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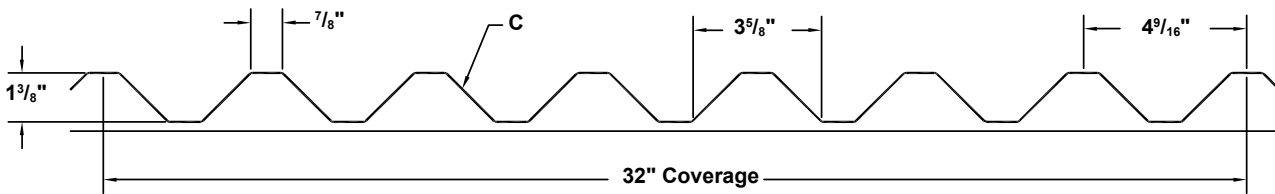
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PANEL PROFILE



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 PGI-3 for locations).

AVAILABILITY

26, 24 and 22 Gauge (minimum quantities may apply)

APPLICATION

Commercial and Industrial Panel

PERFORMANCE TEST

UL 580, UL 2218, UL 790 and UL 263

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 through PGI-14).

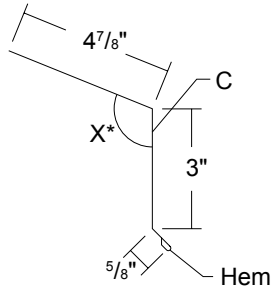
MATERIALS

26 gauge steel: Grade 80 per ASTM A 792
 24 and 22 gauge steel: Grade 50 per ASTM A 792

FINISH

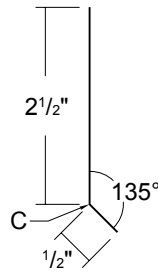
- ▶ *Acrylic Coated Galvalume® (ACG), AZ55 per ASTM A 792
 - ▶ Prepainted Galvalume®, AZ50 per ASTM A 792
 - ▶ MS Colorfast45®
 - ▶ **PVDF
- * Differential appearance of Acrylic Coated Galvalume® roofing materials is not a cause for rejection.
 ** Meets both Kynar 500® and Hylar 5000® specifications.

EAVE (DIRECT FASTEN)



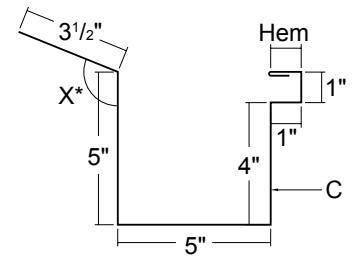
Length 10'-2" - *Specify Slope Angle

CLEAT



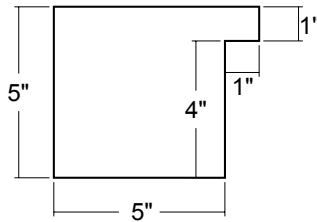
Length 10'-2"

BOX GUTTER

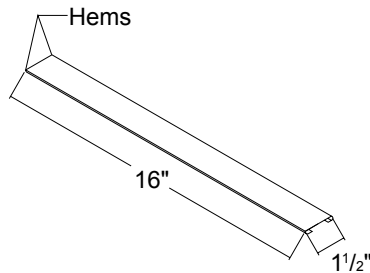


Lengths 10'-2" and 20'-3"
*Specify Slope Angle

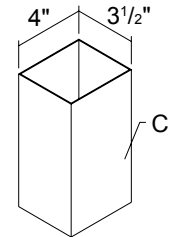
BOX GUTTER END



**UNIVERSAL GUTTER/
DOWNSPOUT STRAP**

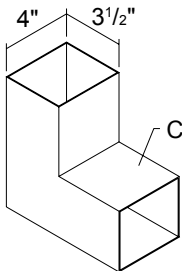


DOWNSPOUT 4" x 3 1/2"



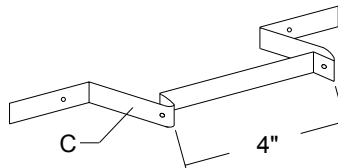
Lengths 10'-2" and 20'-3"
(6" x 4" is also available)

95° ELBOW 4" x 3 1/2"



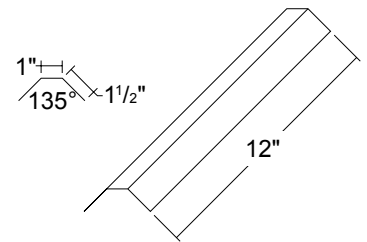
(6" x 4" is also available)

DOWNSPOUT BRACKET

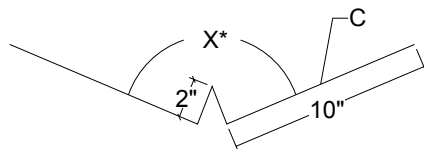


(6" is also available)

GUTTER HANGER



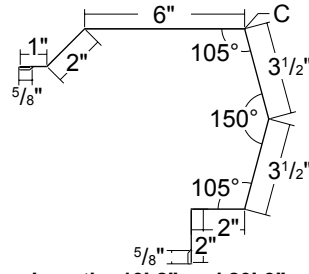
VALLEY



Lengths 10'-2" and 20'-3"
*Specify Slope Angle

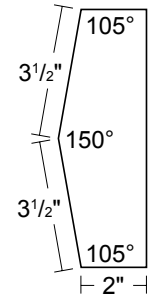
V-LINE 32

SCULPTURED RAKE

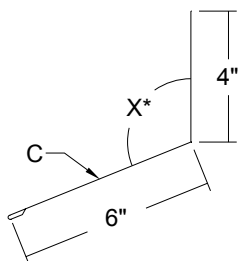


Lengths 10'-2" and 20'-3"

SCULPTURED RAKE END

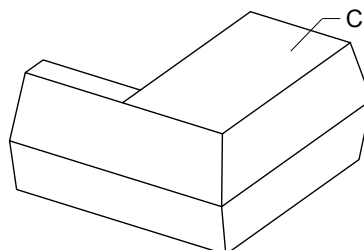


PITCH BREAK



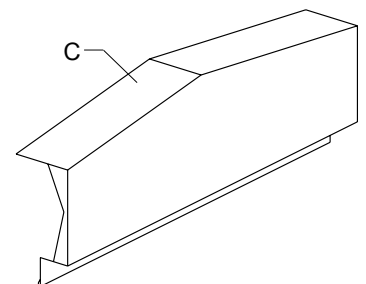
Length 10'-2" - *Specify Slope Angle

**SCULPTURED
CORNER BOX**

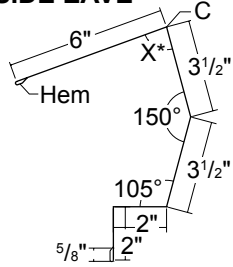


Left and Right are available

SCULPTURED PEAK BOX

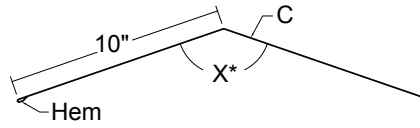


**SCULPTURED
HIGH SIDE EAVE**



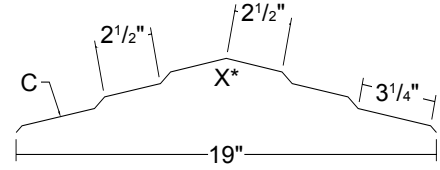
Lengths 10'-2" and 20'-3"
*Specify Slope Angle

20" RIDGE/HIP COVER



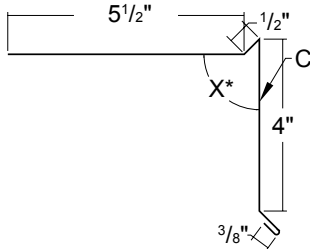
Lengths 10'-2" and 20'-3"
*Specify Slope Angle

UNIVERSAL RIDGE



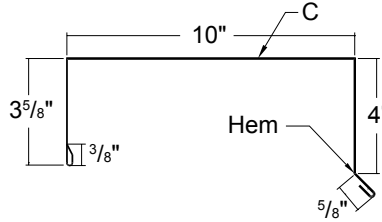
Length 10'-2" - *Specify Slope Angle

GRAVEL STOP



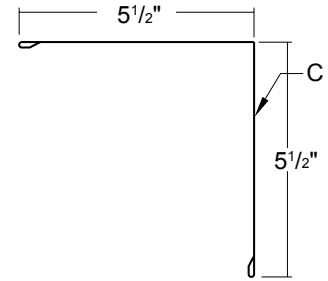
Lengths 10'-2" and 20'-3"
*Specify Slope Angle

COPING



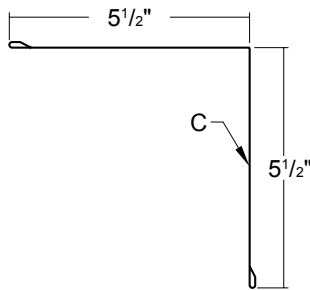
Lengths 10'-2" and 20'-3"

