MBCI®

*Metal Roof and Wall Systems*

# NuRoof®
# Retrofit Systems

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## *Design/Installation Information*

## INTRODUCTION

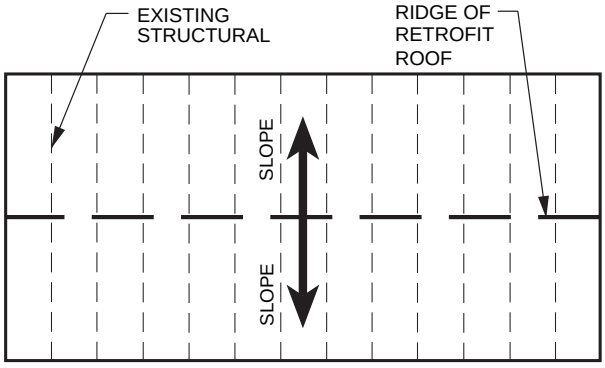
If your roof is causing problems due to leaks, high maintenance costs and low energy efficiency, the MBCI NuRoof® Retrofit System is the remedy. With the NuRoof® Retrofit System, you can install a slopped roof which will eliminate leaks and minimize maintenance costs. Energy efficiency may also be increased substantially with additional insulation.

The NuRoof® Retrofit System allows design flexibility with a choice of roof slopes, hips, valleys, gable endwalls, vertical and trapezoidal standing seam panels, as well as the traditional PBR Panel. These panels are available in a wide range of colors and gauges. So, whether you are retrofitting an old warehouse, manufacturing plant or an office building, the MBCI NuRoof® Retrofit System is the answer.

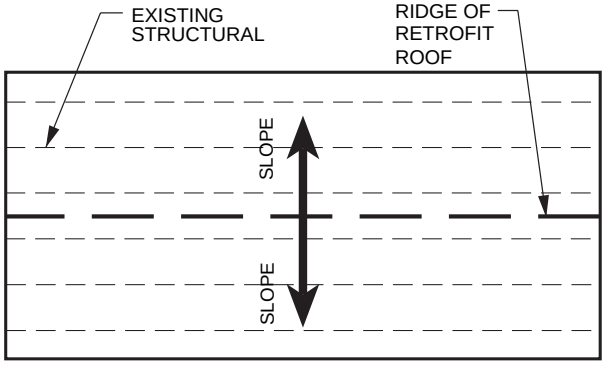
## ARCHITECT/OWNER RESPONSIBILITY

**The architect/owner using the MBCI NuRoof® Retrofit System must recognize that the existing structural roof system most likely was designed based on the roof load being applied uniformly by means of a metal deck or similar substrate. The NuRoof® Retrofit System will replace the uniform load with a series of concentrated loads onto the existing roof system which may not be feasible in all applications. Also, as a result of the addition of the retrofit roof, additional weight will be added to the existing roof that must be checked. MBCI highly recommends that a structural engineer conduct an investigation of the entire structure being proposed for a retrofit system to determine the adequacy of the existing roof structure to withstand additional loading. Their investigation should include the condition of the existing structural, existing dead loads, can existing loads be removed, (i.e. rock ballast) and what additional dead loads will the structure accept and at what spacing?**

EXISTING STRUCTURAL MEMBERS
PARALLEL TO ROOF RETROFIT SLOPE
Installation Sequence Begins on Page NR-9




EXISTING STRUCTURAL MEMBERS
PERPENDICULAR TO ROOF RETROFIT SLOPE
Installation Sequence Begins on Page NR-15




**NOTE:**
1. Some buildings may have structural members in both directions. In this case, each method may be used where required.
2. Hipped NuRoof® Systems may require both methods.

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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, MBCI reserves the right to discontinue products at any time or change specifications and/or designs without notice and without incurring obligation. **To insure you have the latest information available, please inquire or visit our Web Site at www.mbci.com.** Application details are for illustration purposes only and may not be appropriate for all environmental conditions, building designs, or panel profiles. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices. Insulation is not shown in these details for clarity. **If there is a conflict between this manual and the erection drawings, the erection drawings will take precedence.**

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# NuRoof® DESIGN INFORMATION

## ARCHITECT/ENGINEER INFORMATION

1. The recommended slope range of the retrofit roof is 1/4:12 - 4:12. For slopes greater than 4:12 please contact MBCI.
2. The maximum recommended height of the retrofit system above the existing roof is 10 feet. This is not due to the capacity of the framing, but to the altered shape of the building and its ability to withstand the new wind loads as well as erection limitations.
3. The NuRoof® Retrofit System will add approximately 2 to 4 PSF to the weight of the existing roof.
4. Load transfer may result in concentrated loads occurring on the existing roof. A professional structural engineer must investigate the existing roof to be sure that no undesirable effects are created on the existing roof by the NuRoof® Retrofit System.
5. Lateral wind forces will be developed at gabled endwalls created by the retrofit roof. These wind forces will be transmitted into the existing roof by the “X” bracing parallel to the retrofit purlins. MBCI cannot be responsible for the adequacy of the existing building to resist the additional wind forces which develop at these gabled endwalls.
6. The uniform retrofit roof loads will be concentrated through the retrofit columns. These concentrated loads are then transmitted to the existing roof deck above the existing roof structural members. The adequacy of the existing metal deck corrugations to resist web crippling must be investigated during the design phase. It is not recommended to install this system over the existing insulation board due to possible creep over the life of the system (consult the manufacturer of the existing insulation board for allowable static compressive loads). If the existing roof has moisture trapped within the layers from water intrusion, MBCI recommends the removal of the roofing materials (down to the existing deck) at all base channels or roof support zee locations. This will allow trapped moisture to be drawn out by proper ventilation. If the deck is corroded through to the structural framing, consult with your structural engineer for possible deck reinforcement at the column base attachments to maintain the integrity of the metal deck. NOTE: Existing metal decks can provide lateral support (diaphragm action) to the overall structure. Removing the metal deck at the column locations may compromise the integrity of the existing metal deck diaphragm system. Since the NuRoof® Retrofit System relies on the existing metal deck to transfer its lateral loads to the existing structural system, the existing metal deck must remain intact.
7. An “attic space” will be created by the NuRoof® Retrofit System. MBCI recommends proper venting of this “attic space” in accordance with applicable codes, to be determined by a mechanical engineer, allowing any trapped moisture to escape. MBCI also recommends that “attic space” be reviewed by other building, fire, or insurance related officials for possible sprinkling or extension of existing fire walls to the bottom of the “new” roof system. Use a minimum of 3” vinyl faced roll insulation between the retrofit panels and the retrofit purlins to help prevent condensation and roof noise. If the use of retrofit framing in “New Construction” will result in the installation of HVAC equipment and ductwork in the “attic space” to conflict with the extensive bracing system required by the NuRoof® Retrofit System, please consult with MBCI’s sales engineering staff during the design phase to resolve these issues.
8. The NuRoof® framework is equally effective over existing roof decks made of metal, Tongue and Groove wood and concrete decks. However, each existing roof system must be evaluated independently on its ability to accept multiple point loading from the retrofit system.
9. **The NuRoof® framework will be supplied in unpunched 20’-0” lengths. Field cutting of material will be required.**

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## ARCHITECT/ENGINEER INFORMATION (Continued)

10. **For MBCI to properly design the retrofit framing, the following information is required: Retrofit roof live/wind load, collateral load, snow load, seismic zone, existing building size and location, existing structural orientation (parallel or perpendicular to retrofit roof slope) and spacing, type of existing substrate members, governing code, retrofit roof pitch, retrofit roof panel desired, and the use of hipped or gable ends. MBCI is not responsible for the ability of the existing building to accept the loads imposed upon it by the retrofit framework. The MBCI engineering department can conduct an engineering study of the proposed retrofit framing and provide column reactions based on the above information that may be used by your structural engineer to do their study of the existing structure. Following this page is a design data sheet. This sheet can be filled out and sent to MBCI for our Project Service Department to perform estimates, designs, drawings or a combination of all three.**

### CAUTION

**In certain cases the retrofit roof panel selected may require additional retrofit purlins at the perimeter of the roof to ensure that the panel is capable of resisting the additional wind/snow load in this area.**

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# NuRoof® DESIGN INFORMATION

## DESIGN DATA SHEET

### PROJECT INFORMATION

From: _____
Date: _____
Project Name: _____
Project Location: _____
(City, State, County): _____
Building Code: _____
Deflection Rqmts.: _____

Live Load: _____ psf
Dead Load: _____ psf
Collateral Load: _____ psf
Snow Load: _____ psf
Wind Speed: _____ mph
Importance Factor: _____
Exposure Category: _____

ASTM E1592 ☐
UL90 ☐
Factory Mutual ☐
SREF ☐

### EXISTING ROOF GEOMETRY

Length: _____ ft
Width: _____ ft
Slope: _____ :12

Eave Height: _____ ft
Overhang: _____ ft
Parapet Height: _____ ft

(Please provide drawings of existing building - Including structural drawings)

### EXISTING ROOF TYPE

Built Up ☐
Modified Bitumen ☐
Single Ply ☐

Shingle ☐
Trocal ☐
PVC ☐

Other - Specify - _____

### EXISTING ROOF SUBSTRATE

Insulation Type: _____ in.
Insulation Thickness: _____ in.
Plywood Thickness: _____ in.
Wood Thickness: _____ in.
Metal Deck Thickness: _____ in.
Metal Deck Gauge: _____

Tectum Thickness: _____ in.
Concrete Thickness: _____ in.
Lightweight ☐
Structural ☐
Precast ☐
Other - Specify _____

### EXISTING STRUCTURAL MEMBERS

Bar Joists: _____ @ _____ " o.c.
"Hot Rolled" Steel: _____ @ _____ " o.c.
Wood Rafters: _____ @ _____ " o.c.

Wood Trusses: _____ @ _____ " o.c.
Concrete Beams: _____ @ _____ " o.c.
Other - Specify: _____ @ _____ " o.c.

Has the existing structure been analyzed by a professional engineer?
yes ☐ no ☐
Engineer's name: _____
Engineer's phone #: _____

### NUROOF® GEOMETRY

Length: _____ ft
Width: _____ ft
Slope: _____ :12
Eave Height: _____ ft
Overhang: _____ ft
Eave Condition: Eave Trim ☐
Box Gutter ☐
Sculptured Gutter ☐
Snow Gutter ☐

Ridge Condition: _____
Gable ☐
Hip ☐
Roof Panels: _____ (Profile, Width, Gauge)
Wall Panels: _____ (Profile, Width, Gauge)
Fascia: _____ (Profile, Width, Gauge)
Structural Members: Red Oxide ☐
Galvanized ☐

(Please provide drawings of new proposed roof plan)

### NOTES

_____
_____
_____
_____
_____

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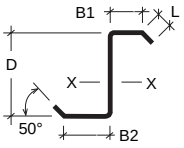
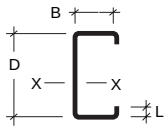
# DESIGN INFORMATION NuRoof®

## SECTION PROPERTIES

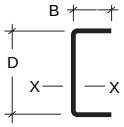



| | | | | AXIS X-X | | | |
|---|---|---|---|---|---|---|---|
| D x B1 x B2 (in.) | Section | Ga. | Weight (PLF) | Ix (in.4/ft.) | Sx (in.3/ft.) | Rx (in.) | Ma (in.-Kips) |
| 4 x 2 x 2 | Zee | 16 | 1.793 | 1.375 | 0.688 | 1.615 | 23.473 |
| 4 x 2.125 x 2.375 | Zee | 16 | 1.793 | 1.277 | 0.561 | 1.556 | 19.153 |
| 3.5 x 1.5 x 1.5 | Zee | 16 | 1.592 | 0.876 | 0.500 | 1.367 | 17.075 |
| 6 x 2.125 x 2.375 | Zee | 16 | 2.395 | 3.948 | 1.344 | 2.368 | 45.866 |
| 8 x 2.125 x 2.375 | Zee | 16 | 2.796 | 7.759 | 1.975 | 3.072 | 67.407 |

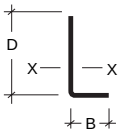



| | | | | AXIS X-X | | | |
|---|---|---|---|---|---|---|---|
| D x B (in.) | Section | Ga. | Weight (PLF) | Ix (in.4/ft.) | Sx (in.3/ft.) | Rx (in.) | Ma (in.-Kips) |
| 4 x 2.5 | Cee | 16 | 1.994 | 1.560 | 0.780 | 1.631 | 26.616 |
| 4 x 2.5 | Cee | 18 | 1.581 | 1.261 | 0.630 | 1.647 | 21.503 |
| 6 x 2.5 | Cee | 16 | 2.395 | 3.971 | 1.324 | 2.375 | 45.180 |
| 8 x 2.5 | Cee | 16 | 2.796 | 7.791 | 1.948 | 3.078 | 66.482 |
| CS-1 | Cee | 18 | 0.815 | 0.116 | 0.138 | 0.694 | 4.717 |

| | | | | AXIS X-X | | | |
|---|---|---|---|---|---|---|---|
| D x B (in.) | Section | Ga. | Weight (PLF) | Ix (in.4/ft.) | Sx (in.3/ft.) | Rx (in.) | Ma (in.-Kips) |
| HS-1 | Hat | 16 | 1.276 | 0.130 | 0.167 | 0.588 | 5.710 |




| | | | | AXIS X-X | | | |
|---|---|---|---|---|---|---|---|
| D x B (in.) | Section | Ga. | Weight (PLF) | Ix (in.4/ft.) | Sx (in.3/ft.) | Rx (in.) | Ma (in.-Kips) |
| 4.125 x 2 | Channel | 16 | 1.592 | 1.273 | 0.617 | 1.649 | 21.070 |
| 6.125 x 2 | Channel | 16 | 1.994 | 3.197 | 1.044 | 2.335 | 35.627 |
| 8.125 x 2 | Channel | 16 | 2.395 | 6.293 | 1.549 | 2.989 | 52.870 |




| | | | | AXIS X-X | | | |
|---|---|---|---|---|---|---|---|
| D x B (in.) | Section | Ga. | Weight (PLF) | Ix (in.4/ft.) | Sx (in.3/ft.) | Rx (in.) | Ma (in.-Kips) |
| 2 x 2 | Angle | 16 | 0.772 | 0.093 | 0.173 | 0.639 | 5.906 |
| 2.5 x 1.5 | Angle | 22 | 0.382 | 0.077 | 0.096 | 0.827 | 3.272 |

Notes:

1) All calculations for the properties of cees and zees are calculated in accordance with the *2001 North American Specification for the Design of Cold-Formed Steel Structural Members* published by the American Iron and Steel Institute (A.I.S.I).
2) Ix is for deflection determination.
3) Sx is for bending.
4) Ma is allowable bending moment.
5) The allowable bending moment (Ma) assumes that the compressive flange is laterally braced so as to provide the full moment capacity of the section.

The Engineering data contained herein is for the expressed use of customers and design professionals. Along with this data, it is recommended that the design professional have a copy of the most current version of the *North American Specification for the Design of Cold-Formed Steel Structural Members* published by the American Iron and Steel Institute to facilitate design. This Specification contains the design criteria for cold-formed steel components. Along with the Specification, the designer should reference the most current building code applicable to the project jobsite in order to determine enviromental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

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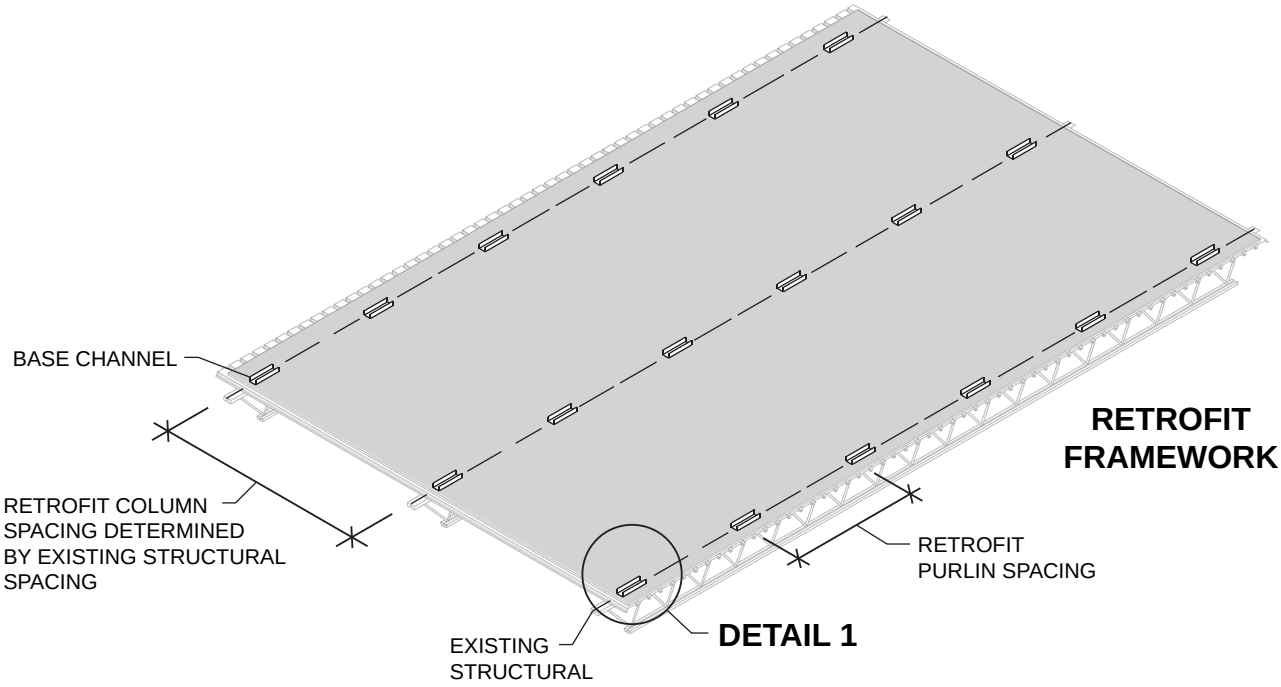
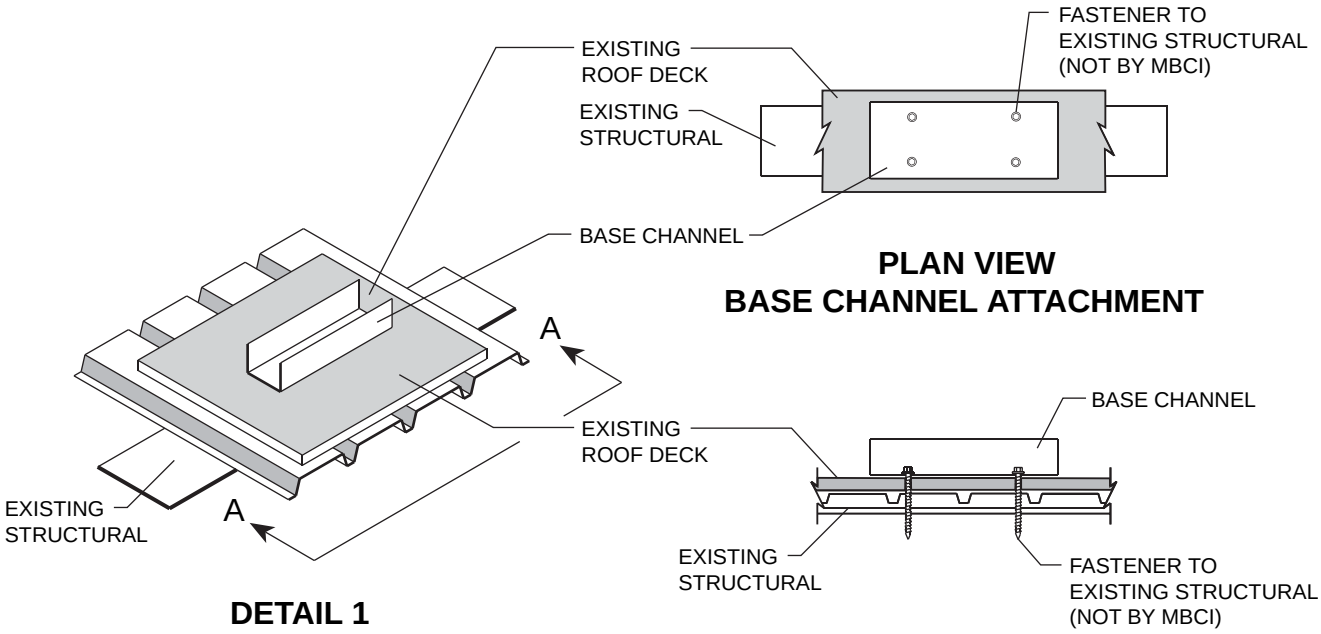
# RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE
## (Base Channel Attachment)



