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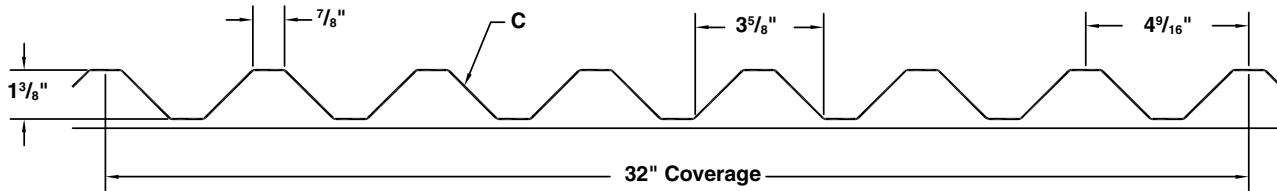
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**PANEL PROFILE**



**SLOPE**

The minimum recommended slope for any V-Line 32 Panel roofing panel is 1:12.

**SUBSTRATE**

V-Line 32 panel is designed to be utilized over open structural framing, but can easily be used with a solid substrate. For solid substrate applications, the recommended substrate is 5/8" plywood with a 30 pound felt moisture barrier. To avoid panel distortion, use a properly aligned and uniform substructure.

**COVERAGE**

V-Line 32 Panel has a coverage of 32" with a 1 3/8" Rib Height.

**LENGTH**

Lengths under 5'-0" are available with some cutting restrictions. Maximum recommended panel length is 45'-0". Longer panels require additional consideration in packaging, shipping, and erection. Please consult your Metal Sales branch for recommendations (see PGI-2 and 3 for locations).

**AVAILABILITY**

26, 24, and 22 Gauge. Minimum quantities may apply.

**APPLICATION**

Commercial, Industrial panel.

**PERFORMANCE TEST**

UL 580, UL 2218, UL 790, Texas Department of Insurance

**FASTENING SYSTEM**

Direct fastened (exposed).

**FASTENERS**

The fastener selection guide should be consulted for choosing proper fasteners for specific applications. Quantity and type of fastener must meet necessary loading and code requirements (see PGI-12-14). Note: All panels are subject to surface distortion due to improperly applied fasteners. Over driven fasteners will cause stress and induce oil-canning across the face of the panel at or near the point of attachment.

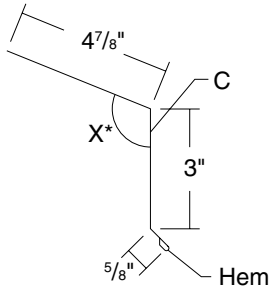
**MATERIALS**

Steel grade 80 for 26 Gauge and grade 50 for 22 and 24 Gauge, per ASTM A-792

**FINISH**

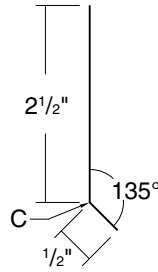
- ▶ \*Acrylic Coated Galvalume® (ACG) / ASTM A-792 - AZ55
  - ▶ Prepainted Galvalume / ASTM A-792 - AZ50
  - ▶ \*\*Fluorocarbon (PVDF)
- \* Differential appearance of Acrylic Coated Galvalume roofing materials is not a cause for rejection.  
 \*\* Meets both Kynar 500 and Hylar 5000 specifications.

**EAVE (DIRECT FASTEN)**



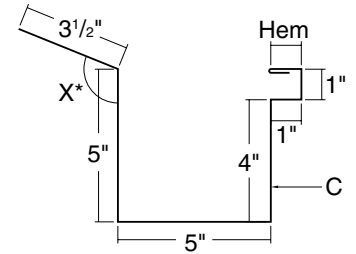
Length 10'-2" - \*Specify Slope Angle

**CLEAT**



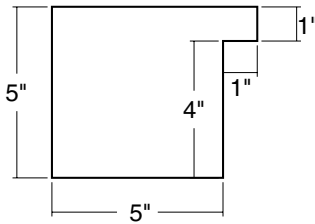
Length 10'-2"

**BOX GUTTER**

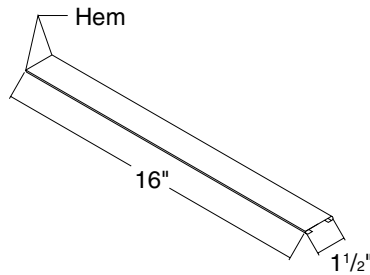


Length 10'-2", 20'-3" - \*Specify Slope Angle

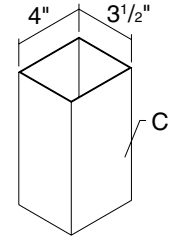
**BOX GUTTER END**



**UNIVERSAL GUTTER/ DOWNSPOUT STRAP**

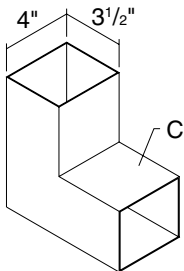


**DOWNSPOUT 4" x 3 1/2"**



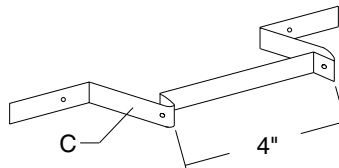
Length 10'-2", 20'-3"  
(Also available 6" x 4")

**95° ELBOW 4" x 3 1/2"**



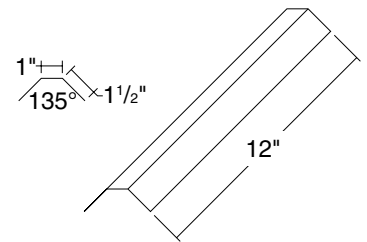
(Also available 6" x 4")

**DOWNSPOUT BRACKET**

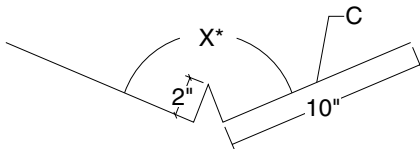


(Also available 6")

**GUTTER HANGER**



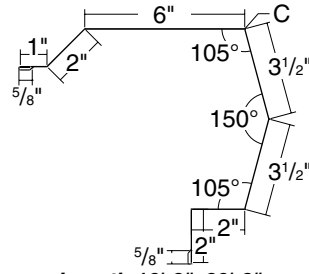
**VALLEY**



Length 10'-2", 20'-3" - \*Specify Slope Angle

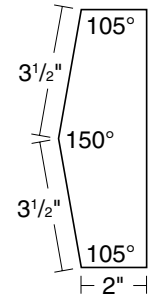
**V-LINE 32**

**SCULPTURED RAKE**

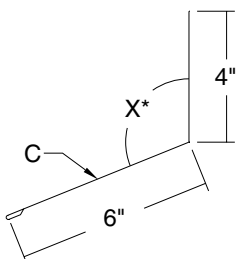


Length 10'-2", 20'-3"

**SCULPTURED RAKE END**

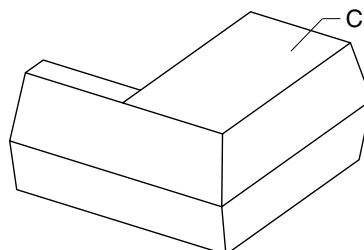


**PITCH BREAK**

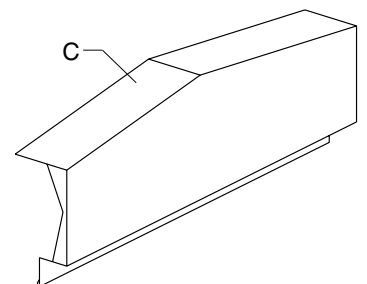


Length 10'-2" - \*Specify Slope Angle

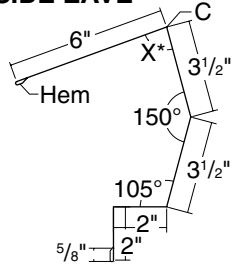
**SCULPTURED CORNER BOX**



**SCULPTURED PEAK BOX**

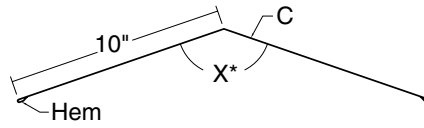


**SCULPTURED HIGH SIDE EAVE**



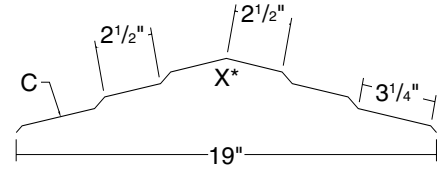
Length 10'-2", 20'-3" - \*Specify Slope Angle

**20" RIDGE/HIP COVER**



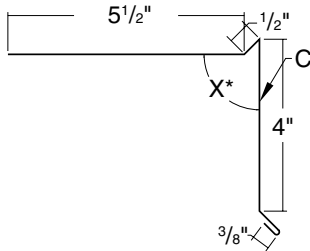
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**UNIVERSAL RIDGE**