OUTSIDE CORNER



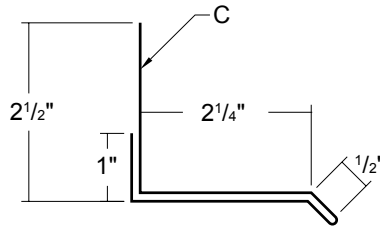
Lengths 10'-2" and 20'-3"

INSIDE CORNER



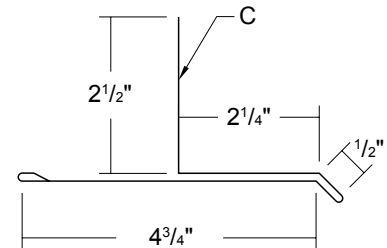
Lengths 10'-2" and 20'-3"

2.25" SILL/HEAD



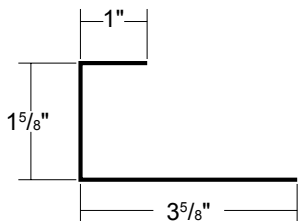
Length 10'-2"

2.25" SILL TO SOFFIT



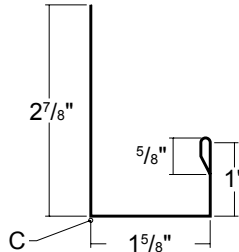
Length 10'-2"

V-LINE 32 C-CLOSURE



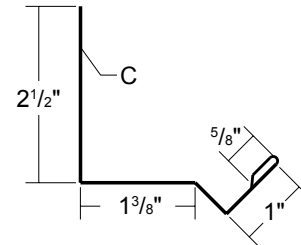
Length 10'-2"

V-LINE 32 JAMB



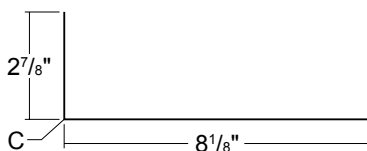
Length 10'-2"

HEAD CHANNEL



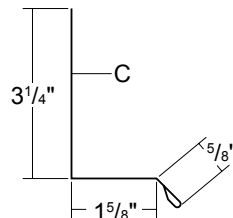
Length 10'-2"

HEAD/JAMB COVER



Lengths 10'-2" and 14'-2"

BASE

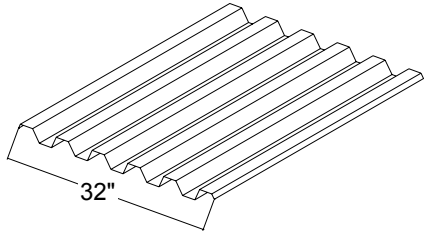


Length 10'-2"

C- Indicates color side of flashing.

LIGHT TRANSMITTING

V-LINE 32 PANELS



8 Ounce White Fiberglass
12'-0" Length

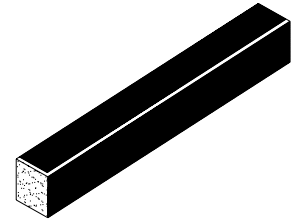
V-LINE 32 CLOSURE



Inside / Outside Closure

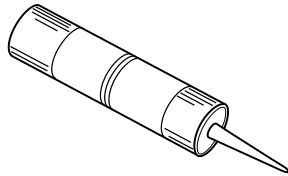
Polyethylene Foam

UNIVERSAL CLOSURE



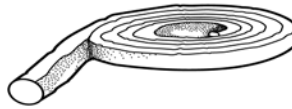
1" x 1 1/2" X 50' Polyethylene Foam
1" x 1 1/2" X 10' Polyethylene Foam

TUBE SEALANT



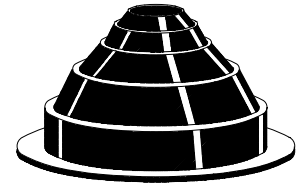
10.3 oz. Cartridge
Urethane

TAPE SEALANT



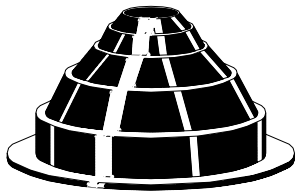
3/8" X 3/32" X 50'
Single Bead Tape Sealant
Butyl - Gray

RUBBER ROOF JACK



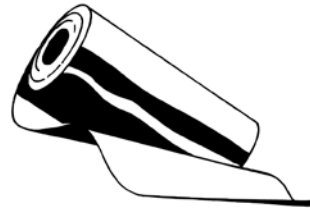
Mini (1/4" to 1 1/8" O.D. Pipe)
#2 (1 3/4" to 3" O.D. Pipe)
#4 (3" to 6" O.D. Pipe)
#6 (6" to 9" O.D. Pipe)
#8 (7" to 13" O.D. Pipe)

RETRO ROOF JACK



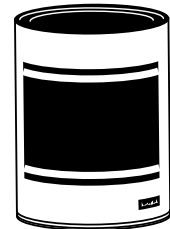
#801_{RETRO} (3/4" to 2 3/4" O.D. Pipe)
#802_{RETRO} (2" to 7 1/4" O.D. Pipe)
#803_{RETRO} (3 1/4" to 10" O.D. Pipe)

**RUBBER ROOF
FLASH KIT**



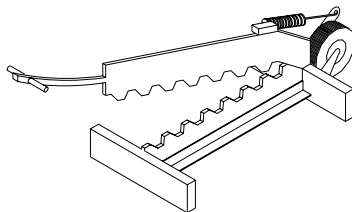
12" x 50'-0" Flash Kit
18" x 50'-0" Flash Kit

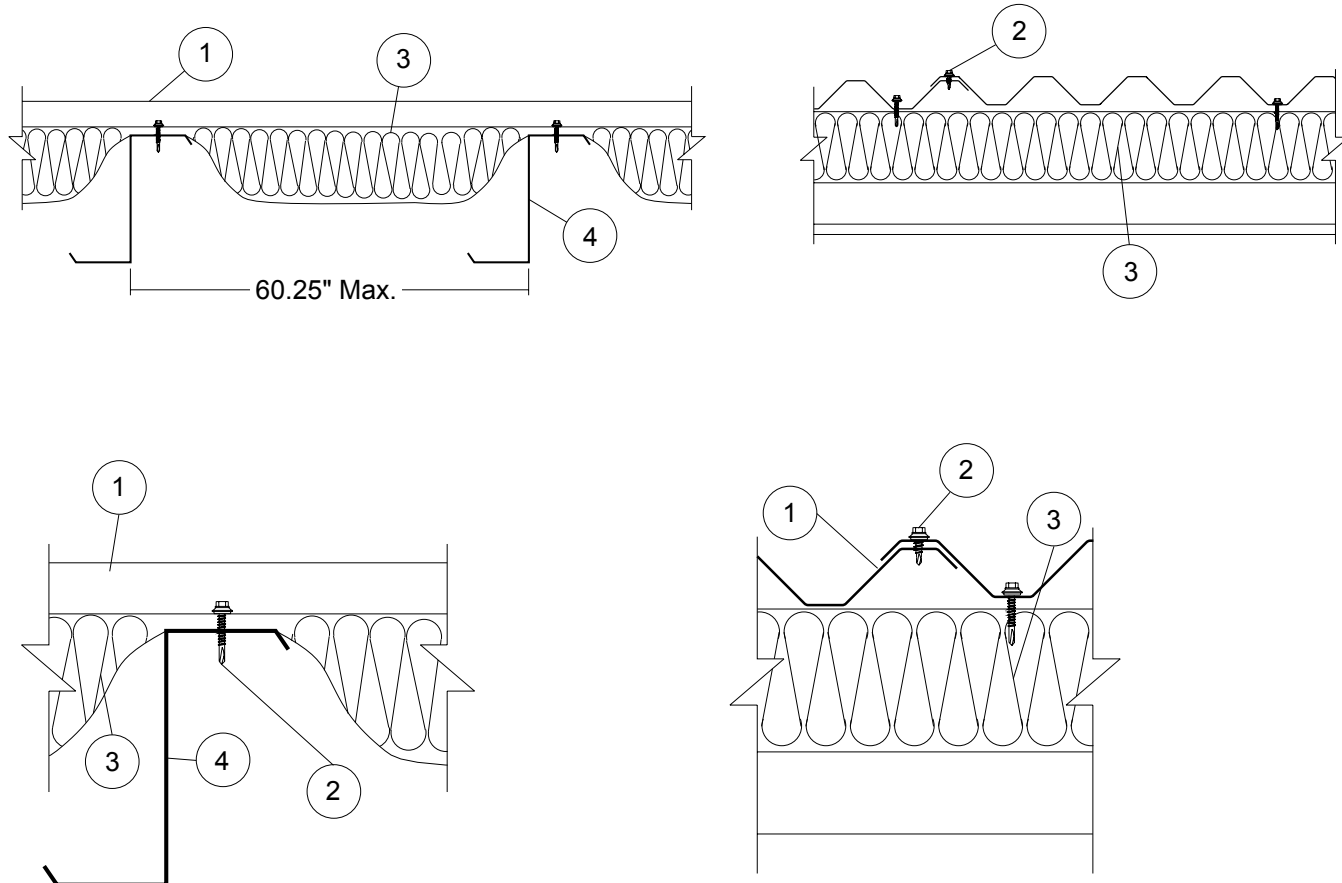
TOUCH-UP PAINT



Available in 2 oz Bottles
PVDF / MS Colorfast45®

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.