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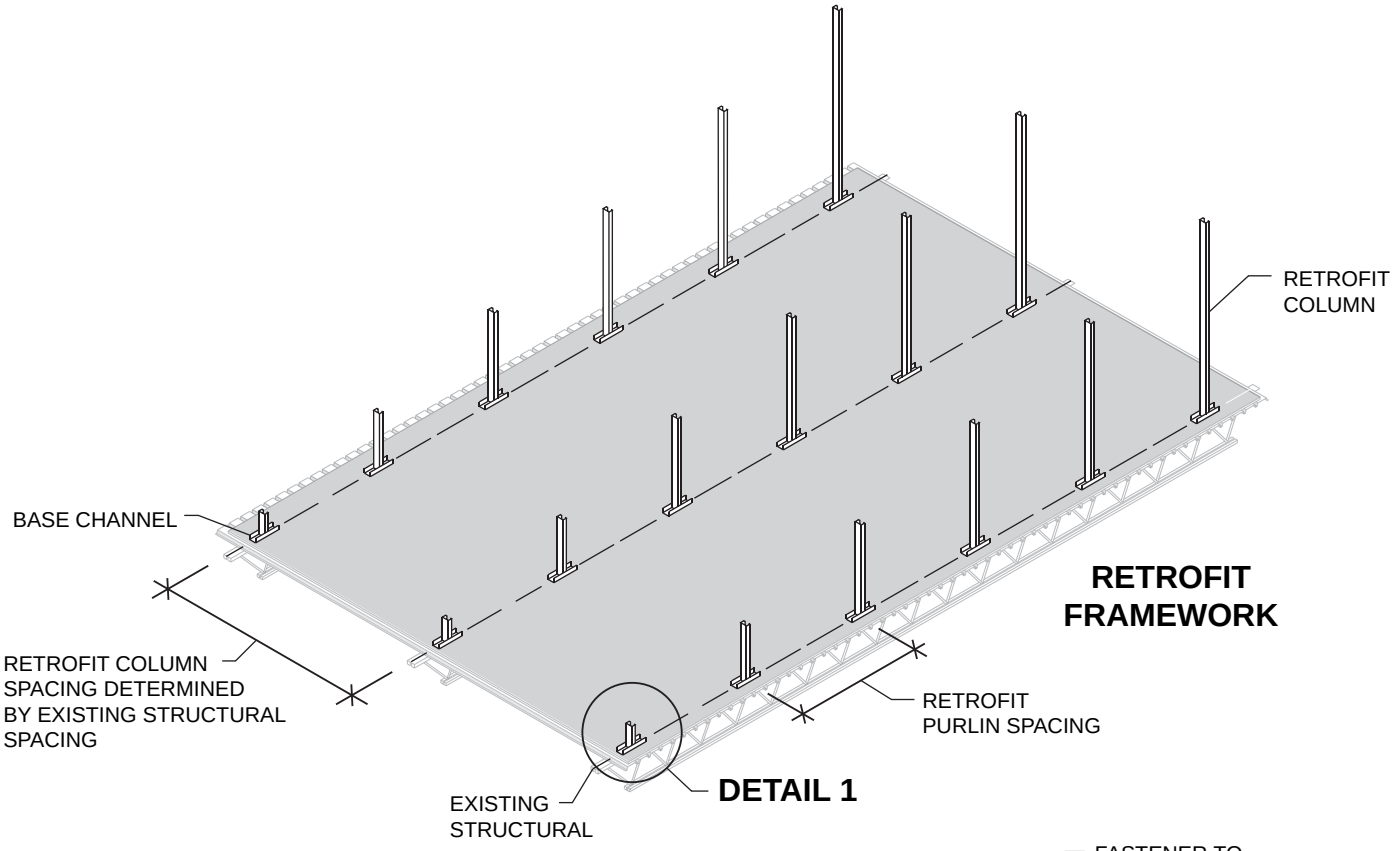
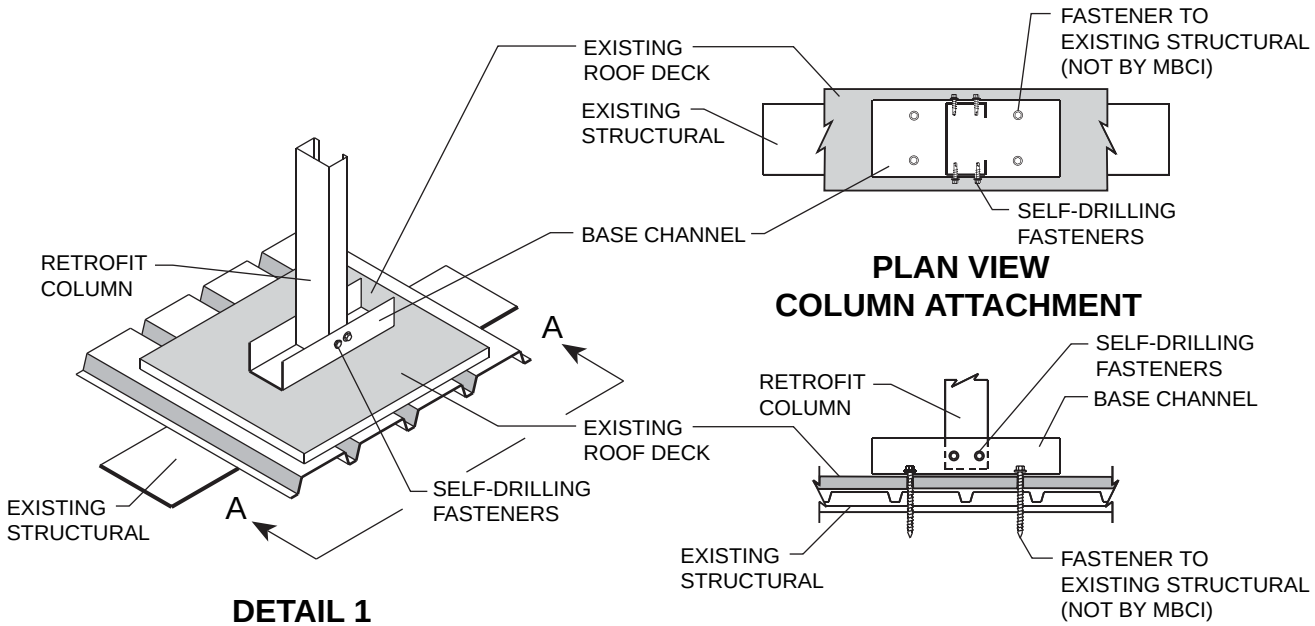
# RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE

## (Column Attachment)




**RETROFIT FRAMEWORK**

**DETAIL 1**




**PLAN VIEW COLUMN ATTACHMENT**

**DETAIL 1**

**CROSS SECTION A-A COLUMN ATTACHMENT**

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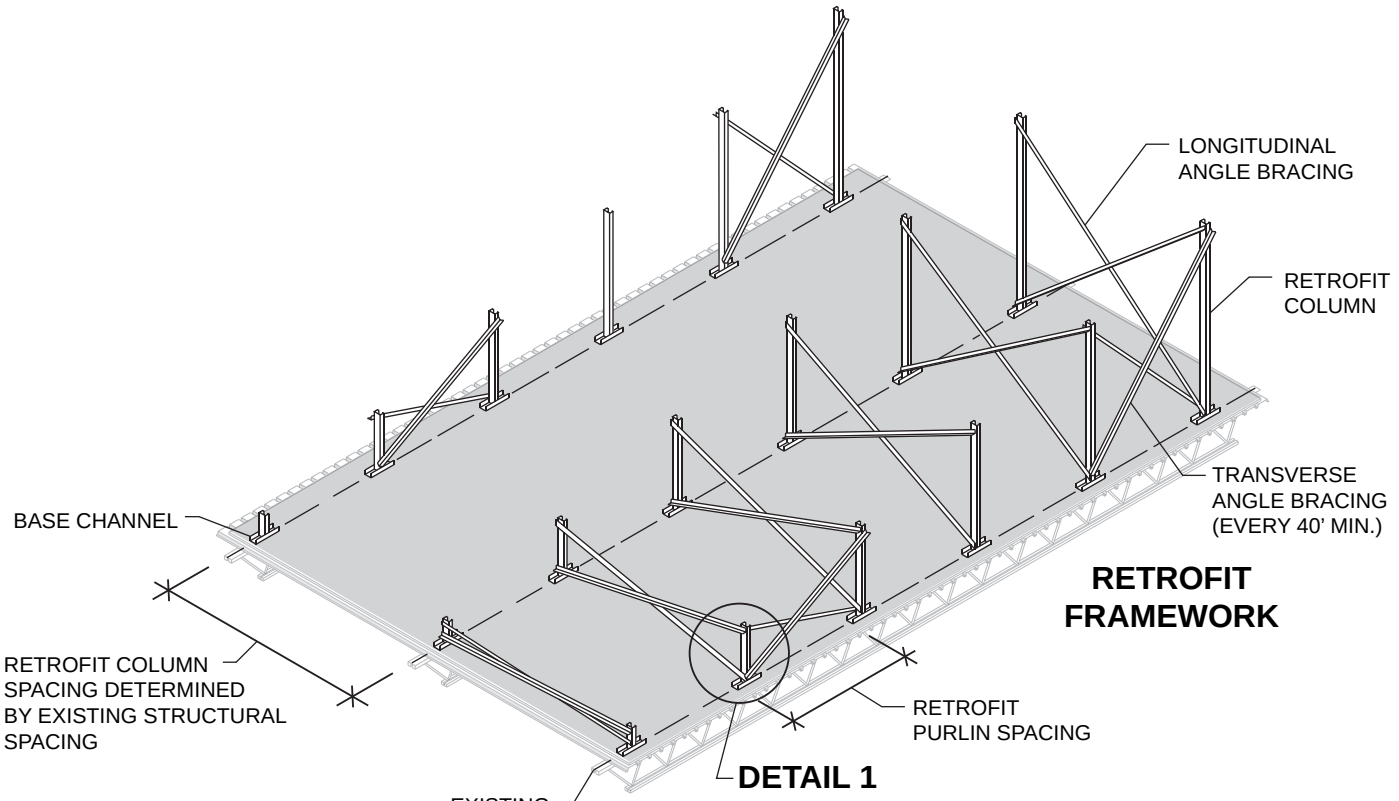
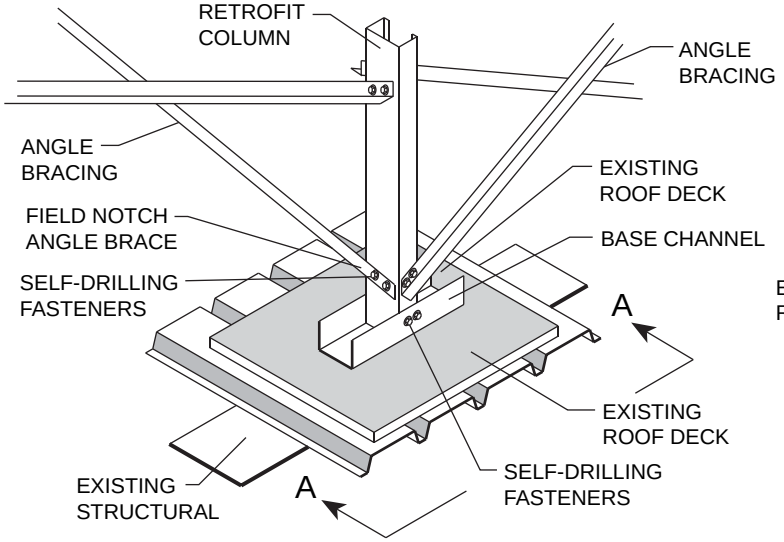
# NuRoof® DESIGN INFORMATION

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE
### ("X" Bracing Attachment)

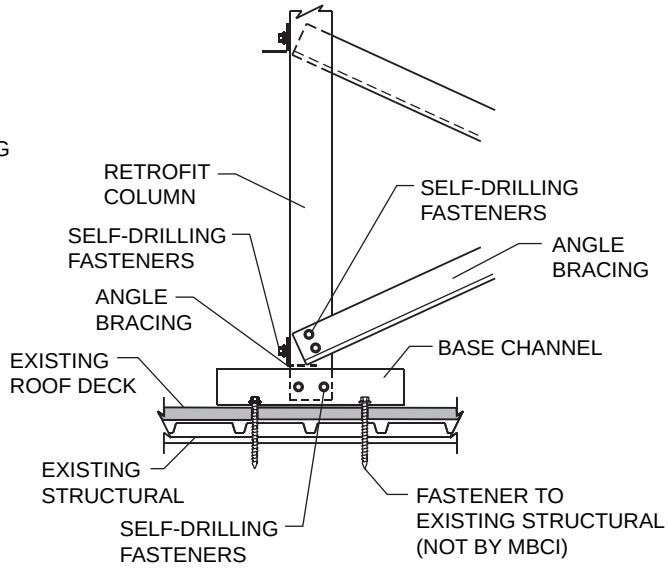



**RETROFIT FRAMEWORK**

**DETAIL 1**




**DETAIL 1**




**CROSS SECTION A-A**
**ANGLE BRACE ATTACHMENT**

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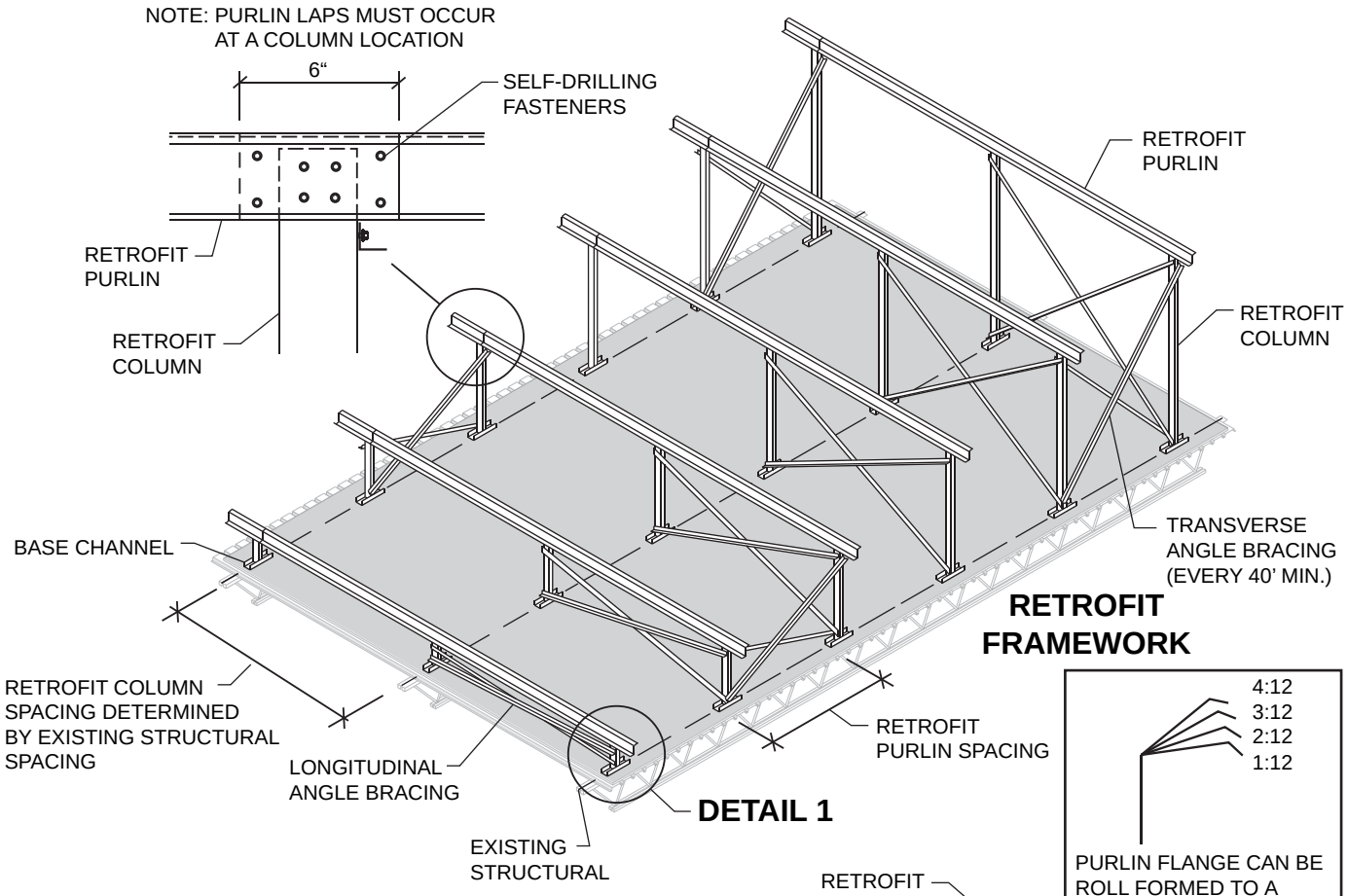
# DESIGN INFORMATION NuRoof®

