLATE INSTALLATION



PURPOSE:

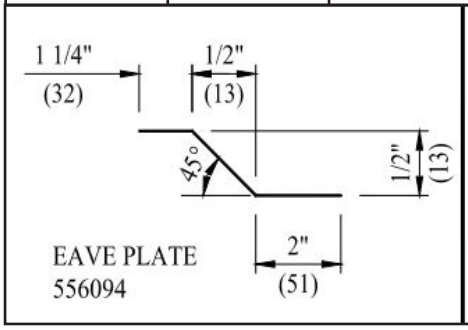
The **Eave Plate** anchors the SSR panel to the framing, raising it above the eave support to match the SSR clip height.

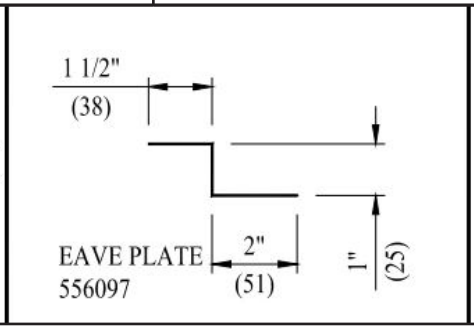
EAVE PLATE INSTALLATION

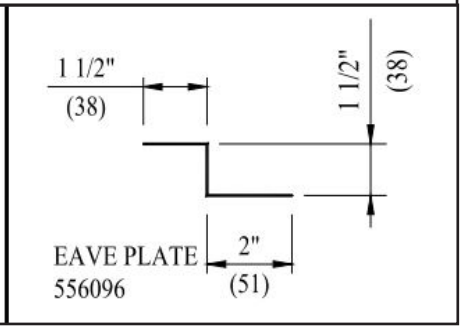
TYPE

Determine the Eave Plate required using the Eave Plate chart below.

EAVE PLATE CHART			
CLIP HT.	**GAP**	**EAVE PLATE PART #**	**INSULATION ACCOMODATION**
1 3/4" (44)	0	DIRECT FASTEN	UP TO 4" (100) BLANKET
2 1/4" (57)	1/2" (13)	556094	4" (100) TO 6" (150) BLANKET
2 3/4" (70)	1" (25)	556097	UP TO 4" (100) BLANKET C/W 1" (25) THERMAL BLOCK
3 1/4" (83)	1 1/2" (38)	556096	4" (100) TO 6" (15) BLANKET C/W 1" (25) THERMAL BLOCK



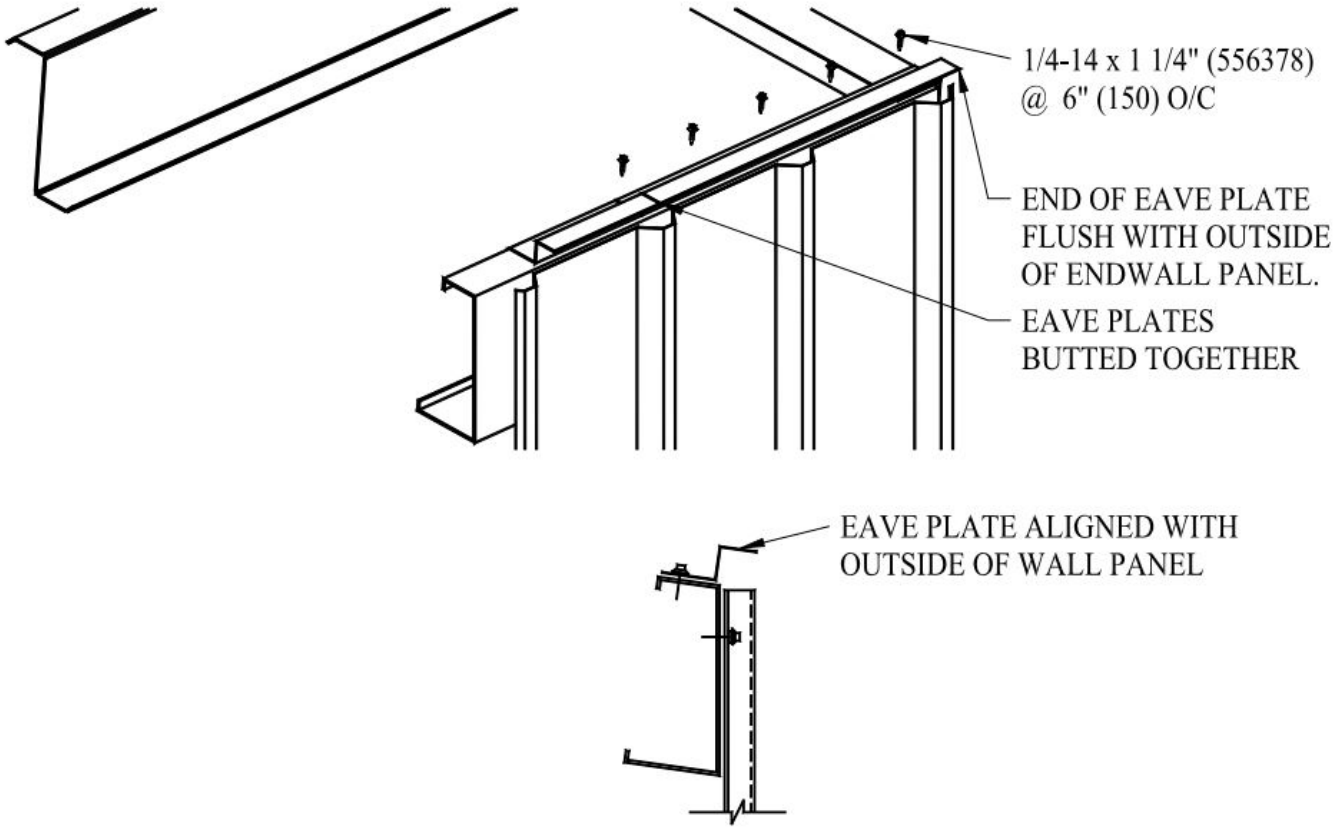




EAVE PLATE INSTALLATION

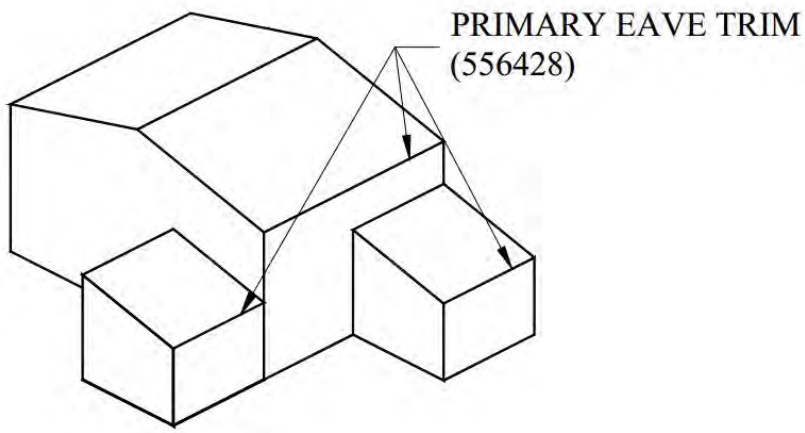
PROCEDURE

1. To avoid having the Eave Plates butt together at the panel seams, align the end of the first Eave Plate with the outside of the endwall panel.
2. With the end of the first Eave Plate at the outside of the endwall panel, align the shorter top leg with the outside of the sidewall panel.
3. Fasten the Eave Plate to the eave support using 1/4-14 x 1 1/4" (556378) Teks @ 6" (150) o/c.
4. Butt subsequent Eave Plates together end-to-end without lapping. End the Eave Plate run at the outside of the opposing Rake Angle.



EAVE PLATE ALIGNMENT

PRIMARY EAVE TRIM INSTALLATION



PURPOSE

The **Primary Eave Trim (556428)** provides a continuous surface onto which to seal the roof and directs moisture down the outside of the wall panel. The Primary Eave Trim is also used to secure the roof insulation until the roof panel can be screwed down.

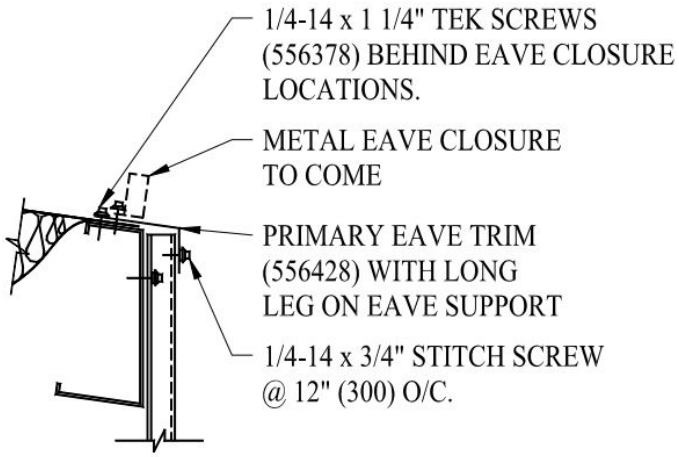
PRIMARY EAVE TRIM INSTALLATION

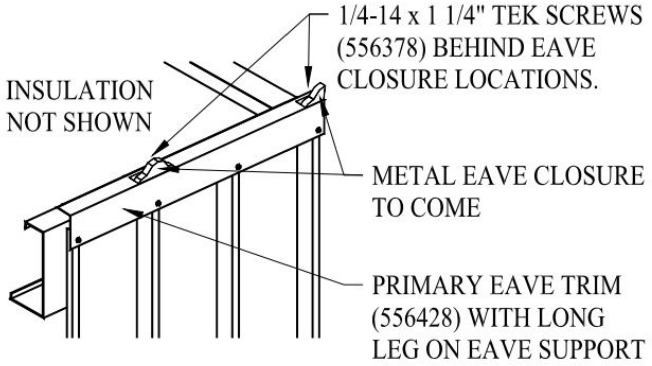
1. To prevent wicking and ease installation, remove the fiberglass from the end of the roof insulation roll so that only the facing will be under the Primary Eave Trim. Fols the ends of the facing under themselves and hold the end of the insulation roll on the eave support.
2. Position the Primary Eave Trim:
   a) For roof with 1 3/4" (44) clip: Orient the Primary Eave Trim with the long leg on the eave support, holding the insulation. Align the end of the first Primary Eave Trim with the outside of the endwall wall panel.
   b) For roof with Eave Plate: Orient the Primary Eave Trim with the short leg on the Eave Plate, holding the insulation. Align the end of the first Primary Eave Trim with the outside of the endwall wall panel.
3. Fasten the Primary Eave Trim and secure the insulation:
   a) For roof with 1 3/4" (44) clip: Holding the trim against the sidewall wall panel, install (1) 1/4 - 14 x 1 1/4 Tek screw (556378) at the back edge of the trim within 1" (25) of the endwall steel line to secure the insulation. Place another screw at each roof panel rib location on the Primary Eave Trim. Install these screws back far enough from the eave to allow the Metal Eave Closure to be installed over the eave support.
   b) For roof with Eave Plate: Install temporary 1/4 - 14 x 1 1/4 Tek screws (556378) @ 24" (610) o/c into the Eave Plate to secure the insulation. These screws can be removed as the Metal Eave Closures and panel are installed.

NOTE:
Avoid leaving these screws where they will be under the flat portion of the panel where they can cause dimpling and potentially jeopardize the eave seal.

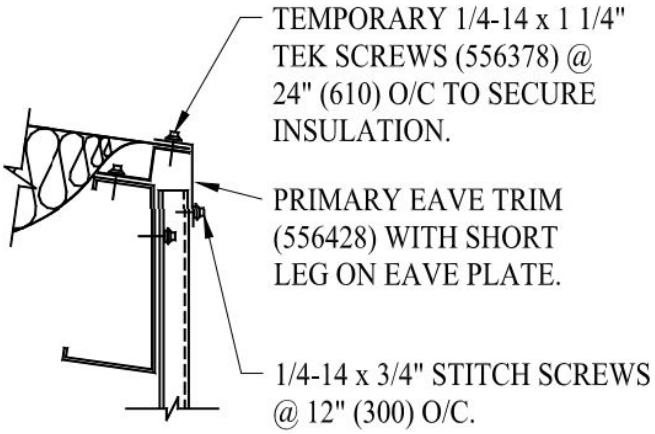
PRIMARY EAVE TRIM INSTALLATION

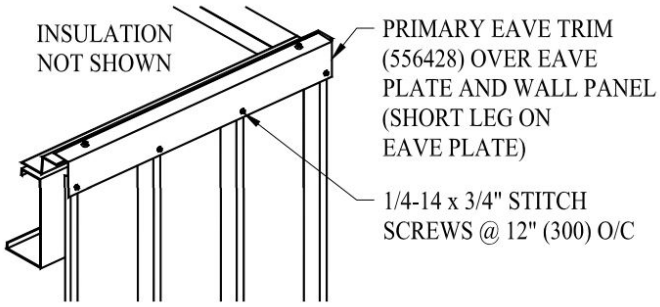
4. Fasten the Primary Eave Trim to the sidewall panel using 1/4-14 x 3/4" stitch screws @ 12" (300) o/c. Lap succeeding trims 2" (50). Seal laps using **Gun Grade Mastic (995053).**





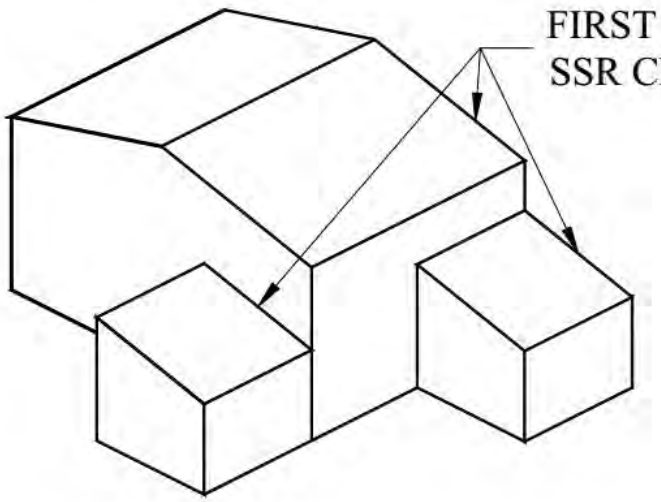
PRIMARY EAVE TRIM INSTALLATION WITHOUT EAVE PLATE

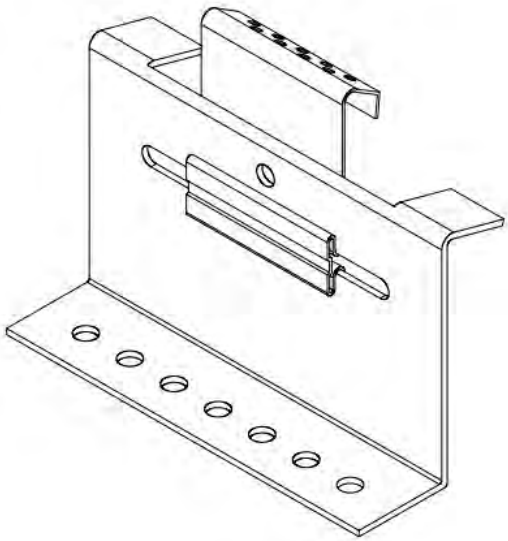




PRIMARY EAVE TRIM INSTALLATION WITH EAVE PLATE

EAVE PLATE INSTALLATION





PURPOSE:

The **First Row of SSR Clips** secures the edge of the first SSR panel (the Starter Panel). Keeping the clips in line and square to the eave is essential, as they will set the alignment of the panels for the rest of the roof.

EAVE PLATE INSTALLATION

TYPE

SSR Clip and clip screw used will be determined by the thickness of the roof insulation. See chart.

SSR COMPONENT SELECTION CHART

INSULATION		SSR COMPONENTS					
BLANKET THICKNESS	THERM BLOCK	SSR CLIP		SSR CLIP SCREW *		EAVE PLATE	
		HEIGHT	PART #	LENGTH	PART #	HEIGHT	PART #
UP TO 4" (100)	NONE	1 3/4" (44)	556382	1 1/4" (32)	556378	NONE	-
4"-6" (100-150)	NONE	2 1/4" (57)	556383	2" (51)	556377	1/2" (13)	556094
UP TO 4" (100)	1" (25)	2 3/4" (70)	556384	1 1/4" (32)	556378	1" (25)	556097
4"-6" (100-150)	1" (25)	3 1/4" (82)	556379	2" (51)	556377	1 1/2" (38)	556096

* For OWS joists, use 2) #12-24 x 1 1/2" (3228052) OR 2) #12-24 x 2" (3228054)

NOTE:

Each clip must receive 2 screws to achieve the wind uplift capacity of the roof when installing on light gauge purlins. If a screw strips out, screw through another clip hole, or reposition the clip by 3/8" (10) min., or install an oversized screw (#17-14 x 1" AB Tapper) (goof screw) in the stripped hole.

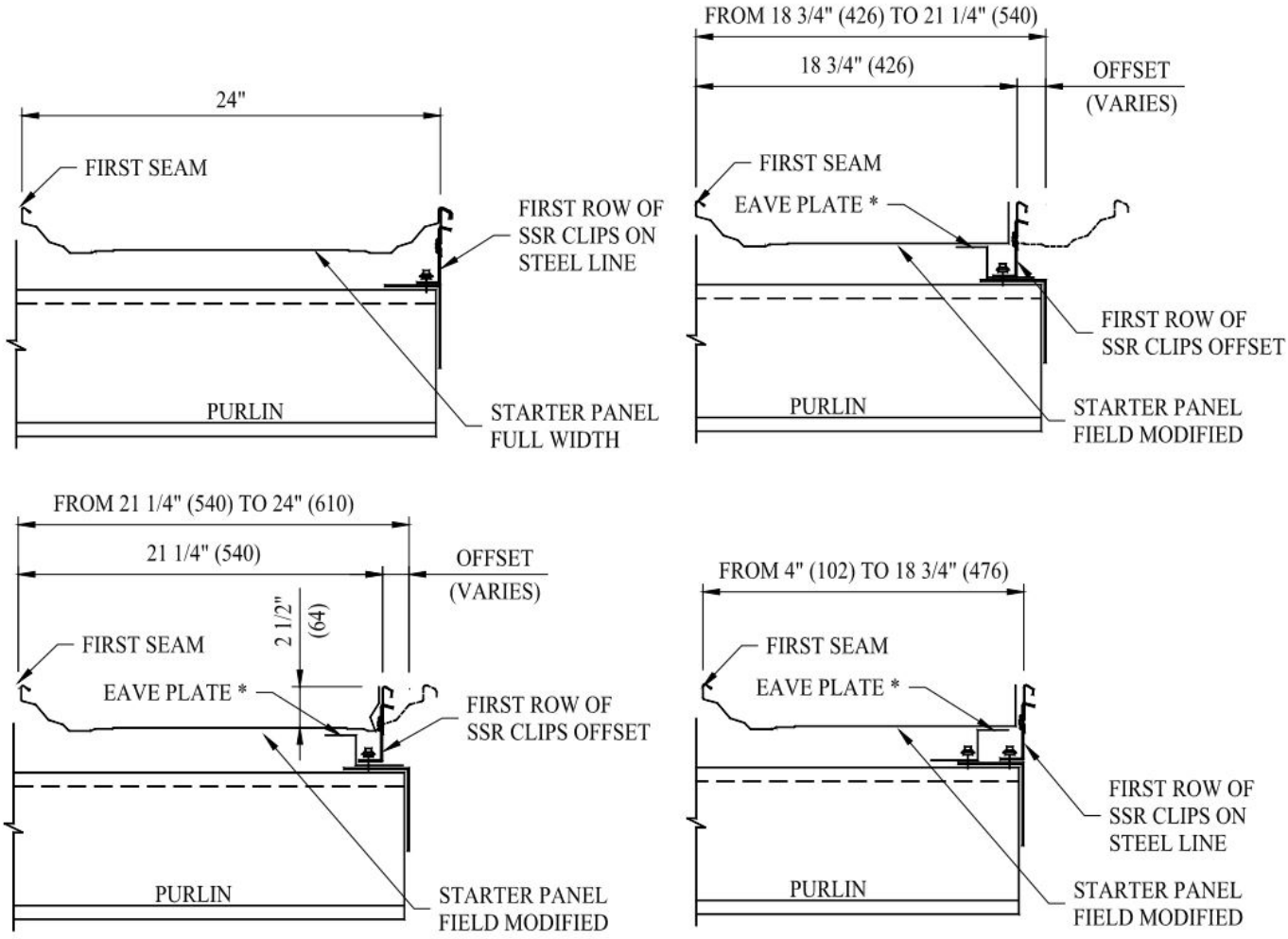
FIRST ROW OF SSR CLIPS

LOCATION

The first row of SSR Clips will be at the steel line unless prevented by site conditions. Refer to the Building Erection Drawings to determine if a dimension to the first seam has been specified. **See "PREPARATION: ACCEPTABLE START AND END LOCATIONS" page 25.**

Locate the first row of SSR Clips as follows:

(See "FIELD MODIFIED STARTER PANEL PROCEDURE" page 43 for Starter Panel Modifications.")



* EAVE PLATE (SAME AS USED AT EAVE) ON RAKE ANGLE BETWEEN PURLINS TO SUPPORT MODIFIED PANEL.

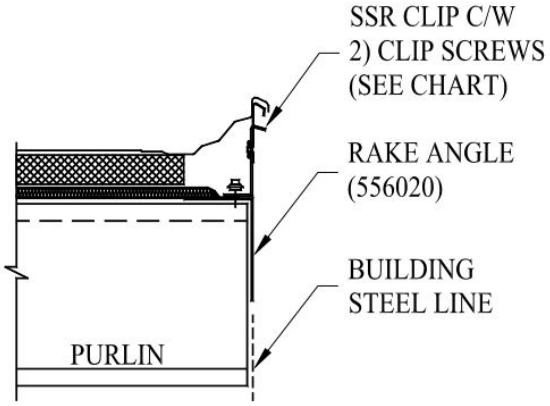
NOTE PLACEMENT TO CLEAR RAKE ZEE SCREWS.

FIRST ROW OF SSR CLIPS

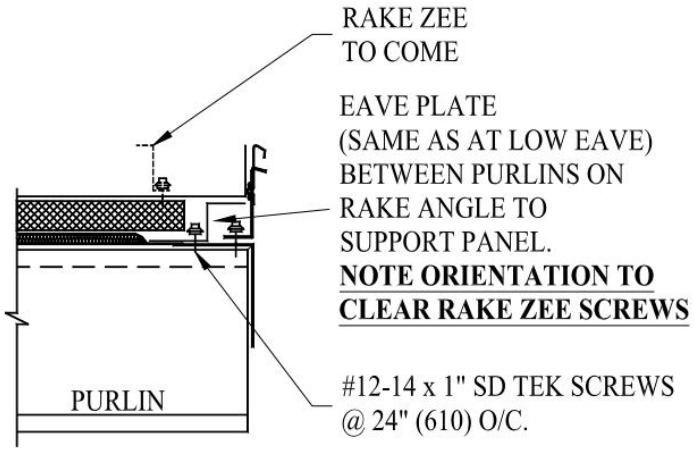
PROCEDURE

1. Use a string line or other reliable method to lay out the line of SSR Clips.
2. Set the clips in place and fasten through the insulation and Rake Angle to the purlin using 2) SSR Clip screws **(see the SSR COMPONENT SELECTION CHART page 35 for size and part #). An SSR Clip is required at all support locations except low eave and strut purlins.**
3. If the Starter Panel is to be field modified, install a row of Eave Plates (same as used at eave) on the Rake Angle to add support for the weakened panel. This Eave Plate can also be used to secure the insulation along the gable. Orient the Eave Plate reaching over the first row of SSR Clips as shown to avoid the Rake Zee screws to come. Locate the Eave Plates between the purlins to avoid the Rake Angle screws. Fasten to the Rake Angle using #12-14 x 1" SD Tek screws @ 24" (610) o/c.

IMPORTANT:
Ensure that the sliding tabs of all SSR Clips are centered to provide a full range of roof movement in either direction.