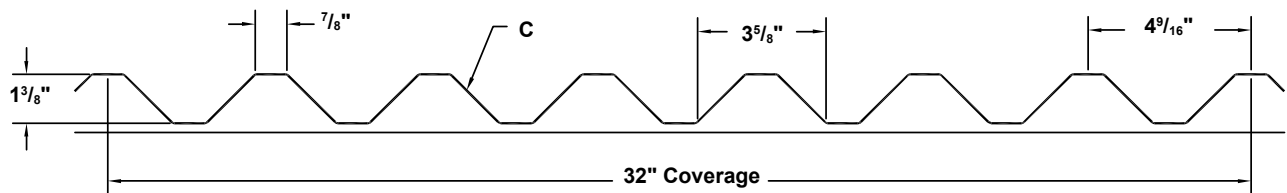
Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

*Bearing the UL Classification Marking



Underwriters Laboratories Inc. ®

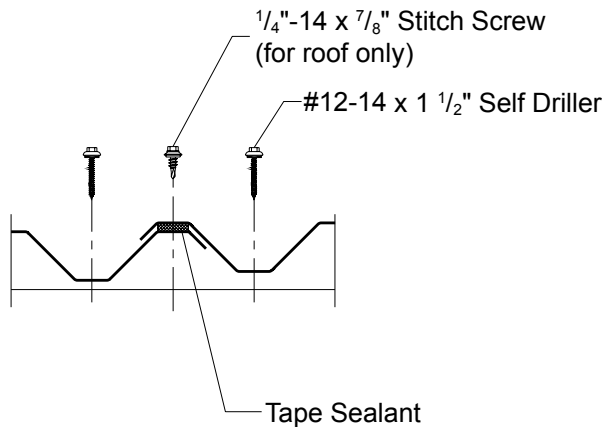
LISTED



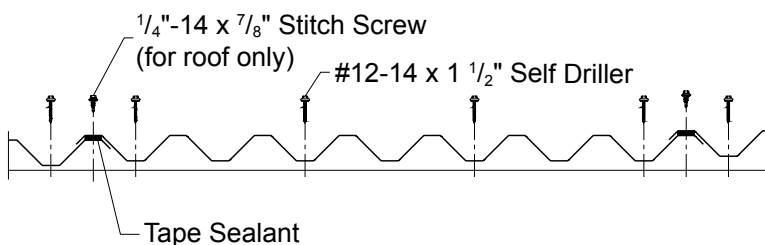
| SECTION PROPERTIES | | | | | | | | ALLOWABLE UNIFORM LOADS psf (3 or More Equal Spans) | | | | | | | | | | | |
|--------------------|----------|-----------|------------|-------------------------|-------------------------|-------------------------|-------------------------|--|-----|----|----|----|--------------|-----|-----|----|----|----|----|
| Ga | Width in | Yield ksi | Weight psf | Top in Compression | | Bottom in Compression | | Inward Load | | | | | Outward Load | | | | | | |
| | | | | Ixx in ⁴ /ft | Sxx in ³ /ft | Ixx in ⁴ /ft | Sxx in ³ /ft | 4' | 5' | 6' | 7' | 8' | 9' | 4' | 5' | 6' | 7' | 8' | 9' |
| 26 | 32 | 80 | 0.92 | 0.0624 | 0.0874 | 0.0637 | 0.0849 | 137 | 90 | 54 | 34 | 23 | 16 | 141 | 93 | 54 | 34 | 23 | 16 |
| 24 | 32 | 50 | 1.19 | 0.0877 | 0.1245 | 0.0894 | 0.1222 | 174 | 112 | 71 | 45 | 30 | 21 | 177 | 115 | 71 | 45 | 30 | 21 |
| 22 | 32 | 50 | 1.57 | 0.1175 | 0.1638 | 0.1200 | 0.1653 | 238 | 153 | 93 | 59 | 39 | 28 | 236 | 152 | 93 | 59 | 39 | 28 |

- Theoretical section properties have been calculated per AISI 2012 "Specifications for the Design of Cold-formed Steel Structural Members." Ixx and Sxx are effective section properties for deflection and bending.
- Allowable load is calculated in accordance with AISI 2012 specifications considering bending, shear, combined bending and shear and deflection. Allowable load considers the 3 or more equal span condition. Allowable load does not address web crippling, fasteners/support connection or load testing. Panel weight is not considered.
- Deflection consideration is limited by a maximum deflection ratio of L/180 of span.
- Allowable loads do not include a 1/3 stress increase in uplift.

ATTACHMENT DETAIL



FASTENING PATTERN




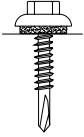
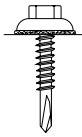
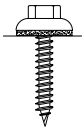
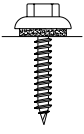
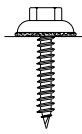
GENERAL INFORMATION

- Slope**
 The minimum recommended slope for V-Line 32 roofing panel is 1:12. Metal Sales recommends that in all roof applications sealants be used on all sidelaps with a stitch screw 1'-0" on center
- Substructure**
 V-Line 32 is designed to be utilized over open structural framing or a solid substrate. To avoid panel distortion use a properly aligned and uniform substructure.
- Coverage**
 V-Line 32 is available in 1-3/8" rib height with a coverage width of 32".
- Length**
 Minimum factory cut length is 5'-0". Maximum recommended panel length is 45'-0". Longer panels require additional consideration in packaging, shipping, and erection. Please consult Metal Sales for recommendations.
- Fasteners**
 The fastener selection guide should be consulted for choosing the proper fastener for specific applications. Quantity and type of fastener must meet necessary loading and code requirements.
NOTE: All panels are subject to surface distortion due to improperly applied fasteners. Overdriven fasteners will cause stress and induce oil canning across the face of the panel at or near the point of attachment.
- Availability**
 Finishes: Acrylic Coated Galvalume®, MS Colorfast45® and or PVDF (Kynar 500®)
 Gauges: 24 ga and 26 ga standard; 22 ga optional

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.

| | CORRECT Sealing material slightly visible at edge of metal washer. Assembly is watertight. | TOO LOOSE Sealing material is not visible; not enough compression to seal properly. | TOO TIGHT 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.

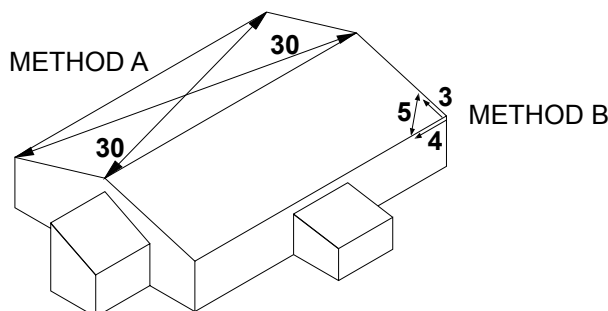
CONDITION OF SUBSTRUCTURE

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

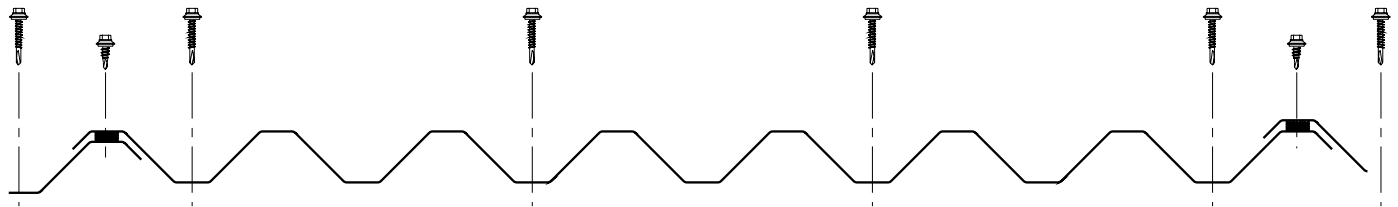
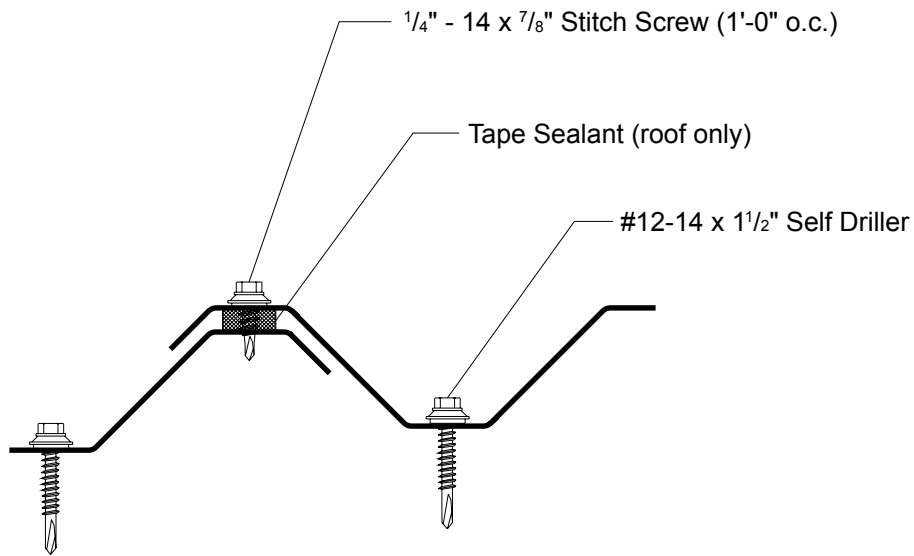
The installer should check the roof deck for squareness before installing V-Line 32 panels. Several methods can be used to verify squareness of the structure for proper installation of the panels.