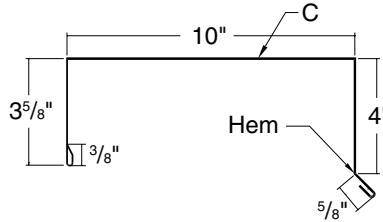
Length 10'-2" - \*Specify Slope Angle

**GRAVEL STOP**



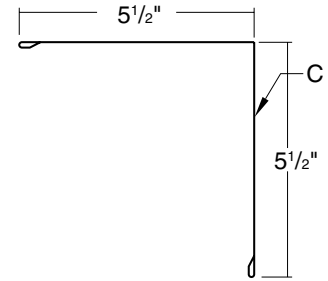
Length 10'-2", 20'-3" - \*Specify Slope Angle

**COPING**



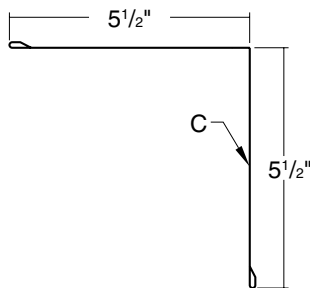
Length 10'-2", 20'-3"

**OUTSIDE CORNER**



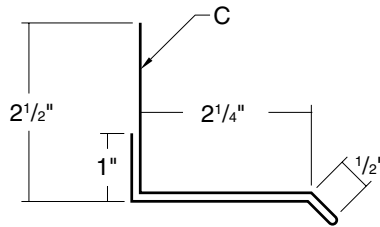
Length 10'-2", 20'-3"

**INSIDE CORNER**



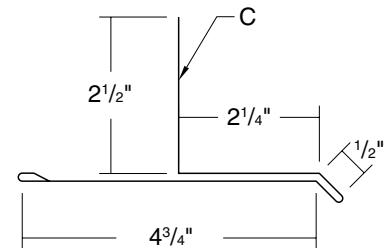
Length 10'-2", 20'-3"

**2.25" SILL/HEAD**



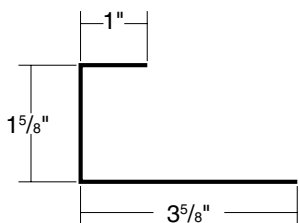
Length 10'-2"

**2.25" SILL TO SOFFIT**



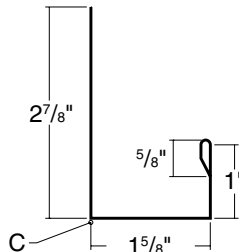
Length 10'-2"

**V-LINE 32 C-CLOSURE**



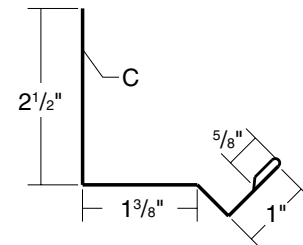
Length 10'-2"

**V-LINE 32 JAMB**



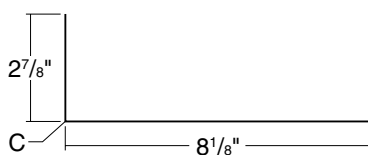
Length 10'-2"

**HEAD CHANNEL**



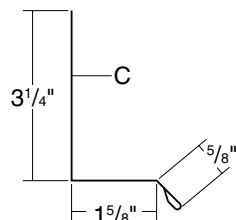
Length 10'-2"

**HEAD/JAMB COVER**



Length 10'-2", 14'-2"

**BASE**

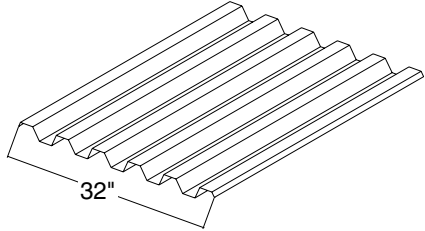


Length 10'-2"

C- Indicates color side of flashing.

**LIGHT TRANSMITTING**

**V-LINE 32 PANELS**



8 Ounce White Fiberglass  
12'-0" Length

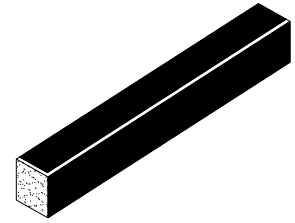
**V-LINE 32 CLOSURE**



Inside/Outside Closure

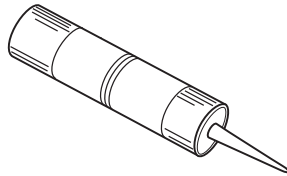
Polyethylene Foam

**UNIVERSAL CLOSURE**



1" x 1 1/2" X 50' Polyethylene Foam  
1" x 1 1/2" X 10' Polyethylene Foam

**TUBE SEALANT**



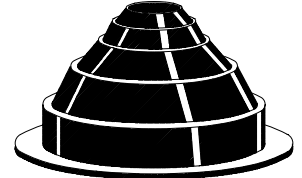
10.3 oz. Cartridge  
Urethane

**TAPE SEALANT**



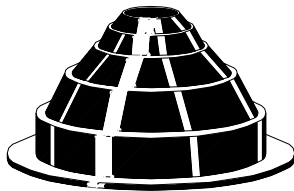
3/8" X 3/32" X 50'  
Single Bead  
Butyl - Gray

**RUBBER ROOF JACK**



MINI (1/4" to 1 1/8" O.D. Pipe)  
#2 (1 3/4" to 3" O.D. Pipe)  
#4 (3" to 6" O.D. Pipe)  
#6 (6" to 9" O.D. Pipe)  
#8 (7" to 13" O.D. Pipe)

**RETRO ROOF JACK**



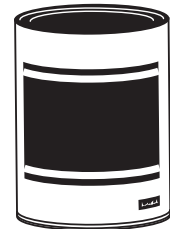
#801<sub>RETRO</sub> (3/4" to 2 3/4" O.D. Pipe)  
#802<sub>RETRO</sub> (2" to 7 1/4" O.D. Pipe)  
#803<sub>RETRO</sub> (3 1/4" to 10" O.D. Pipe)

**RUBBER ROOF  
FLASH KIT**



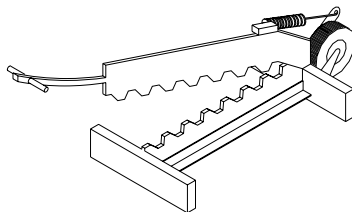
12" x 50'-0" Flash Kit  
18" x 50'-0" Flash Kit

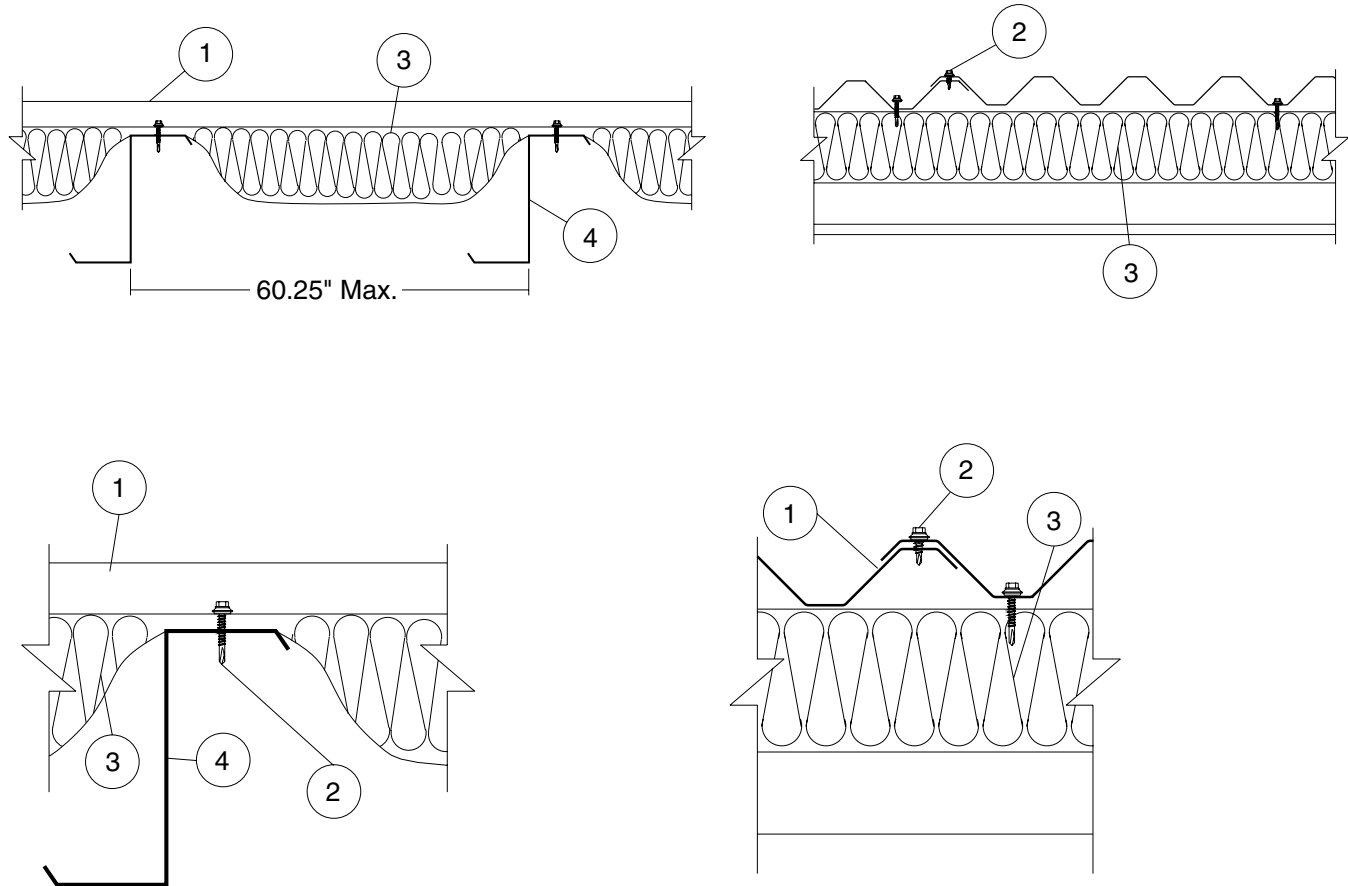
**TOUCH-UP PAINT**



Available in pints  
PVDF / MS CF30

**V-LINE 32 PANEL SHEAR**





V-LINE 32

Construction No. 187  
 October 09, 1997  
 Metal Deck Assemblies  
 Uplift - Class 90  
 Fire Not Investigated