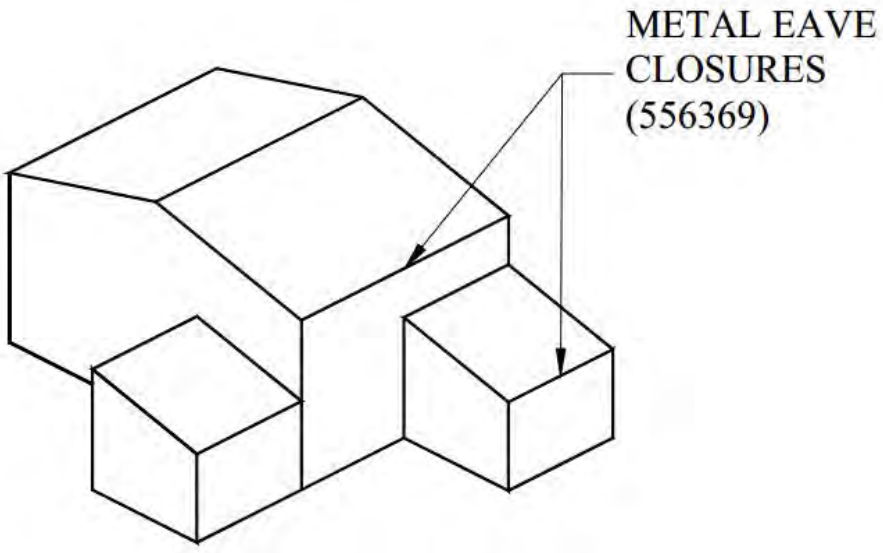


FULL WIDTH
STARTER PANEL



FIELD MODIFIED
STARTER PANEL

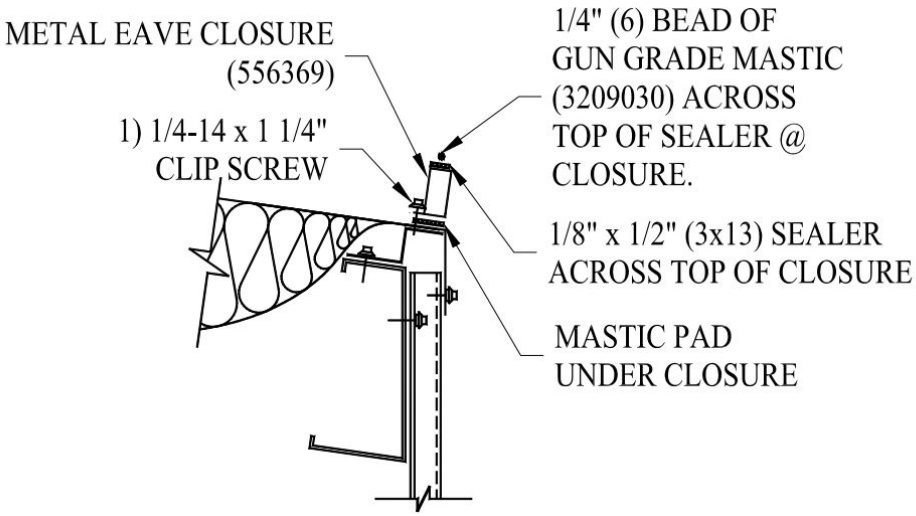
METAL EAVE CLOSURE INSTALLATION



PURPOSE

The **Metal Eave Closure (556369)** is installed to seal the panel rib at the low eave.

NOTE:
If a field modified start or end panel is to be installed, modify and test fit the panel before applying any sealer.

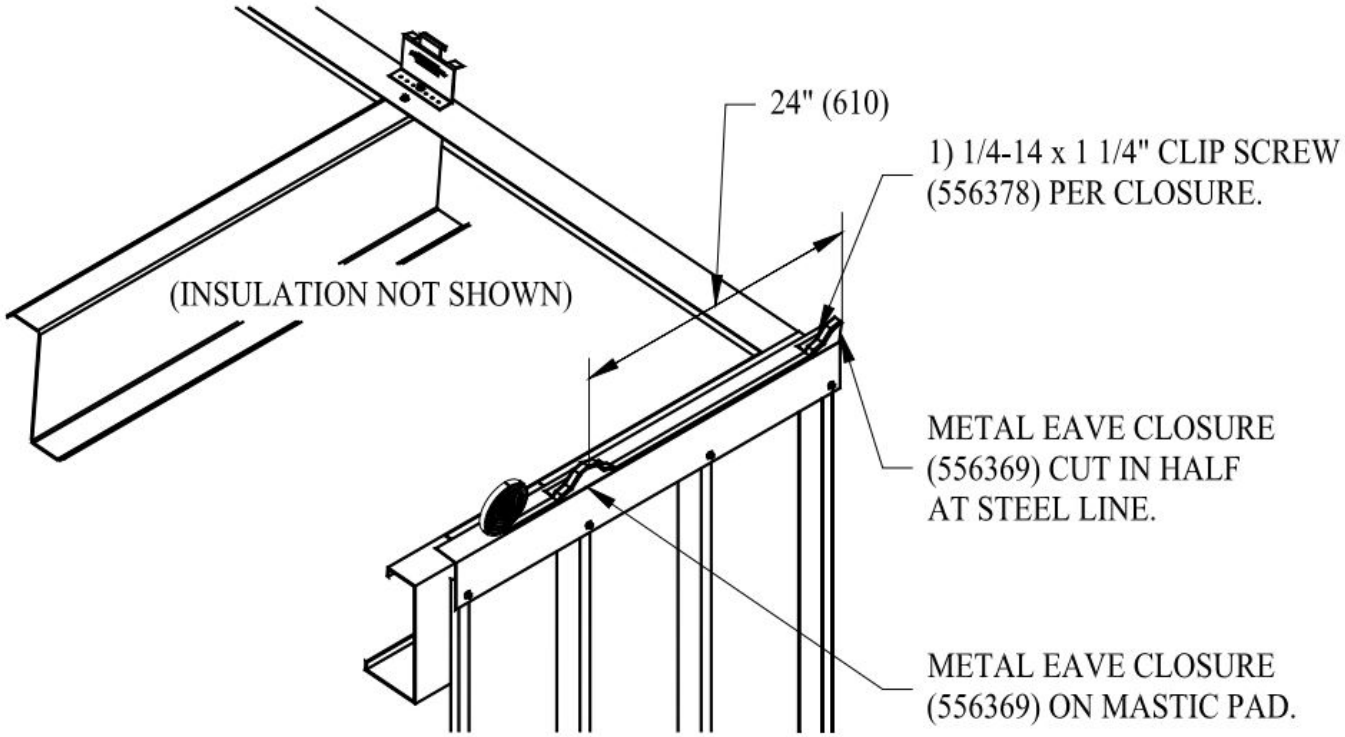


METAL EAVE CLOSURE INSTALLATION

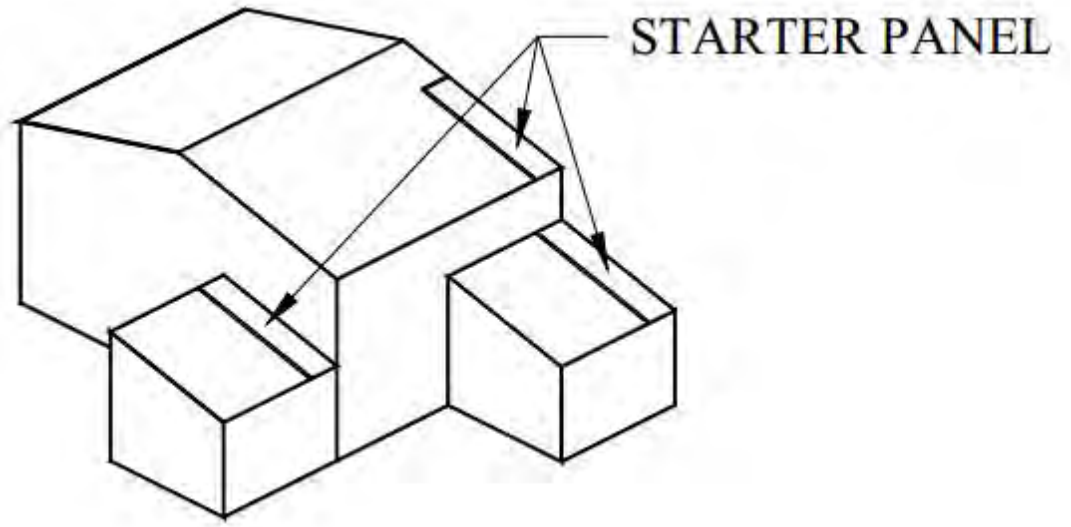
1. Apply enough 3/32" x 1 1/2" (2x38) mastic pad (3209055) to the top leg of the Primary Eave Trim to accomodate the first (or next) panel and closures (approx. 30" (762)). The remainder of the mastic roll can be left attached. Position the mastic over the Eave Plate / support to provide a solid backing for the panel screws.

METAL EAVE CLOSURE INSTALLATION

2. Locate the closures on the Primary Eave Trim at 24" (610) o/c where the panel seams will fall. If a closure is required at the endwall steel line, cut the closure in half. Ensure that there is an unbroken strip of mastic pad under each closure. **Refer to "PANEL LAYOUT (SEAMS)", page 26, for notes on maintaining panel module.**
3. Fasten each closure through the Primary Eave Trim into the Eave Plate / support using (1) 1/4 - 14 x 1 1/4" clip screw (556378).
4. Apply an 8" (203) piece of 1/8" x 1/2" (3 x 13) sealer (3209030) to the top of each closure. Join the ends of the sealer to the mastic pad.
5. Apply a 1/4" (6) bead of Gun Grade Mastic (995063) across the top of the 1/8" x 1/2" (3 x 13) sealer.



STARTER PANEL INSTALLATION

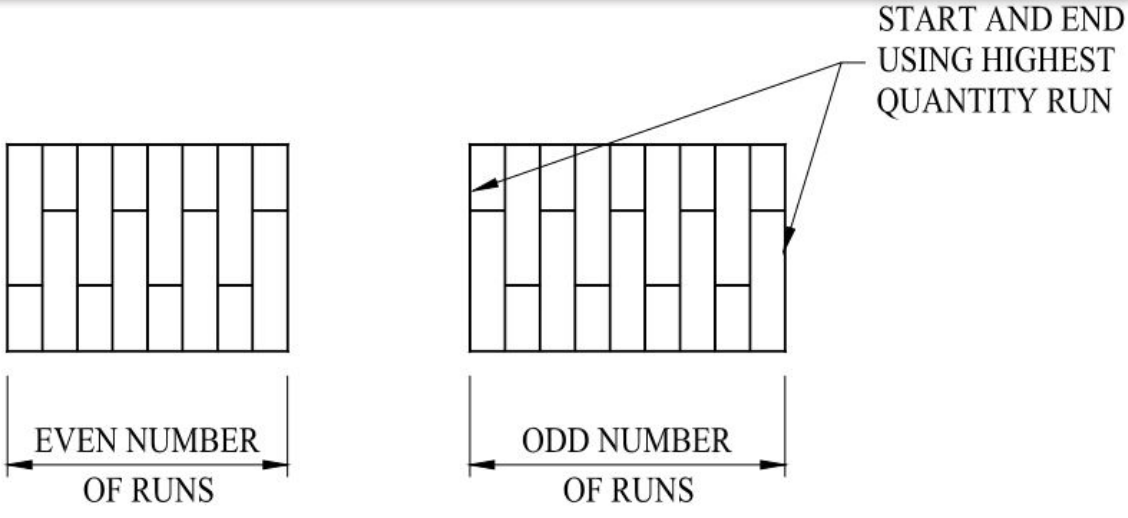


STARTER PANEL INSTALLATION

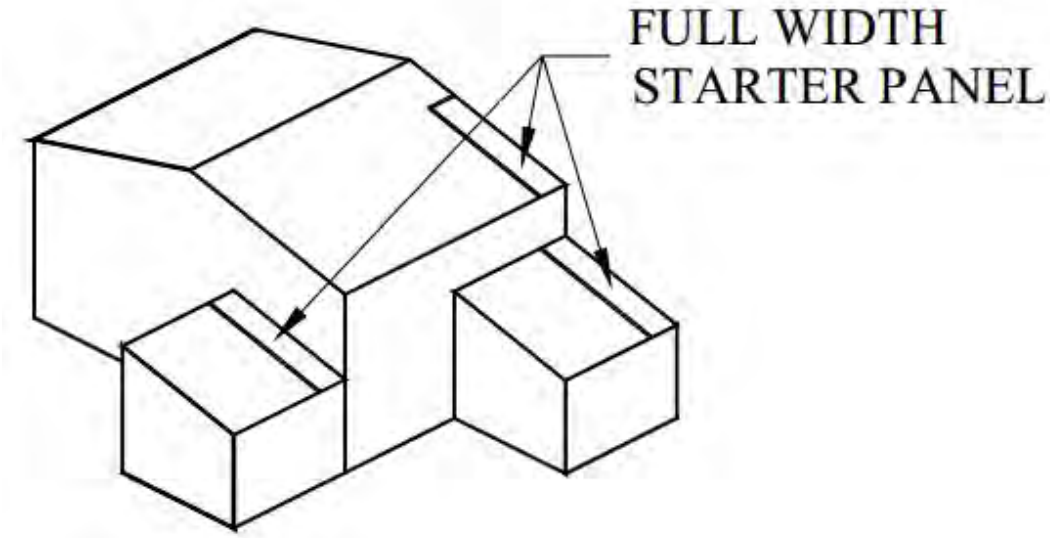
The width of the **Starter Panel** is determined by the site conditions. Generally, a full-width Starter Panel will be used, with the last panel being field modified to the required width. However, roof openings, projections, opposing high endwalls or parapets, etc. may be located such that a full Starter Panel cannot be used. (see **"PREPARATION: ACCEPTABLE START AND END LOCATIONS"** page 25).

STARTER PANEL SELECTION:

If there are endlaps on the roof, always install the eave panel first. Be sure to start with the correct panel run. If there are an equal number of panel runs, either run can be used to start. If there are an odd number of panel runs, start (and end) with the highest quantity run.



A. FULL WIDTH STARTER PANEL INSTALLATION

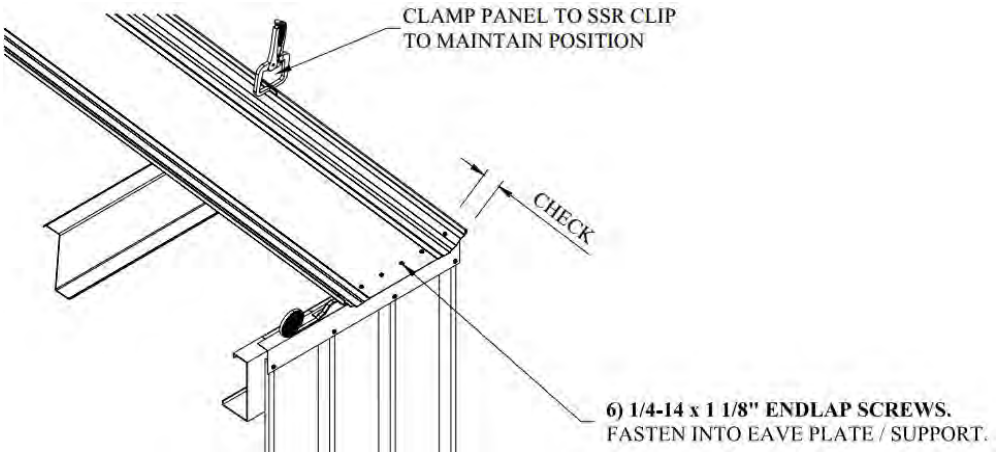


A) FULL WIDTH STARTER PANEL PROCEDURE

1. Install thermal blocks (by others), if required, on all purlins (except strut purlins and eave supports) to be covered by the panel.
2. Starting with the eave panel, hook up an Endlap Plate (556076) onto the upslope end of the panel. Position the Starter Panel with the female leg over the first row of SSR Clips.

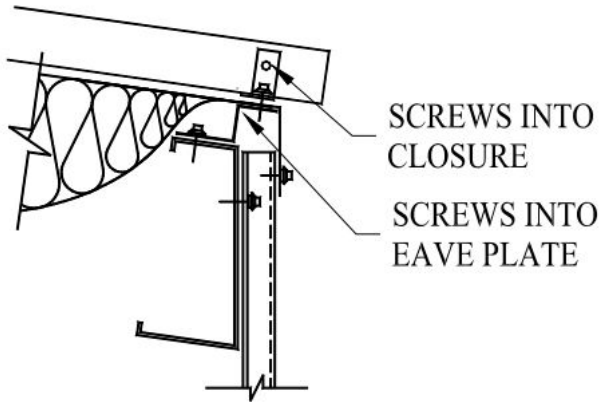
NOTE:
Check that the panel overhangs at the eave and the ridge/lap purlin are correct before setting the panel into the sealer. If the sealer is disturbed, it must be repaired before proceeding. **Check dimensions are given under "PANEL LAYOUT" page 26.**

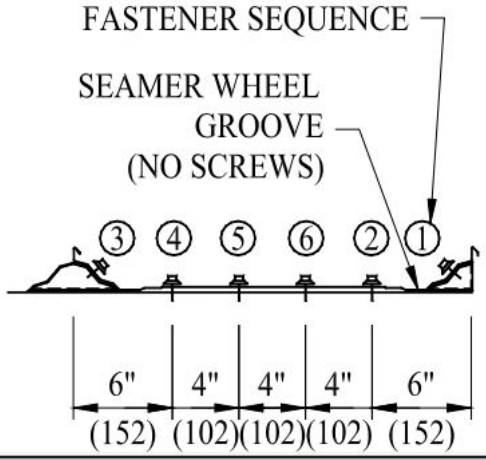
3. Set the panel in position and clamp the vertical leg to one (or more) of the SSR Clips.
4. Recheck the panel position and adjust if required.



A. FULL WIDTH STARTER PANEL INSTALLATION

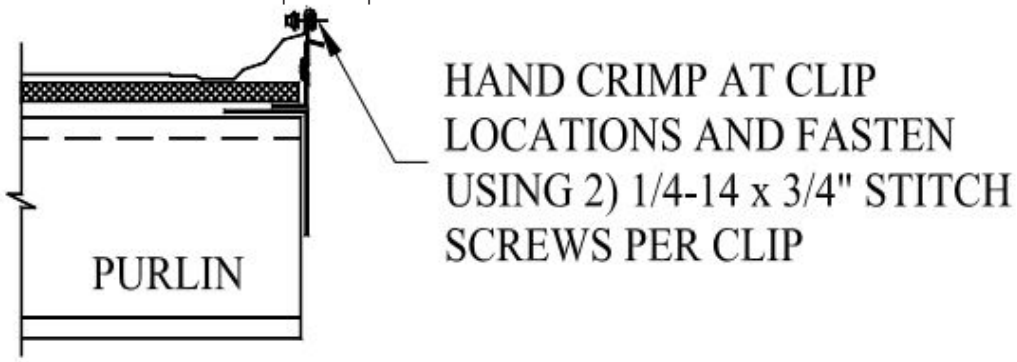
5. Fasten the panel to the Metal Eave Closure and Eave Plate/support using (6) 1/4 - 14 x 1 1/8" endlap screws (556376). **Keep the seamer wheel groove beside the rib clear of screws.**





CAUTION:
The SSR 24 panel system is fastened directly to the structure at the **low eave only.** The rest of the panel floats on the SSR Clips to permit thermal expansion and contraction.

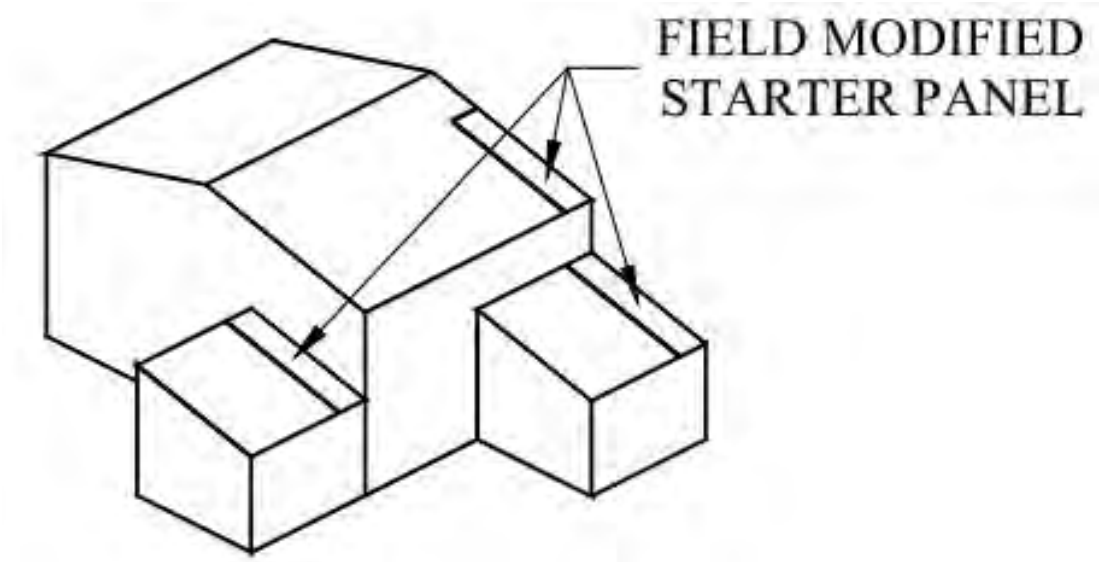
6. Hand crimp the panel to the first row of SSR Clips (skip this step for field modified Starter Panels).
7. Fasten the vertical leg of the panel to the sliding tab of the first row of SSR Clips using 2) 1/4-14 x 3/4" stitch screws per clip.



8. Install the next row of SSR Clips. Install an SSR Clip at each purlin location (except strut purlins and eave supports), hooking the sliding tab over the male leg. Fasten the clips to the purlins using (2) 1/4-14 x 1/4" (556378) or (2) 1/4-14 x 2" (556377) clip screws.

NOTE:
- **Do not install SSR Clips on strut purlins or eave supports.**
- Maintain the proper panel width at all times, checking each clip location before fastening.
- Before the next panel run can be positioned, all SSR Clips must be installed on the previous run.
- The panel is screwed to the SSR Clips only at the steel line of the building where they will be covered by trims.

B. FIELD MODIFIED STARTER PANEL INSTALLATION

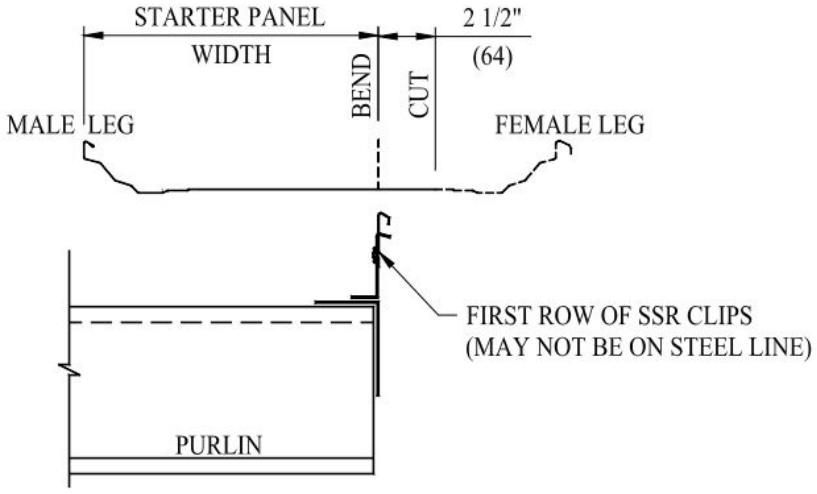


GENERAL

When the first panel is less than full width, the Starter Panel is field cut to width 2 1/2" (64) oversize and bent up at the first row of SSR Clips. A row of Eave Plates is placed under the panel edge to provide support for the weakened panel **(see "FIRST ROW OF SSR CLIPS" page 37)**. Ensure that the Starter Panel bend is accurate to keep from forcing the roof out of line.

B) FIELD MODIFIED STARTER PANEL PROCEDURE

1. Use the procedure under **"FIRST ROW OF SSR CLIPS" page 36** to determine the distance from the first row of SSR Clips to the first seam. This will be the distance from the **male leg** to the **bend line.**
2. Carefully lay out the **bend line** and the **cut line** on the Starter Panel. Cut and bend as shown.