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.

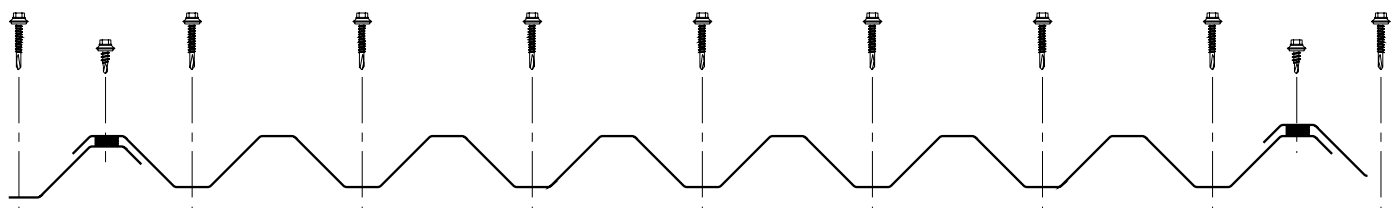
METHOD "B" - The 3-4-5 triangle system may also be used. To use this system measure a point from the corner along the edge of the roof at a module of three (3). Measure a point from the same corner along another edge at a module of four (4). Then by measuring diagonally between the two points established, 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

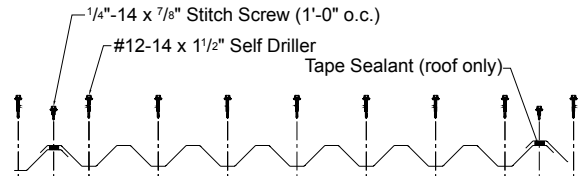
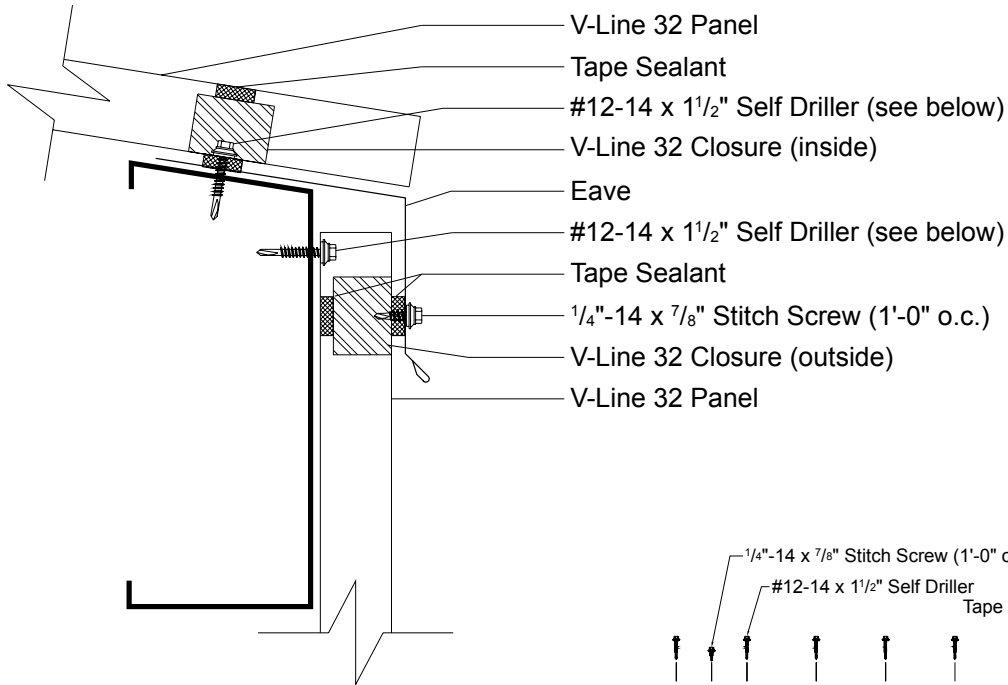


V-Line 32 Fastening Pattern - Ends

V-LINE 32

EAVE DETAIL

1:12 Minimum
Roof Slope

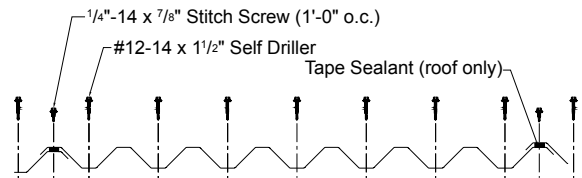
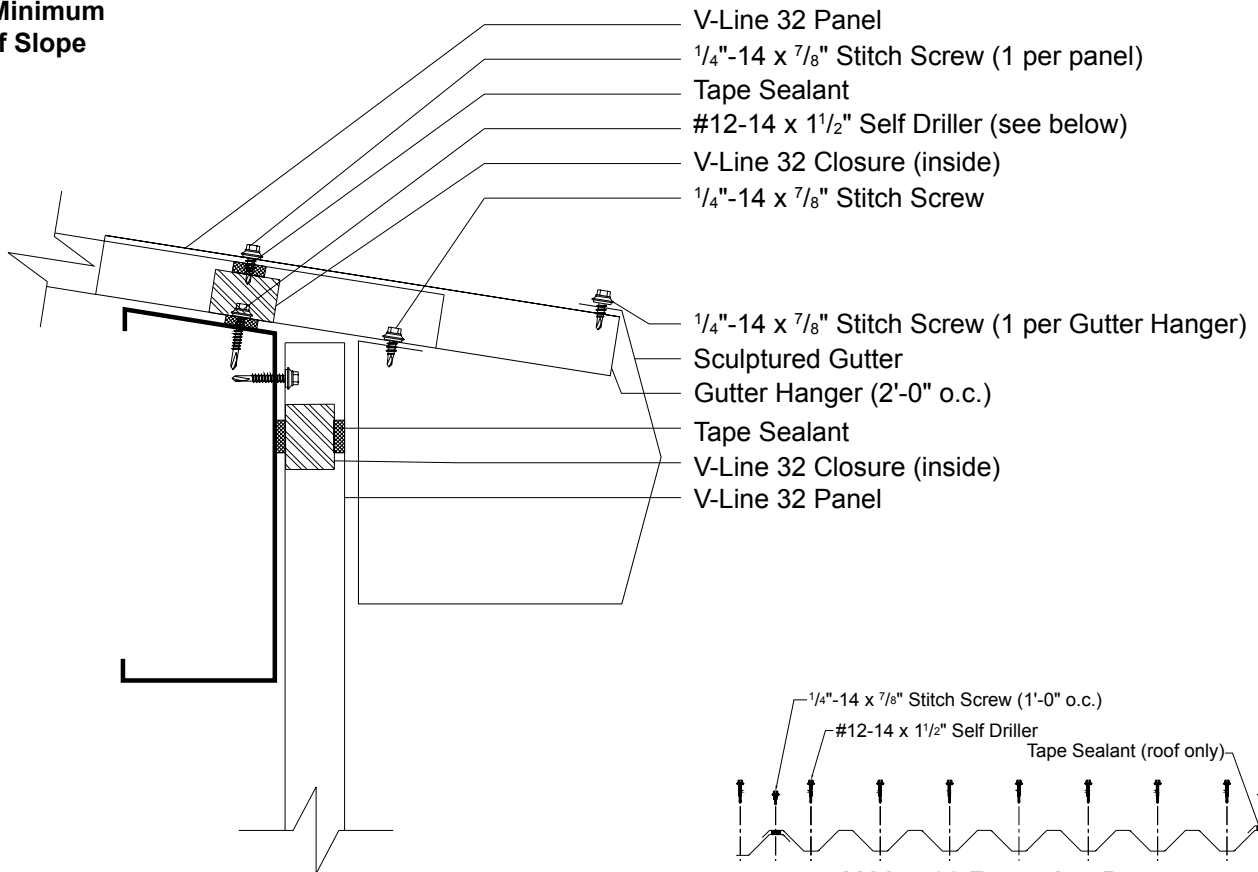