1. **Metal Roof Deck Panels\*** No. 26 MSG min gauge, coated steel. Panels continuous over two or more spans. End laps to occur over purlins with panels overlapped 6 in. with lap beginning 1 in. from purlin web and extending across purlin upper flange. A line of mastic sealant may be used at panel end and side laps.  
 METAL SALES MFG CORP
2. **Panel Fasteners** Fasteners for panel-to-purlin and panel-to-panel connections to be No. 12-14 by 1 in. long self-drilling, self-tapping, hex-head, coated steel screws with 5/8 in. diam coated steel with bonded neoprene washers. Spacing to be approximately 9 in. O.C. located in every other panel valley with a fastener located on both sides of the side lapped rib. Spacing at the end laps to be the same.  
**Alternate fastener** for panel-to-panel connections; No. 14 by 3/4 in. long self-drilling, self-tapping, hex-head, coated steel screws with 5/8 in. diam coated steel, bonded neoprene washers may be used. Spacing to be 15 in. O.C.
3. **Insulation** (Optional) - Any compressible blanket insulation, 4 in. max thickness before compression.
4. **Purlins** No. 16 MSG min gauge steel (55,000 PSI min yield strength).
5. **Lateral Bracing** (Not shown) - As required.

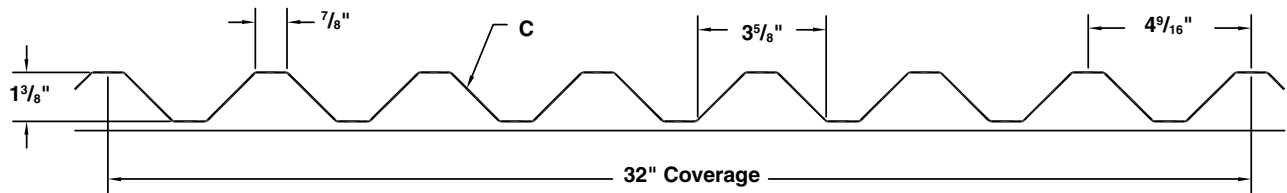
Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

\*Bearing the UL Classification Marking



Underwriters Laboratories Inc.®

LISTED



**V-LINE 32 SECTION PROPERTIES**

GAUGE	WIDTH (in)	YEILD KSI	WEIGHT PSF	TOP IN COMPRESSION <sup>1</sup>			BOTTOM IN COMPRESSION <sup>1</sup>		
				Ixx in <sup>4</sup> /ft	Sxx in <sup>3</sup> /ft	Ma (k-in)	Ixx in <sup>4</sup> /ft	Sxx in <sup>3</sup> /ft	Ma (k-in)
26	32"	80	1.00	.0623	.0865	3.11	.0638	.0849	3.05
24	32"	50	1.29	.0874	.1245	3.73	.0896	.1223	3.66
22	32"	50	1.66	.1163	.1638	4.91	.1200	.1653	4.95

**ALLOWABLE UNIFORM LIVE LOADS PSF<sup>1,2,3,4</sup>**

1-Span			Inward (Gravity / Deflection) Load <sup>2,4</sup>						Outward Uplift (Stress) Load <sup>3</sup>					
GA.	Width	Ksi	5'	6'	7'	8'	9'	10'	5'	6'	7'	8'	9'	10'
26	32"	80	44	25	16	11	7	5	108	75	42	33	27	22
24	32"	50	61	35	22	15	10	8	130	90	66	51	40	33
22	32"	50	81	47	30	20	14	10	176	122	90	69	54	44

2-Equal Spans			Inward (Gravity / Deflection) Load <sup>2,4</sup>						Outward Uplift (Stress) Load <sup>3</sup>					
GA.	Width	Ksi	5'	6'	7'	8'	9'	10'	5'	6'	7'	8'	9'	10'
26	32"	80	77	54	39	26	18	13	104	74	55	42	33	27
24	32"	50	96	67	49	38	30	23	130	91	67	51	41	33
22	32"	50	131	91	67	51	41	31	173	120	89	68	54	44


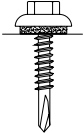
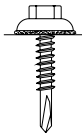
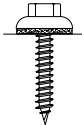
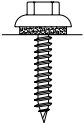
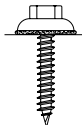
3 or more-Equal Spans			Inward (Gravity / Deflection) Load <sup>2,4</sup>						Outward Uplift (Stress) Load <sup>3</sup>					
GA.	Width	Ksi	5'	6'	7'	8'	9'	10'	5'	6'	7'	8'	9'	10'
26	32"	80	88	51	32	21	15	11	120	85	63	49	39	32
24	32"	50	112	71	45	30	21	15	151	106	78	60	47	38
22	32"	50	152	95	60	40	28	20	201	140	103	79	63	51

- Theoretical section properties have been calculated per AISI 1996. "Specifications for the design of cold formed steel members." Ixx and Sxx are effective section properties for deflection and bending.
- Tabulated loads are allowable loads calculated in accordance with good engineering practices and with AISI 1996 specifications for bending stresses. Panel weight has not been subtracted from allowable gravity loads. Allowable load does not address web crippling requirement, or fasteners/support connection.
- Allowable loads are calculated in accordance with AISI 1996 specifications, and have been increased by 33 1/3% for wind uplift. Contact Metal Sales Technical Services Department for more information.
- Deflection consideration is limited by a maximum deflection ratio of L/180 of span.

**FASTENER INSTALLATION TECHNIQUE**

**Recommended Tool Type** - Use depth locating nose or adjustable clutch on screw gun to prevent overdrilling and strip out. **Do not use impact tools or runners.**

**Seating the washer** - Apply sufficient torque to seat the washer - do not overdrive the fastener.

	<b>CORRECT</b> Sealing material slightly visible at edge of metal washer. Assembly is watertight.	<b>TOO LOOSE</b> Sealing material is not visible; not enough compression to seal properly.	<b>TOO TIGHT</b> Metal washer deformed; sealing material pressed beyond washer edge.
SELF DRILLER			
WOODSCREW			

**To prevent wobbling** - Make sure fastener head is completely engaged in the socket. If the head does not go all the way in the socket - tap the magnet deeper into the socket to allow full head engagement. Metal chips will build up from drilling and should be removed from time to time.

**Protect drill point** - Push only hard enough on the screw gun to engage clutch. This prevents excess friction and burn out of the drill point. Correct pressure will allow screw to drill and tap without binding.

**Drilling through sheet and insulation** - Ease up on pressure when drilling through insulation to avoid striking the purlin or girt with the point - apply more pressure after drill point contacts purlin or girt.

**Drilling through purlin overlaps** - Drilling through lapped purlins requires extra care. Excessive voids between purlins sometimes damages drill points and two self-drillers might be necessary to complete the operation. It is sometimes advantageous to predrill.

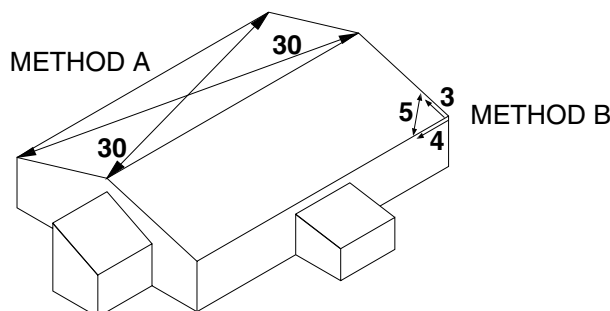
**CONDITION OF SUBSTRUCTURE**

Whether over solid substrate or open structural framing, panel distortion may occur if not applied over properly aligned and uniform substructure.