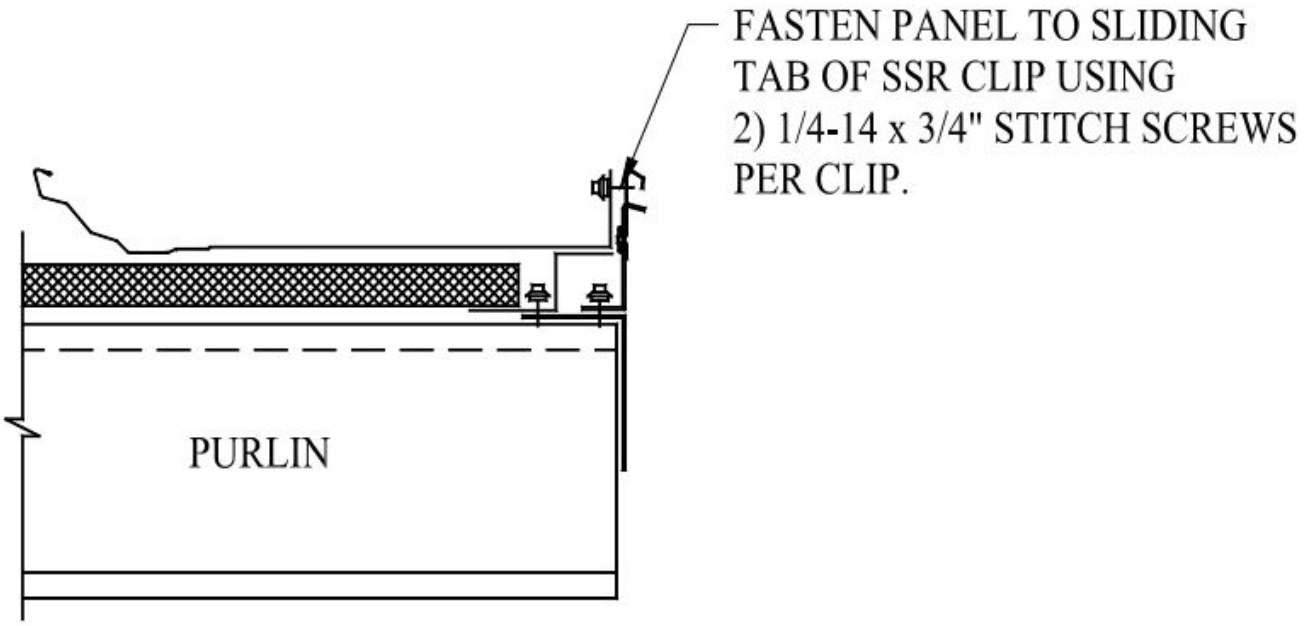


STARTER PANEL INSTALLATION

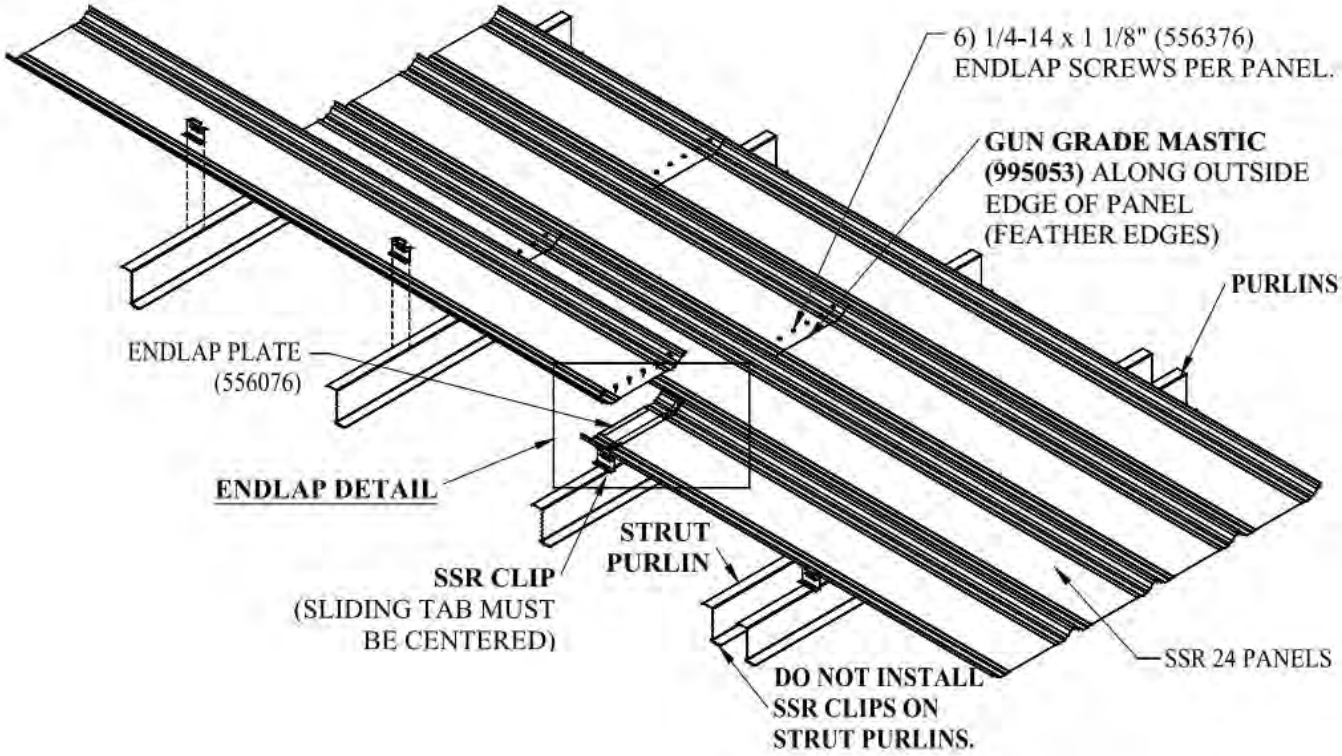
3. Install thermal blocks (by others), if required, on all purlins (except strut purlins and eave supports) to be covered by the panel.
4. Test fit the starter panel.
5. Install the Metal Eave Closure and sealer **(see "METAL EAVE CLOSURE INSTALLATION" page 38).**
6. Cut an Endlap Plate (556076) to the width of the Starter Panel. Hook the Endlap Plate onto the upslope end of the Starter Panel. Position the Starter Panel with the field bent leg against the first row of SSR Clips.

NOTE:
Check the panel's overhang at the eave purlin, and at the ridge/lap purlin are correct before setting the panel into the sealer. If the sealer is disturbed, it must be repaired before proceeding.

7. Proceed to step 3) of **"FULL STARTER PANEL INSTALLATION" page 41.**



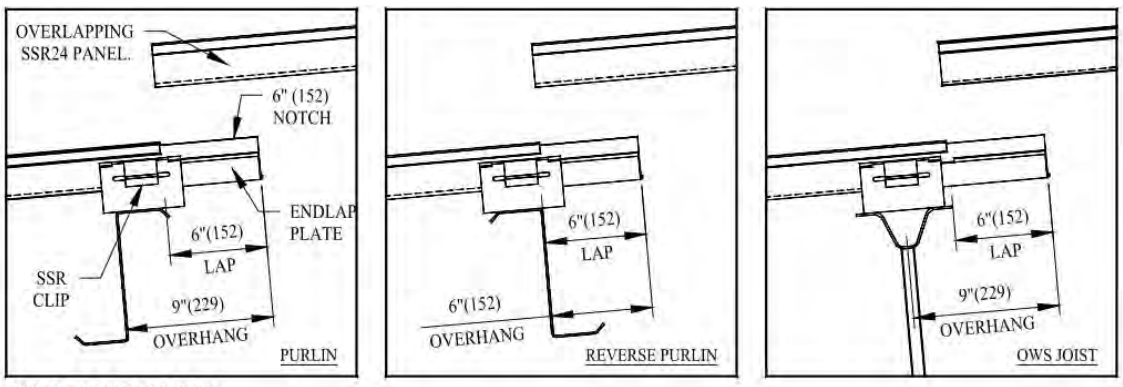
PANEL ENDLAPS



PANEL ENDLAP INSTALLATION

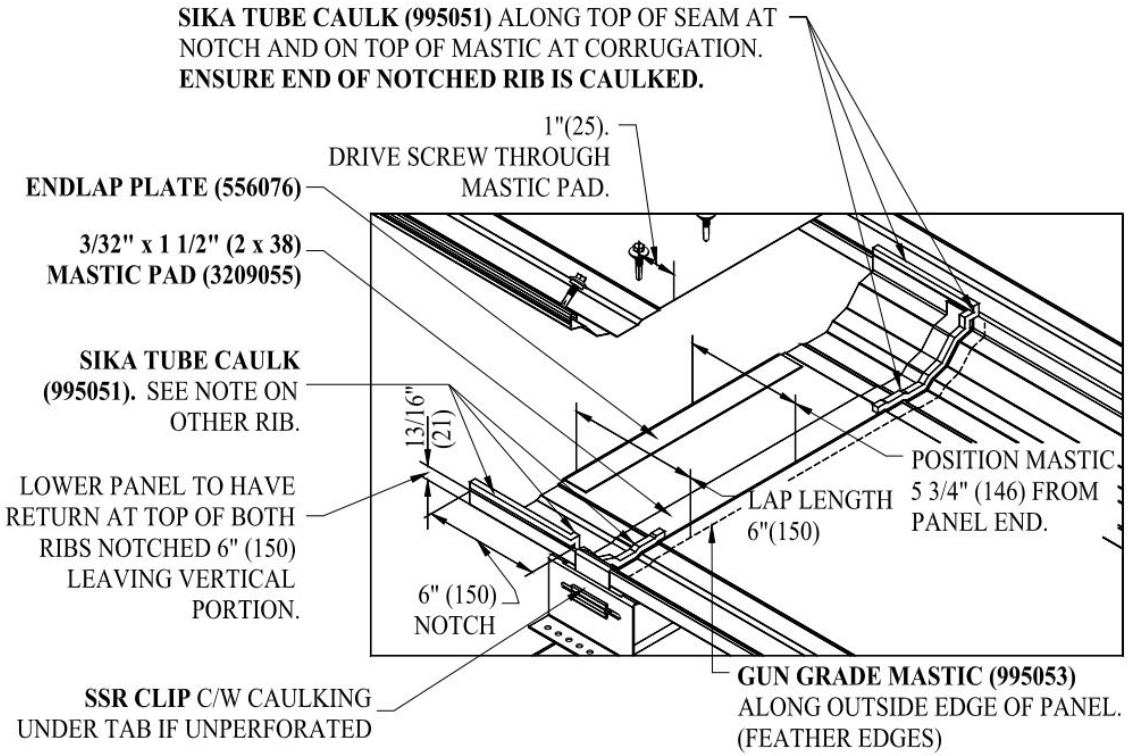
GENERAL

- Longer panel runs may require **Endlapping**. Adjacent endlaps are staggered a minimum of one purlin space to prevent material buildup and to improve the structural properties of the panel.
- Panels are factory notched at endlaps.
- Fasteners must not be located within 1" (25) of structural memebers or roof movement can cause leaks.



ENDLAP DETAIL

PANEL ENDLAPS



PROCEDURE

1. Verify that the eave panel overhangs the endlap purlin properly and that the Endlap Plate (556076) has been installed. If the Endlap Plate has not been installed, install one now. At a field modified starter or end panel, cut the Endlap Plate to the panel width. Slide the Endlap Plate under the panel. The tab on the Endlap Plate will hook onto the panel end. The downslope end of the Endlap Plate must be supported by the endlap purlin. One side of the Endlap Plate rests on the shoulders of one SSR Clip.
2. Apply 3/32 x 1 1/2" (2 x 38) mastic pad (3209055) 5 3/4" (146) from the end of the eave panel, pressing it into the ocrrugations. Do not stretch the mastic.
3. Apply a 1/4" (6) bead of Sika Tube Caulk (995051) along the top of the seam at the notch and on top of the mastic pad at the ocrrugation. Ensure that the end of the notched rib is caulked.
4. Lap the female leg of the overlapping panel onto the notched female leg of the eave panel by 6" (150).
5. Nest the panels together, taking care not to disturb the sealer. Ensure that the ends of the overlapping panel ribs are tight to the notched rib ends.

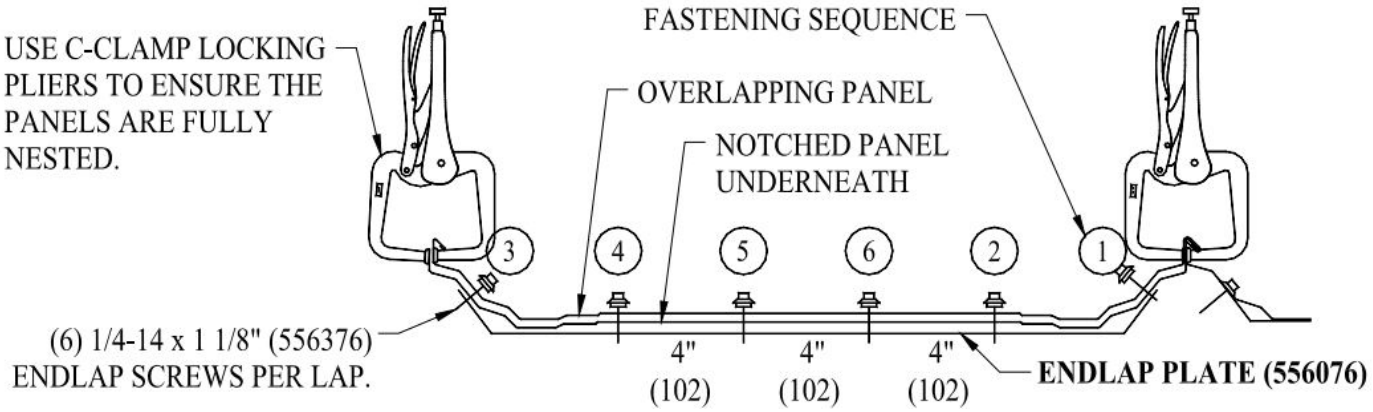
PANEL ENDLAPS

6. Align the panel:

   A) AT A STARTER PANEL: Align the panel to the first row of SSR Clips as described under **"Starter Panel Installation."**

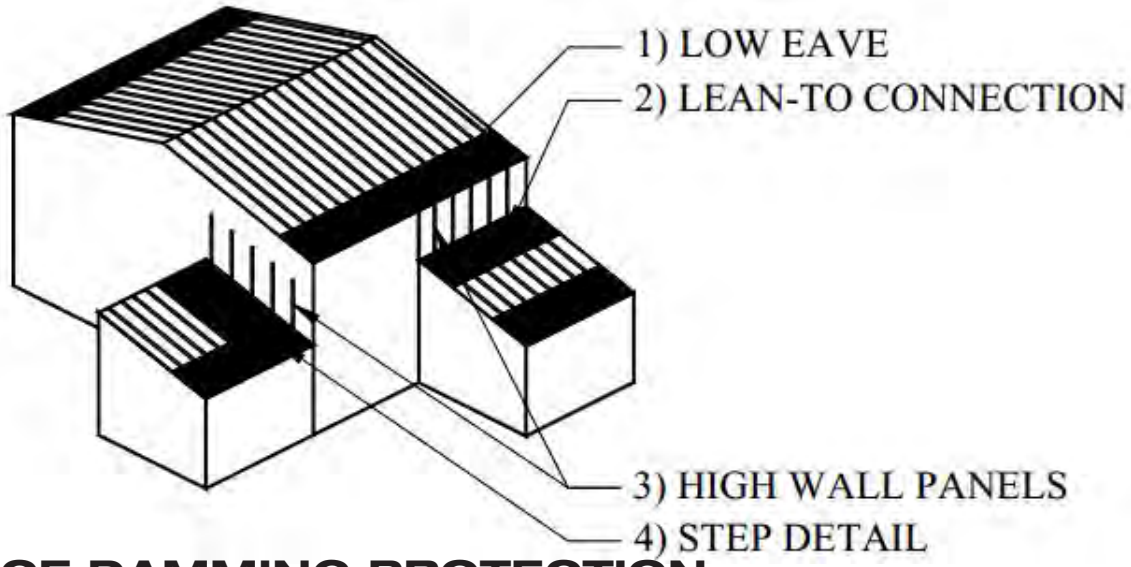
   B) AT A STANDARD PANEL: Check to make sure that the seam is properly engaged for the full length of the panel.

7. Use C-clamp locking pliers to ensure panels are fully nested.



8. Install (6) 1/4-14 x 1 1/8" (556376) endlap screws 1" (25) from the end of the overlapping panel through the mastic pad. Ensure that the screws are engaging the Endlap Plate and are well clear of the roof framing.
9. Apply a 1/4" (6) bead of Gun Grade Mastic (995053) along the panel end and use a small spatula or similar tool to feather the edges.

ICE DAMMING PROTECTION



ICE DAMMING PROTECTION

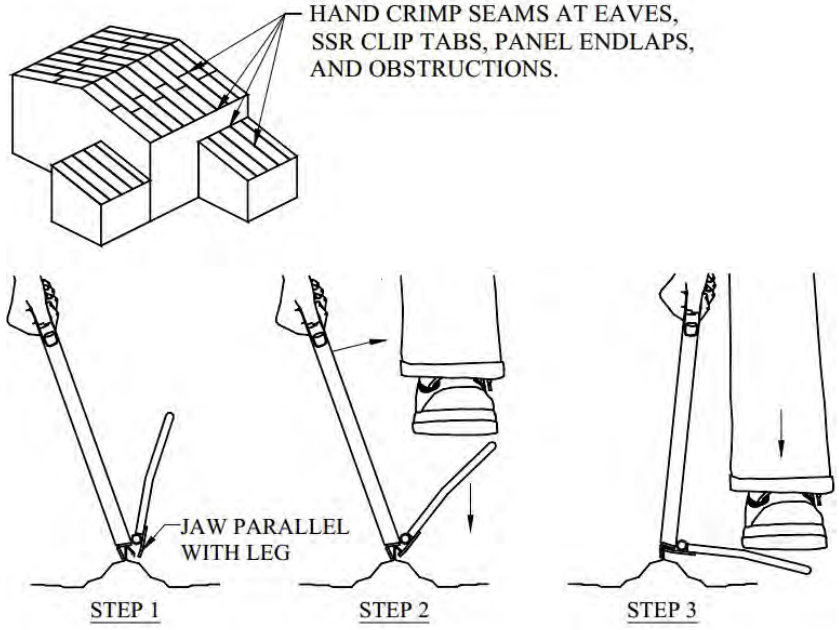
Certain areas of a building are subject to the buildup of snow and ice for extended periods. Rain and thawing can cause serious problems with water penetration in these areas. A 3/16" (5mm) bead of Sika Tube Caulk (995051) is applied to the top of the male rib at the locations noted before placing the next panel. The **Low Eave** diagram under **"Standard Panel Installation"** shows the proper location of this caulking.

NOTE:
The following sealer requirements for Ice Damming Protection are in addition to the standard sealers specified. Refer to the appropriate details for the standard requirements.

1. **LOW EAVE:** 3/16" (5mm) bead Sika Tube Caulk (995051) inside seams; length depends on slope. **See "STANDARD PANEL INSTALLATION" page 50 for chart.**
2. **LEAN-TO CONNECTION:** 3/16" (5mm) bead Sika Tube Caulk (995051) inside each roof panel seam. Seal seams from high end of panel for 10' 0 (3048).
3. **HIGH WALL PANELS:** 1/8" x 1/2" (3 x 13) sealer (3209030) inside seams. Seal seams from the joint to 5'-0 (1524) above the roof.
4. **STEP DETAIL:** 3/16" (5mm) bead Sika Tube Caulk (995051) inside seams. Seal the first 3 roof panel seams from the High Wall.

NOTE:
1 tube will caulk approx. 20'-0" (6096) @ 1/4" (6) bead OR 35'-0" (10668) @ 3/16" (5) bead. **Do not apply a bead heavier than 3/16" (5) at the top of the rib; TOO MUCH CAULKING IN THE SEAM WILL PREVENT THE SEAMER FROM OPERATING PROPERLY.**

HAND-CRIMPING SEAMS



HAND CRIMPING

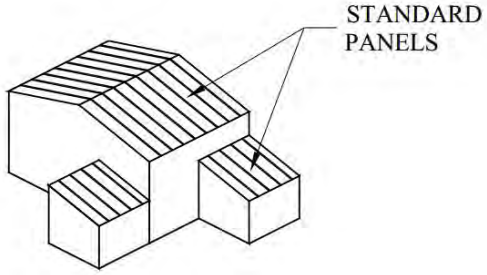
The SSR 24 Panel seams must be hand crimped at the eave, SSR Clip tabs, panel endlaps, and at obstructions. Hand crimping the first 12" (305) of the seam at the eave will assist the seaming machine as it starts and ensures that the panels are properly nested. If downslope seaming is being employed **(see "PREPARATION: START POINT AND DIRECTION OF INSTALLATION" page 23)**, the seamer will be started at the ridge or high eave, and that point will be the location to crimp.

Crimping the seams at the SSR Clip tabs and panel endlaps helps to form the seam, and holds the panel in position and properly nested until the seamer can be used. These locations can offer enough resistance to force the seamer off the seam if they have not been crimped. This can cause delays and potential damage to the rib. The seam is also hand crimped at obstructions that prevent use of the seaming machine.

PROCEDURE

1. Start with crimper on a slight angle so the moveable jaw is approximately parallel with the bottom leg of the female rib (see illustration below).
2. Once the bottom leg of the rib has started to fold under, slowly move the crimper handle to the upright position while applying pressure on the foot pedal.
3. Hold the handle upright and step down on the foot pedal to complete the crimp.

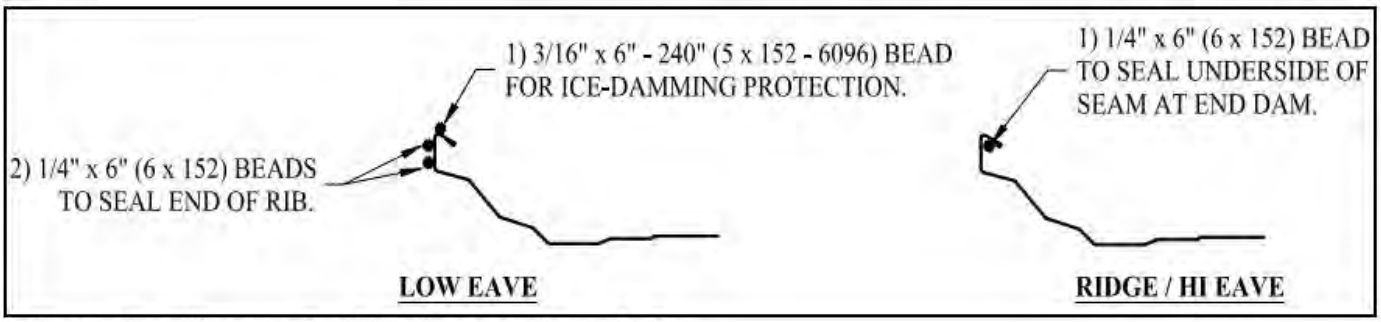
STANDARD PANEL INSTALLATION



STANDARD PANEL INSTALLATION

1. Install the insulation, Eave Plate, Primary Eave Trim, sealer, Metal Eave Closure and thermal blocks required to accommodate the next SSR Panel. Check that all SSR Clips have been properly installed on the male leg of the previous panel run.
2. To seal against ice damming, apply Sika Tube Caulk (995051) to the male rib of the previous panel at the low eave and ridge/high eave.
   A) Apply (2) 1/4" x 6" (6 x 152) beads on the vertical face over the Metal Eave Closure.
   B) Apply a 3/16" (5) bead on the top of the rib starting at the low end of the panel. The length required depends on the roof slope. **See Chart.**
   C) Apply a 1/4" x 6" (6 x 152) bead inside the male rib starting at ridge/hi eave end.

SIKA TUBE CAULK REQUIRED @ TOP OF MALE RIB	
ROOF SLOPE	**LENGTH OF 3/16" (5) BEAD**
1/4 : 12 (2.083 : 100)	20'-0" (6096)
1/2 : 12 (4.167 : 100)	10'-0" (3048)
1 : 12 (8.333 : 100)	5'-0" (1524)
STEEPER	0'-6" (152)



Seam Caulking required during Panel installation.

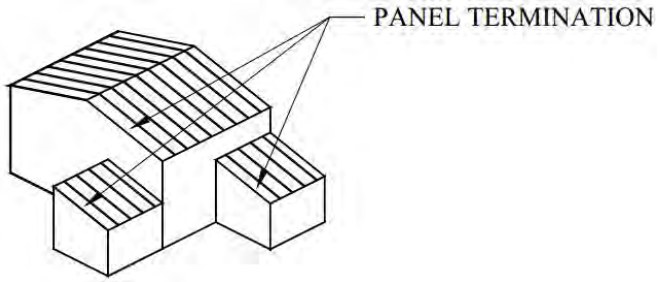
NOTE:
1 tube will caulk approx. 20'-0" (6096) @ 1/4" (6) bead OR 35'-0" (10668) @ 3/16" (5) bead. **Do not apply a bead heavier than 3/16" (5) at the top of the rib; TOO MUCH CAULKING IN THE SEAM WILL PREVENT THE SEAMER FROM OPERATING PROPERLY.**

STANDARD PANEL INSTALLATION

3. Install the next panel run, starting with the eave panel. Remember to stagger the endlaps (if applicable). Follow the steps described under **"FULL WIDTH STARTER PANEL INSTALLATION" page 41**, and **"PANEL ENDLAPS" page 45.**
   The following exceptions apply:
   A) The female rib of the next panel will engage the male rib of the previous panel instead of the first row of SSR Clips. **Ensure that the seam is fully engaged for its full length.**
   B) After fastening the panel at the eave of endlap, the seam must be hand crimped at each SSR Clip location. This will lock the panel in position and improve seamer function.
   C) DO NOT screw the panel seam to the SSR Clip tabs.
4. Install the SSR Clips (and Brace/ Sag Angle if required) on the male leg of the panel.