V-Line 32 Fastening Pattern

V-LINE 32

SCULPTURED GUTTER DETAIL

1:12 Minimum
Roof Slope

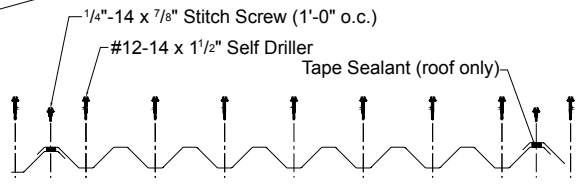
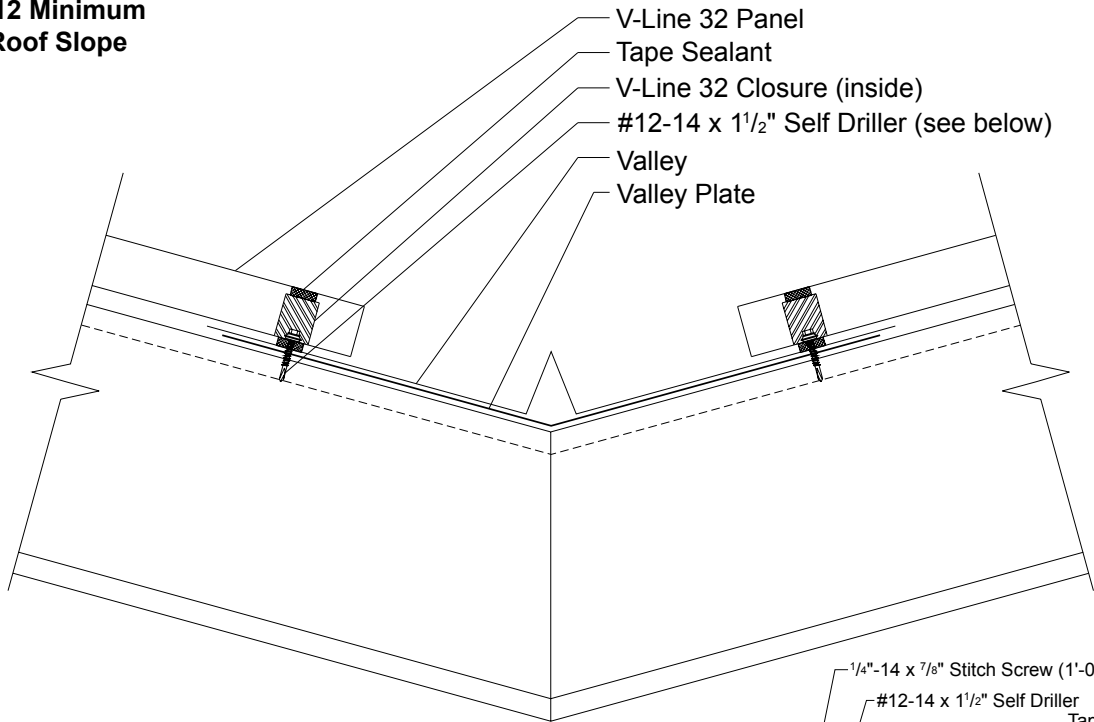


V-Line 32 Fastening Pattern

V-LINE 32

VALLEY DETAIL

1:12 Minimum
Roof Slope

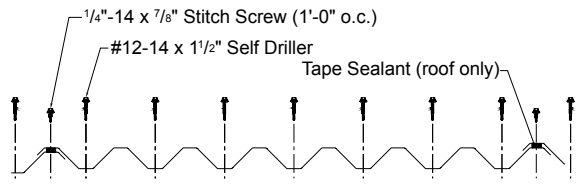
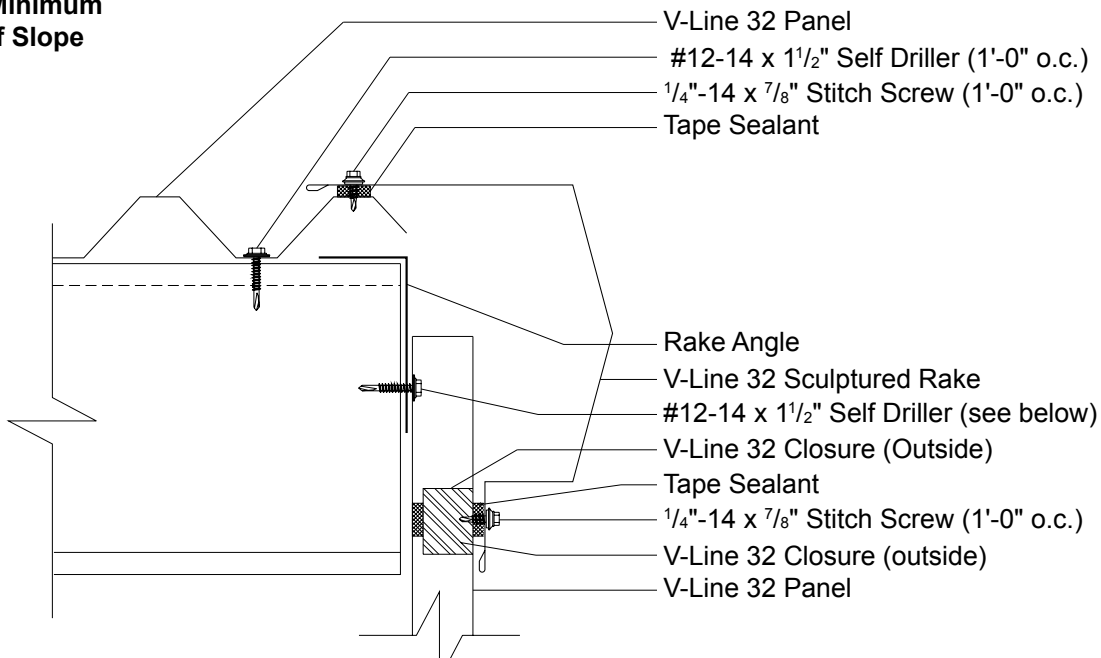


V-Line 32 Fastening Pattern

V-LINE 32

SCULPTURED RAKE DETAIL

1:12 Minimum
Roof Slope

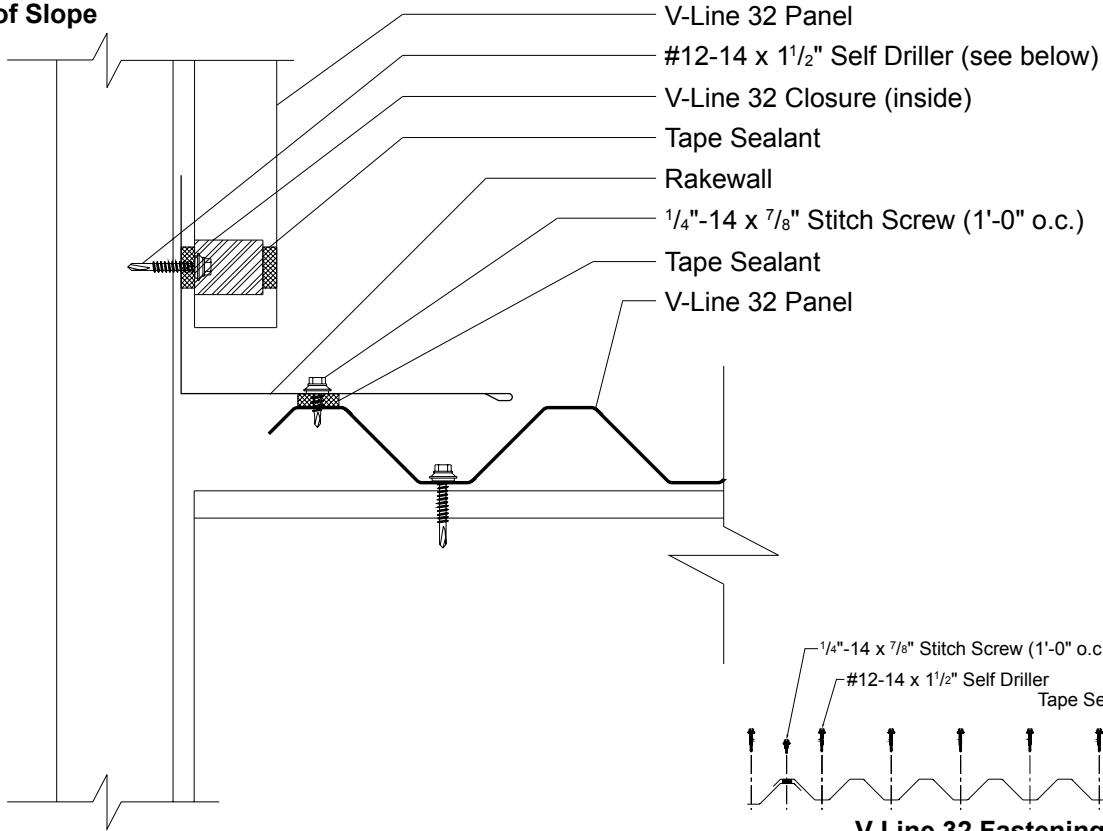


V-Line 32 Fastening Pattern

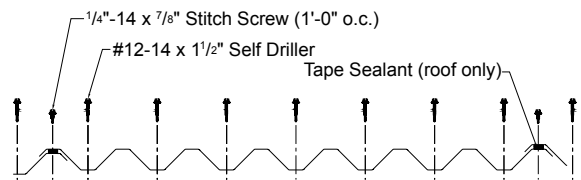
V-LINE 32

RAKEWALL DETAIL

1:12 Minimum
Roof Slope



- V-Line 32 Panel
- #12-14 x 1 1/2" Self Driller (see below)
- V-Line 32 Closure (inside)
- Tape Sealant
- Rakewall
- 1/4"-14 x 7/8" Stitch Screw (1'-0" o.c.)
- Tape Sealant
- V-Line 32 Panel