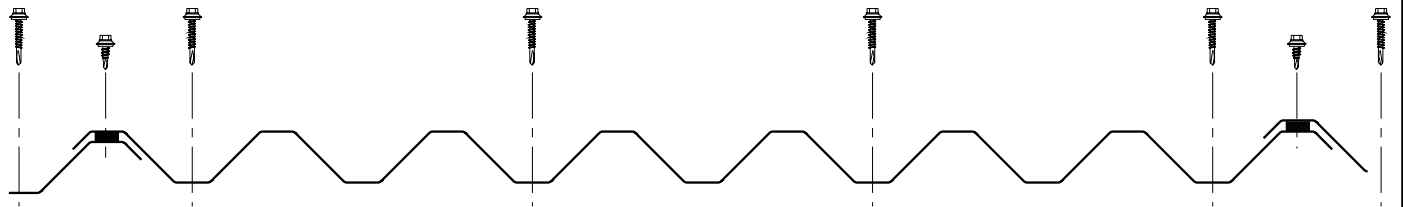
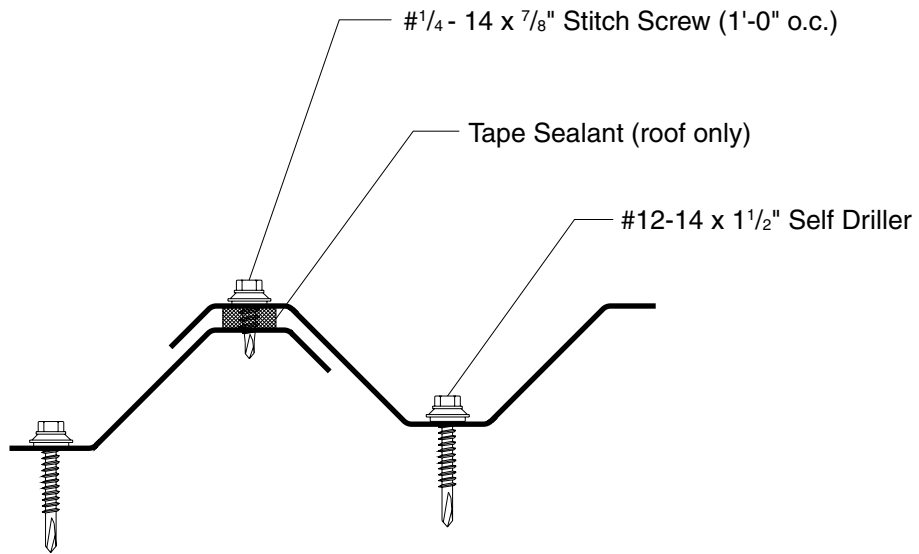
The installer should check the roof deck for squareness before installing V-Line 32 panels. Several methods can be used to verify squareness of the structure for proper installation of the panels.

**METHOD "A"** - One method for checking the roof for squareness is to measure diagonally across one slope of the roof from similar points at the ridge and eave and obtain the same dimension.

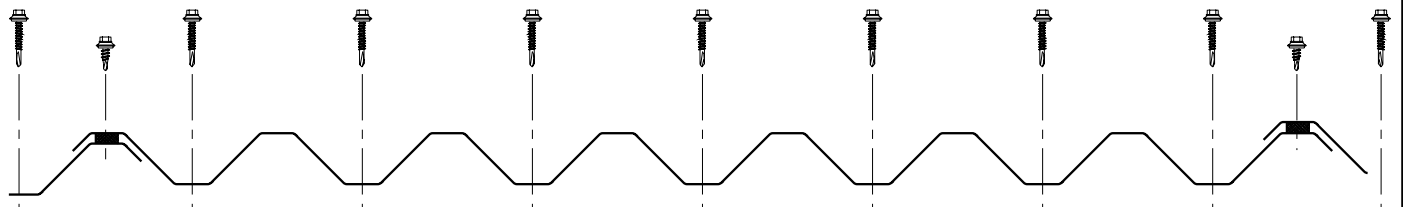
**METHOD "B"** - The 3-4-5 triangle system may also be used. To use this system measure a point from the corner along the edge of the roof at a module of three (3). Measure a point from the same corner along another edge at a module of four (4). Then by measuring diagonally between the two points established, the dimension should be exactly a module of five (5) to have a square corner. Multiple uses of this system may be required to determine building squareness. If the endwall cannot be made square, the roof system cannot be installed as shown in these instructions.



**FASTENING PATTERNS**



**V-Line 32 Fastening Pattern - Interior**  
(Also used for UL-90 Applications)

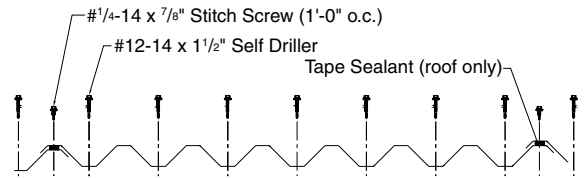
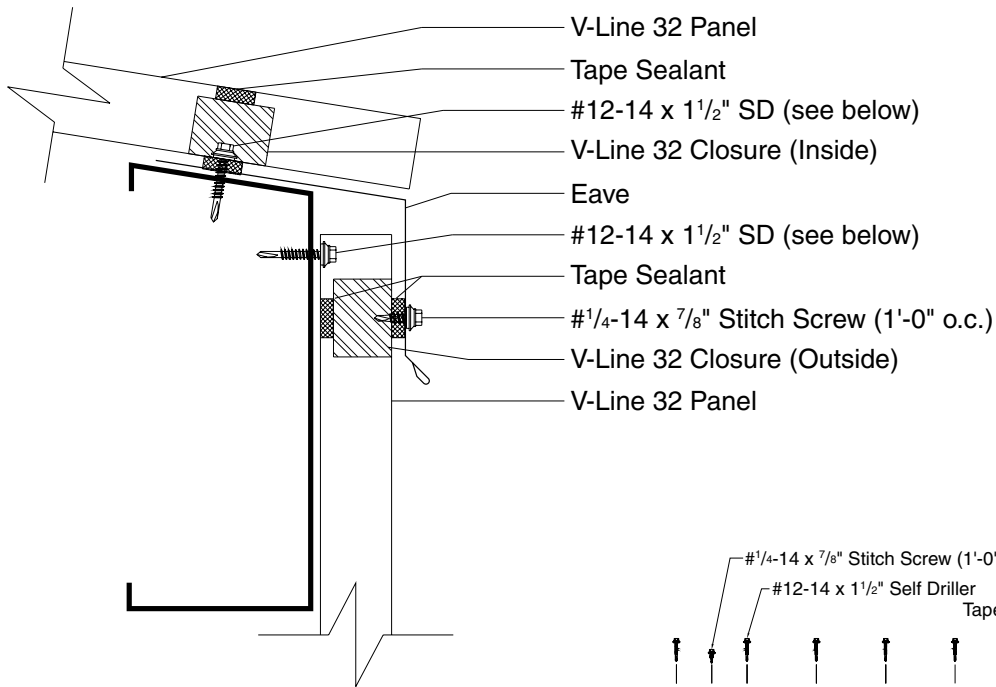


**V-Line 32 Fastening Pattern - Ends**  
(Also used for UL-90 Applications)

# V-LINE 32

## EAVE DETAIL

1:12 Slope  
Minimum

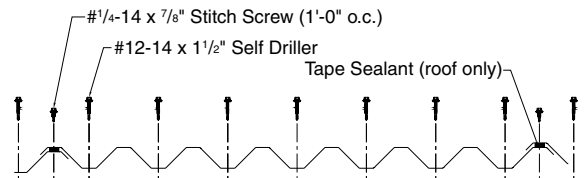
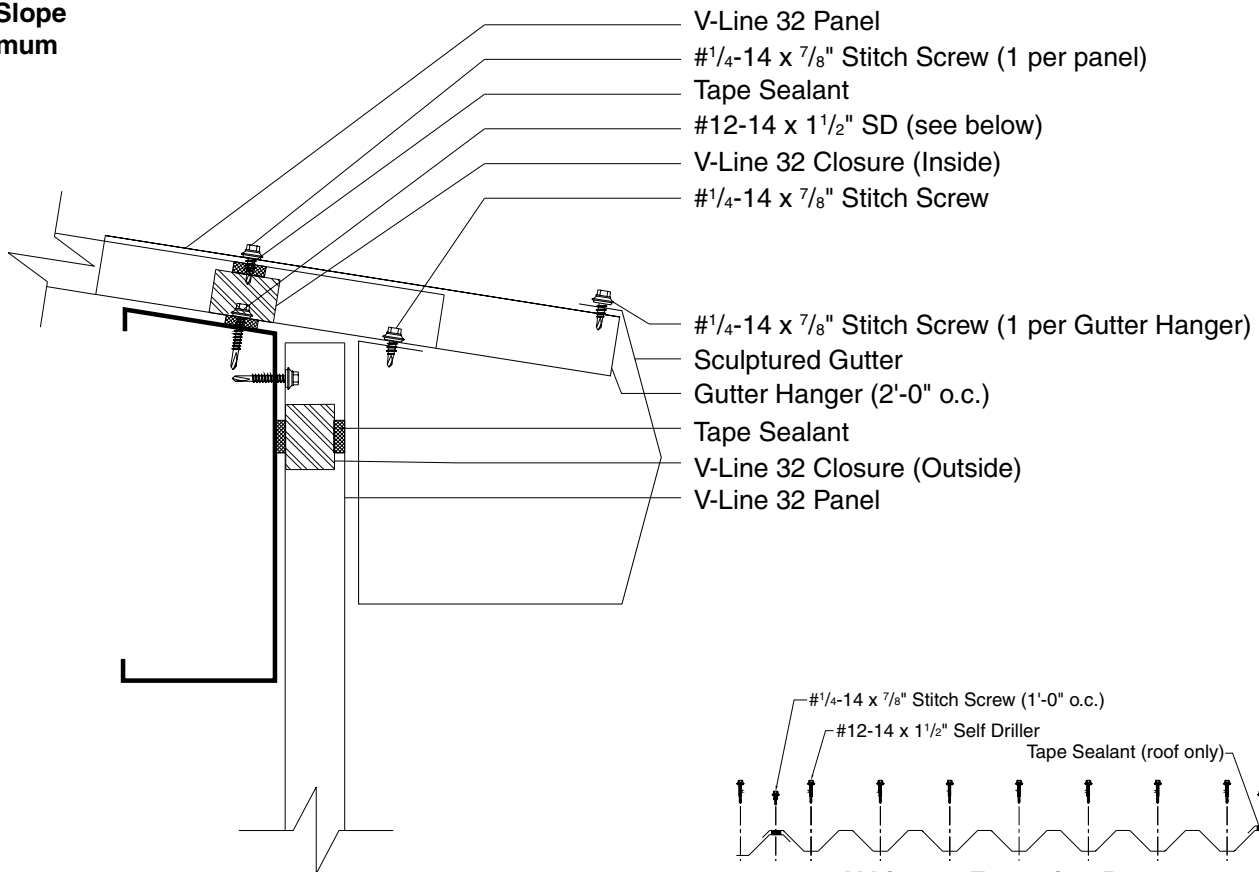


