ERECTION & DETAIL MANUAL

IMPORTANT NOTICE

Read this manual completely prior to beginning the building erection process. If details are not followed, all warranties will be void.

If there is a conflict between project erection drawings provided or approved by the manufacturer and details in this manual, project erection drawings will take precedence.

CAUTION!

- **Exercise extreme caution when walking on unsecured panels; panels may have reduced load capacities until installation is complete.**
- **Material may be slippery, resulting from, but not limited to wet conditions. Use extreme caution when walking, sitting, standing or kneeling on a metal roof to avoid a fall or other injury.**
- **Do not step on edges. Step toward center of all panels.**
- **Improper unloading or handling of bundles and crates may cause bodily injury or material damage. Multiple lift points may be required.**
- **Use extreme care in the operation of power lifting devices such as cranes and forklifts and follow the safety instructions provided by their manufacturer.**
- **Crates, boxes, and bundles may have sharp or rough edges. They may be bulky, heavy, or both. META Steel is not responsible for bodily injuries or material handling during unloading, storage or job-site placement.**
- **Always wear appropriate safety gloves, eye protection and apparel when installing panels.**

ALL OSHA REQUIREMENTS & REGULATIONS MUST BE FOLLOWED WHEN USING MATERIAL

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

INTRODUCTION

This manual, and the guidelines set forth by the MBMA manual, the “Common Industry Practices”, plus the erection drawings sent for your individual building project, will provide you with guidelines needed to familiarize yourself with the standard erection and detail conditions.

The erection drawings for your building coincide directly with this erection manual. It is important to read and study both the erection drawings and the erection manual prior to assembly of your building.

The manufacturer does not guarantee nor be held liable for the quality of erection, or assume the responsibility for building defects due to improper erection techniques or negligence of other parties. Due to continuing research and product development, the manufacturer reserves the right to change its products and/or procedures at any time.

As noted in the MBMA manual, one must consider that minor problems are a part of the erection process. The manufacturerwe make every effort to ensure that the erection process runs as smoothly as possible. However, if an unforeseen problem should arise, please contact our customer service department BEFORE making an adjustment. This way, we can correctly resolve the matter together and in a timely manner.

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Table of Contents

HOW TO READ YOUR ERECTION DRAWINGS

NOTICE: **Before you review your drawings and proceed with building erection, please read the "SPECIFICATIONS PAGE" which is included with your drawings package.**

Anchor Bolt Plan

Anchor Bolts & Reactions

The first page is an overview of your anchor bolt placement. On the second page of the anchor bolt plan, you will find the mainframe and endwall column reactions of your building. Reactions for special conditions such as mezzanines, facades, cranes, canopies, portal frame columns and wind columns will also be found here. Below the reactions, you will find the anchor bolt information: quantity and diameter. The elevation of your anchor bolts will also be listed.

Anchor Bolt and Base Plate Details

The baseplate / anchor bolt details will be found at the top of the third page. The details show the distance from the steel line to the centerline of the anchor bolts. Base plate sizes are listed in inches in the same detail. Lettered base plates on Page 1 correspond directly with the lettered details on Page 3.

Roof, Sidewall, and Endwall Framing Plans

Purlins, Eave Struts, Girts & Cables

This layout shows the parts used in each bay. The members are labeled with a part mark. For example: girts=G-1, cables=CB-1, purlins=P-1, eave struts=E-1, above the parts. Purlins are usually called out once per bay and labeled (TYP). On the right hand side of the page you will find the parts information: quantity, part mark, description of material, and length. Details for various connections are called out (ex:U3). The details can be found on the detail page of your drawings and in this manual.

Lap

The lap dimensions are called out below the framing layout at each frameline. The lap dimension is the distance from the centerline of the frame to the end of the purlin or girt.

Framed Openings

If factory located, the exact parts and location will be shown and dimensioned on the drawing. In addition, the framing connections will be labeled for reference on the detail pages of the drawing set and in this manual. If field located, the openings are to be field cut and fastened and will be shown on the drawing in an appropriate location.

HOW TO READ YOUR ERECTION DRAWINGS

NOTICE: **Before you review your drawings and proceed with building erection, please read the "SPECIFICATIONS PAGE" which is included with your drawings package.**

Roof, Sidewall, and Endwall Framing Plans (continued)

Sheeting and Trim Layout

The sidewall and endwall framing / sheeting drawings show the location and length of the wall panels. Roof sheeting lengths can be found on the building cross section. Roof sheeting lengths (and quantities) are also shown on the roof framing layout. The trim is shown in its corresponding position (Example: SS-BER which is an eave trim, would be shown directly above the top of the wall panels.) Eave, gutter, downspouts, base and corner trims are shown on the sidewall drawings. Rake and base trims are shown on the endwall drawings. Ridge cap is shown on the roof drawing. Door, window and transition trims, etc., are shown on the drawings as appropriate. Detailed instructions of trim installation can be found in this manual.

Rigid Frame Cross Section

Roof Pitch

The roof pitch is found on the left-hand side of the drawing, adjacent to the sidewall frameline callout.

Dimensions

The rigid frame member dimensions are shown in a table in the upper right-hand corner of the drawings. Haunch clear height is shown from the finished floor to the bottom of the rafter. Rafter clear height is also shown at the peak of the building. Interior column length (clear height) is shown at each column. Purlin and girt spacing is also shown.

Bolts

At each connection, the quantity and size of the bolts that are to be used are indicated with a splice connection number (ex: Sp-1). The connection number refers to the splice table at the top left corner of the page.

Flange Braces

Location of the rigid frame flange bracing (ex: FB1A) can be found on the drawing directly above or beside the appropriate purlin or girt. Unless noted in parenthesis, the flange braces are to be located on both sides of the member.

ARRIVAL AT THE BUILDING SITE

When fabrication is complete, shipment is made to the building site. All building components are carefully bundled, packaged and inspected to prevent damage during transportation.

When the shipment arrives at the building site, check each item against the proper shipping documents. If a shortage or damage is discovered, have the carrier note the discrepancies on your invoice.

In case of shortage or damage, please refer to specification page of erection drawings for guidelines.

UNLOADING AND MATERIAL LAYOUT

As the building is unloaded, it should be placed in and around the building site near the location where it is to be utilized. While each job will vary according to size and site conditions, an arrangement which offers convenience and accessibility during assembly should be utilized.

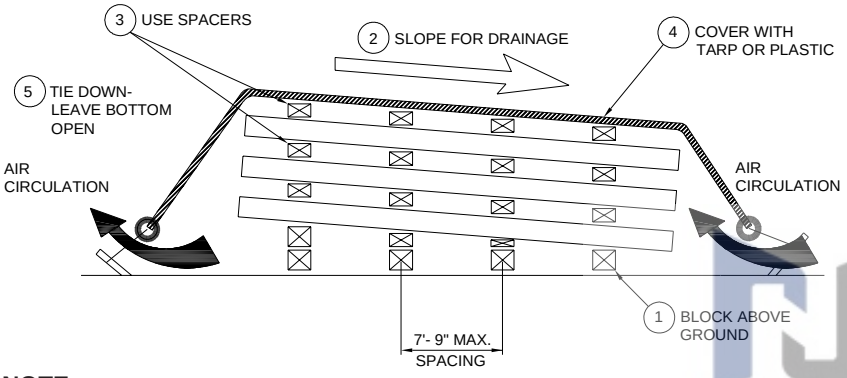
Rigid frame columns should be placed in a position for convenient assembly. Roof beams should be stacked for convenient subassembly and ease of accessibility for setting.

Girts, purlins, eave members and braces are divided and located according to the requirements of each bay. Nested parts should be separated and blocked. Endwalls should be located at each end of the building.

Small components (nuts and bolts, clips, fasteners, etc.) should be assembled in a given area and convenient to all parts of the building.

Roof and wall panels, and components which will not be used in the initial stage of erection, should be placed to the outside on wood and covered for protection from the weather.

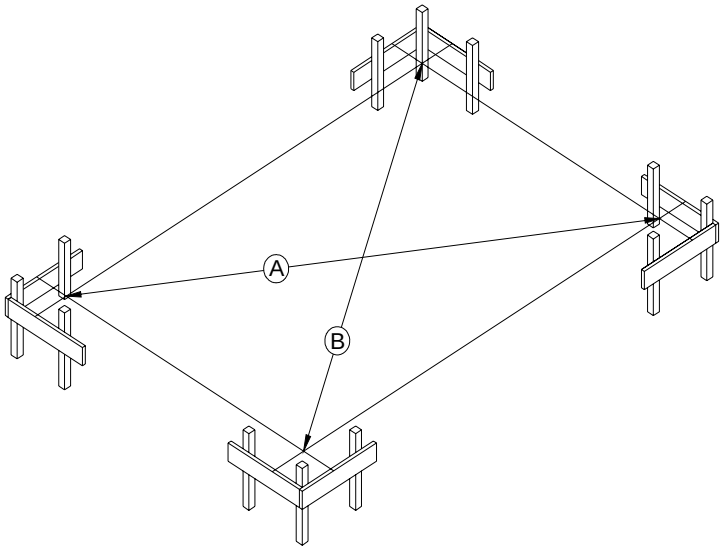
Recommended Job Site Storage/Sheeting Protection



1. Block above ground to prevent contact with damp soil or water.
2. Slope all bundles for proper drainage.
3. Stack all sheeting with spacers between bundles.
4. Cover the materials with a tarp or plastic to protect from moisture.
5. Tie down ends away from stack of materials. Ensure free air movement between all panels during the storage period. Do not wrap under the stack of materials as air movement will be restricted.

NOTE:

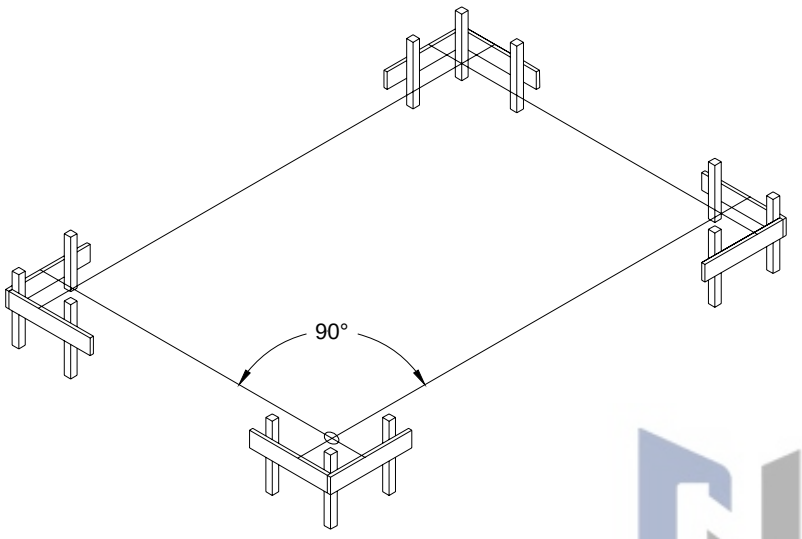
It is recommended that the bundles be opened and dried before use. Spring and Fall are the most likely times for white rust and other moisture related problems to occur. Although moisture may not be readily apparent, condensation may have resulted from moisture laden humid air. Wicking of moisture in these atmospheric conditions can occur, causing deterioration of the metal. Ensure that structural members are protected during storage. Their primered surface is not intended for exposure to the elements, and water should never be allowed to stand on member surfaces. The manufacturer will not be responsible for site-related storage problems.



DIAGONAL METHOD

1. Adjust the foundation layout until dimensions A & B are equal in length.
2. Recheck the layout for correct building length and width per building drawings.

NOTE:
Use a transit or laser level to set the top elevation of all batter boards at the same exact elevation.

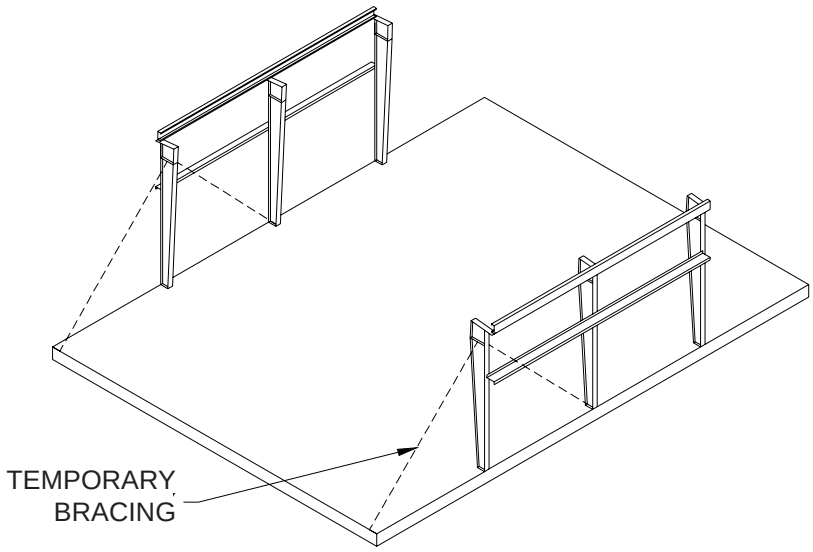


TRANSIT OR TOTAL STATION METHOD

1. Locate instrument exactly over corner intersection point of layout line.
2. Sight along one reference line. Swing instrument through 90 degrees to establish adjacent reference line.
3. For accurate results, instrument must be exactly level and in perfect working order.

NOTE:
An anchor bolt layout is provided with every building that specifies exact bolt locations. Consult your local engineer for specific foundation questions.

NOTE:
It is the responsibility of the erector to provide adequate temporary bracing per building frame requirements. Temporary bracing shall remain in place until sheeting has been installed. Remove temporary bracing after sheeting is in place.



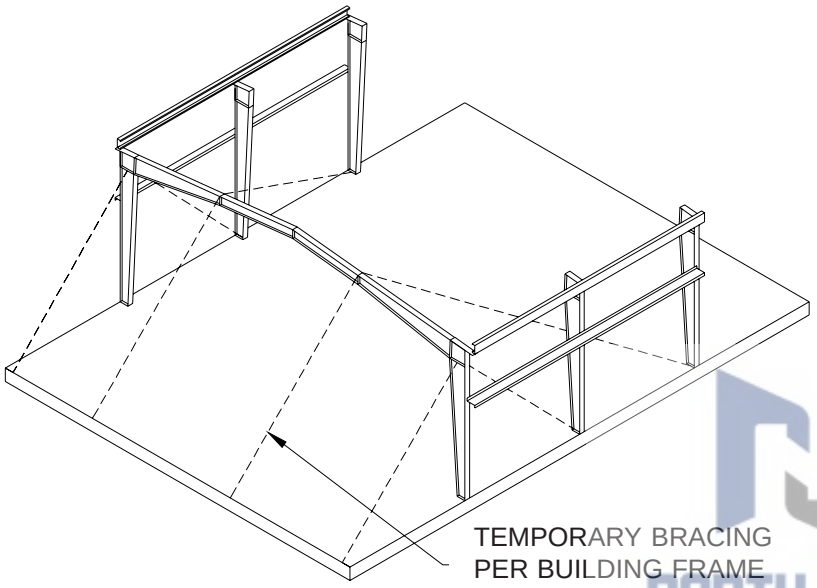
1. STEP ONE:

1. Stand columns and attach girts. Check anchor bolt plan and erection drawings for special conditions.

2. After placing all girts and eave struts, the amount of temporary bracing required to secure columns shall be determined by the erector.

NOTE:

1. **Plan to erect a braced bay first.**
2. **Refer to the glossary section of this manual for "turn-of-nut" method of tightening bolts. This method only applies to high strength bolts A325 and A490. A307 bolts only need to be snug tight.**
3. **Assemble in place as many clips and flange braces as possible before raising frame to reduce in-the-air erection time.**
4. **It is the responsibility of the erector to provide temporary erection bracing until the structure is completely sheeted.**

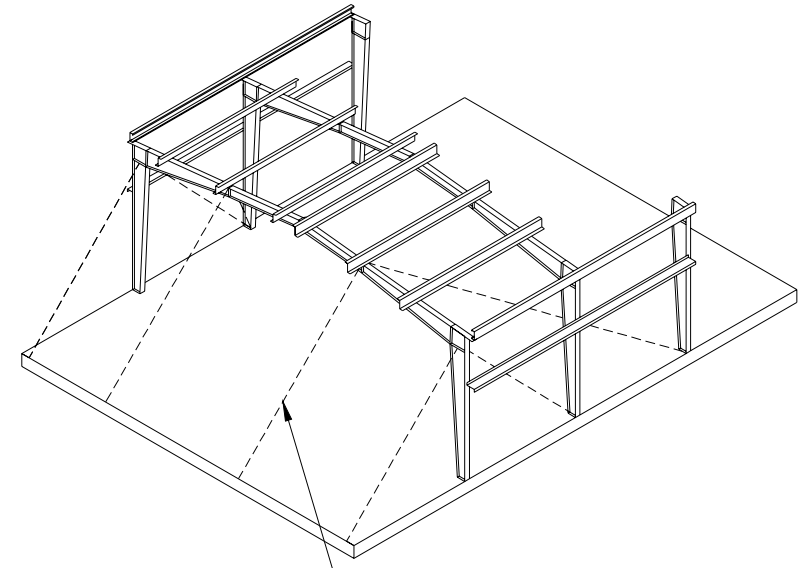


2. STEP TWO:

1. Raise the first rafter beam and haunch section into place. All high strength bolts are to be tightened before raising.

   Pre-assemble only the rafters that can safely be lifted into position.

2. Hold in place until this section is secured to columns and temporary braces are tied off to hold frame in place.

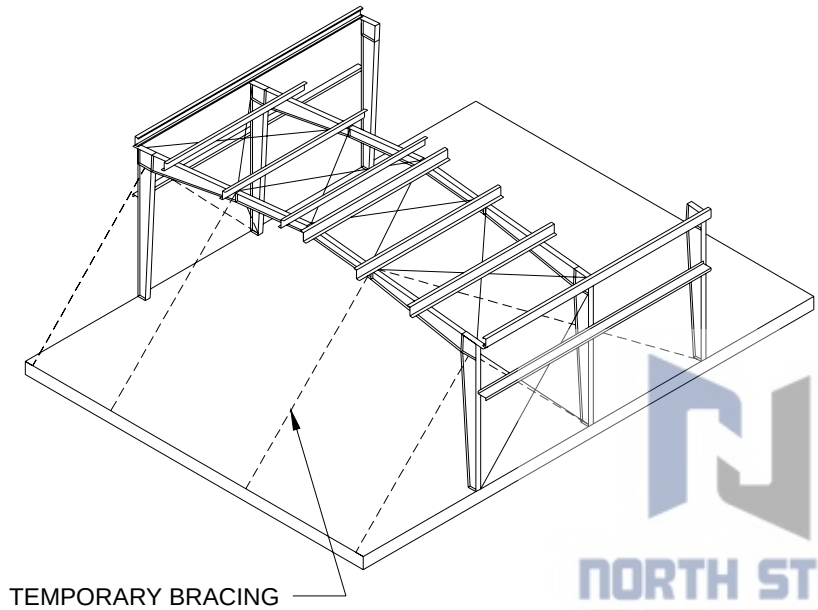


3. STEP THREE:

1. Raise second haunch and rafter beam frame section.

2. Hold in place until this section is bolted to columns and purlins have been attached.

Note:
It is the responsibility of the erector to provide adequate temporary bracing.



4. STEP FOUR:

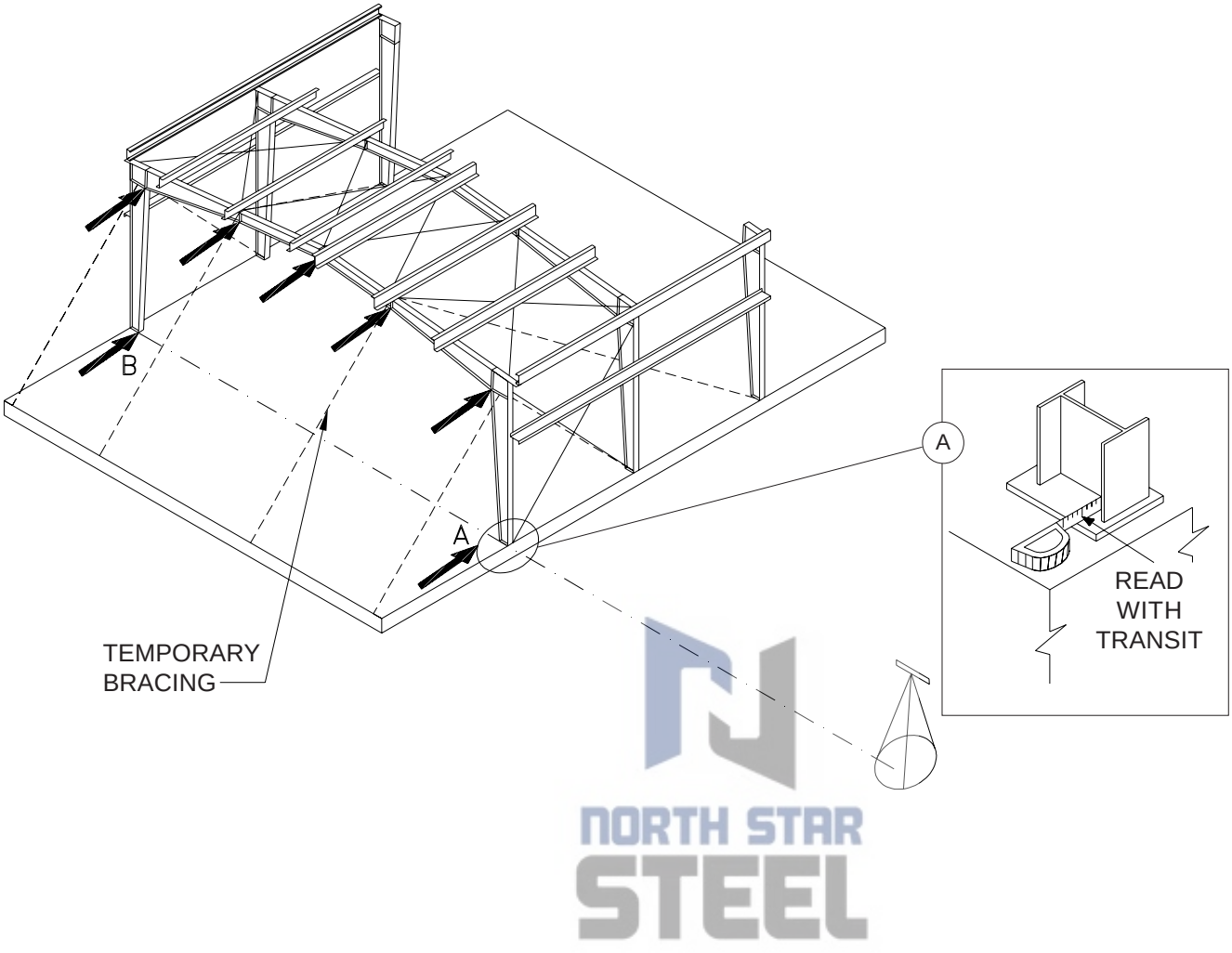
1. Bolt in place all remaining members of the braced bay.

2. If required on erection drawings and supplied by the manufacturer, install flange braces and cable bracing. Continue to use temporary bracing.

3. Square and plumb braced bay. If cable bracing is not required by the manufacturer, continue to use temporary bracing.

5. STEP FIVE:

1. Locate transit as shown. (In this particular case, slightly to the left of the first rigid frame)
2. Ensure that the transit is perfectly level.
3. Rotate transit until the same exact tape reading is obtained at points A & B (base of column at outside flange. See detail A).
4. Lock horizontal rotation of transit.
5. Adjust cable bracing until the tape reading at points A & B is obtained at all points indicated on the illustration at the left. Take all readings from outside edge of flange (adjust for varying flange widths).

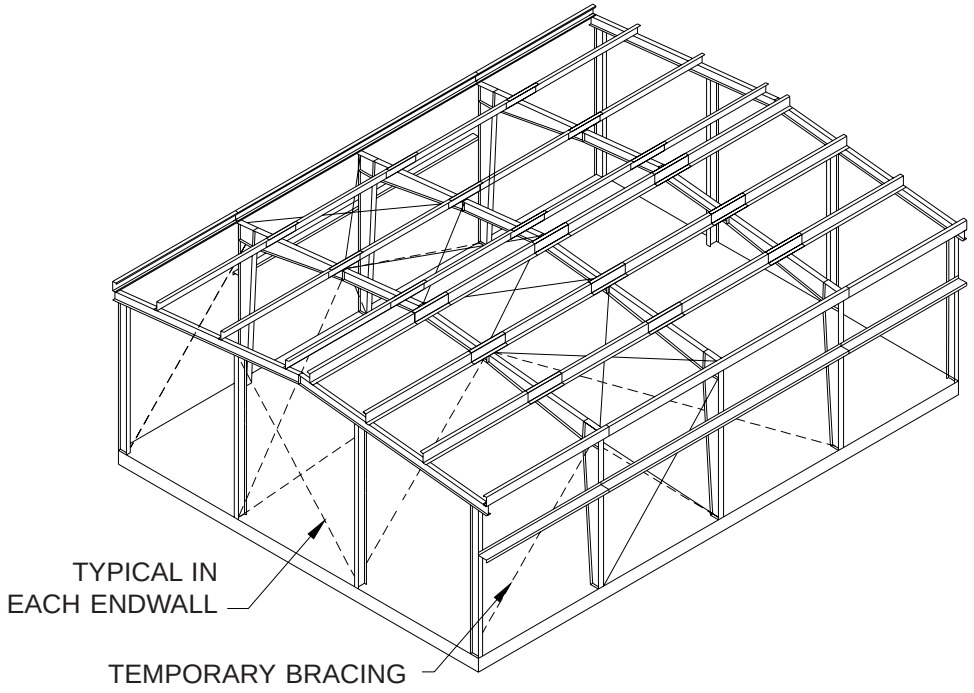


NOTE: It is the responsibility of the erector to provide adequate temporary bracing per building frame requirements. Temporary bracing shall remain in place until sheeting has been installed. Remove temporary bracing after sheeting is in place.

6. STEP SIX:

1. Proceed with the erection of the remaining frames and post and beam endwalls.

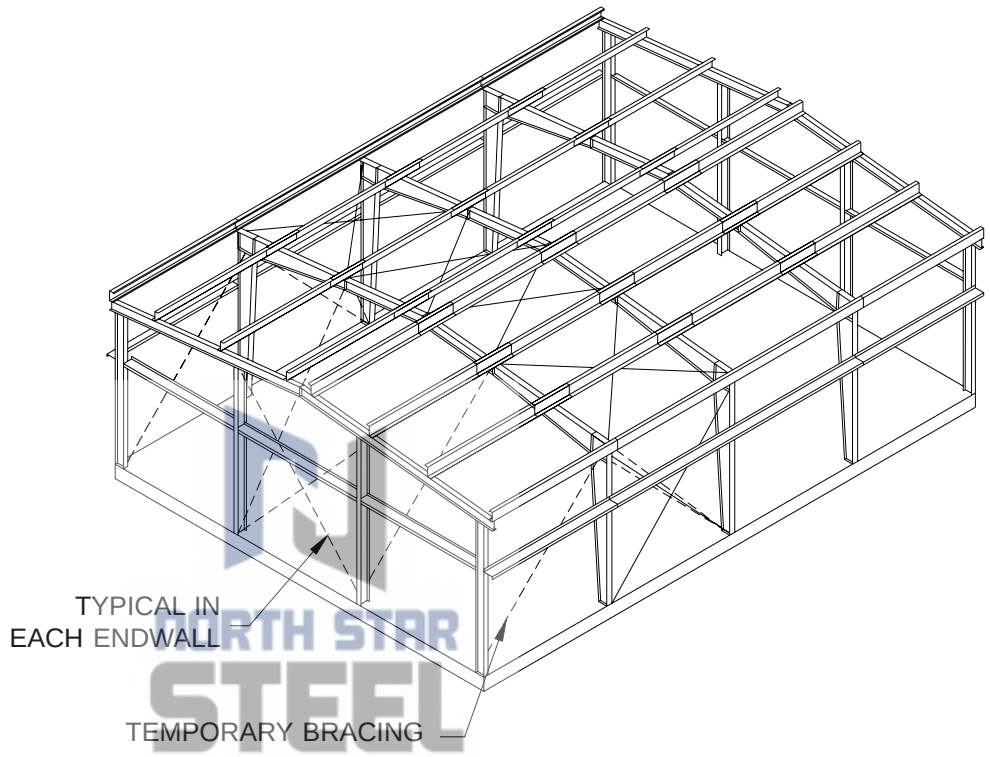
   Note: Post and beam endwalls must be temporary braced laterally until endwall sheeting is in place. Remove temporary bracing only after sheeting has been installed.

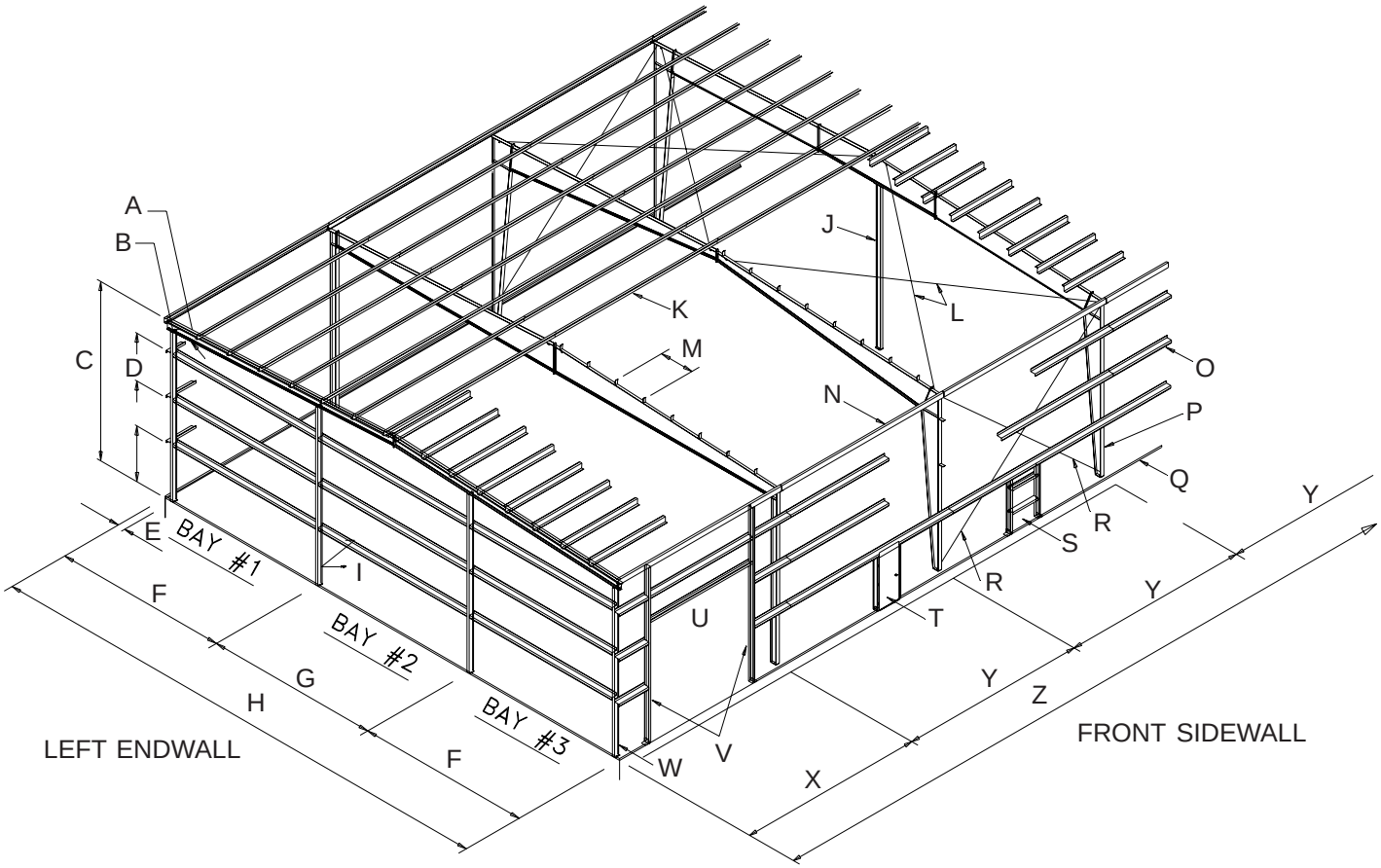


7. STEP SEVEN:

1. Complete the erection of all structural steel components.

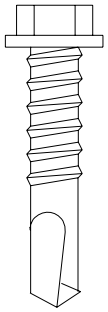
   Note that after the completion of all secondary framing in one end bay, attachment of wall and roof panels may begin in conjunction with the completion of the gray steel.





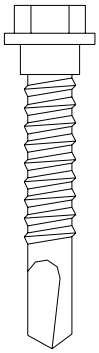
A = ENDWALL RAFTER
B = RAKE ANGLE
C = EAVE HEIGHT
D = GIRT ELEVATIONS
E = 1' - 2" SETBACK WORKS UP TO 12" GIRTS WITH MAXIMUM ENDWALL CORNER COLUMN FLANGE OF 4"
F = ENDWALL CORNER BAY
G = INTERIOR ENDWALL BAY
H = BUILDING WIDTH FROM STEEL LINE TO STEEL LINE (OUTSIDE OF GIRT TO OUTSIDE OF GIRT).
I = ENDWALL GIRT - BLOCK GIRTS INTO LEVEL POSITION (IF REQUIRED) UNTIL SHEETING IS INSTALLED.
J = INTERIOR COLUMN
K = PURLIN
L = CABLE BRACING (ROOF)
M = PURLIN CLIP SPACING
N = EAVE STRUT
O = SIDEWALL GIRT - BLOCK GIRTS INTO LEVEL POSITION (IF REQUIRED) UNTIL SHEETING IS INSTALLED.
P = SIDEWALL COLUMN
Q = BASE ANGLE
R = SIDEWALL CABLE BRACING
S = WINDOW FRAMING
T = PREMIUM DOOR
U = OVERHEAD DOOR HEADER
V = OVERHEAD DOOR JAMBS
W = CORNER COLUMN
X = SIDEWALL END BAY
Y = INTERIOR SIDEWALL BAY
Z = BUILDING LENGTH FROM STEEL LINE TO STEEL LINE (OUTSIDE OF GIRT TO OUTSIDE OF GIRT).

TEK 1 SD
Length: 1”



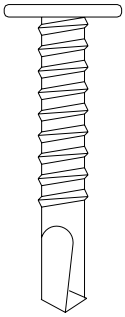
Note: Use TEK 1 to fasten the following:
1. Angle 64 to girts or purlins.
2. Banding to purlins.
3. Door clip to framing connections.

TEK 5 SD
Length: 1 1/4”



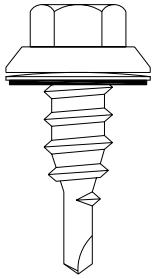
Note: Use TEK 5 to fasten clips and angles to structural members, up to 1/2” thick.

FASTENER #12
Length: 1”



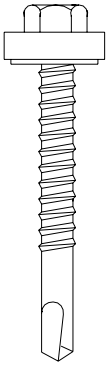
Valley pan to purlin(s) and hip support plate to purlin(s).

SM75
Length: 3/4”



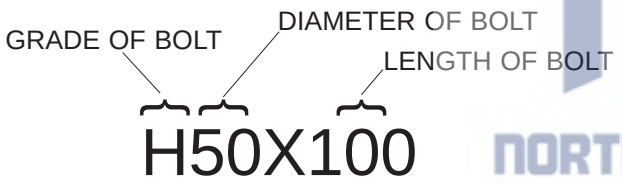
HEX-HEAD SM WITH SEALING WASHER APPLICATIONS: Panel to panel stitch fastening, and trim-to-trim or trim-to-panel fastening.

SD150
Length: 1-1/2”



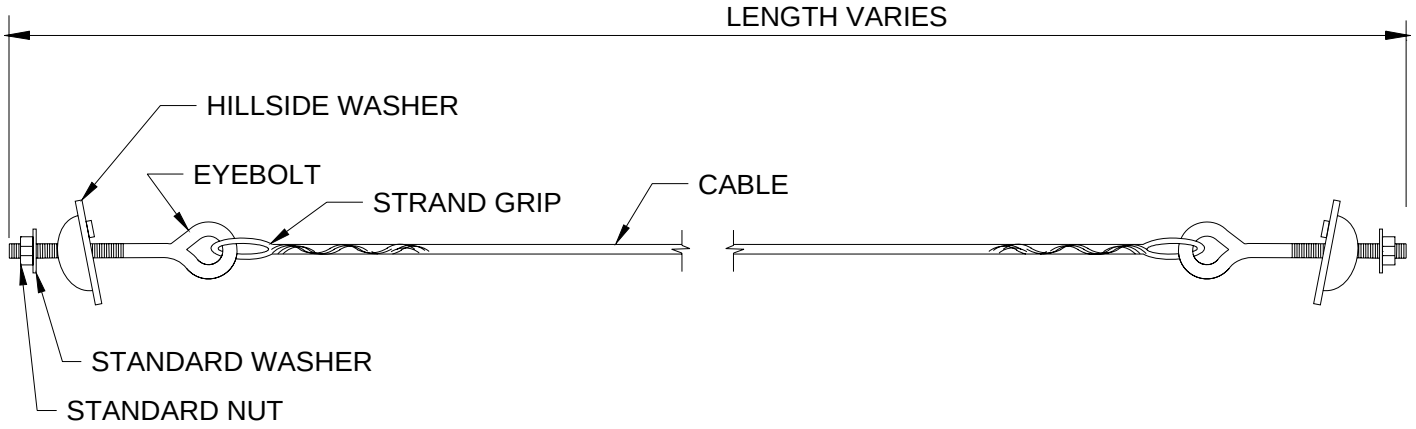
HEX-HEAD SD WITH SEALING WASHER APPLICATIONS: Panel to secondary framing fastening, and trim to secondary framing fastening.

READING BOLT CALLOUTS

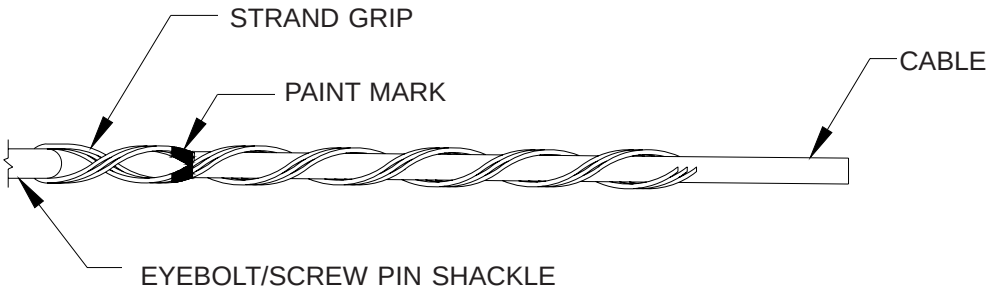


GRADE OF BOLT	ASTM DESIGNATION
H	A325
M	A307

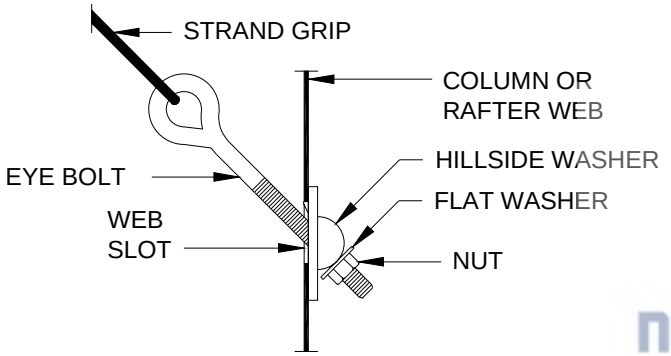
CABLE BRACING DETAILS



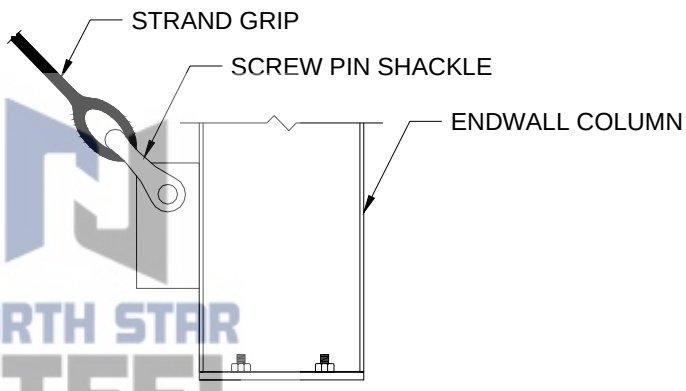
NOTE:
PLACE CABLE AT PAINTED LINE TO BEGIN WRAP.



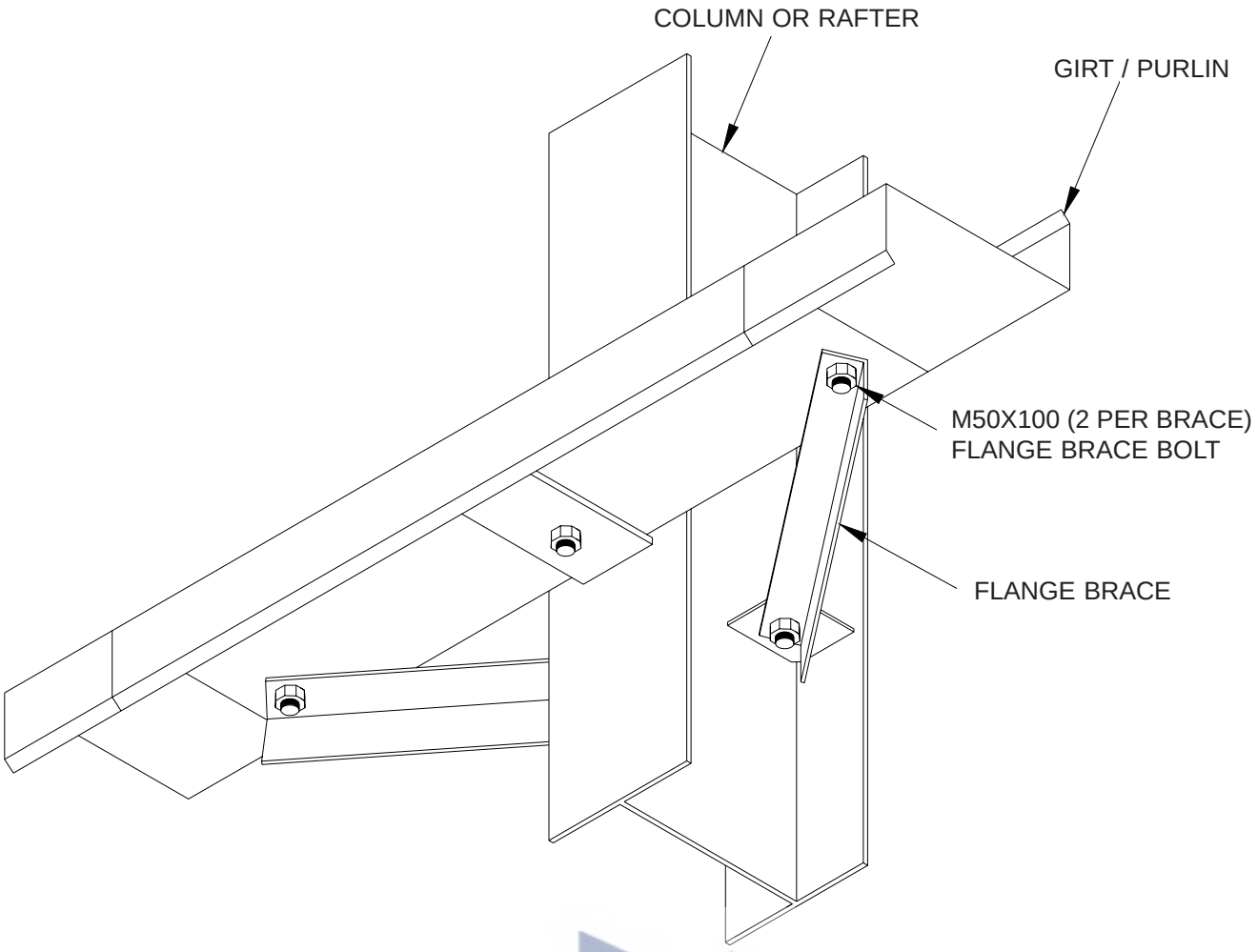
TYPICAL CABLE BRACING CONNECTION



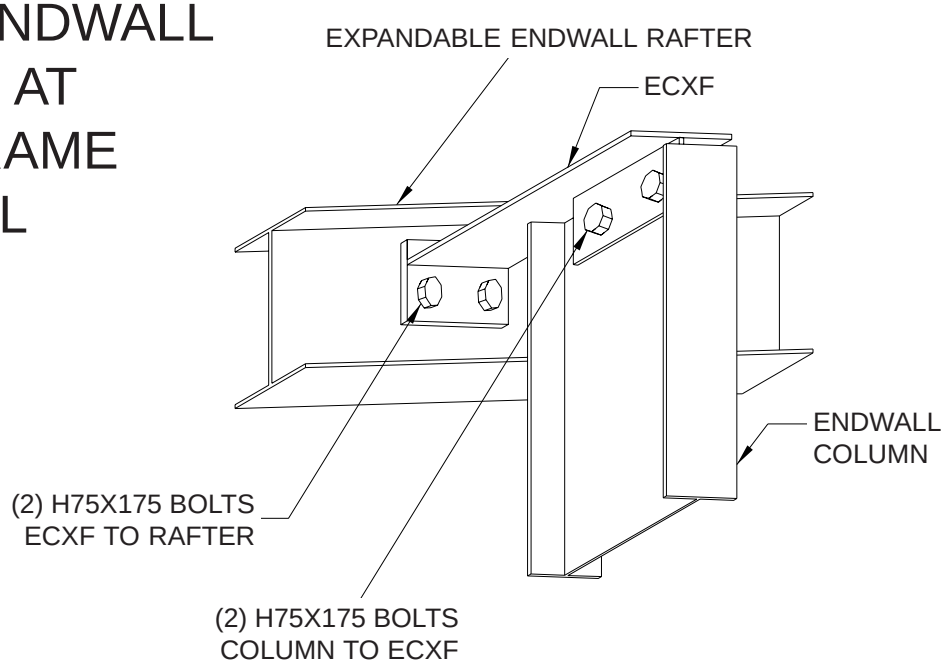
CABLE BRACING CONNECTION FROM SIDE WALL TO END WALL COLUMN



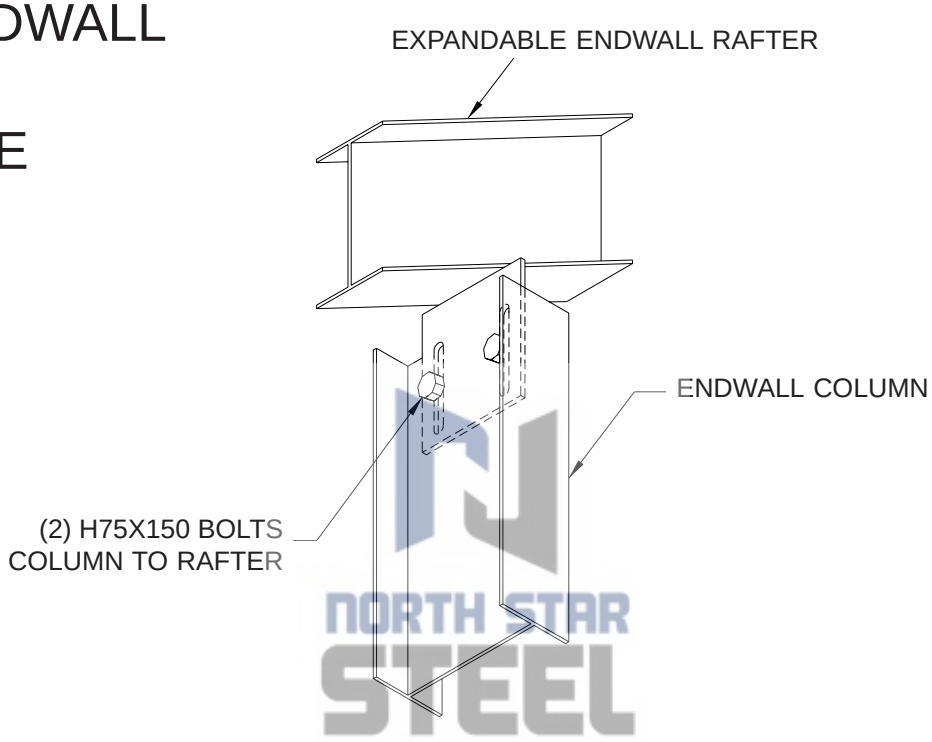
FLANGE BRACING DETAILS



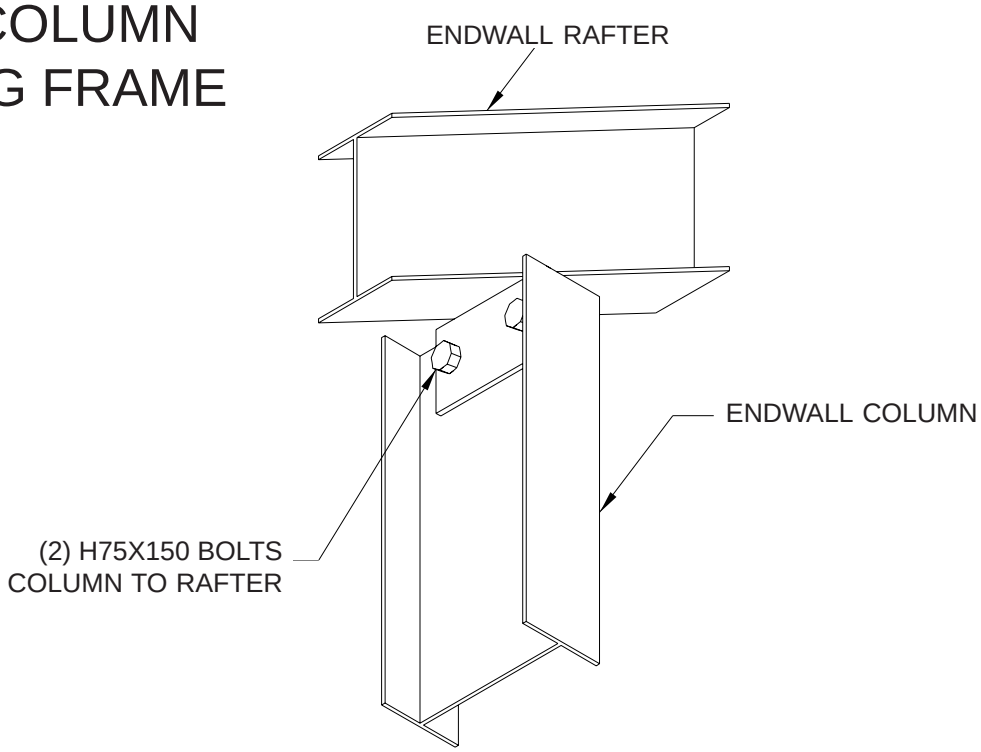
FLUSH ENDWALL COLUMN AT RIGID FRAME ENDWALL