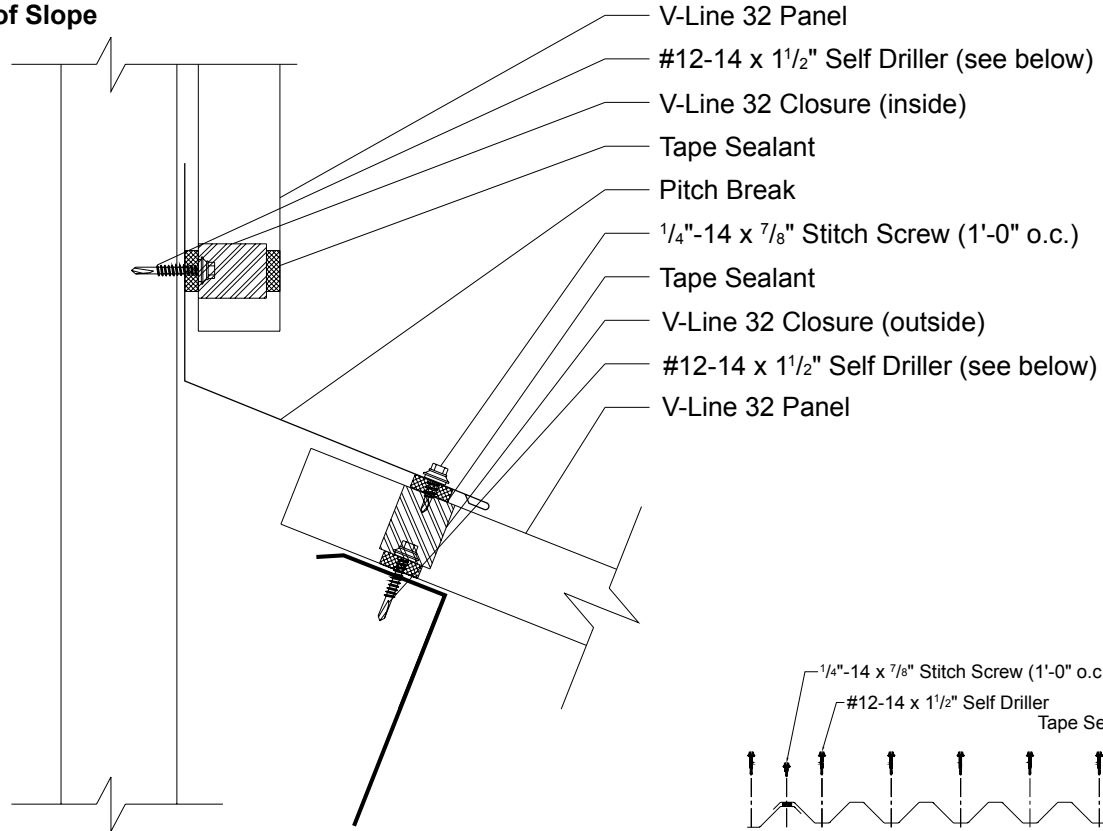


V-Line 32 Fastening Pattern

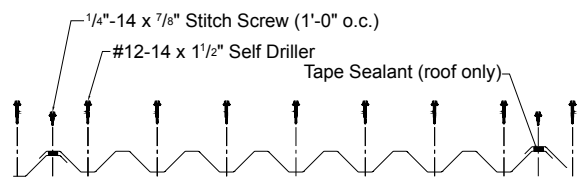
V-LINE 32

ENDWALL DETAIL

1:12 Minimum
Roof Slope



- V-Line 32 Panel
- #12-14 x 1 1/2" Self Driller (see below)
- V-Line 32 Closure (inside)
- Tape Sealant
- Pitch Break
- 1/4"-14 x 7/8" Stitch Screw (1'-0" o.c.)
- Tape Sealant
- V-Line 32 Closure (outside)
- #12-14 x 1 1/2" Self Driller (see below)
- V-Line 32 Panel