**V-Line 32 Fastening Pattern**

# V-LINE 32

## SCULPTURED GUTTER DETAIL

1:12 Slope  
Minimum

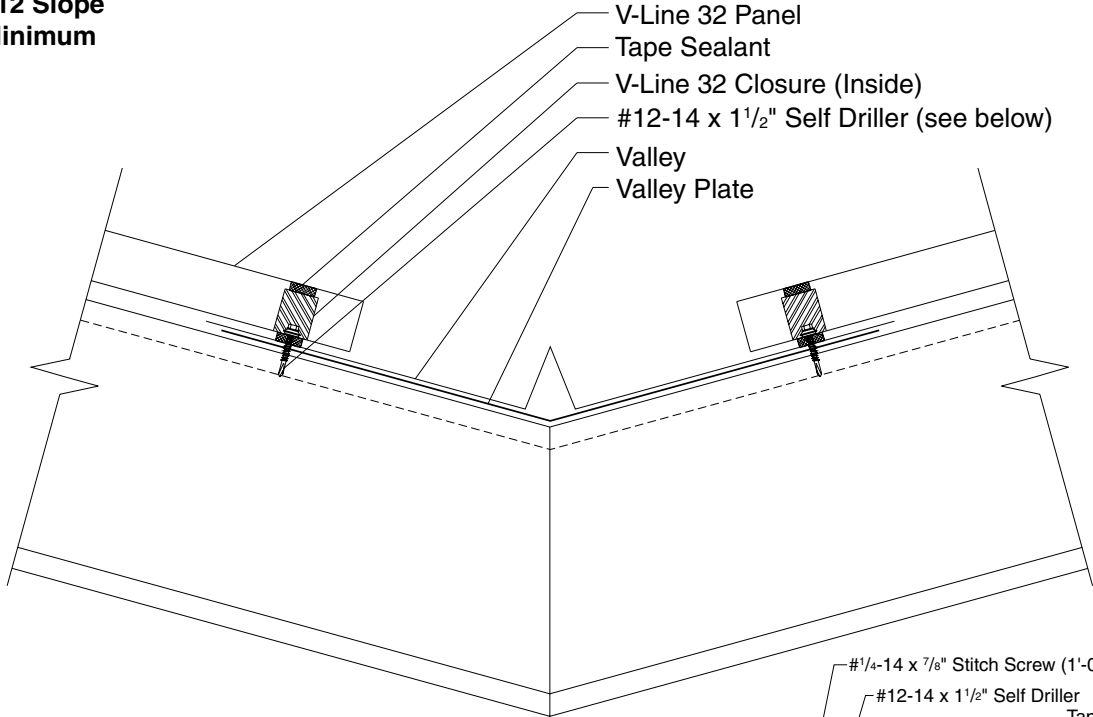


**V-Line 32 Fastening Pattern**

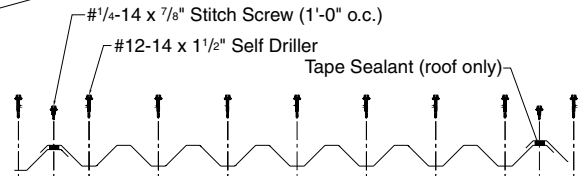
# V-LINE 32

# VALLEY DETAIL

1:12 Slope  
Minimum



- V-Line 32 Panel
- Tape Sealant
- V-Line 32 Closure (Inside)
- #12-14 x 1 1/2" Self Driller (see below)
- Valley
- Valley Plate

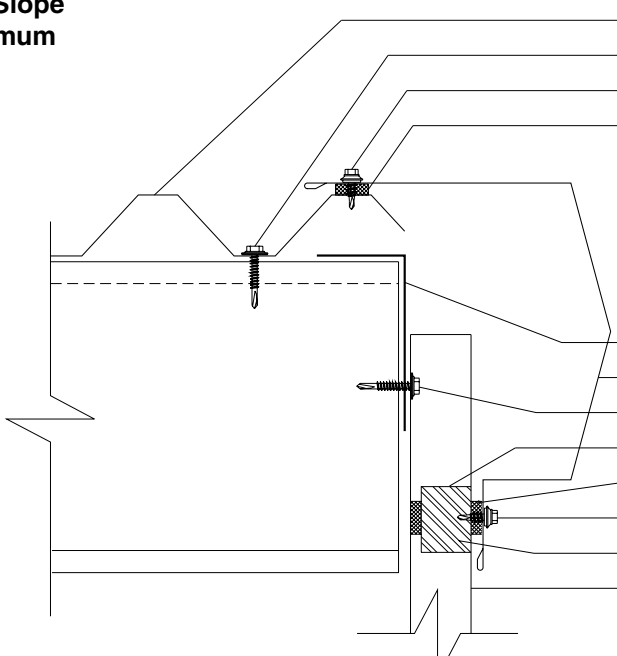


**V-Line 32 Fastening Pattern**

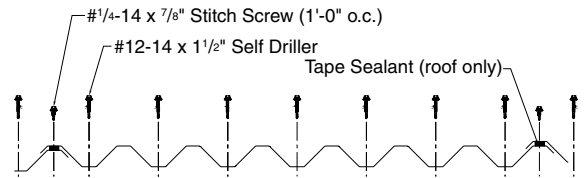
# V-LINE 32

# SCULPTURED RAKE DETAIL

1:12 Slope  
Minimum



- V-Line 32 Panel
- #12-14 x 1 1/2" SD (1'-0" o.c.)
- #1/4-14 x 7/8" Stitch Screw (1'-0" o.c.)
- Tape Sealant
- Rake Angle
- V-Line 32 Sculptured Rake
- #12-14 x 1 1/2" SD (see below)
- V-Line 32 Closure (Outside)
- Tape Sealant
- #1/4-14 x 7/8" Stitch Screw (1'-0" o.c.)
- V-Line 32 Closure (Outside)
- V-Line 32 Panel