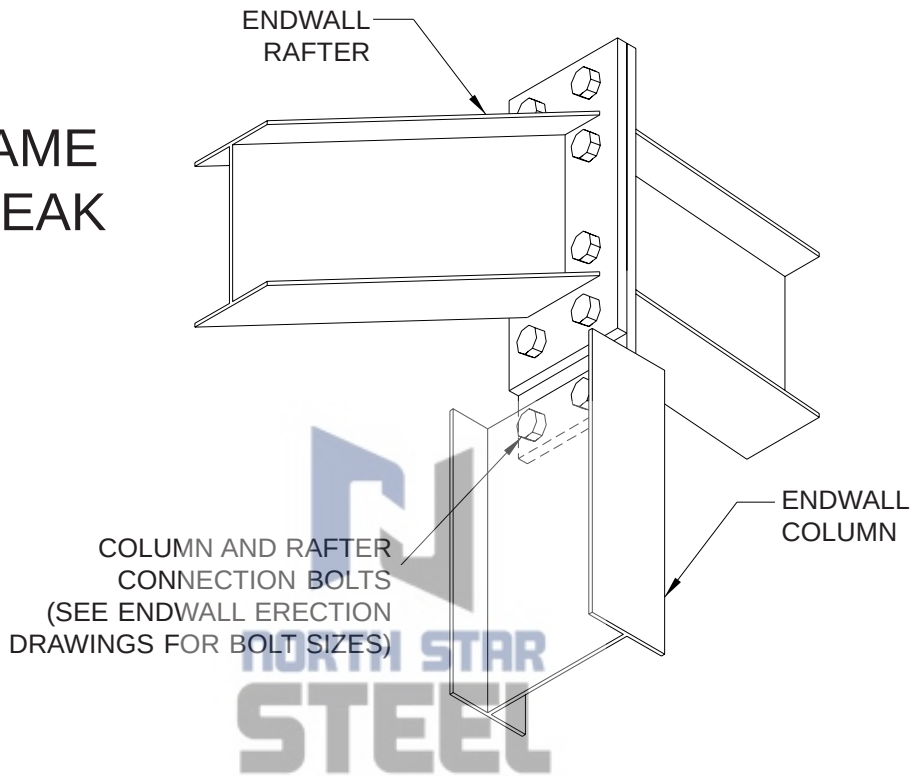
OUTSET ENDWALL COLUMN TO RIGID FRAME ENDWALL



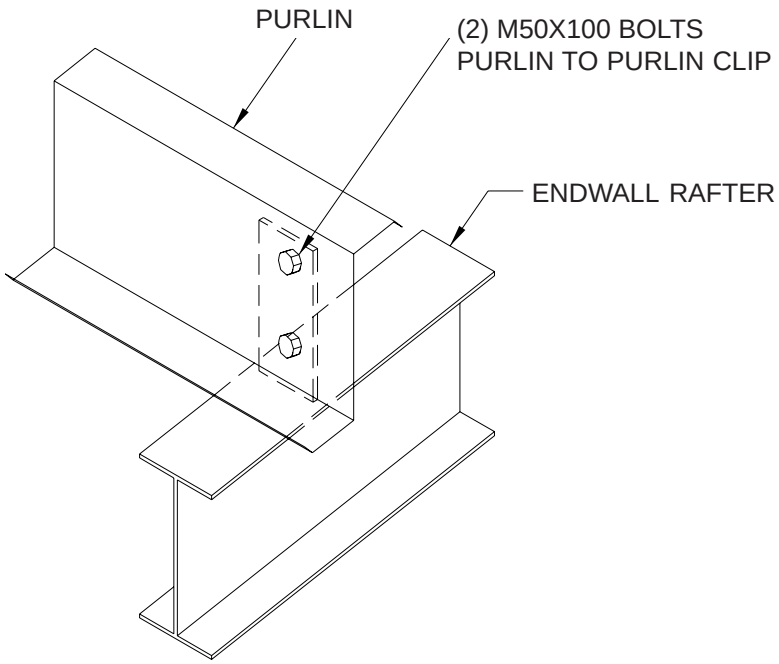
ENDWALL COLUMN TO BEARING FRAME RAFTER



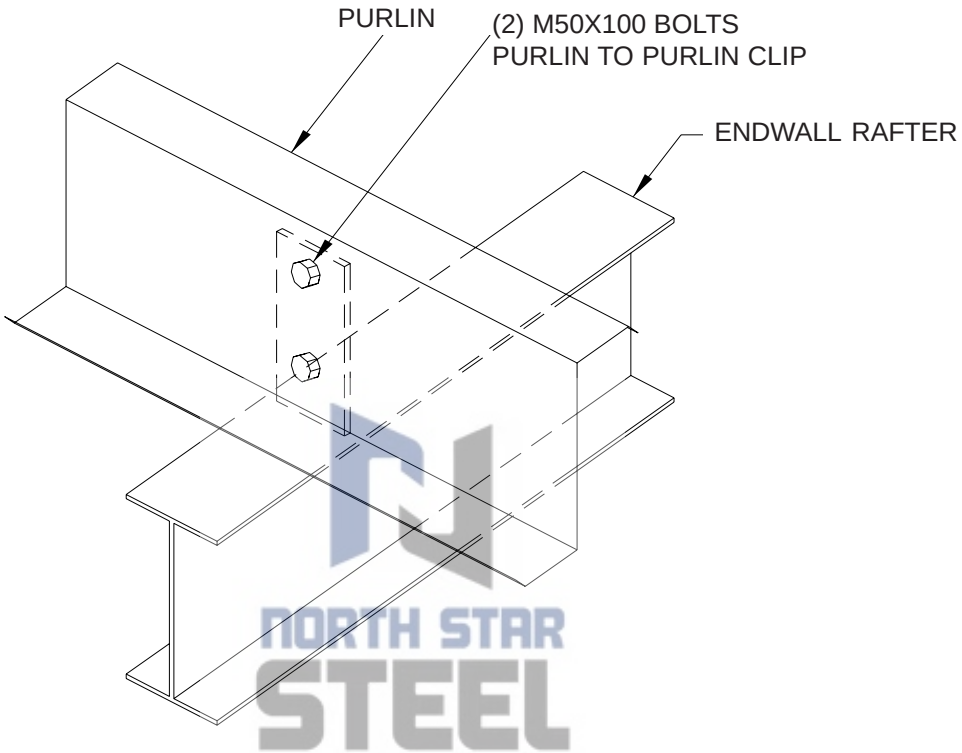
ENDWALL COLUMN TO BEARING FRAME AT RAFTER PEAK



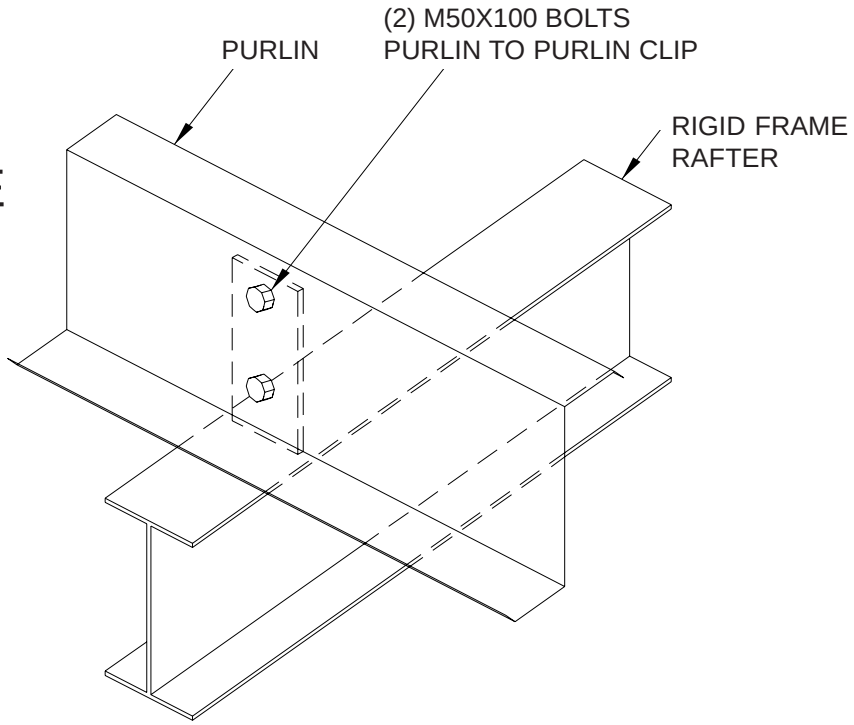
PURLIN CONNECTION AT FLUSH BEARING FRAME ENDWALL



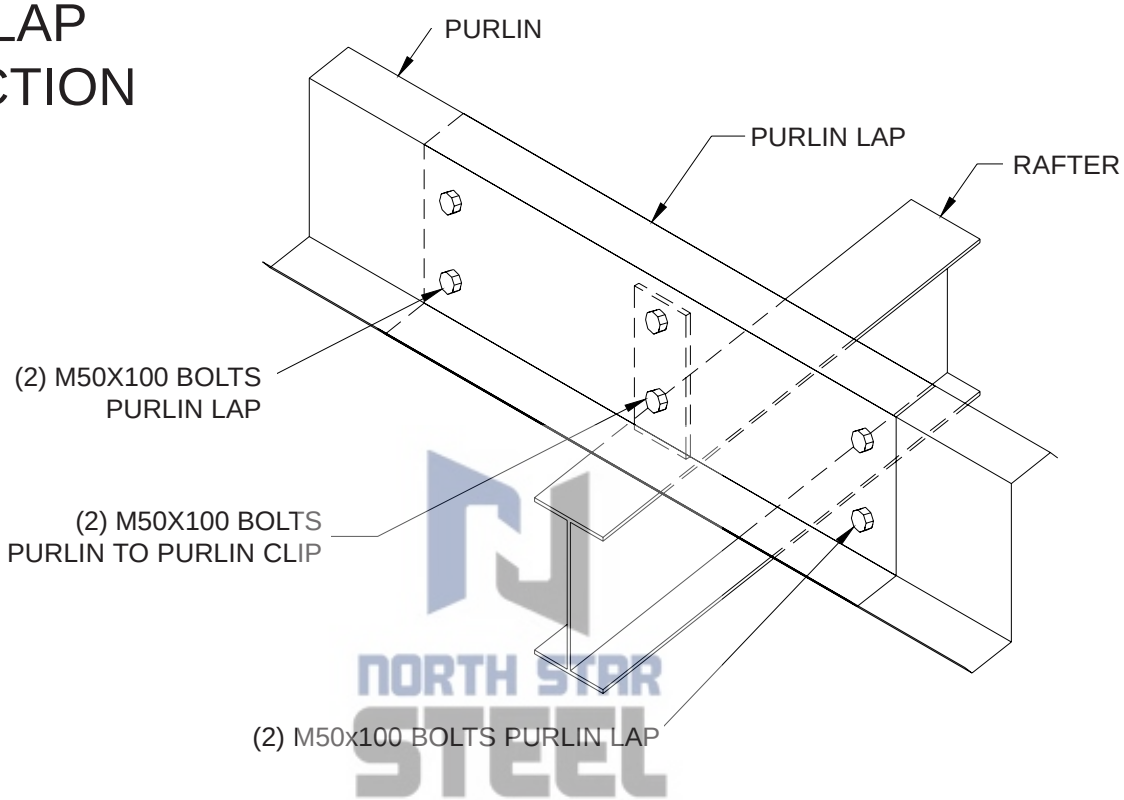
PURLIN CONNECTION AT OUTSET BEARING FRAME ENDWALL



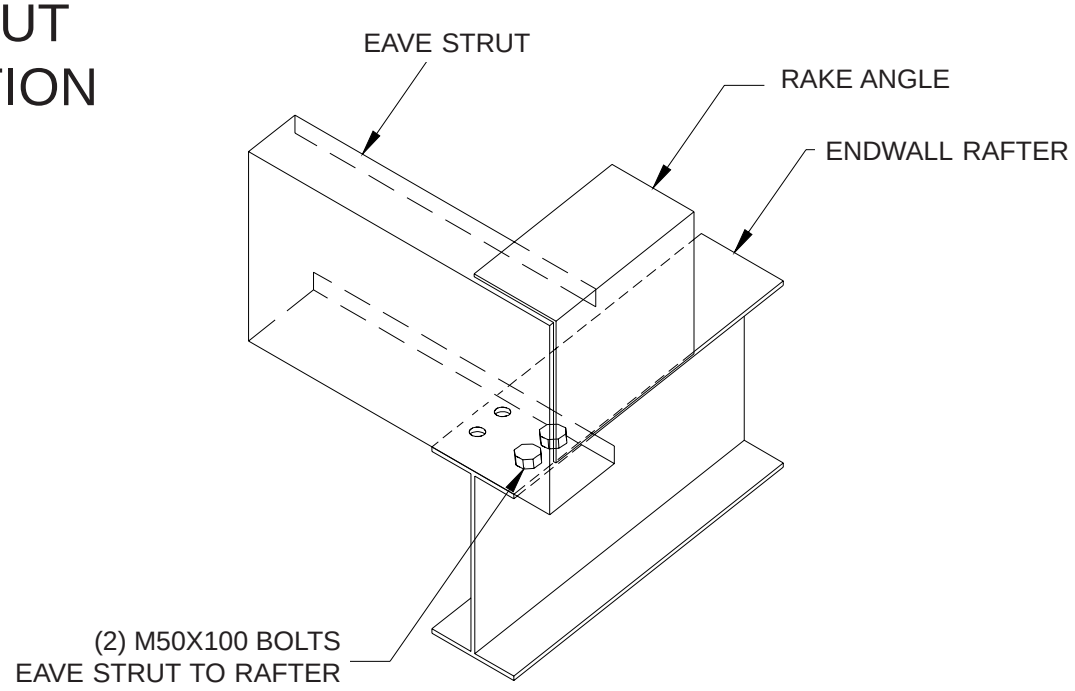
PURLIN CONNECTION AT RIGID FRAME ENDWALL



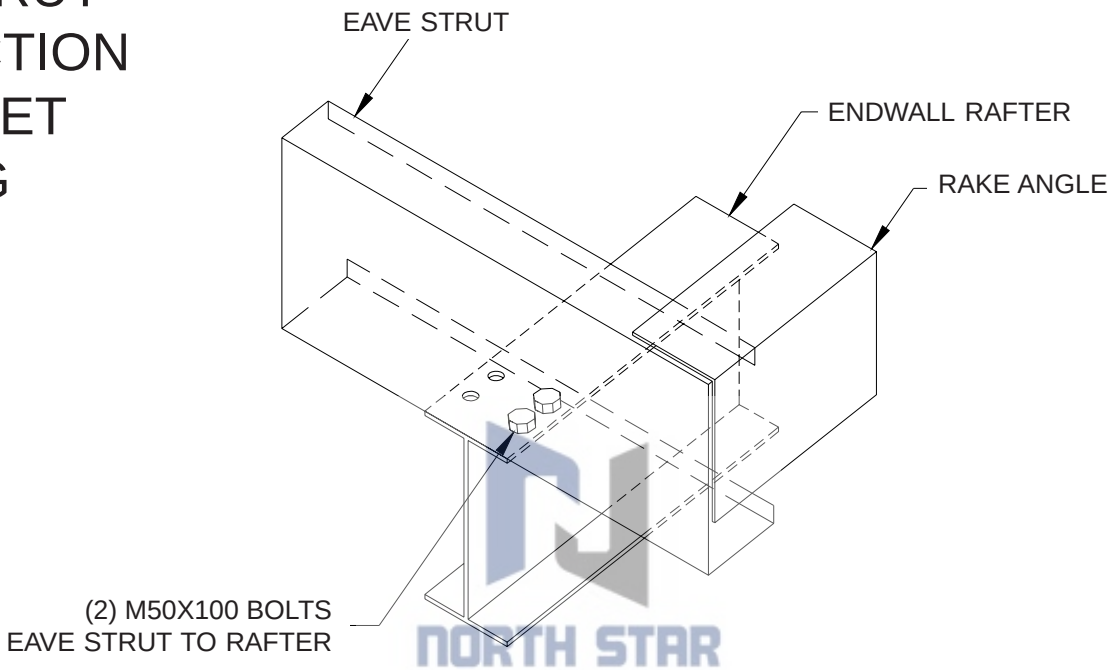
PURLIN LAP CONNECTION



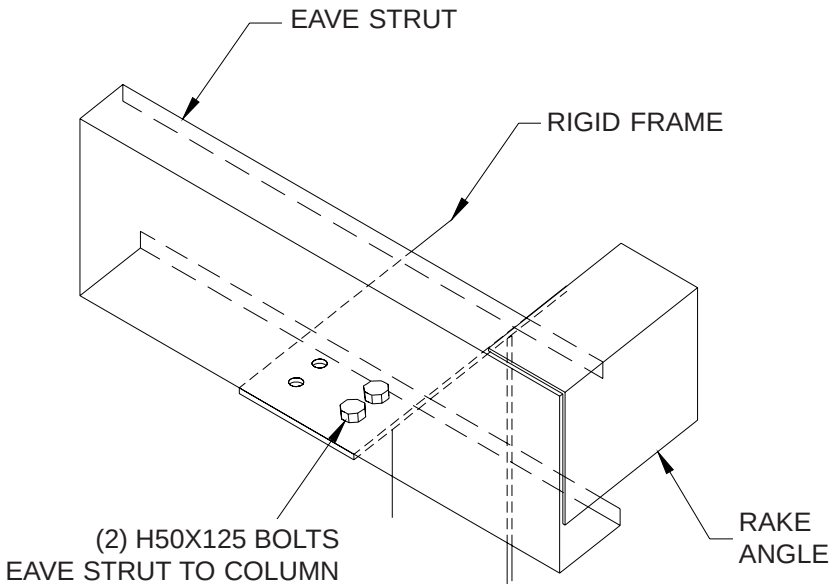
EAVE STRUT CONNECTION AT FLUSH BEARING FRAME



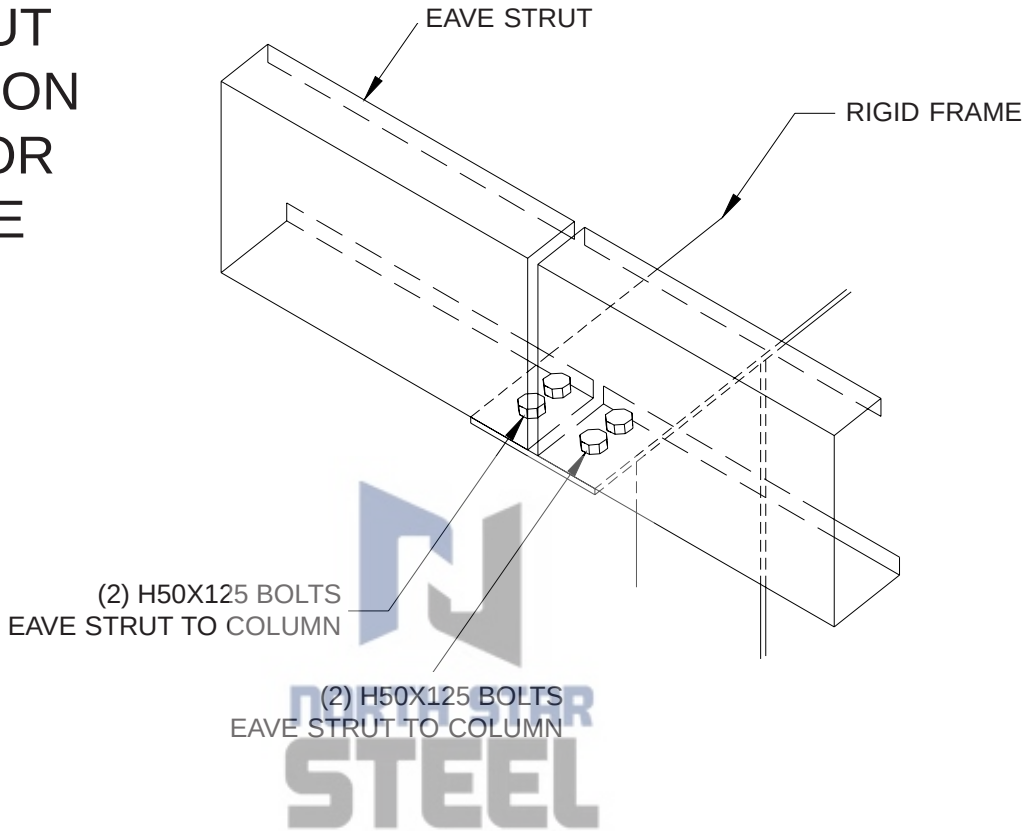
EAVE STRUT CONNECTION AT OUTSET BEARING FRAME



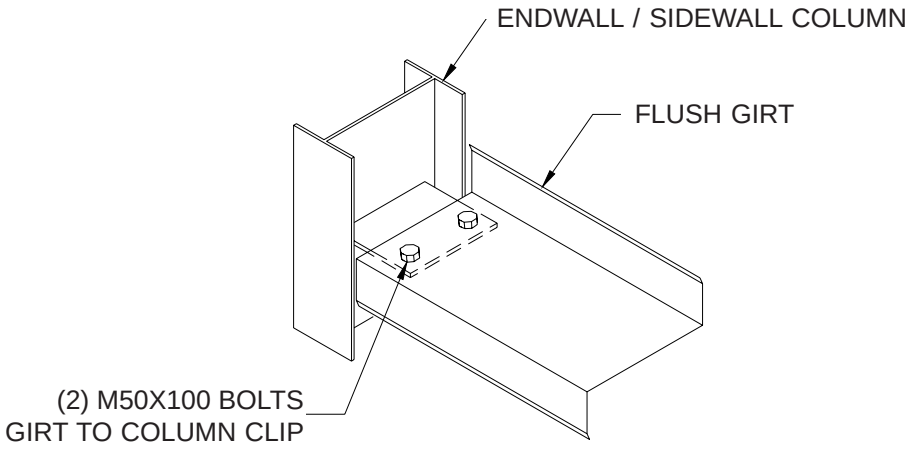
EAVE STRUT CONNECTION AT RIGID FRAME ENDWALL



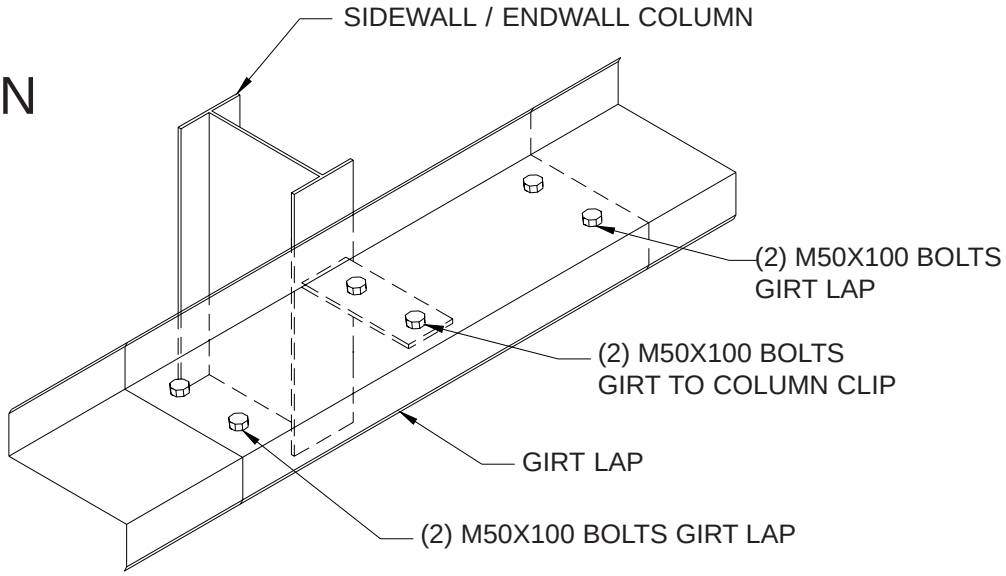
EAVE STRUT CONNECTION AT INTERIOR FRAMELINE



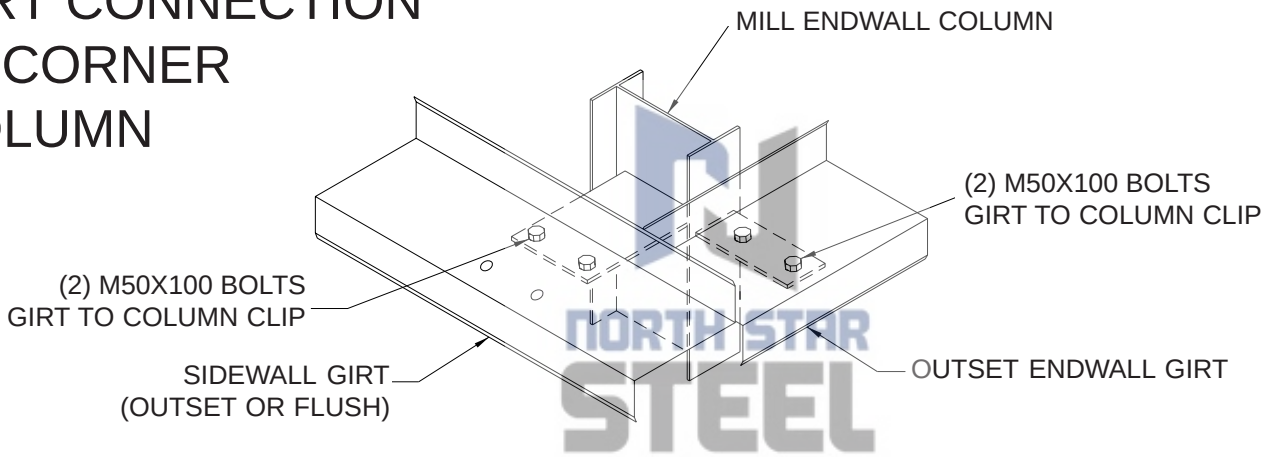
FLUSH GIRT CONNECTION



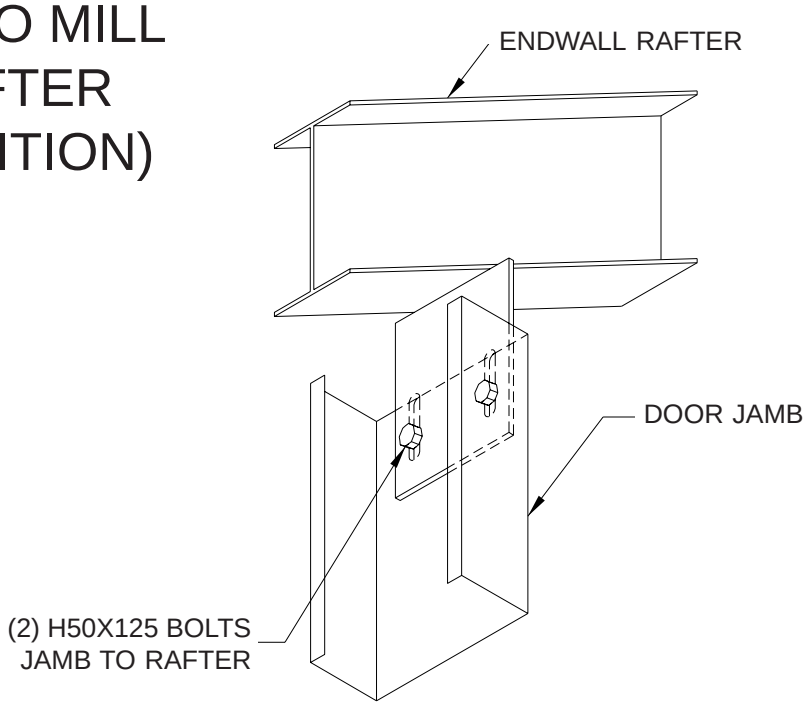
GIRT LAP CONNECTION



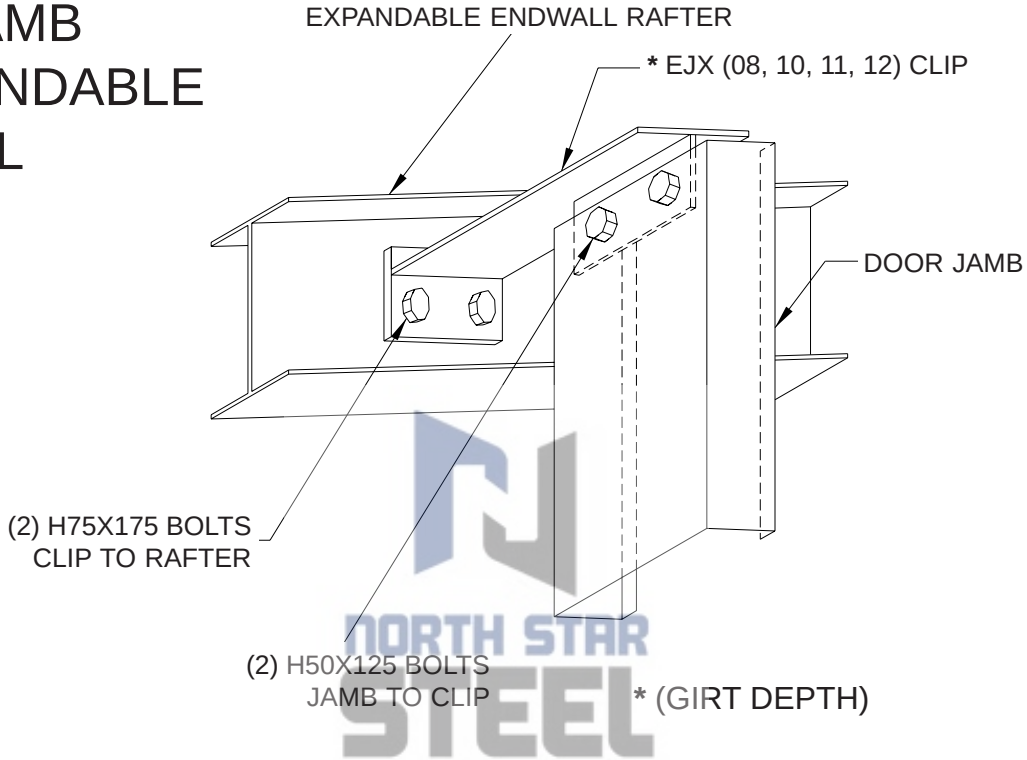
GIRT CONNECTION AT CORNER COLUMN



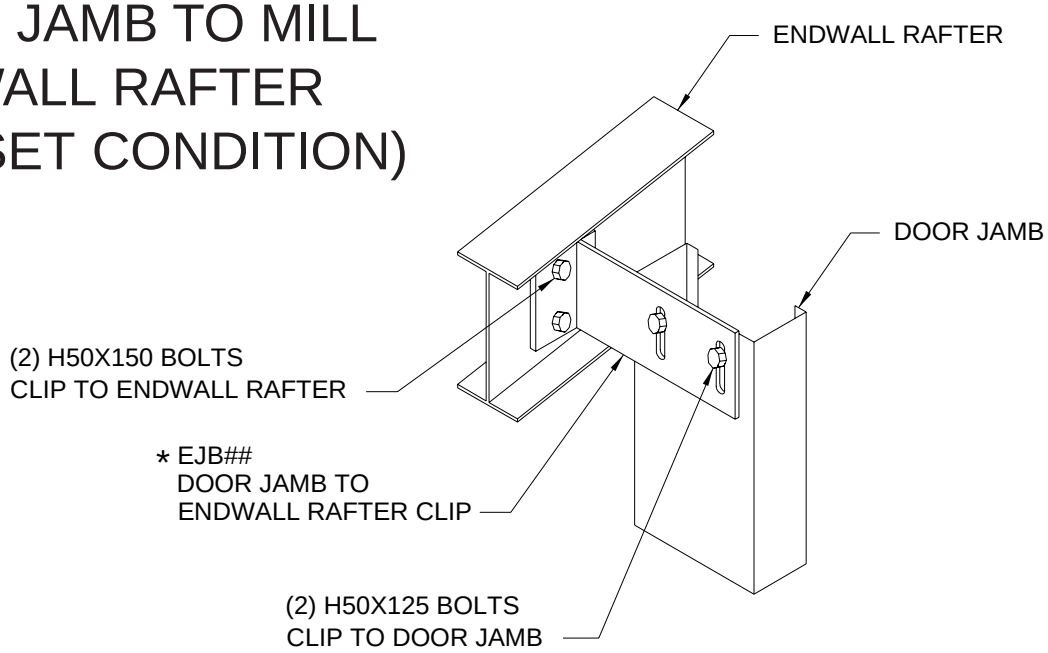
DOOR JAMB TO MILL ENDWALL RAFTER (FLUSH CONDITION)



DOOR JAMB TO EXPANDABLE ENDWALL

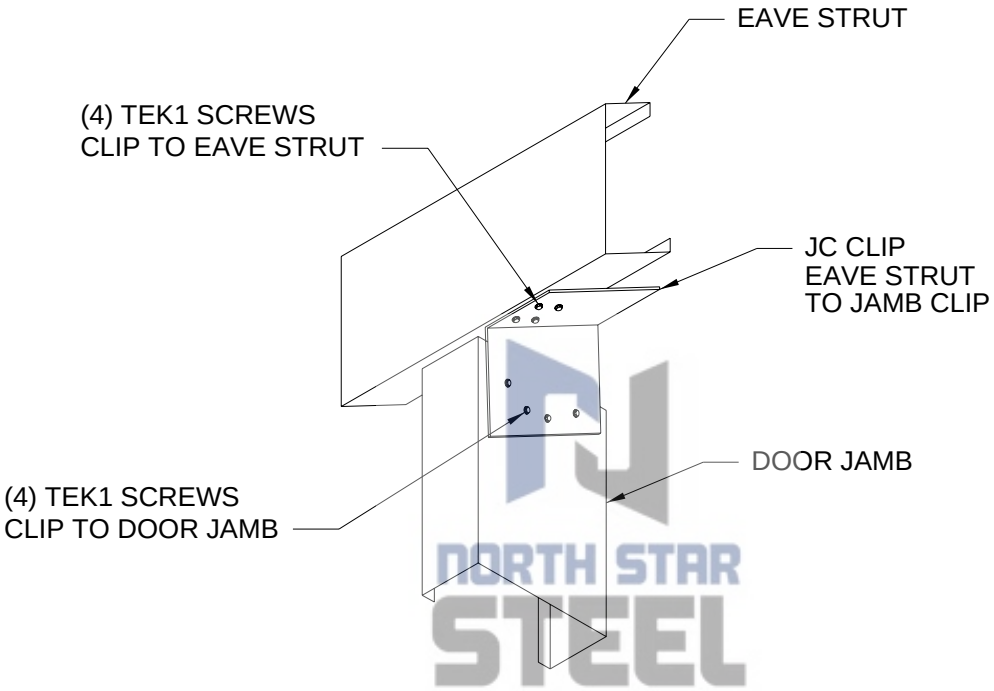


DOOR JAMB TO MILL ENDWALL RAFTER (OUTSET CONDITION)

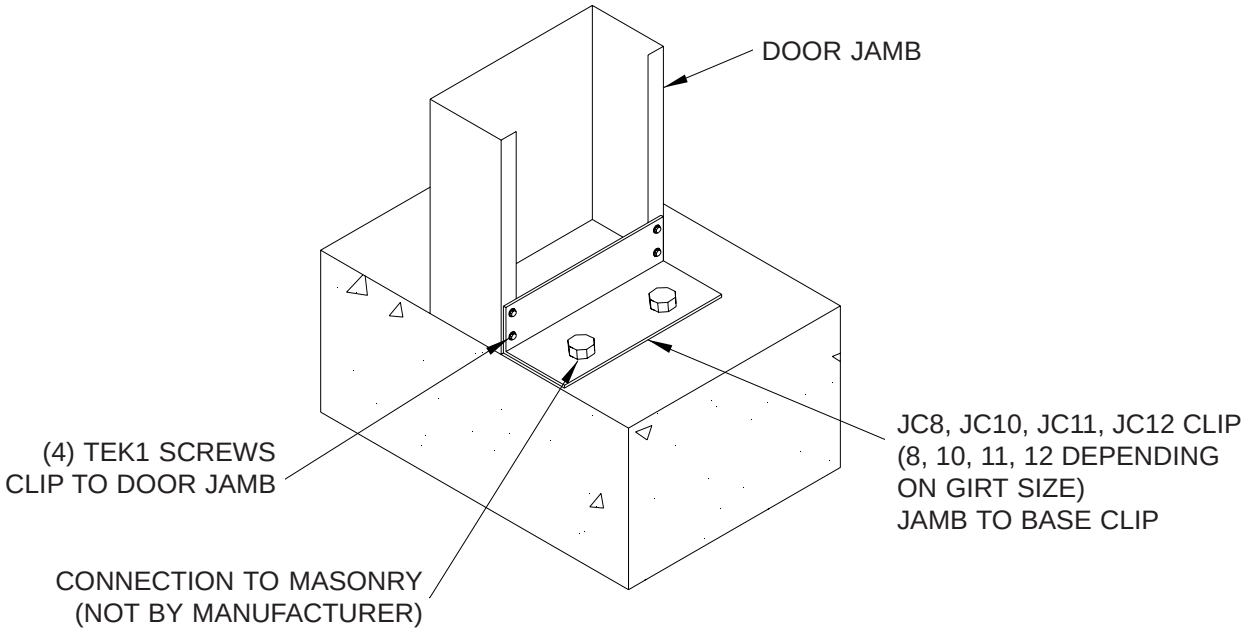


* (##) = 08,10,11,12 (GIRT DEPTH)