IMPORTANT:
It is vital that the erector monitors the panel installation progress. Ensure that the last seam will fall 4" - 24" (100-610) from the building steel line **(see "PREPARATION: ACCEPTABLE START AND END LOCATIONS" page 25).** If a 24" (610) panel module cannot be maintained, use the actual average panel module to determine where the last seam will fall. If necessary, adjust the panel module well ahead of time to achieve acceptable results.

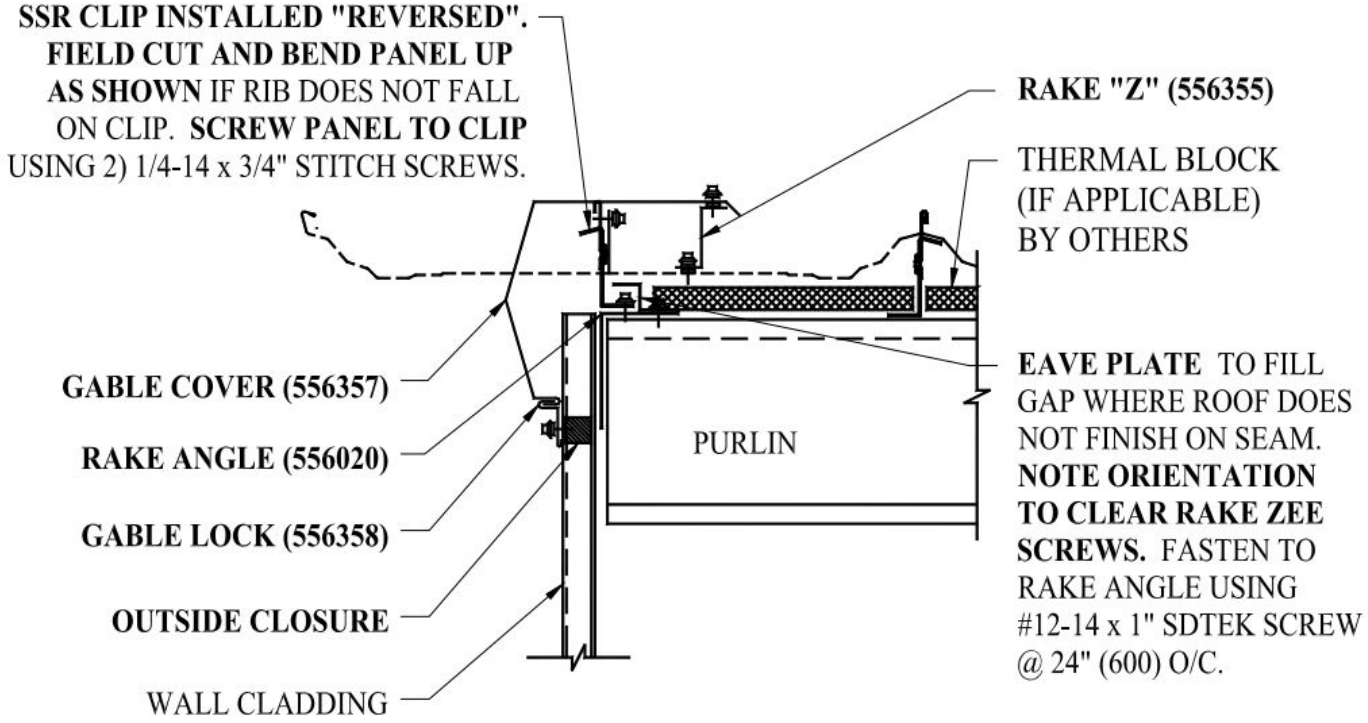
PANEL TERMINATION



PANEL TERMINATION

The last panel run to be installed will usually need to be field modified. Even if the building length is a multiple of 24" (610), allowing the panels to creep off module can easily lead to modification of the last panel.

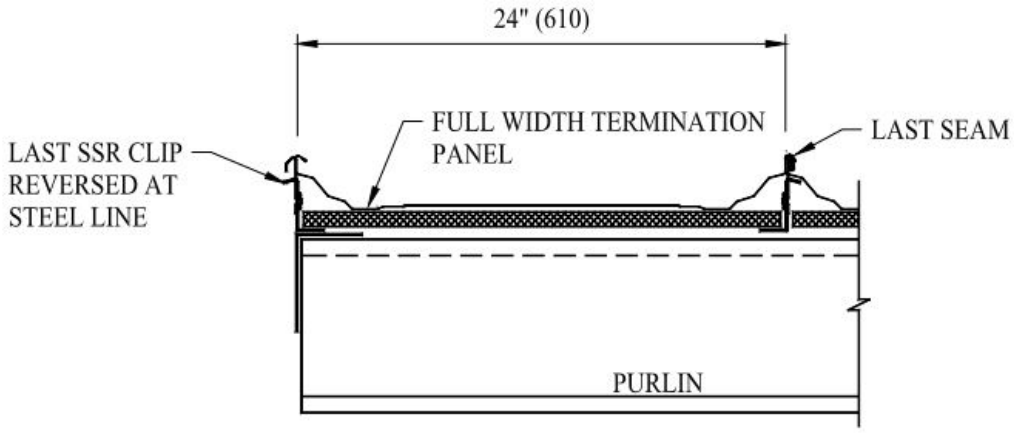
NOTE:
If the erector has been monitoring the panel module during installation to control the location of the last seam, the last panel width should be at 4" - 24" (100-610). **See "PREPARATION: ACCEPTABLE START AND END LOCATIONS" page 25.**



A) FULL WIDTH TERMINATION PANEL

A) FULL WIDTH TERMINATION PANEL INSTALLATION

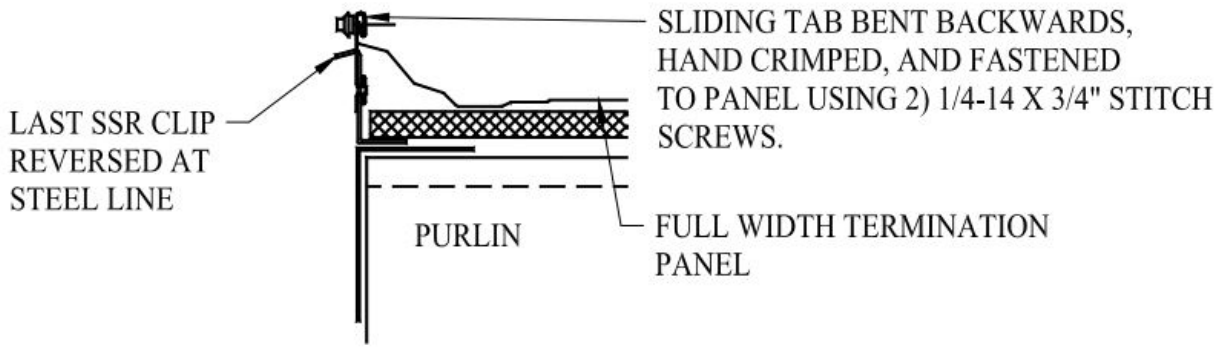
If the last panel seam falls 24" (610) from the steel line, a full width panel may be used to finish the roof.



1. Installation of insulation, Eave Plate, Primary Eave Trim, sealers, Metal Eave Closures and thermal blocks are to be completed. End the Eave Plate at the steel line. End the Primary Eave Trim at the outside of the endwall panel. Cut the last Metal Eave Closure in half and install it on the steel line.
2. Install the last row of SSR Clips reversed at the steel line.
3. Position the last panel c/w Endlap Plate as per **"STANDARD PANEL INSTALLATION" on page 50.**

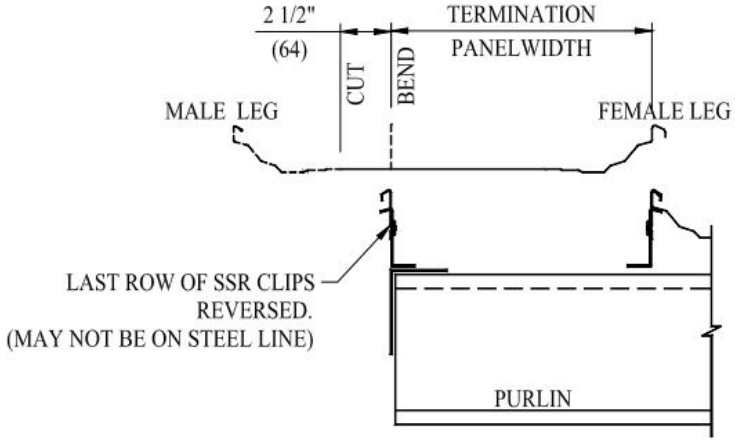
NOTE:
Check that the panel rib is engaging the previous panel properly for its entire length.

4. Clamp the panel in position and fasten at the eave end.
5. Hand-crimp each SSR Clip to the panel. Use pliers to bend the sliding of tabs of the reversed SSR Clips backwards over the panel's male leg.
6. Fasten the sliding SSR Clip tabs to the panel leg using 2) 1/4-14 x 3/4" stitch screws per clip.



B) FIELD MODIFIED TERMINATION PANEL

B) FIELD MODIFIED TERMINATION PANEL



NOTE:

- If the distance from the last seam to the steel line is between 4"-24" (100-610), the last panel will be field modified. The procedure is similar to modifying a Starter Panel. The termination panel is field cut to width 2 1/2" (64) oversize and bent up at the law row of SSR Clips.
- Unless the distance from the last seam to the steel line is between 18 3/4"-24" (476-610), the last row of clips will be on the steel line.
- **If a field modified start of end panel is to be installed, modify and test fit the panel before applying any sealer.**

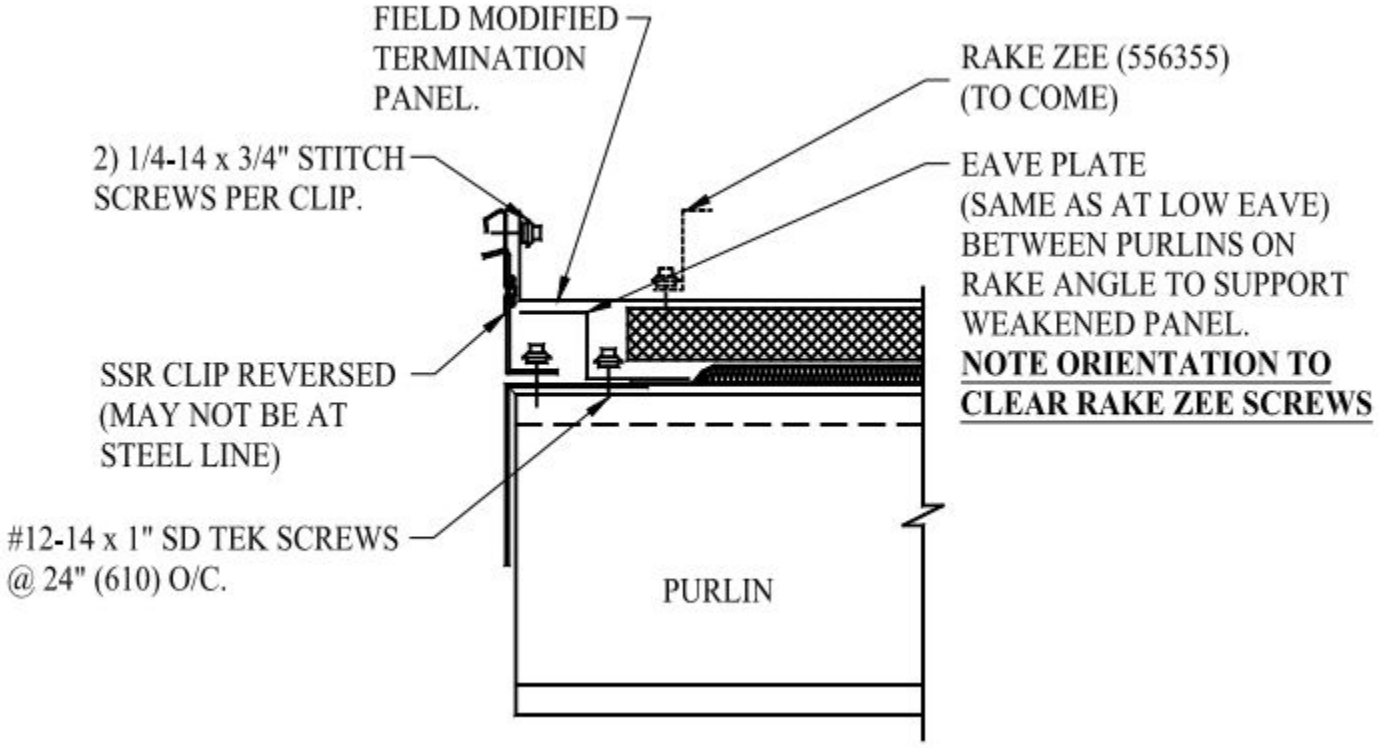
1. Installation of insulation, Eave Plate, Primary Eave Trim, sealers and thermal blocks are to be completed. End the Eave Plate at the steel line. End the Primary Eave Trim at the outside of the endwall panel.
2. Use the procedure under **"FIRST ROW OF SSR CLIPS", page 36,** to determine the distance from the last seam to the last row of SSR Clips.
3. Install the last row of SSR Clips reversed at the appropriate location.
4. Install a row of Eave Plates (same as used at eave) on the Rake Angle under the panel edge to add support for the weakened panel. This Eave Plate can also be used to secure the insulation along the gable. Orient the Eave Plate reaching over the last row of SSR Clips as shown to acoid the Rake Zee screws to come. Locate the Eave Plates between the purlins to avoid the Rake Angle screws. Fasten to the Rake Angle using #12-14 x 1" SD tek screws @ 24" (610) o/c.
5. Modify the termination panel: **A)** The distance from the last seam to the last row of SSR Clips will be the distance from the female leg to the bend line. **B)** Carefully lay out the bend line and cut line on ther termination panel. Cut and bend as shown.

B) FIELD MODIFIED TERMINATION PANEL

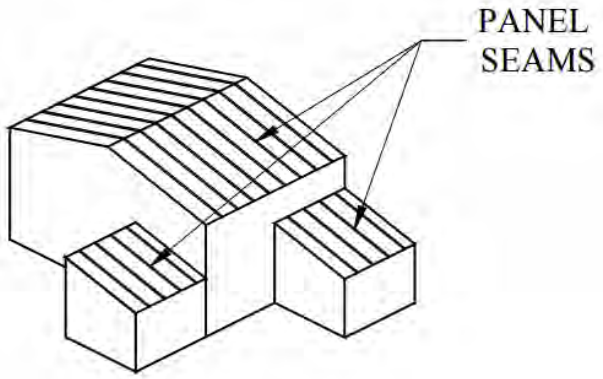
6. Position the last panel c/w Endlap Plate (cut to width) as per standard panel installation procedures.

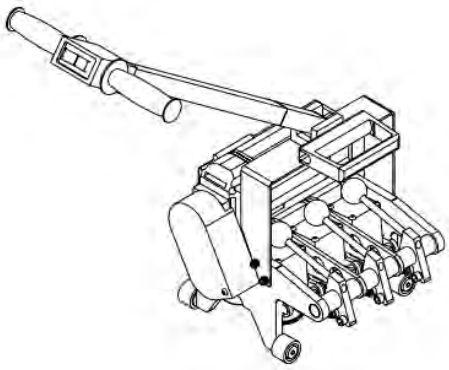
NOTE:
Check that the panel rib is engaging the previous panel properly for its entire length.

7. Clamp the panel in position and fasten at the eave end.
8. Fasten the sliding tabs of the reversed SSR Clips to the panel leg using 2) 1/4-14 x 3/4" stitch screws per clip.



PANEL SEAMING (GENERAL)





PANEL SEAMING GENERAL

The Behlen SSR24 panel system incorporates a 360º Pittsburgh seam. An electric seamer and factory-applied sealant ensure a weather tight seal. The SSR Panel and SSR Clips are crimped together in the seam to form an integral system.

Use the seamer to close the seams as soon as possible; never leave unseamed panels overnight. Prior to seaming, the overlapping panel edges will provide some weather-tightness, and hand crimping the clips will hold the panels temporarily. However, the unseamed panels have little wind resistance and could blow off the roof in a moderate wind.

The seaming machine is designed exclusively for SSR24 panels and is not intended for use on any other panels. Care must be exercised in handling to eliminate any possible damage to rollers or other mechanisms. Any damage other than normal wear and tear will be charged to the customer's account.

If the seamer is not operating properly, check that the rib spacing and geometry are correct and that the edges are nested properly. If necessary, use weleding-style locking pliers to hold the seam in position. **If you cannot get the seamer to work properly, do not continue seaming.** A malfunctioning or improperly operated seamer can damage the seams creating an expensive repair job. Contact Behlen Industries Customer Service immediately if you encounter difficulty.

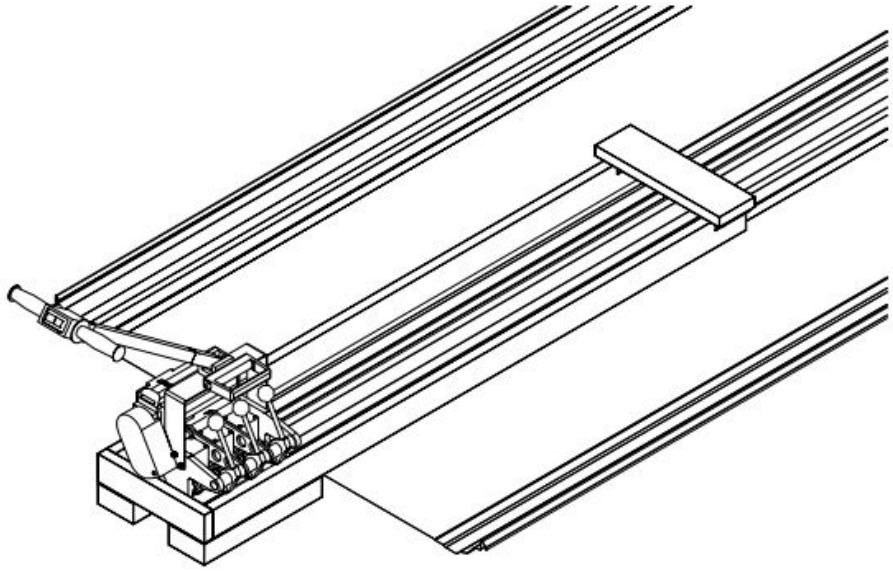
Keep site conditions in mind. The seamer requires a clearance of 4" (100) to its left side and 7 1/2" (190) to its right (lever) side to operate properly. Obstructions such as sidewalls, parapets and roof projections must be taken into account when planning the roofing job.

CAUTION:

Exercise extreme caution when operating the seamer near the edge of the roof. Allowing the seamer to fall from the roof is extremely dangerous, not to mention expensive.

Be careful when starting and finishing the seaming operation at the roof eave and ridge. A scaffold or work platform is generally used for this purpose. **Never work from a ladder.**

PANEL SEAMING (GENERAL)



BEHLEN 24 GAUGE SSR24 PANEL SEAMER SPECIFICATIONS

Power Supply:	115 Volt, 15 Amp, 60 Cycle Single Phase
Motor:	1/2 HP 8 Ampere
Speed:	25 Linear Feet (7,620 mm) Per Minute
Control:	On-Off, Forward Only
Finished Seam:	0.320-0.340 Inch (8.13-8.64) Thick
	The seam rollers are preset
Extension Cord:	Depends on the Length (See chart)
Lubrication:	Lithium Grease Only

EXTENSION CORD REQUIREMENT	
Copper Wire Size (AWG)	**Maximum Length**
14 (min)	**100' (30,480)**
12	**250' (76,200)**
10	**400' (121,920)**

CAUTION:

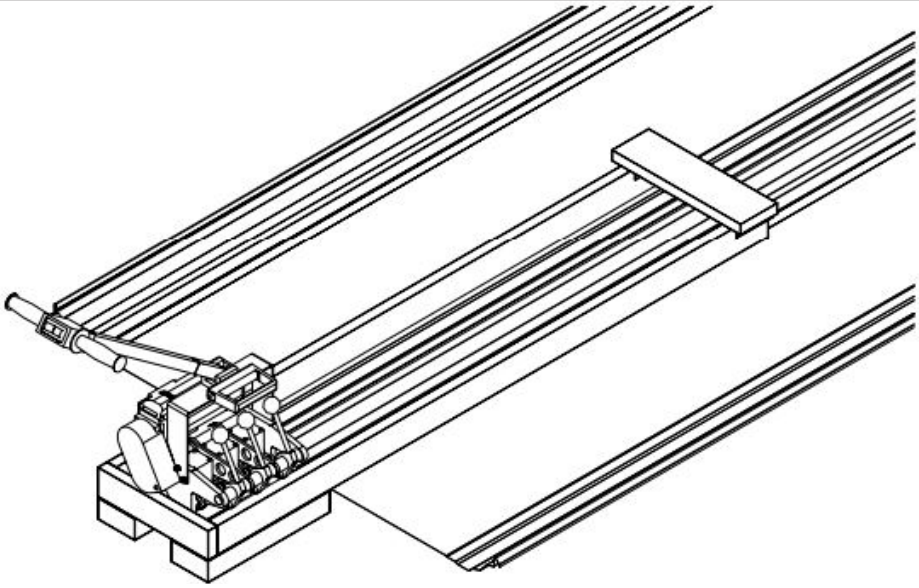
The voltage drop caused by improper extension cords can cause motor damage. If the roof is large or a long distance from the power supply, consider using a portable generator.

Do not overload or damage the roof with the generator.

Choose a location that will require the least repositioning.

Follow all applicable electrical codes when installing the generator.

PANEL SEAMING (GENERAL)



BEHLEN 22 GAUGE SSR24 PANEL SEAMER SPECIFICATIONS

Power Supply:	115 Volt, 15 Amp, 60 Cycle Single Phase
Motor:	3/4 HP 11.5 Ampere
Speed:	10 Linear Feet (3,048 mm) Per Minute
Control:	On-Off, Forward Only
Finished Seam:	0.320-0.340 Inch (8.13-8.64) Thick
	The seam rollers are preset
Extension Cord:	Depends on the Length (See chart)
Lubrication:	Lithium Grease Only

EXTENSION CORD REQUIREMENT	
Copper Wire Size (AWG)	**Maximum Length**
12 (min)	**100' (30,480)**
10	**250' (76,200)**

CAUTION:

The voltage drop caused by improper extension cords can cause motor damage. If the roof is large or a long distance from the power supply, consider using a portable generator.

Do not overload or damage the roof with the generator.