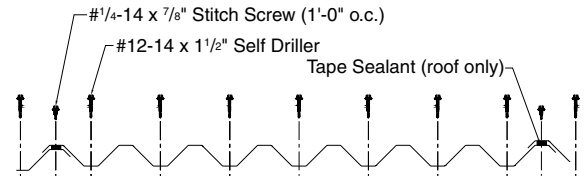
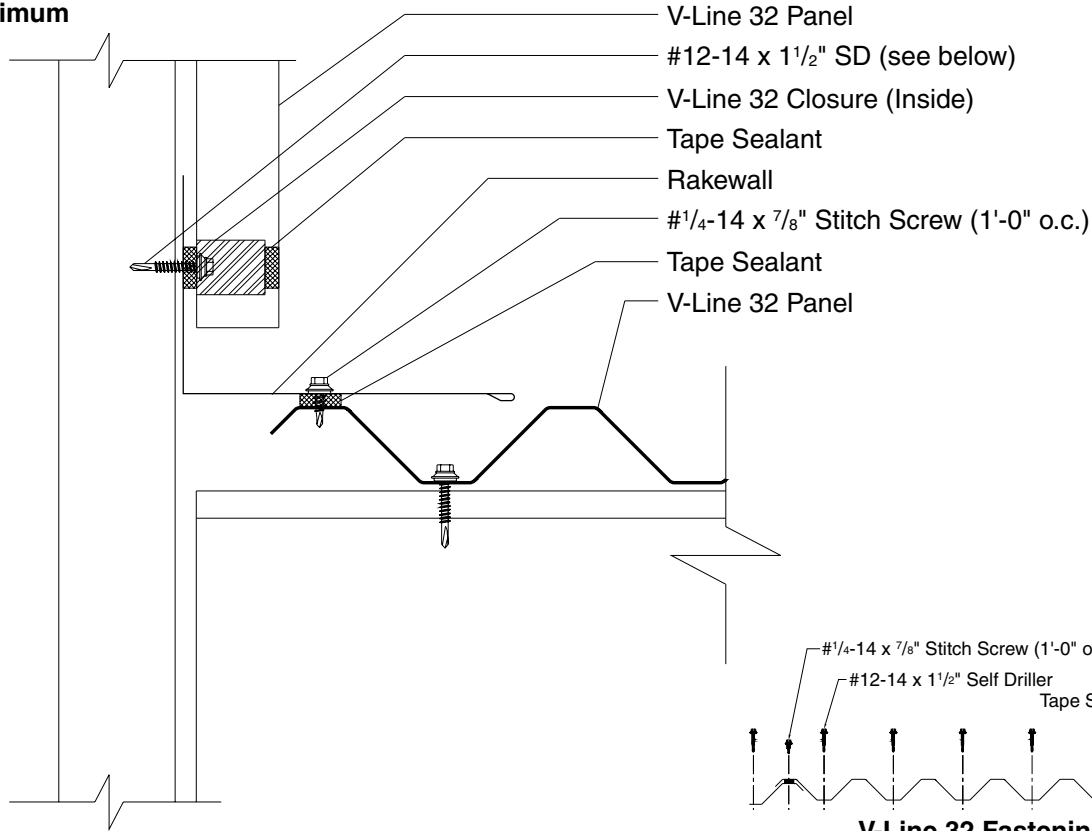


**V-Line 32 Fastening Pattern**

# V-LINE 32

## RAKEWALL DETAIL

1:12 Slope  
Minimum

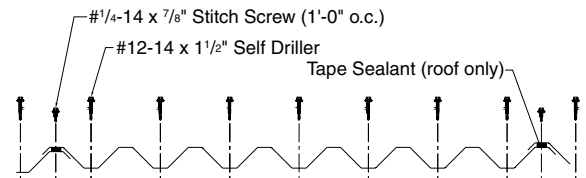
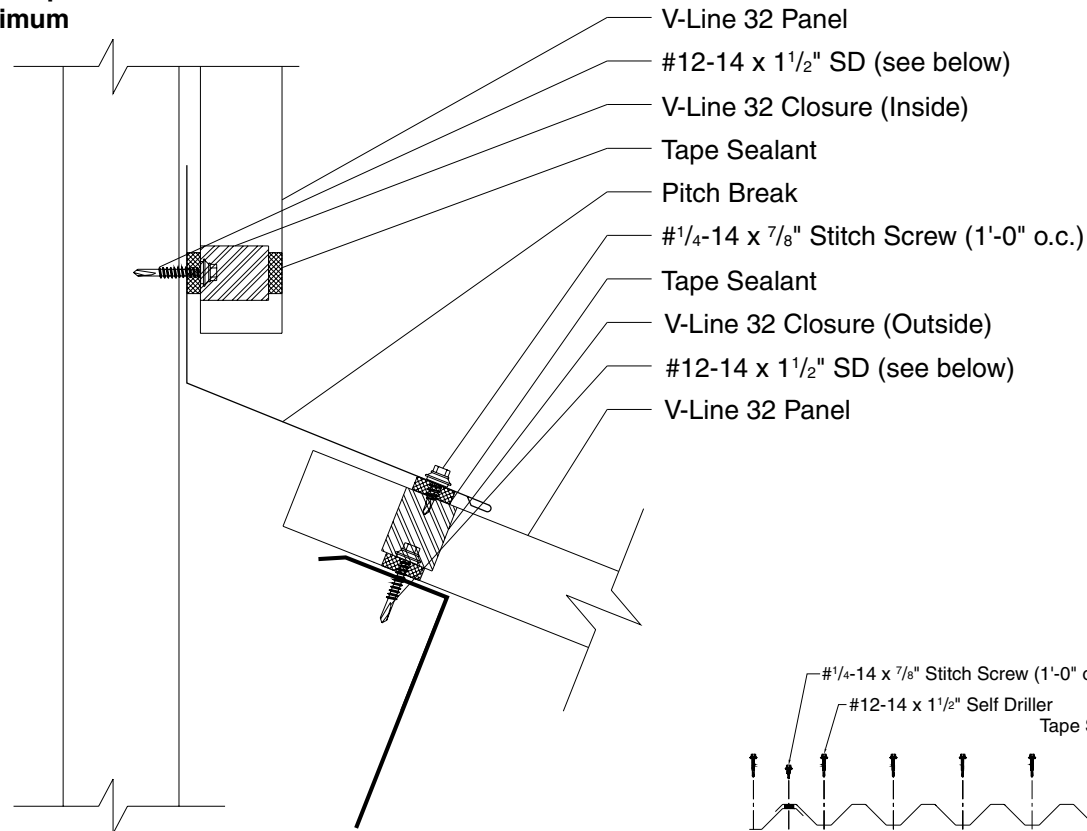