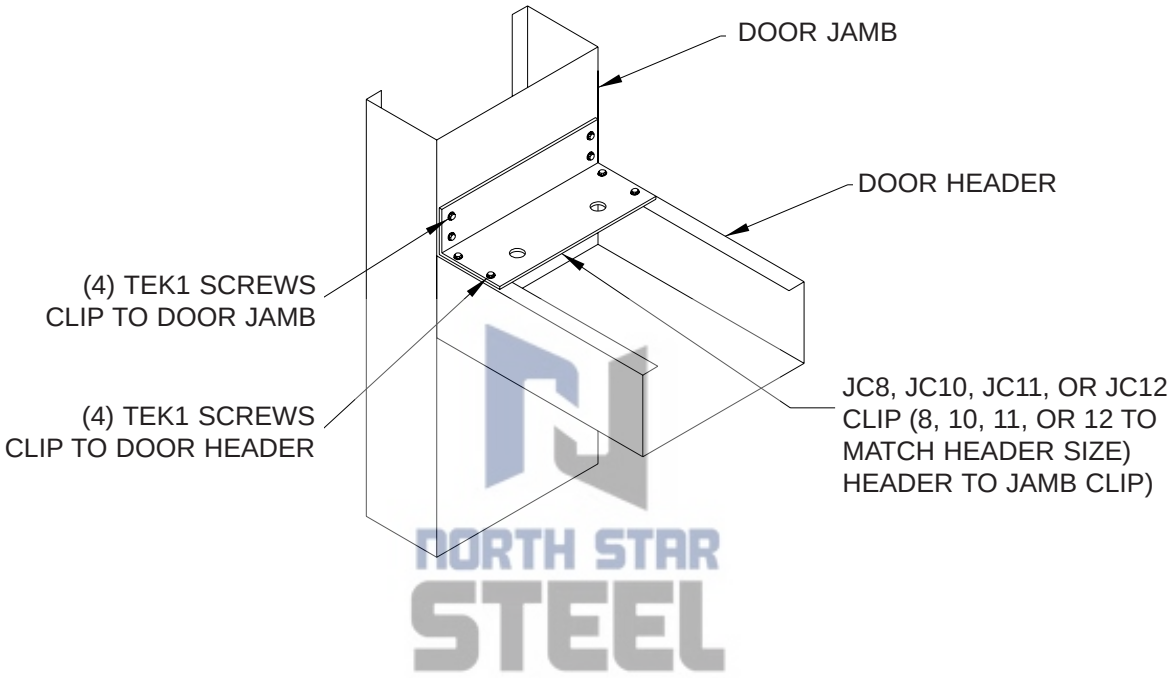
DOOR JAMB TO EAVE



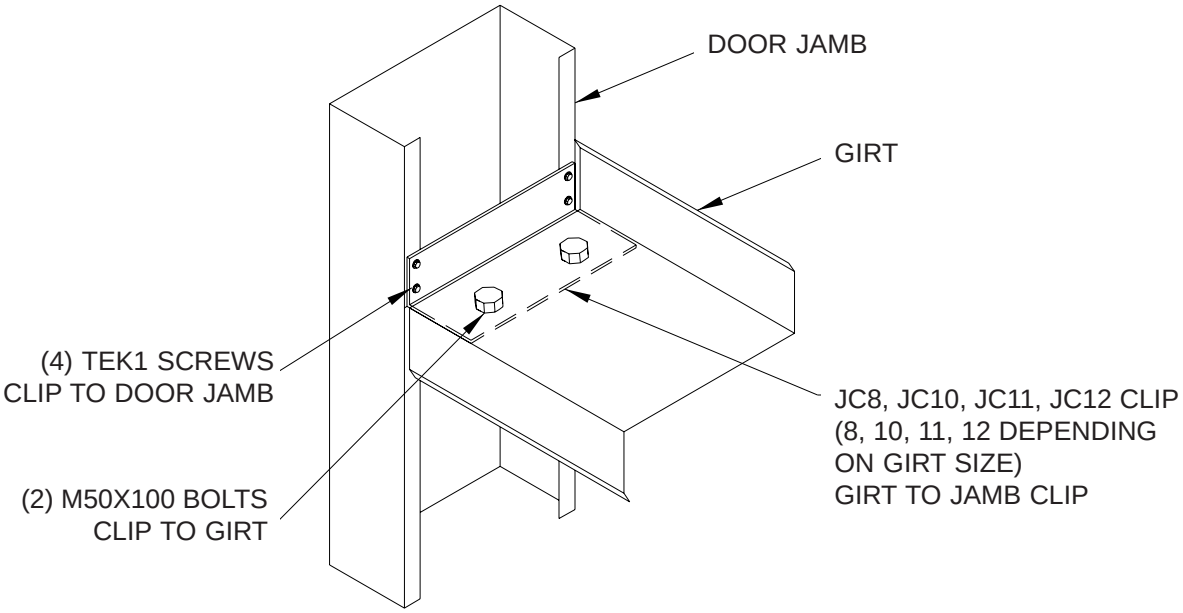
DOOR JAMB TO BASE



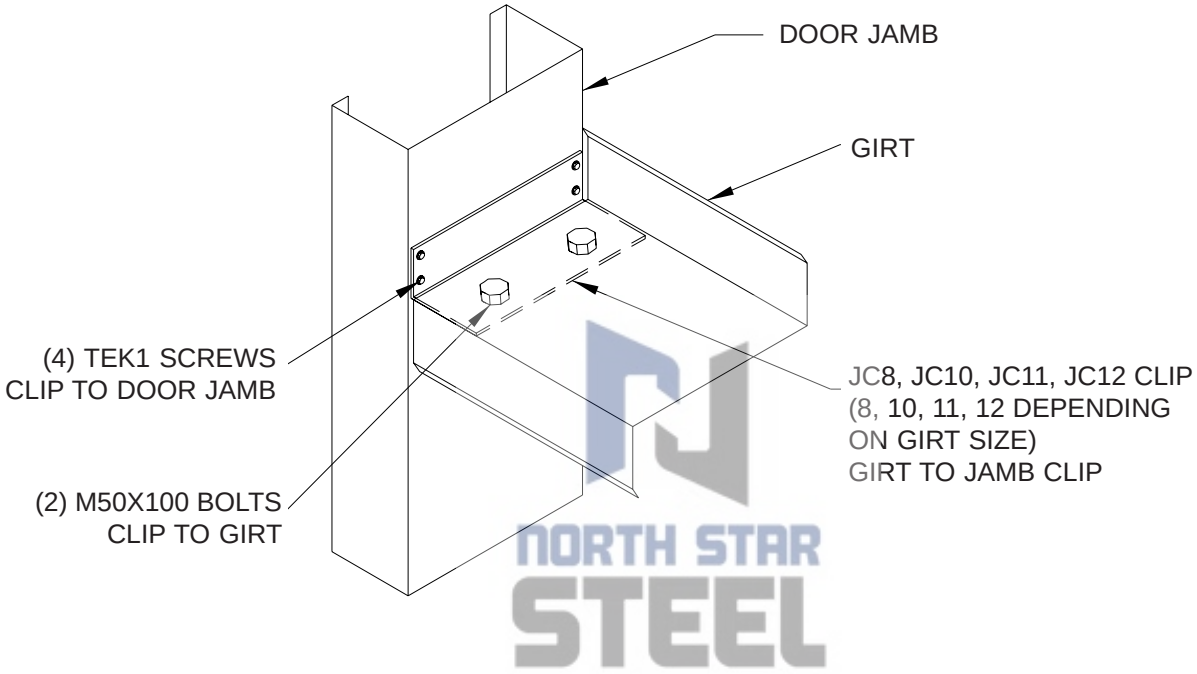
DOOR JAMB TO HEADER



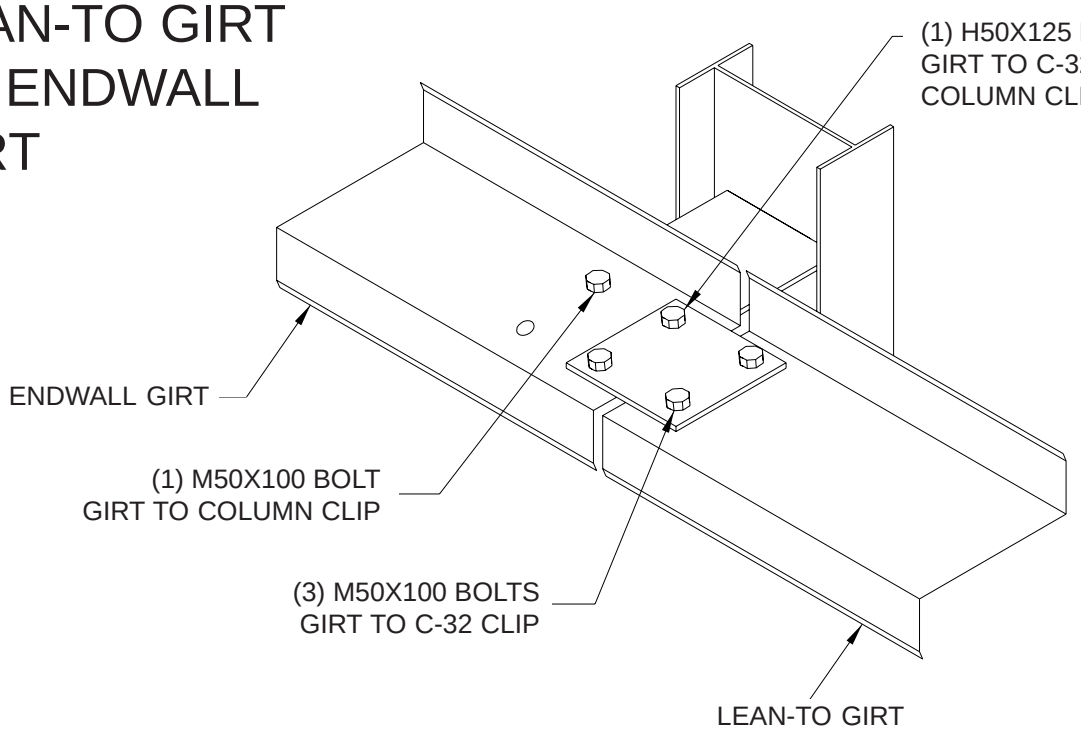
GIRT TO DOOR JAMB



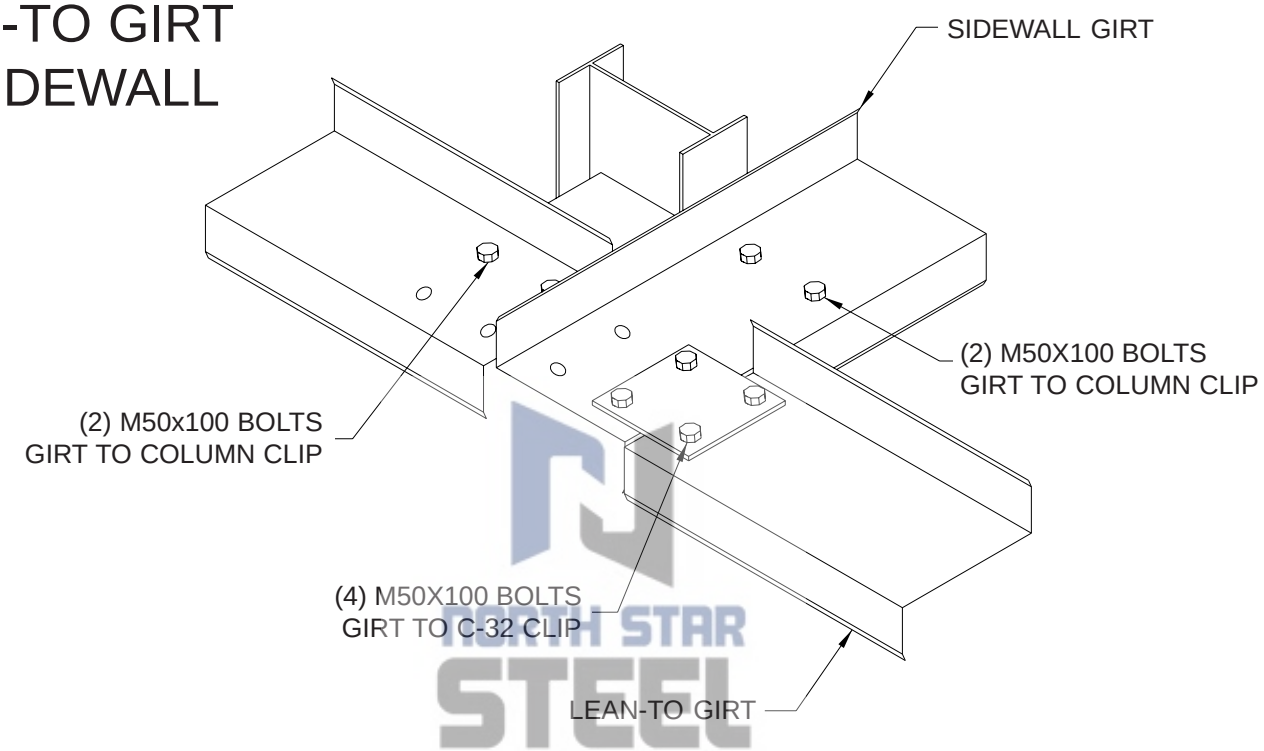
GIRT TO DOOR JAMB - ABOVE DOOR HEADER



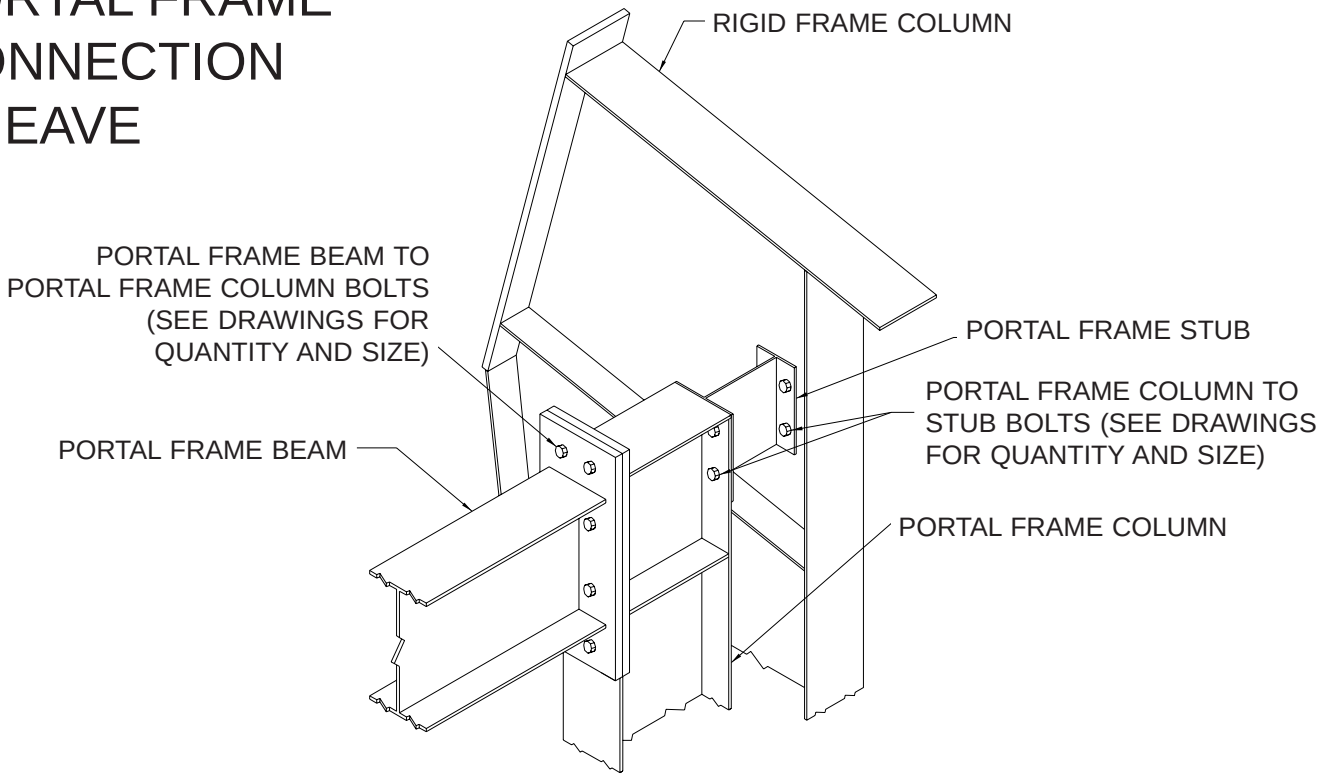
LEAN-TO GIRT TO ENDWALL GIRT



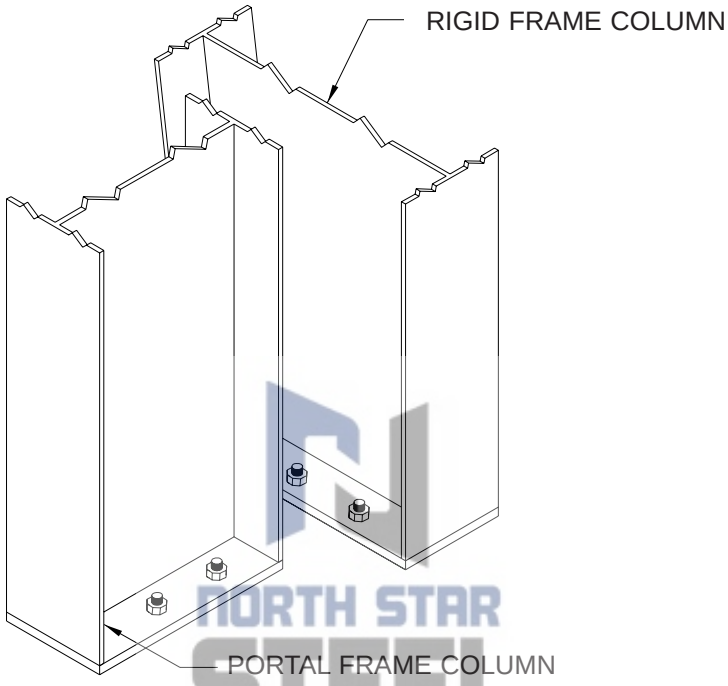
LEAN-TO GIRT TO SIDEWALL GIRT



PORTAL FRAME CONNECTION AT EAVE



PORTAL FRAME CONNECTION AT BASE



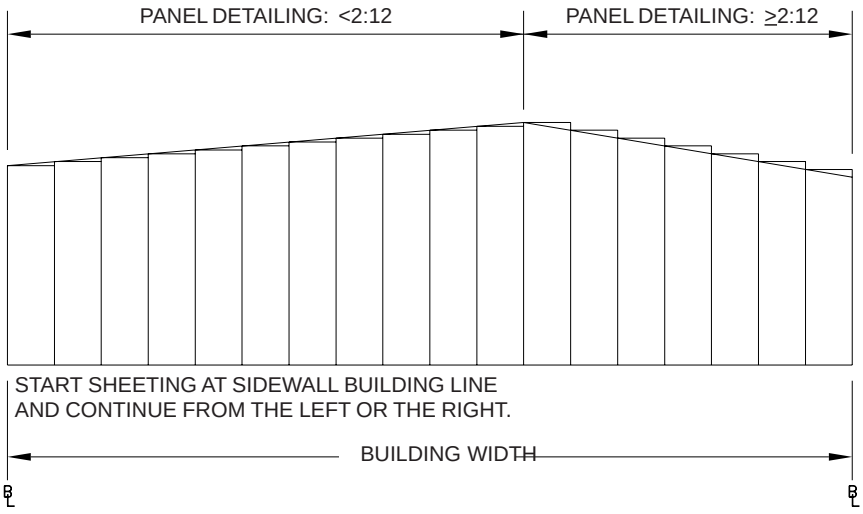
STANDARD DETAILS Sheeting

GENERAL ROOF SHEETING NOTES:

1. Each side of the roof sheet and the ridge panel must be run in conjunction with each other to ensure correct alignment.
2. Refer to concurrent sections of this manual for details relating to the eave alignment of roof sheets, mastic application, fastener type and spacing and roof located accessories. Be careful not to scratch finished surface of panel.
3. Any damage to the paint finish should be touched-up immediately to prevent rusting.
4. Should a fastener be installed in the wrong location or break during installation, remove the fastener and install one of a larger diameter in order to prevent leaking. If the removal of the fastener remnant is not possible, water proofing measures should be taken.
5. Concentrated heavy loads occurring on the roof during construction should be distributed uniformly over a large area in such a manner as to prevent damage to any building components.
6. Any metal shavings should be removed from the roof in such a manner as to prevent damage or staining of the material finish.

GENERAL WALL SHEETING NOTES:

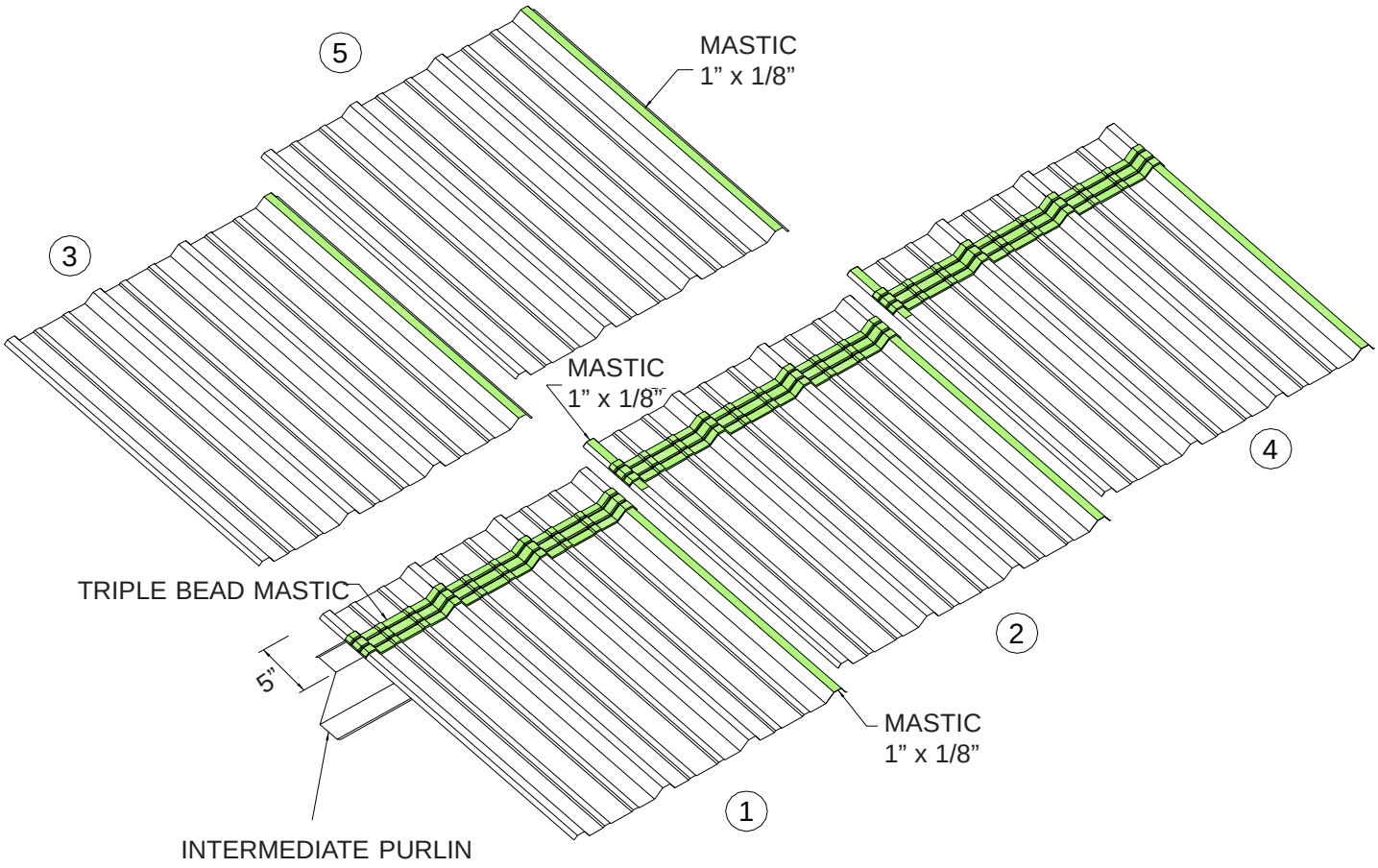
1. The building must be tight and plumb prior to sheeting installation. Blocking of girts may be required.
2. The building foundation must be square, level and correct to the out to out steel dimensions.
3. On buildings with roof pitches 2/12 or greater, the endwall panels will need to be field mitered to match roof slope
4. Install fasteners on long wall sheeting from bottom to the top of sheet.
5. Install panels in a true and plum position and hold panel on 36” centers.
6. Stitch screw panels 2’ - 6” on center starting at base of panels.



STANDARD META COLORS

CODE #	COLOR	CODE #	COLOR
01	GALVALUME	08	EVERGREEN
02	SLATE BLUE	09	ASH GREY
03	ARCTIC WHITE	10	ANTIQUE RED
04	CHARCOAL GREY	11	CHOCOLATE BROWN
05	BUCKSKIN TAN	12	HARBOR BLUE
06	BURNISHED SLATE	13	LIGHT STONE
07	PARCHMENT		

PANEL INSTALLATION SEQUENCE AND MASTIC LAYOUT



SEE INSTALLATION INSTRUCTIONS ON NEXT PAGE

PANEL INSTALLATION SEQUENCE AND MASTIC LAYOUT INSTRUCTIONS

Panel # 1

A) Install roof panel #1 with the first high rib centered over the endwall steel line. Ensure that the first panel is installed square to the roof framing. The end of the panel should project 5" past the purlin web for the roof panel end lap.
B) Install panel fasteners 1' -0" O/C to the rake angle (ANG64). Do not walk on the roof panels until the roof panel fasteners are installed at the leading edge of the panel.
C) Install panel fasteners at the eave strut and intermediate purlins, except for the purlin at the roof panel endlap.
D) Install the 1" mastic tape along the high rib of the trailing edge of the panel for the full length of the panel.
E) Install triple bead mastic across the width of the panel. The triple bead mastic should be centered over the 2-1/2" leg of the panel lap purlin.

Panel # 2

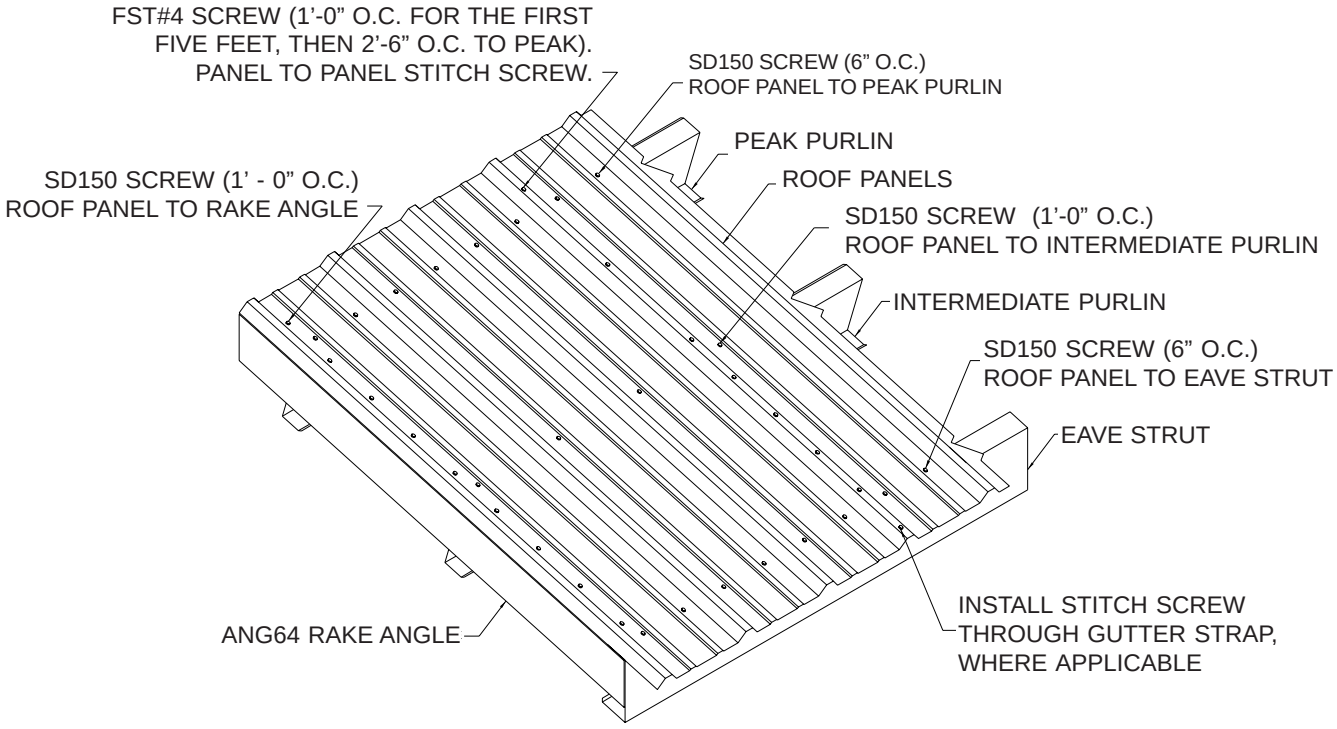
A) Position panel # 2 so that the end of the panel overlaps the purlin web by 3".
B) Install panel fasteners 1' -0" O/C to the rake angle (ANG64). Do not walk on the roof panels until the roof panel fasteners are installed at the leading edge of the panel.
C) Install panel fasteners at the lap purlin and the remaining intermediate purlins. For buildings less than 100' 0 wide with roof pitches 1:12 or less, do not install the panel fasteners at the peak purlins at this time. These fasteners will be installed through the formed ridge cap. Do not walk on the panel above the peak purlin.
D) Install the 1" mastic tape along the high rib of the trailing edge of the panel, for the full length of the panel.
E) When installing formed ridge cap, center triple bead mastic over the 2-1/2" leg of the peak purlin across the width of the panel.

Panel # 3

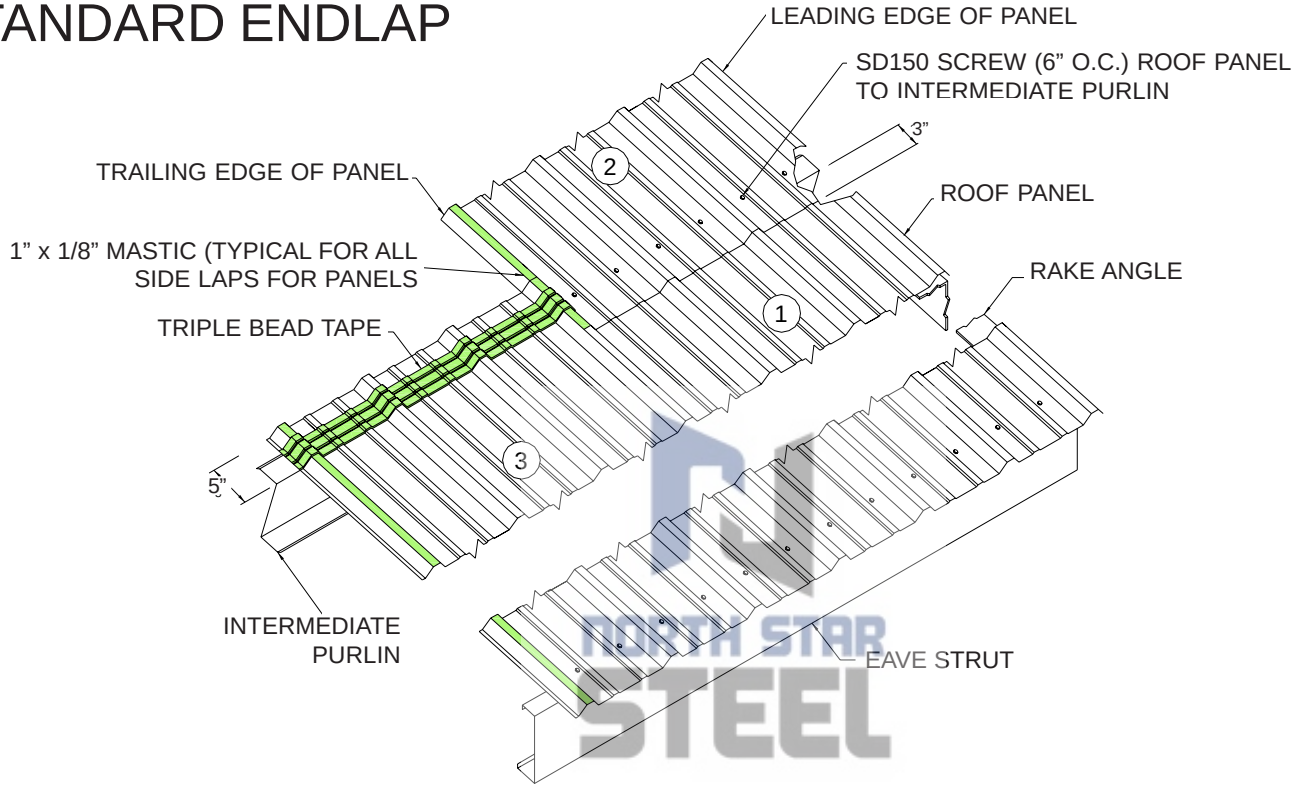
A) Position panel # 3 so that the first high rib is centered over the last high rib of panel # 1, and so that the panel projects 5" past the web of the intermediate purlin.
B) Install the panel to purlin fasteners along the leading edge of the panel. Do not walk on the roof panels until the roof panel fasteners are installed at the leading edge of the panel.
C) Install panel fasteners at the eave strut and intermediate purlins, except for the purlin at the roof panel endlap.
D) Install the 1" mastic tape along the high rib of the trailing edge of the panel for the full length of the panel.
E) Install triple bead mastic across the width of the panel. The triple bead mastic should be centered over the 2-1/2" leg of the panel lap purlin.

REPEAT THE ABOVE LISTED STEPS, AS NECESSARY, FOR THE REMAINDER OF THE ROOF INSTALLATION.

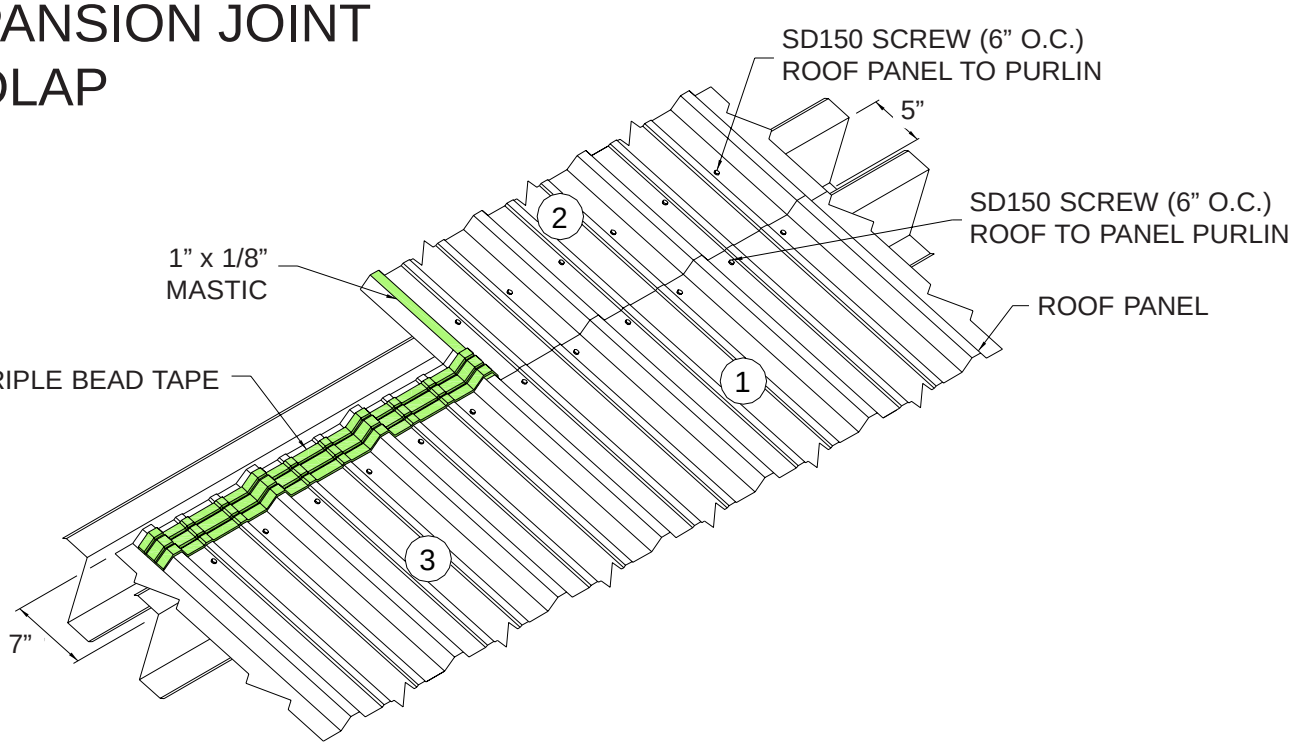
ROOF FASTENER APPLICATION



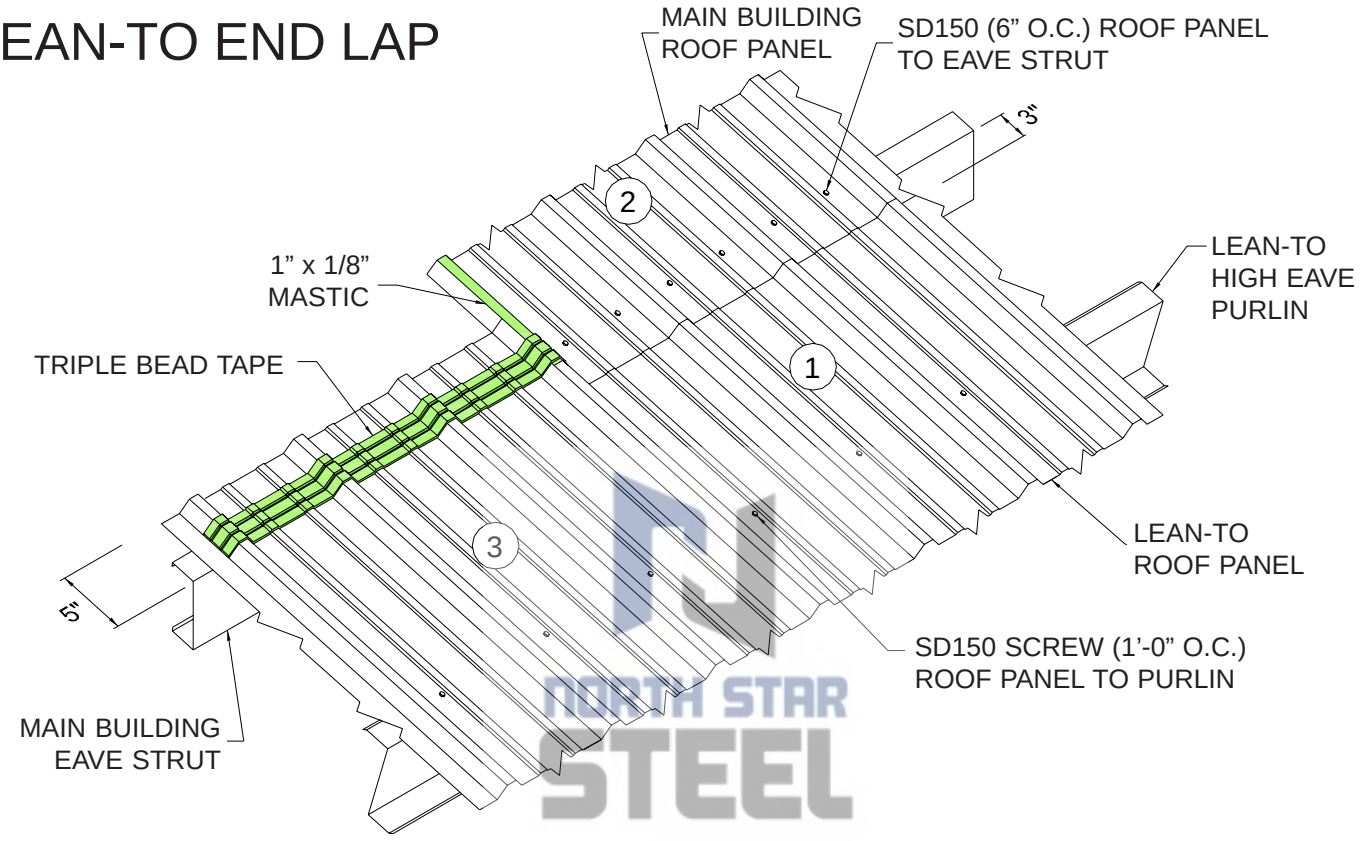
STANDARD ENDLAP



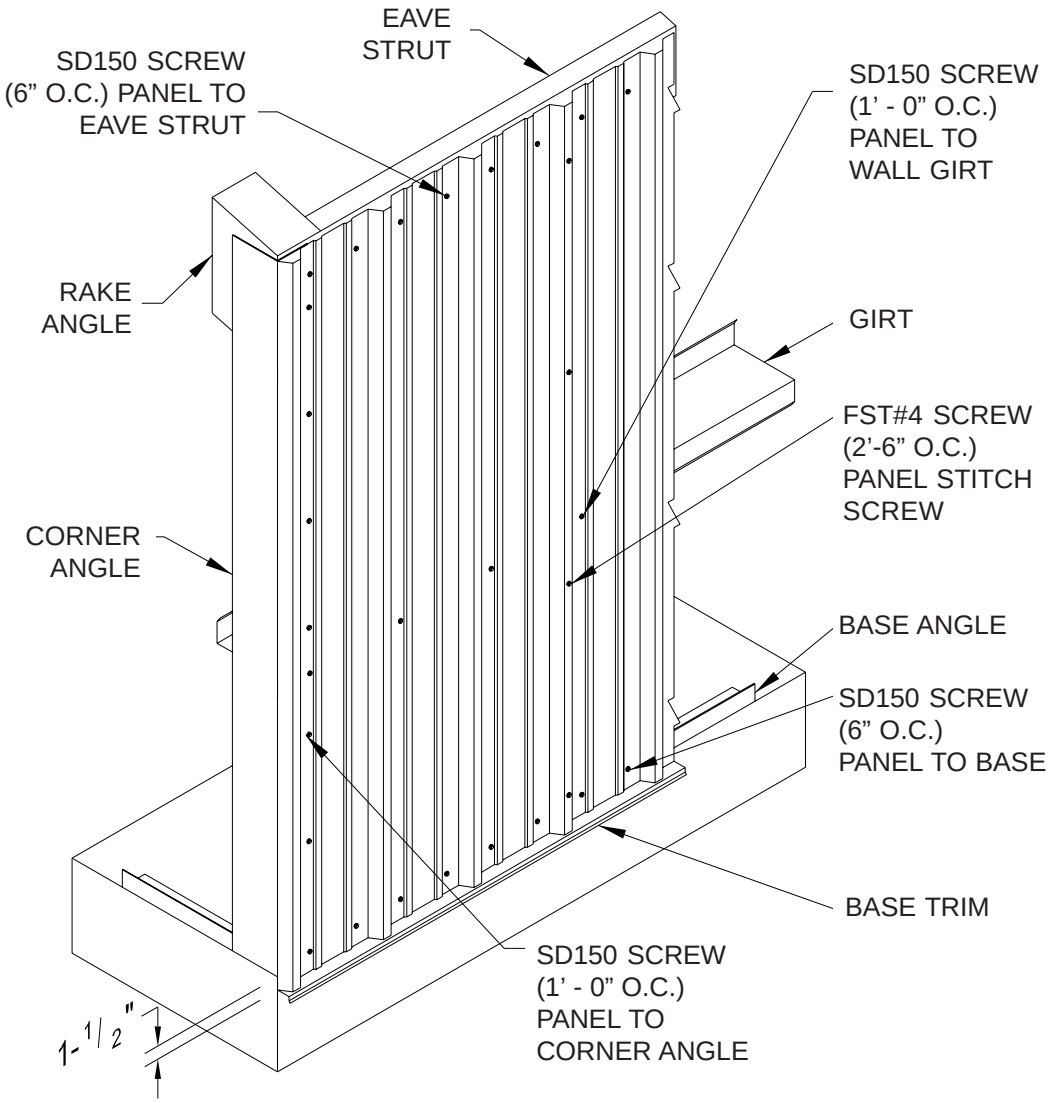
EXPANSION JOINT ENDLAP



LEAN-TO END LAP



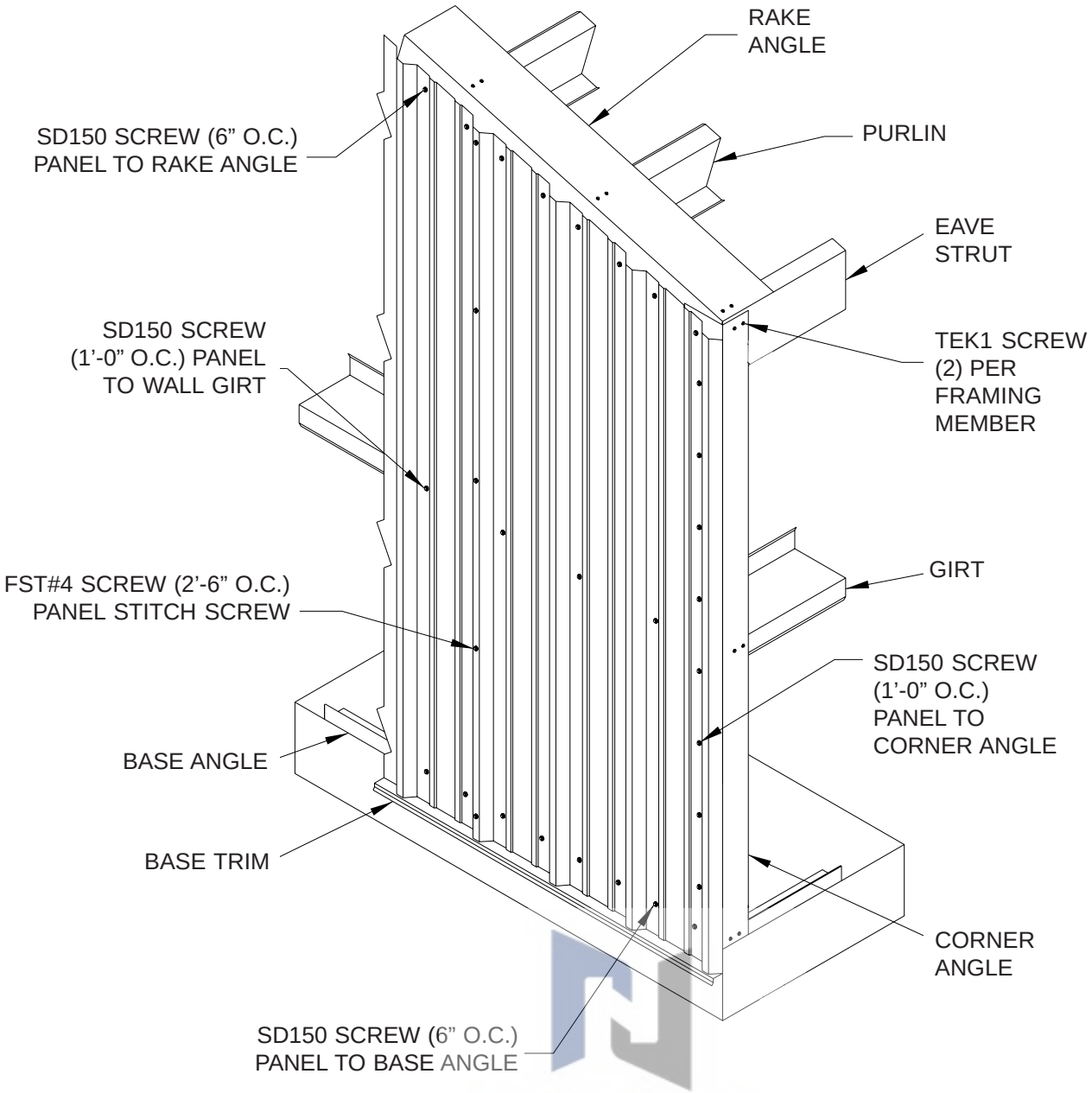
“R” PANEL SIDEWALL



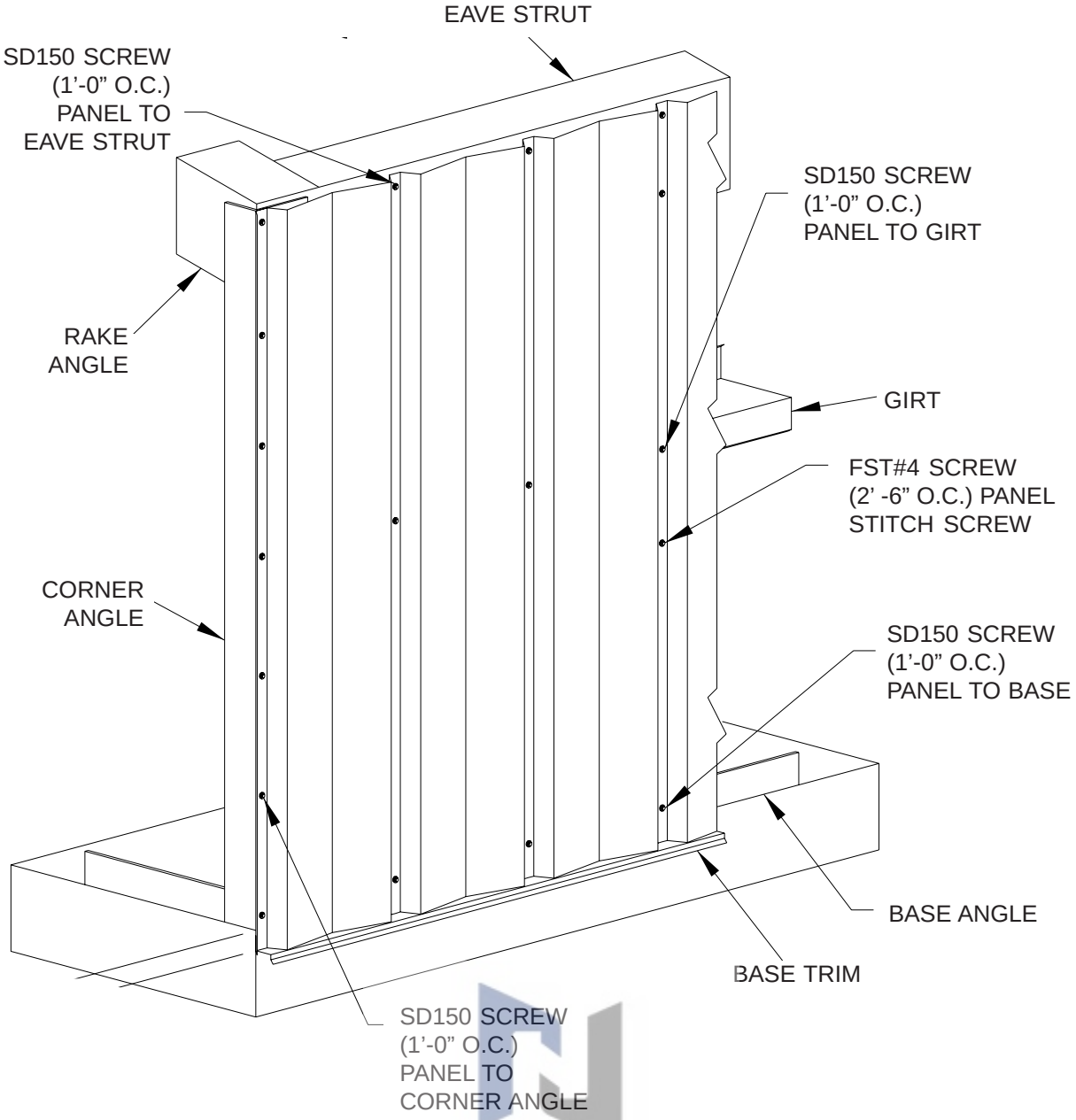
NOTES:

1. The building foundation must be square, level and correct to the outside steel dimensions.
2. The building must be tight and plumb prior to the installation of sheeting.
3. Block girts to level position before starting sheeting installation. Maintain blocking until all panel fasteners are installed.
4. Align and plumb the first wall sheet.
5. On buildings over 20’ eave height, attach at base angle and eave strut, then start at lowest girt and work upward with attachment of fasteners.