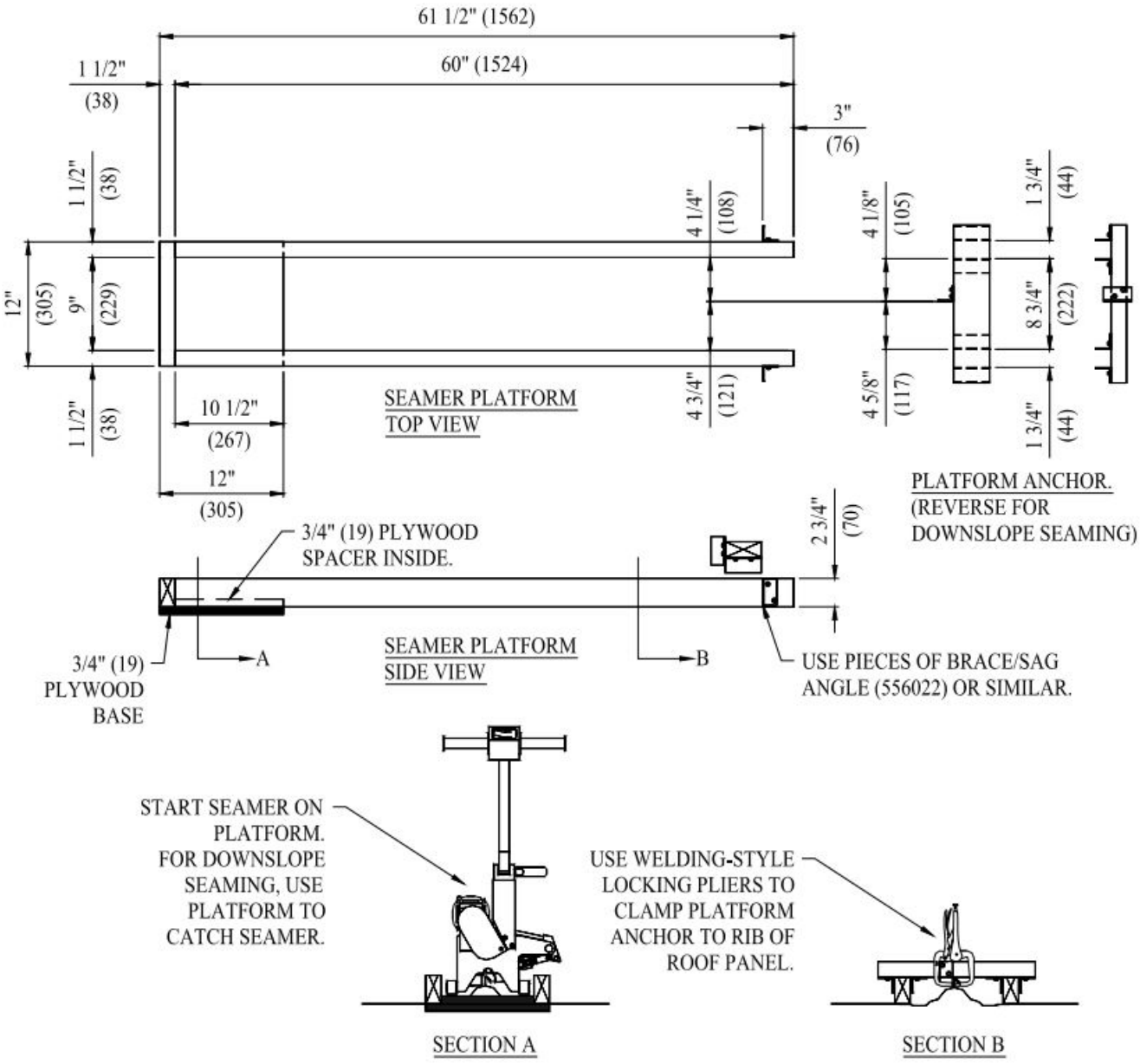
Choose a location that will require the least repositioning.

Follow all applicable electrical codes when installing the generator.

PANEL SEAMING (GENERAL)

STARTING PLATFORM

A starting platform can be built to support and guide the seamer as it begins. The platform can also be used to receive the seamer at the end of the seaming run. The diagram below is one example of how a platform can be made from 2" x 4" or 2" x 6" (38 x 89 or 38 x 140) and cut-off pieces of Brace/Sag angle (556022).



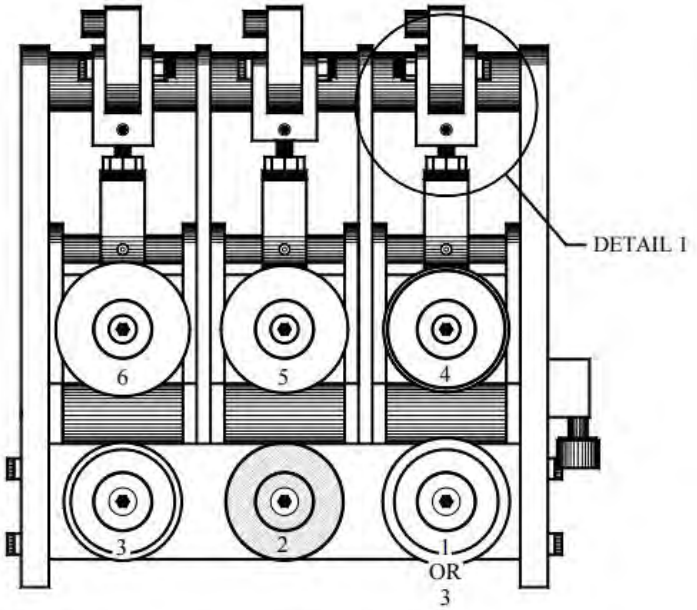
PANEL SEAMING (GENERAL)

MAINTENANCE

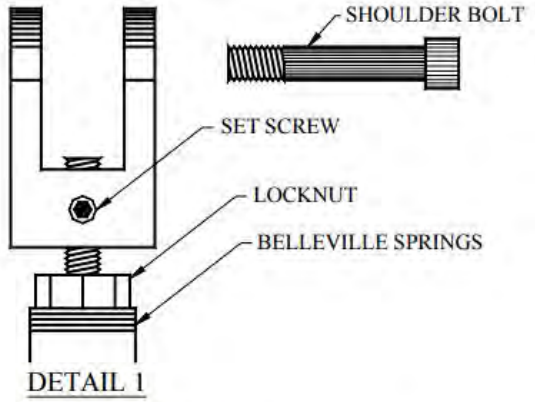
1. Check for loose or worn parts for replacement.
2. Lubricate the tool regularly at the grease fitting using only Lithium grease.
3. Keep the tool clean, removing sealant build-up from forming rolls.
4. Never force lever arms, check for proper placement on the seam.
5. Normally the machine should be started with all three handles engaged and guided into the start of the seam using the front guide cam roller.
6. To start in the middle of a seam, engage roller #1 and job the machine ahead 4" (100), then engage roller #2 for another 4" (100) before engaging the third set of rollers.

ADJUSTMENT FOR SEAM TOLERANCES

The adjustments of the seam rollers are preset at the factory and normally do not need adjustment. However, each turn of the U-shaped turnbuckle yoke will provide 0.020" (0.51) adjustment of the rollers. The final formed seam should be closed to achieve a width of 0.320"-0.340" (8.13-8.64).



BOTTOM VIEW OF SEAMER



DETAIL 1

PROCEDURE:

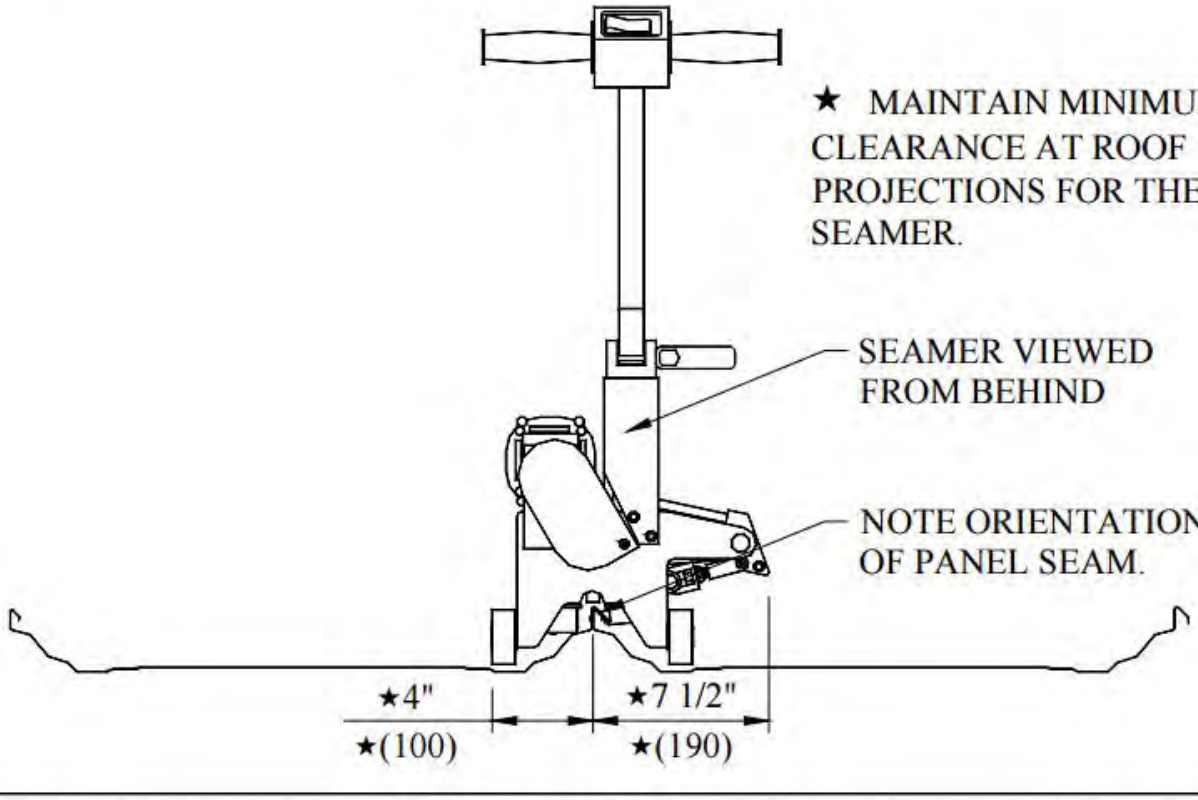
1) TURN MACHINE TO BOTTOM SIDE
2) LOOSEN SET SCREW ON TURNBUCKLE
3) REMOVE SHOULDER BOLT
4) ROTATE TURNBUCKLE (KEEP LOCKNUT TIGHT)
   (EACH 1/2 REV = 0.020" (0.51) ADJUSTMENT)
5) REPLACE SHOULDER BOLT AND SET SCREW
6) USE FEELER GAUGE TO CHECK
   (WITH ROLLERS FULLY ENGAGED)

NOTE: #1 ROLLER CAN BE SUBSTITUTED BY #3 ROLLER. THEY HAVE THE SAME Ø, BUT #1 HAS TIGHTER RADIUS AND LARGER LIP. #1 ROLLER MAY HAVE A TENDENCY TO SCRATCH PAINTED PANEL.

PANEL SEAMING (SEAMER USE)

PANEL SEAMING PROCEDURE

NOTE:
The seamer operates in one direction only. The panel seam will be folded clockwise when viewed from behind the machine. Look under **"PREPARATION: START POINT AND DIRECTION OF INSTALLATION", page 23,** for seamer travel.

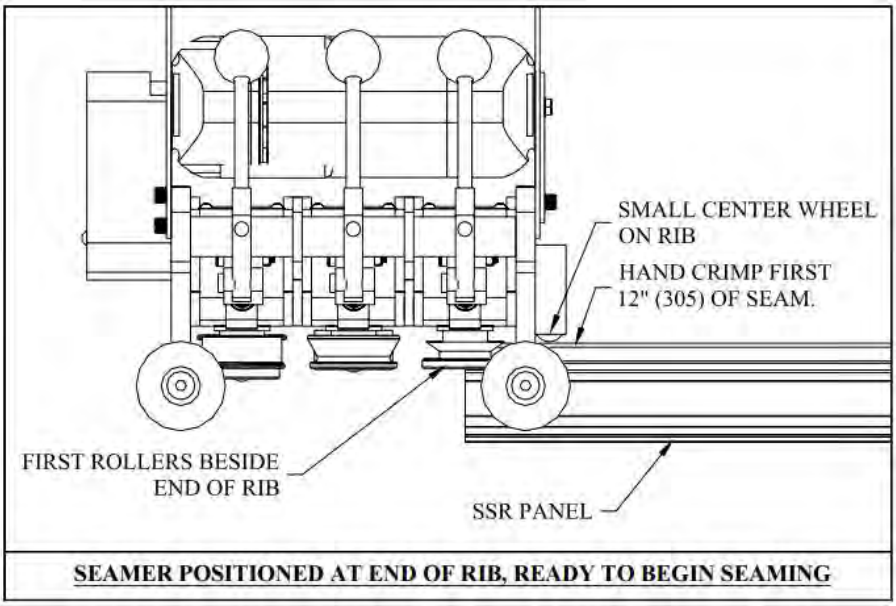


SEAMER SHOWING SEAM ORIENTATION AND CLEARANCE REQUIREMENTS

1. Prepare the area to be seamed.
   A) Remove any obstructions, dirt and debris.
   B) Make sure all seams are properly engaged. C-clamp locking pliers can be used to hold the panels in position, but hand crimping at the clips should be sufficient.
   C) Hand-crimp the first 12" (305) of the seam at the eave. This will aid the seamer as it begins the forming operation.
2. Close all three levers on the seamer.

PANEL SEAMING (SEAMER USE)

3. Position the seamer at the eave with the small centre wheel on top of the rib and the first pair of rollers beside the rib end.



SEAMER POSITIONED AT END OF RIB, READY TO BEGIN SEAMING

4. Switch the machine on and off until the rollers are all engaged and the seam is being formed properly.

NOTE:
Be sure that all levers are locked in place. **NEVER FORCE THE LEVERS.**

5. Switch the seamer on and monitor its progress up the roof.
   A) Check that the seam is being formed properly.
   B) As a precaution, hold the seamer down as it passes over the SSR Clips to prevent it from riding off the seam.
   C) Do not stop the seamer in mid-seam except in an emergency. If you must stop the seamer, turn the power off, open the three levers, and slide the seamer backwards until it can be lifted off the seam. To restart the seamer, open the levers and place it on the completed portion of the seam. Slide the seamer forward to the point where seaming stopped. Engage rollers carefully and start the seamer, **checking that the seam is being formed properly.**

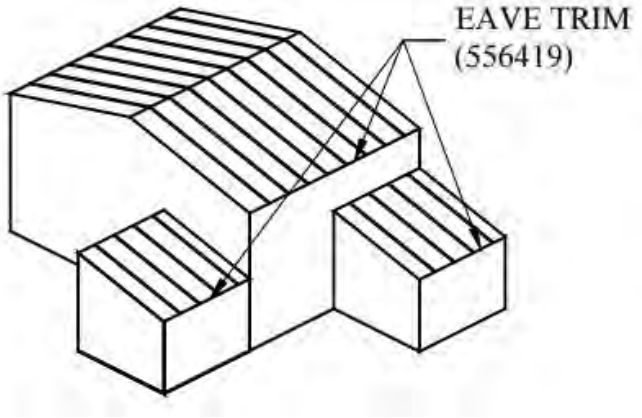
CAUTION:
NEVER FORCE THE LEVERS. If the rollers will not engage smoothly, check that they are positioned properly on the seam.

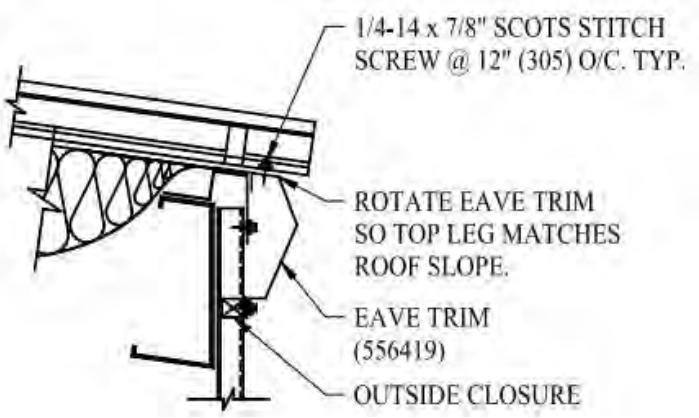
PANEL SEAMING (SEAMER USE)

6. Turn the seamer off before it reaches the end of the panel. Within 24" (610) of the panel end, turn the seamer off and job it ahead carefully to the end of the panel. Turn the seamer off, release the levers, and lift the seamer off the seam. Hand-crimp the remaining seam. **Do not run the seamer off the panel end unless a platform has been positioned to receive it.**
7. Return to the eave and repeat until the roof is complete.

NOTE:
Close each seam in order and do not skip for any reason. This will assure that no seams are missed.

EAVE TRIM INSTALLATION





PURPOSE

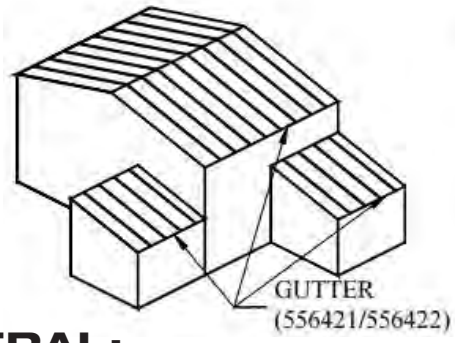
The **Eave Trim (556419)** gives the building a finished appearance at the eave. When installing the Eave Trim, take into account any imperfections in the line of the eave. By keeping the top and bottom edges of the Eave Trim straight and level, minor building imperfections can be concealed.

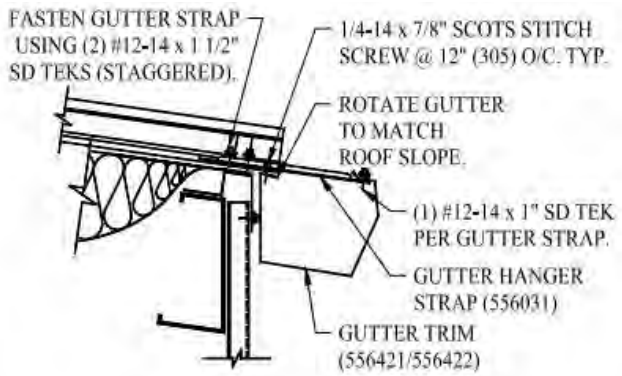
EAVE TRIM INSTALLATION

1. If there are any irregularities to be concealed in the line of the eave, lay out a straight and level course for the Eave Trim. A string line and/or chalk line may prove useful here.
2. Stick enough outside wall panel closures to the sidewall to accomodate one Eave Trim. The bottom of the closure should be 6" (152) from the top of the Primary Eave Trim.
3. With the end of the first Eave Trim at the outside of the building corner trim, hold the top of the Eave Trim flat against the underside of the roof panel. The Eave Trim has been designed to match the Gable Trim when it has been rotated to match the roof slope.
4. Fasten through the roof panel using 1/4-14 x 7/8" Scots stitch screws @ 12" (305) o/c.
5. Fasten the bottom leg of the Eave Trim to the high ribs of the wall panel using 1/4-14 x 3/4" stitch screws @ 12" (305) o/c.
6. Notch the back of the next Eave Trim's top leg 2" (51). Apply more wall panel closures and continue installation. Splice the trims by lapping 2" (51) using Gun Grade Mastic (95053) inside the lap, and fasten using 3) 1/4-14 x 3/4" stitch screws.

NOTE:
Prepare and assemble the laps carefully to achieve high-quality results.

GUTTER INSTALLATION





GENERAL:

The **Gutter Trim (556421 female & 556422 male)** collects rainwater from the roof and gives the eave a finished appearance. If the Gutter profile matches the Gable Trim profile it should be rotated so that the bottom is parallel with the roof slope. Male and female part quantities have been calculated based on each run starting with a full female piece.

NOTE:
Do not install the Gutter until the SSR Panels have been seamed. The Gutter Hanger Straps will be installed into the groove beside each panel rib. They would interfere with seamer operation.

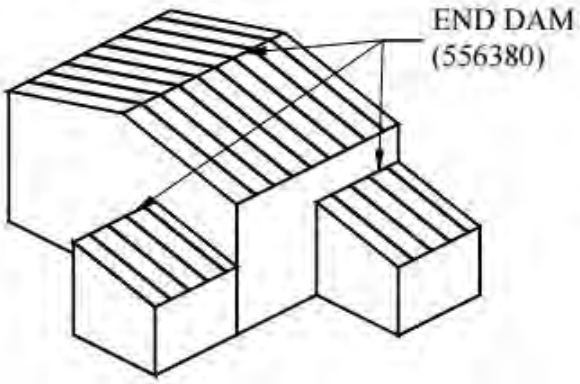
GUTTER TRIM INSTALLATION

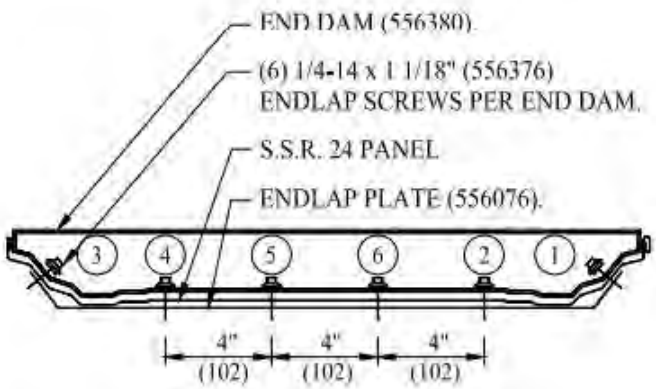
1. Hold the first female piece of Gutter Trim even with the endwall steel line and fasten to the end of the roof panel using 1/4-14 x 7/8" Scots stitch screws @ 12" (305) o/c.
2. Install a **Gutter Hanger Strap (556031)** in the groove beside each panel rib (24" (610) o/c):
   A) Apply a 1/8" x 1/2" (3x13) sealer to the underside of the strap (2" (50) across top end and 6" (152) each side) to keep moisture from getting underneath.
   B) Slip the Gutter Strap end up the Gutter lip and fasten to the roof using 2) #12-14 x 1 1/2" SD tek screws. **Make sure that the Gutter Strap screws fasten to the Eave Plate/eave support. Stagger the screws as much as possible to prevent the gutter from sagging.**
   C) Fasten the Gutter to the end of the strap using 1) #12-14 x 1" SD tek.

NOTE:
When installing the Gutter Straps, make sure that the front face of the Gutter is straight and true.

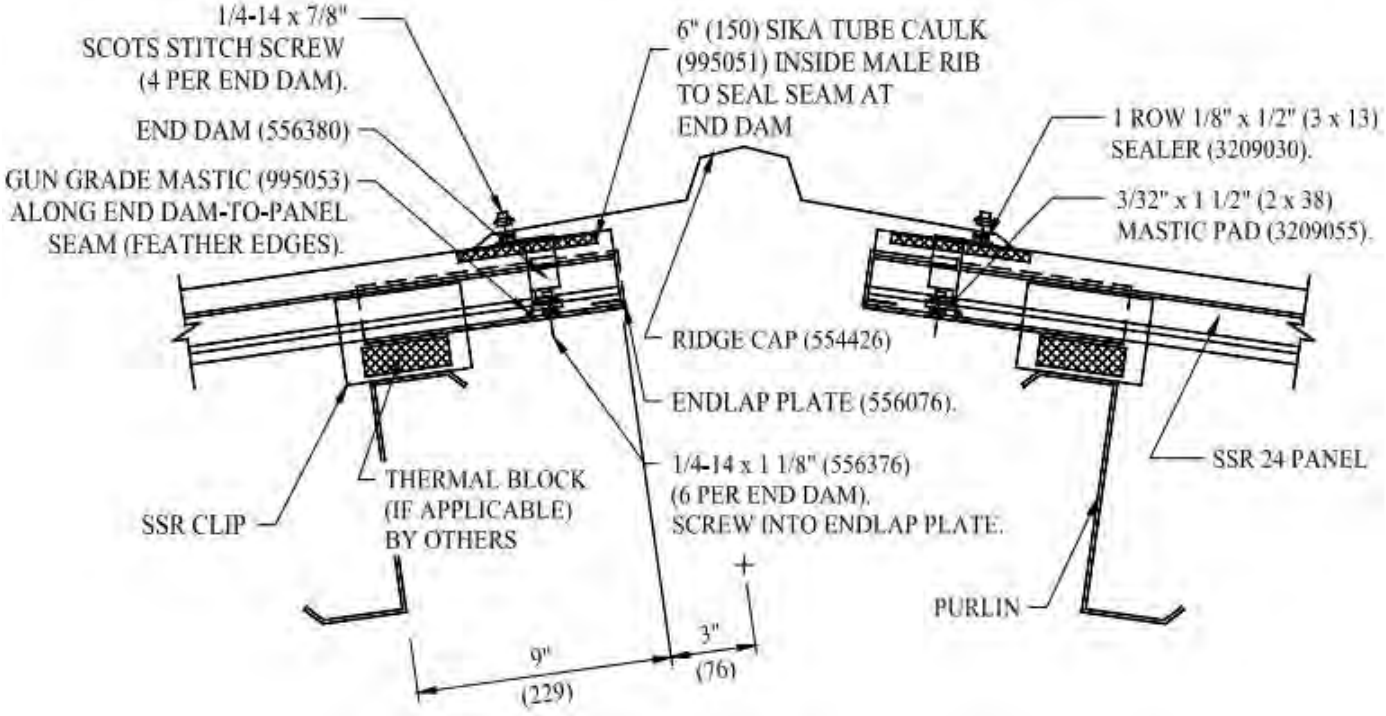
3. Lap the next piece of Gutter Trim 2" (50) using 2 beads of Polyurethane Caulk (995056) inside the splice to seal and fasten using 4) 1/4-14 x 3/4" stitch screws. Continue installation to the end of the Gutter run.
4. The Gutter End Caps will be installed under the Rake Zee. Do not install the End Caps (556423 & 556424) until the Rake Zee location has been determined **(See "RAKE ZEE INSTALLATION", page 69).**

END DAM INSTALLATION





FASTENER INSTALLATION SEQUENCE



END DAM INSTALLATION

The **End Dam (556380)** is used to close the upslope end of the SSR Panel at the ridge and high eave. Orient the End Dam with the bottom (corrugated) leg turned upslope so that the screws to the panel will be protected from the weather. The ridge or High Eave Trim is fastened to the top leg of the End Dam.