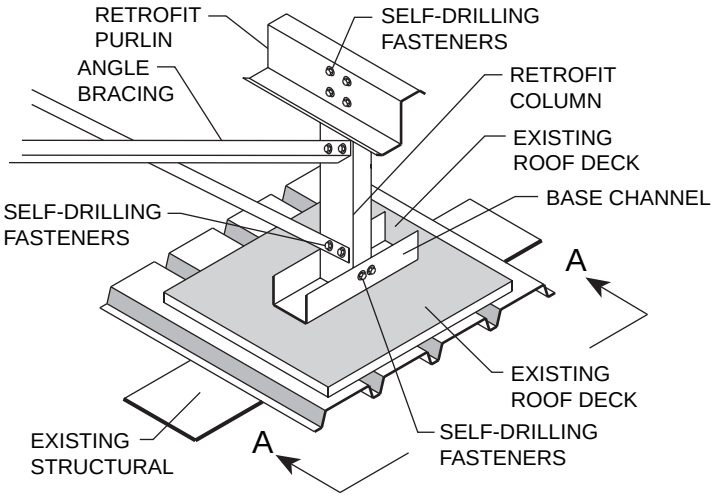
## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE
### (Purlin Attachment)



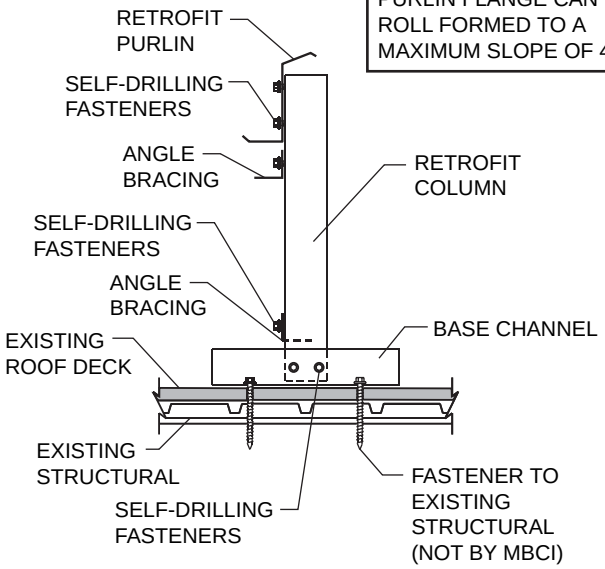

**RETROFIT FRAMEWORK**




PURLIN FLANGE CAN BE ROLL FORMED TO A MAXIMUM SLOPE OF 4:12




**DETAIL 1**




**CROSS SECTION A-A PURLIN ATTACHMENT**

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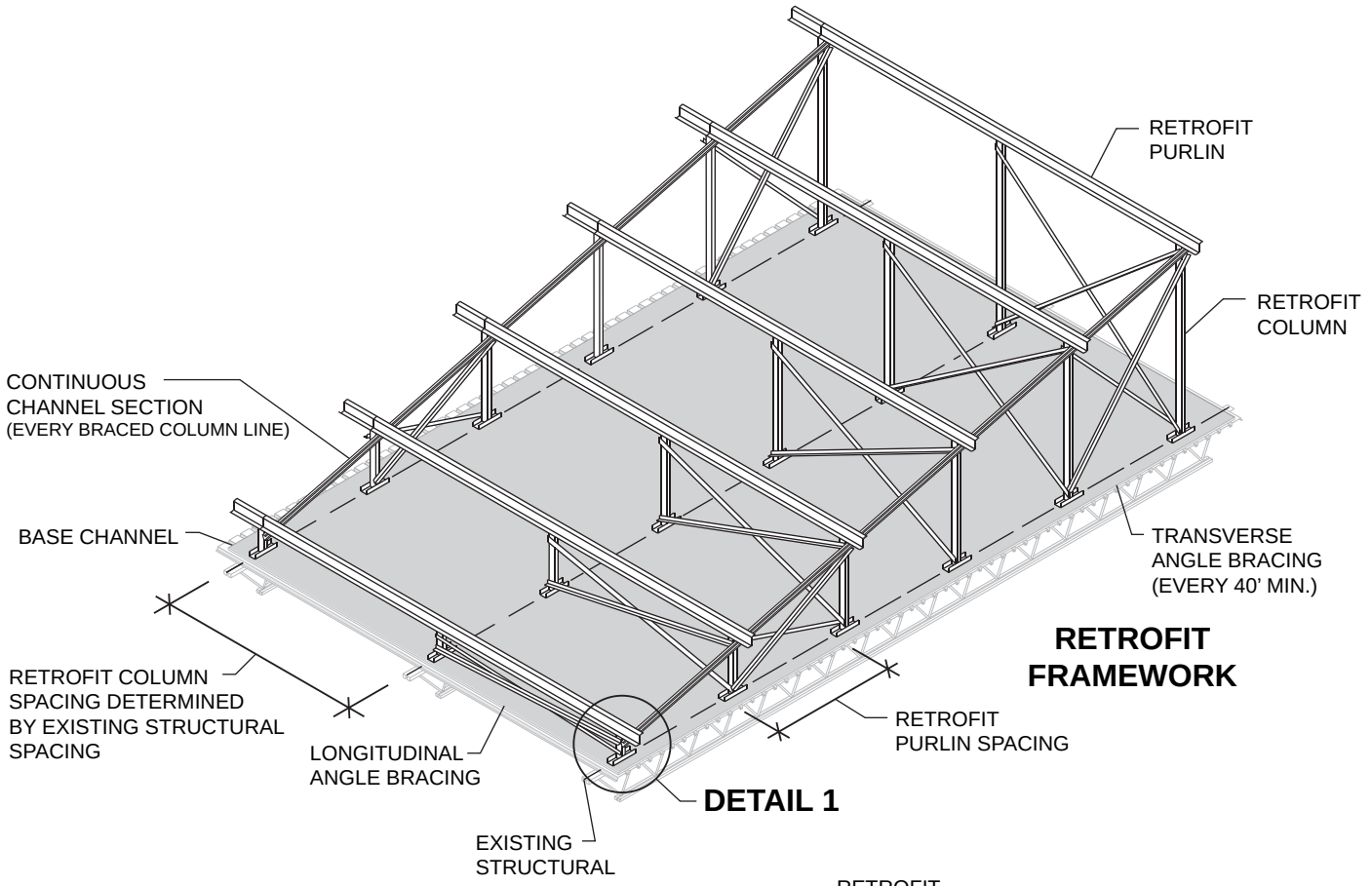
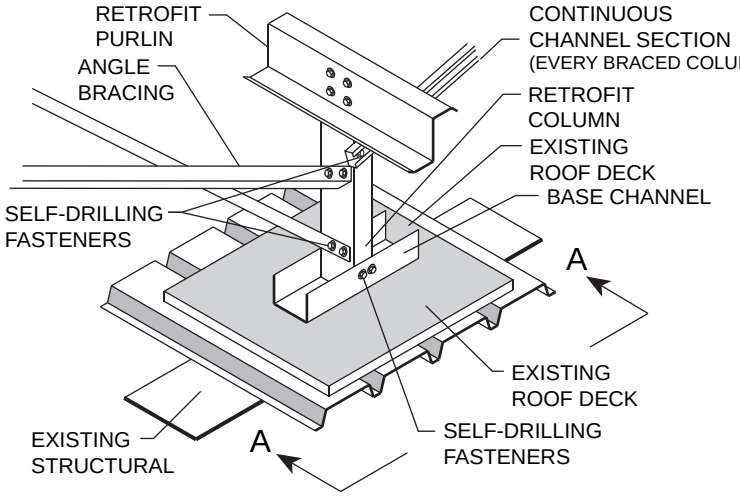
# NuRoof® DESIGN INFORMATION

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE
### (Strut Attachment)

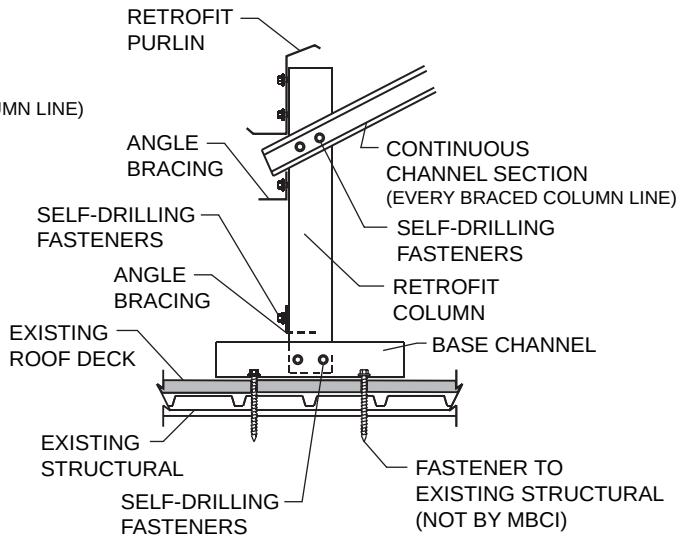



**RETROFIT FRAMEWORK**

**DETAIL 1**




**DETAIL 1**




**CROSS SECTION A-A STRUT ATTACHMENT**

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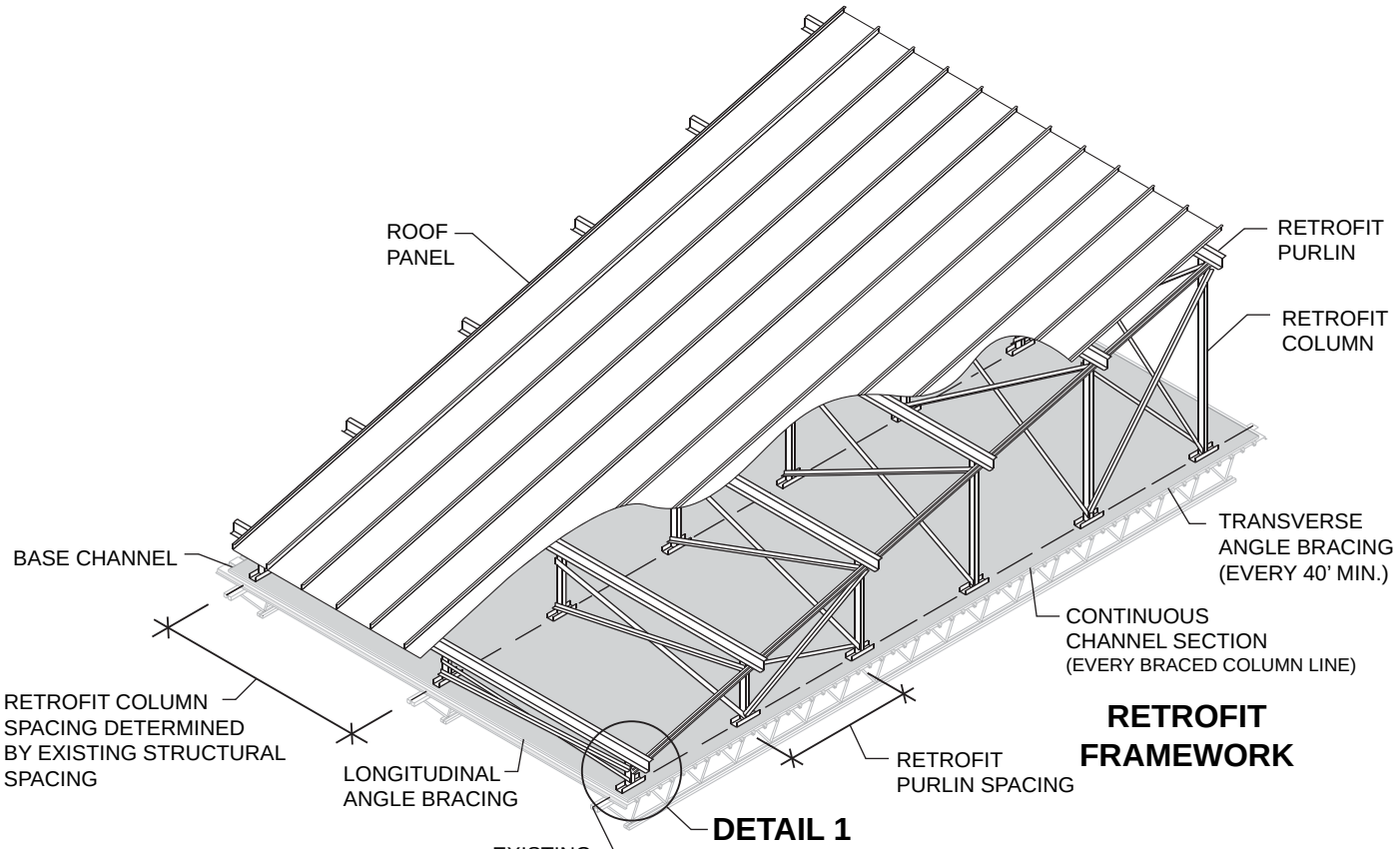
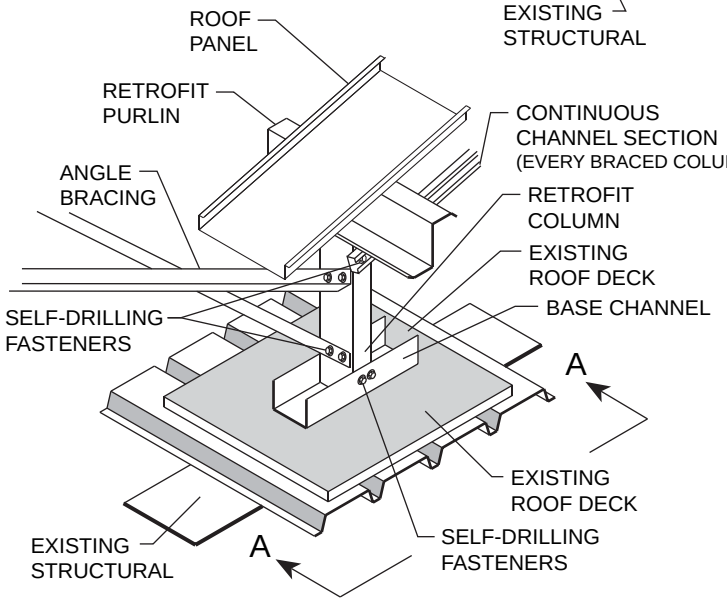
# DESIGN INFORMATION NuRoof®

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PARALLEL TO THE ROOF SLOPE
### (Panel Attachment)




**RETROFIT FRAMEWORK**

**DETAIL 1**

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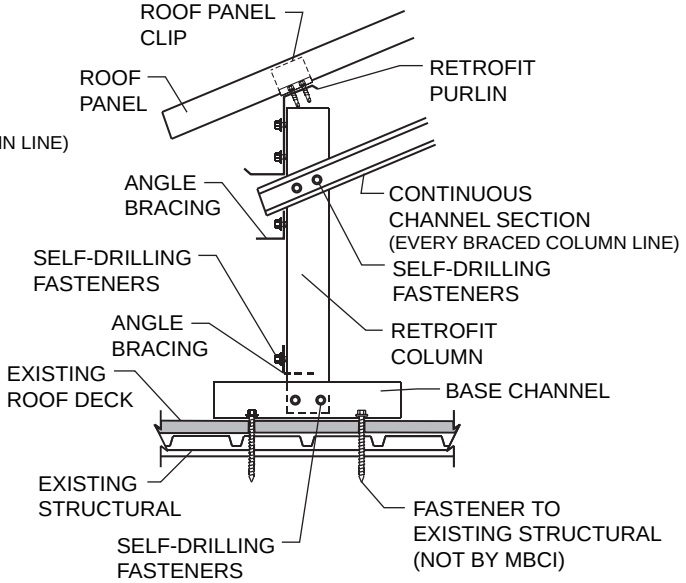