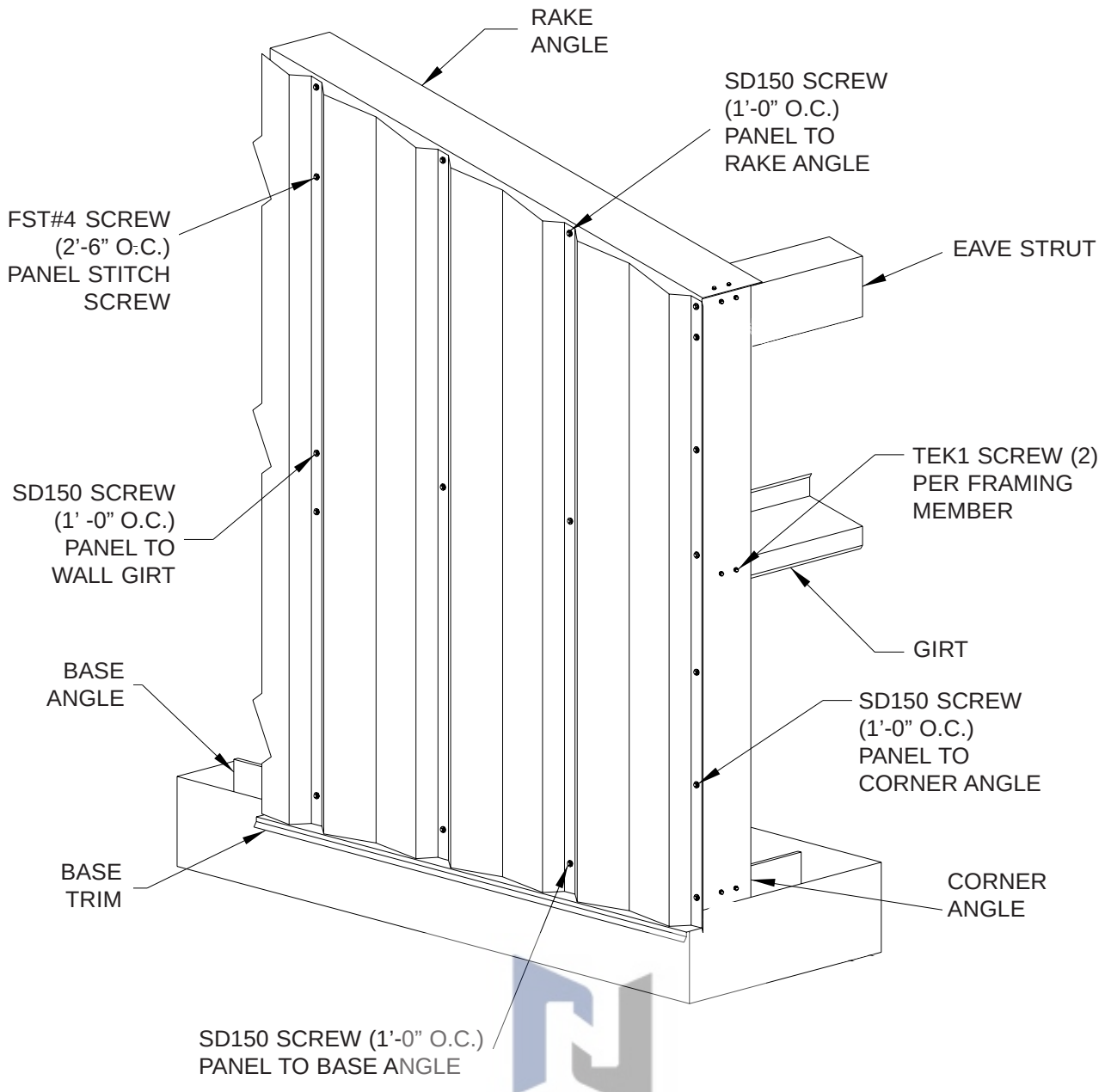
"R" PANEL ENDWALL



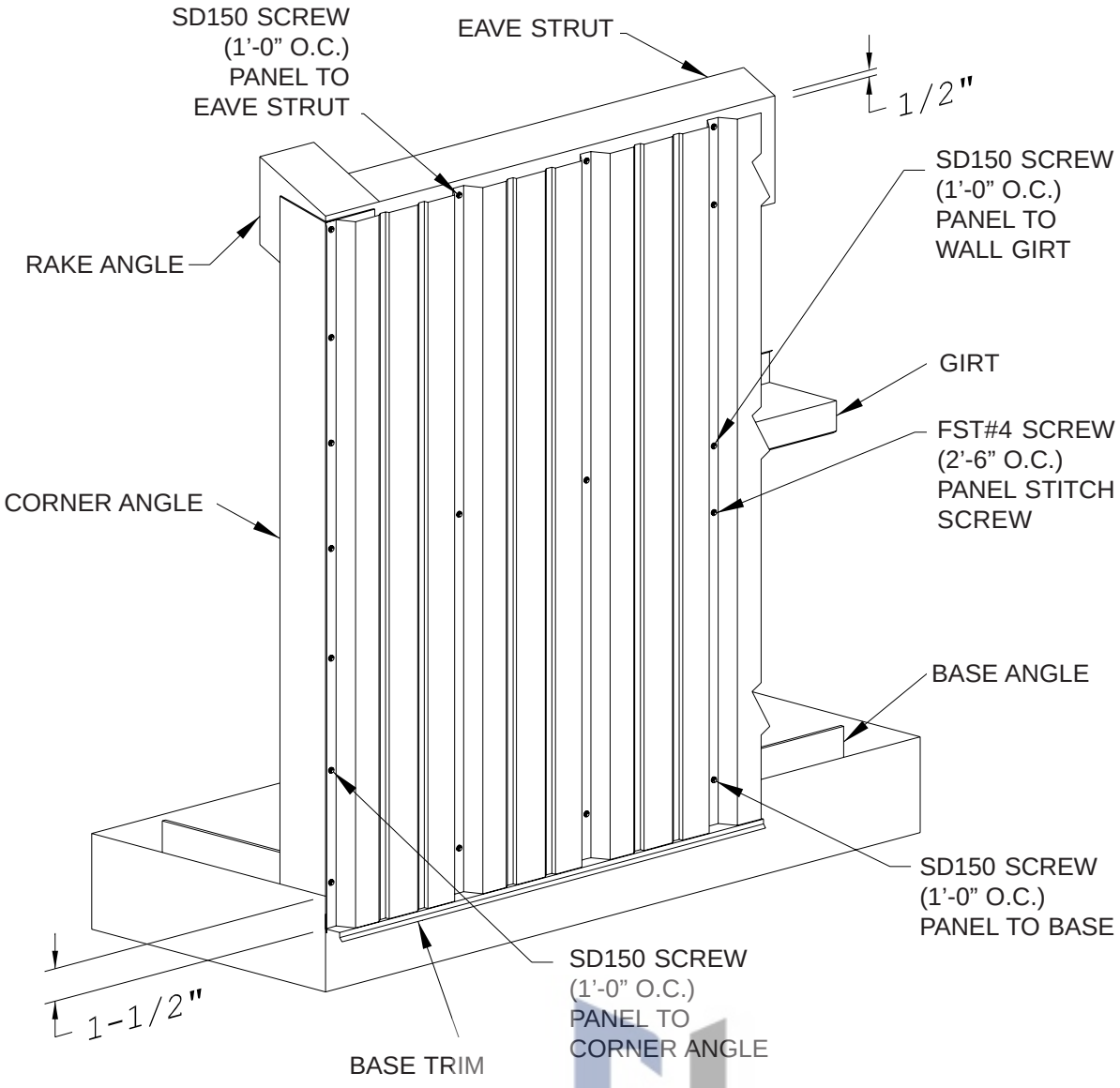
“A” PANEL SIDEWALL



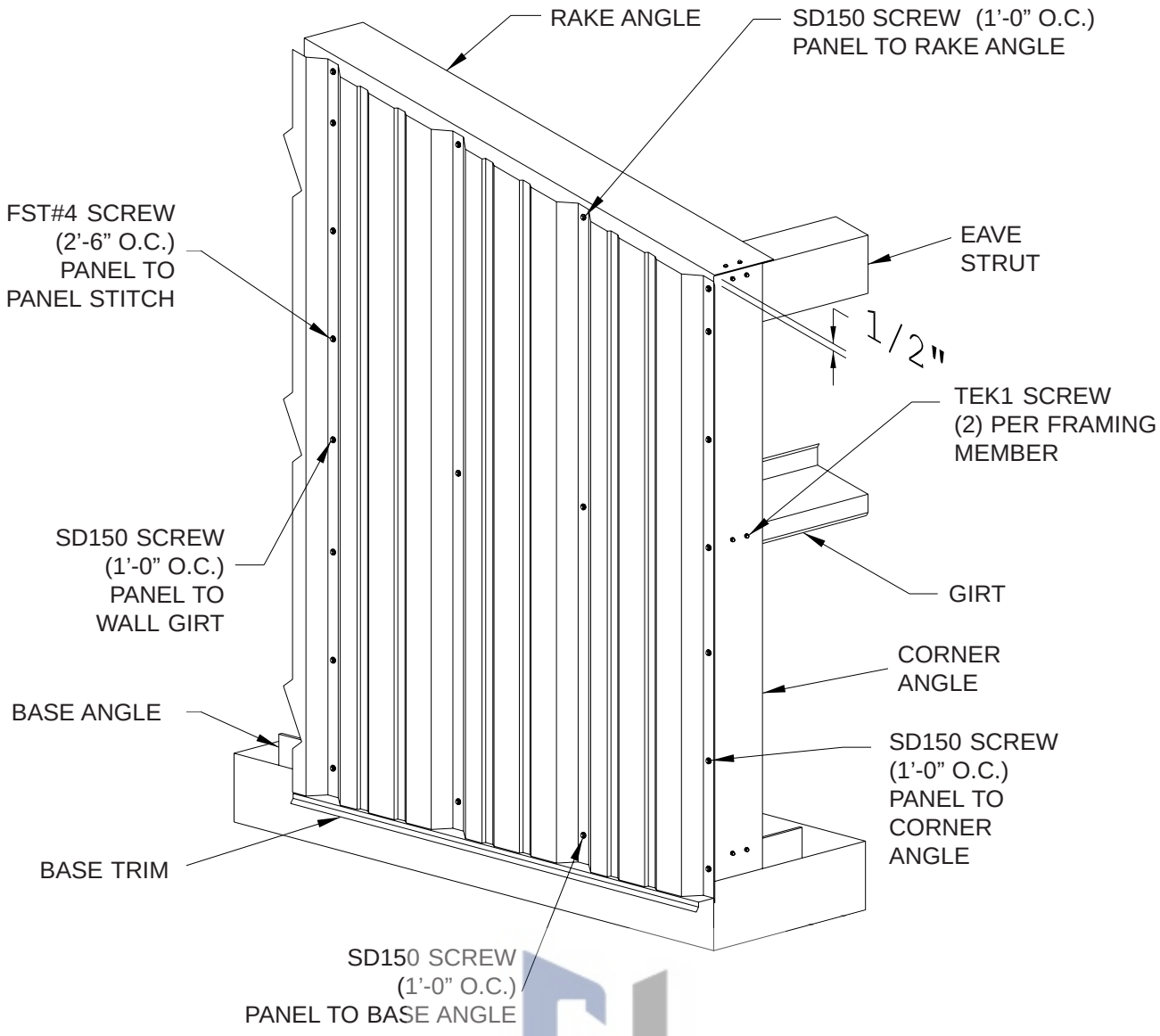
“A” PANEL ENDWALL



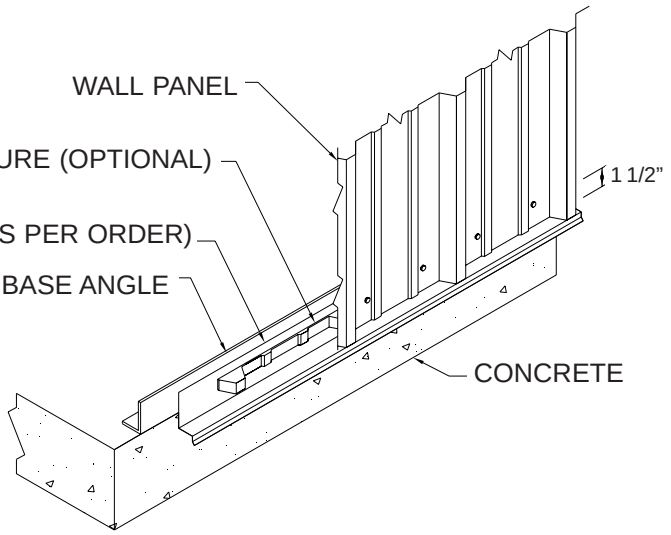
“RR” PANEL SIDEWALL



"RR" PANEL ENDWALL

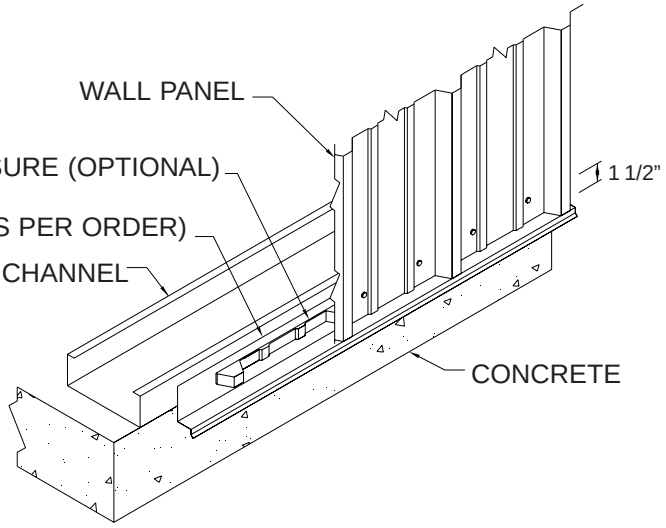


BASE ANGLE



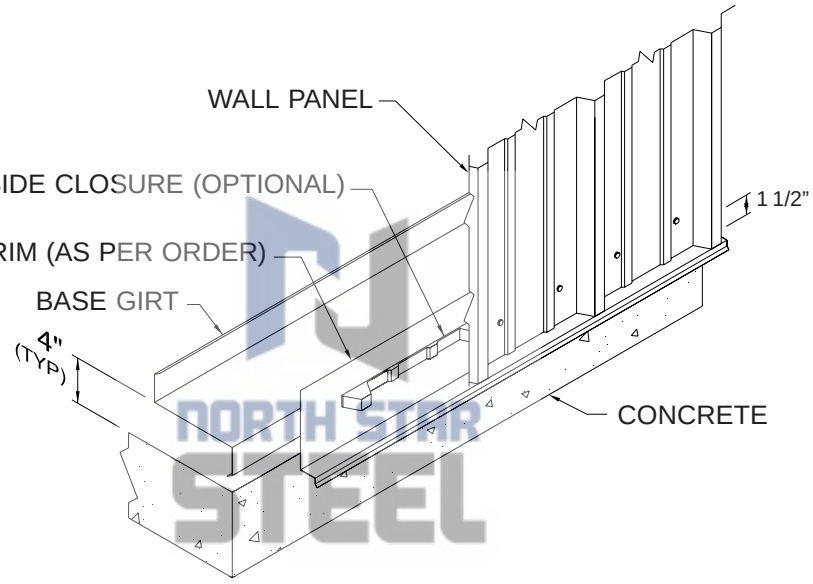
NOTE:
For clarity, wall insulation is not shown.

BASE CHANNEL



NOTE:
For clarity, wall insulation is not shown.

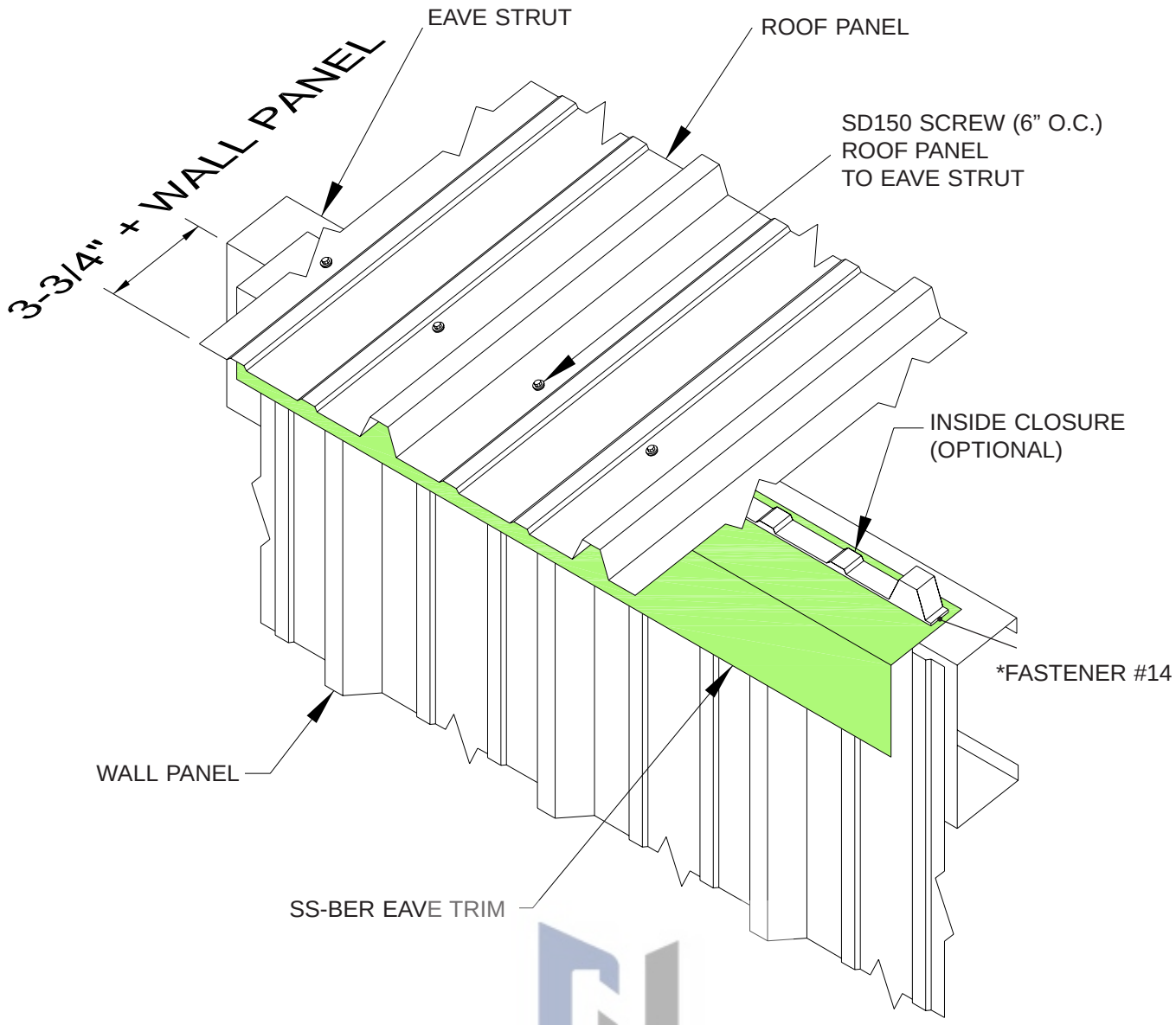
BASE GIRT



NOTE:
For clarity, wall insulation is not shown.

STANDARD EAVE CONDITION

*3 PER EAVE TRIM - TRIM TO EAVE STRUT - INSTALL MASTIC OVER FST#14

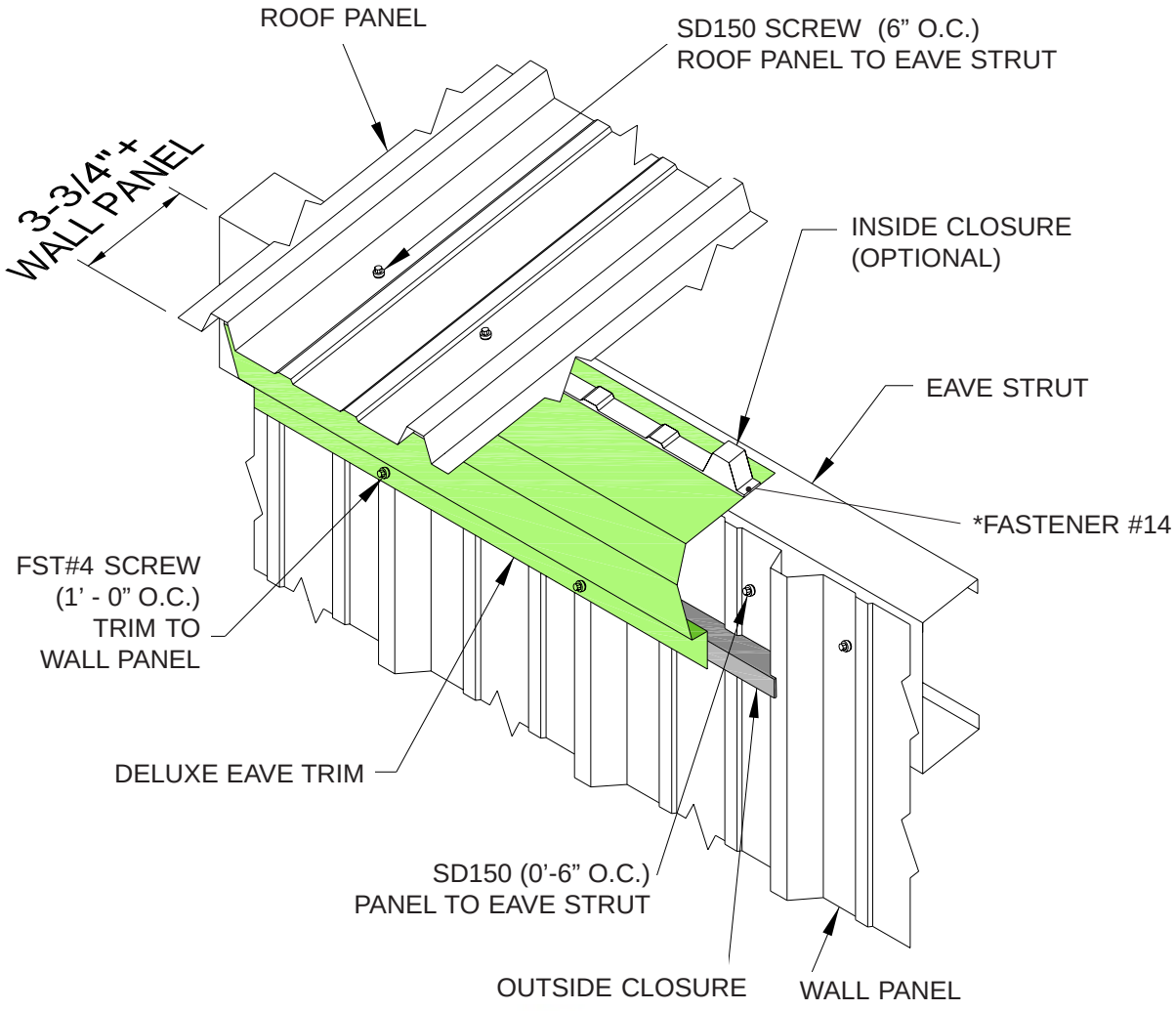


NOTE

For clarity, insulation is not shown.

DELUXE EAVE CONDITION

*3 PER EAVE TRIM - TRIM TO EAVE STRUT - INSTALL MASTIC OVER FST#14

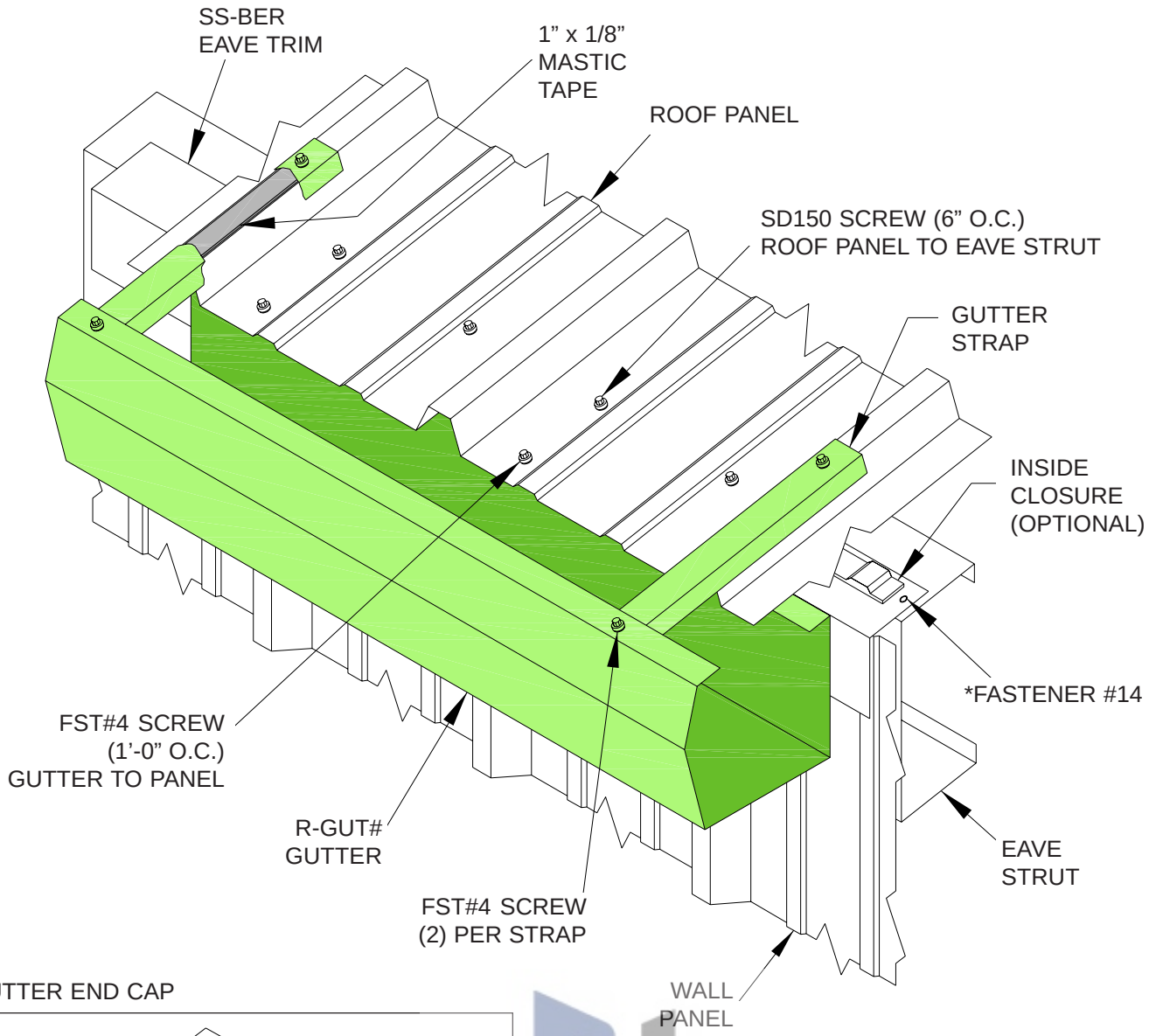


NOTE

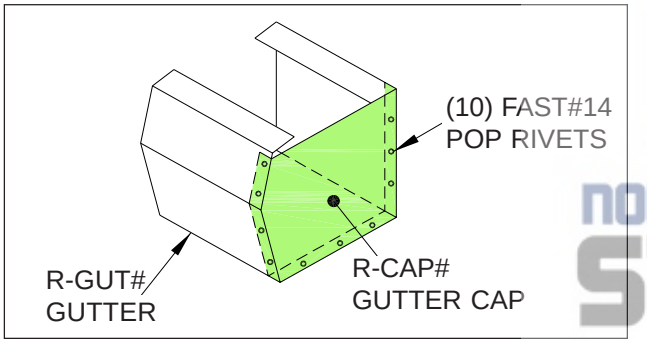
For clarity, insulation is not shown.

STANDARD GUTTER

*3 PER EAVE TRIM - TRIM TO EAVE STRUT - INSTALL MASTIC OVER FST#14



GUTTER END CAP

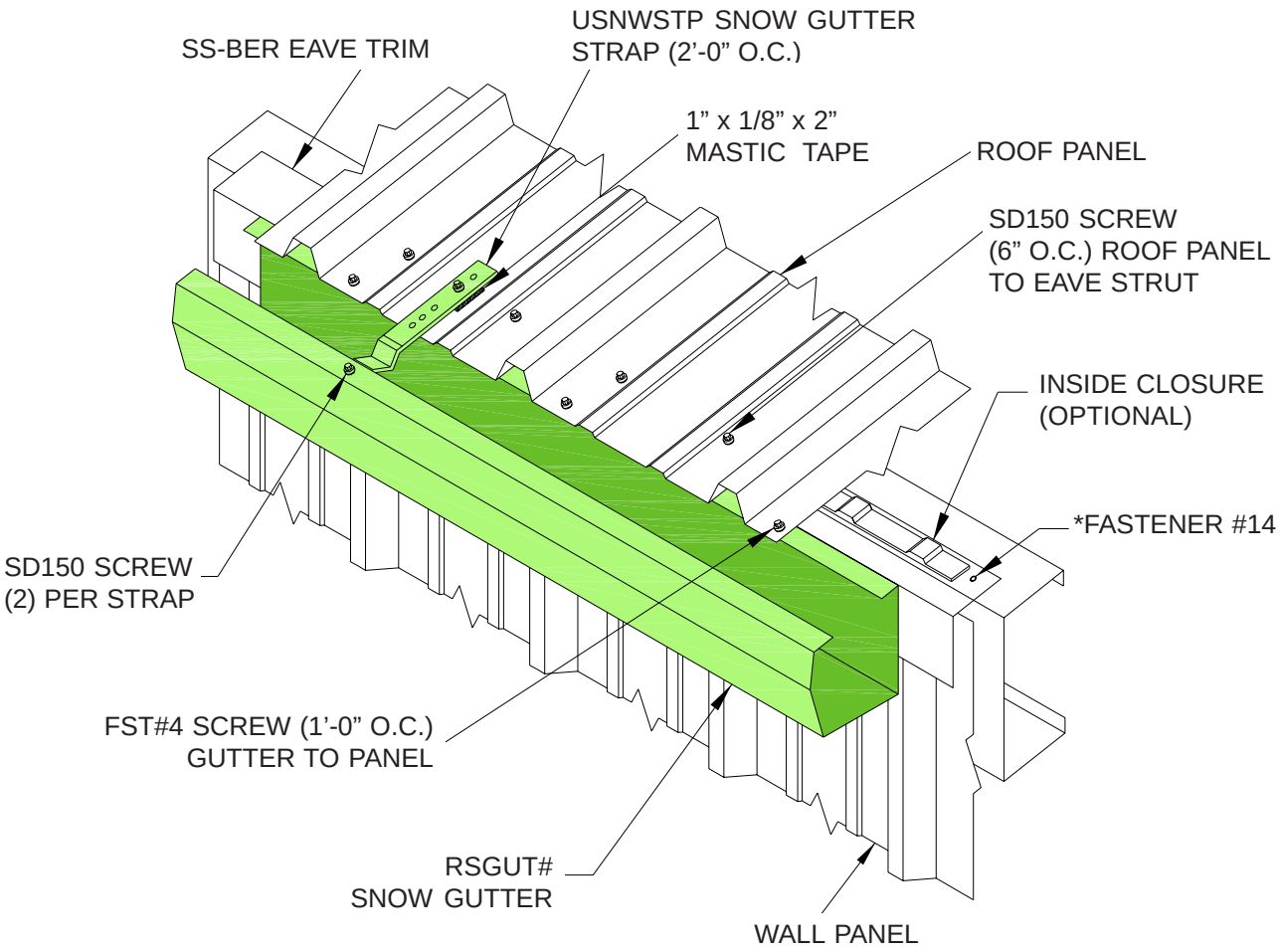


NOTE

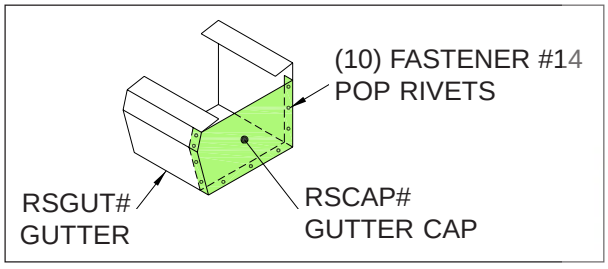
For clarity, insulation is not shown.

SNOW GUTTER

*3 PER TRIM - TRIM TO EAVE STRUT - INSTALL MASTIC OVER FST#14.
(FST#14 HOLDS TRIM UNTIL ROOF PANEL SCREWS ARE INSTALLED).



SNOW GUTTER END CAP

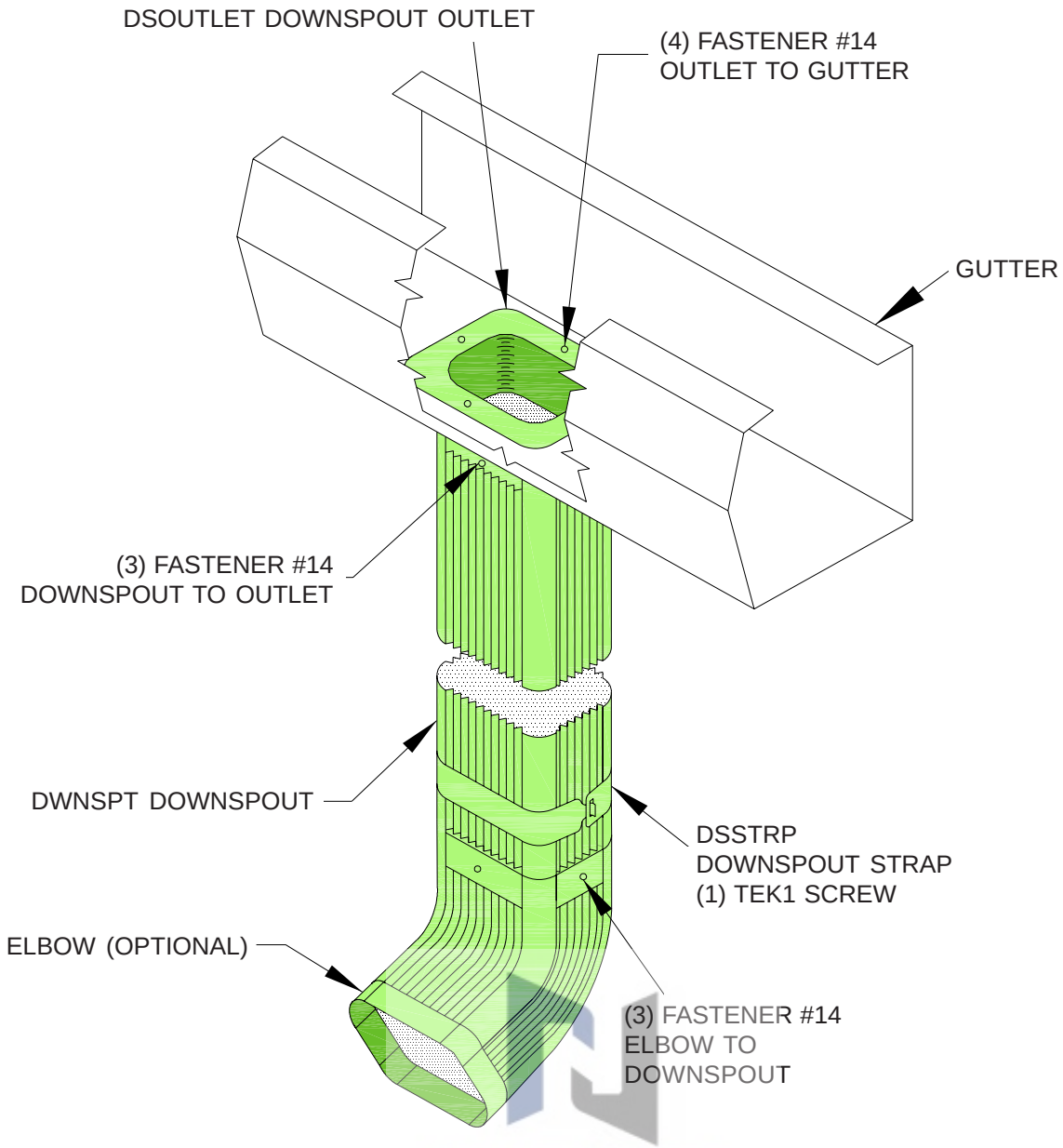


NOTE

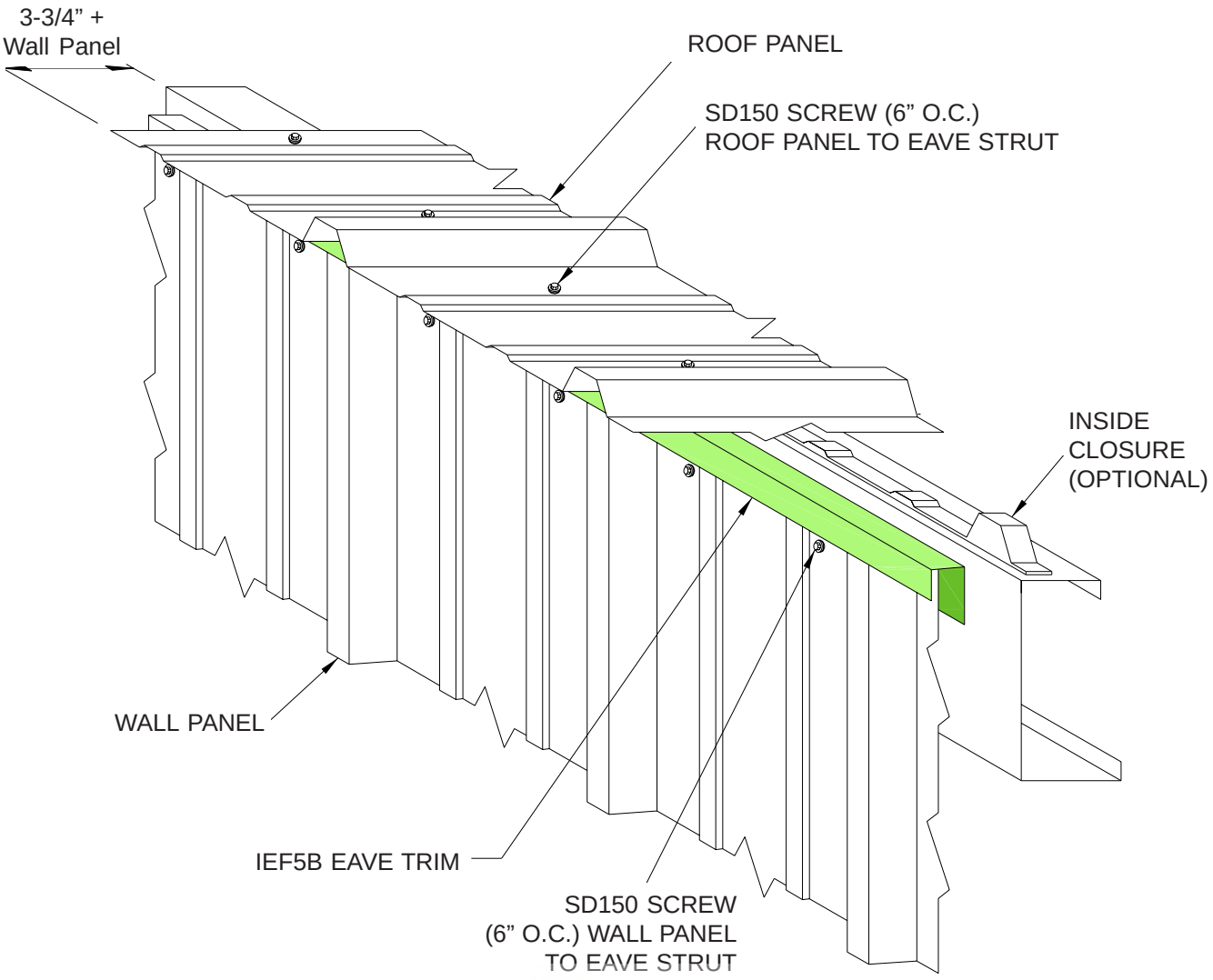
For clarity, insulation is not shown.

DOWNSPOUT CONNECTION TO GUTTER

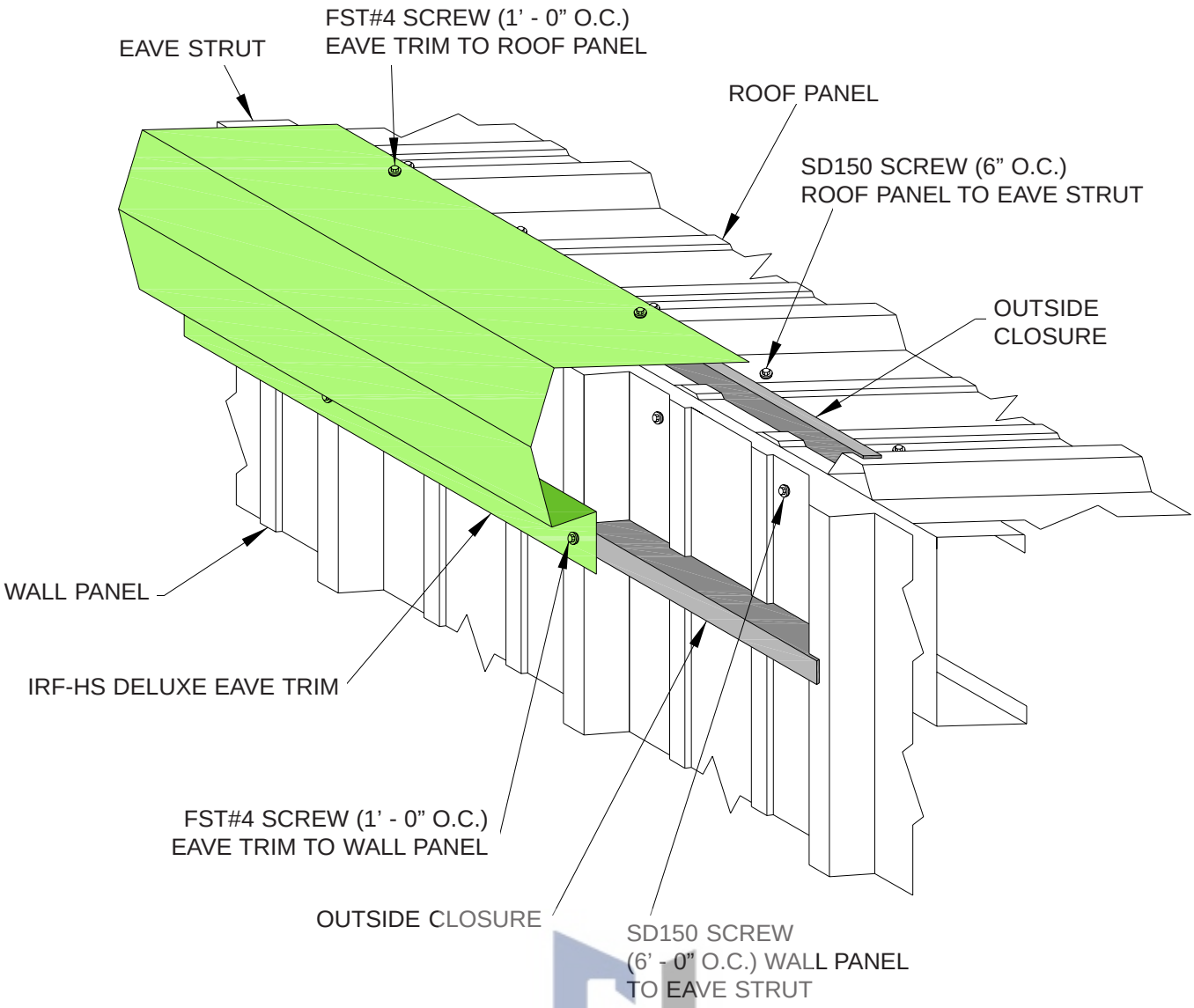
*USE TUBE SEALANT TO SEAL DOWNSPOUT OUTLET.
TUBE SEALANT IS NOT PROVIDED BY THE MANUFACTURER