**V-Line 32 Fastening Pattern**

# V-LINE 32

## ENDWALL DETAIL

1:12 Slope  
Minimum

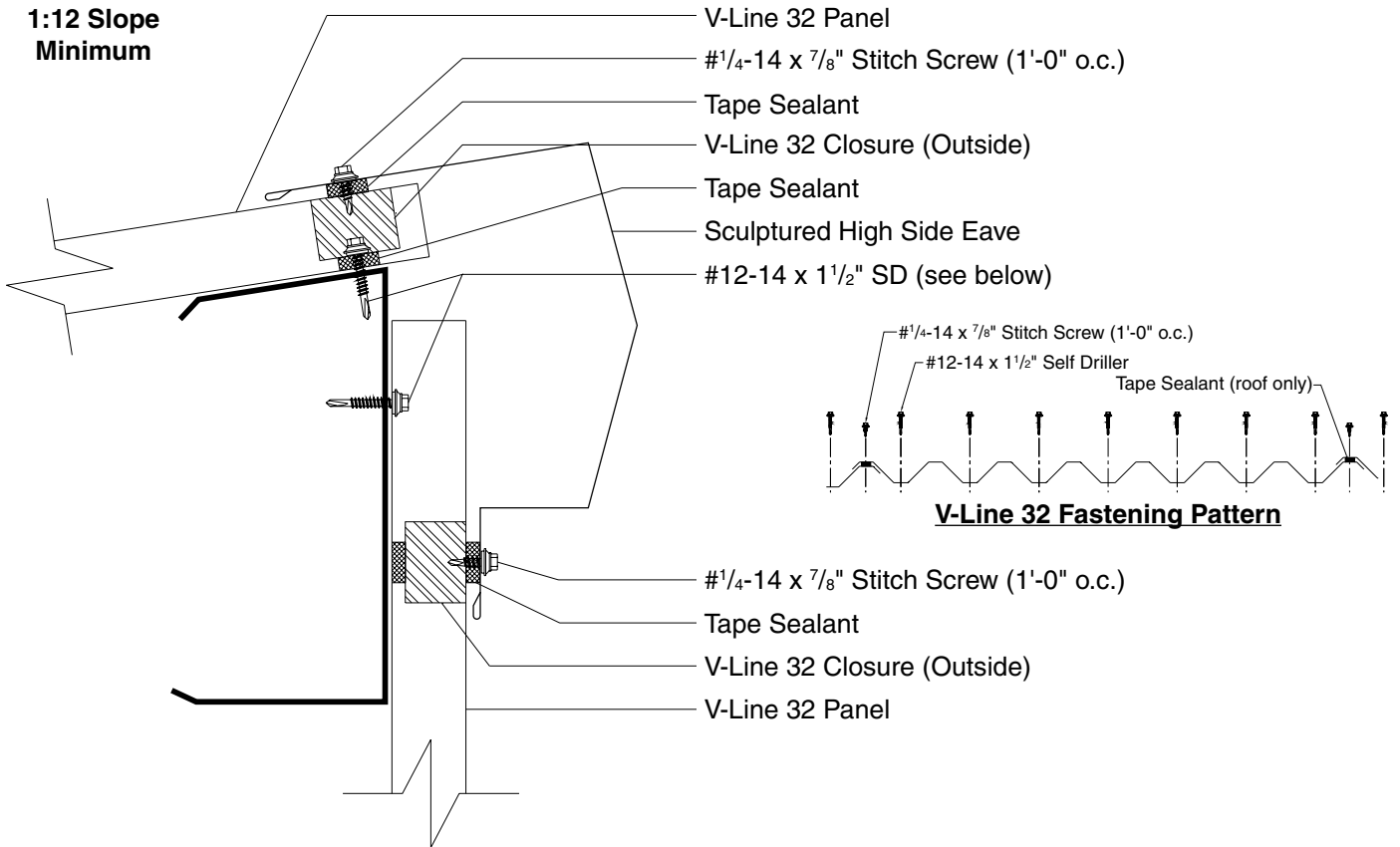


**V-Line 32 Fastening Pattern**

# V-LINE 32

## SCULPTURED HIGH SIDE EAVE DETAIL

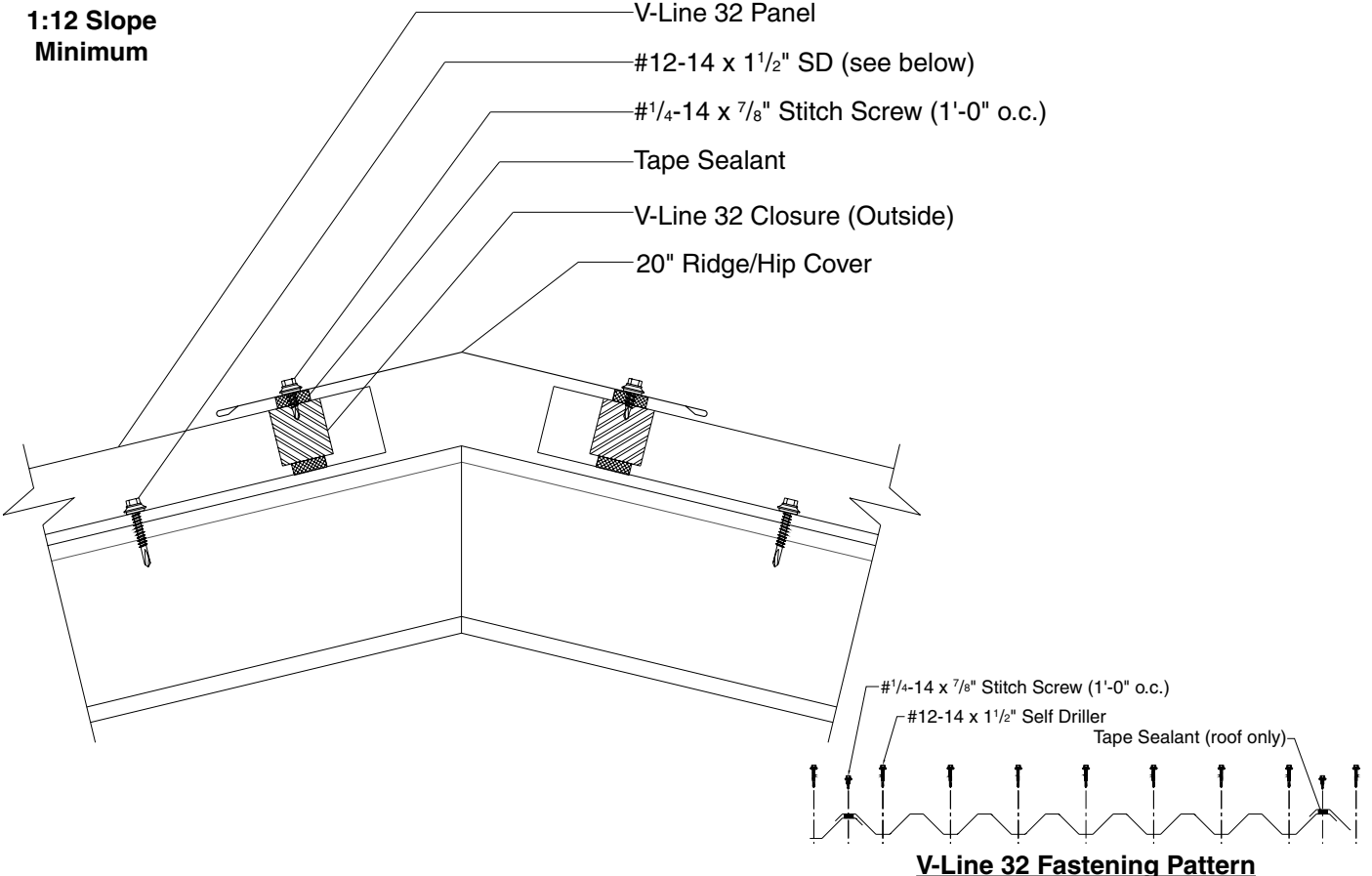
1:12 Slope  
Minimum



# V-LINE 32

## RIDGE/HIP DETAIL

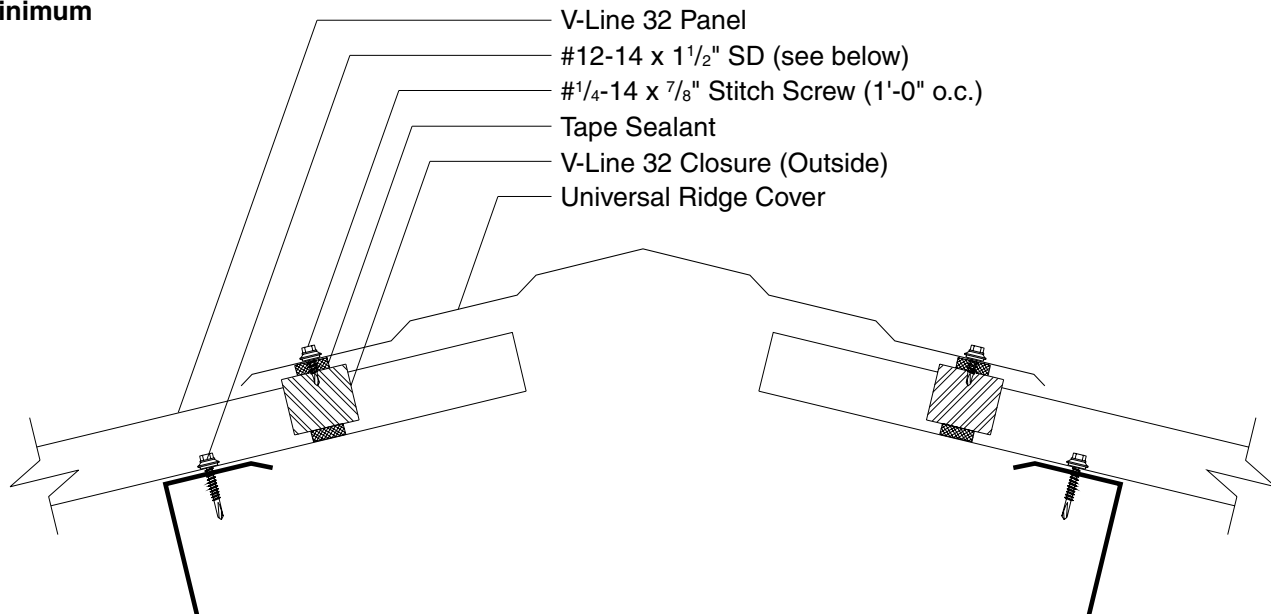
1:12 Slope  
Minimum



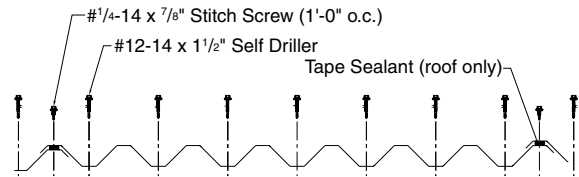
# V-LINE 32

## UNIVERSAL RIDGE DETAIL

1:12 Slope  
Minimum



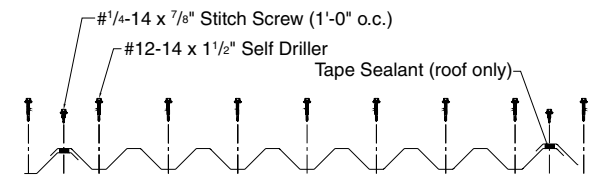
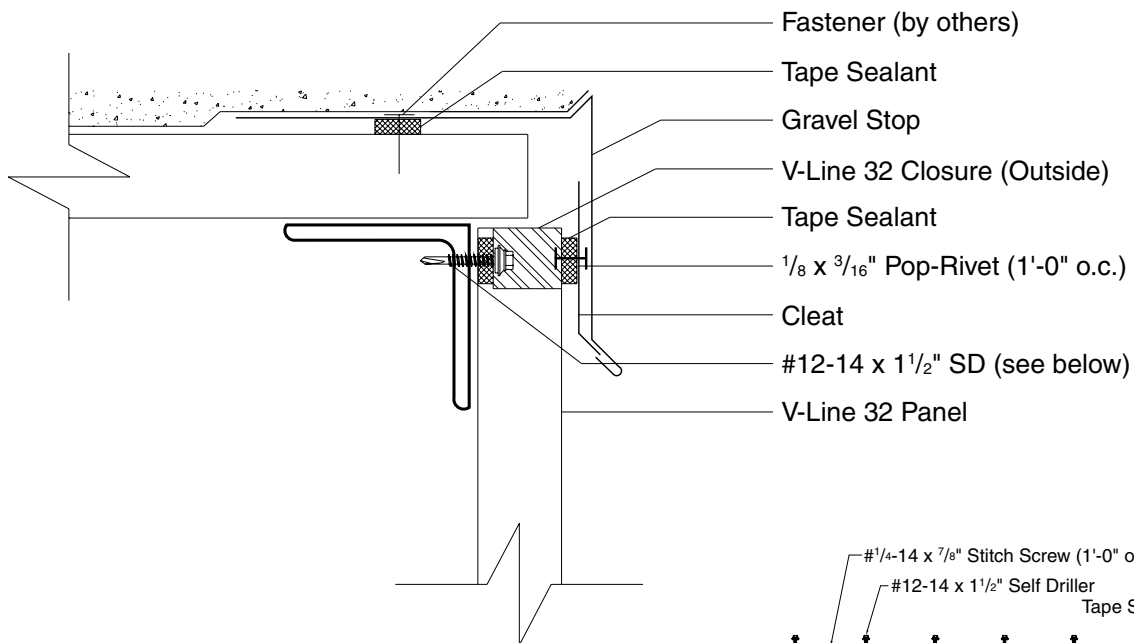
- V-Line 32 Panel
- #12-14 x 1 1/2" SD (see below)
- #1/4-14 x 7/8" Stitch Screw (1'-0" o.c.)
- Tape Sealant
- V-Line 32 Closure (Outside)
- Universal Ridge Cover