**CROSS SECTION A-A PANEL ATTACHMENT**

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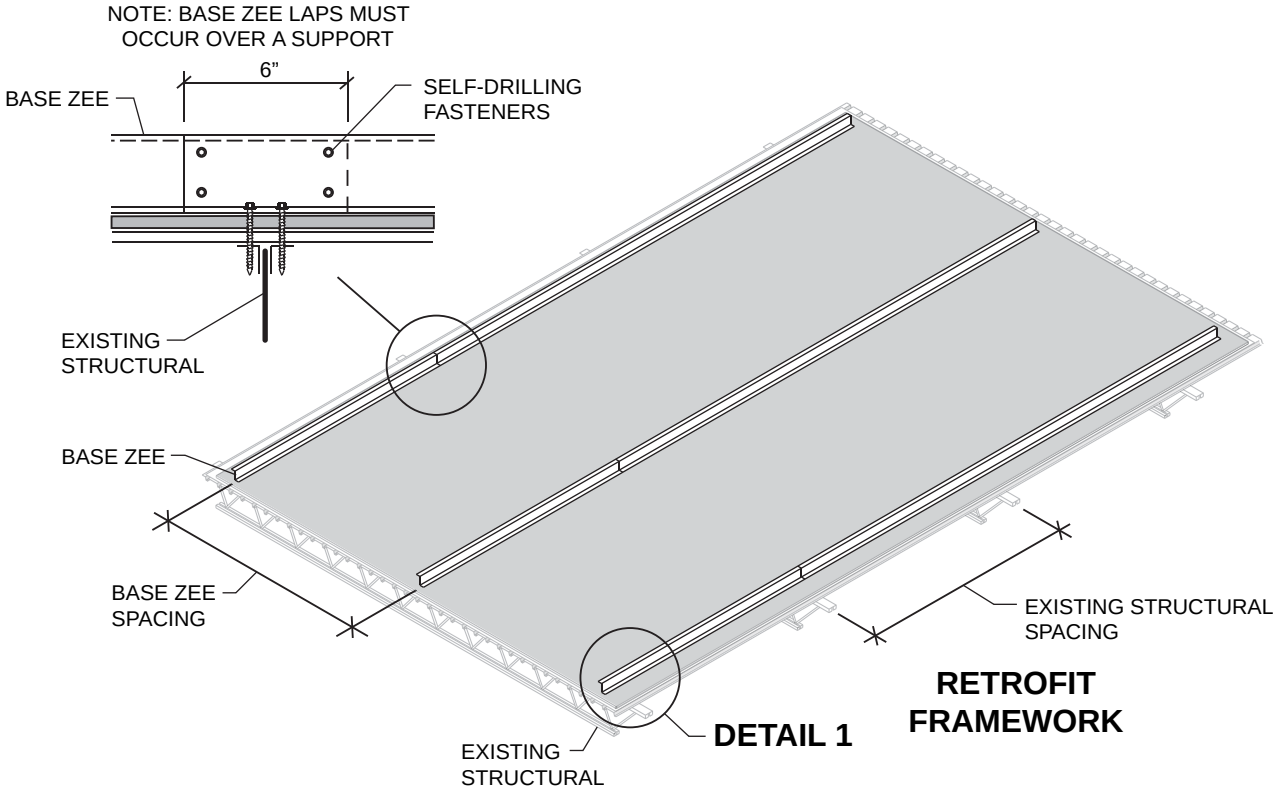
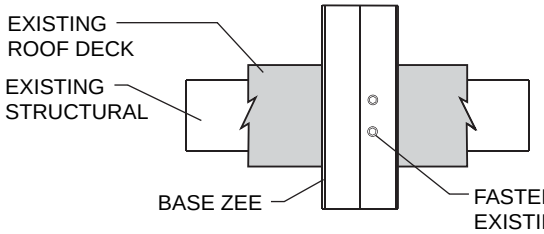
# NuRoof® DESIGN INFORMATION

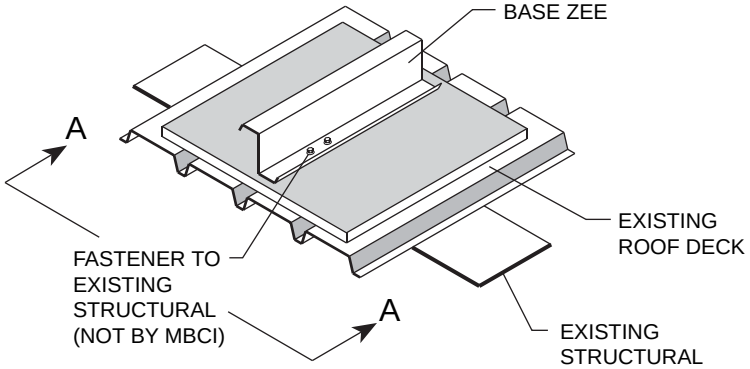
## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE
### (Base Zee Attachment)




**RETROFIT FRAMEWORK**




**PLAN VIEW**
**BASE ZEE ATTACHMENT**

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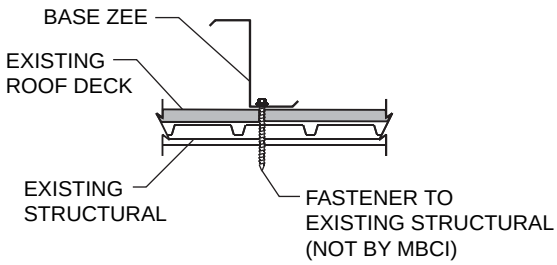


**CROSS SECTION A-A**
**BASE ZEE ATTACHMENT**

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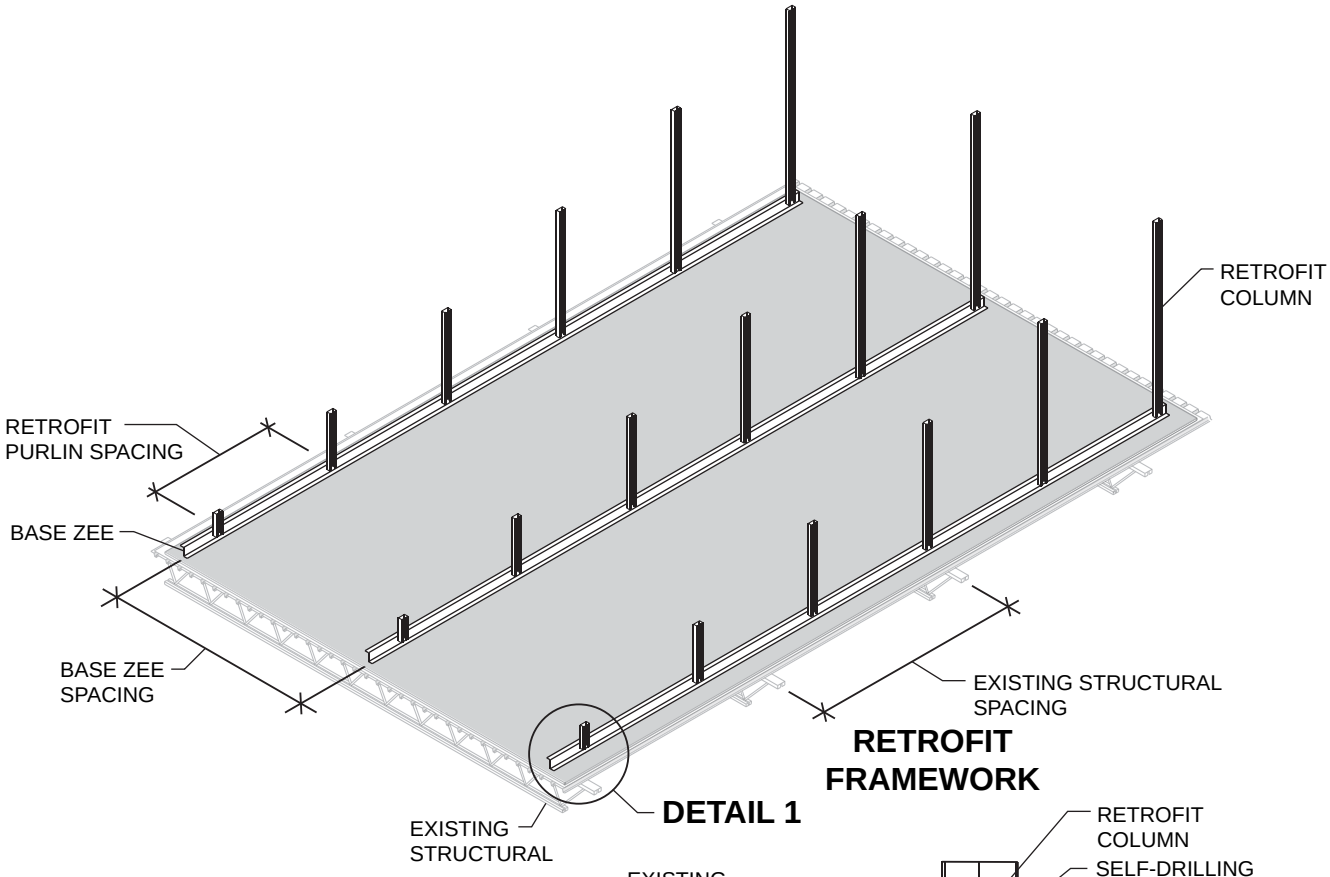
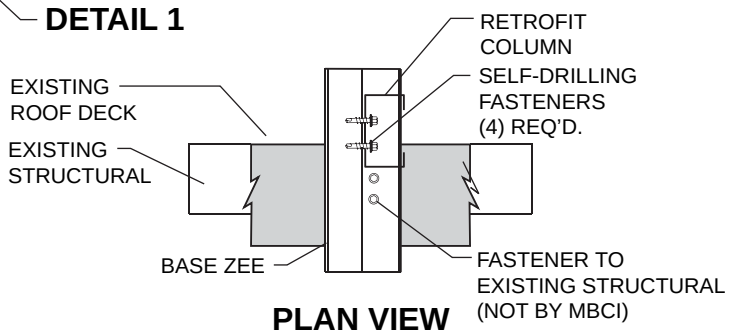
# RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE

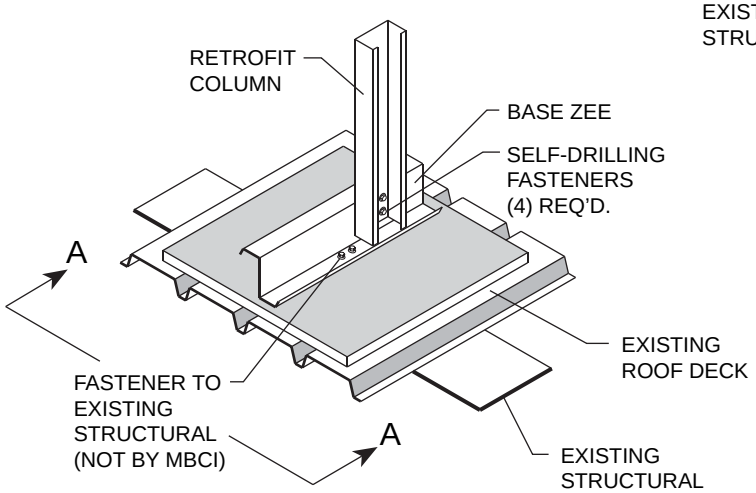
## (Column Attachment)




**RETROFIT FRAMEWORK**




**PLAN VIEW COLUMN ATTACHMENT**

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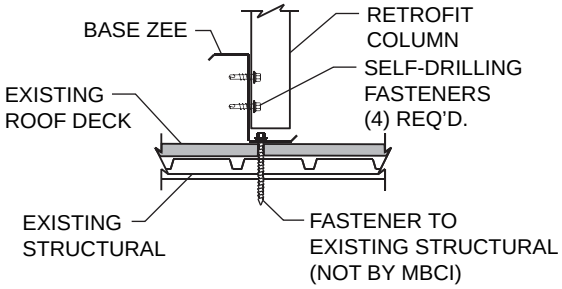


**CROSS SECTION A-A COLUMN ATTACHMENT**

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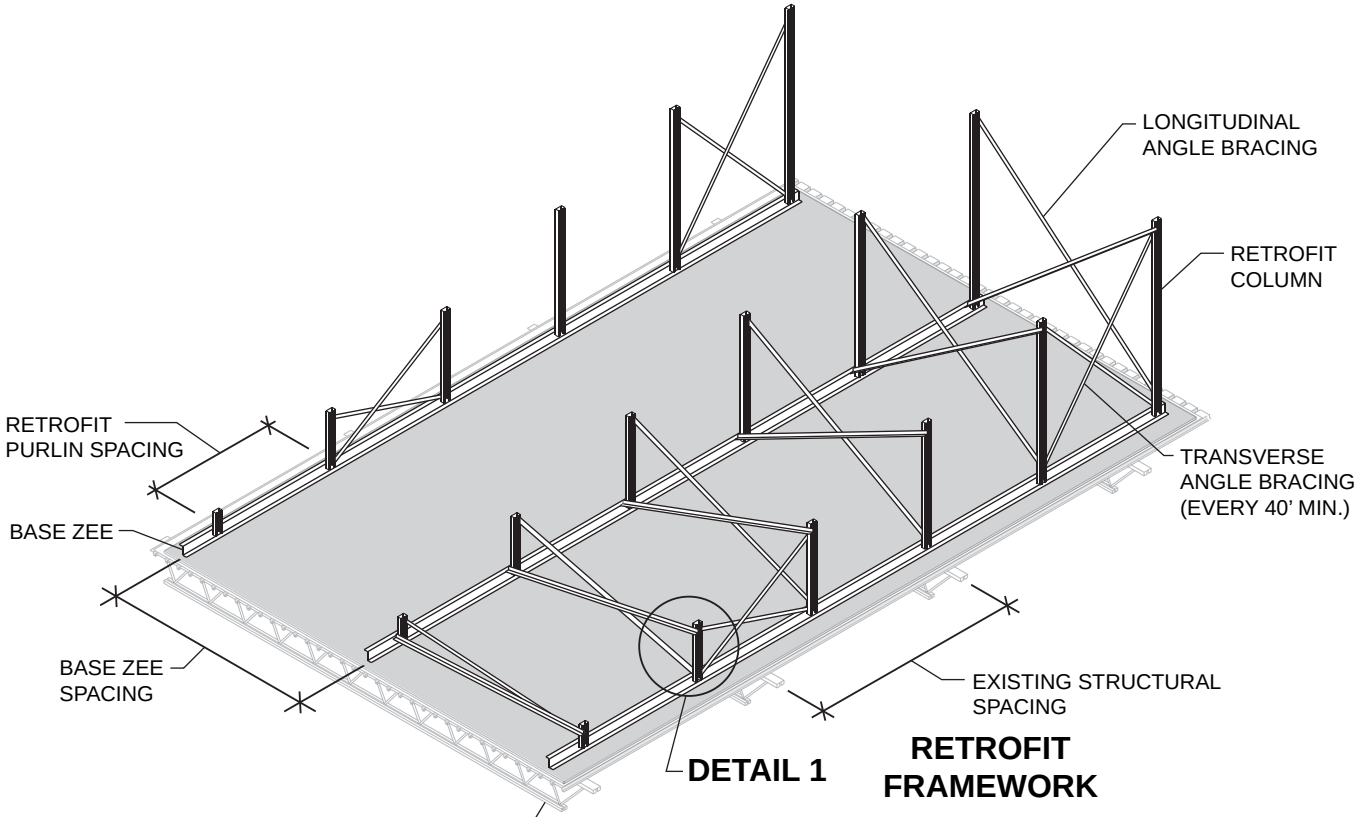
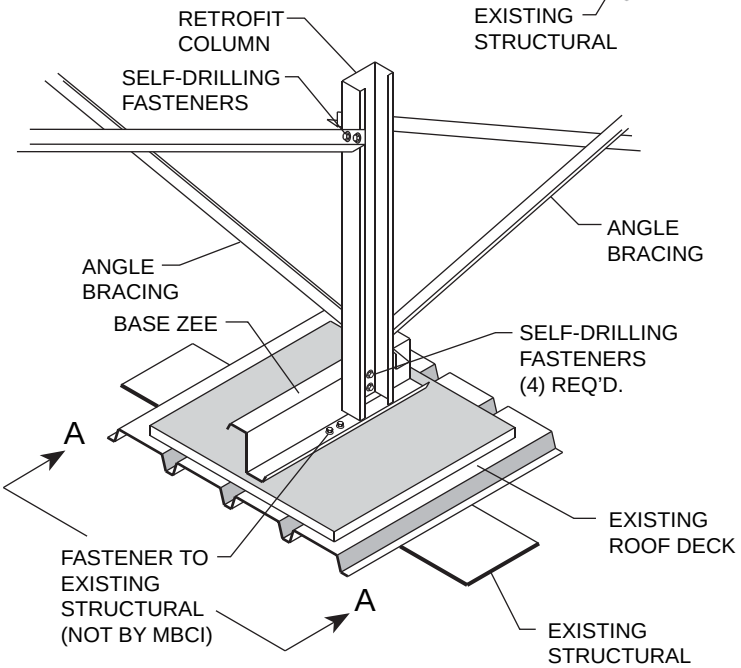
# NuRoof® DESIGN INFORMATION

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE
### ("X" Bracing Attachment)




**RETROFIT FRAMEWORK**

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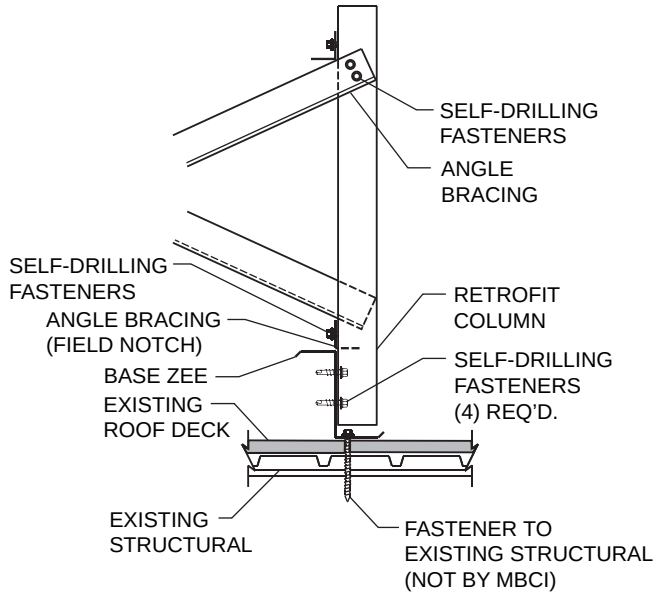