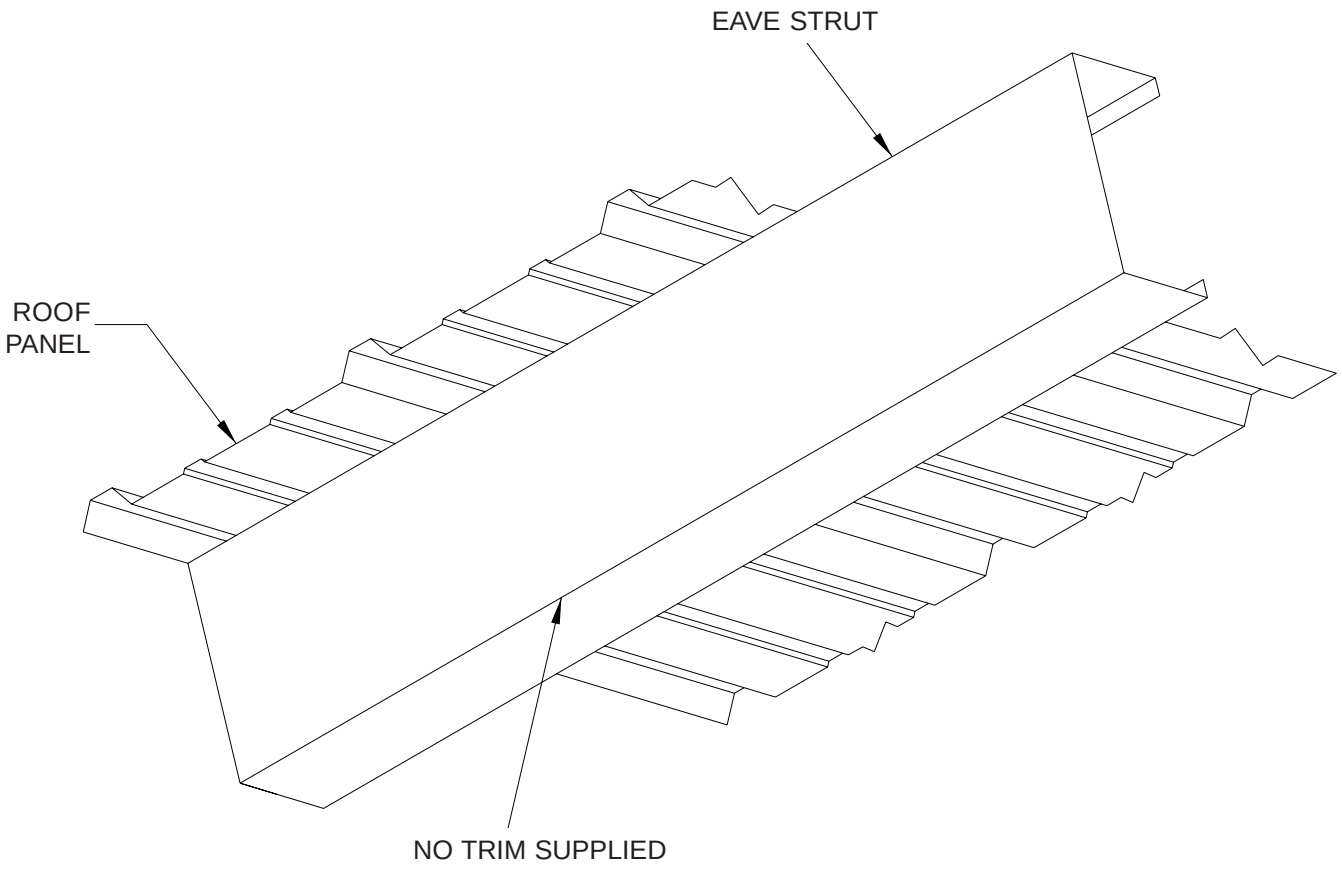
STANDARD HIGH EAVE CONDITION



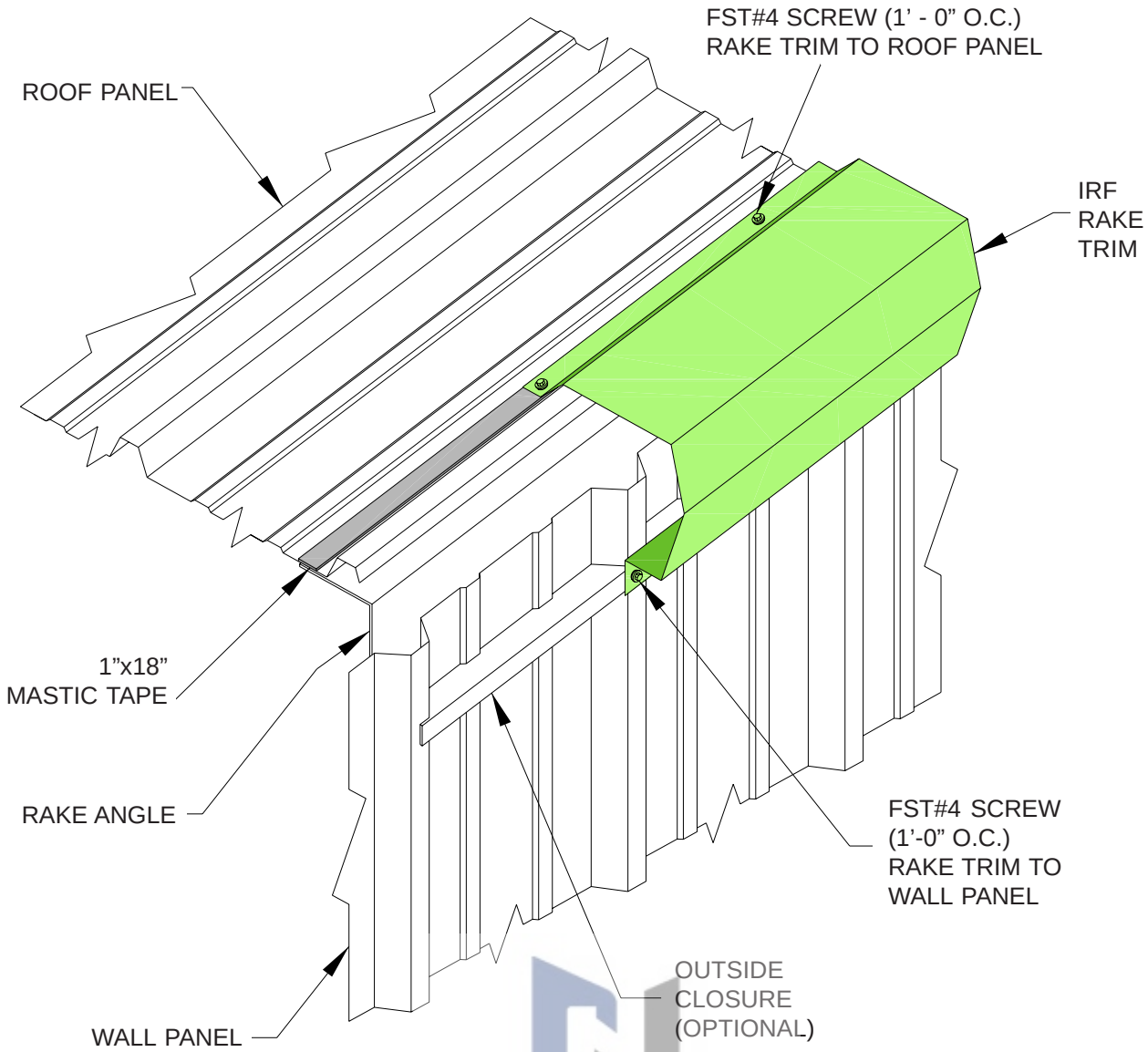
DELUXE HIGH EAVE CONDITION



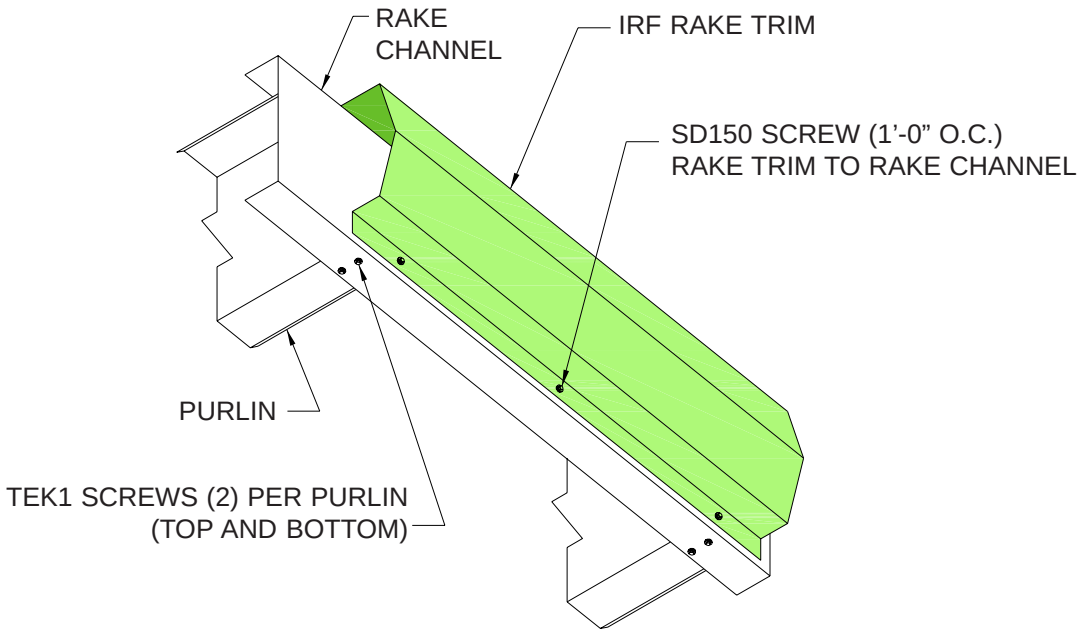
OPEN EAVE WITHOUT GUTTER



STANDARD RAKE CONDITION

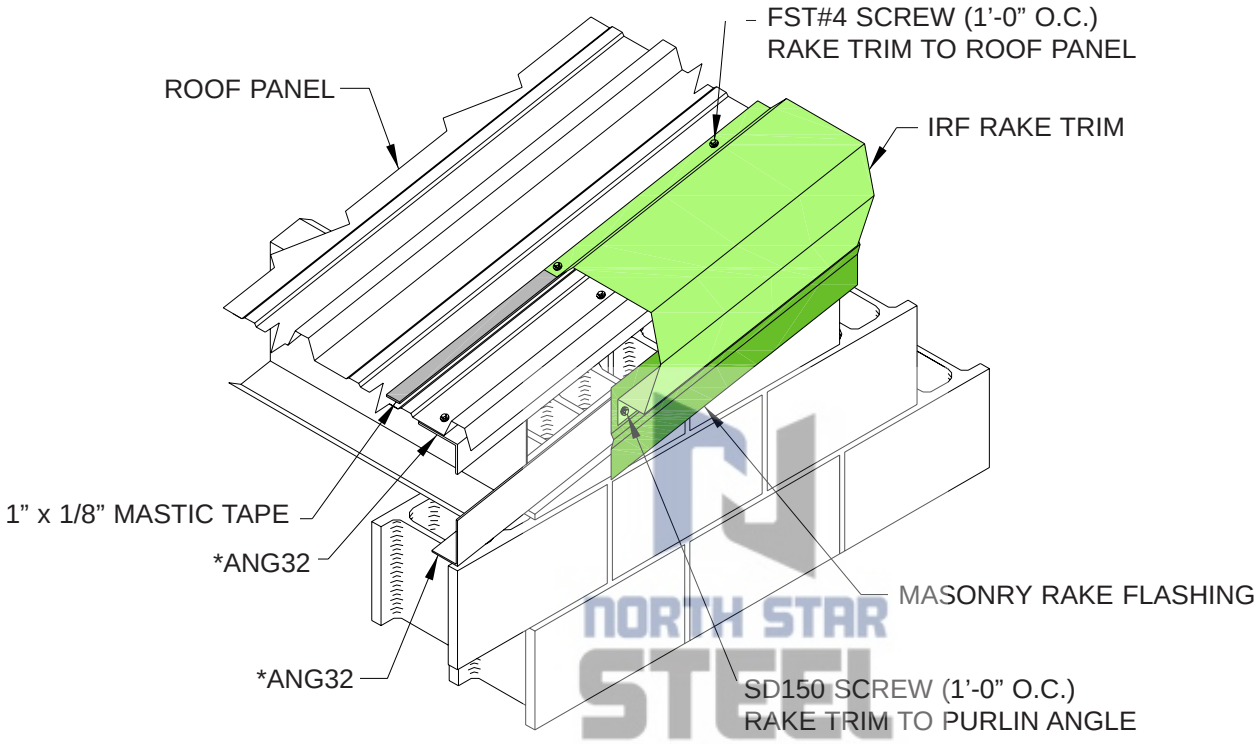


RAKE TRIM AT OPEN WALL

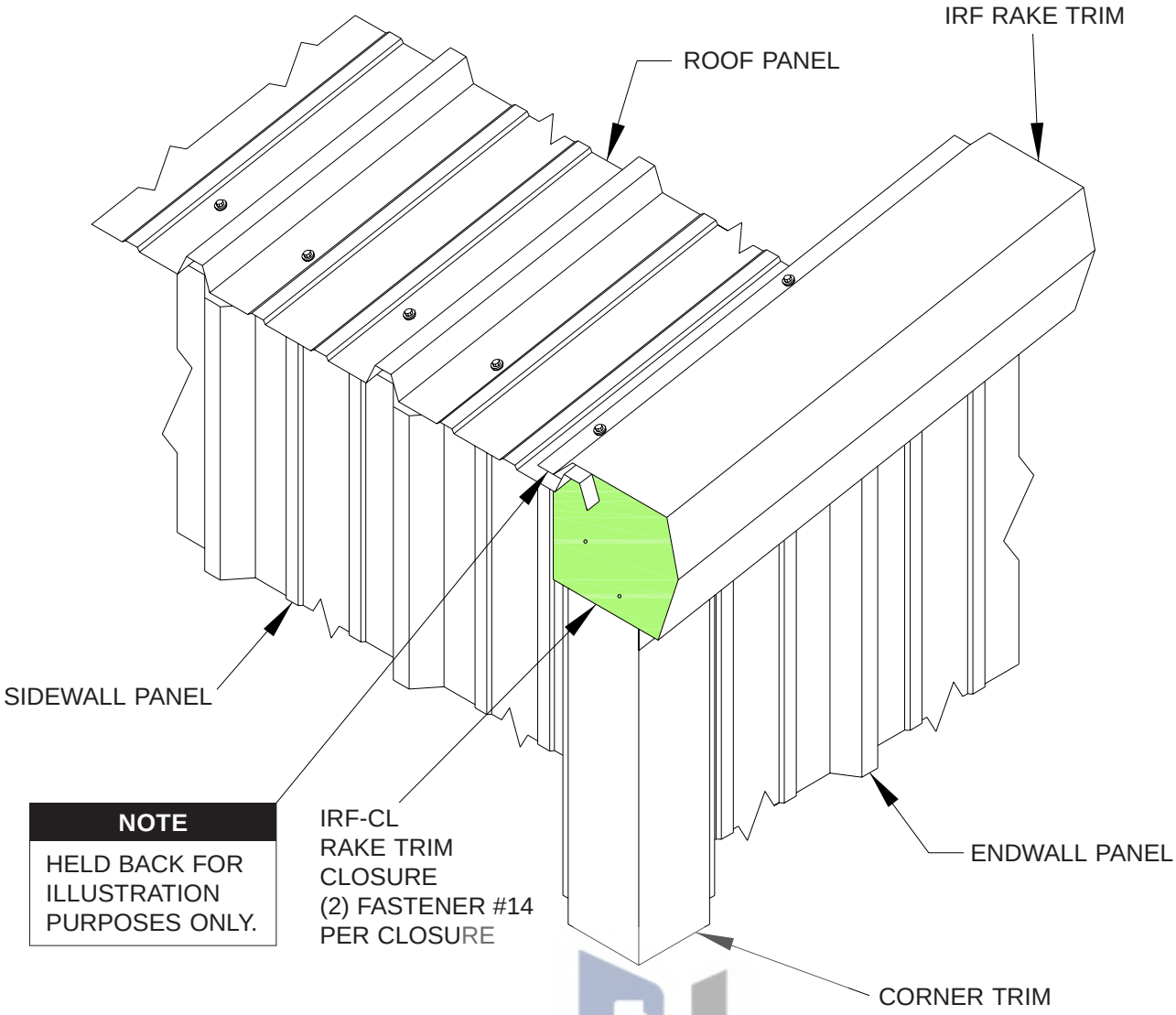


RAKE TRIM AT MASONRY

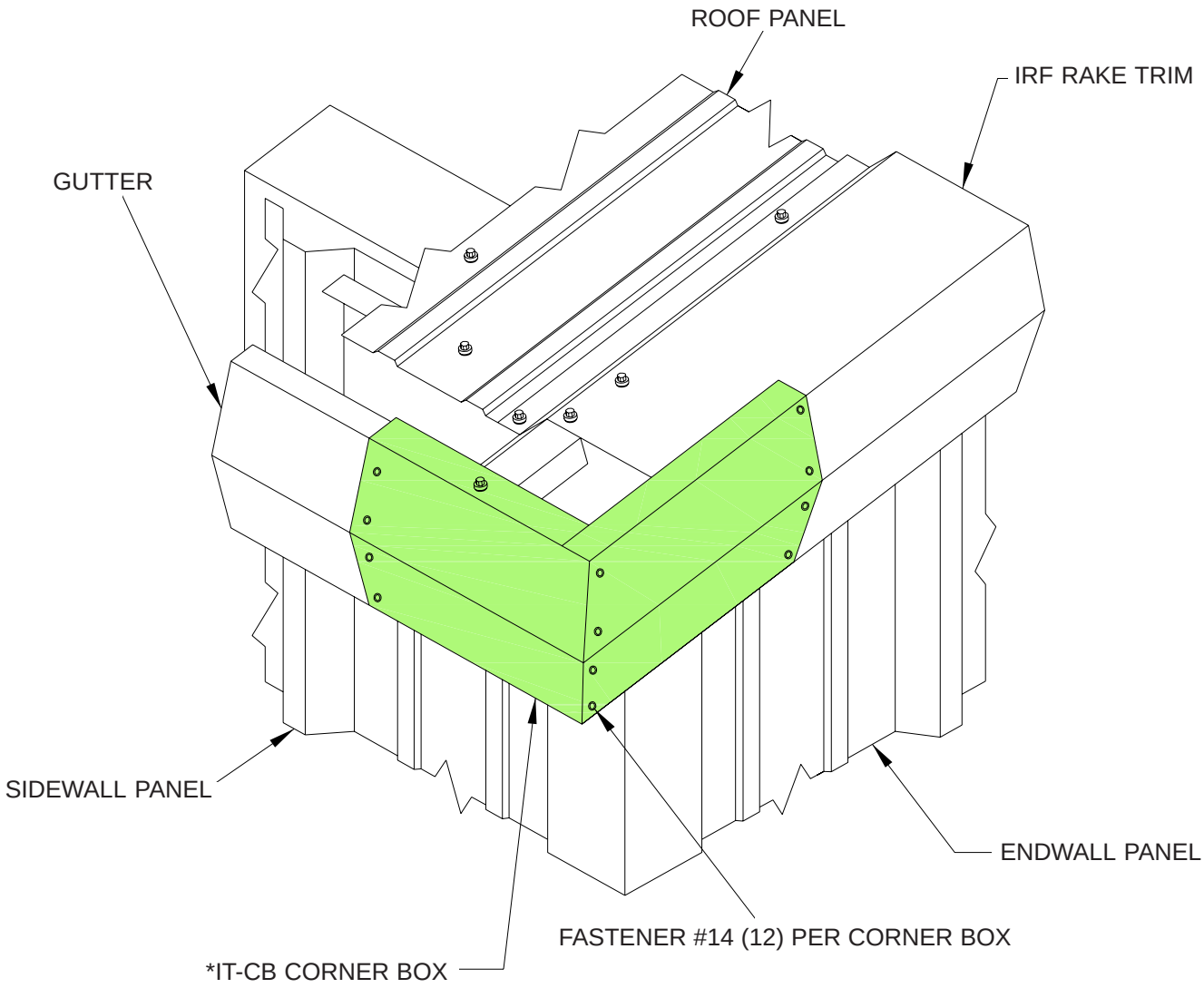
*ATTACH PURLIN ANGLES TO PURLINS WITH (2) TEK1 SCREWS.



RAKE TRIM CLOSURE



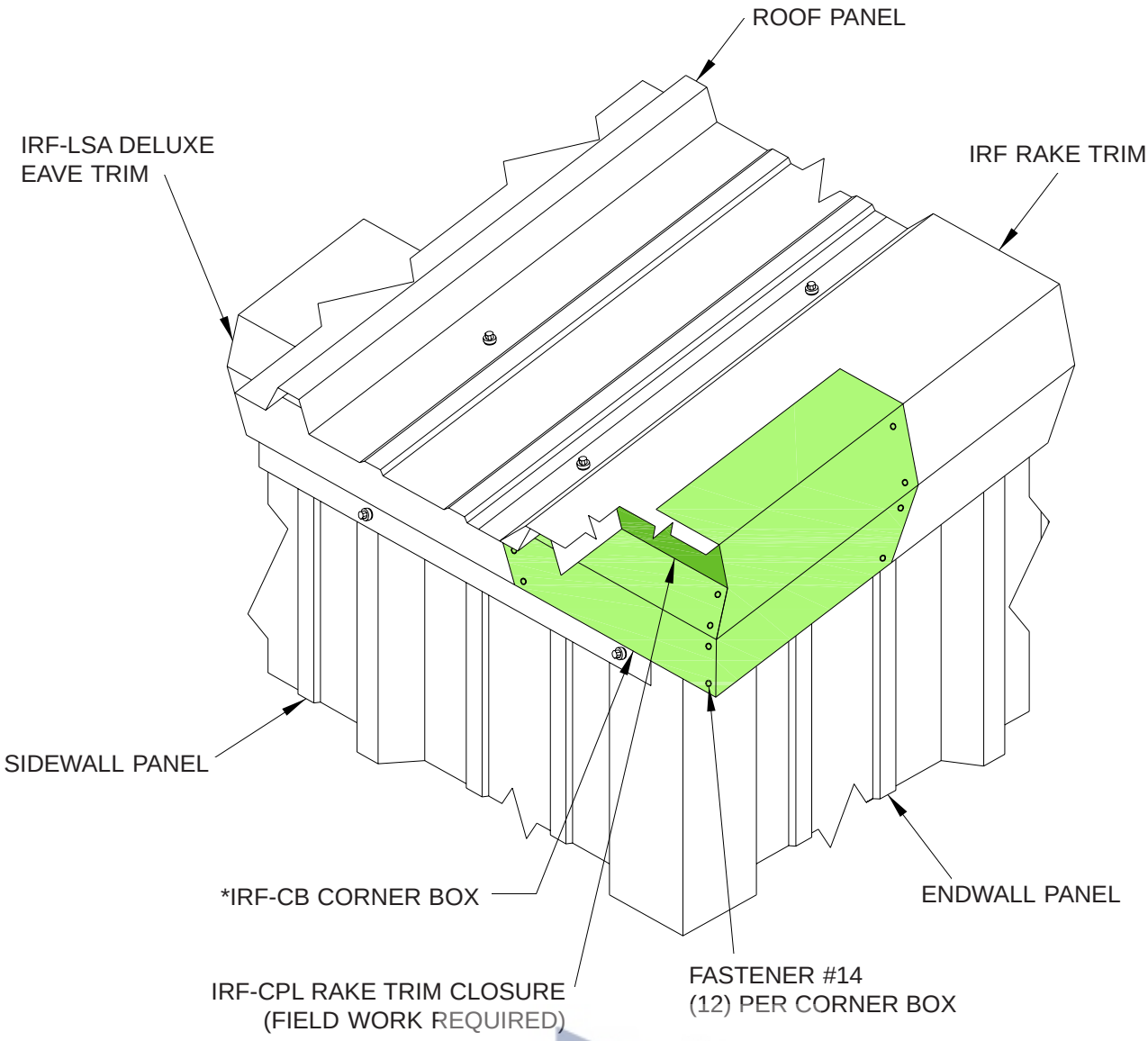
STANDARD GUTTER CORNER BOX



NOTE

*SHIPPED IN TWO PIECES, FIELD COPE AND ASSEMBLE WITH (12) FAST#14 (POP RIVETS) PER CORNER.

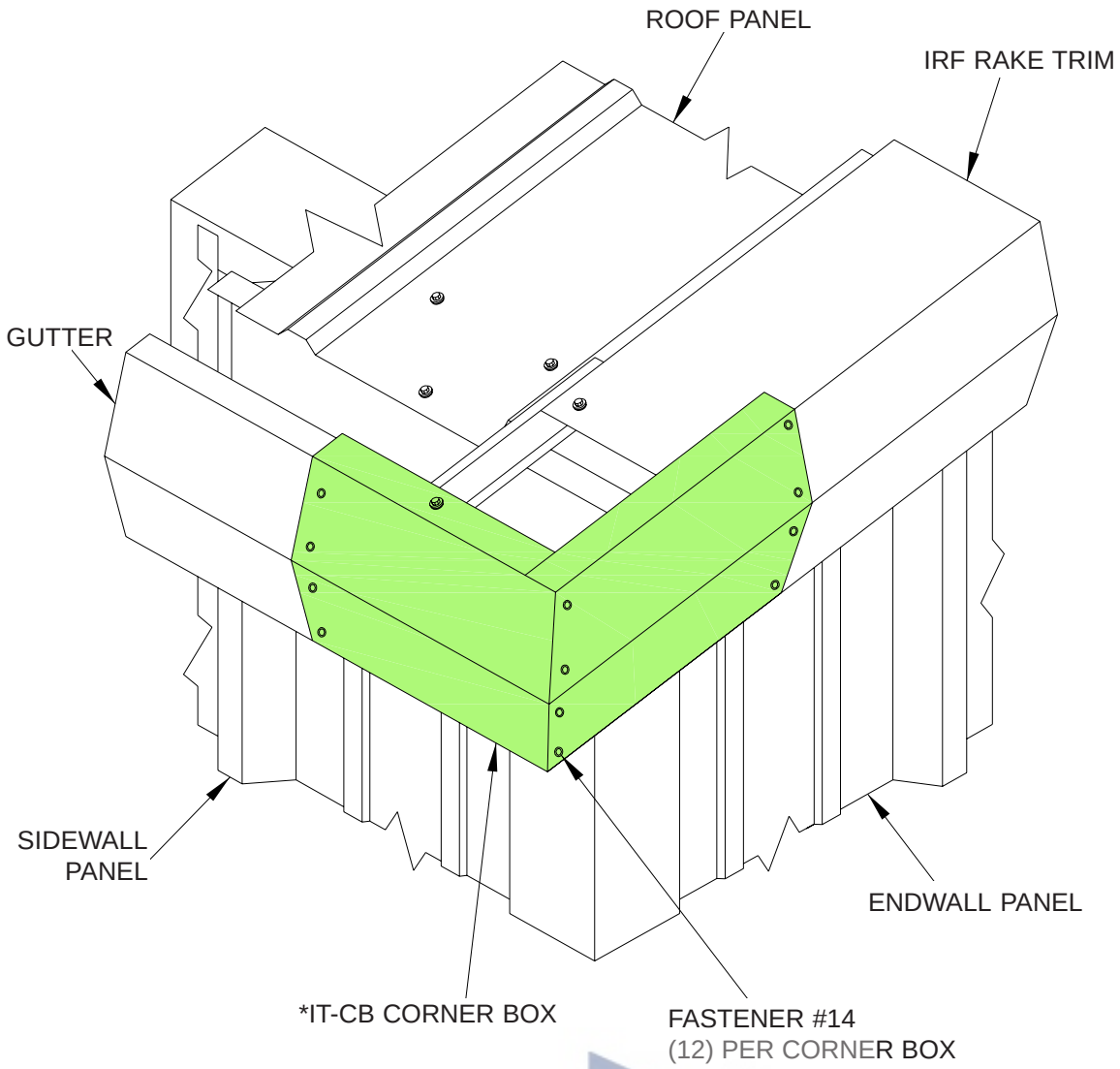
DELUXE EAVE TRIM CORNER BOX



NOTE

*SHIPPED IN TWO PIECES, FIELD COPE AND ASSEMBLE WITH (12) FAST#14 (POP RIVETS) PER CORNER.

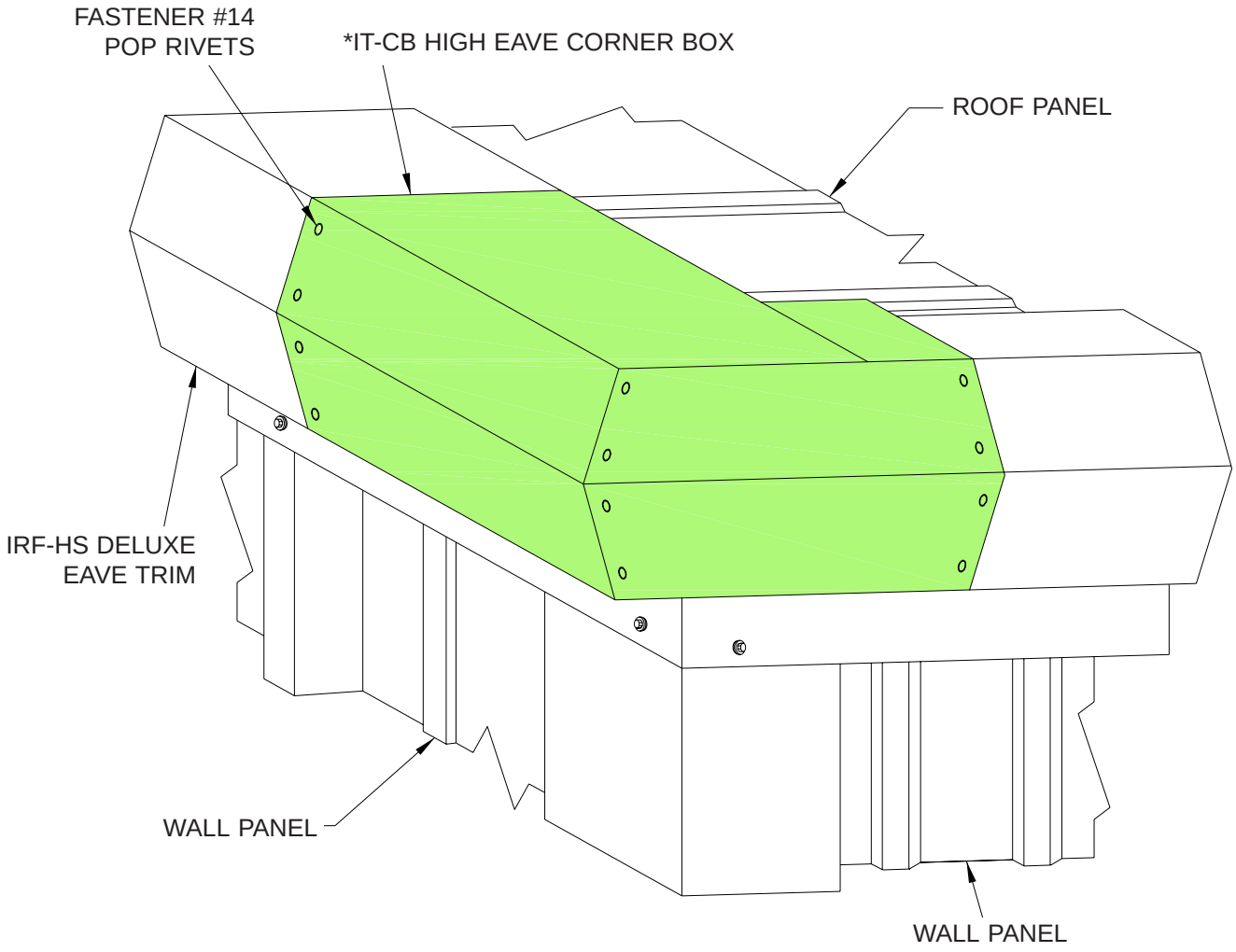
SNOW GUTTER CORNER BOX



NOTE

*SHIPPED IN TWO PIECES, FIELD COPE AND ASSEMBLE WITH (12) FAST#14 (POP RIVETS) PER CORNER.

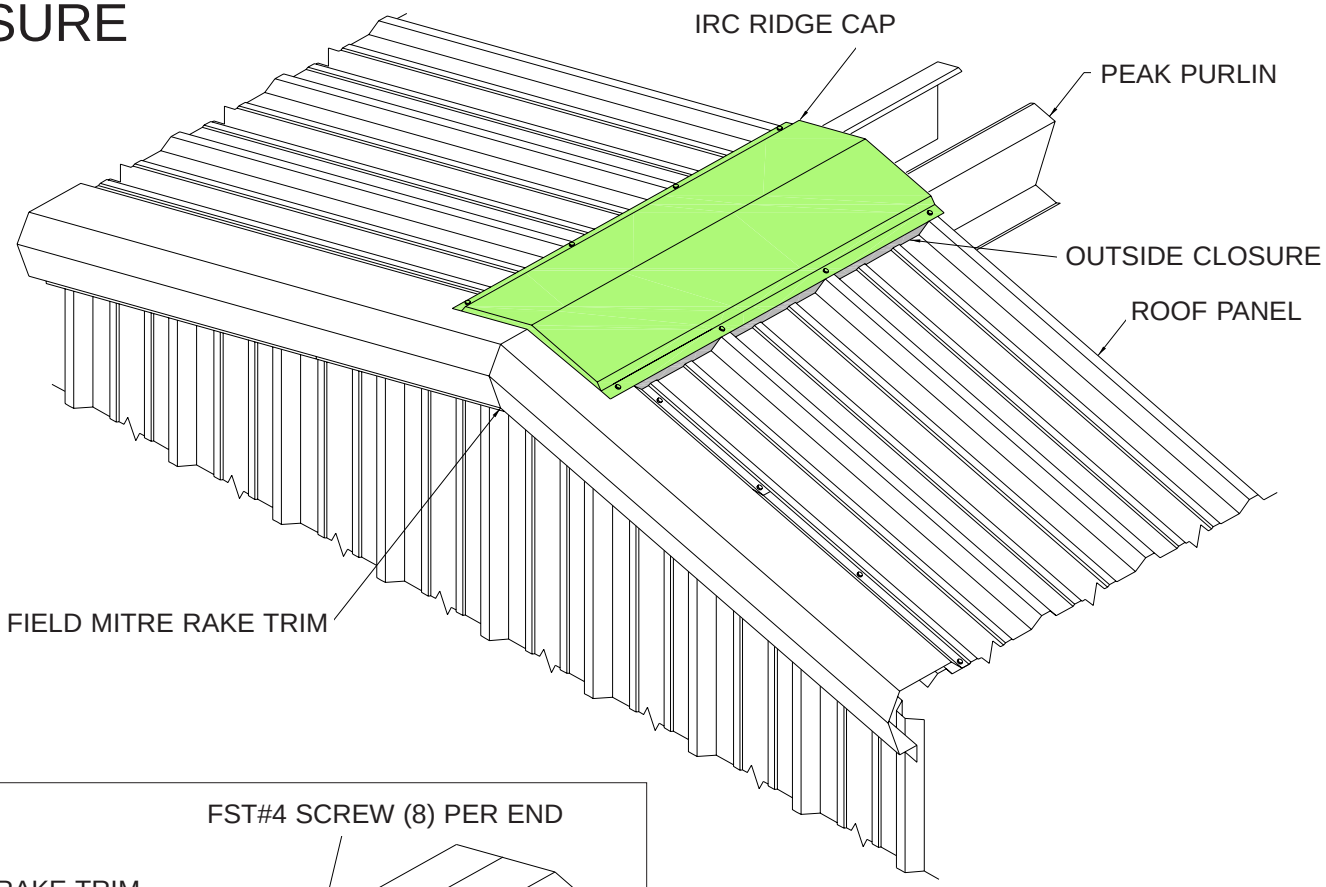
HIGH SIDE CORNER BOX

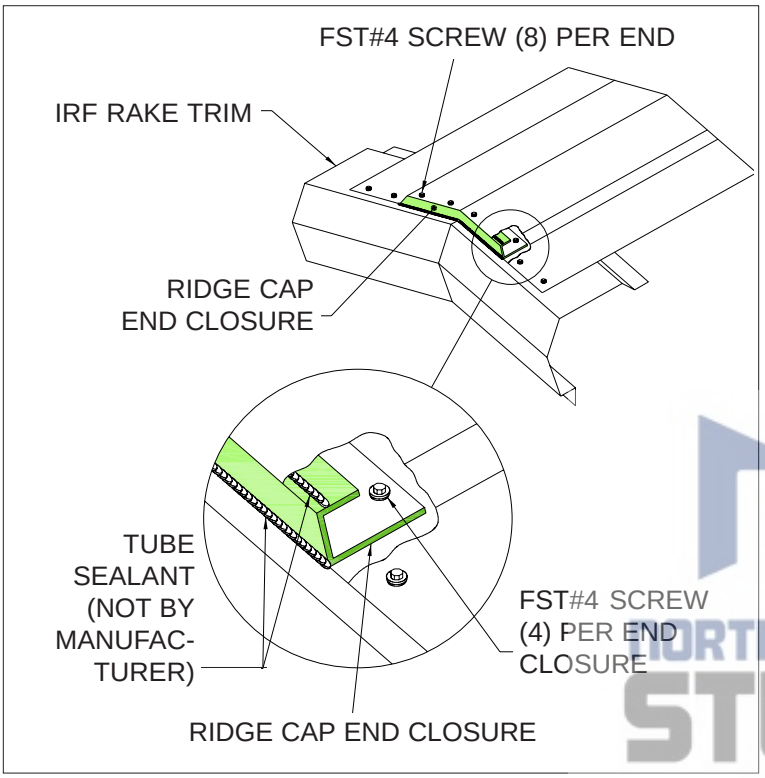


NOTE

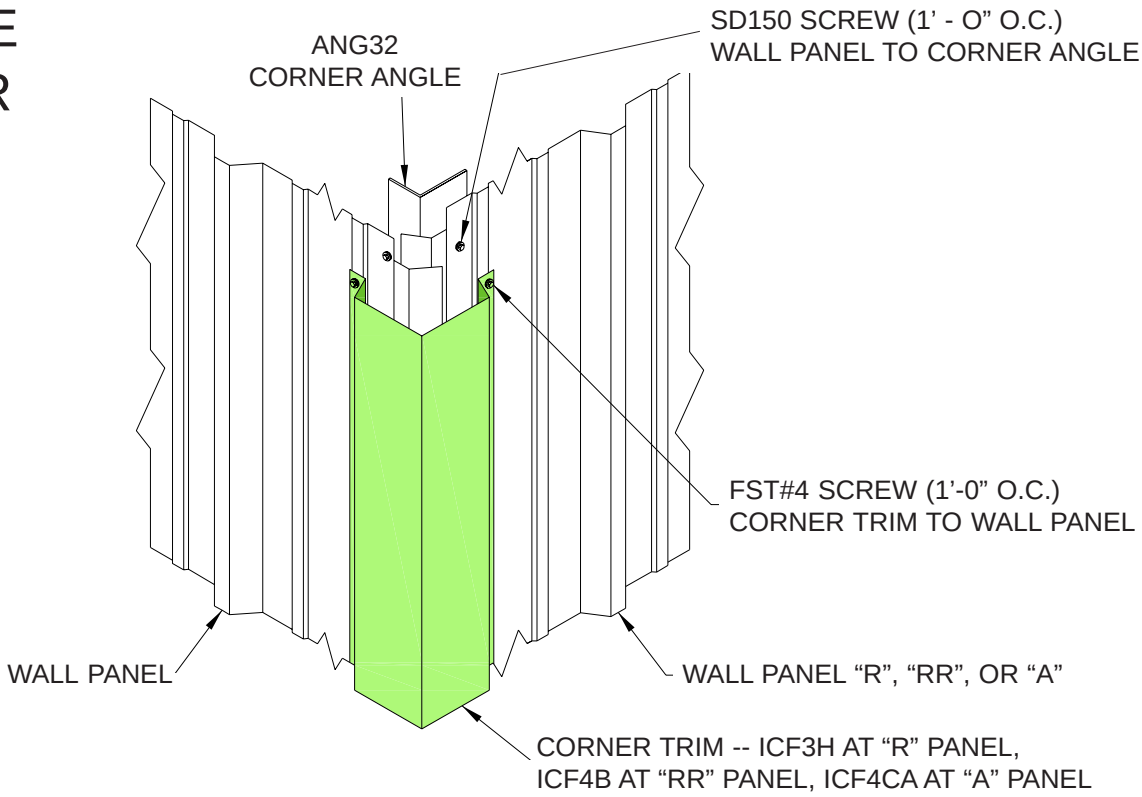
*SHIPPED IN TWO PIECES, FIELD COPE AND ASSEMBLE WITH (12) FAST#14 (POP RIVETS) PER CORNER.

RIDGE CAP END CLOSURE

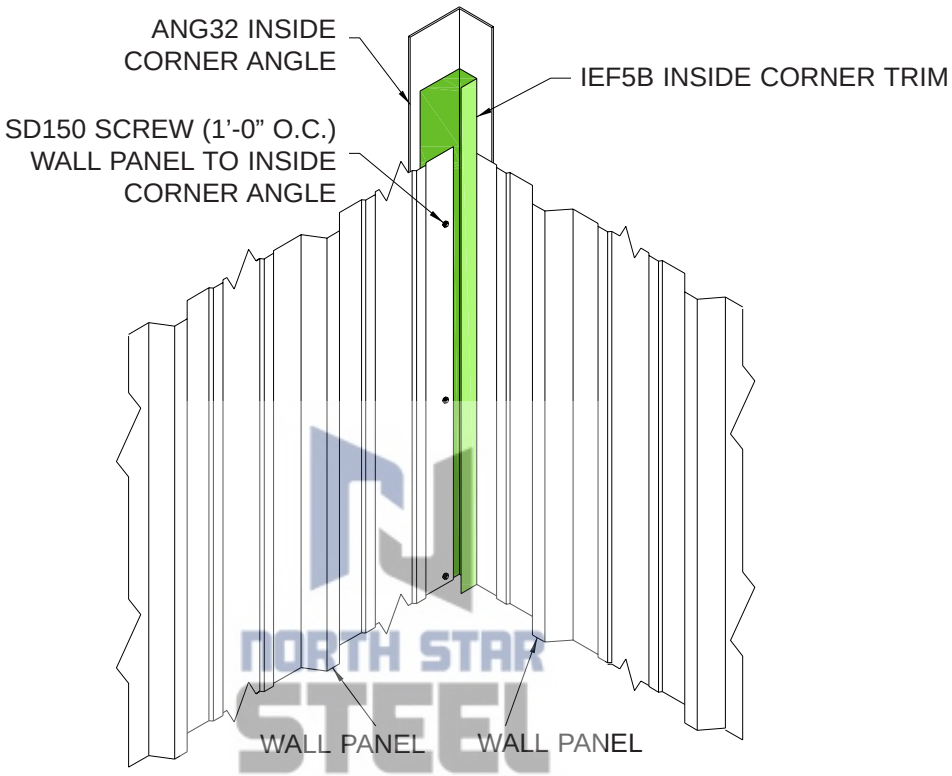




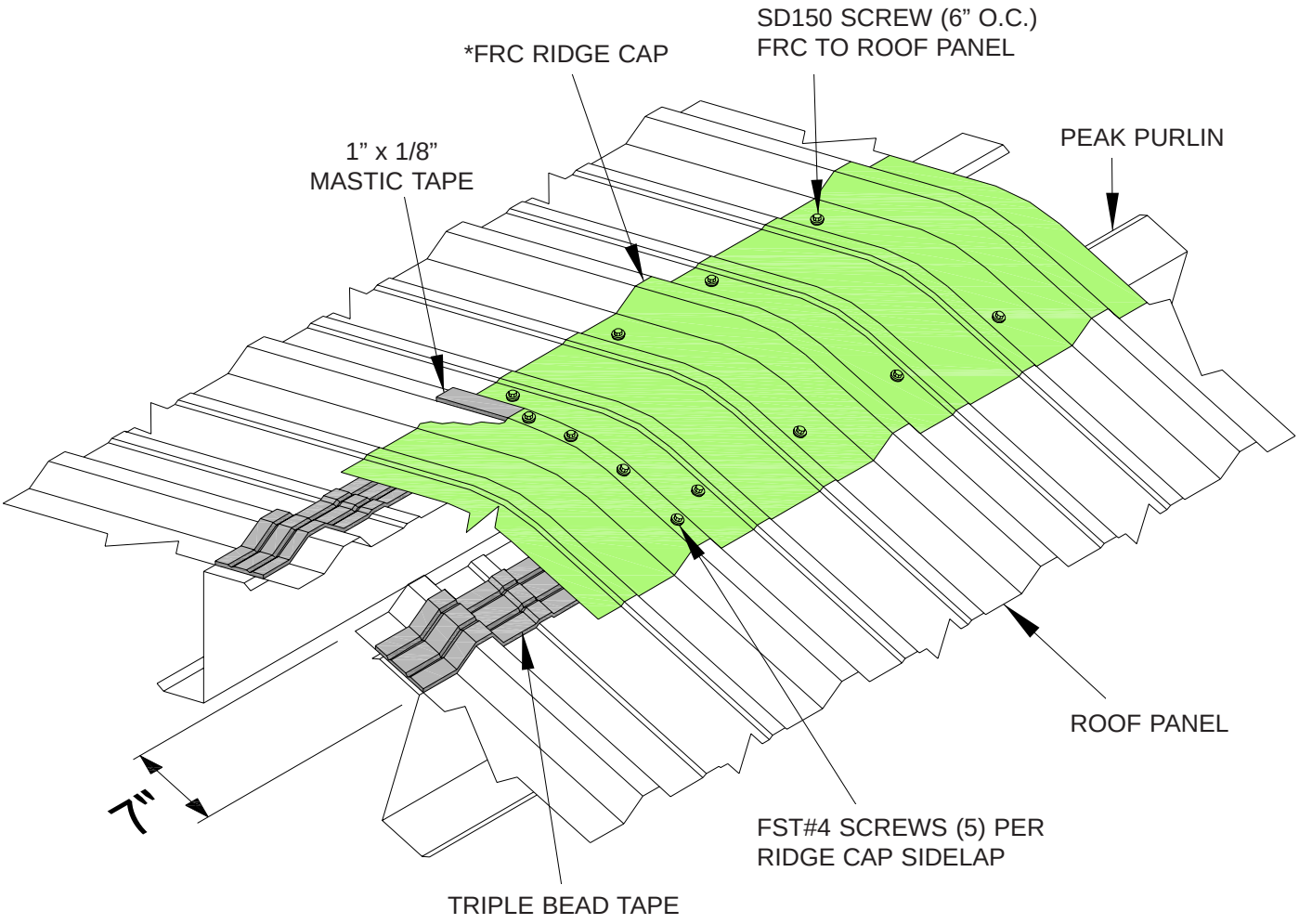
OUTSIDE CORNER TRIM



INSIDE CORNER TRIM

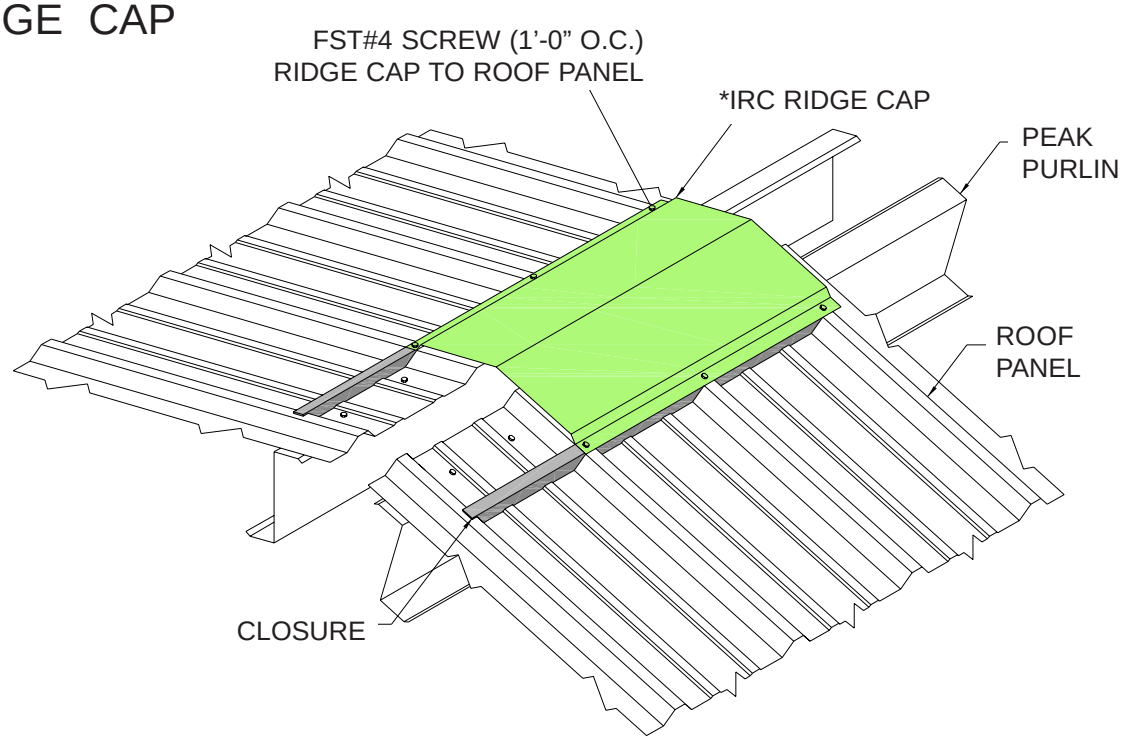


FRC RIDGE CAP



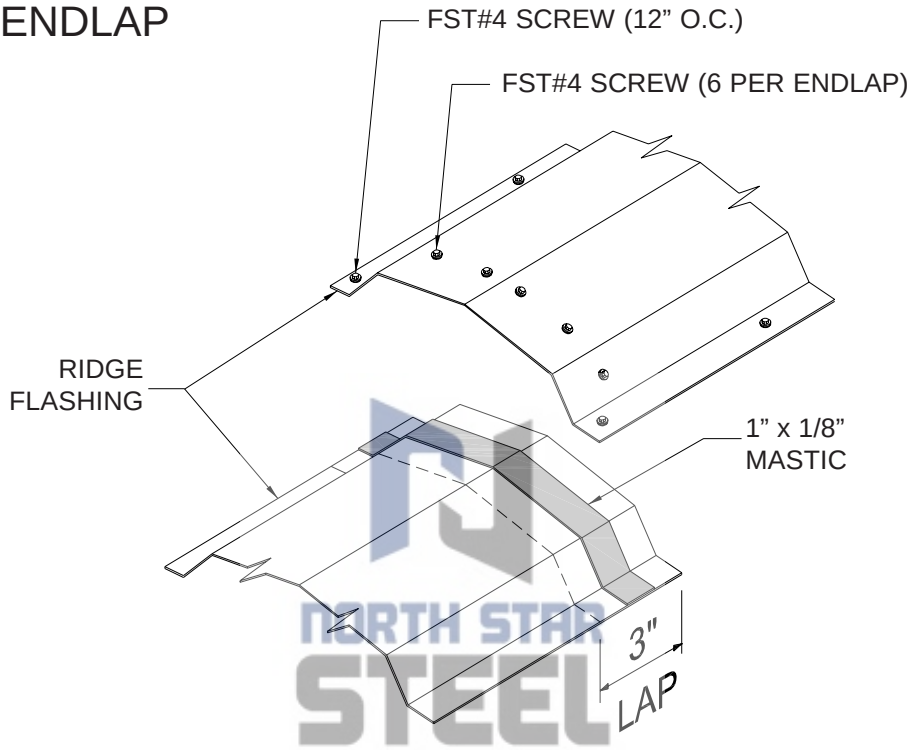
***ROOF PITCHED 1:12 OR LESS AND ROOFS 100'-0" WIDE AND UNDER**

IRC RIDGE CAP

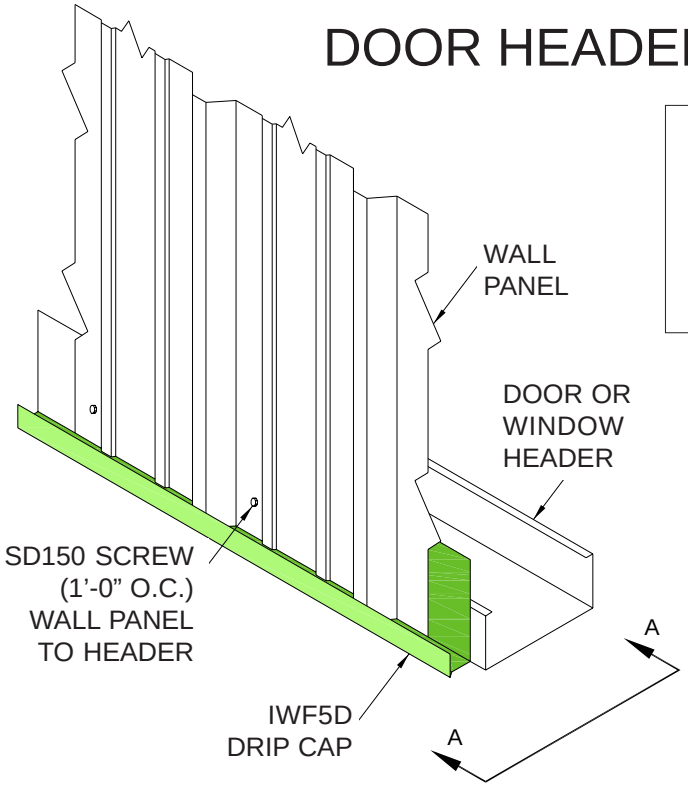


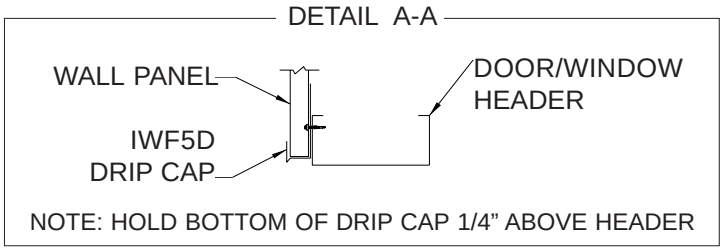
***ROOFS OVER 1:12 PITCH AND/OR ROOFS OVER 100'-0" WIDE**