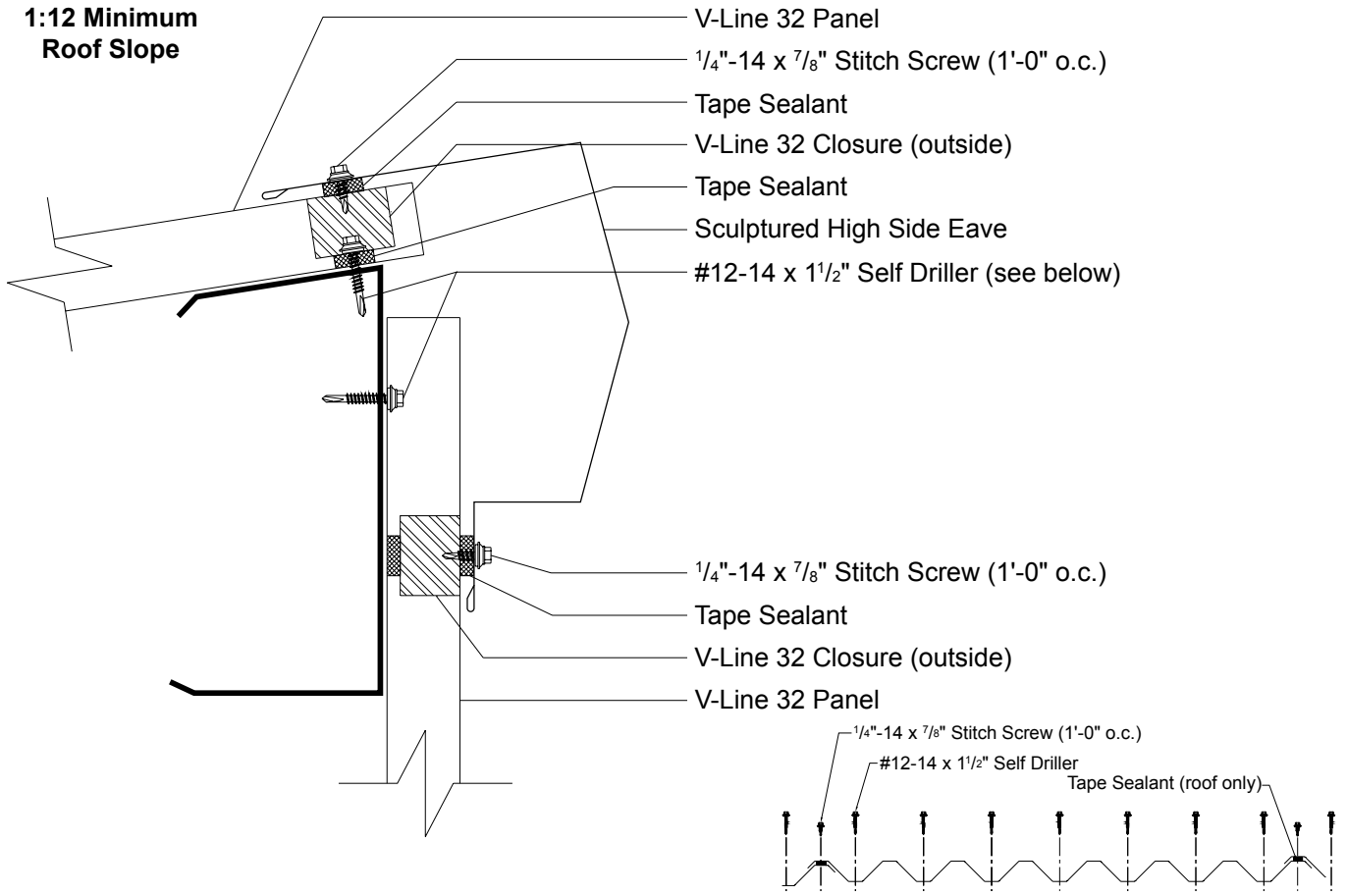


V-Line 32 Fastening Pattern

V-LINE 32

SCULPTURED HIGH SIDE EAVE DETAIL

1:12 Minimum
Roof Slope

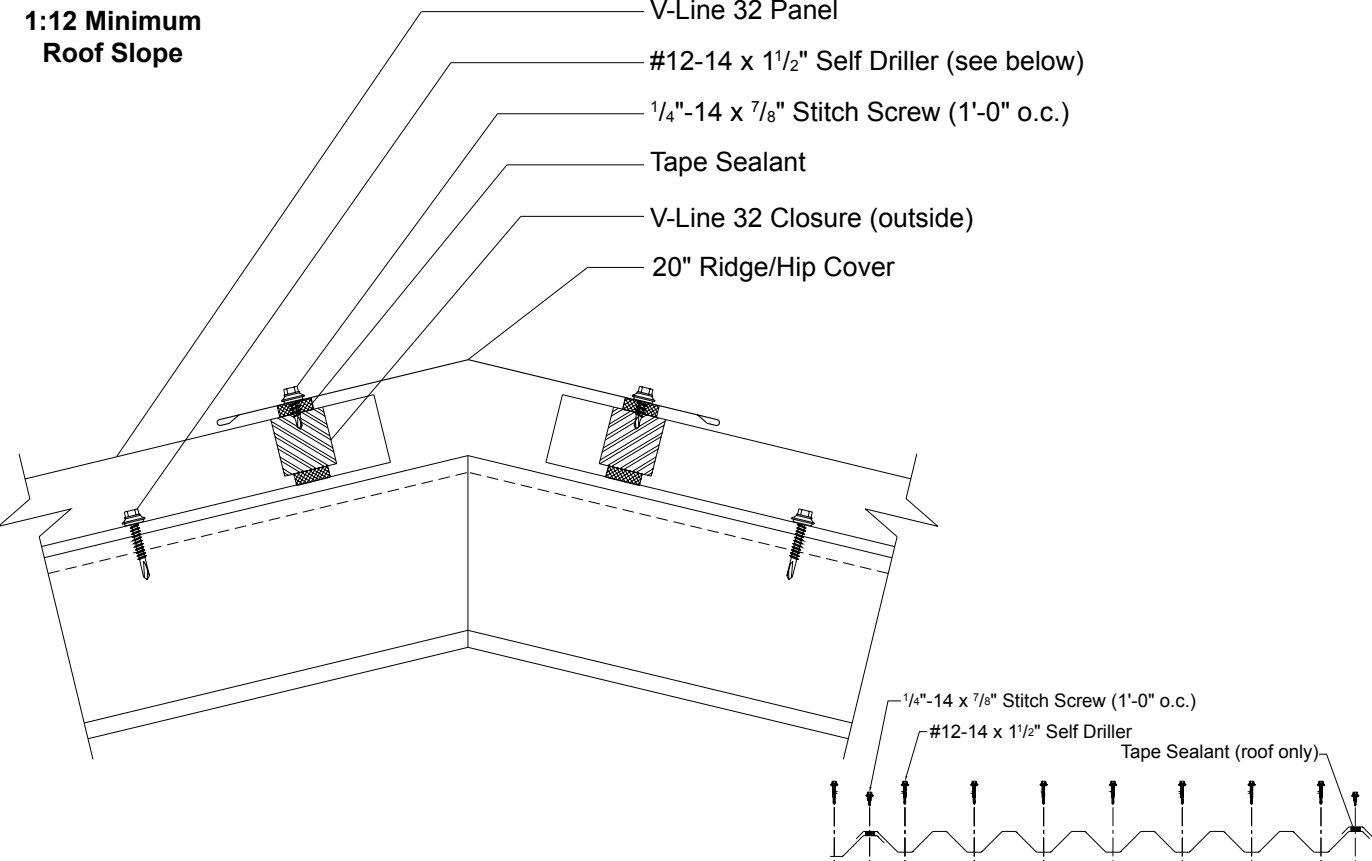


V-Line 32 Fastening Pattern

V-LINE 32

RIDGE/HIP DETAIL

1:12 Minimum
Roof Slope

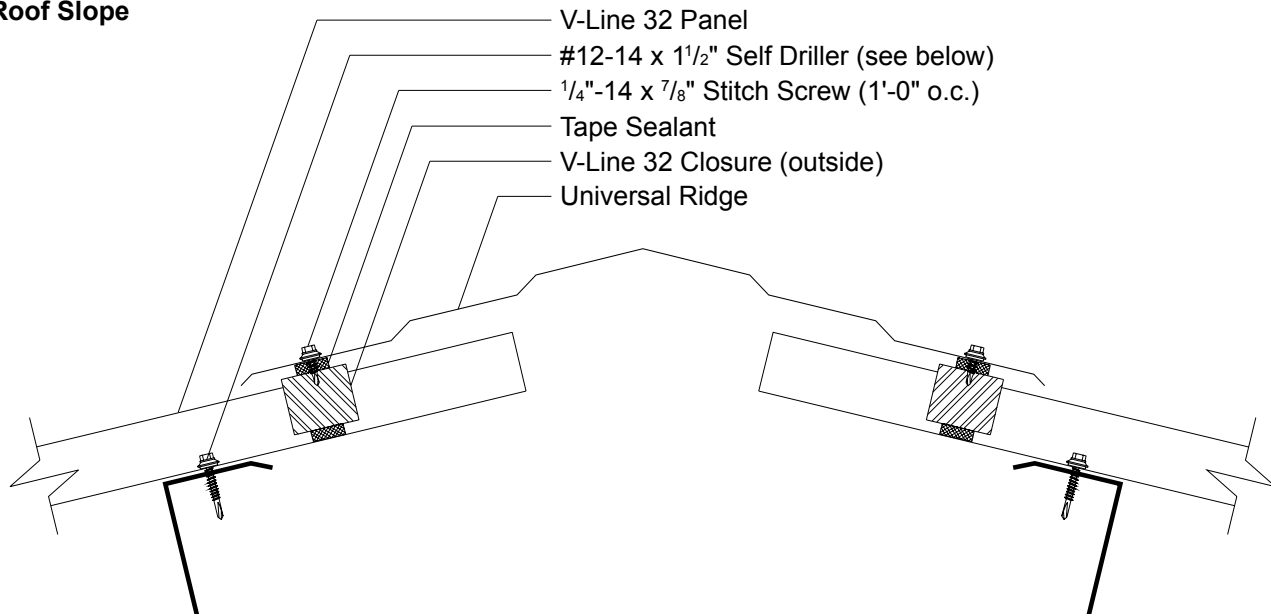


V-Line 32 Fastening Pattern

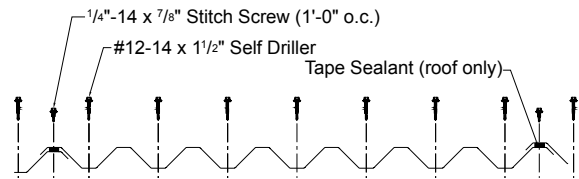
V-LINE 32

UNIVERSAL RIDGE DETAIL

1:12 Minimum
Roof Slope



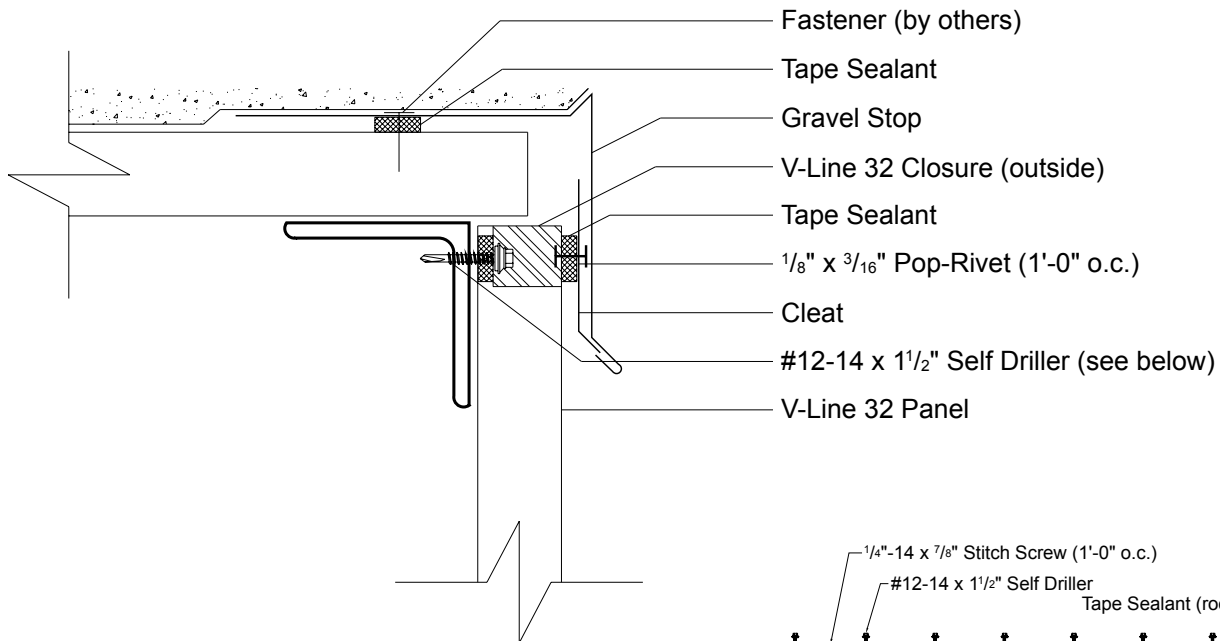
- V-Line 32 Panel
- #12-14 x 1 1/2" Self Driller (see below)
- 1/4"-14 x 7/8" Stitch Screw (1'-0" o.c.)
- Tape Sealant
- V-Line 32 Closure (outside)
- Universal Ridge