**CROSS SECTION A-A**
**ANGLE BRACE ATTACHMENT**

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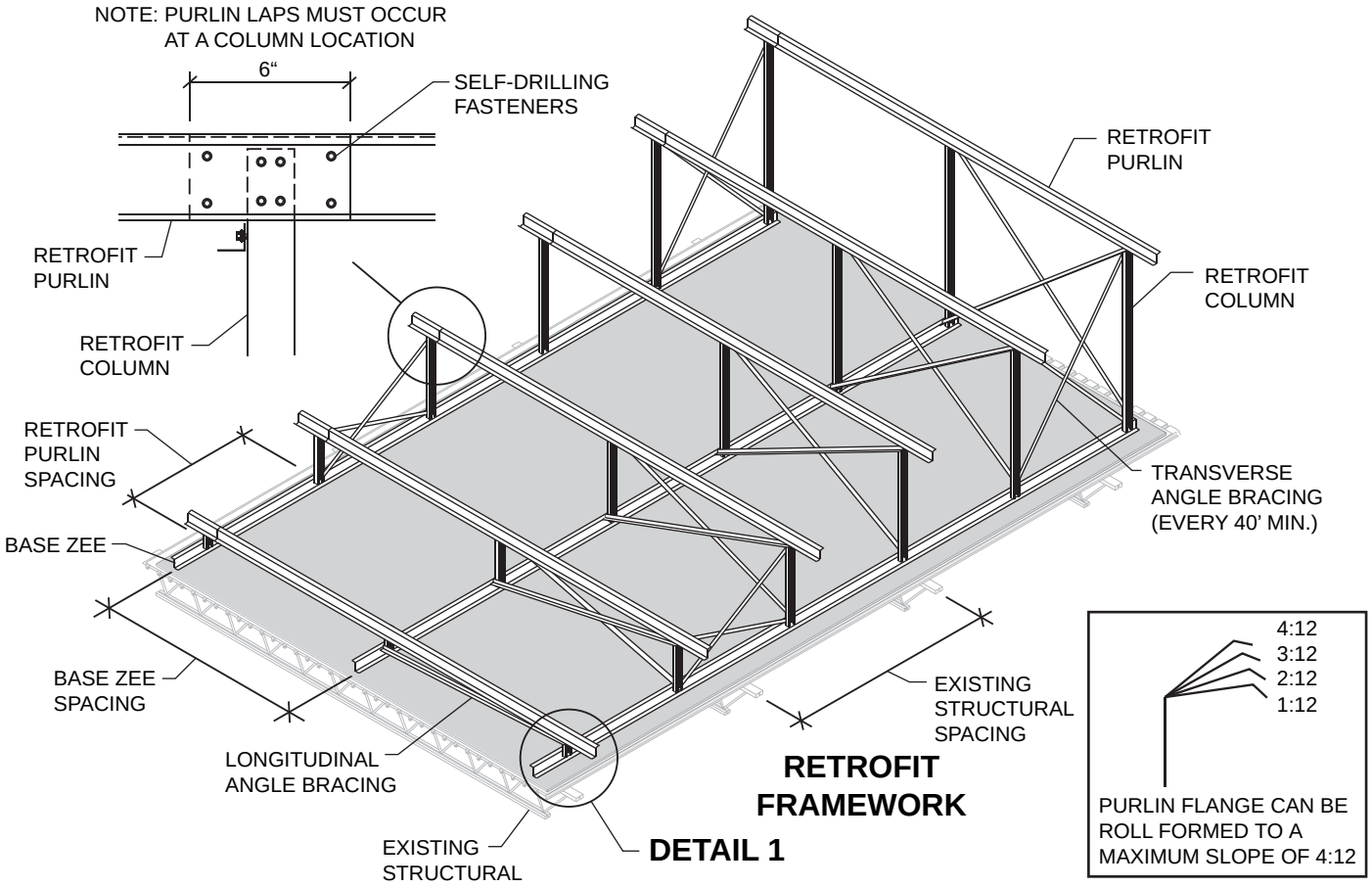
# DESIGN INFORMATION NuRoof®

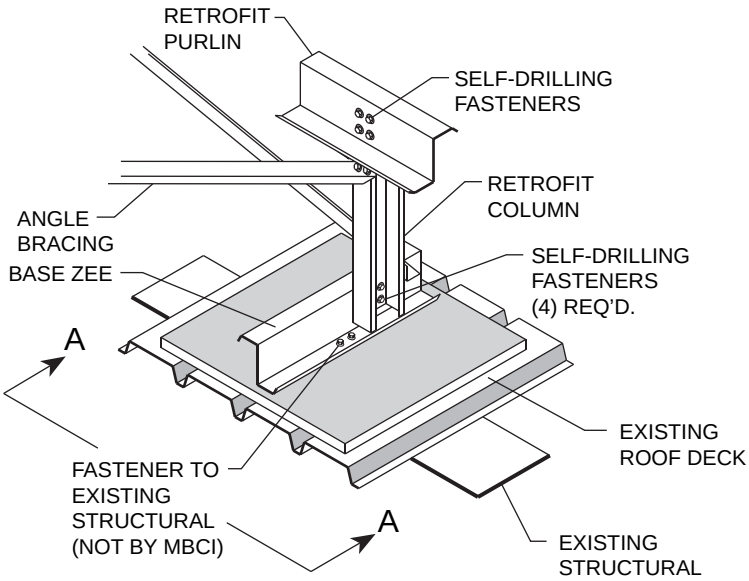
## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE

### (Purlin Attachment)




**RETROFIT FRAMEWORK**

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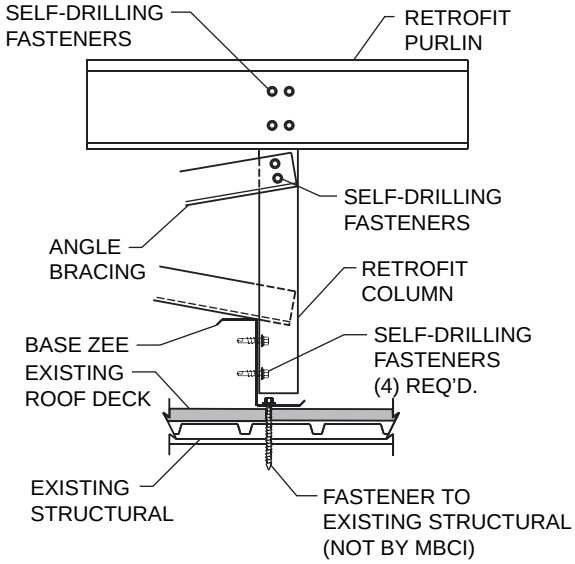


**CROSS SECTION A-A PURLIN ATTACHMENT**

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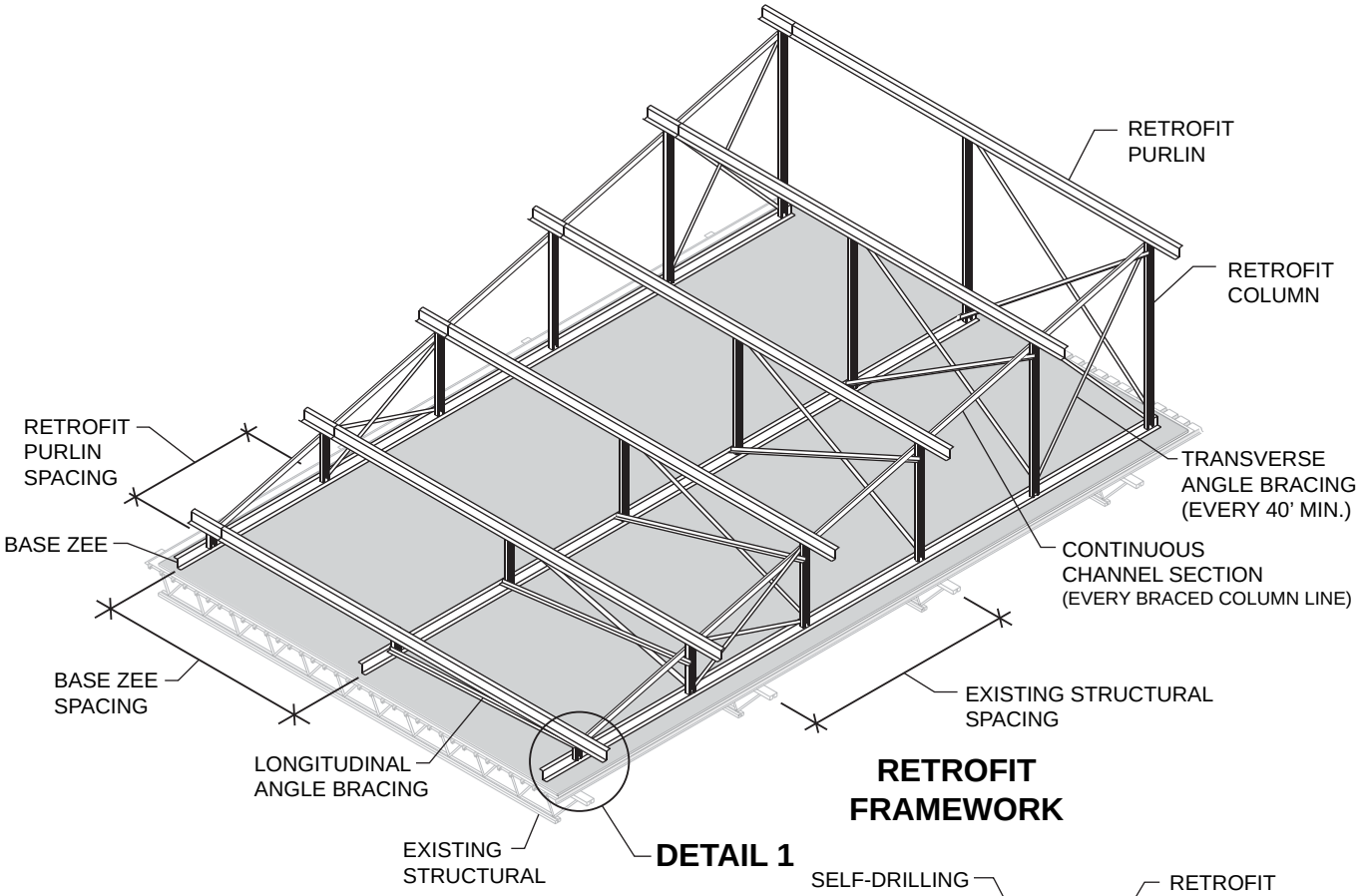
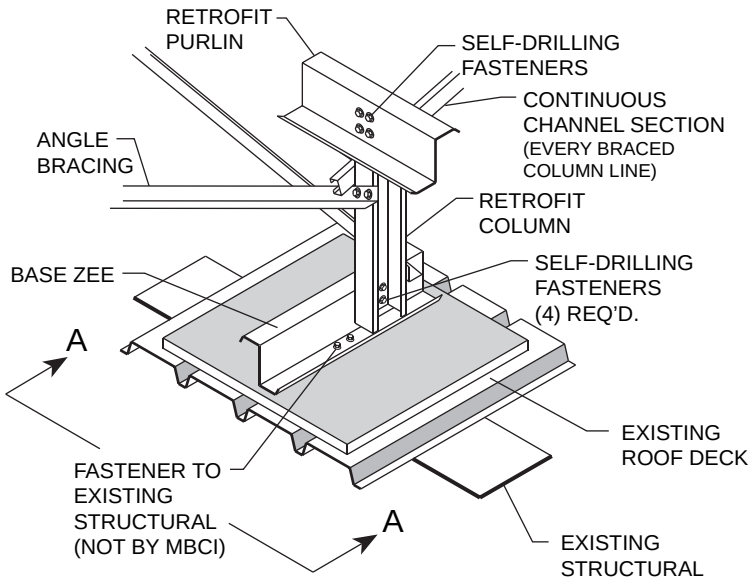
# NuRoof® DESIGN INFORMATION

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE

### (Strut Attachment)




**RETROFIT FRAMEWORK**

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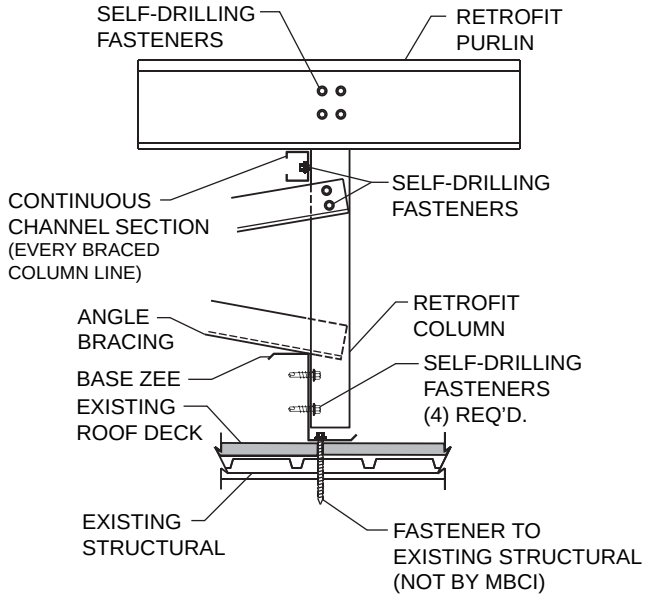


**CROSS SECTION A-A STRUT ATTACHMENT**

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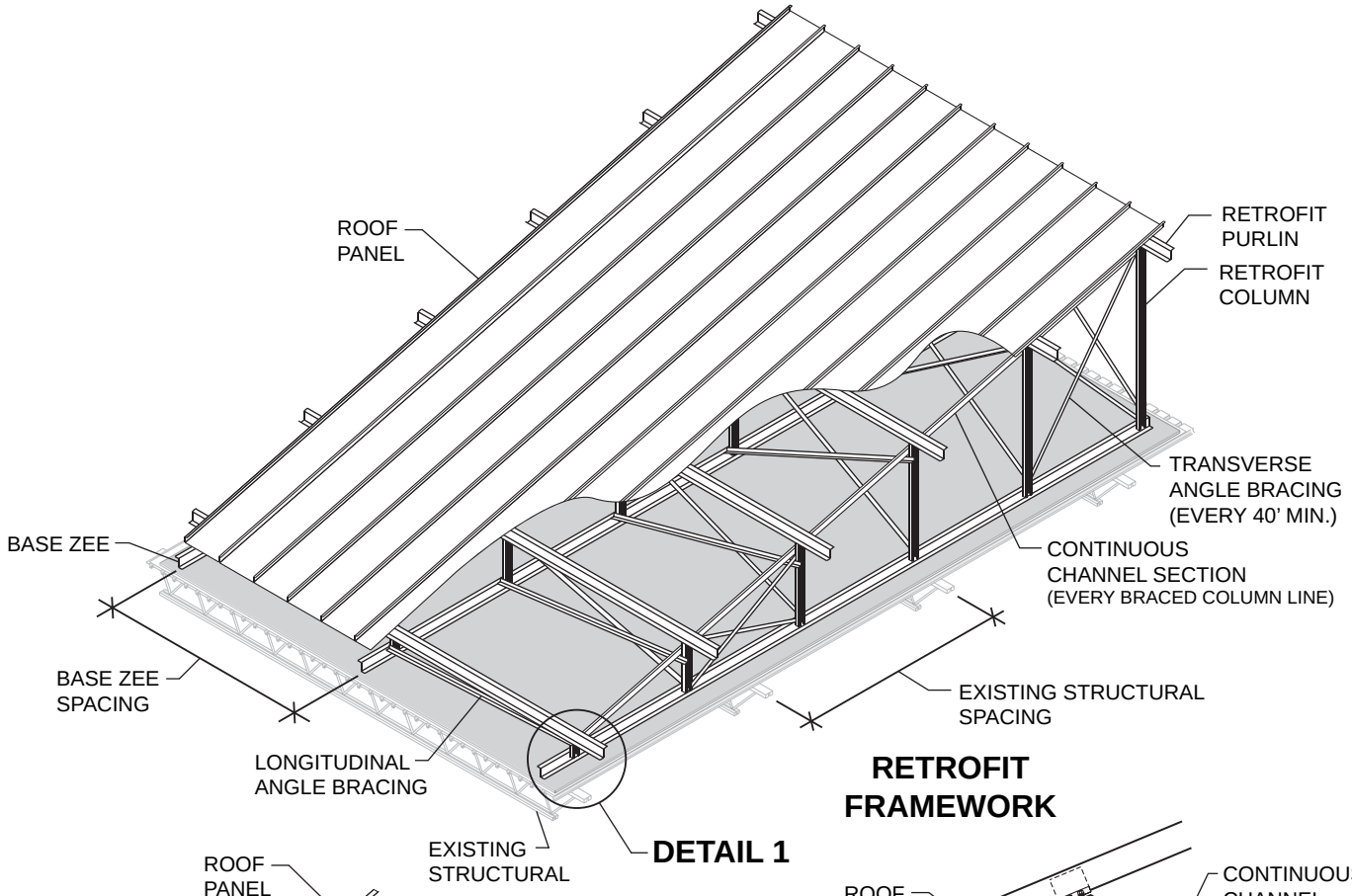
# DESIGN INFORMATION NuRoof®