RIDGE CAP ENDLAP

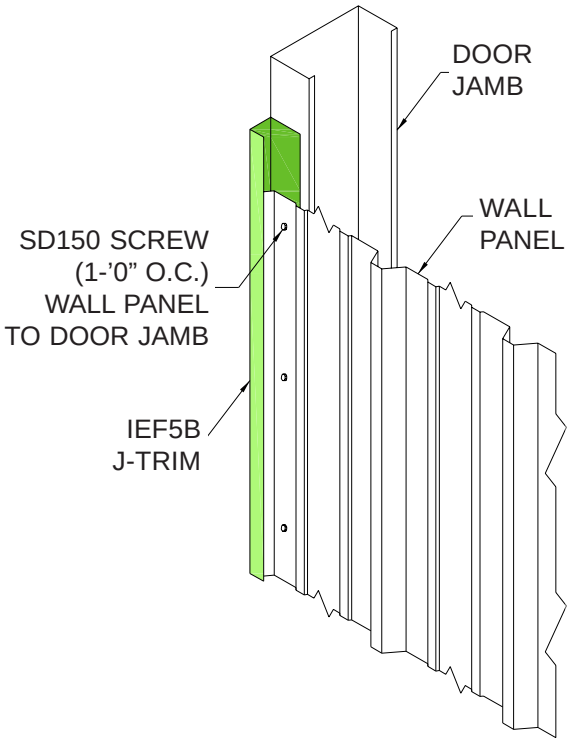


DOOR HEADER

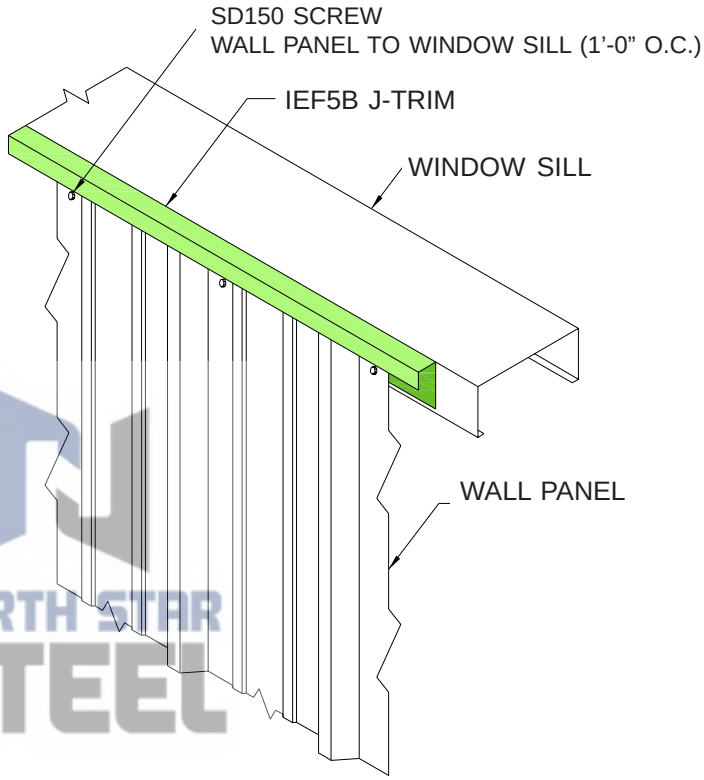




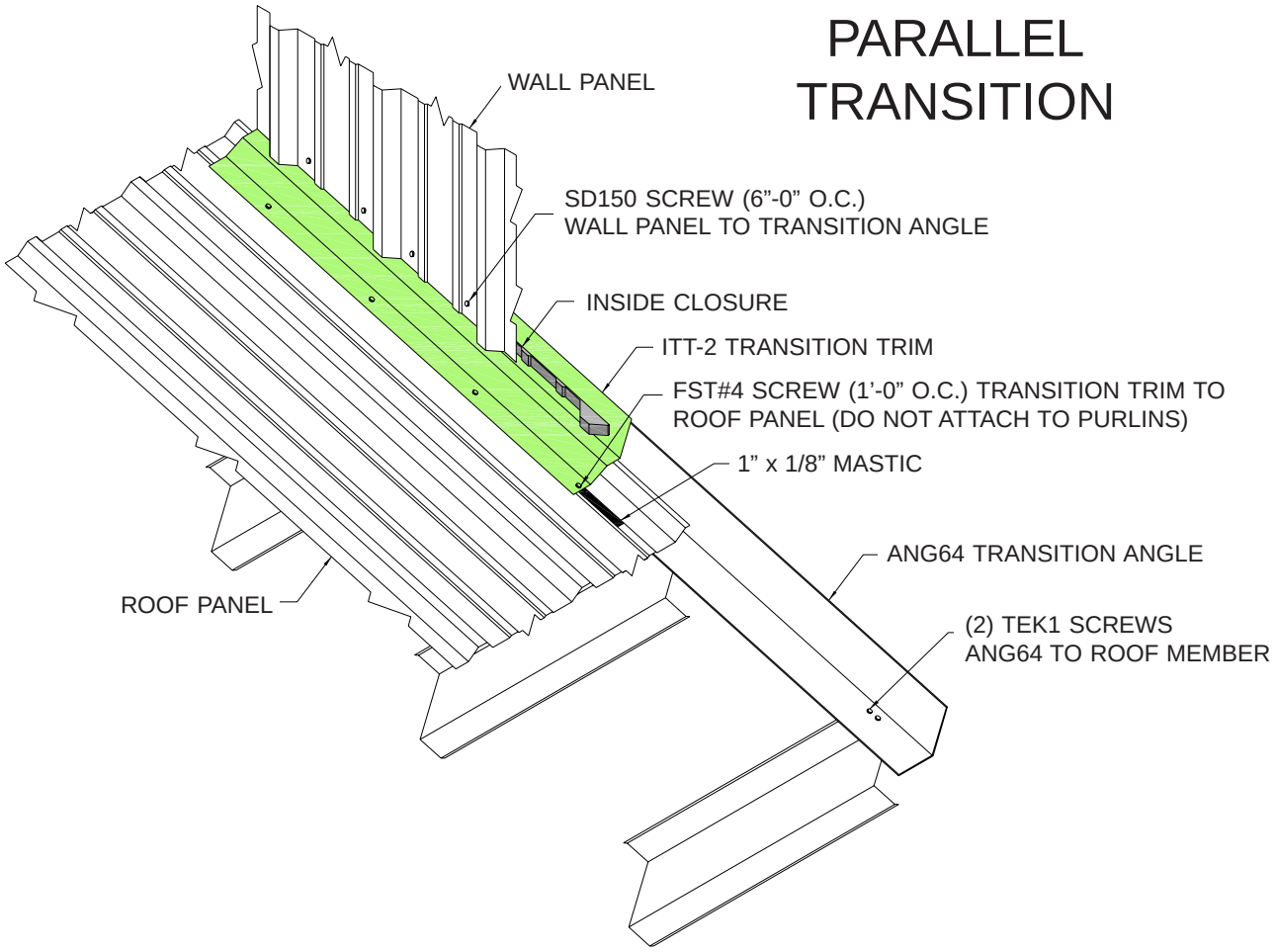
DOOR JAMB



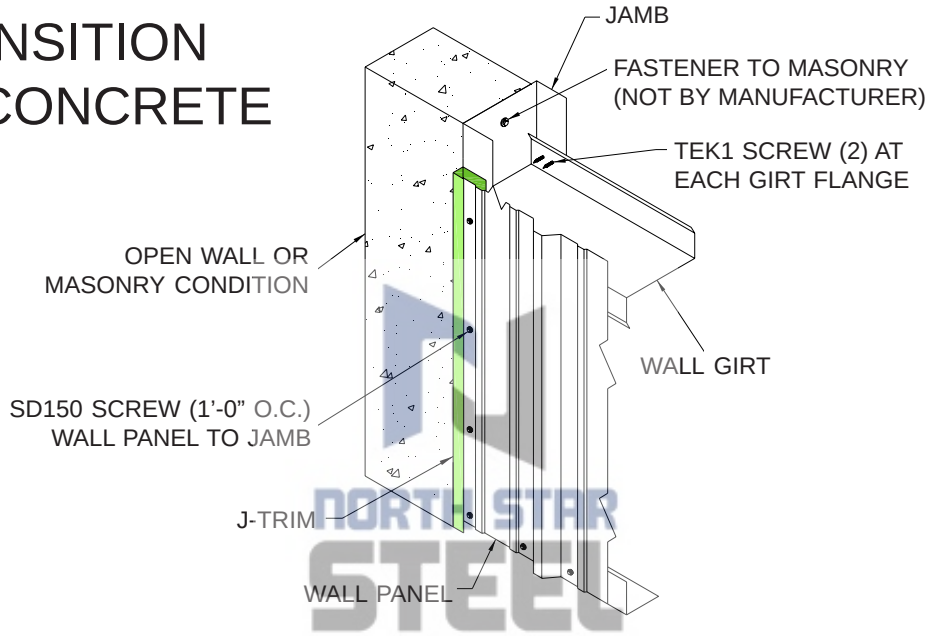
WINDOW SILL



PARALLEL TRANSITION

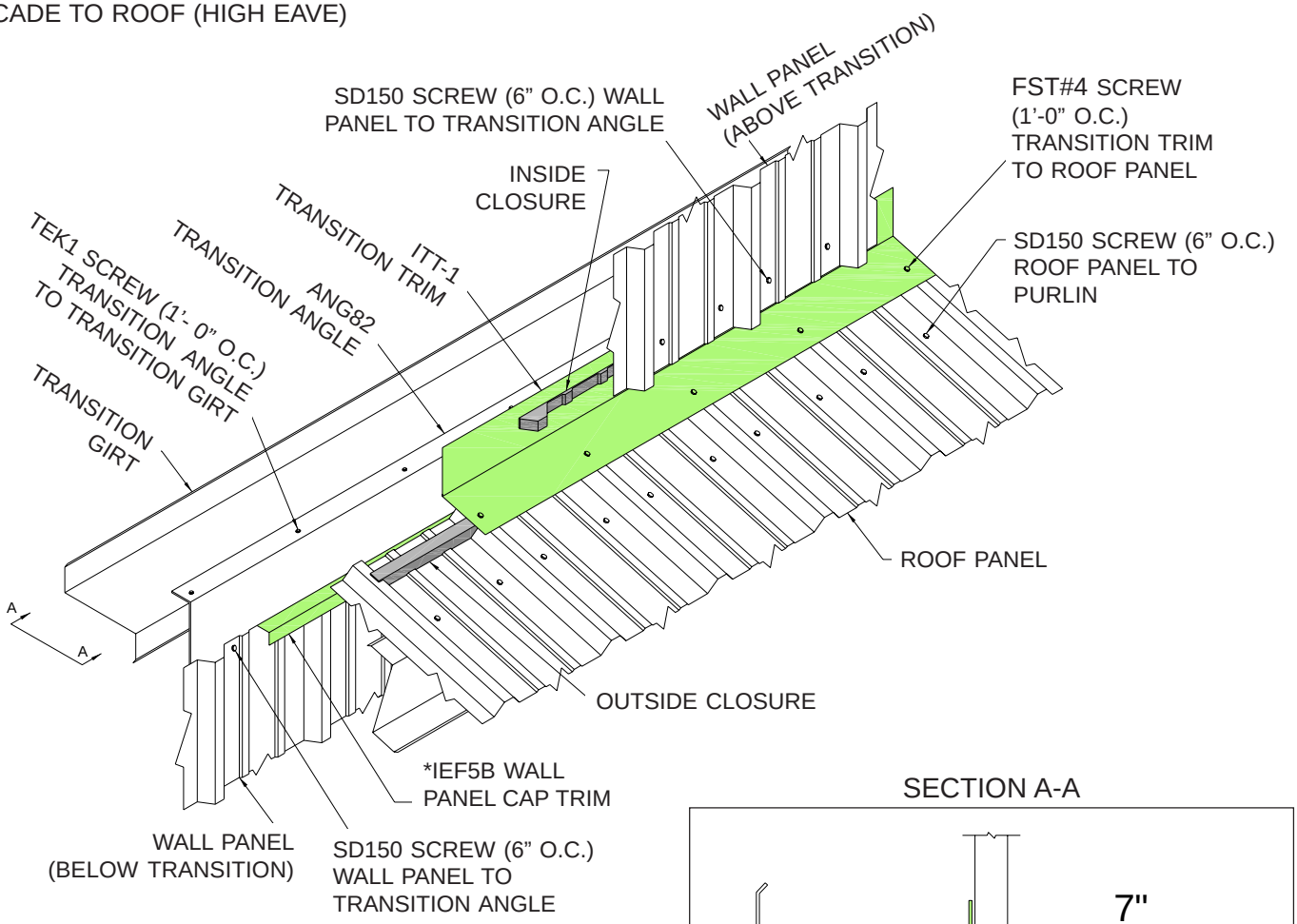


TRANSITION TO CONCRETE

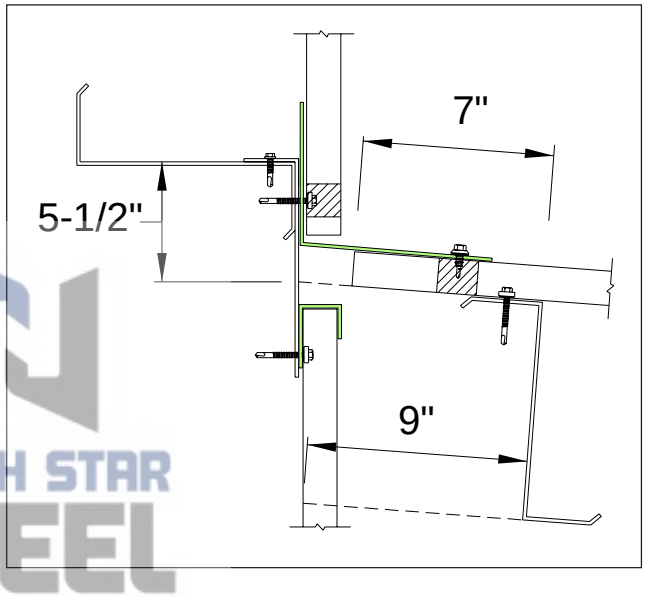


PERPENDICULAR TRANSITION

- LEAN-TO TO ADJACENT BUILDING
- SINGLE SLOPE CANOPY TO BUILDING
- PARAPET TO ROOF (HIGH EAVE)
- FACADE TO ROOF (HIGH EAVE)

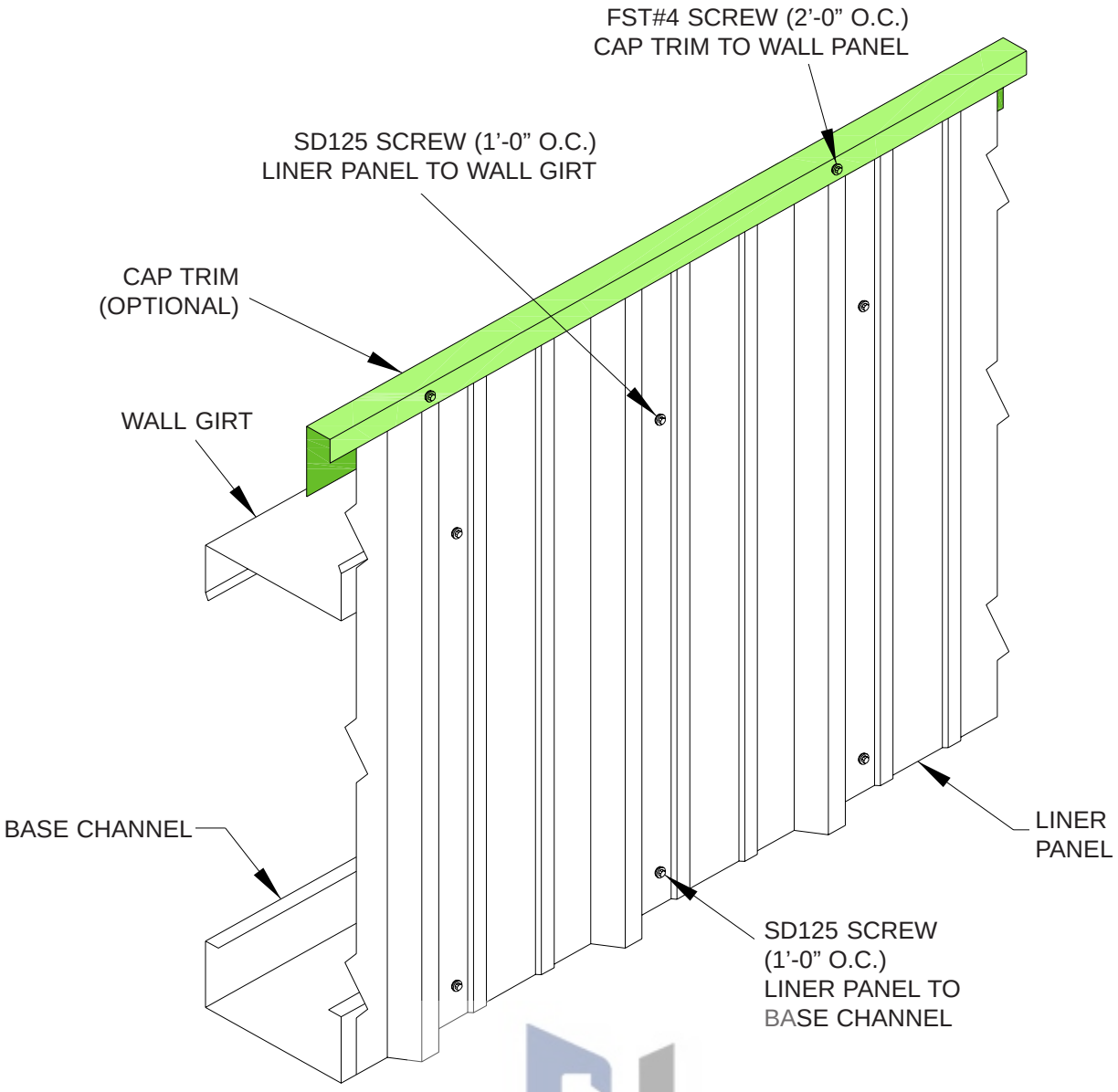


SECTION A-A



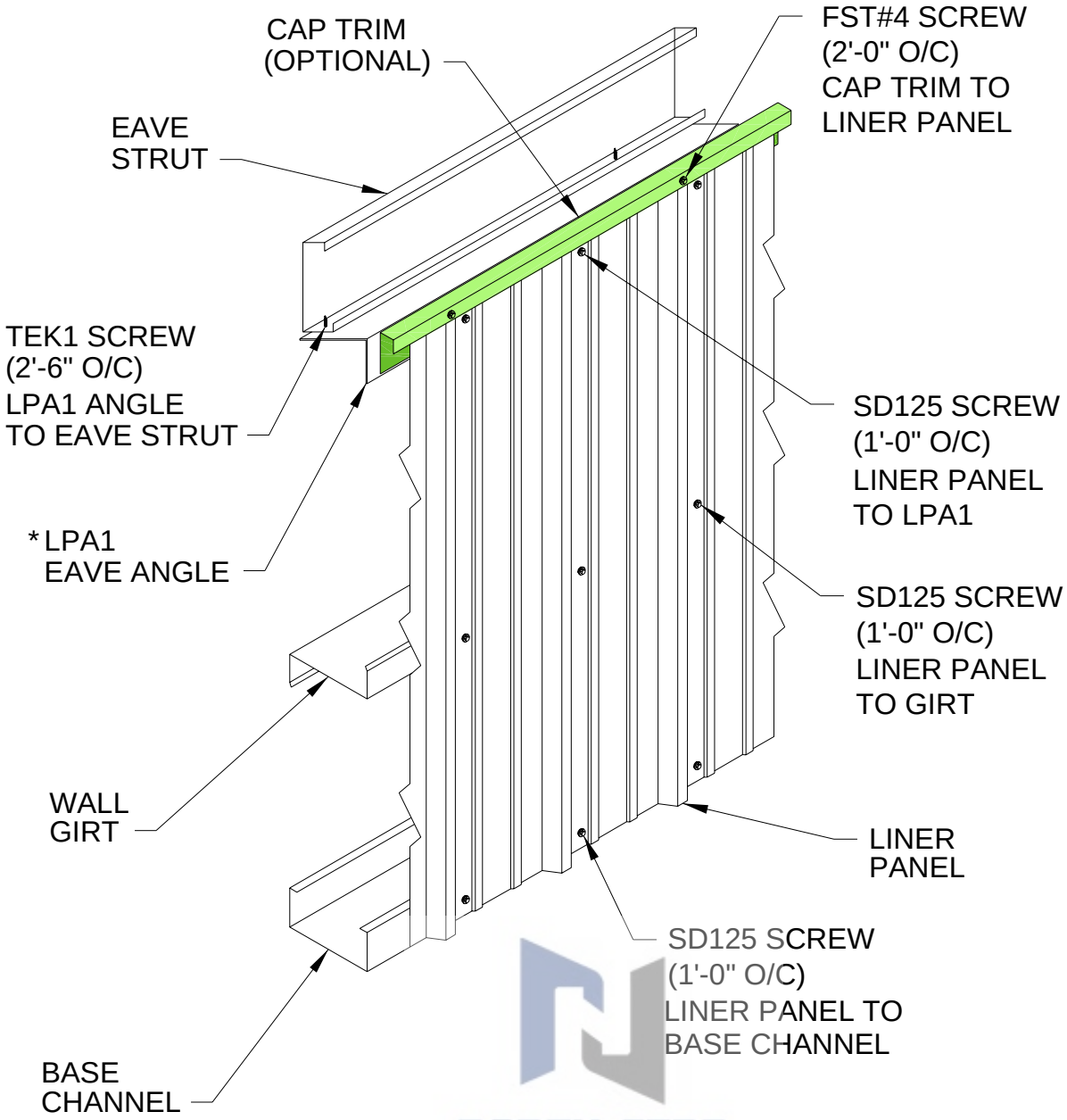
*NOT SUPPLIED ON CANOPIES WITH SOFFIT

PARTIAL HEIGHT LINER PANEL

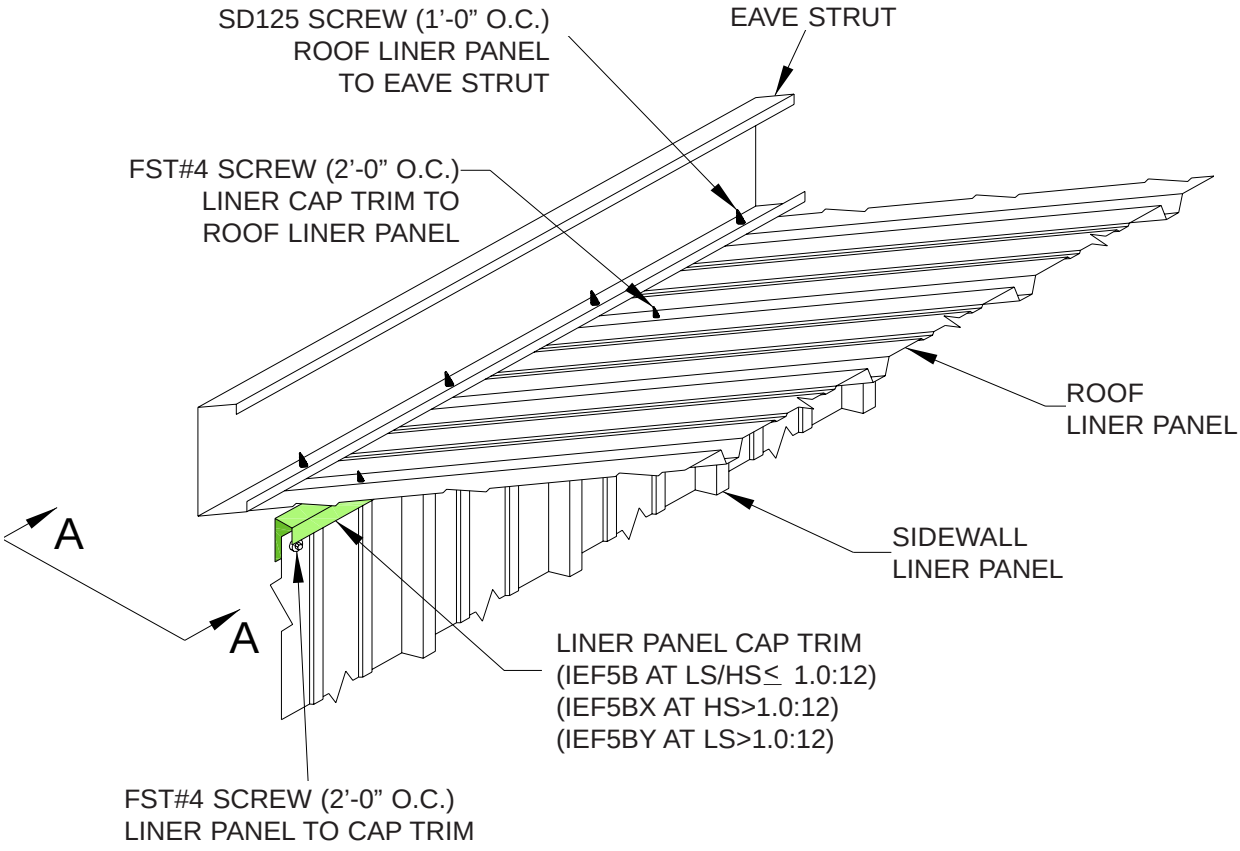


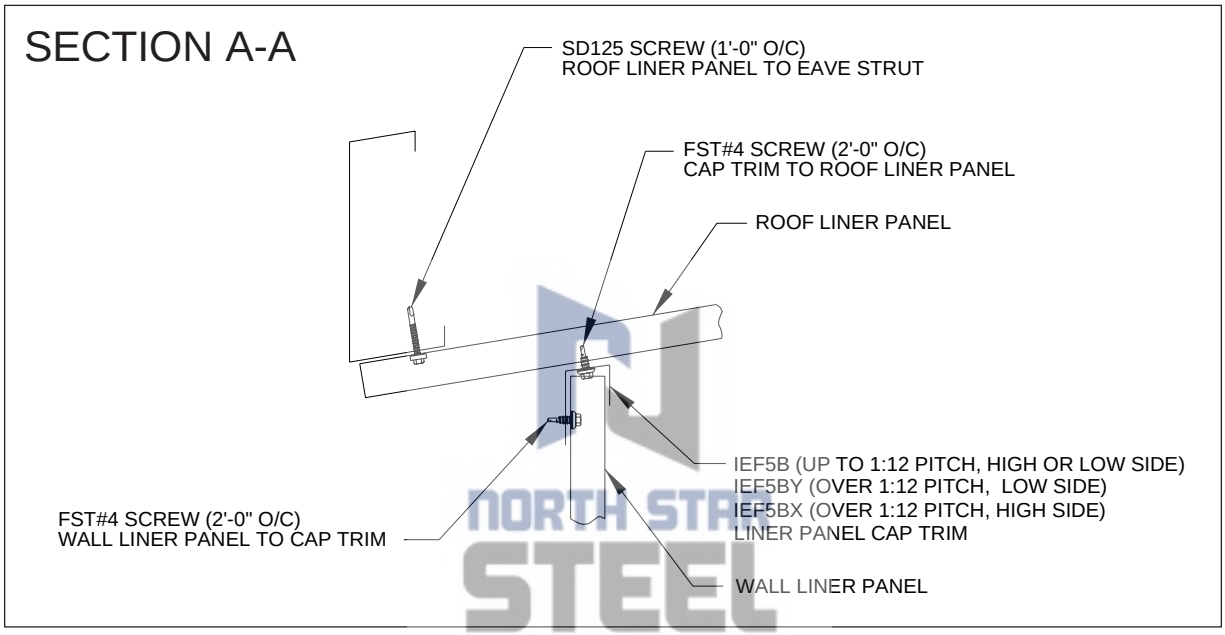
LINER PANEL - FULL HEIGHT AT SIDEWALL

* LPA2 ANGLE AT HIGH EAVE OF SINGLE SLOPE BUILDINGS.

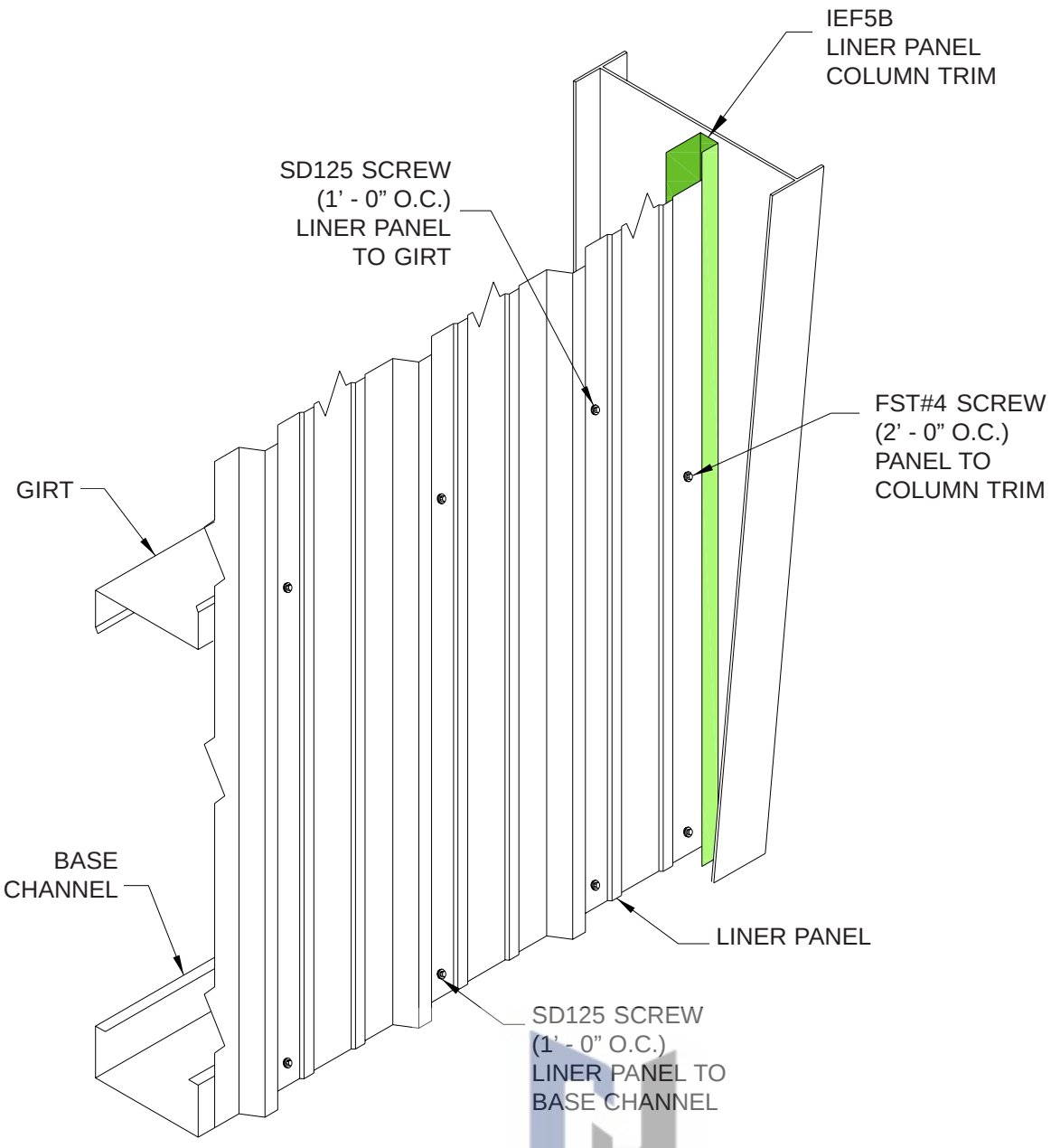


FULL HEIGHT WITH ROOF LINER PANEL

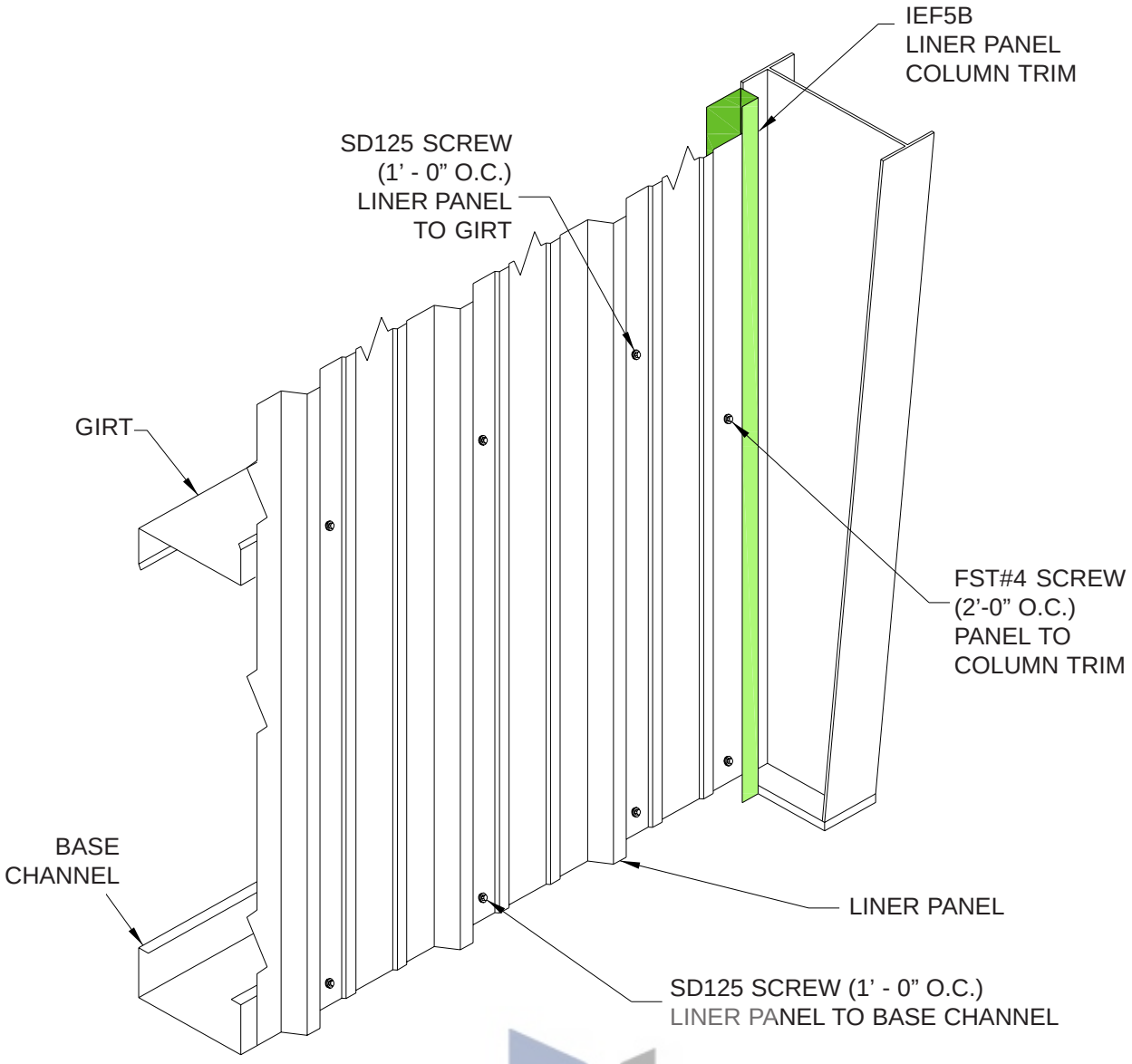




COLUMN TRIM (FLUSH CONDITION)

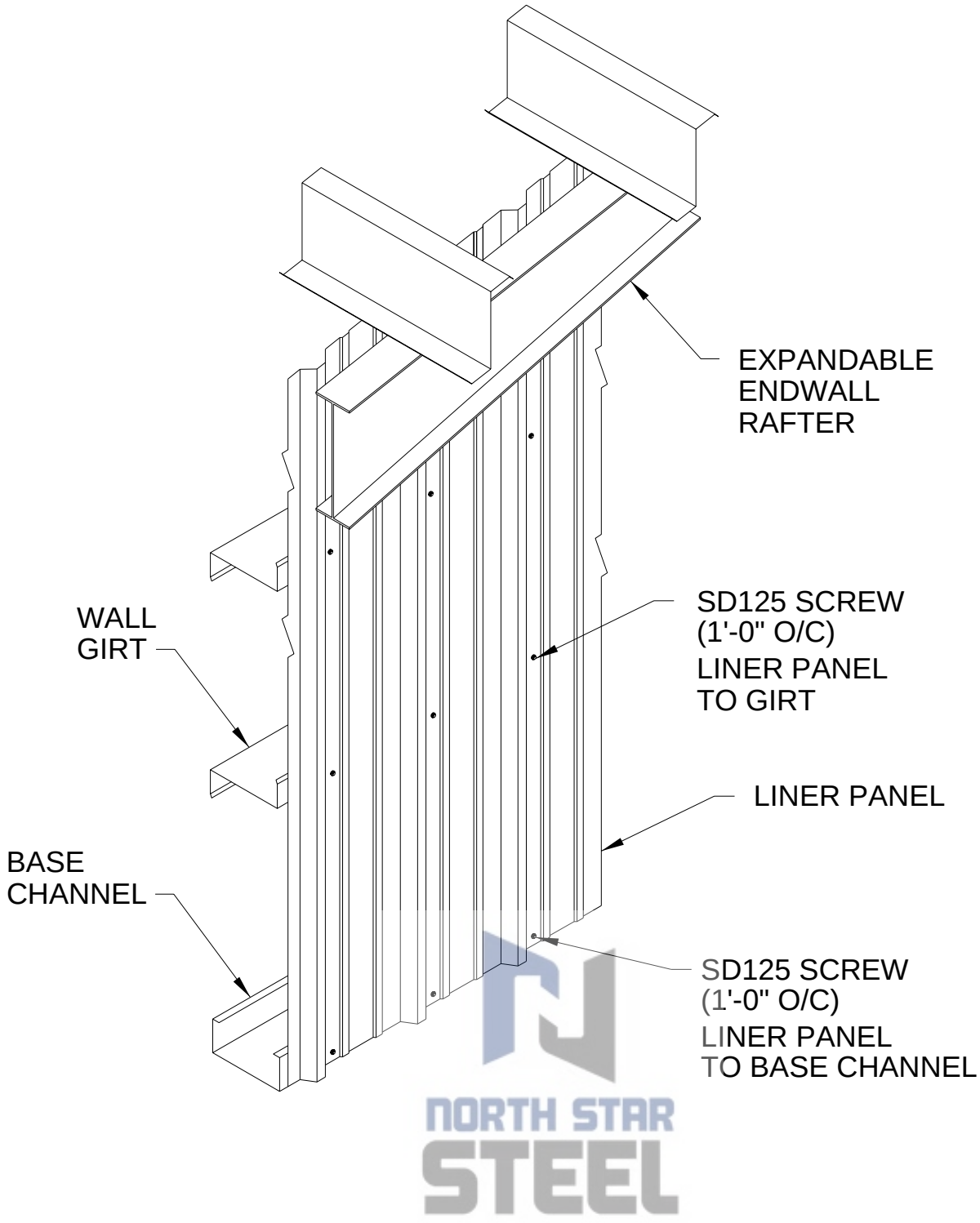


COLUMN TRIM (OUTSET CONDITION)

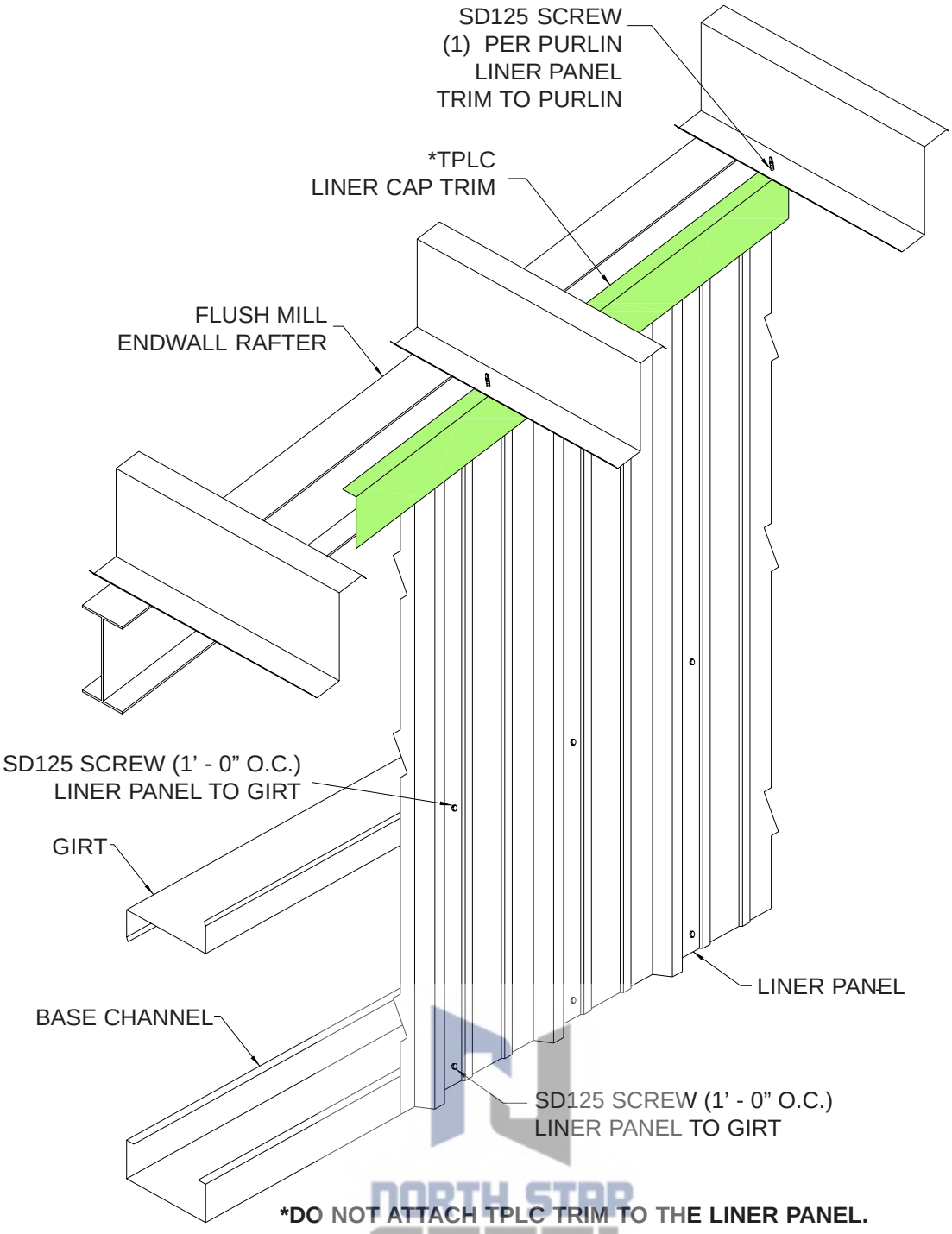


LINER PANEL Column Trim Outset

FULL HEIGHT AT RIGID FRAME ENDWALL

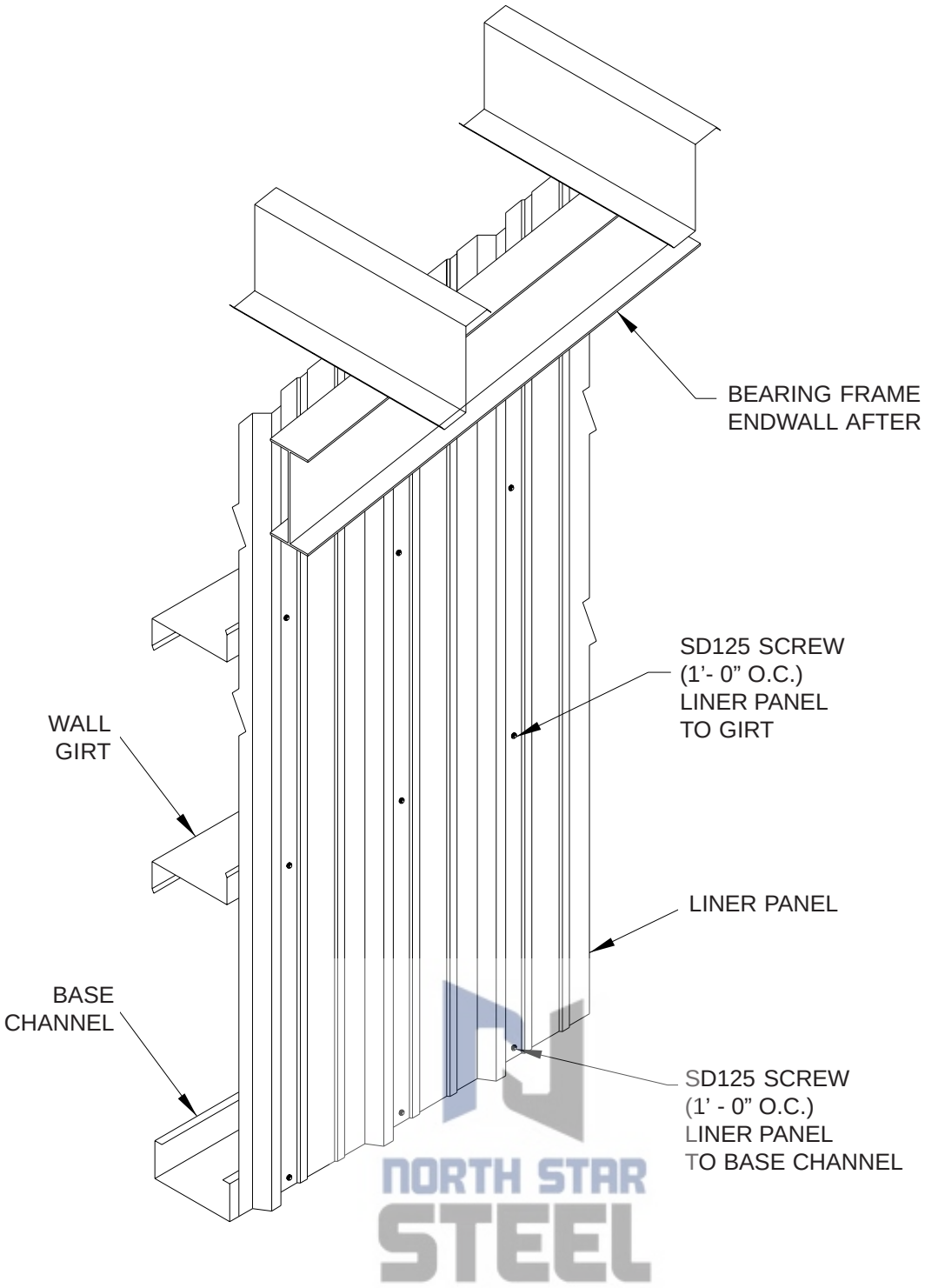


FULL HEIGHT AT BEARING FRAME (FLUSH CONDITION)

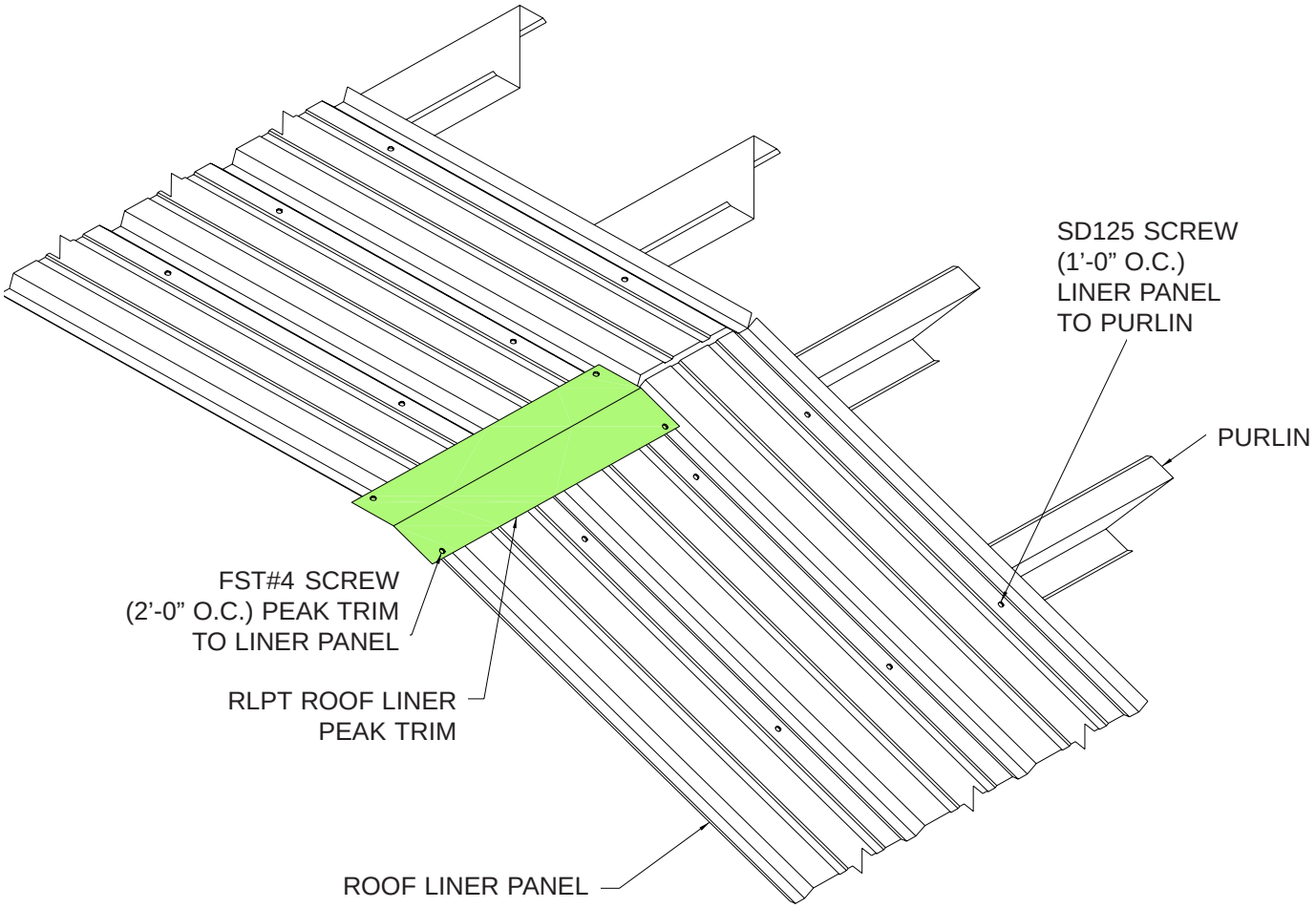


***DO NOT ATTACH TPLC TRIM TO THE LINER PANEL.**
THE TRIM IS DESIGNED TO ALLOW FOR ROOF DEFLECTION.

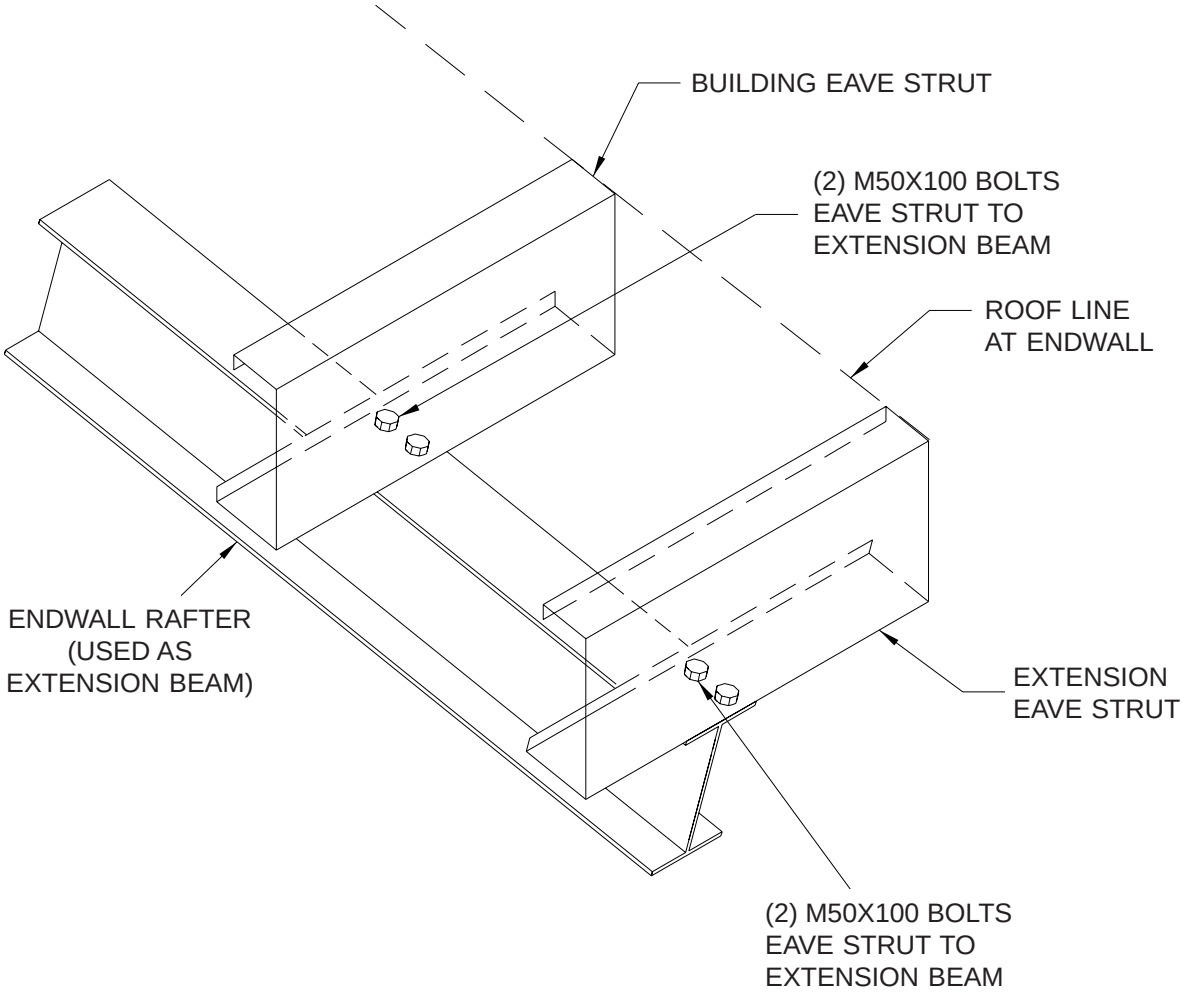
FULL HEIGHT AT BEARING FRAME (OUTSET CONDITION)