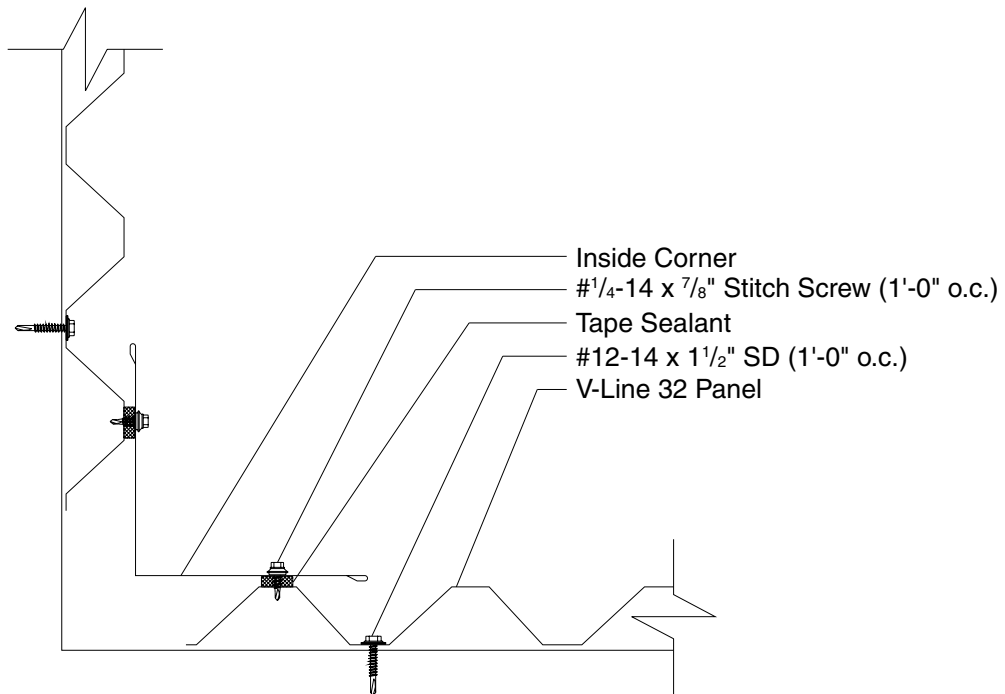
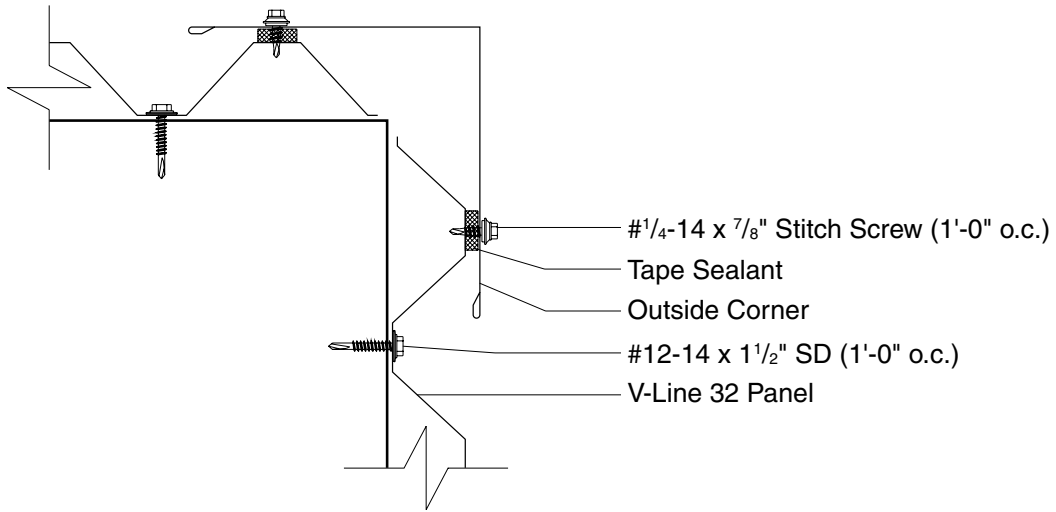
**V-Line 32 Fastening Pattern**

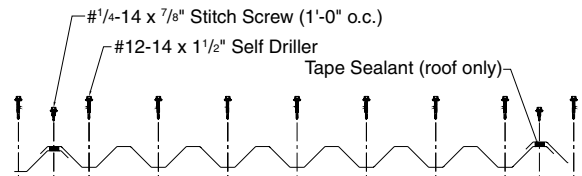
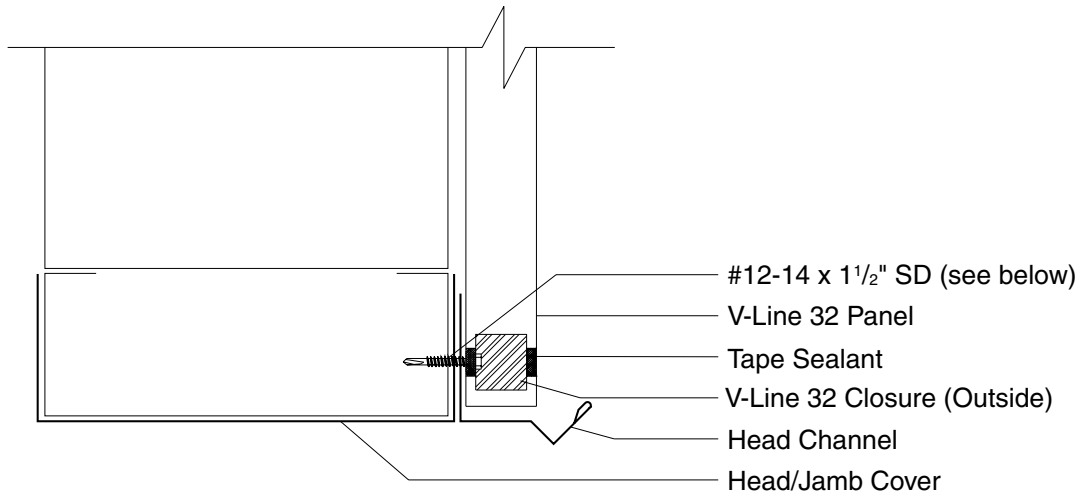
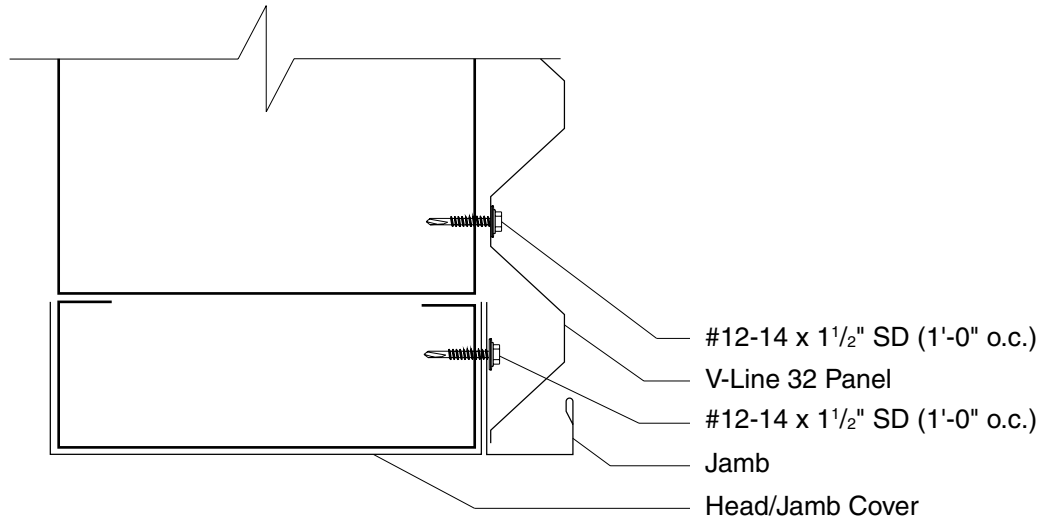
# V-LINE 32

## GRAVEL STOP DETAIL



**V-Line 32 Fastening Pattern**





V-Line 32 Fastening Pattern