Endlap Plates are used under the end of the SSR Panel to provide a solid backing for the End Dam screws. **Make certain that the End Dam screws engage the Endlap Plate.**

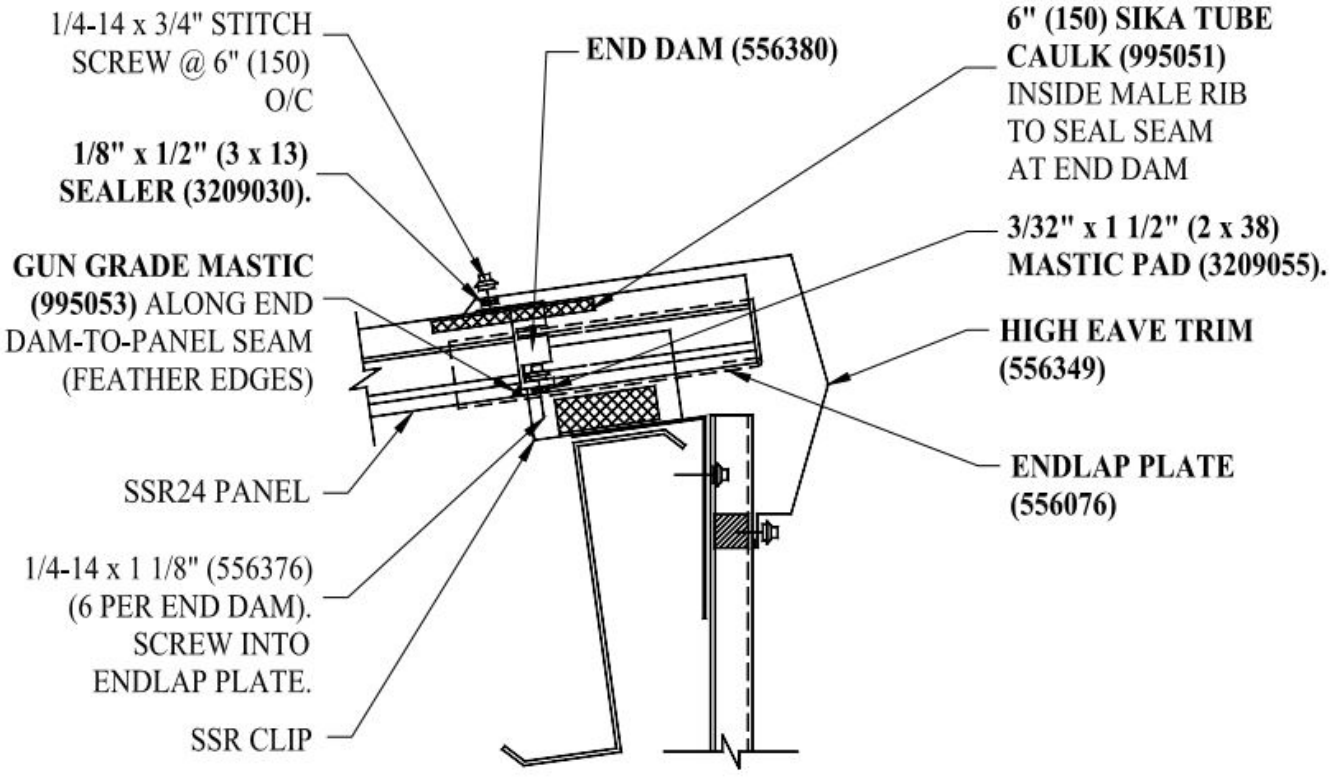
END DAM INSTALLATION

END DAM PROCEDURE

1. At a field modified starter or end panel, cut the End Dam 1" (25) longer than the width of the panel. Form a 1" (25) lip on the End Dam to seal against the bent-up panel leg.
2. Determine the best location for the End Dam:

   A) At a ridge or lean-to high eave, the End Dam should be approximately 4" (102) from the end of the panel.

   B) At a monoslope high eave, position the End Dam approximately 5 1/2" (14) from the steel line.



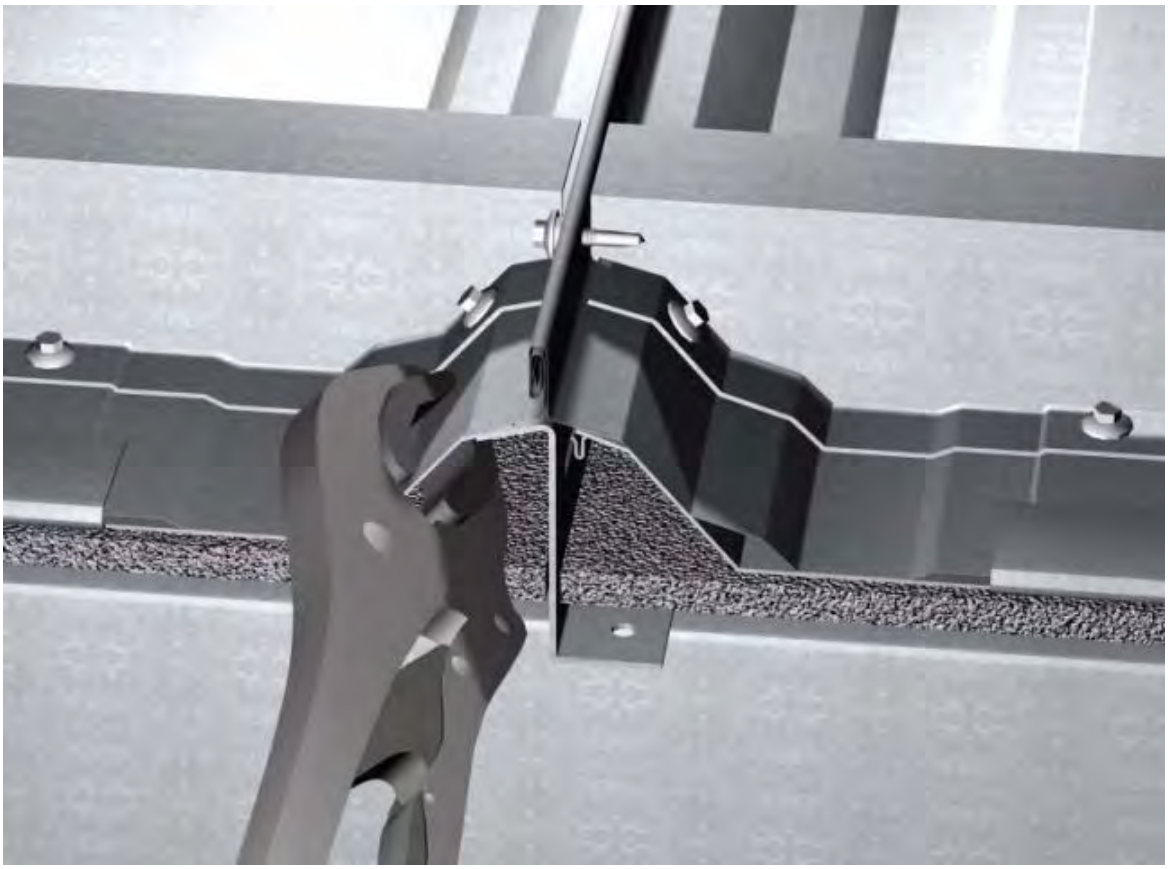
NOTE:

- Ensure that the trim supplied will cover the End Dam.
- Ensure that the End Dam screws will not contact the roof framing.
- Allow for 1" (25) of movement up and down slope due to thermal expansion and contraction. The End Dam screws must not contact the roof framing throughout this range of movement.

3. Apply the 3/32" x 1 1/2" (2 x 38) mastic pad (3209055) across the SSR Panel at the End Dam location. Press the mastic pad into the corrugations. **Do not stretch the mastic.** Fill the space under the seam with mastic. Run the mastic across the top of the rib.

END DAM INSTALLATION

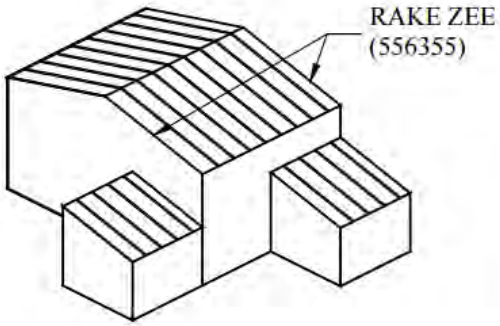
4. Apply a 1/4" (6) bead of Gun Grade Mastic (995053) on top of the mastic pad at the corrugated portion of the panel.
5. Set the End Dam into the sealer. Ensure that the End Dam and Endlap Plate are positioned properly.
6. Fasten the End Dam through the SSR Panel into the Endlap Plate using 6) 1/4-14 x 1 1/8" (556376) endlap screws.

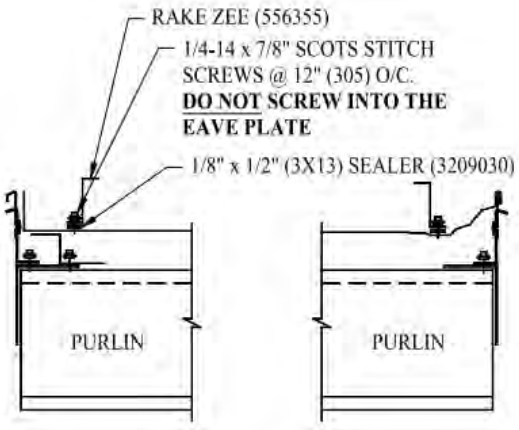


NOTE:
Make certain that the End Dam screws engage the Endlap Plate. Locking pliers may be used as shown to clamp the Endlap Plate to the panel while screws 1 & 3 are installed.

7. If the ends of the End Dams are not tight to the panel seam, use locking pliers to clamp them together and fasten with a #12-14 x 1 1/2" or 2" tek screw.
8. Apply a 1/4" (6) bead of Gun Grade Mastic (995053) along the outside of the End Dam to panel seam. Feather the edges of the caulking to the metal using a finger or small spatula.

RAKE ZEE INSTALLATION @ GABLE





PURPOSE

The **Rake Zee (556355)** provides a raised surface to fasten the Gable Trim onto while keeping roof-penetrating screws out of the weather. The location of the Rake Zee can be adjusted if necessary to accommodate panel rib location.

RAKE ZEE INSTALLATION

1. Determine the Rake Zee location. The Gable Trim must cover the top leg, with the bottom leg turned under to protect the Rake Zee-to-panel screws from the weather. **Do not screw into the roof framing when fastening the Rake Zee.**
2. Start installation at the ridge or high eave. Modify the high end of the Rake Zee to seal to the End Dam by notching the top and bottom legs 1" (25) from the end and bending the Rake Zee back. **See Photo 1** at the end of this section.
3. Place 1/8" x 1/2" (3x13) sealer on the end of the Rake Zee and along the SSR Panel.
4. Slip the Rake Zee under the lip of the End Dam and fasten to the panel using 1/3-14 x 7/8" Scots stitch screws @ 12" (305) o/c.
5. Continue installing Rake Zees to the eave. Lap the ends 4" (100) using Gun Grade Mastic 995053 inside the splices to ensure a weather tight seal.
6. At the low eave, cut the last Rake Zee 1" (25) longer than the outside edge of the Eave Trim or Gutter and modify in the same manner as the End Dam. Bend the end of the Rake Zee at a bevel to match the Eave Trim or Gutter profile. **See Photos 2-4.** The Gable Corner Box (556417) will be installed here.
7. If the building has Gutters, install the **End Caps (556423 & 556424)** under the Rake Zee:
   A) Apply 1/8" x 1/2" (3x13) sealer around the inside of the Gutter directly under the Rake Zee.
   B) Install the End Cap from the Gutter end with the legs facing the endwall. Press the End Cap into the sealer until it is flush with the Rake Zee.
   C) Fasten the Rake Zee to the top of the End Cap using 3) 1/4-14 x 7/8" Scots stitch screws. **Clamp the plies using the locking pliers before fastening to ensure a tight fit. Do not fasten the front or bottom of the End Cap until the Gable Corner Box (556417) is installed.**

RAKE ZEE INSTALLATION @ GABLE

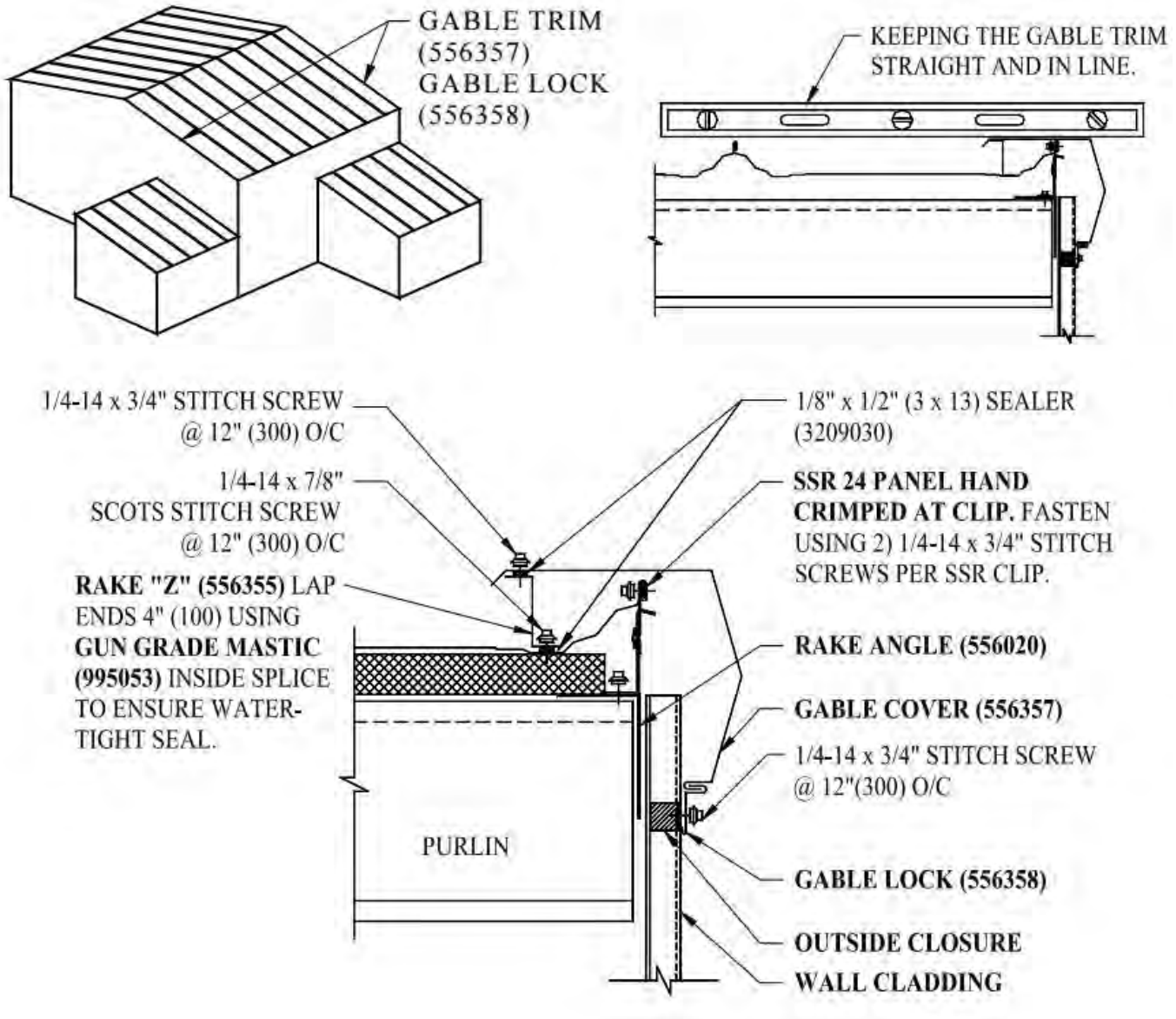
Photo 1: Rake Zee modified at End Dam

Photo 2: Rake Zee modified at Eave Trim

Photo 3: Rake Zee modified at Eave Trim

Photo 4: Rake Zee modified at Gutter

GABLE TRIM INSTALLATION



GABLE TRIM GENERAL

The **Gable Trim (556357)** finishes the building gable, protecting the roof-to-wall joint. The Gable Trim is fastened to the Rake Zee and secured against the wall panel in the sliding lip of the **Gable Lock (556358).** This provides a watertight joint that will accommodate roof movement.

If the Gable Trim is not kept straight, the building will have a poor appearance from the ground. A straight edge across the top of the Rake Zee and a panel seam can give a good reference for the top of the Gable Trim.

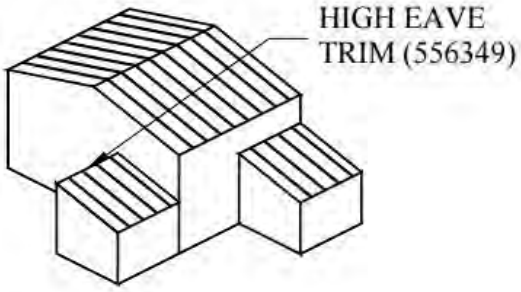
GABLE TRIM INSTALLATION

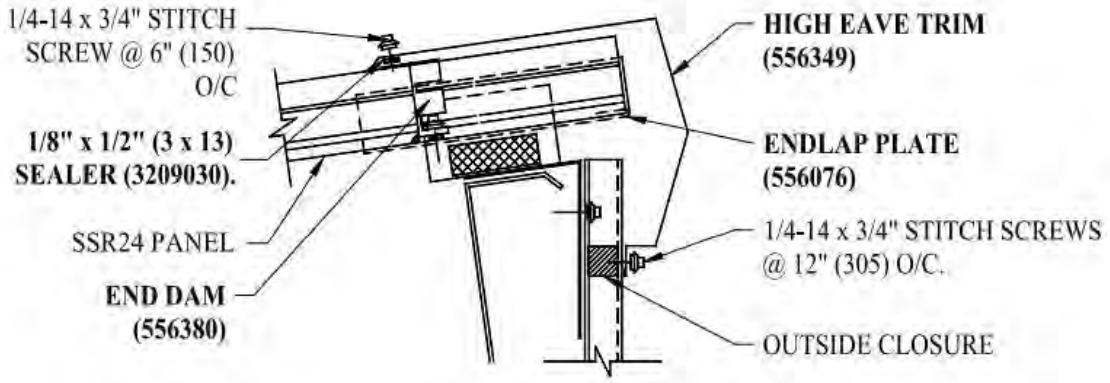
GABLE TRIM INSTALLATION

1. Starting at the low eave, apply 1/8" x 1/2" (3x13) sealer (3209030) to the top of the Rake Zee.
2. Position the low end of the Gable Trim within 3" (76) of the end of the Rake Zee. The Gable Corner Box will have to lap by at least 2" (51).
3. Check that the Gable Trim is straight and true and clamp to the Rake Zee. Fasten to the Rake Zee using 1/4-14 x 3/4" stitch screws @ 12" (305) o/c.
4. Continue installation up the gable until the Gable Trim is even with the high end of the SSR Panel. Splice the Gable Trims by lapping 2" (51) using 1/8" x 1/2" (3x13) sealer and 4) 1/4-14 x 3/4" stitch screws.
5. Apply a row of outside wall panel closures where the Gable Lock leg will fall. The bottom of the closure should be 9" (229) from the top of the SSR Panel.
6. Starting at the outside of the wall corner trim, hook the Gable Lock (556358) on the bottom of the Gable Trim. Fasten the Gable Lock through the wall panel closures to the panel high ribs using 1/4-14 x 3/4" stitch screws @ 12" (305) o/c. **Do not screw the Gable Lock to the Gable Trim. The Gable Trim must slide with the SSR Panel's movement.**
7. On a monoslope building, continue the Gable Lock to the far side of the building, ending at the outside of the corner trim.

   1) For a building with a ridge, stop the Gable Lock 12" (305) from the ridge. From roof slopes up to 2:12 (16.67:100), the Centre Gable Cover (554185) will finish the Gable Trim at the ridge. For roof slopes steeper than 2:12 (16.67:100), a field fabricated Centre Gable Cover will be used **(see "CENTRE GABLE COVER INSTALLATION", page 76).**

HIGH EAVE TRIM INSTALLATION





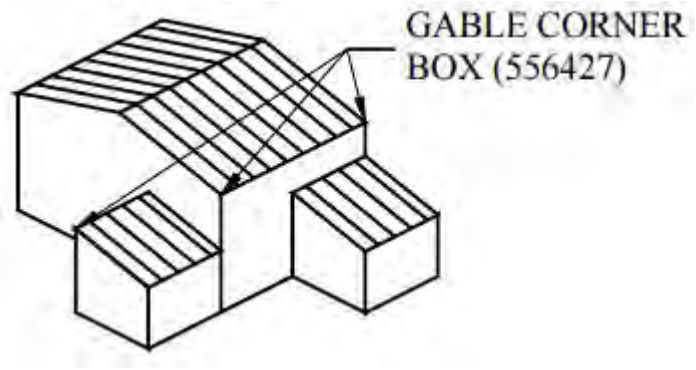
PURPOSE

The **High Eave Trim (556349)** finishes the building high eave, protecting the roof-to-wall joint. The High Eave Trim is fastened to the End Dams and the wall panel. The High Eave Trim flexes as the SSR Panels expand and contract. The profile of the High Eave Trim matches the Gable Trim. As with the Eave and Gable Trims, the High Eave Trim must be kept straight to achieve quality results. Keeping the High Eave Trim straight can conceal minor imperfections in the line of the eave.

HIGH EAVE TRIM INSTALLATION

1. Fill the joints between the End Dams with small balls of 1/8" x 1/2" (3x13) sealer (3209030).
2. Apply a continuous line of 1/8" x 1/2" (3x13) sealer (3209030) to the top of the End Dams.
3. Apply a row of outside wall panel closures where the High Eave Trim leg will fall. The bottom of the closure should be 9" (229) from the top of the SSR Panel.
4. Starting at the outside of the wall panel corner trim, place the High Eave Trim in position:
   A) Hold the bottom leg of the trim against the wall panel and closures.
   B) Rotate the trim so the top leg matches the roof slope, and set into the sealer. Check that the High Eave Trim profile is in line with that of the Gable Trim.
   C) Clamp in position and check for straightness. Adjust if necessary.
5. Fasten the High Eave Trim to each End Dam using 4) 1/4-14 x 3/4" stitch screws and to the wall panel using 1/4-14 x 3/4" stitch screws 12" (305) o/c.
6. Splice the High Eave Trims using 1/8" x 1/2" (3x13) sealer (32209030) and 4) 1/4-14 x 3/4" stitch screws.