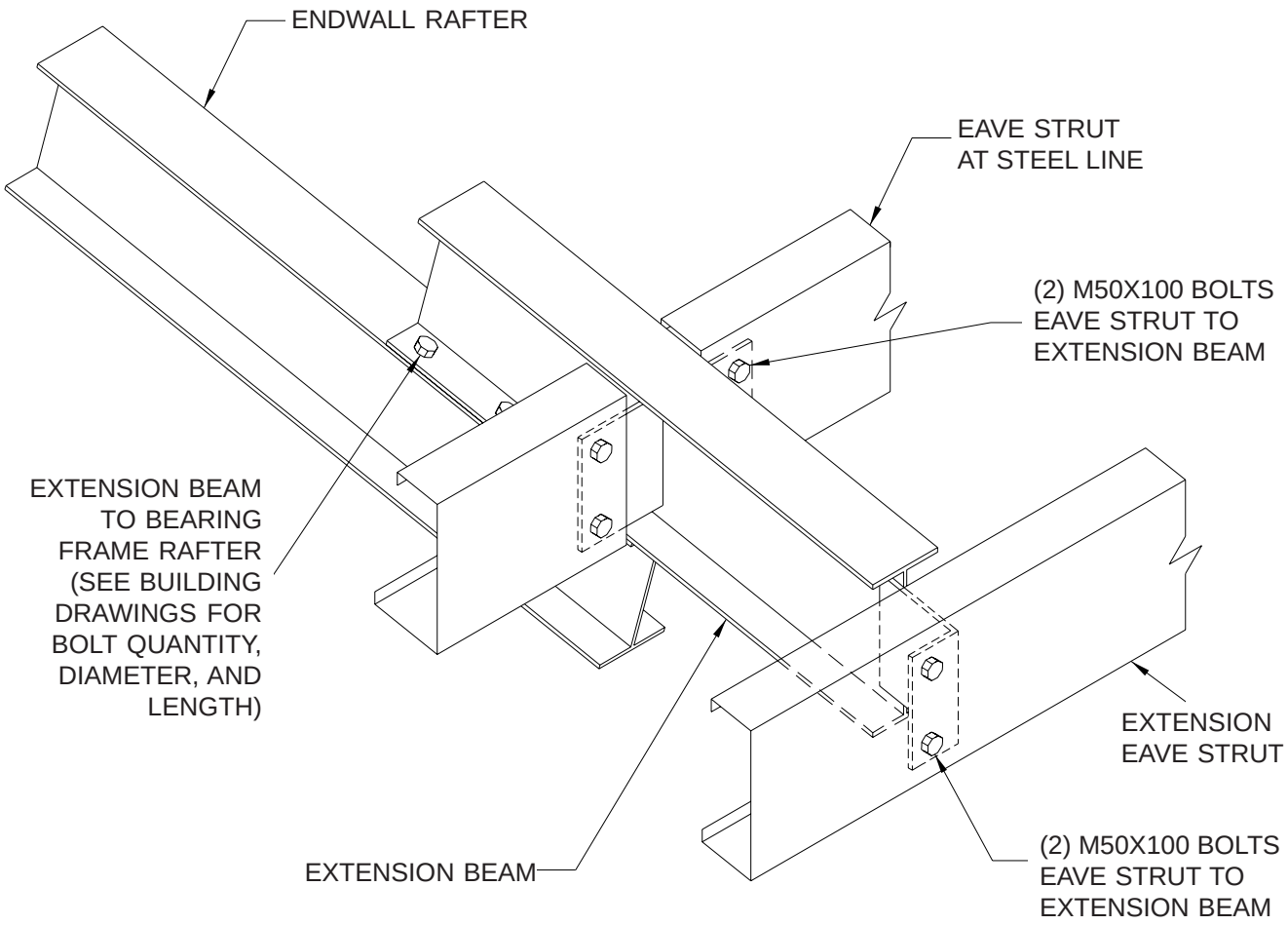
ROOF LINER AT PEAK



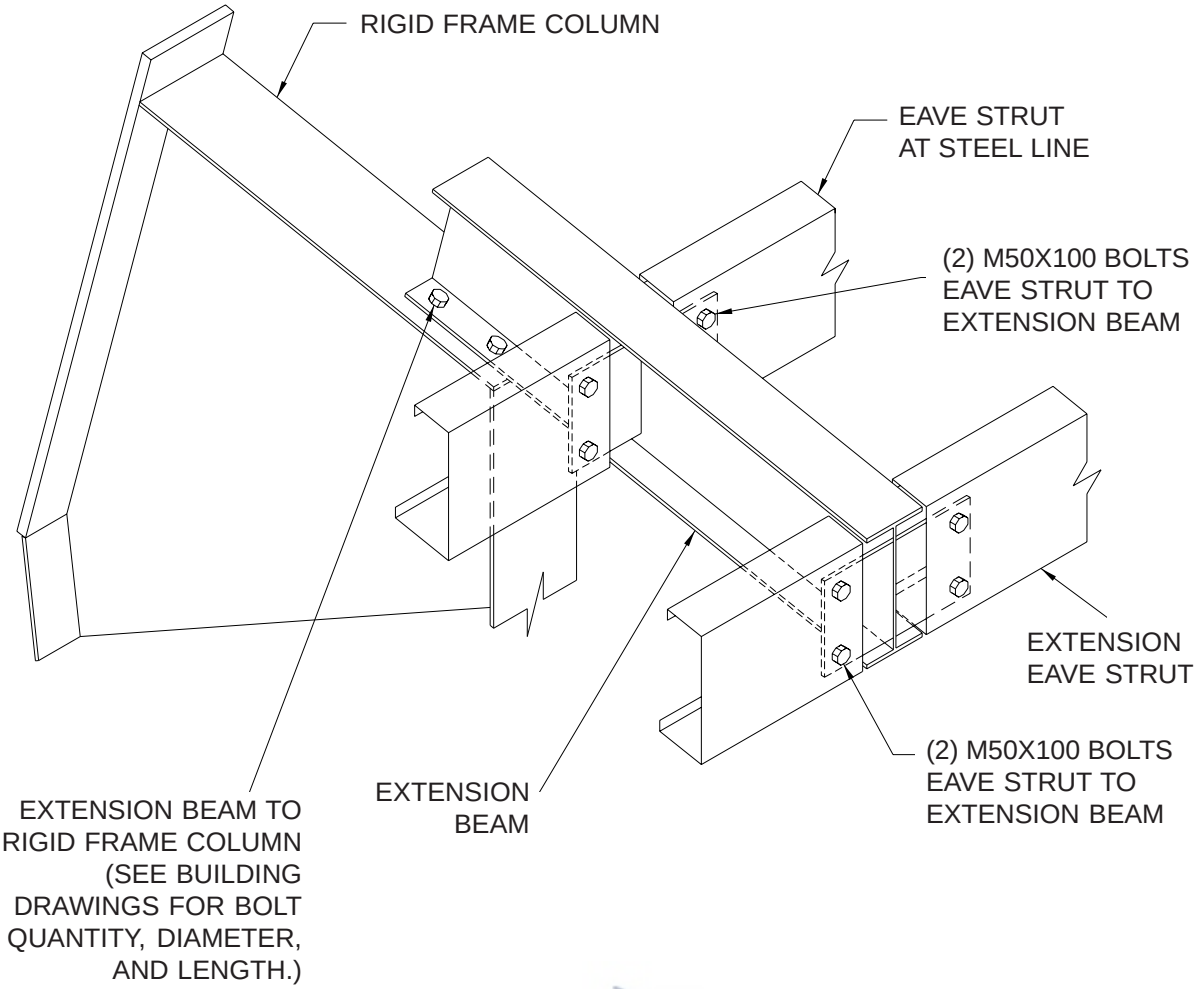
ENDWALL RAFTER AS EXTENSION BEAM



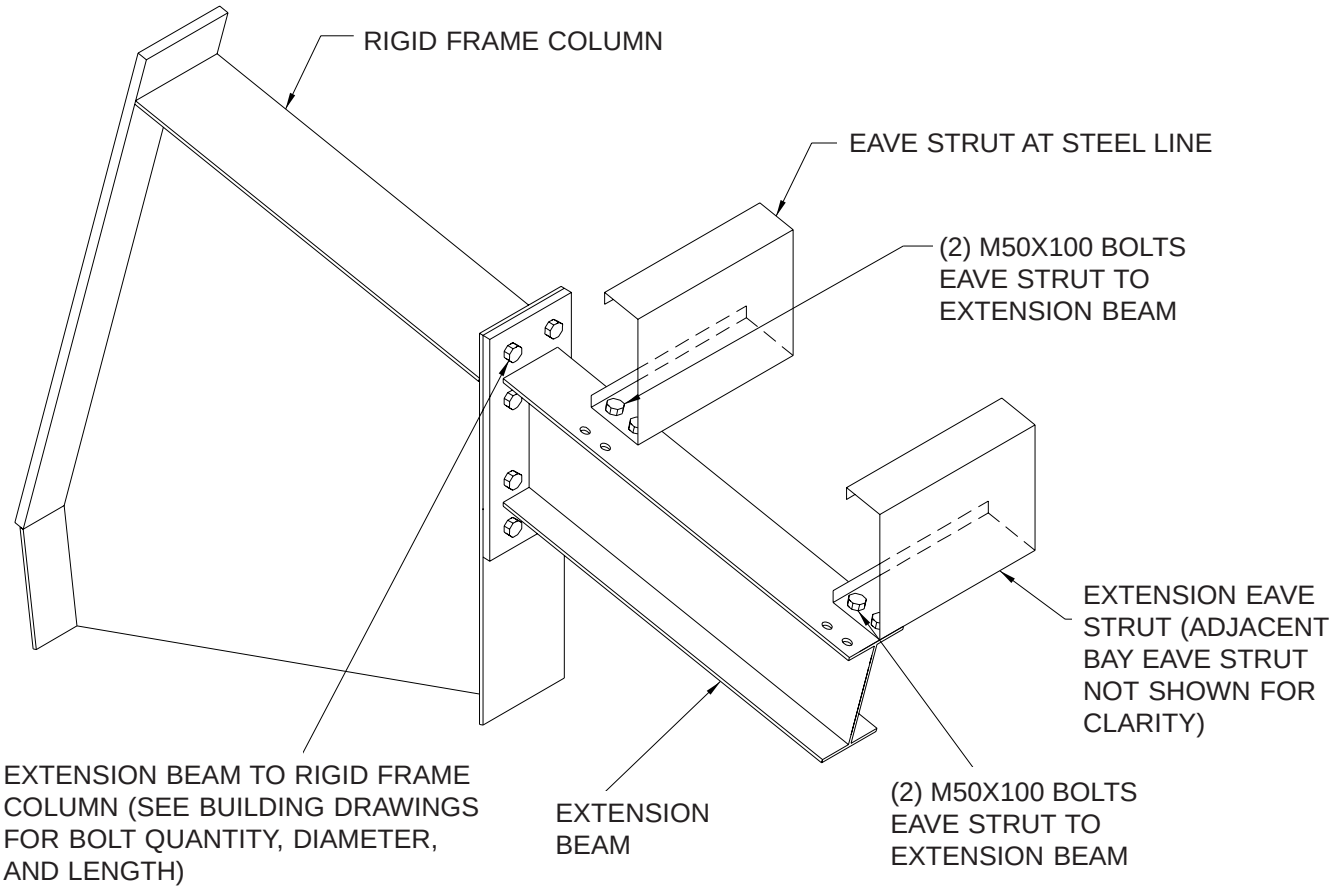
EXTENSION BEAM TO ENDWALL RAFTER



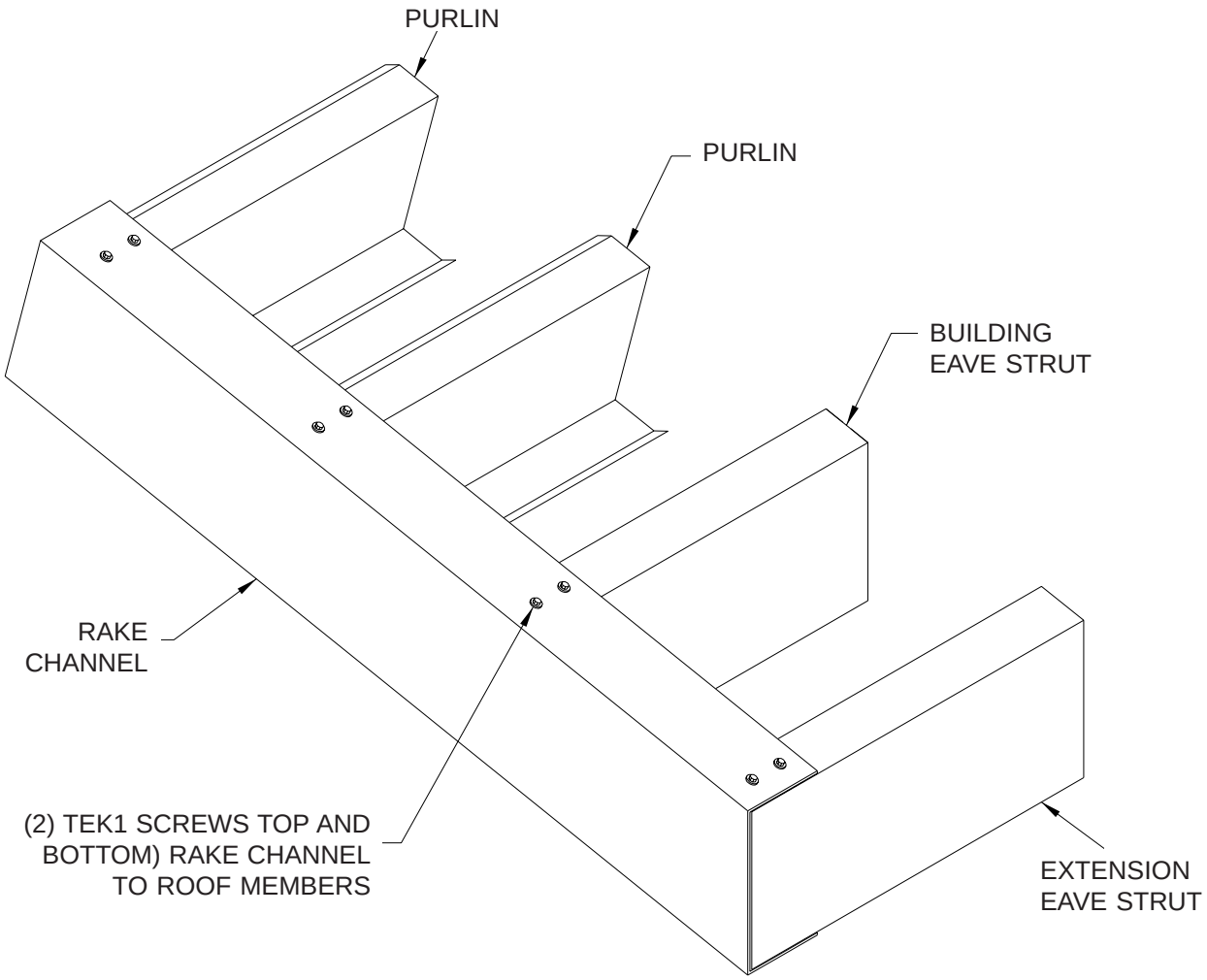
EXTENSION BEAM TO RIGID FRAME COLUMN
(FLUSH MOUNT DESIGN)



EXTENSION BEAM TO RIGID FRAME COLUMN
(BYPASS DESIGN)



RAKE CEE TO RAKE EXTENSION

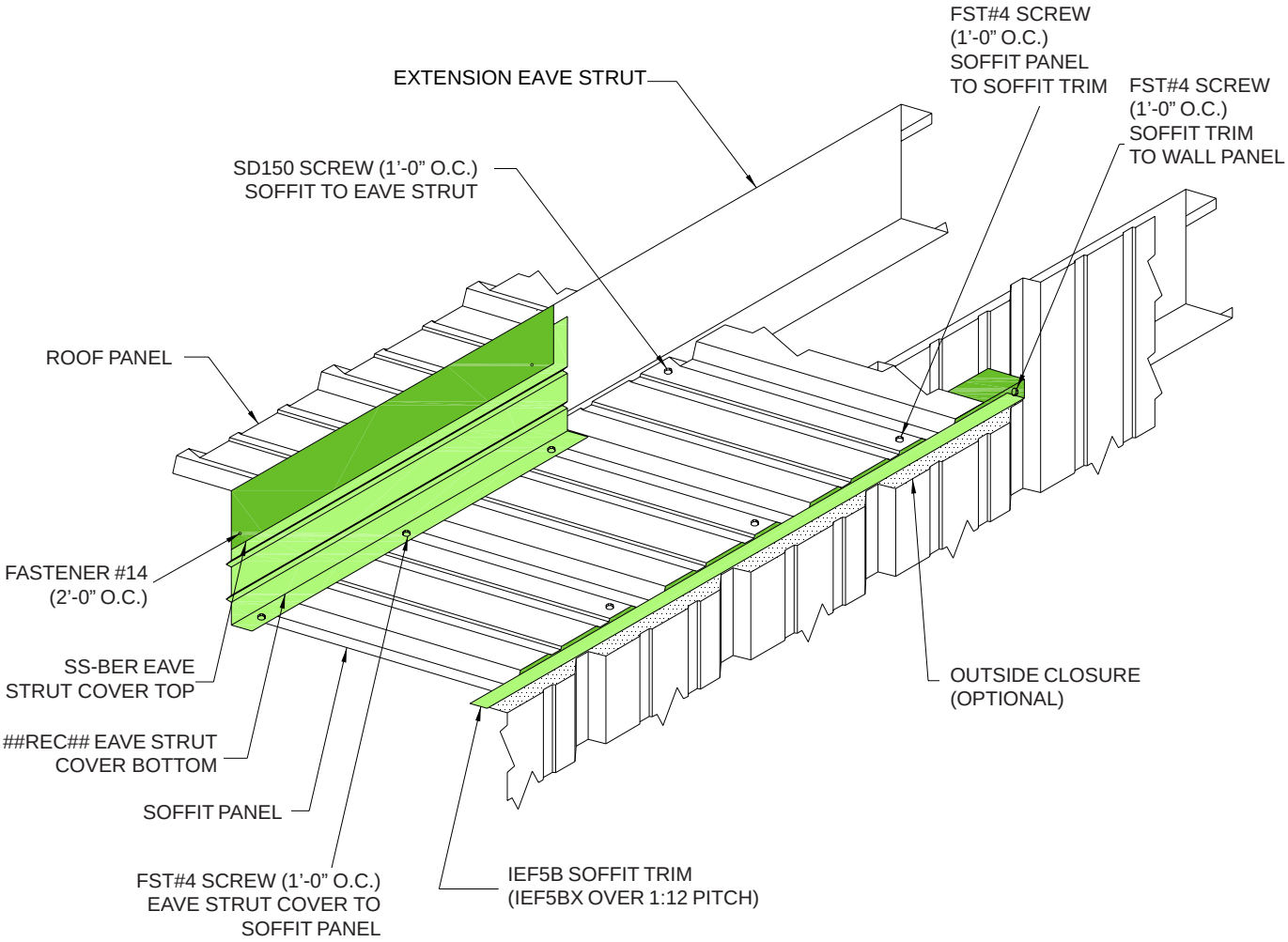


NOTE

FOR BUILDINGS WITH NO RAKE EXTENSION, THE RAKE CHANNEL IS REQUIRED TO RUN FROM THE EXTENSION EAVE STRUT TO THE SECOND PURLIN ON THE MAIN BUILDING.

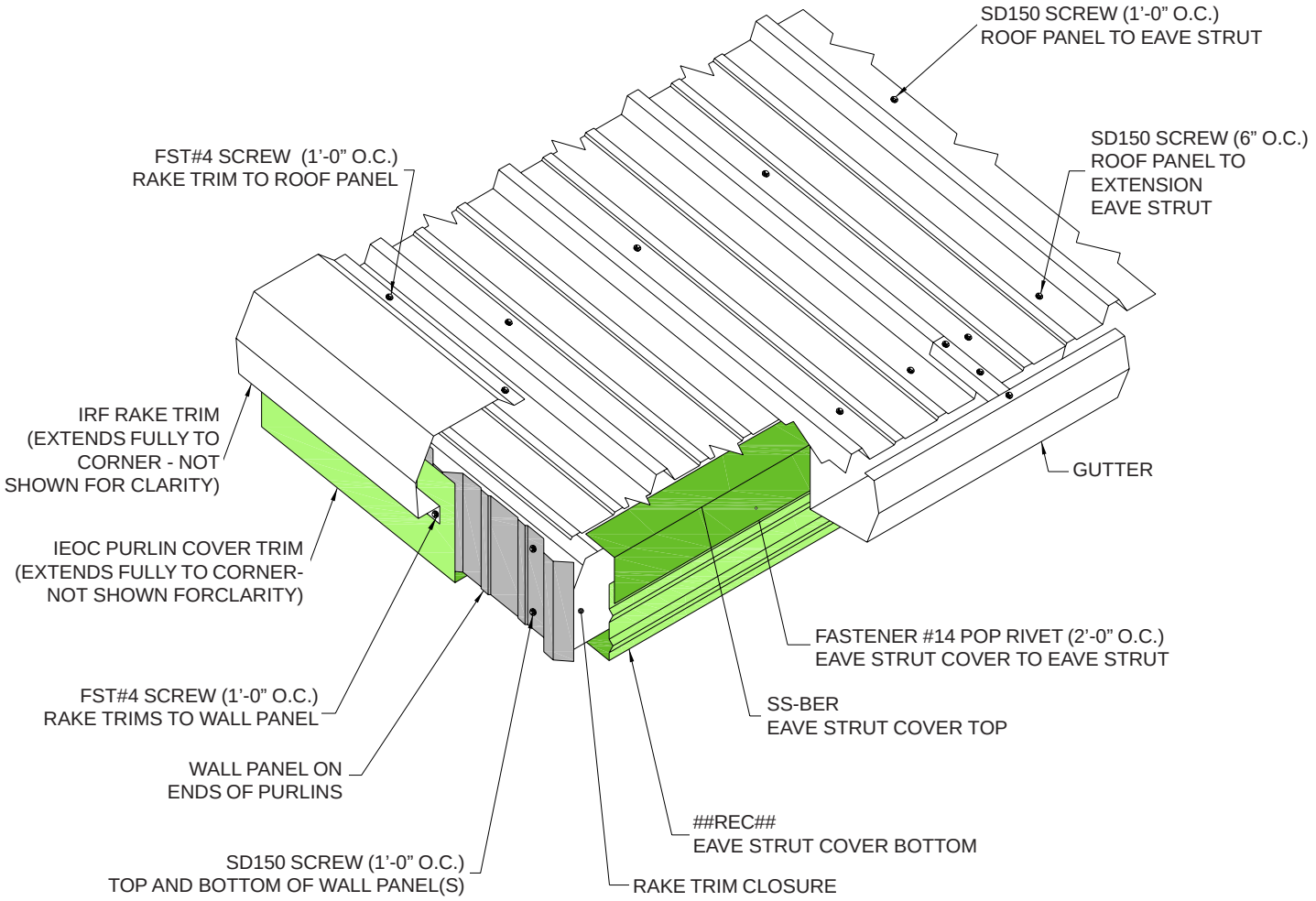
FOR BUILDINGS WITH A RAKE EXTENSION, THE RAKE CHANNEL IS REQUIRED TO RUN THE ENTIRE LENGTH OF THE RAKE.

EAVE EXTENSION WITH SOFFIT



NOTE
*GUTTER NOT SHOWN FOR CLARITY

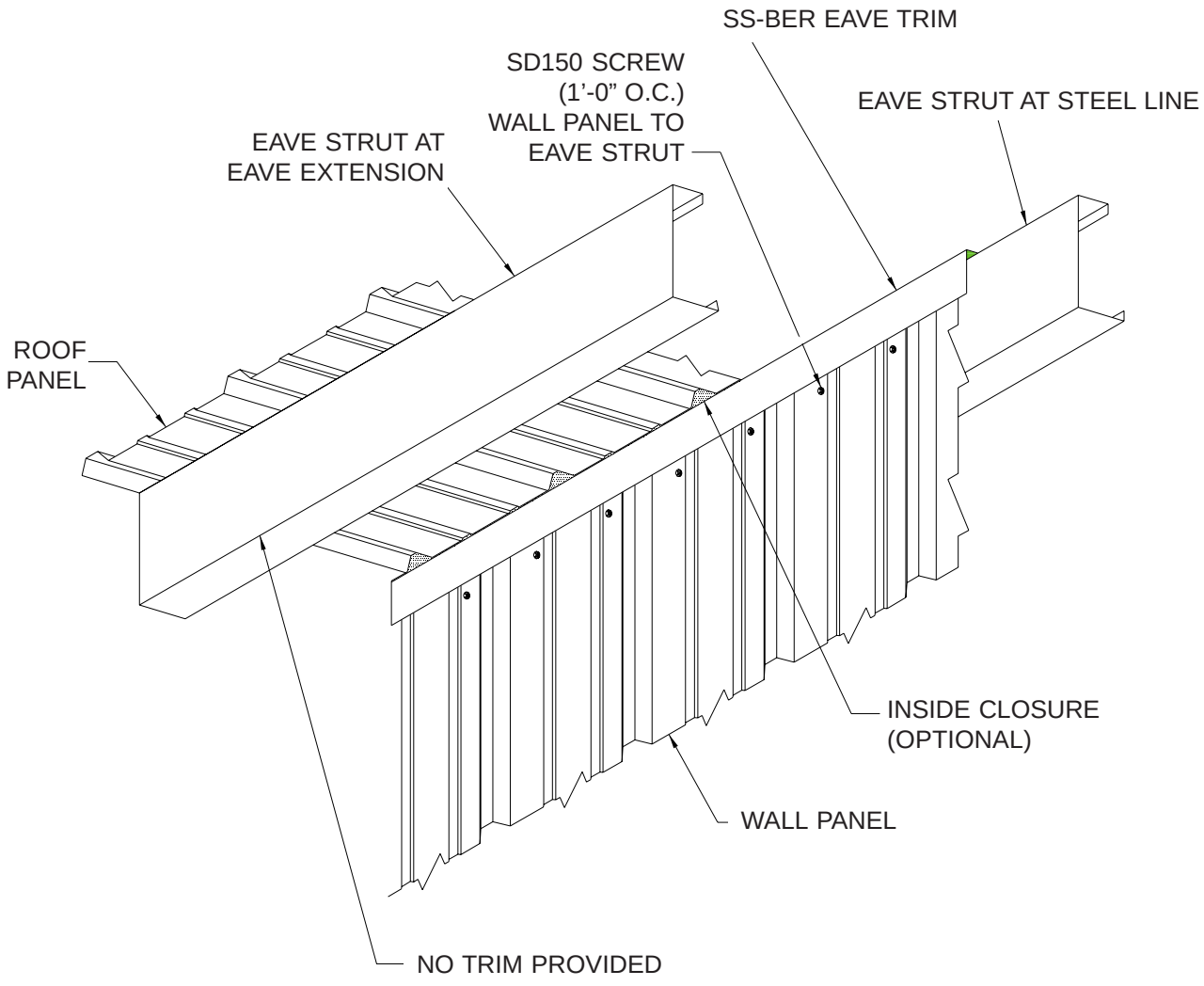
EAVE EXTENSION WITHOUT RAKE EXTENSION



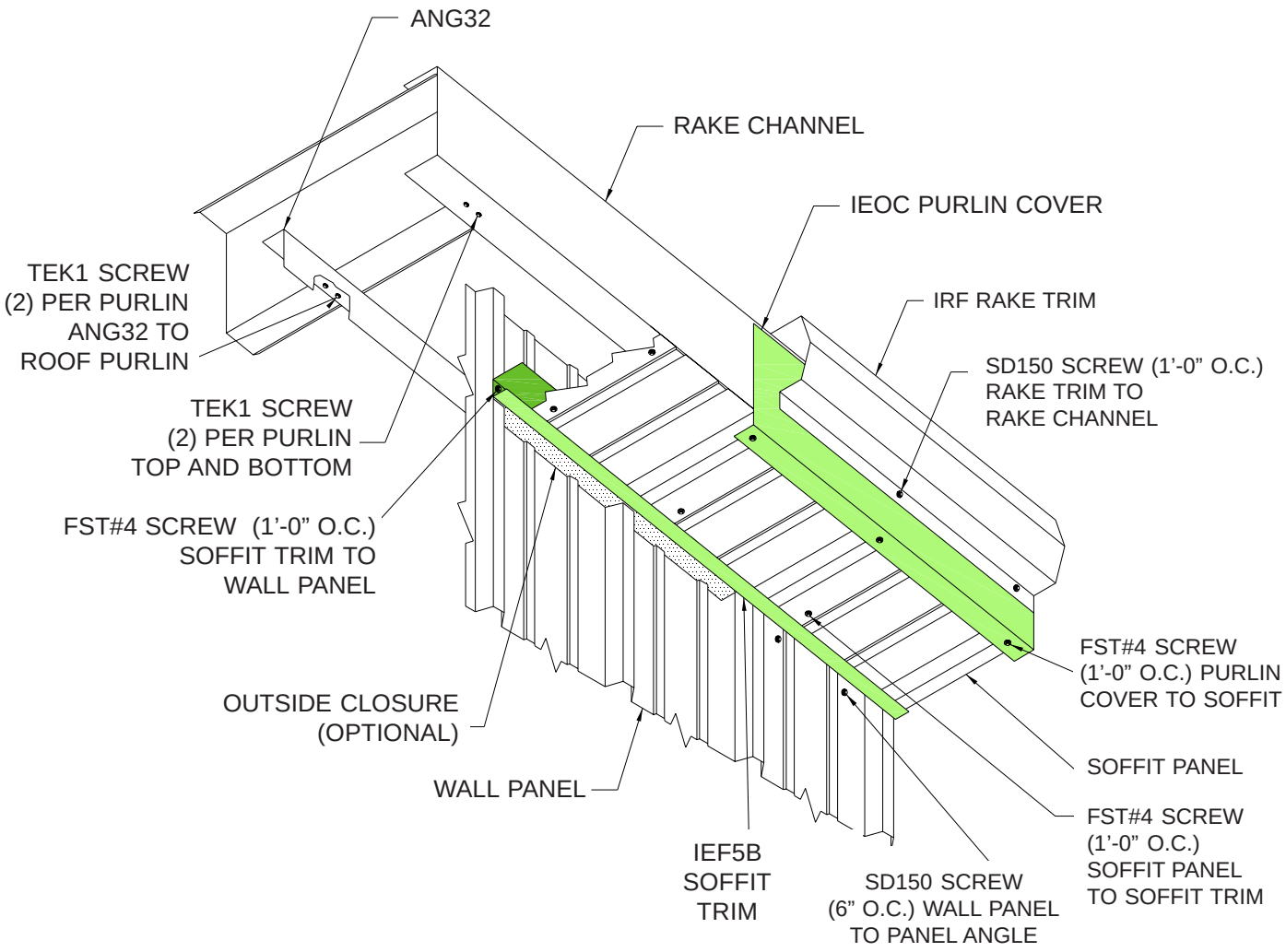
NOTE

NOTE(S):
1) SEE ALSO: STANDARD CORNER BOX INSTALLATION DETAILS.
2) PANEL AND GUTTER CUT AWAY AT CORNER TO SHOW TRIMS.

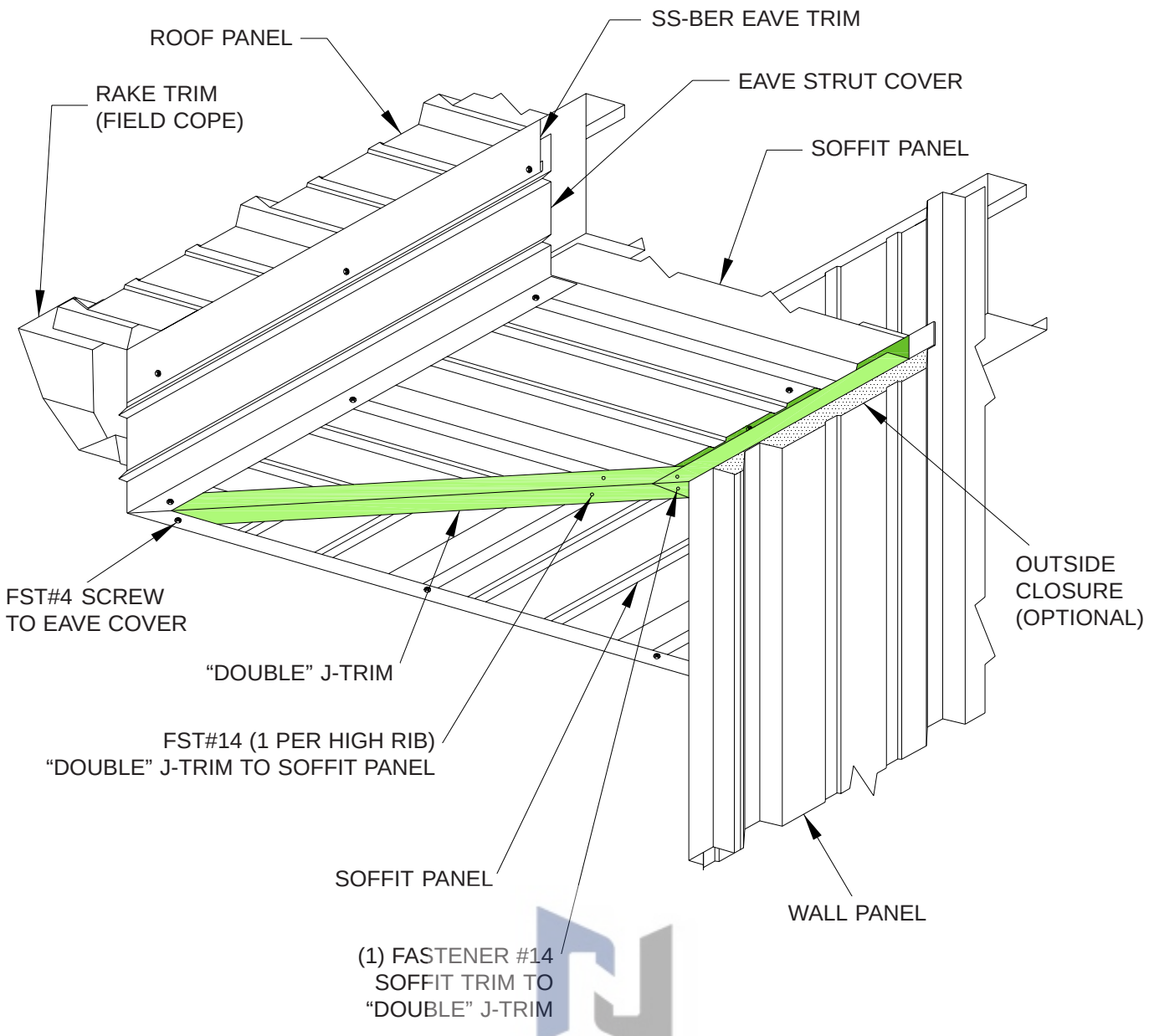
EAVE EXTENSION WITHOUT SOFFIT



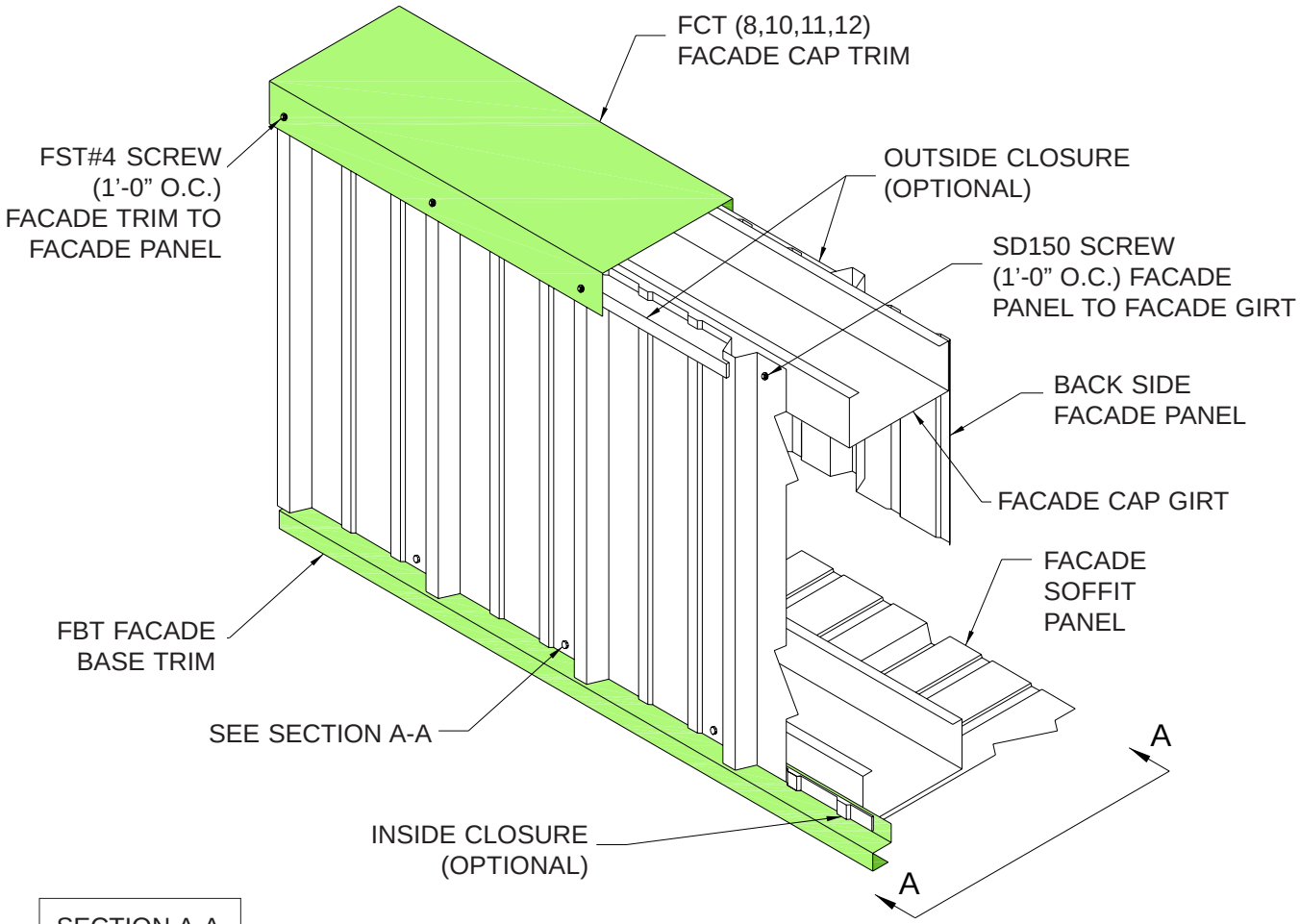
RAKE EXTENSION TRIM



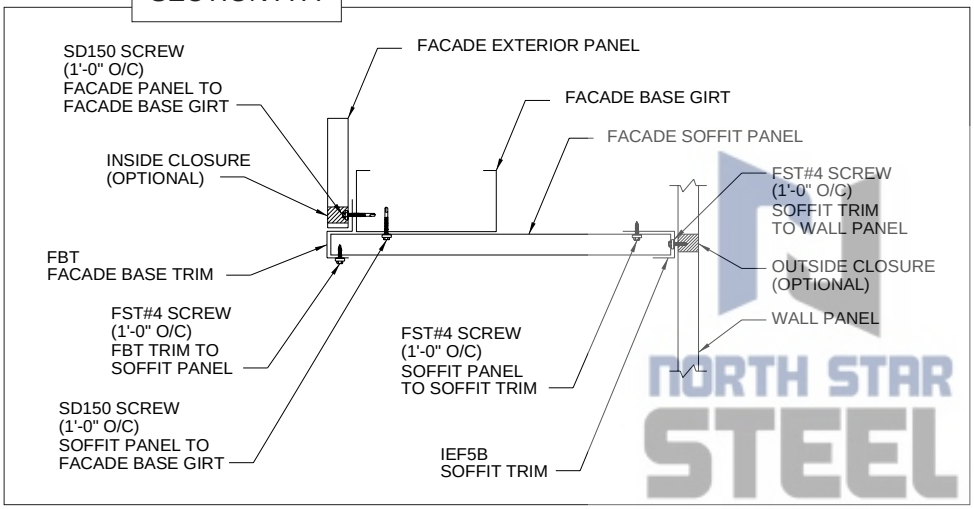
SOFFIT CORNER TRIM



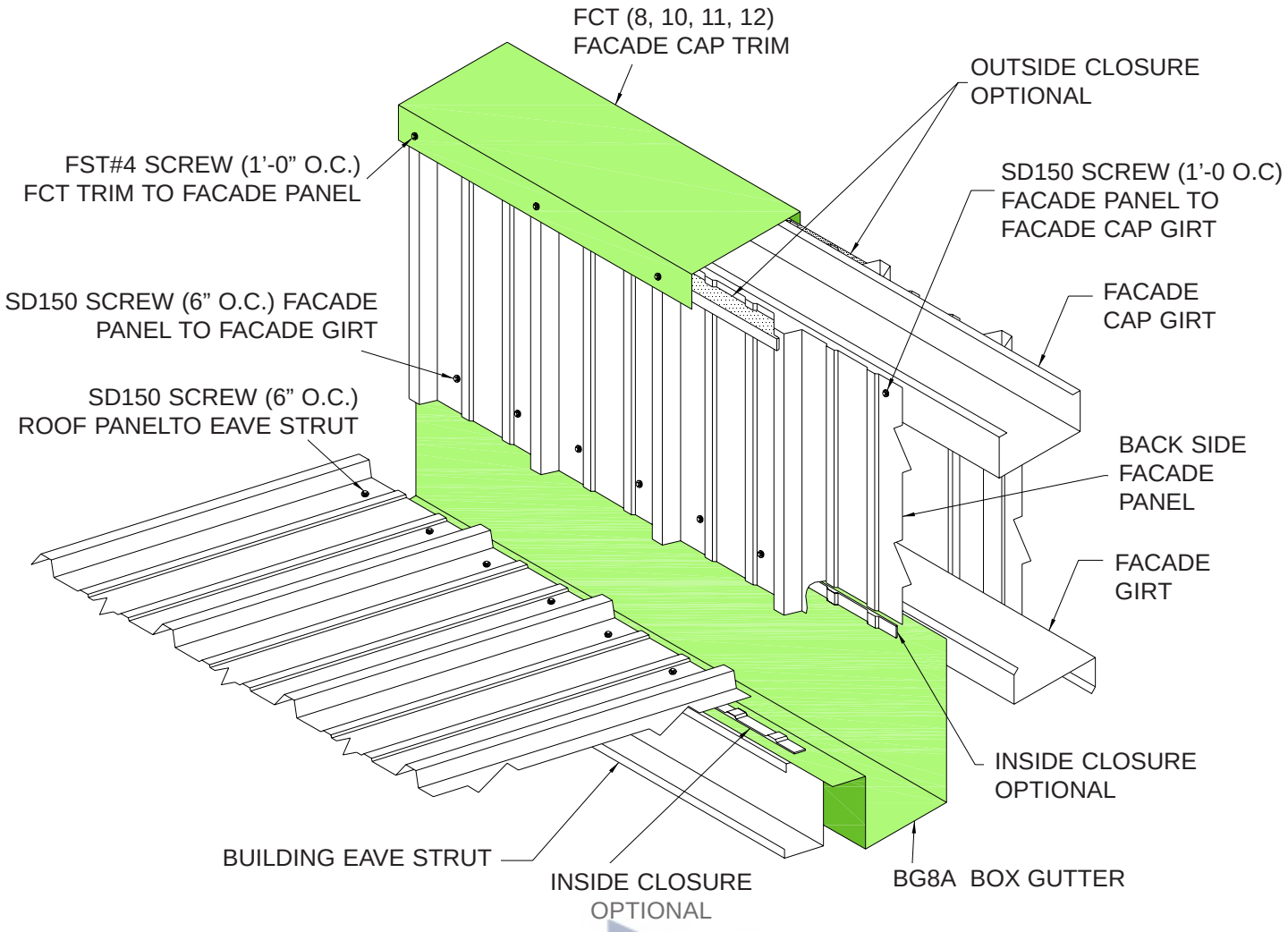
FACADE TRIMS AND SHEETING
(FRONT VIEW)



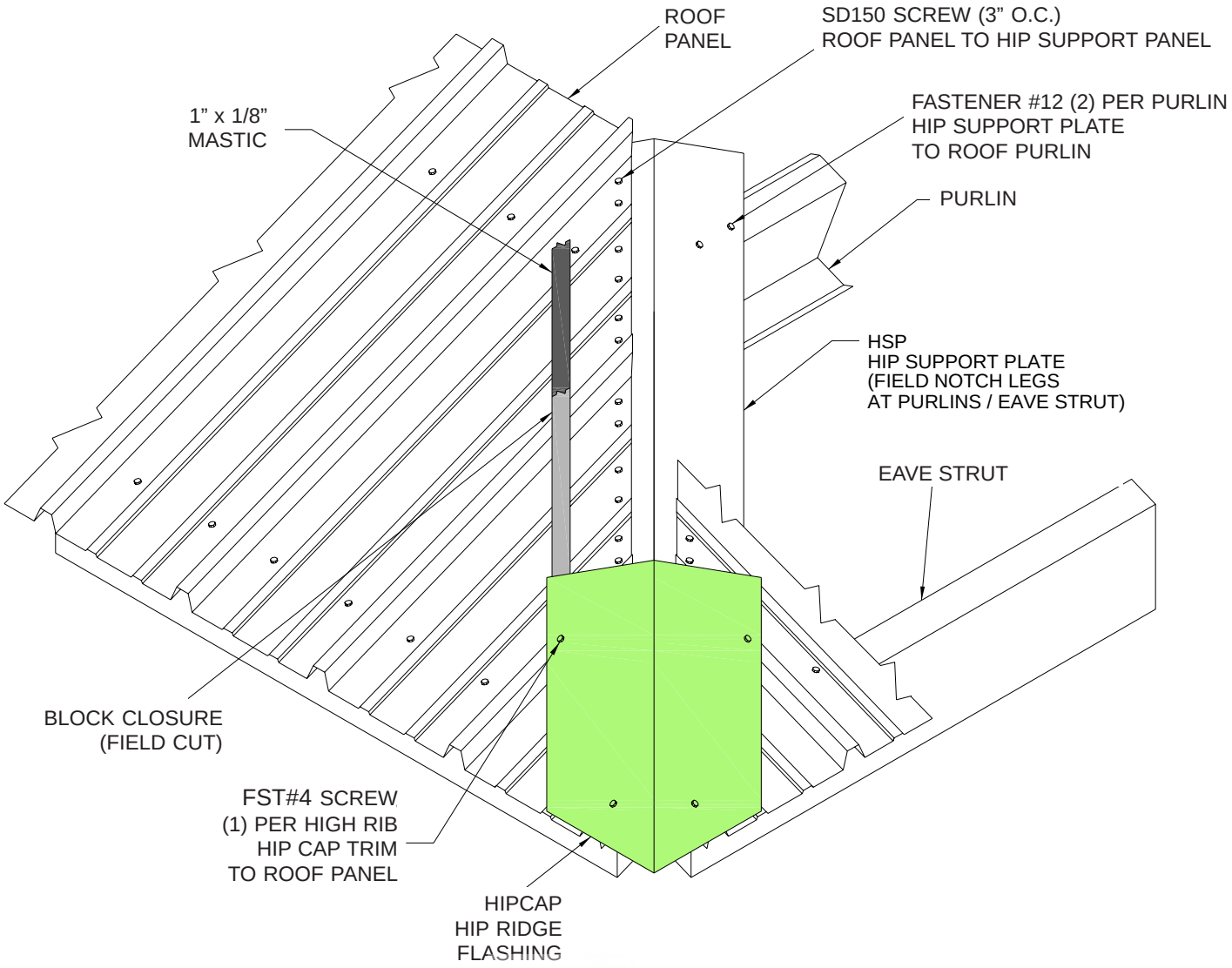
SECTION A-A



FACADE TRIMS AND SHEETING
(BACKSIDE VIEW)



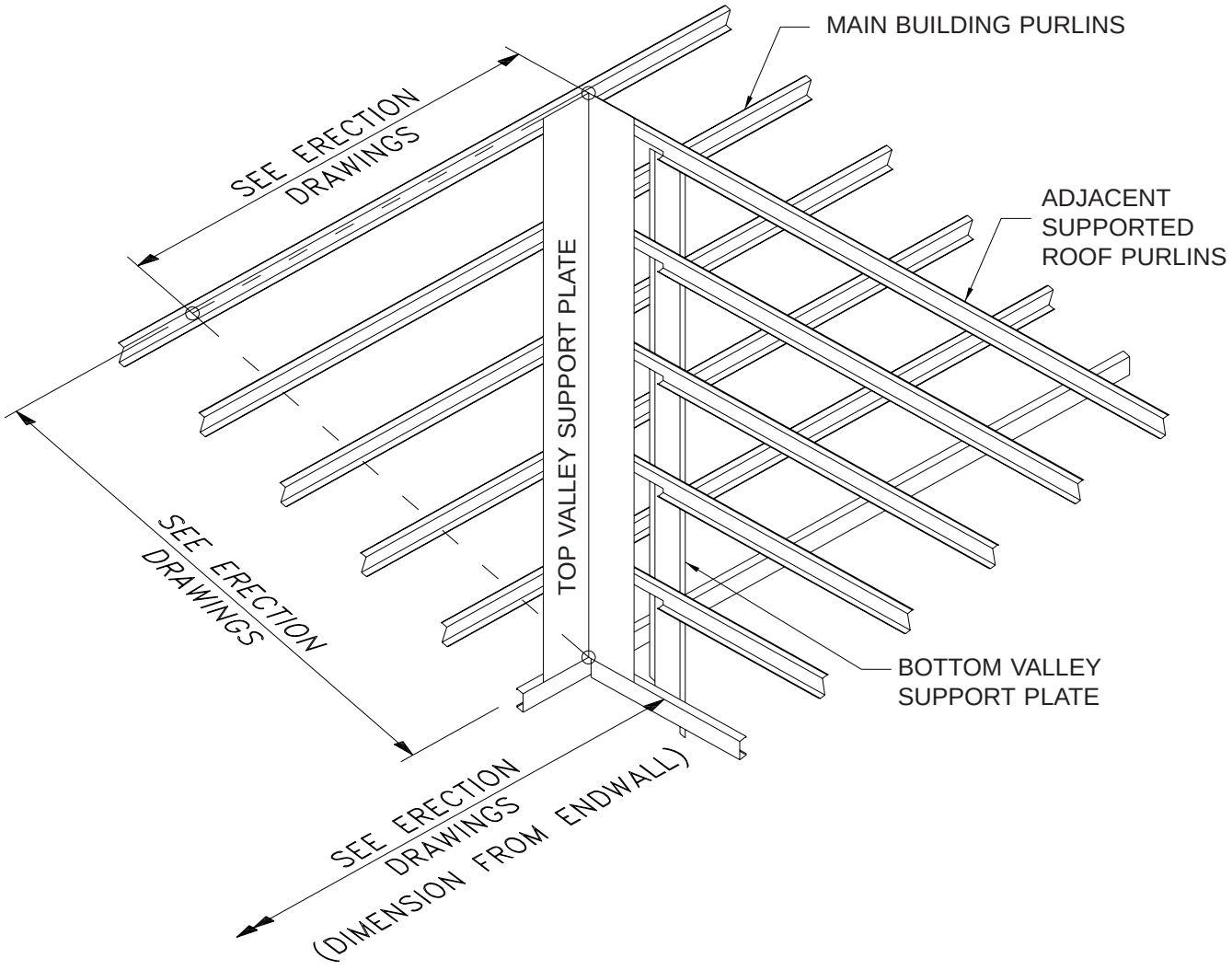
FRAMING & TRIM



NOTE

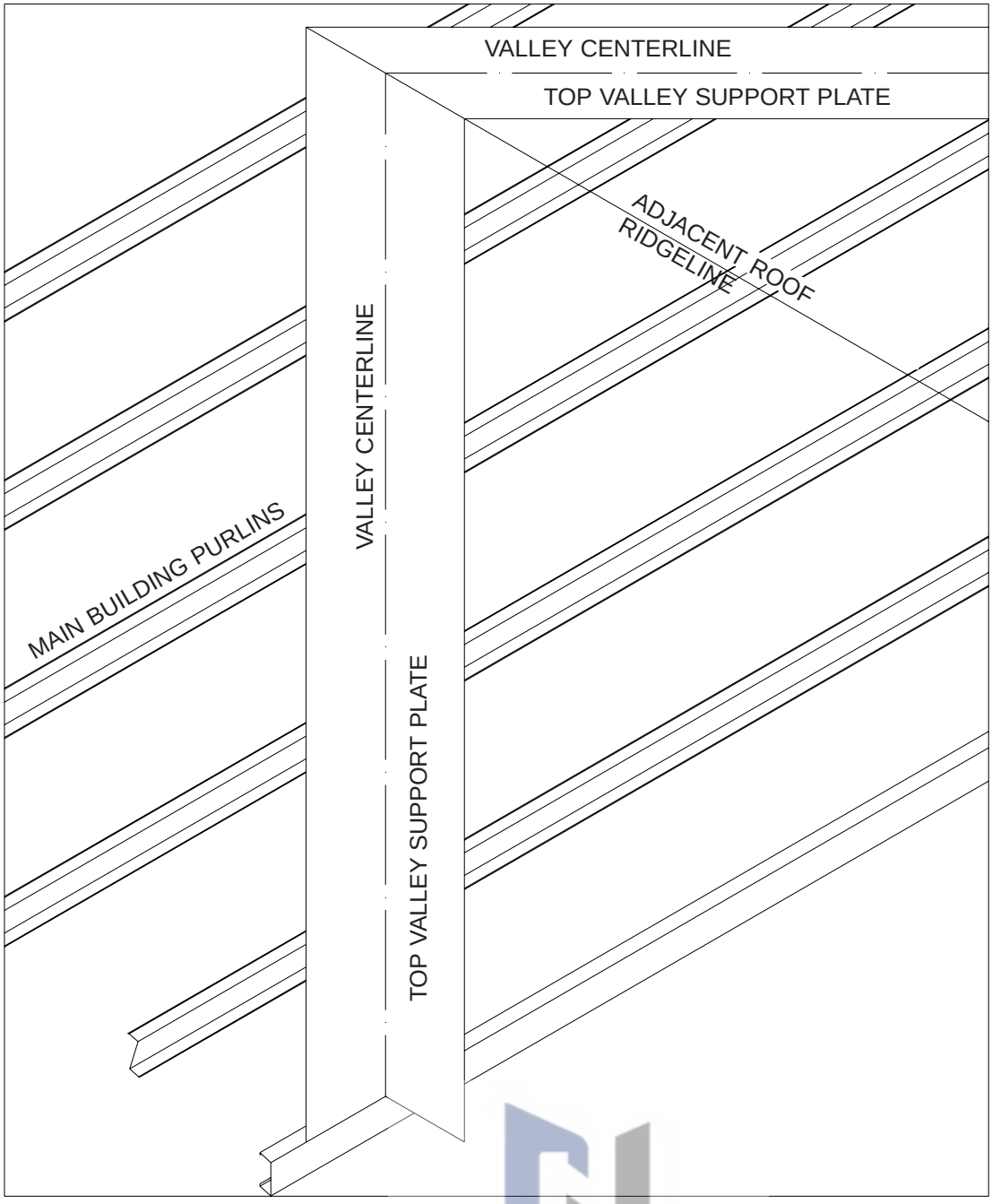
Field notch the 2” legs of the hip support plate at the roof purlins to allow the 8” leg of the support plate to bear on the top flange of the purlin.