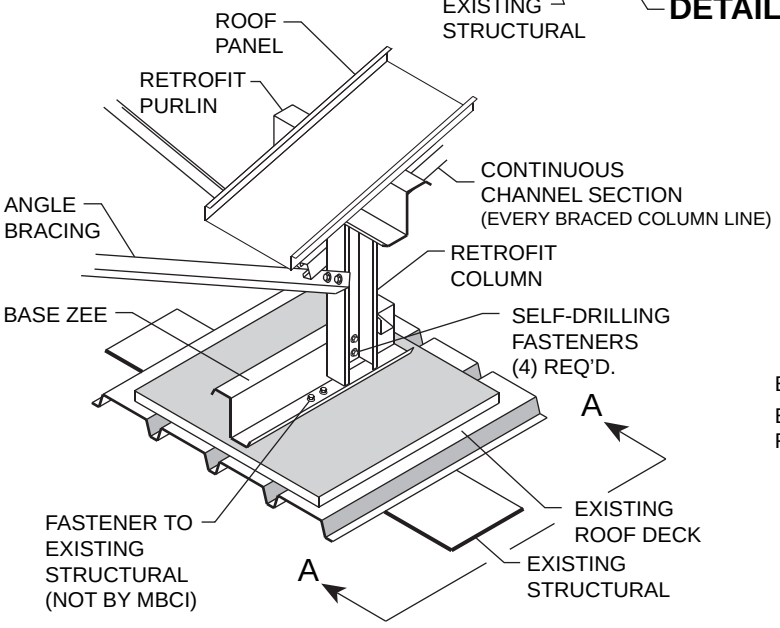
## RETROFIT FRAMING OVER STRUCTURAL MEMBERS PERPENDICULAR TO THE ROOF SLOPE

### (Panel Attachment)




**RETROFIT FRAMEWORK**

**DETAIL 1**

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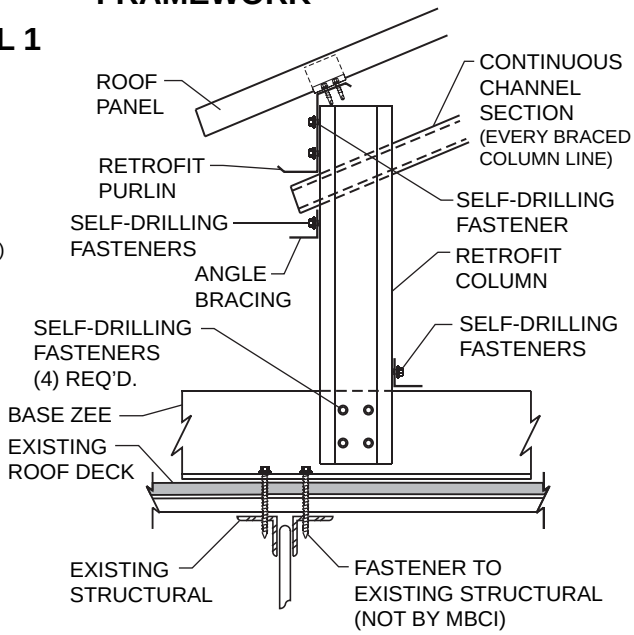


**CROSS SECTION A-A PANEL ATTACHMENT**

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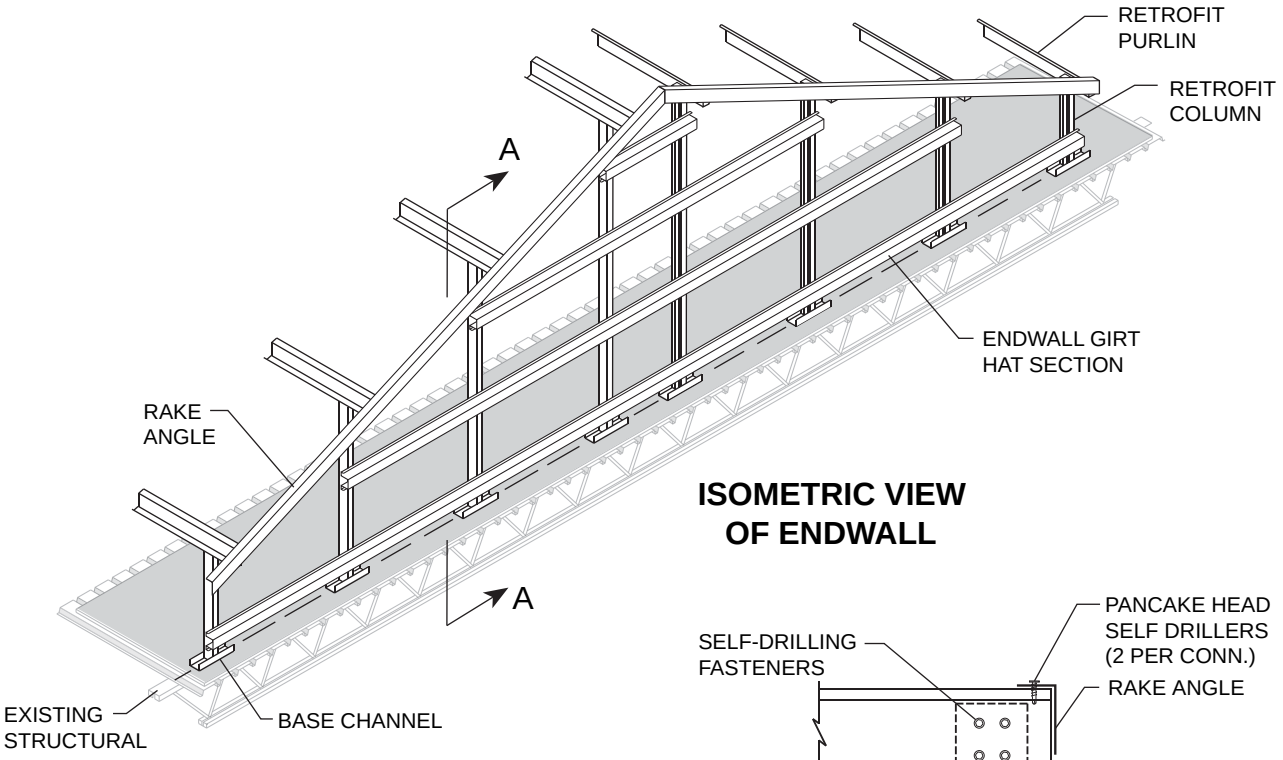
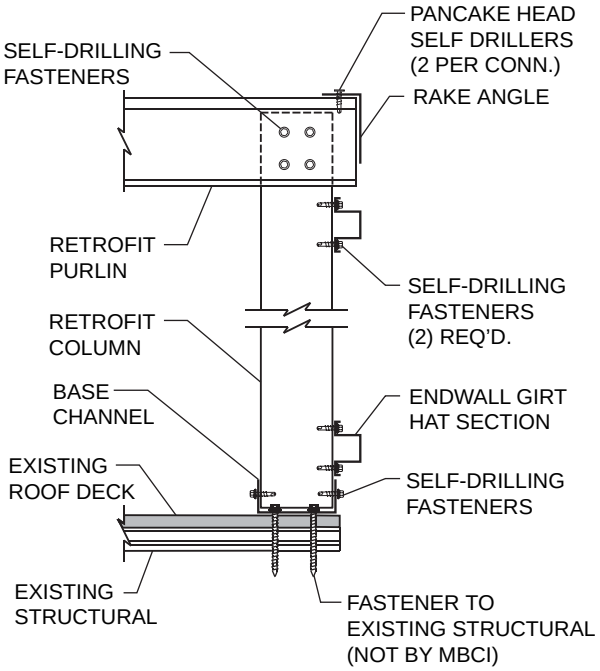
# NuRoof® DESIGN INFORMATION

## RETROFIT FRAMING OVER STRUCTURAL MEMBERS
### (Gable Endwall Girt Attachment)




**ISOMETRIC VIEW OF ENDWALL**




**CROSS SECTION A-A ENDWALL ATTACHMENT**

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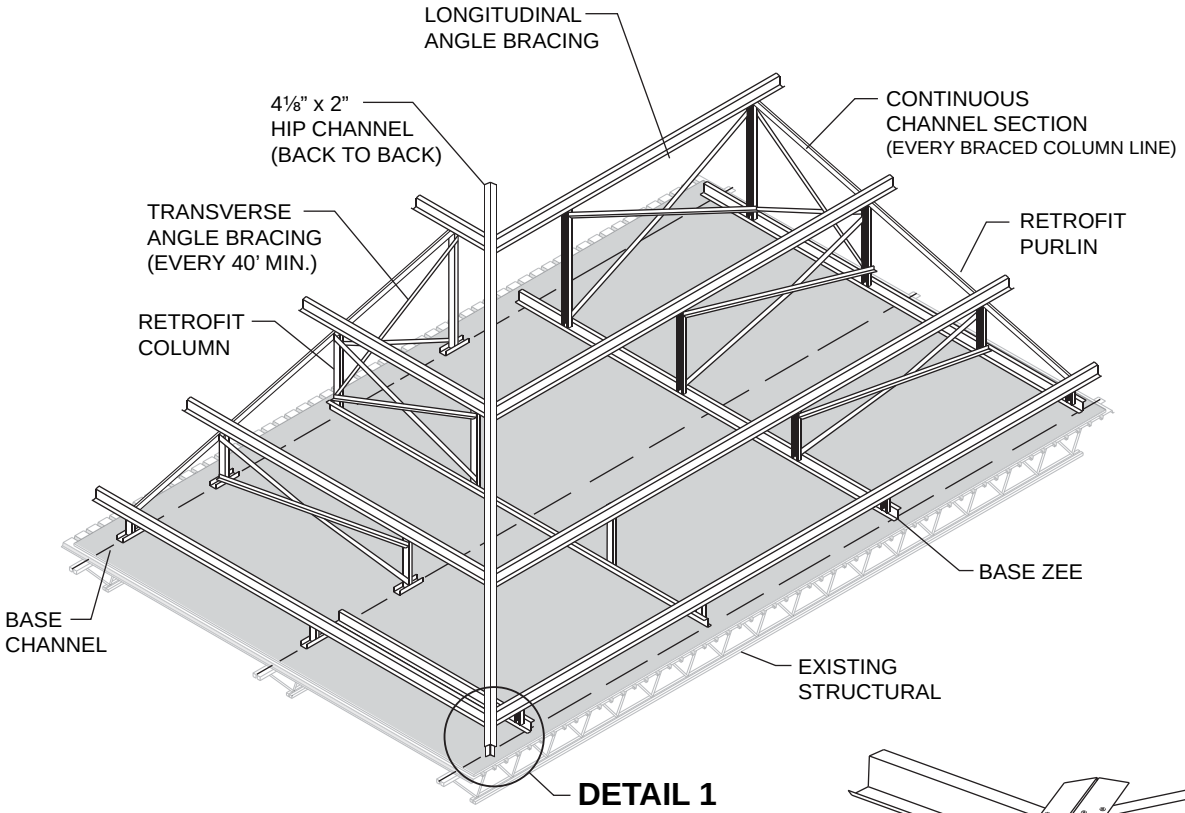
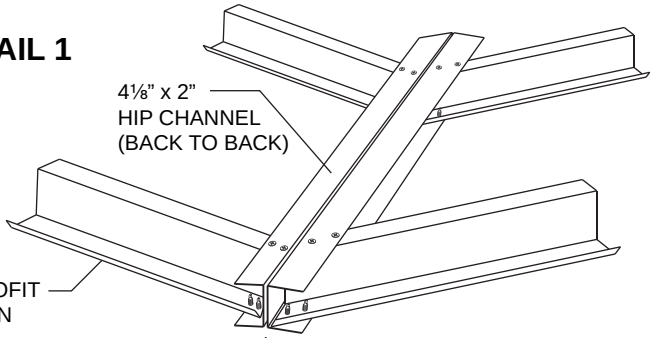
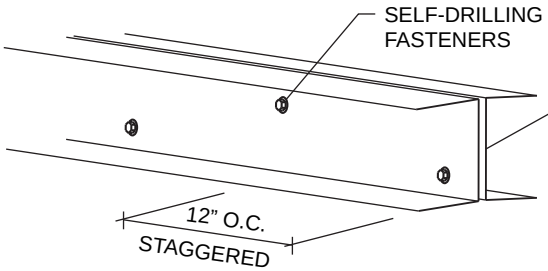
# RETROFIT FRAMING FOR ROOF HIP
## (Back-to-Back Hip Channel Attachment)

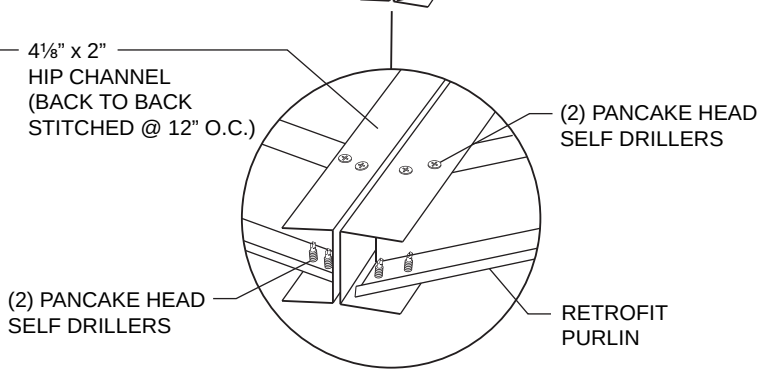



**RETROFIT FRAMEWORK**




**HIP CHANNEL BACK TO BACK**




**DETAIL 1**

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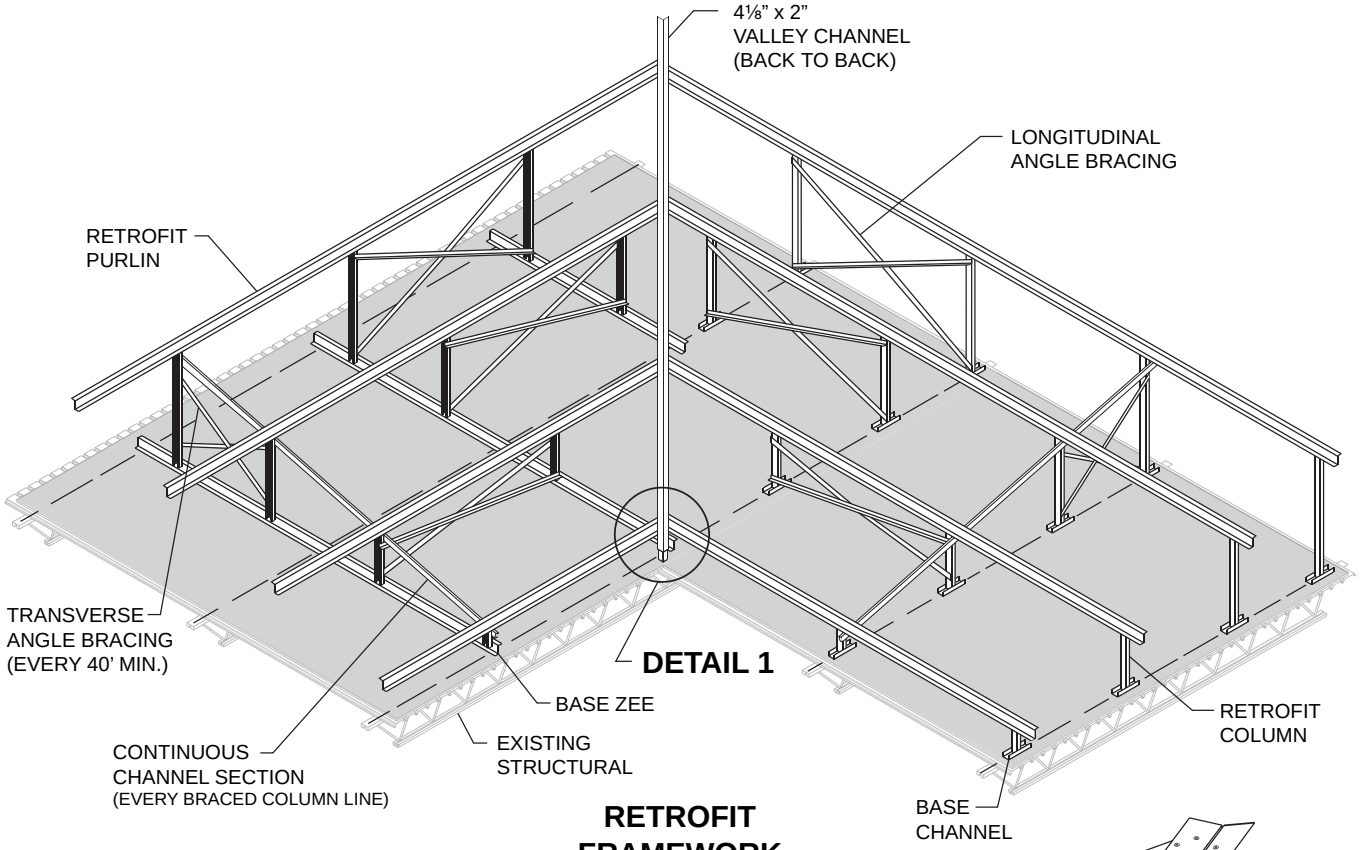
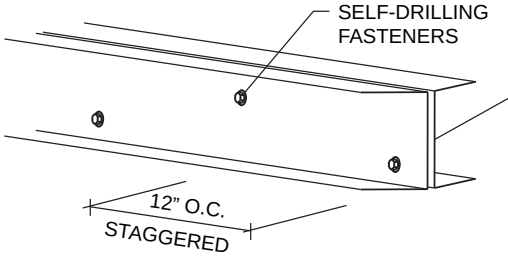
# NuRoof® DESIGN INFORMATION

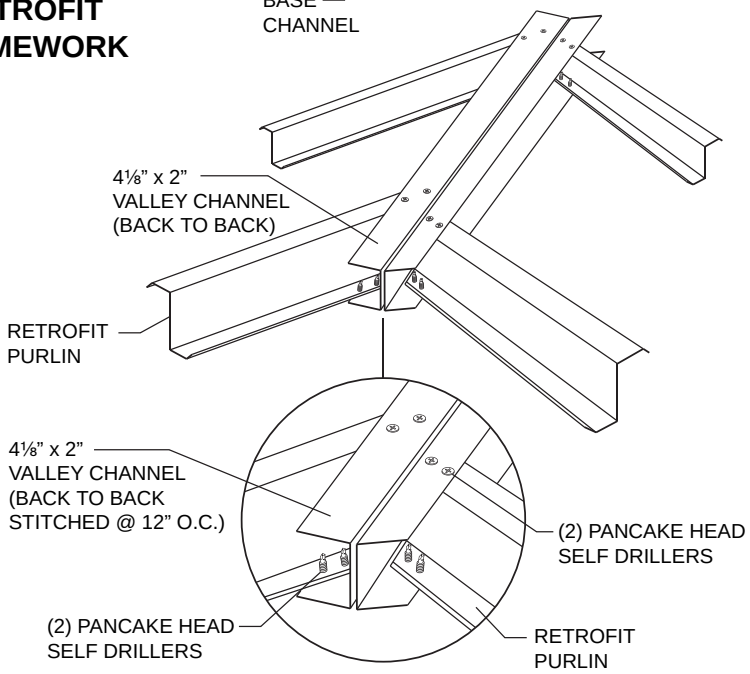
## RETROFIT FRAMING FOR ROOF VALLEY
### (Back-to-Back Valley Channel Attachment)