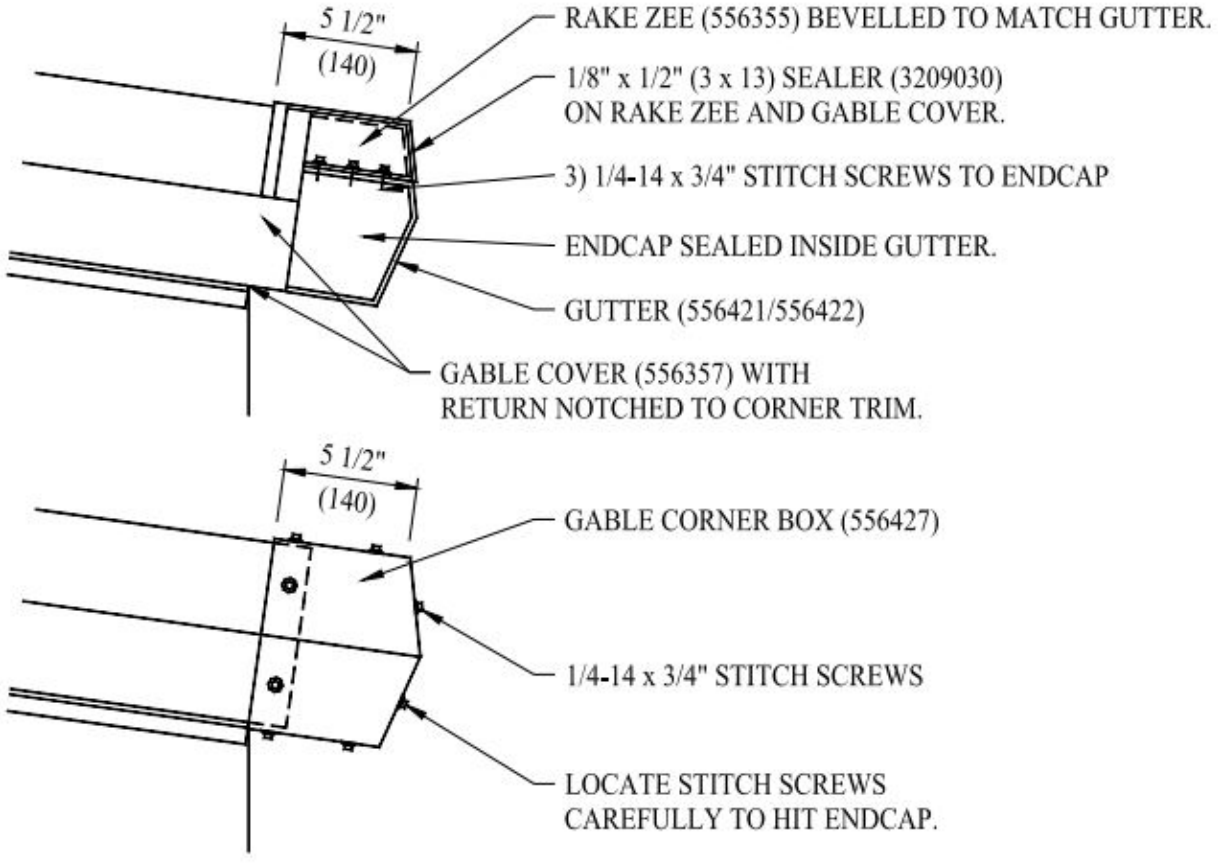
GABLE CORNER BOX INSTALLATION



GABLE CORNER BOX GENERAL

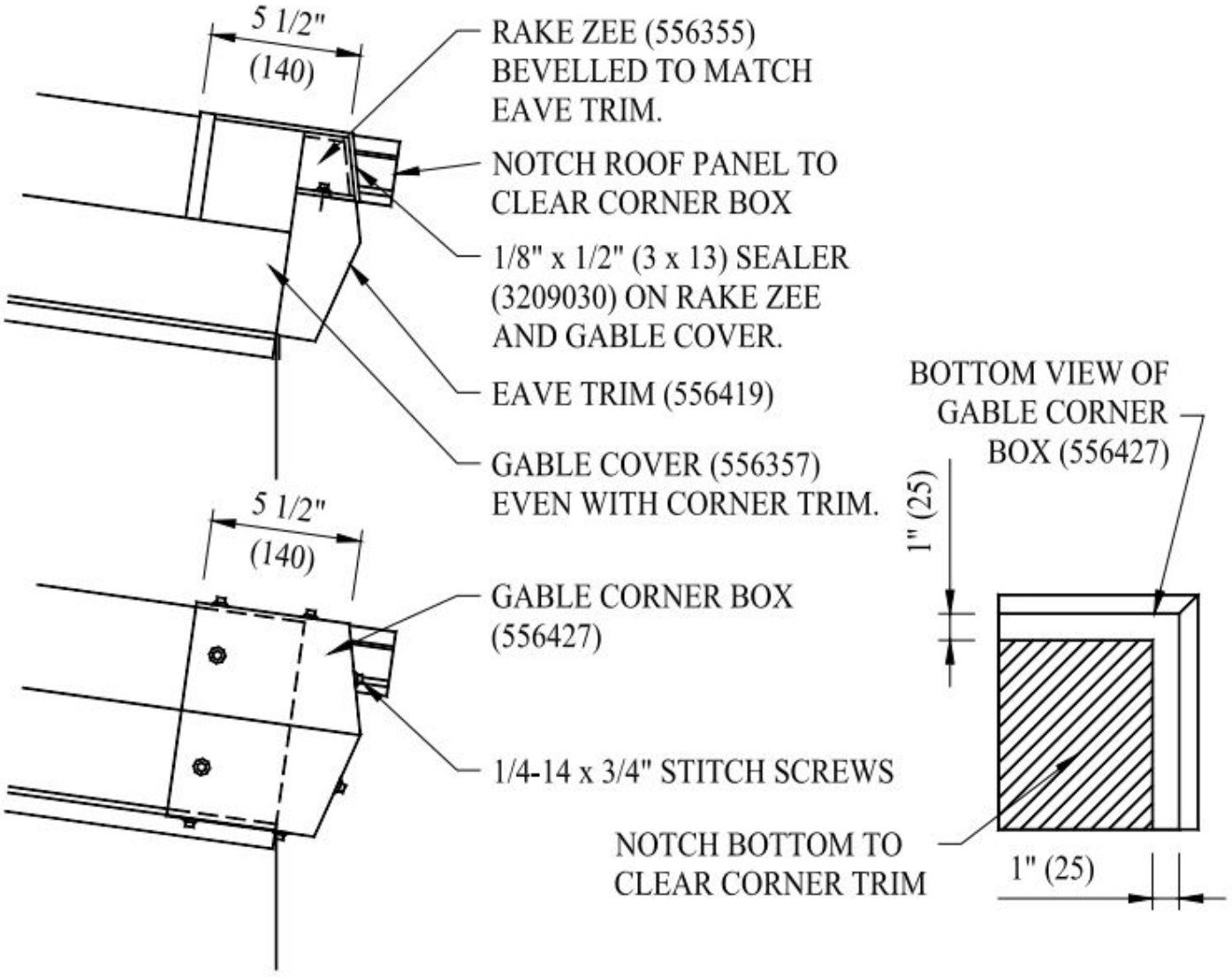
The **Gable Corner Box (556427)** caps the gable-to-eave joint at the high and low eaves/ The Gable Corner Box is sized to fit the Gutter and needs to be notched to fit an Eave Trim. Orient the Corner Box with the 7 1/2" (191) leg along the eave to match the top of the Gable Cover.

A) INSTALLATION @ GUTTER:



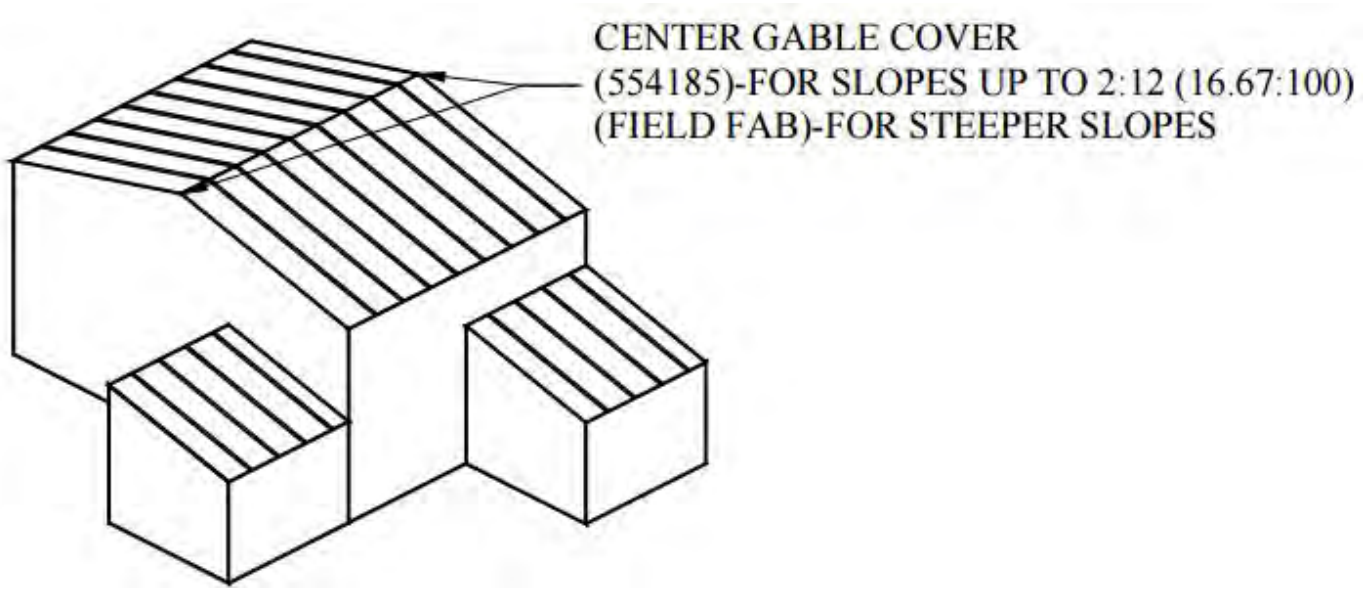
GABLE CORNER BOX INSTALLATION

B) INSTALLATION @ EAVE TRIM:



NOTE:
The SSR Panel rib under the Gable Corner Box may have to be beveled to match the eave trim.

CENTRE GABLE COVER INSTALLATION



CENTRE GABLE COVER GENERAL

The **Centre Gable Cover (554185 or Field Fabricated)** joins the Gable Covers at the ridge, flexing to accommodate the expansion and contraction of the roof surfaces. The Gable Covers should end even with the roof panels, leaving an 8" (203) gap (").

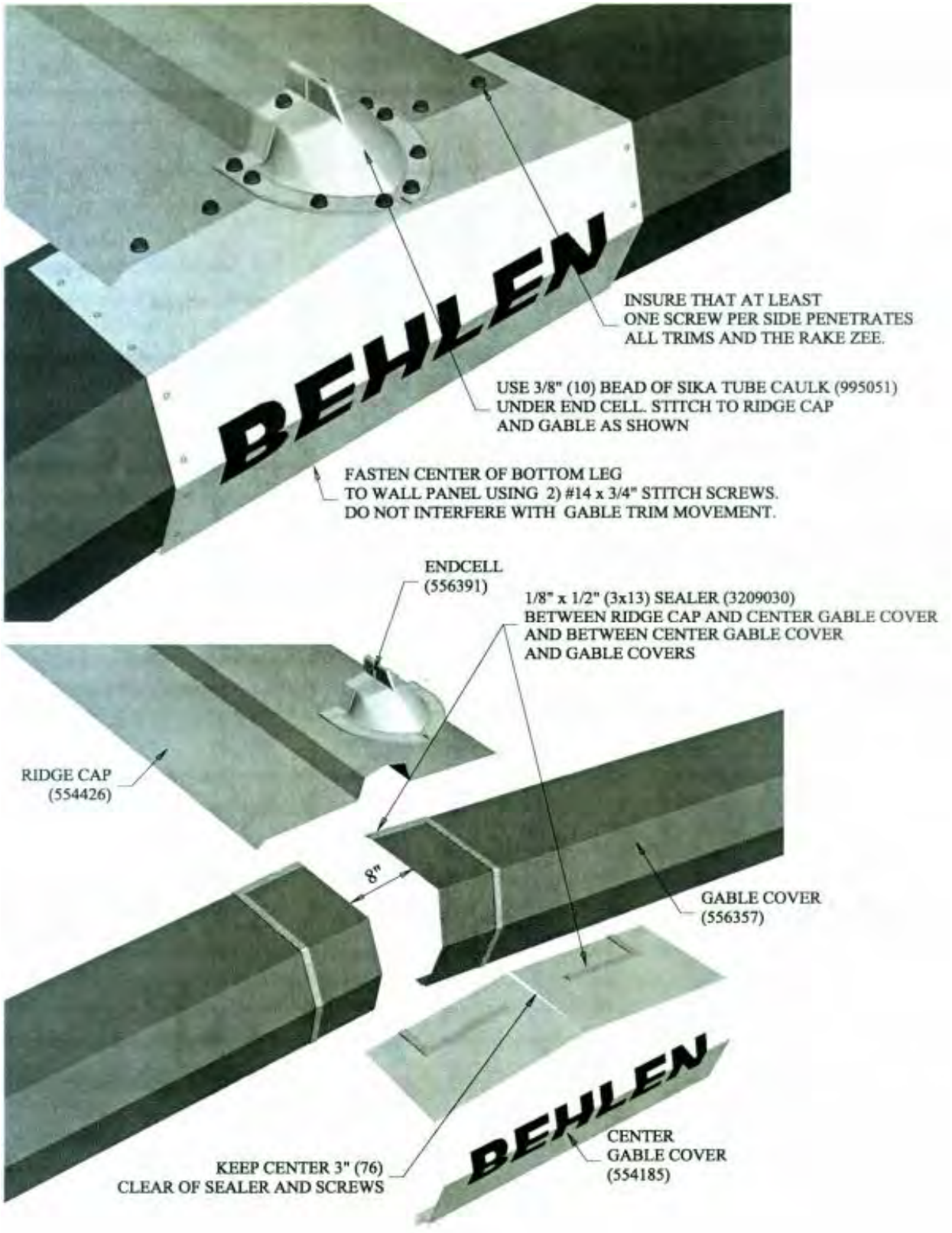
A) STANDARD CENTRE GABLE COVER (554185):

-Roof slopes up to 2:12 (16.67:100)

SEE DRAWING NEXT PAGE

1. Apply outside wall panel closures.
2. Fasten the Centre Gable Cover to the Gable covers using 1/8" x 1/2" (3x13) sealer (3209030) and 1/8" (3) pop rivets supplied.
3. Fasten the bottom leg of the Centre Gable Cover to the wall panel using 2) 1/4-14 x 3/4" stitch screws. The screws must not interfere with the Gable Cover movement.
4. Lap the Ridge Cap (554426) onto the Centre Gable Cover by 3 1/2" (89). Seal to the End Dams and Centre Gable Cover using 1/8" x 1/2" (3x13) sealer (3209030). Fasten using 1/4-14 x 3/4" stitch screws. Ensure that at least one screw per side penetrates all trims and the Rake Zee.
5. Apply 3/8" (10) bead of Sika Tube Caulk (995051) to the underside of the **End Cell (556391)** and fasten to the Ridge Cap and Gable using 10) 1/4-14 x 3/4" stitch screws. The End Cell must cover the split top of the Centre Gable Cover.

CENTRE GABLE COVER INSTALLATION

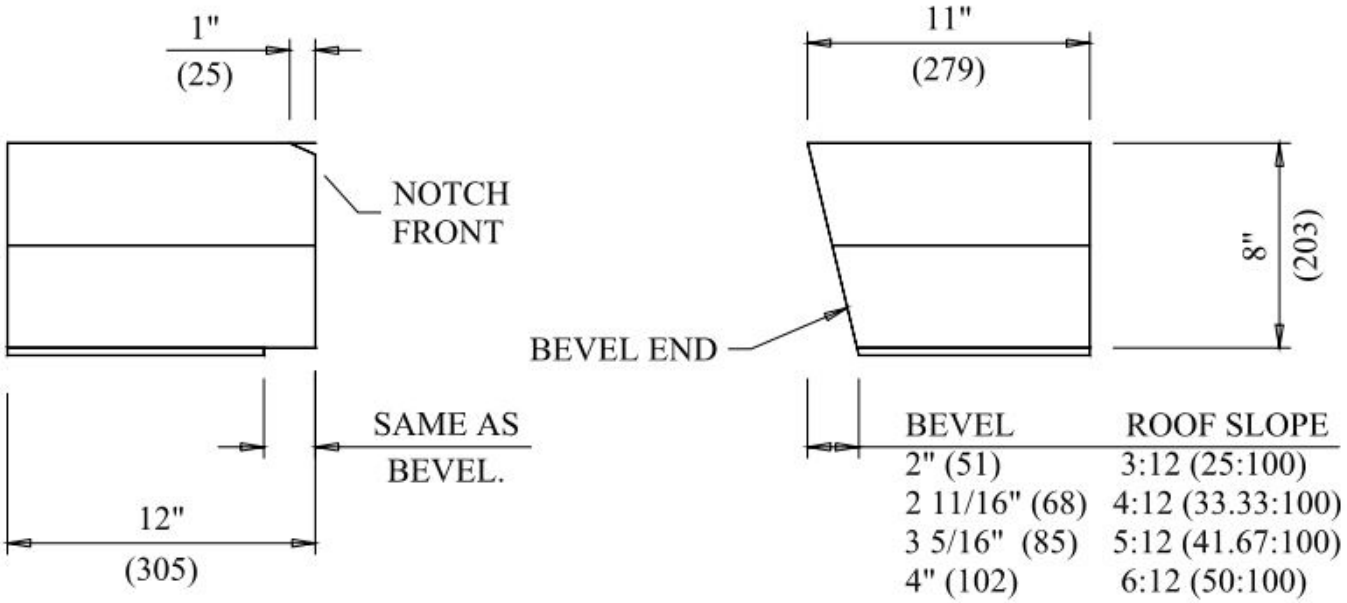


CENTRE GABLE COVER INSTALLATION

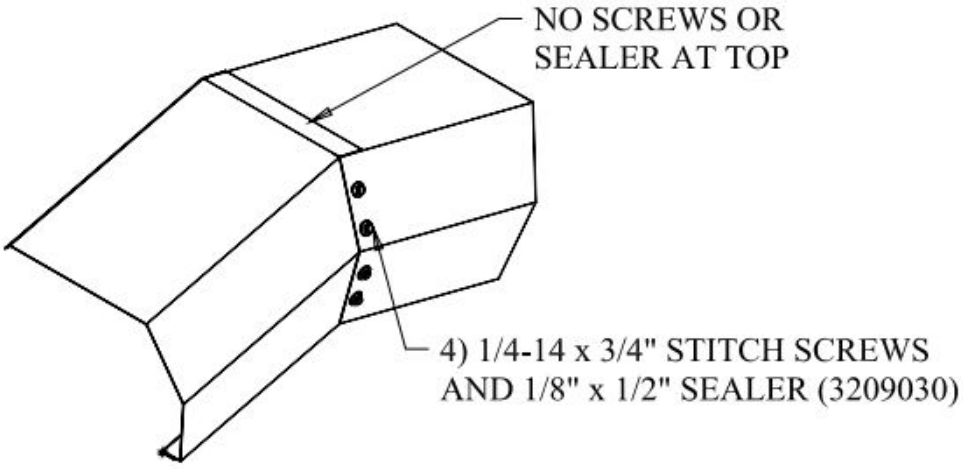
B) FIELD FABRICATED CENTRE GABLE COVER

Required for roof slopes steeper than 2:12 (16.67:100)

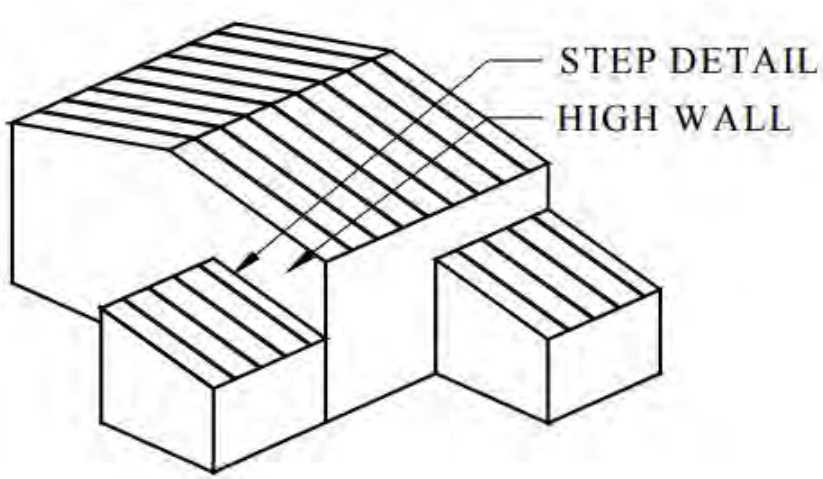
1. Fabricate a Centre Gable Cover as shown:
2. Install the Centre Gable Cover as you would a standard Centre Gable Cover (see part A)



BEVEL	ROOF SLOPE
2" (51)	3:12 (25:100)
2 11/16" (68)	4:12 (33.33:100)
3 5/16" (85)	5:12 (41.67:100)
4" (102)	6:12 (50:100)



SLIDING STEP DETAIL (TRANSITION WALL OR PARAPET)



NOTE:
It is preferable to start panel installation at the high wall steel line. Indicate when ordering if down slope seaming will be required to start panel installation at the high wall. See **"PREPARATION: START POINT AND DIRECTION OF INSTALLATION", page 23,** for complete explanation of panel notching and seaming direction.

SLIDING STEP DETAIL

It is common for the roof to join to a higher building or parapet at the endwall. The joint must be able to slide as the roof expands and contracts yet remain watertight. Standard parts are used for the connection; however, some fieldwork is required when an eave or ridge is involved.
The wall panels for the high wall above the roof cannot be installed until the SSR Step detail is completed. The high wall panels adjacent to the roof may be installed ahead of roof panel installation.

NOTE:
If the SSR Panel against the high wall is not full width, the seam may have to be closed before the flashings are installed. Check that the seamer will have enough clearance before installing flashings.

GENERAL INSTALLATION

NOTE:
Installation of the step detail is similar to the Gable. Refer to the appropriate Eave and Ridge details in the Standard Detail Booklet to be used in conjunction with the General Installation procedure.

1. **Transition Wall:** Install a row of **Base Angle (556019)** with the 2" (50) leg up at the high wall steel line.
   Parapet Wall: Install a row of **Parapet Base Angle**, with long leg up, at parapet inside steel line.
2. Fasten base angle to the purlins using 2) #12-14 x 1" SD Tek screws per purlin. Keep the screws at least 1 1/4" (32) from the steel line to avoid interference with the SSR Clips.
3. **Transition Wall:** Install a row of SSR Clips at the high wall steel line **(see "FIRST ROW OF SSR CLIPS", page 35). When installing 1 3/4" (44) SSR Clips at transition wall, bend the clip shoulders up to clear the Base Angle.**
   Parapet: Install a row of SSR Clips 1" (25) from parapet inside steel line.

SLIDING STEP DETAIL (TRANSITION WALL OR PARAPET)

4. Install a row of Eave Plates (same Pt.# as used at the eave) @ 4" (100) from the steel line to support the SSR Panel. The Eave Plates will prevent the SSR Panel from pulling away from the Wall Panel Support (556019).
5. Install Thermal Blocks (by others) if used, and SSR Panels **(see "STARTER PANEL INSTALLATION", page 40 and "PANEL TERMINATION", page 52).** Fasten the SSR Panel to the sliding tabs of the SSR Clips using 2) 1/4-14 x 3/4" stitch screws per clip.

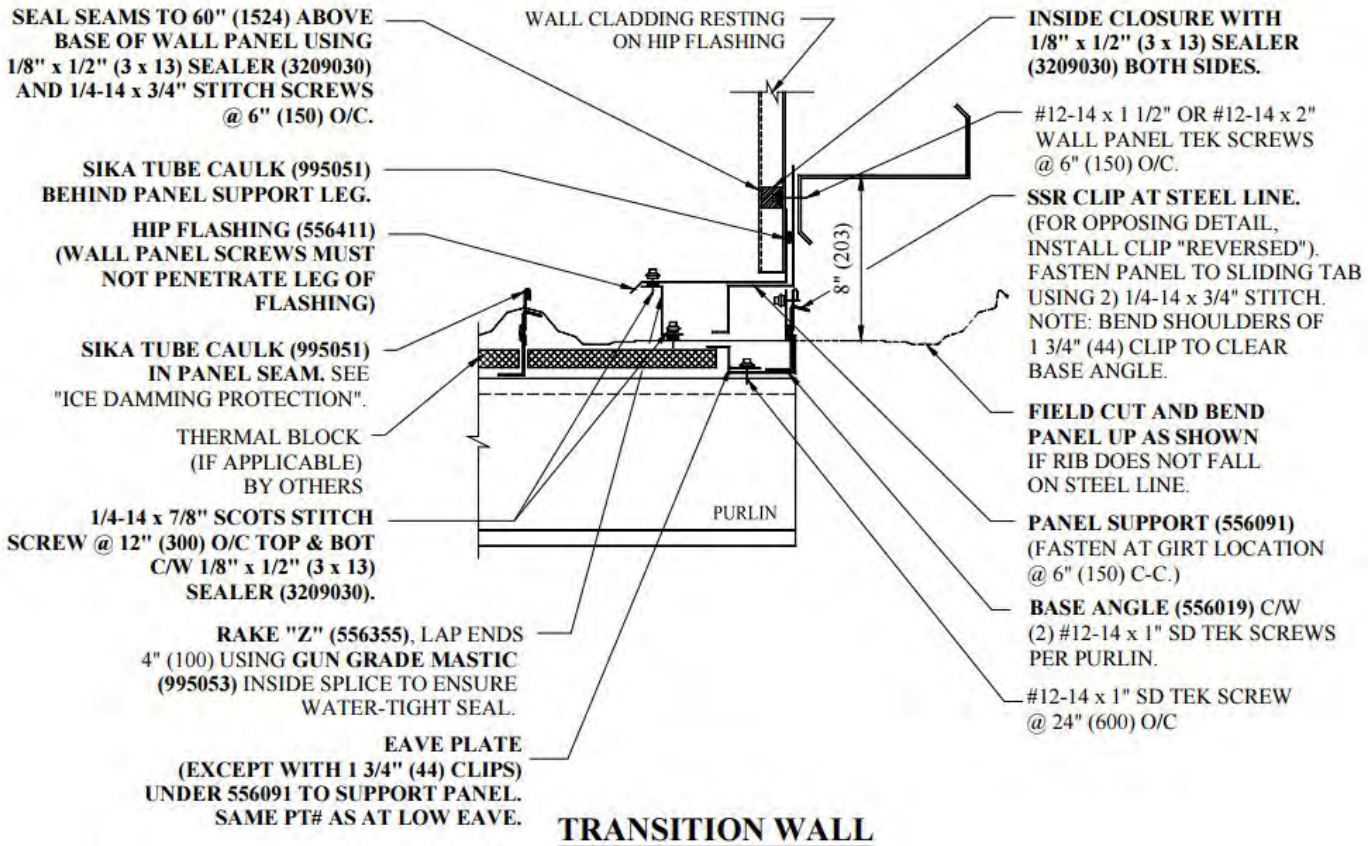
NOTE:
Check for seaming machine clearance. The first panel seam from the high wall may need to be closed before proceeding.