VALLEY FRAMING ASSEMBLY VIEW



SEE FOLLOWING PAGES FOR INSTALLATION INSTRUCTIONS.

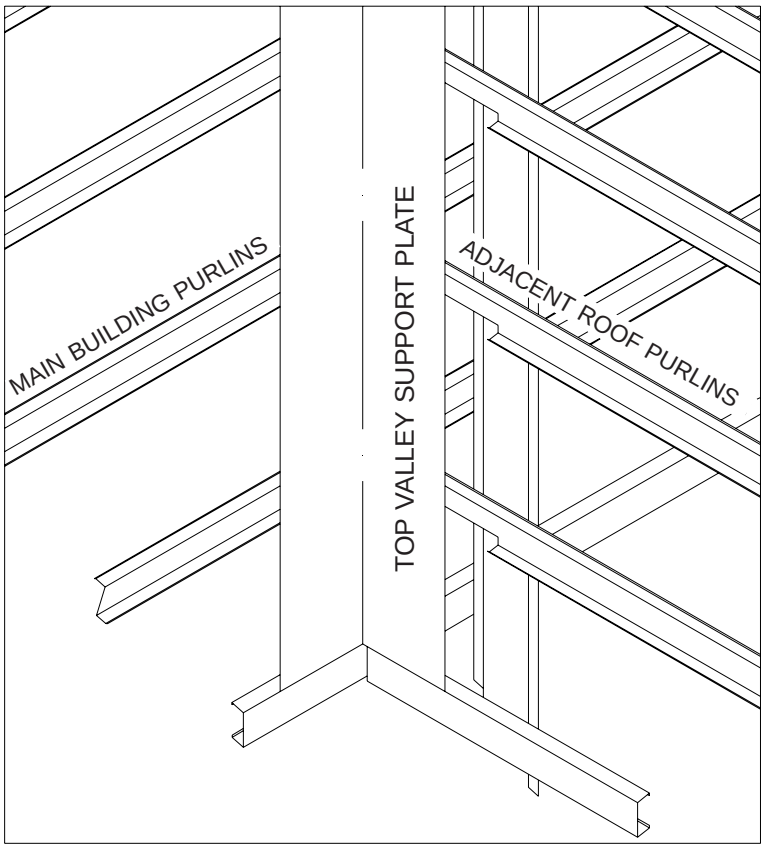
SPECIAL CONDITIONS Valley



NOTE

1. ATTACH THE TOP VALLEY SUPPORT PLATE TO THE BUILDING PURLINS WITH (2) TEK1 SCREWS PER PURLIN.

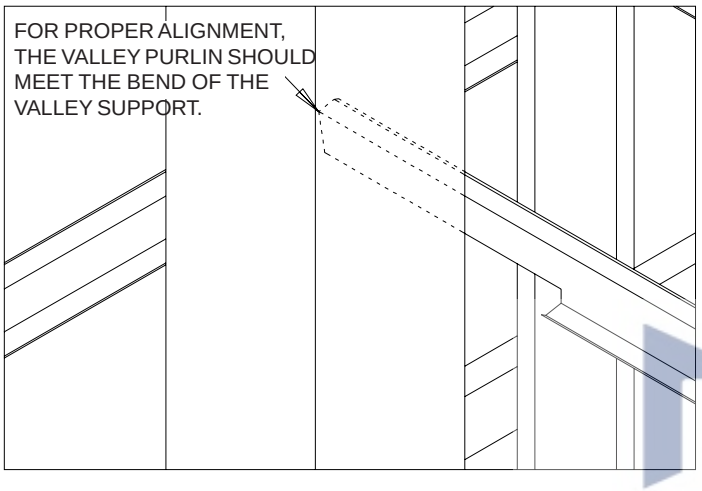
SPECIAL CONDITIONS Valley

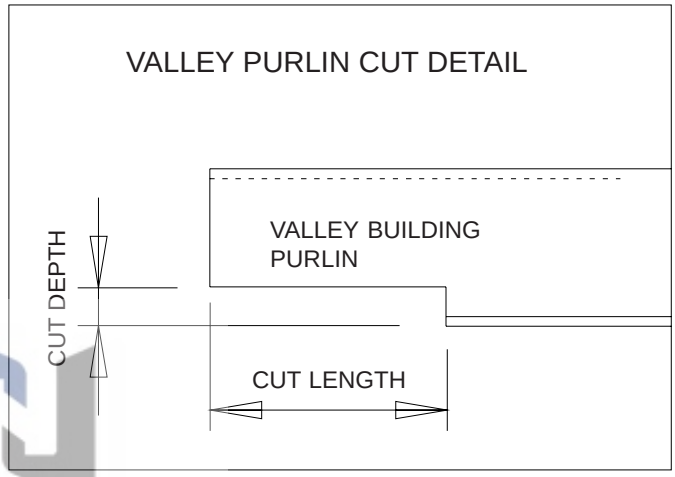


NOTES

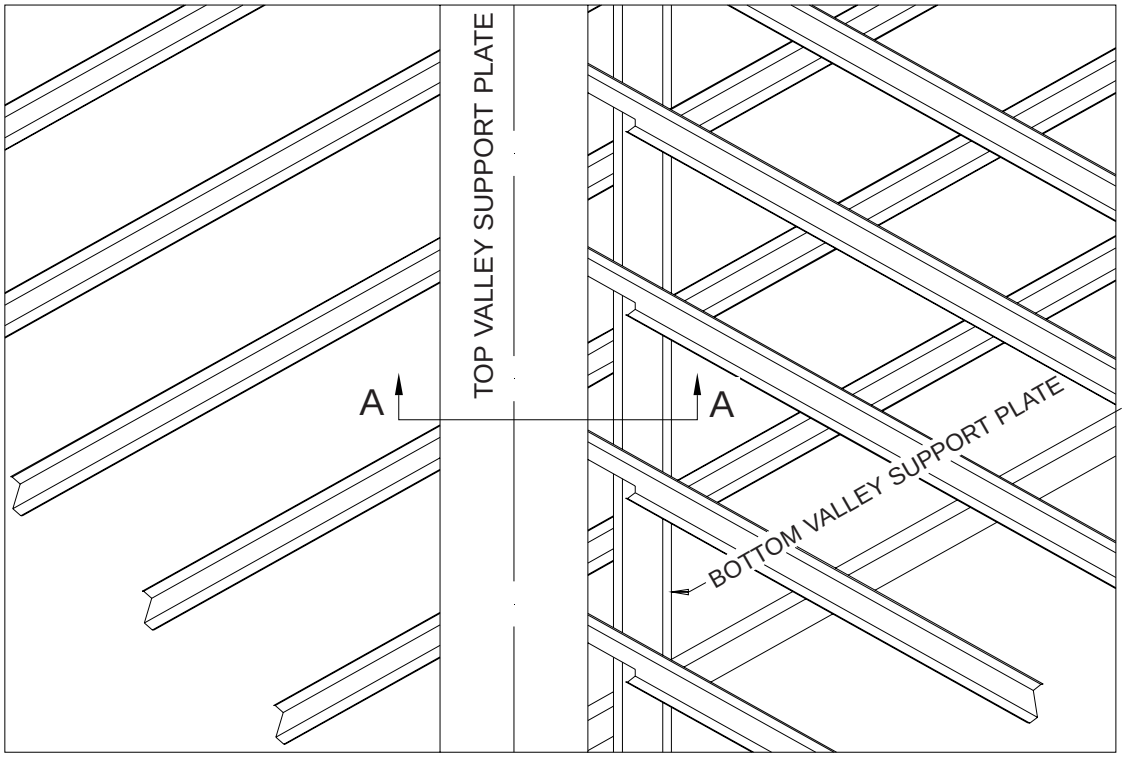
1. TEMPORARILY FASTEN THE VALLEY PURLIN TO TOP VALLEY SUPPORT PLATE USING (1) TEK1 SCREW FROM UNDERSIDE OF THE PLATE TO HOLD THE VALLEY PURLIN IN PLACE.

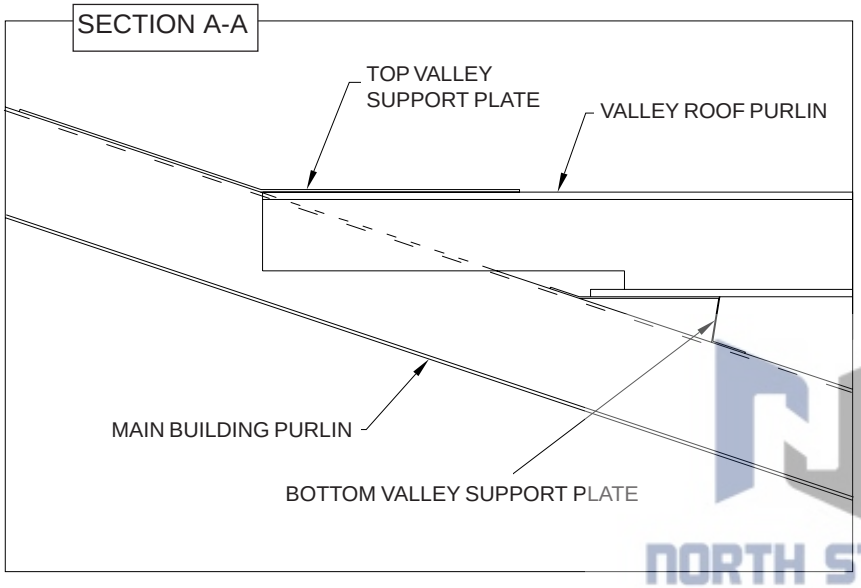
2. PERMANENTLY FASTEN THE VALLEY PURLIN TO TOP VALLEY SUPPORT PLATE USING (2) TEK1 SCREW FROM TOP SIDE OF PLATE TO HOLD THE VALLEY PURLIN IN PLACE.





SPECIAL CONDITIONS Valley





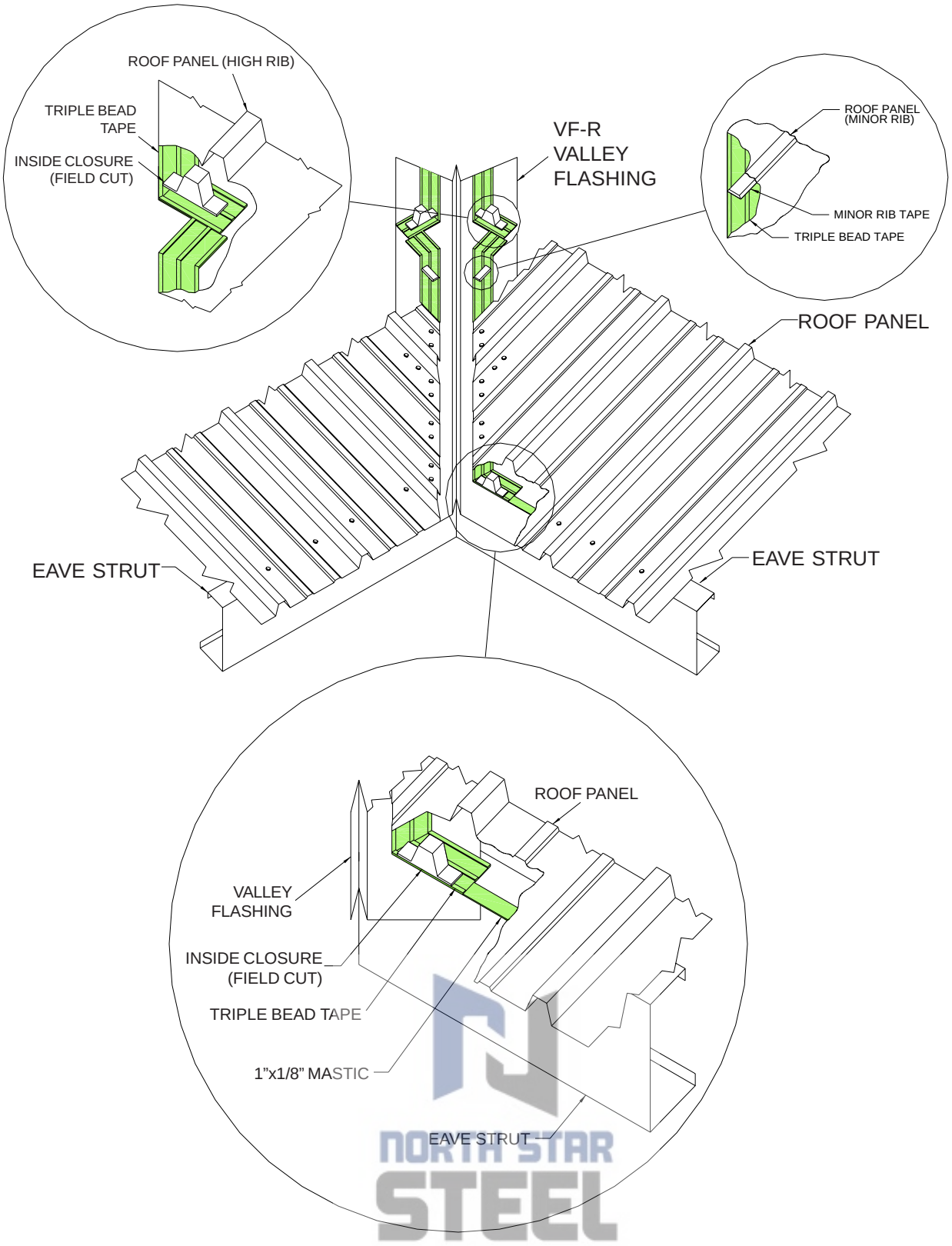
NOTES

1. PLACE THE BOTTOM VALLEY SUPPORT PLATE BY SLIDING IT UP THE SLOPE OF THE MAIN BUILDING UNTIL IT CONTACTS THE BOTTOM OF THE VALLEY PURLIN.

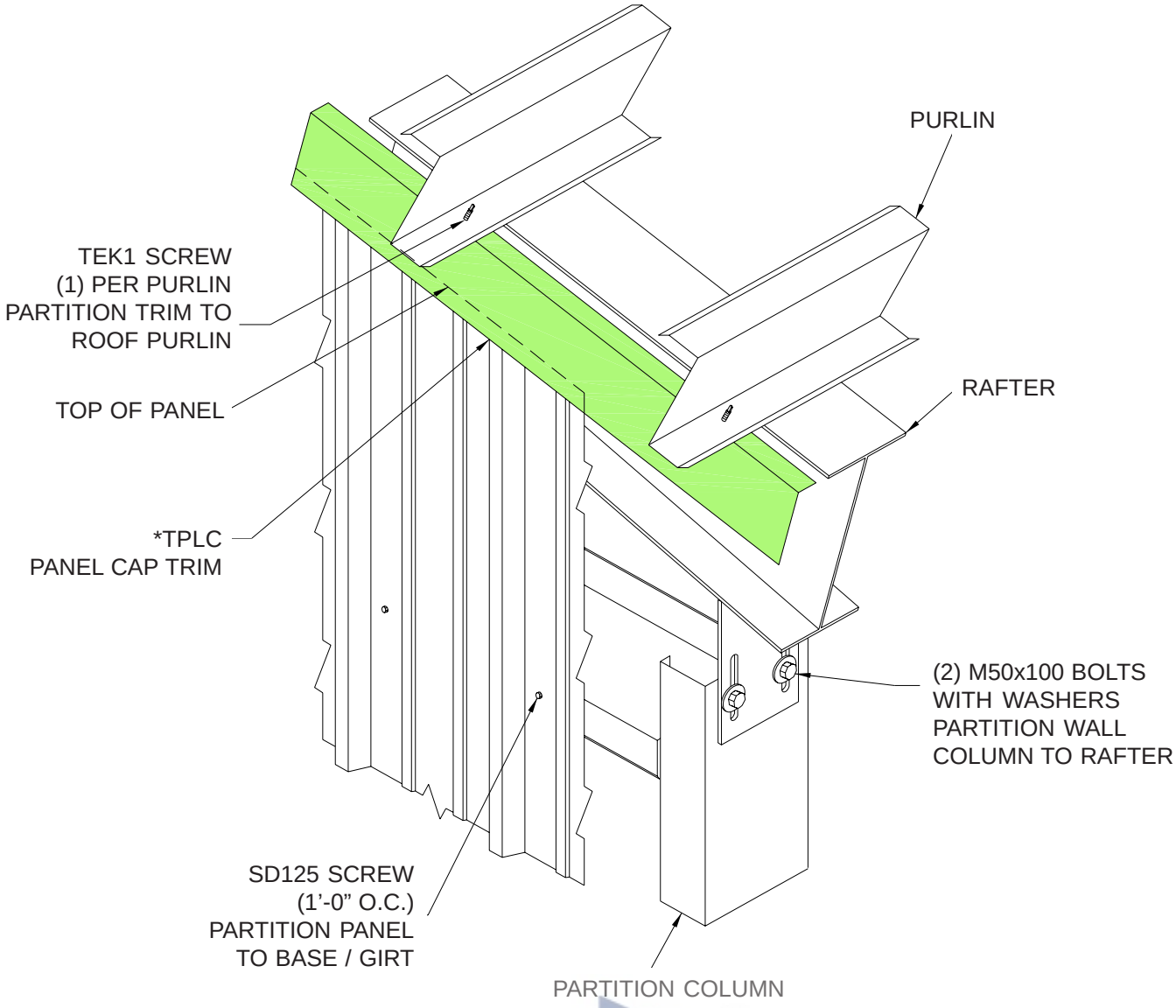
2. ATTACH THE BOTTOM VALLEY SUPPORT PLATE TO MAIN BUILDING PURLINS USING (2) TEK1 SCREWS PER PURLIN.

3. ATTACH THE BOTTOM VALLEY SUPPORT PLATE TO VALLEY BUILDING PURLINS USING (2) TEK1 SCREWS PER PURLIN.

SPECIAL CONDITIONS Valley



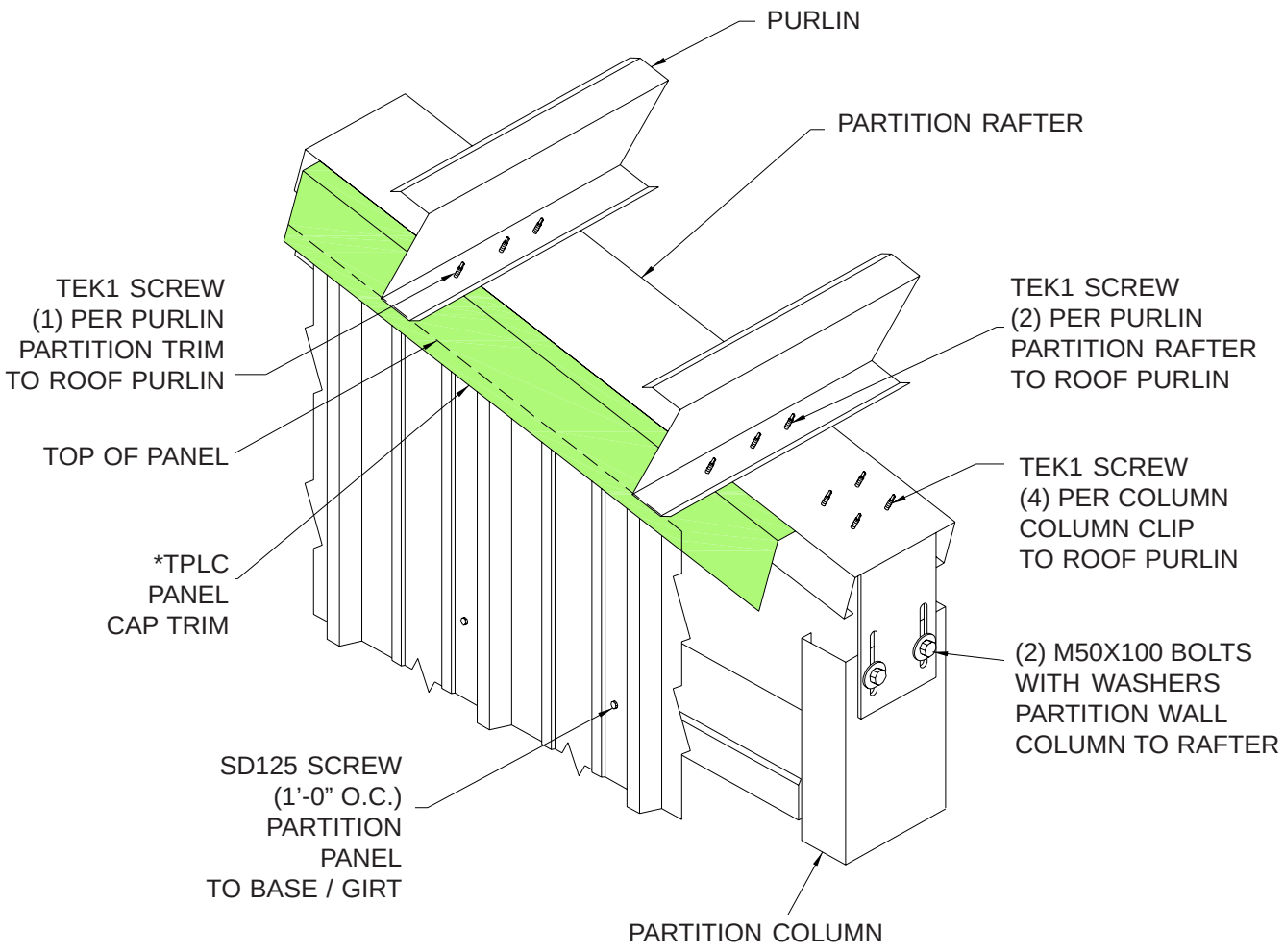
TRANSVERSE PARTITION AT RIGID FRAME



***DO NOT ATTACH THE TPLC TRIM TO LINER PANEL.**
THE TRIM IS DESIGNED TO ALLOW FOR ROOF DEFLECTION.

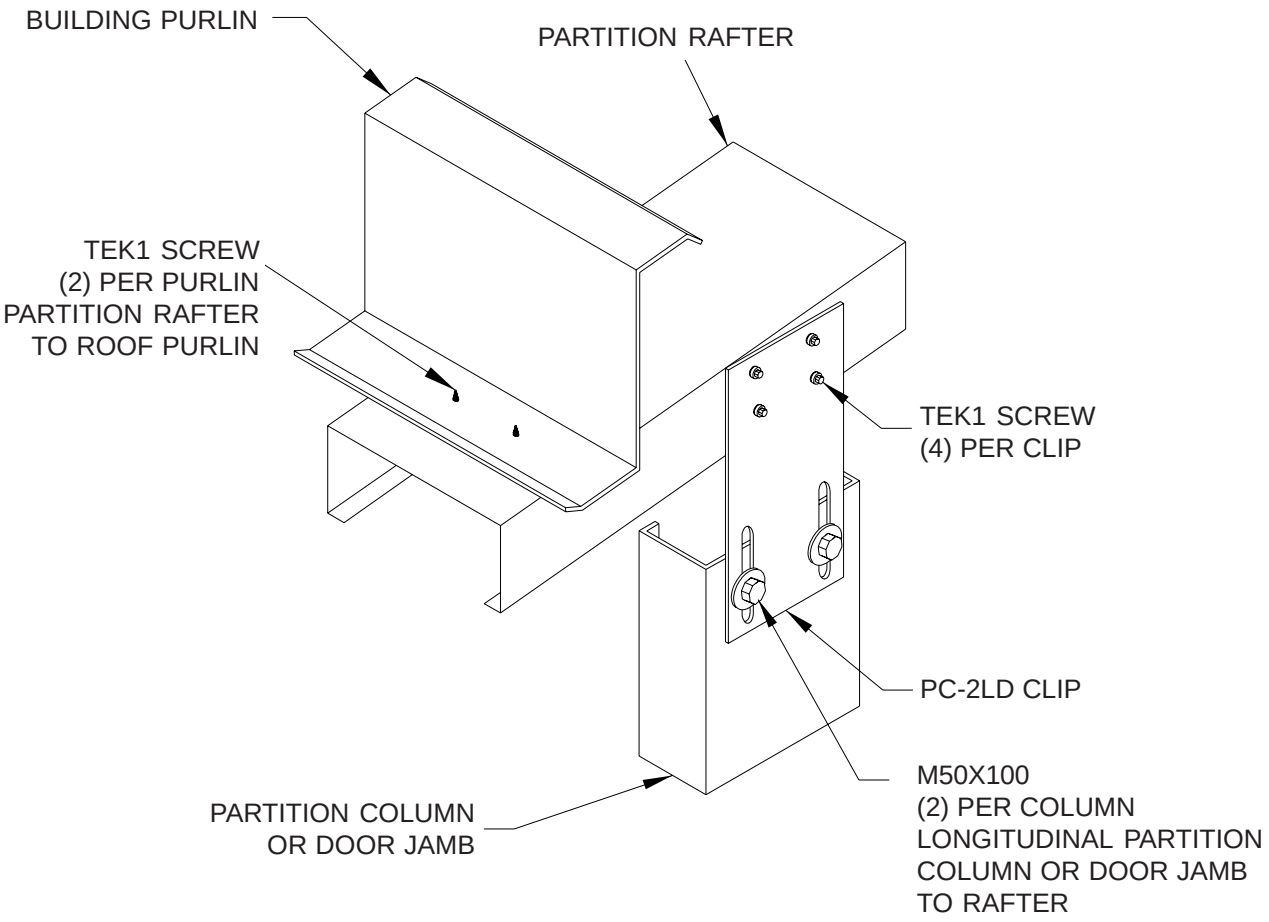
TRANSVERSE PARTITION - NOT AT RIGID FRAME

(TRANSVERSE WALL SHOWN)

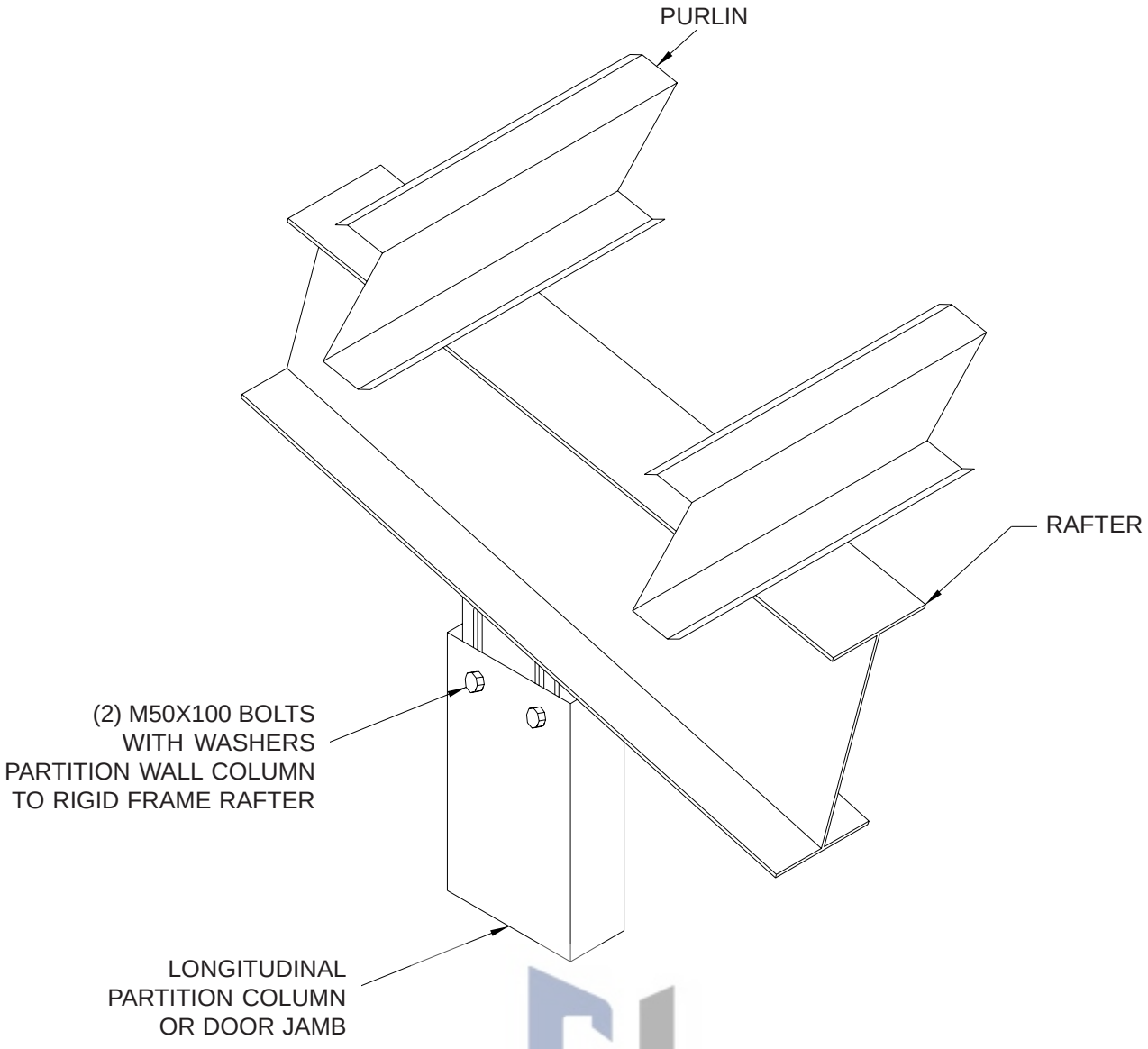


***DO NOT ATTACH THE TPLC TRIM TO LINER PANEL.**
THE TRIM IS DESIGNED TO ALLOW FOR ROOF DEFLECTION.

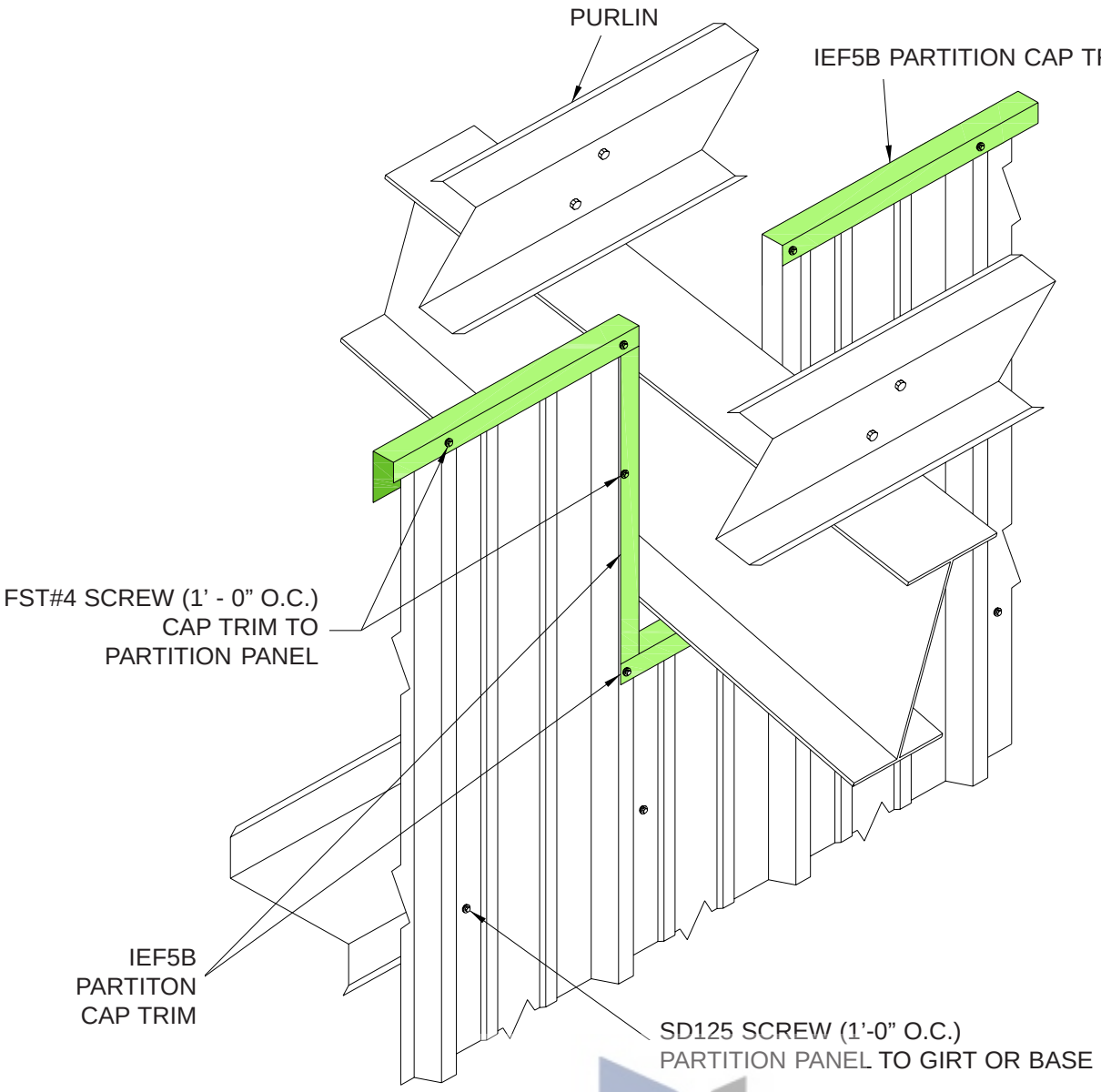
LONGITUDINAL COLUMN OR DOOR JAMB TO RAFTER CONNECTION



LONGITUDINAL COLUMN OR DOOR JAMB TO RIGID FRAME RAFTER CONNECTION



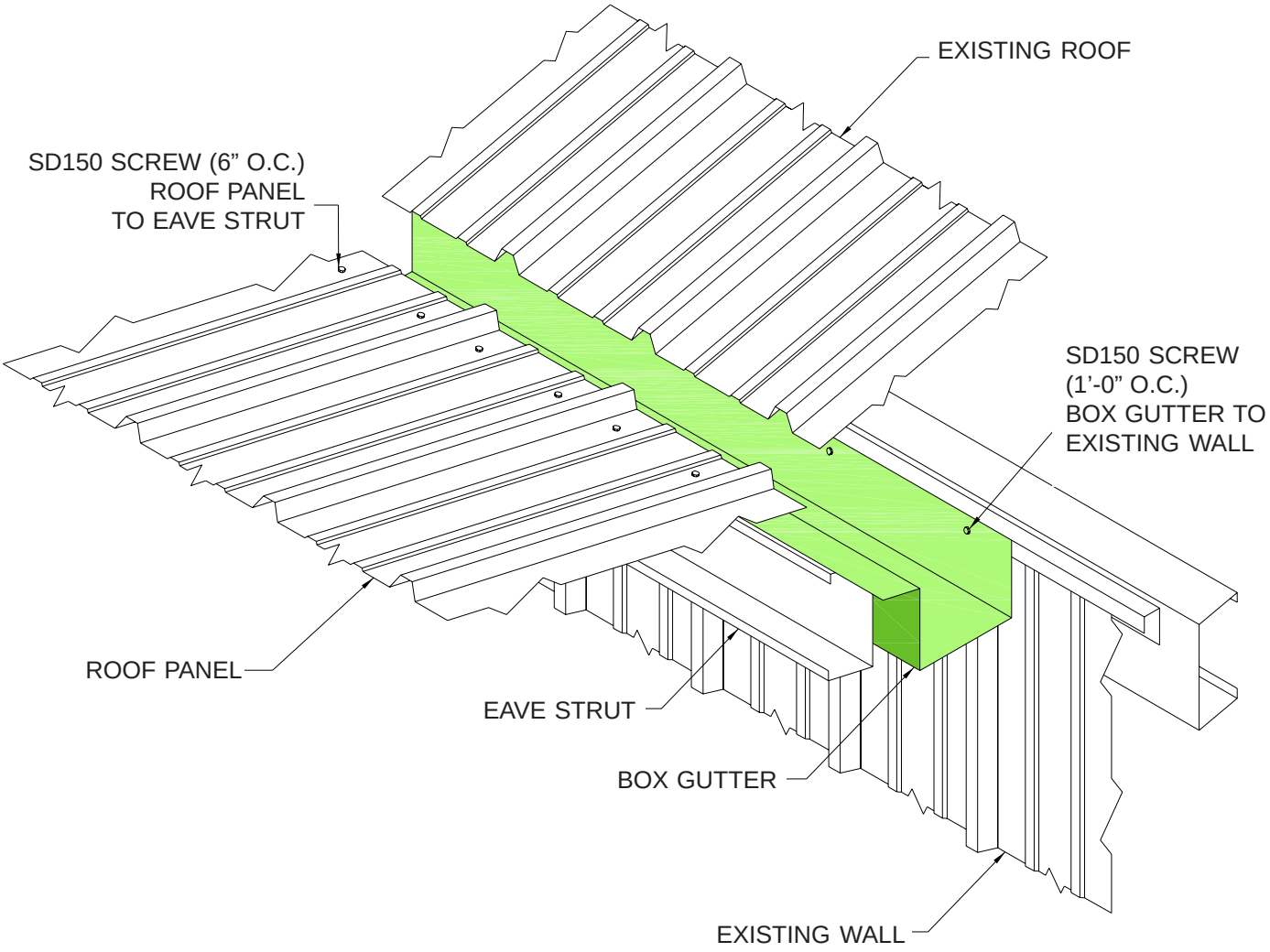
LONGITUDINAL PANEL AND CAP TRIM



NOTE

REFERENCE LINER PANEL TRIM DETAILS FOR PARTITION WALL FRAMED OPENINGS AND COLUMN TRIMS.

BOX GUTTER AT EXISTING BUILDING



GLOSSARY OF TERMS

Anchor Bolt Plan
A plan view drawing showing the diameter and location of all anchor bolts for the components of the metal building system and may show column reactions (magnitude and direction). The maximum base plate dimensions may also be shown.

Assembly
A group of mutually dependent and compatible components or subassemblies of components.

Bar Joist
A name commonly used for "Open Web Steel Joists".

Base Angle
An angle secured to a wall or foundation used to attach the bottom of the wall paneling.

Bay
The space between the main frames measured perpendicular to the frame.

Bearing End Frame
A structural system consisting of a series of rafter beams supported by columns. Often used as the end frame of a building.

Blind Rivet
A small headed pin with expandable shank for joining light gauge metal. Typically used to attach flashing, gutter, etc.

Bracing
Angles or cables used in the plane of the roof and walls to transfer loads, such as wind, seismic and crane thrusts to the foundation.

Bypass Girt
A wall framing system where the girts are mounted on the outside of the columns.

"C" Section
A member formed from steel sheet in the shape of a block "C", that may be used either singularly or back to back.

Cap Plate
A plate located at the top of a column or end of a beam for capping the exposed end of the member.

Clip
A plate or angle used to fasten two or more members together.

Closure Strip
A resilient strip, formed to the contour of ribbed panels and used to close openings created by ribbed panels joining other components.

Column
A main member used in a vertical position on a building to transfer loads from main roof beams, trusses, or rafters to the foundation.

Curb
A raised edge on a concrete floor slab or roof accessory.

Downspout
A conduit used to carry water from the gutter of a building.

Eave
The line along the sidewall formed by the intersection of the planes of the roof and wall.

Eave Height
The vertical dimension from finished floor to the eave.

Eave Strut
A structural member located at the eave of a building which supports roof and wall paneling.

End Bay
The bays adjacent to the endwalls of a building. Usually the distance from the endwall to the first interior main frame measured normal to the endwall.

End Frame
A frame located at the endwall of a building which supports the loads from a portion of the end bay.

End Wall
An exterior wall which is parallel to the interior main frame of the building.

End Wall Column
A vertical member located at the endwall of a building which supports the girts. In beam and column end frames, endwall columns also support the beam.

Erection
The on-site assembling of fabricated metal building system components to form a completed structure.

Erection Drawings
Roof and wall erection (framing) drawings that identify individual components and accessories furnished by the manufacturer in sufficient detail to permit proper erection of the metal building system.

Expansion Joint
A break or space in construction to allow for thermal expansion and contraction of the materials used in the structure.

Facade
An architectural treatment, partially covering a wall, usually concealing the eave and/or the rake of the building.

Fascia
A decorative trim or panel projecting from the face of a wall.

GLOSSARY OF TERMS

Flange Brace
A member used to provide lateral support to the flange of a structural member.

Flush Frames
A wall framing system where the outside flange of the girts and the columns are flush.

Framed Openings
Framing members and flashing which surround an opening.

Gable
The triangular portion of the endwall from the level of the eave to the ridge of the roof.

Girt
A horizontal structural member that is attached to sidewall or endwall columns and supports paneling.

Gutter
A light gauge metal member at an eave, valley or parapet designed to carry water from the roof to downspouts or drains.

Header
The horizontal framing member located at the top of a framed opening.

Hip
The line formed at the intersection of two adjacent sloping planes of a roof.

Jamb
The vertical framing members located at the sides of an opening.

Kick-Out (elbow, turn-out)
An extension attached to the bottom of a downspout to direct water away from a wall.

Lean-To
A structure having only one slope and depending on another structure for partial support.

Length
The dimension of the building measured perpendicular to the main framing from end wall to end wall.

Liner Panel
A metal panel attached to the inside flange of the girts or inside of a wall panel.

Louver
An opening provided with a fixed or movable, slanted fins to allow flow of air.

Mastic
A material used to seal cracks, joints or laps.

Oil Canning
A waviness that may occur in flat areas of light gauge, formed metal products. Structural integrity is not normally affected by this inherent characteristic and therefore is only an aesthetic issue.

Overhead Doors
Doors constructed in horizontally hinged sections. They are equipped with springs, tracks, counter balancers, and other hardware which roll the sections into an overhead position, clear of the opening.

Panels
The exterior metal roof and wall sheeting of a metal building system.

Parapet
That portion of the vertical wall of a building which extends above the roof line.

Peak
The uppermost point of a gable.

Peak Sign
A sign attached to the peak of a building at the endwall showing the building manufacturer.

Personnel Doors
A door used by personnel for access to and exit from a building.

Pitch
The peak height of a gabled building divided by its overall span.

Pop Rivet
See “Blind Rivet”

Purlin
A horizontal structural member which supports roof covering.

Rafter
The main beam supporting the roof system.

Rake
The intersection of the plane of the roof and the plane of the endwall.

Rake Angle
Angle fastened to purlins at rake for attachment of endwall panels.

Rake Trim
A flashing designed to close the opening between the roof and endwall panels.

Rib
The longitudinal raised profile of a panel that provides much of the panel’s bending strength.

Ridge
The horizontal line formed by opposing sloping sides of a roof running parallel with the building length.

Ridge Cap
A transition of the roofing materials along the ridge of a roof; sometimes called ridge roll or ridge flashing.

Glossary continued on next page...

GLOSSARY OF TERMS

Rigid Frame
A structural frame consisting of members joined together with moment connections so as to render the frame stable with respect to the design loads, without need for bracing in its plane.

Roof Slope
The tangent of the angle that a roof surface makes with the horizontal, usually expressed in units of vertical rise to 12 units of horizontal run.

Self-Drilling Screw
A fastener which combines the functions of drilling and tapping.

Self-Tapping Screw
A fastener which taps its own threads in a predrilled hole.

Shipping List
A list that enumerates by part number or description each piece of material or assembly to be shipped.

Shop Primer Paint
The initial coat of primer paint applied in the shop.

Side Wall
An exterior wall which is perpendicular to the frame of a building system.

Sill
The bottom horizontal framing member of a wall opening such as a window or a door.

Single Slope
A sloping roof in one plane. The slope is from one wall to the opposite wall.

Slide Door
A single or double leaf door which opens horizontally by means of sliding on an overhead trolley.

Snug Tight
A tightness of a bolt in a connection that exists when all plies in a joint are in firm contact.

Soffit
A material which covers the underside of an overhang.

Steel Line
The surface of the building as formed by the base member, the outside flange of the girts, and the eave strut or rake angle.

Stitch Screw
A fastener connecting panels together at the sidelap.

Temporary Bracing
Materials used by erectors to stabilize the building system during erection.

Translucent Light Panels
Panels used to admit light.

Turn-of-the-Nut Method
A method of pre-tensioning high strength bolts. The nut is turned from the “Snug Tight” position, corresponding to a few blows of an impact wrench or the full effort of a man using an ordinary spud wrench, the amount of rotation required being a function of the bolt diameter and length.

Valley Gutter
A channel used to carry off water from the “V” of roofs of multi-gabled buildings.

Width
The dimension of the building measured parallel to the main framing from sidewall to sidewall.

“Z” Section
A member cold formed from steel sheet in the shape of a “Z”.

Common Industry Abbreviations

BOM	Bill of Material
CL	Center Line
DIA	Diameter
DS	Downspout
ELEV	Elevation
EW	End Wall
FS	Far Side
FLG	Flange
FO	Framed Opening
GA	Gauge
NS	Near Side
O.C.	On Center
QTY	Quantity
SMS	Sheet Metal Screw
STD.	Standard
SW	Side Wall
TYP	Typical
SD	Self Drilling

Notes:

Erection and Detail Manual

NORTH STAR
STEEL