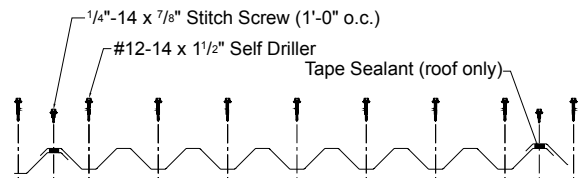
V-Line 32 Fastening Pattern

V-LINE 32

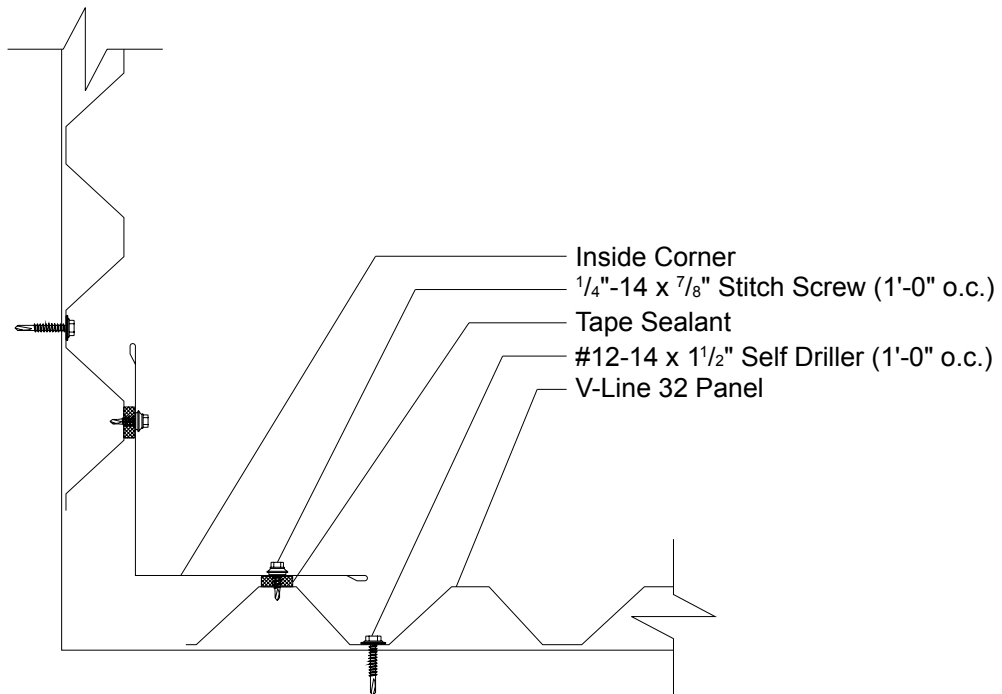
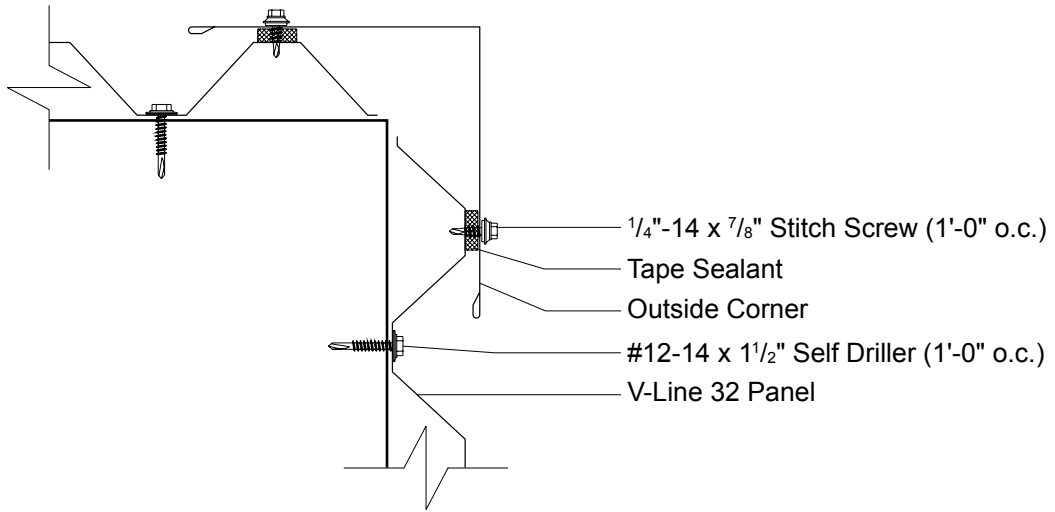
GRAVEL STOP DETAIL

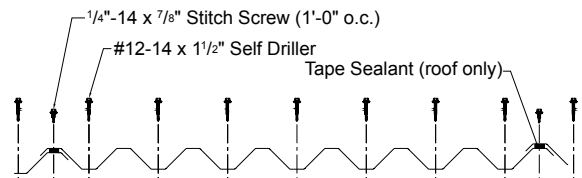
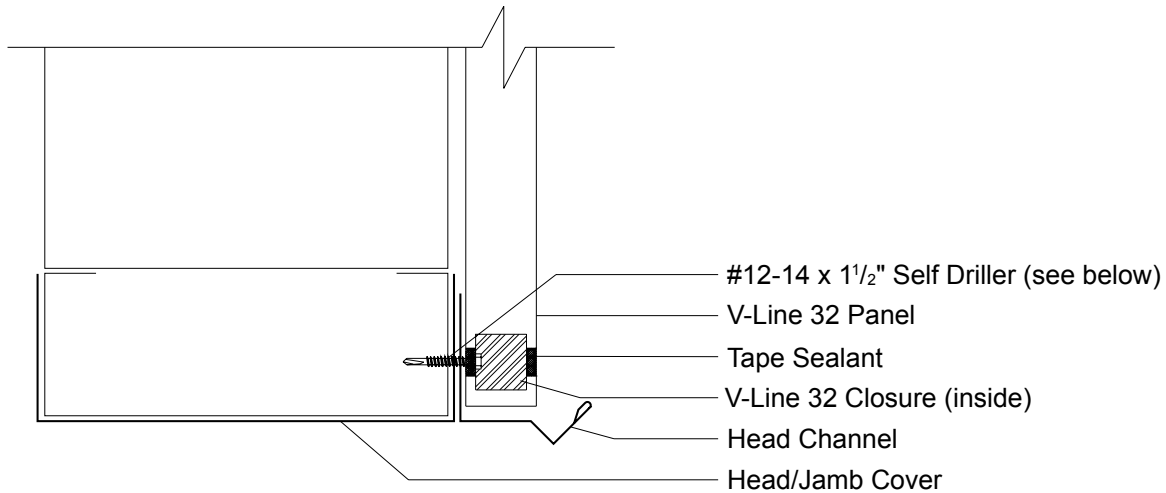
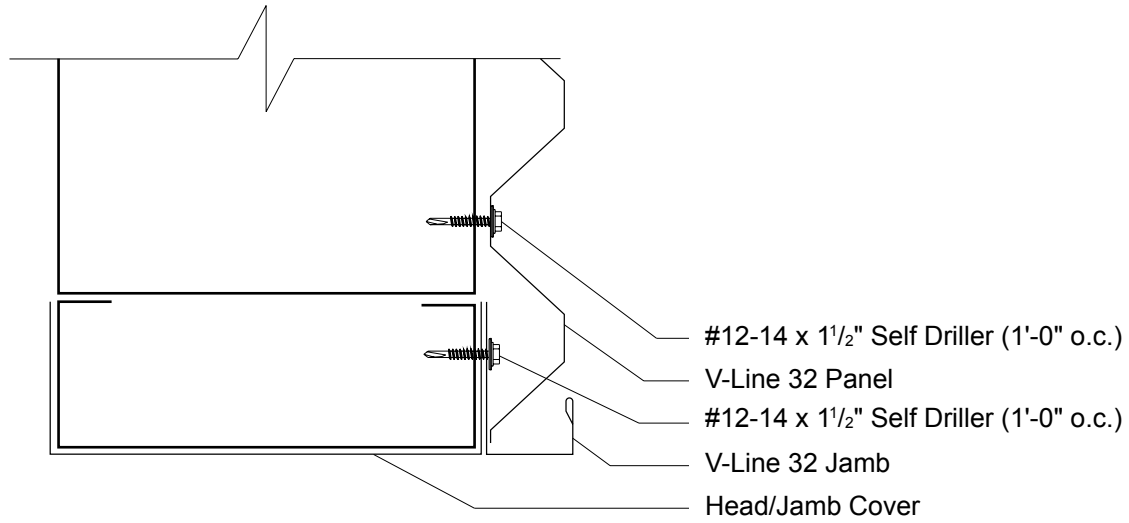


- Fastener (by others)
- Tape Sealant
- Gravel Stop
- V-Line 32 Closure (outside)
- Tape Sealant
- 1/8" x 3/16" Pop-Rivet (1'-0" o.c.)
- Cleat
- #12-14 x 1 1/2" Self Driller (see below)
- V-Line 32 Panel



V-Line 32 Fastening Pattern





V-Line 32 Fastening Pattern