**RETROFIT FRAMEWORK**




**VALLEY CHANNEL BACK TO BACK**




**DETAIL 1**

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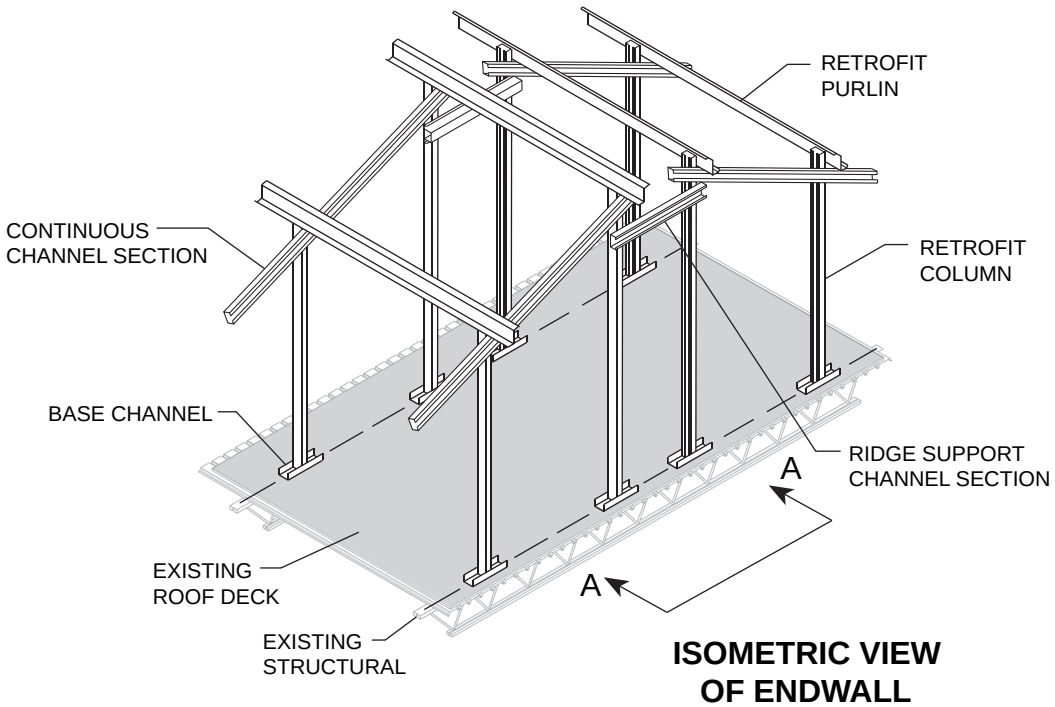
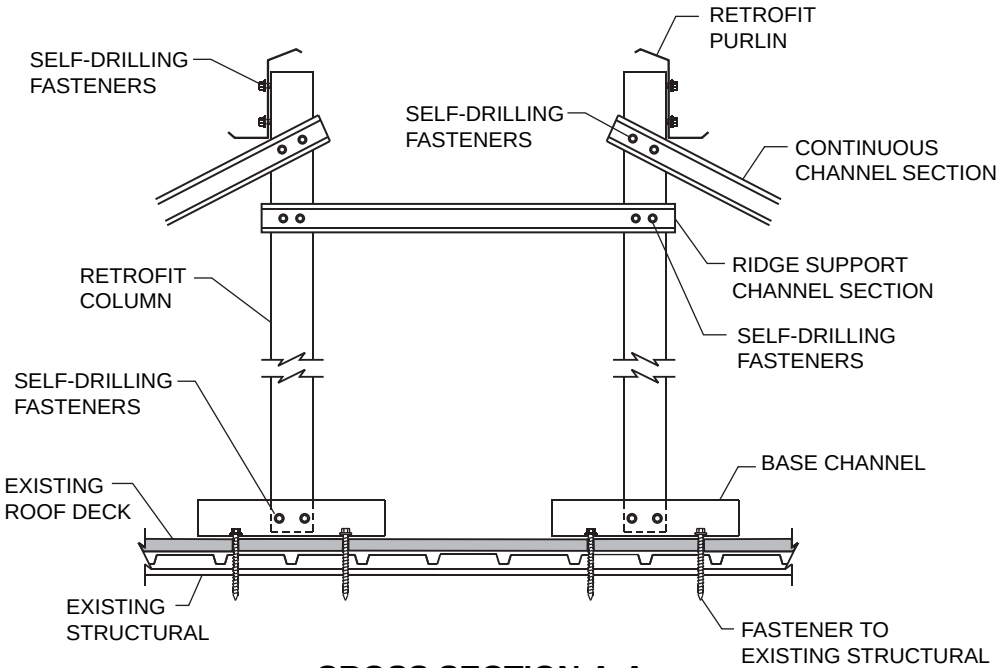
# RETROFIT FRAMING FOR ROOF RIDGE
## (Peak Framing Attachment)




**ISOMETRIC VIEW OF ENDWALL**




**CROSS SECTION A-A STRUT ATTACHMENT**

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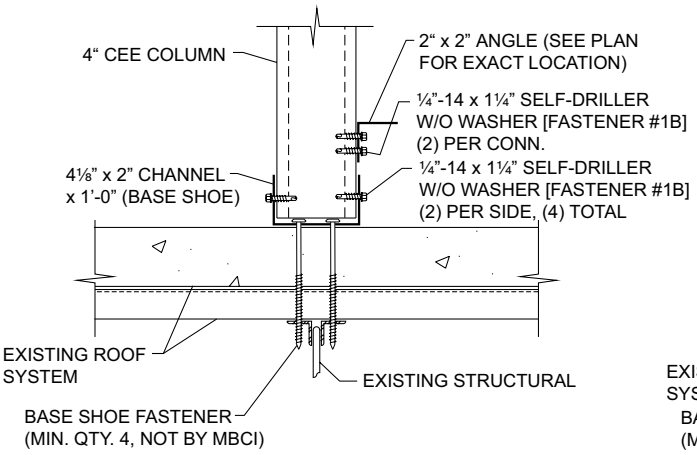
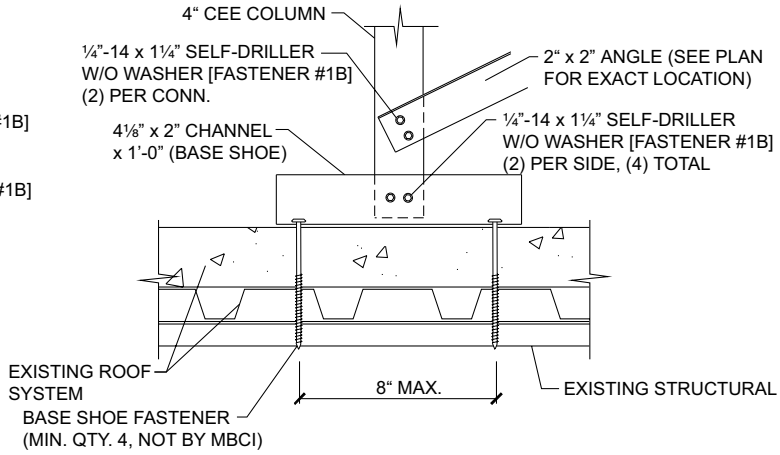
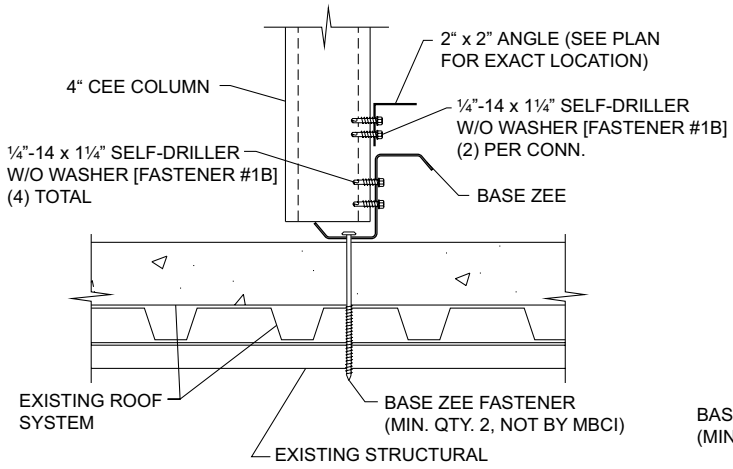
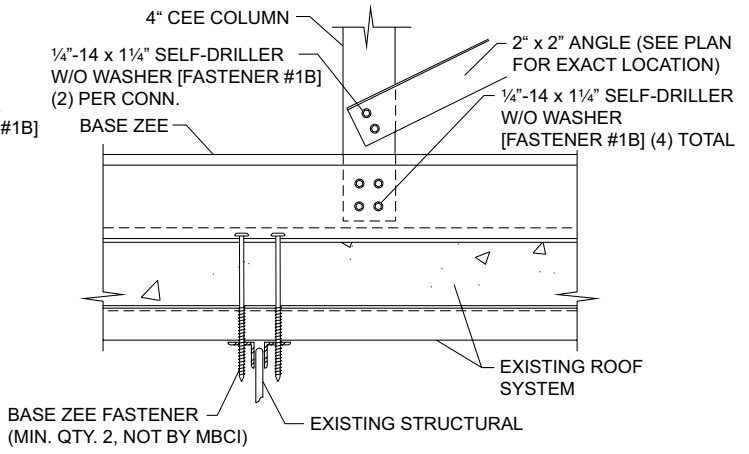
## BASE CHANNEL CONNECTION WITH COLUMN ATTACHMENT
### (Flange Connection)




## BASE ZEE CONNECTION WITH COLUMN ATTACHMENT
### (Flange Connection)



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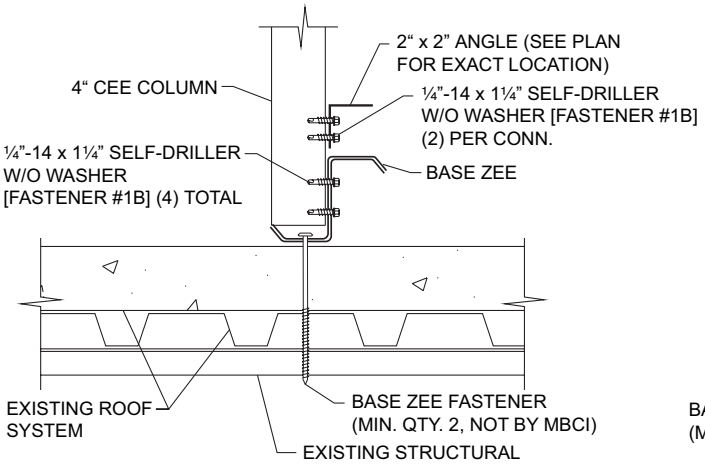
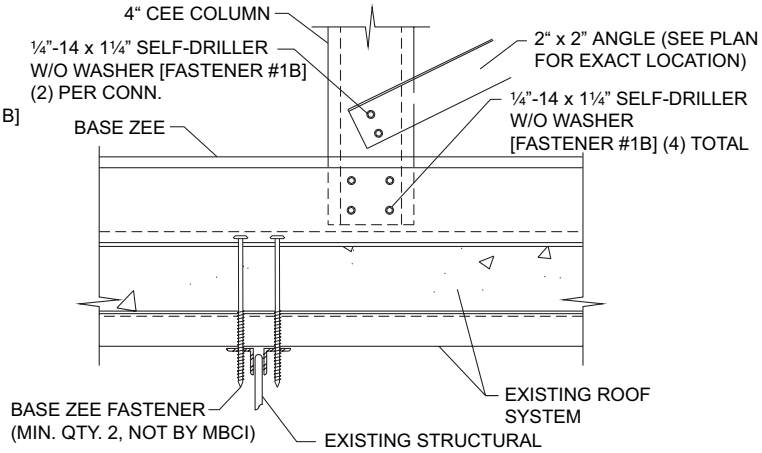
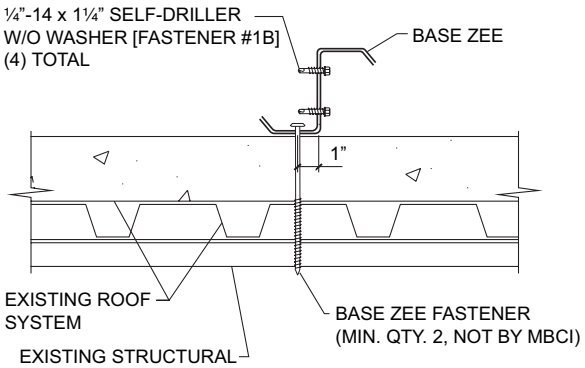
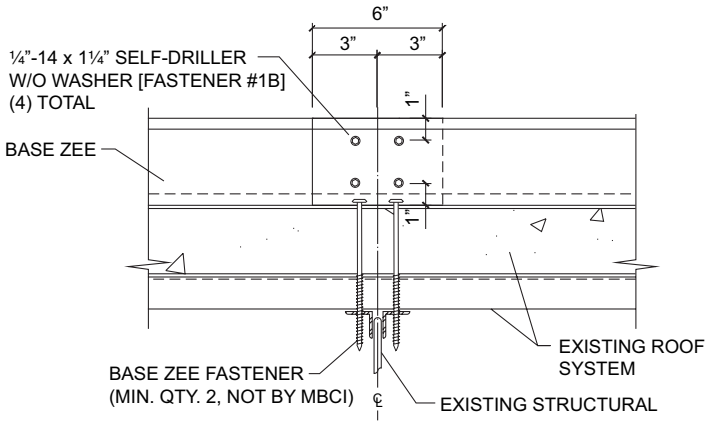
## BASE ZEE CONNECTION WITH COLUMN ATTACHMENT
### (Web Connection)




## BASE ZEE CONNECTION
### (Lap Connection)



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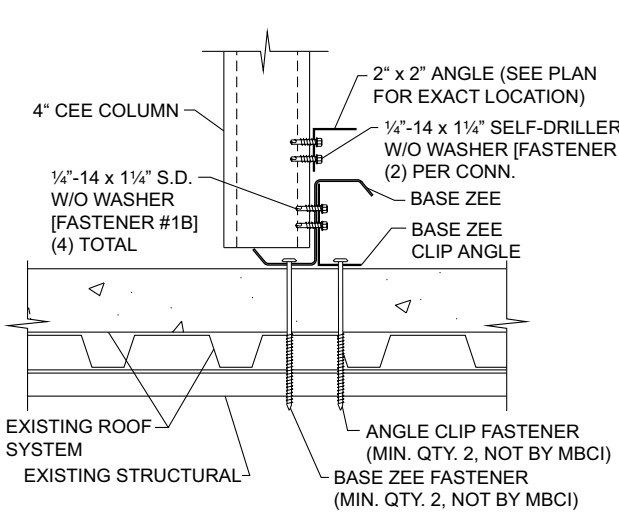
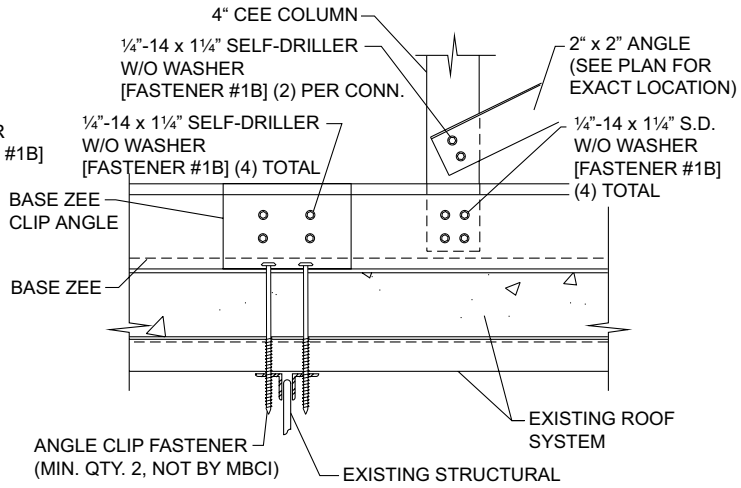
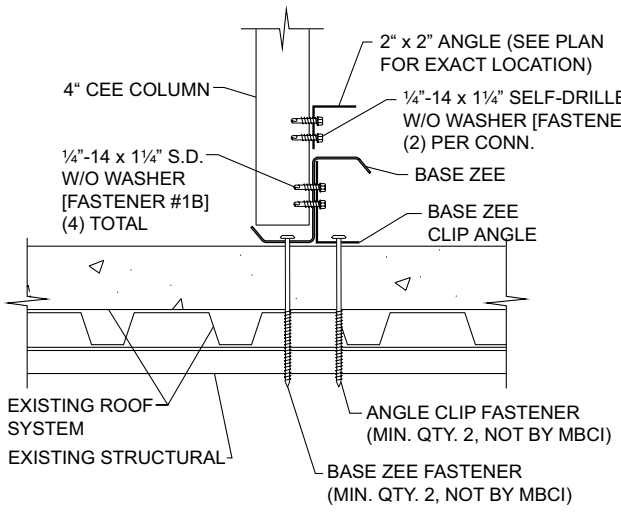
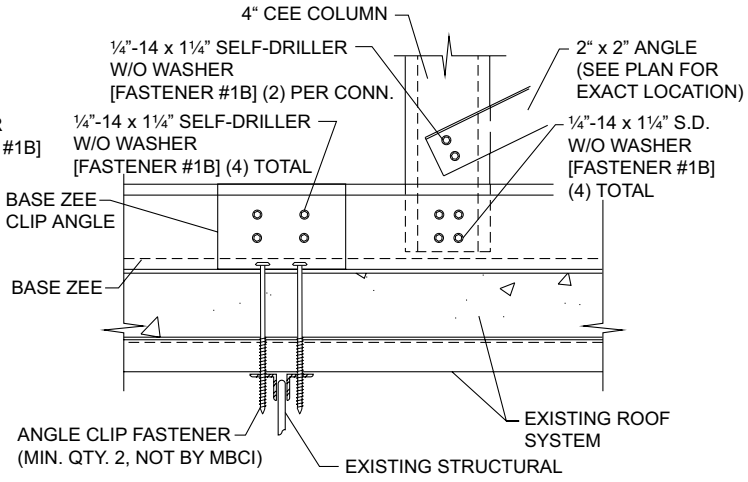
## HIGH STRENGTH BASE ZEE-CLIP ANGLE CONNECTION WITH COLUMN ATTACHMENT
### (Flange Connection)