6. If the low roof has a ridge located on the high wall: Install the End Dam (556380) near the high end of the SSR Panel **(see "END DAM INSTALLATION" page 66).**
   If the low roof has a high eave located on the high wall: Install the End Dam after the Rake Zee.
7. Install the **Wall Panel Support (556091)**. Start at the low side and work upslope, lapping the upslope pieces onto the downslope pieces by 2" (50) using Gun Grade Mastic (995053) inside the laps. Tack the Panel Supports to the high wall girt, keeping the fasteners as high as possible on the back of the support.
8. Install the Rake Zee (556355) (see "Rake Zee Installation @ Gable") starting at the high side and working downslope. Use 1/8" x 1/2" (3x13) sealer (3209030) under the Rake Zee and Gun Grade Mastic (9905053) inside the splices. Fasten to the SSR Panel using 1/4-14 x 7/8" Scots stitch screws. **Do not screw into the roof framing or Eave Plate.**
9. Install the **Hip Flashing (556411).** Start at the low side and work upslope, lapping the pieces 2" (50). Use 1/8" x 1/2" (3x13) sealer (3209030) & 1/4-14 x 3/4" stitch screws to seal the laps.
   A) Apply a 1/4" (6) bead of Sika Tube Caulk (995051) to the back of each Hip Flashing to form a flexible seal to the Panel Support. Position the Hip Flashing carefully so the caulking remains intact.
   B) Fasten to the Rake Zee using 1/8" x 1/2" (3x13) sealer (3209030) and 1/4-14 x 7/8" Scots stitch screws @ 12" (305) o/c. **Do not fasten to the Panel Support; the Hip Flashing must slide with the roof.**

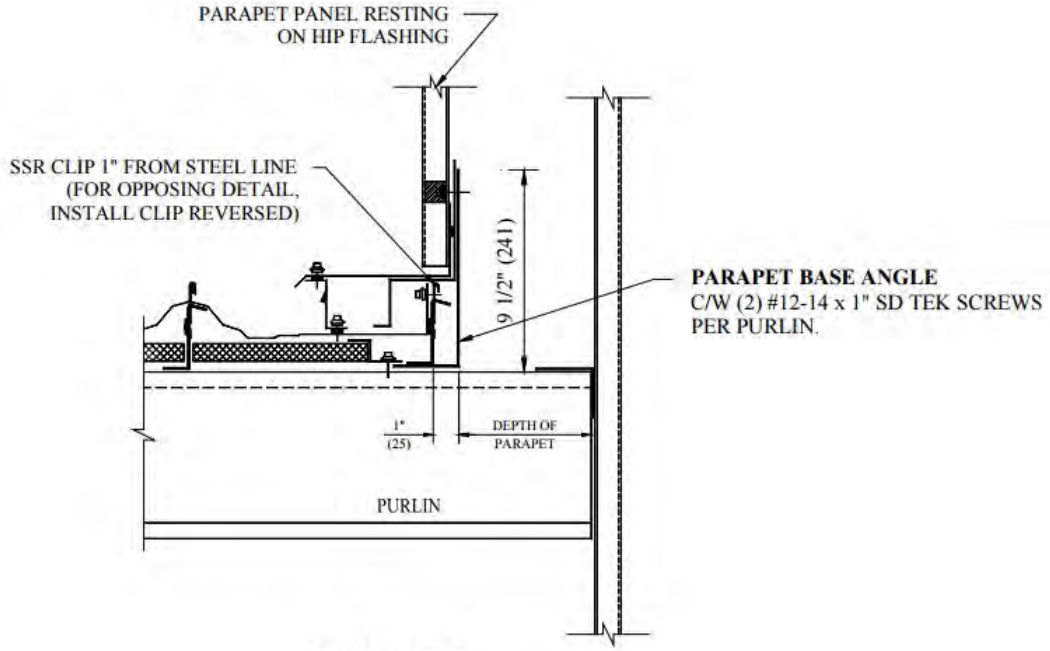
SLIDING STEP DETAIL (TRANSITION WALL OR PARAPET)

10. Install the wall panels using inside closures c/w 1/8" x 1/2" (3x13) sealer (3209030) on both sides. Fasten through the wall panel support into the girt using 1/4-14 x 1 /12" or 2" SD Tek screws @ 6" (152) o/c. **Wall panel screws must not penetrate the Hip Flashing.** Seal the wall panel sidelaps using 1/8" x 1/2" (3x13) sealer (3209030) and 1/4-14 x 3/4" stitch screws @ 6" (150) o/c to 5'-0" (1524) above the roof.

SLIDING STEP DETAIL (TRANSITION WALL OR PARAPET)



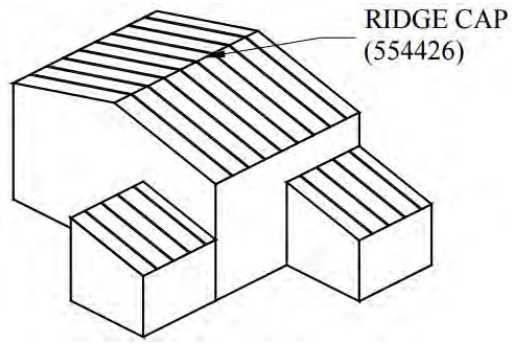
TRANSITION WALL



PARAPET

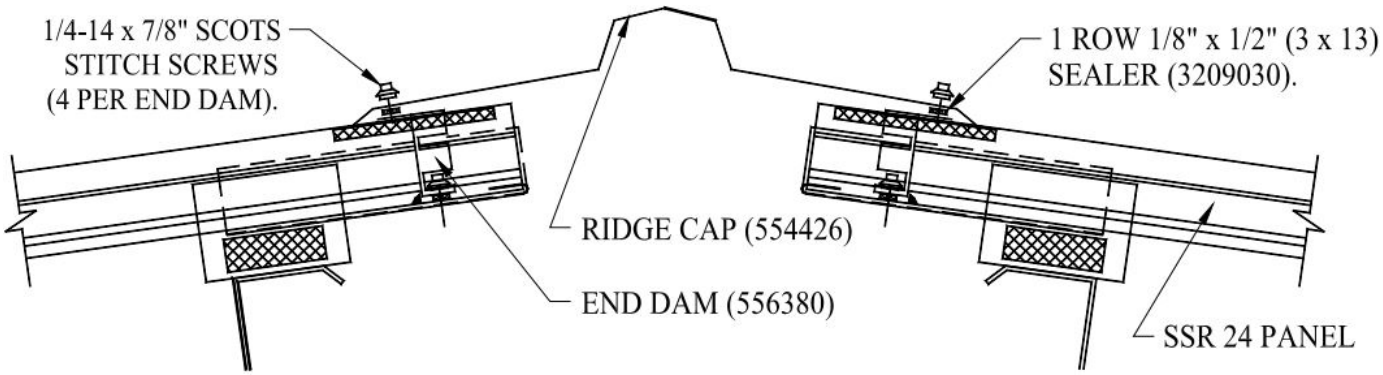
SAME AS TRANSITION WALL EXCEPT AS NOTED

RIDGE CAP INSTALLATION



PURPOSE

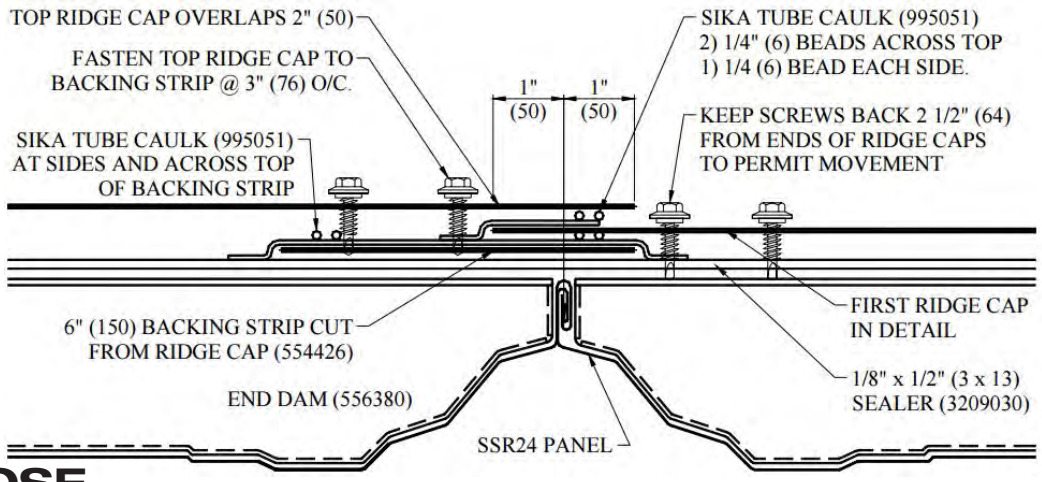
The **Ridge Cap (554426)** is designed to flash off the joint between the two roof surfaces while flexing to accommodate the SSR Panel movement. Once the SSR Panels, End Dams, and Gable Cover have been installed, Ridge Cap Installation can proceed.
It is preferable for installation to proceed into the prevailing wind so that the Ridge Cap laps will be better protected.



RIDGE CAP INSTALLATION

1. Place a small ball of 1/8" x 1/2" (3x13) sealer (3209030) over each End Dam joint to seal any gaps present. Apply 1/8" x 1/2" (3x13) sealer (3209030) along the top of the End Dams & 3 1/2" (89) onto the Centre Gable Cover.
2. Start the Ridge Cap lapped 3 1/2" (89) onto the Centre Gable Cover and centred on the ridge.
3. Fasten using 4) 1/4-14 x 7/8" Scots stitch screws per End Dam.
4. Lap the Ridge Caps 2" (51) using 1/8" x 1/2" (3x13) sealer (3209030) inside the lap and 8) 1/4-14 x 3/4" stitch screw.

RIDGE CAP EXPANSION DETAIL



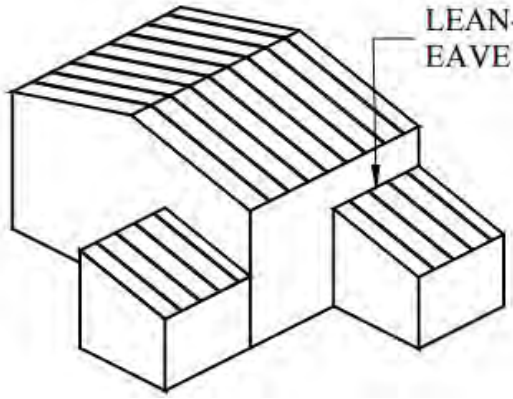
PURPOSE

The Ridge Cap on long buildings can be susceptible to leaks caused by thermal expansion and contraction. On buildings longer than 250' (76 200), the **Ridge Cap Expansion Detail** is installed every 200' (60 960) to minimize damage to the Ridge Cap joints. Any roofs less than 250' (76 200) long will not require an Expansion Detail.

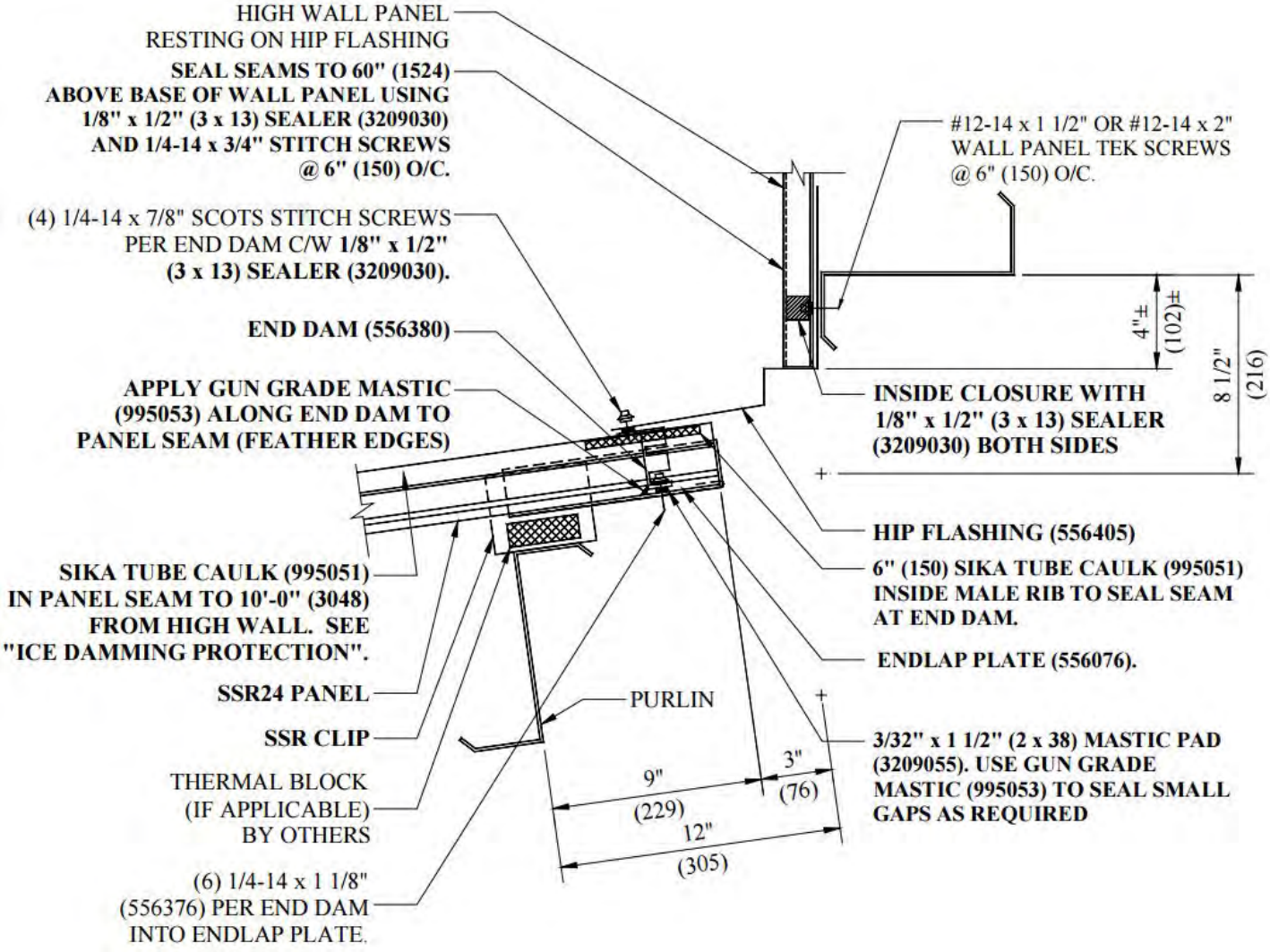
INSTALLATION

1. Locate the Expansion Details to break the Ridge Cap into approximately 200' (60 960) sections. The Expansion Detail will be located over a Panel seam/End Dam joint.
2. When Ridge Cap installation reaches the Panel seam where the Expansion Detail will be located, cut or position the Ridge Cap to run 1" (25) past the Panel seam.
3. Place 1/8" x 1/2" (3 x 13) sealer on the top leg of the End Dams **(see "END DAM INSTALLATION", page 66).**
4. Cut a 6" (150) piece of Ridge Cap for use as a Backing Strip. Position it as shown so that the first Ridge Cap in the Detail will overlay by 2" (50).
5. Caulk the sides and across the top of the Backing Strip using 1/4" (6) beads of Sika Tube Caulk (995051). Be sure that the caulking extends to the End Dam sealer.
6. Position the first Ridge Cap in the Detail, and fasten to the End Dams. Do not install any screws closer than 2 1/2" (64) to the end of the Ridge Cap. The Backing Strip must not be attached to the first Ridge Cap.
7. Place 2) 1/4" (6) beads of Sika Tube Caulk (995051) across the Ridge Cap at 1" (25) and 1 1/2" (38) from the end of the Ridge Cap. Caulk the sides of the Ridge Cap.
8. Overlap the next Ridge Cap and fasten to the End Dams. Screw this Ridge Cap to the Backing Strip using 1/4-14 x 1 1/8" Endlap Screws (556376) @ 3" (76) o/c. Install the screws 2 1/2" - 3" (64-75) from the end of the Ridge Cap to avoid restricting the movement of the Ridge Cap beneath. Ensure that the top Ridge Cap and the Backing Strip are clamping the first Ridge Cap securely without flaring.

LEAN-TO HIGH EAVE DETAIL



LEAN-TO HIGH EAVE DETAIL



SLIDING STEP DETAIL (TRANSITION WALL OR PARAPET)

GENERAL

- The **Lean-To High Eave Detail** provides a flexible connection from the high wall to the SSR roof.
- Extra sealer is applied in the seams of both the roof and high wall panels to protect against ice dammig. **See "ICE DAMMING PROTECTION" page 48.**
- The high wall panels above the roof panels cannot be installed until the high eave detail has been completed. The high wall panels adjacent to the low roof may be installed ahead of time.
- It is preferable for Hip Flashing installation to proceed into the prevailing wind so that the Hip Flashing laps will be better protected.

LEAN-TO HIGH EAVE INSTALLATION

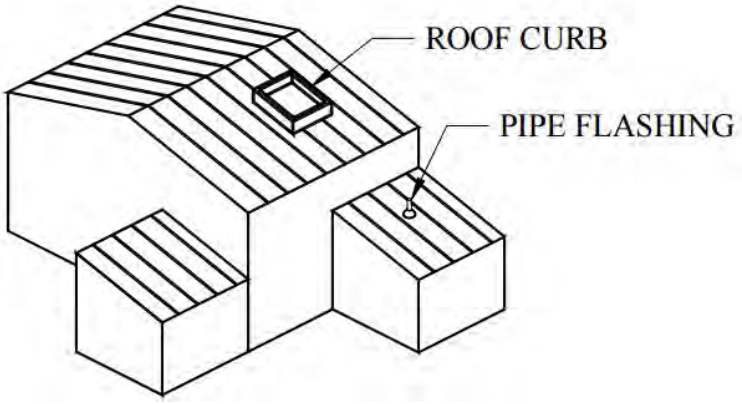
NOTE:
Refer to the appropriate lean-to Gable details in the standard detail booklet to be used in conjunction with the General Installation.

1. Install the SSR Panels, End Lap Plates, End Dams, Rake Zee, and Gable Trims as required.
2. Place a small ball of 1/8" x 1/2" (3x13) sealer (3209030) over each End Dam joint to seal any gaps present. Apply 1/8" x 1/2" (3x13) sealer (3209030) along the top of the End Dams and onto the Gable Trims.
3. Fasten the **Hip Flashing (556405)** to the top of the End Dams using 4) 1/4-14 x 7/8" Scots stitch screws per End Dam. Tack the back of the Hip Flashing to the High Building girt using #12-14 x 1 1/2" or 2" SD Tek screws. Keep the screws as high on the trim as possible.

NOTE:
Ensure that the Hip Flashing is installed straight and is sloped to drain onto the low roof.

4. Lap the Hip Flashings 2" (50) using 1/8" x 1/2" (3x13) sealer (3209030) inside the lap and 1/4-14 x 3/4" stitch screws.
5. Install the high wall panels using inside closures c/w 1/8" x 1/2" (3x13) sealer (3209030) both sides. Fasten through the wall panel closures into the girt using #12-14 x 1 1/2" or 2" SD Tek screws @ 6" (152) o/c. Seal the high wall panel sidelaps using 1/8" x 1/2" (3x13) sealer (3209030) and 1/4-14 x 3/4" stitch screws @ 6" (150) o/c to 5'-0" (1524) above the roof.

ROOF PENETRATIONS



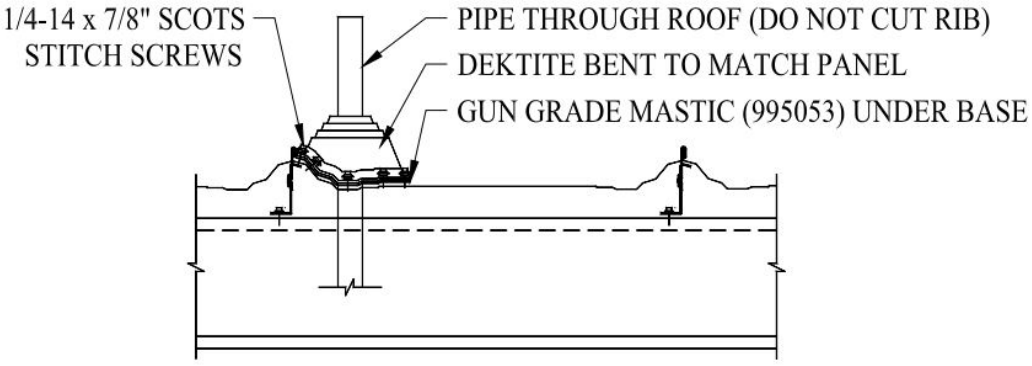
ROOF PENETRATIONS

Roof penetrations must be flashed in such a way that the movement of the roof will not be interfered with and leaks will not occur. Generally, there are two methods for flashing roof penetrations: Pipe Flashing and Roof Curbs. Smaller pipes (up to 16" (406) in diameter) can be flashed using dektites. Larger openings will require the use of a roof curb.

PIPE FLASHING INSTALLATION

Dektites may be ordered to seal any pipes projecting through the roof panels. The base of the Dektite will conform to the slope of the roof and/or the panel rib.

1. Locate the penetrating pipe so that the panel rib will not have to be cut. Plumbing vent pipes can be elbowed to hit the flat of the panel.
2. Cut a hole in the panel leaving 1" (25) clear all around the pipe to allow room for roof movement.
3. Cut the top of the Dektite at the appropriate mark to provide a tight fit for the pipe. Leave 1/2" (12) straight collar against pipe for maximum sealing.
4. Slip the Dektite over the pipe and bend the base to conform to the panel rib, if necessary. Water may be used to lubricate the pipe when sliding the Dektite on.
5. Apply Gun Grade Mastic (995053) between the base of the Dektite and the panel, and at the top of the Dektite.
6. Use 1/4-14 x 1/8" (556376) endlap screws to fasten the Dektite to the panel.



ROOF PENETRATIONS

ROOF CURBS

There are various types of **Roof Curbs** available to accommodate HVAC and other roof-mounted equipment. These curbs can be installed in one of three ways:

1. Retrofit curbs are available that simply sit on top of the roof panels, set in sealant and fastened all the way around.
2. Screw-down curbs are available that will slide under the upslope panel and over the downslope panel, also set in sealant and fastened all the way around.
3. Seamed in place curbs are available that lap with the panels up-and-downslope of the opening and are seamed into the adjacent panels.

Standing seam roof curbs must have two main components. The inside of the curb supports the weight of the equipment, resting on the building structure. The outside of the curb is flashed to the roof panels and must be able to move with the rest of the roof.

All curbs must have water diverters or crickets on the high side to prevent water from ponding, and must have sufficient clearance at the sides to allow proper drainage.

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NOTES

ERECTOR NOTES

The most valuable member of our research and development team is the erector in the field. The performance of our product in the field is crucial, and any feedback is greatly appreciated. These pages have been provided for your use.

NOTES

Due to continuing research and development, BEHLEN Industries reserves the right to modify any of the details and procedures covered in this Manual without notice.

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