## HIGH STRENGTH BASE ZEE-CLIP ANGLE CONNECTION WITH COLUMN ATTACHMENT
### (Web Connection)



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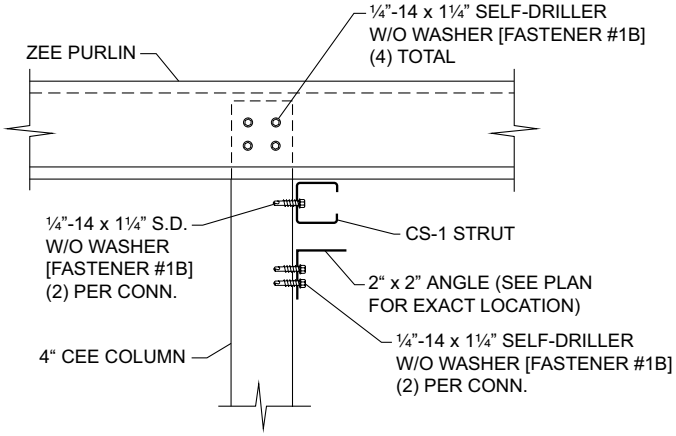
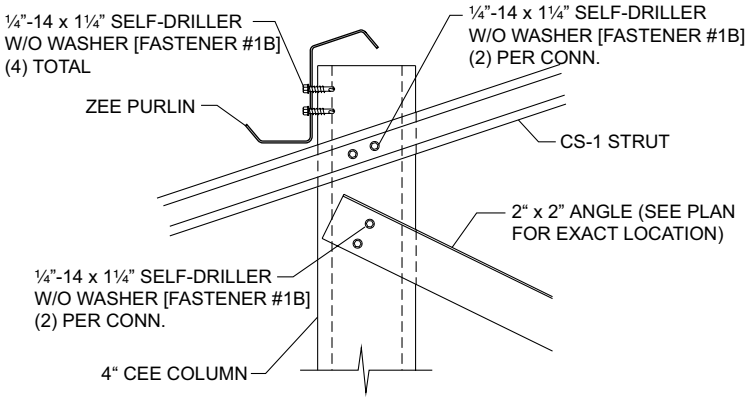
# DETAILS

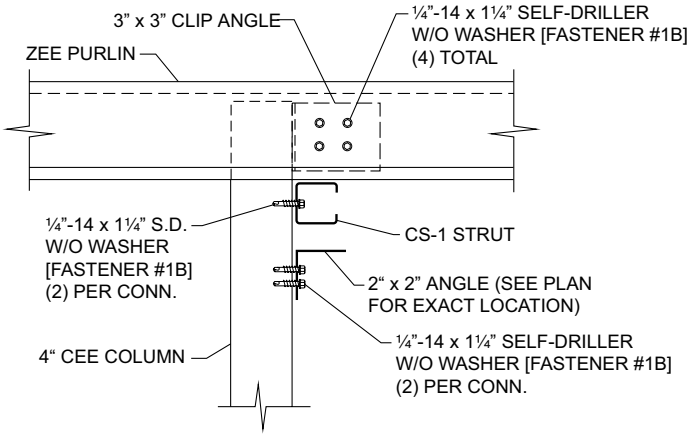
# NuRoof®

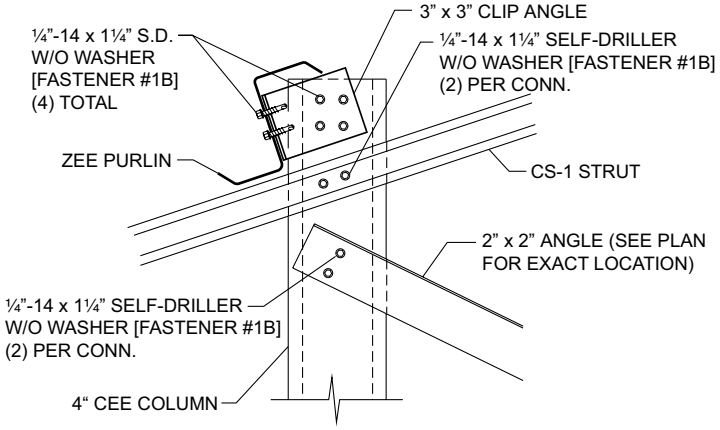
## PURLIN TO COLUMN ATTACHMENT
### (Flange Connection)



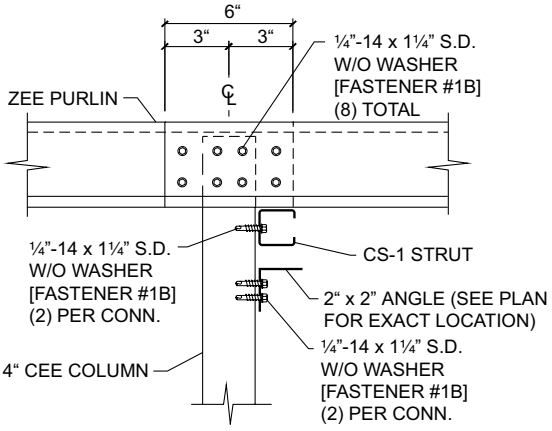



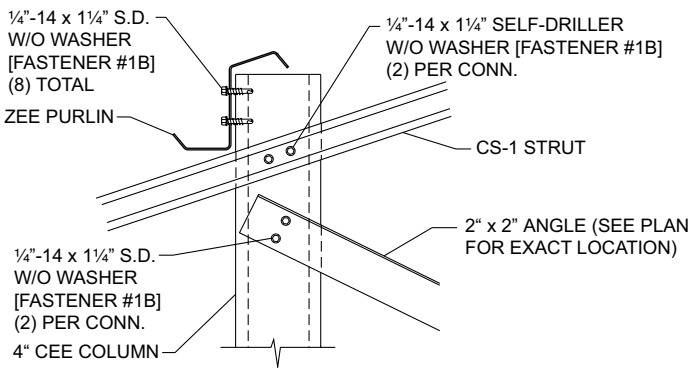

## PURLIN TO COLUMN ATTACHMENT
### (Flange Connection With Purlin Clip)




## PURLIN TO COLUMN ATTACHMENT
### (Flange Connection at Purlin Lap)



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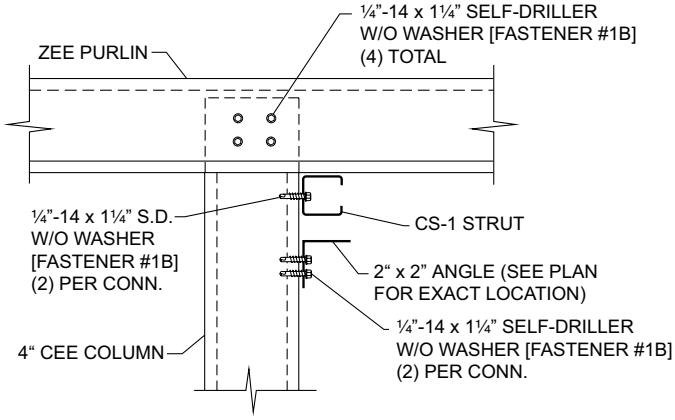
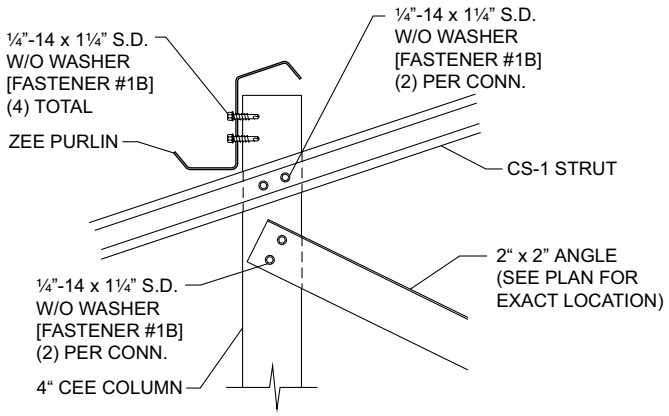
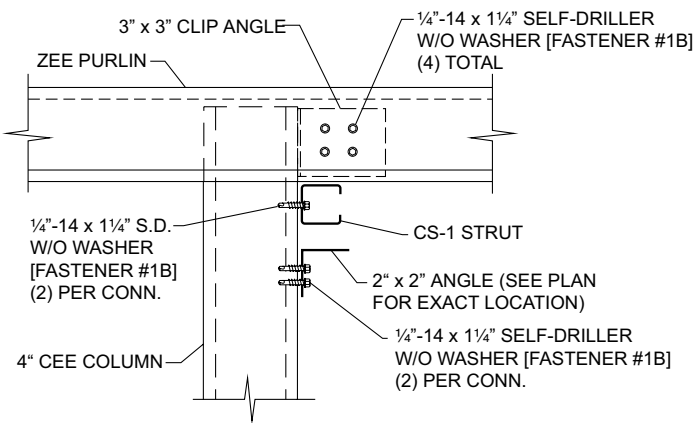
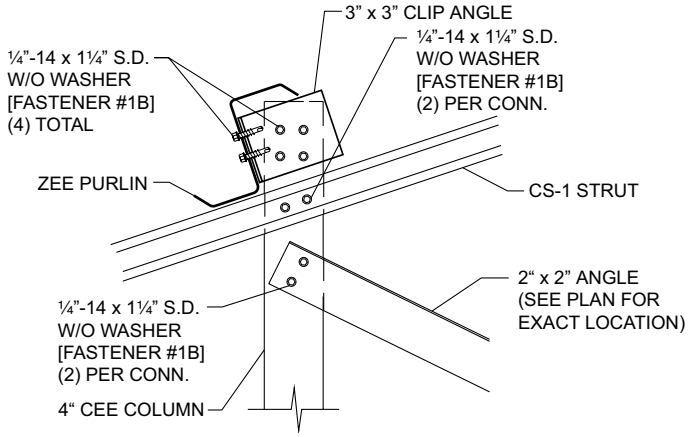
## PURLIN TO COLUMN ATTACHMENT
### (Web Connection)



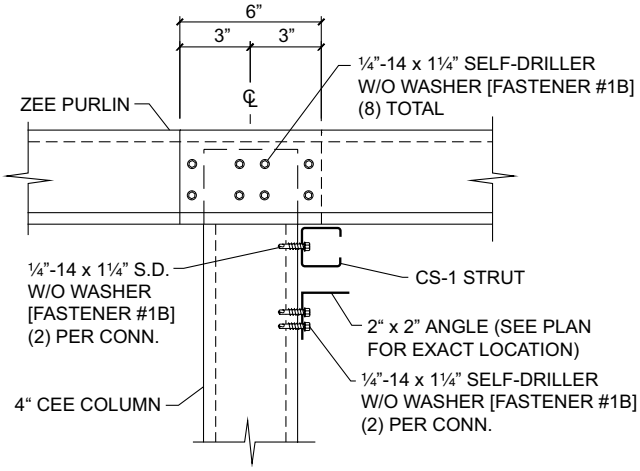



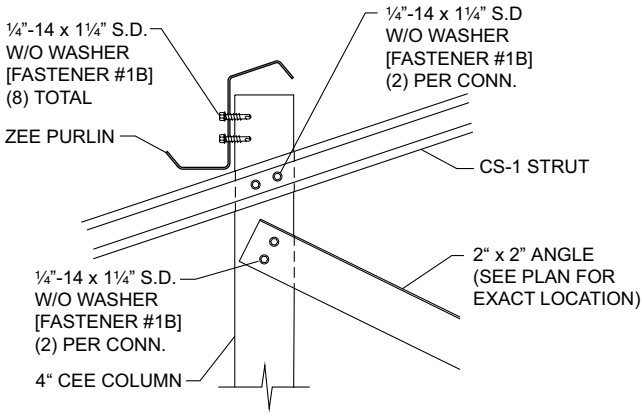

## PURLIN TO COLUMN ATTACHMENT
### (Web Connection With Purlin Clip)




## PURLIN TO COLUMN ATTACHMENT
### (Web Connection at Purlin Lap)



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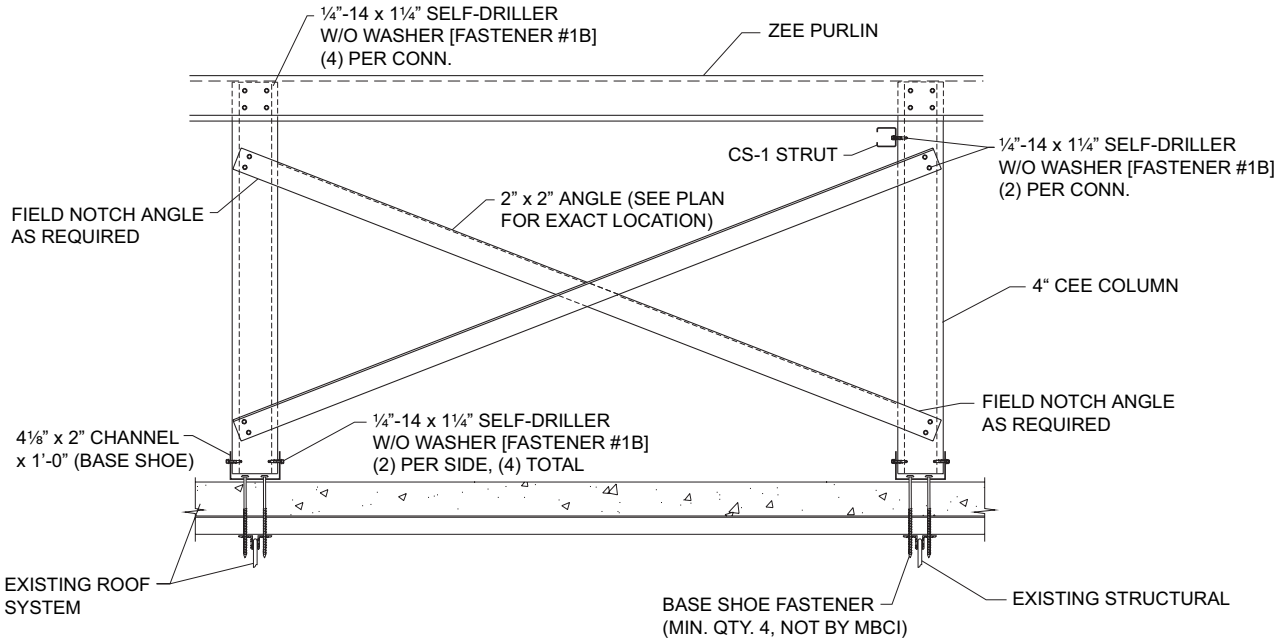
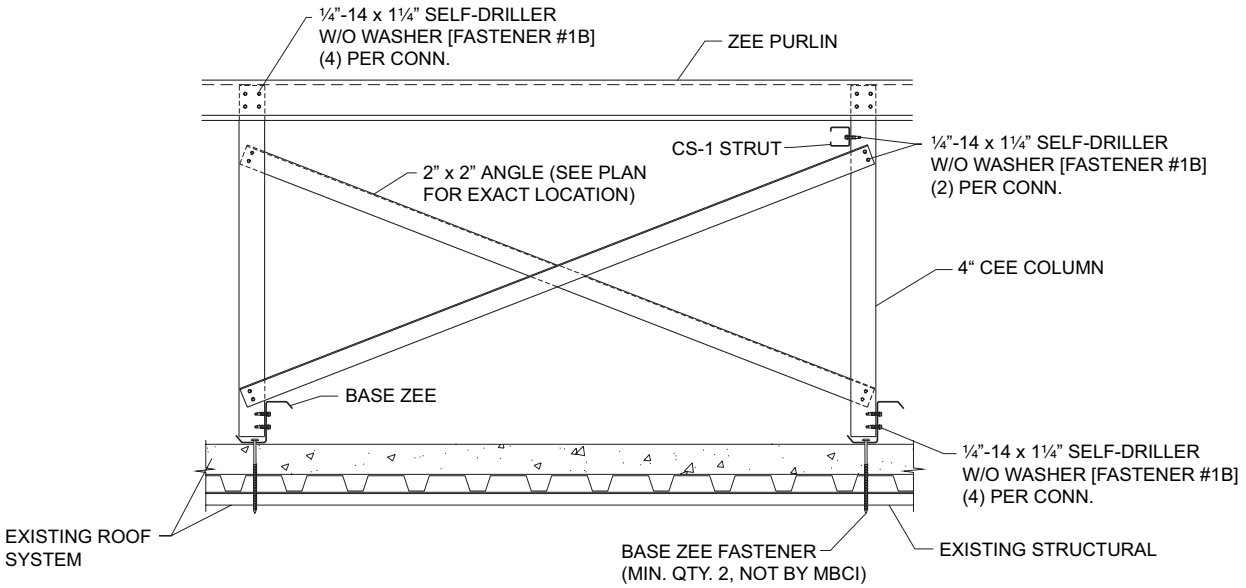
# LONGITUDINAL ANGLE BRACING
## (Parallel to Purlins)



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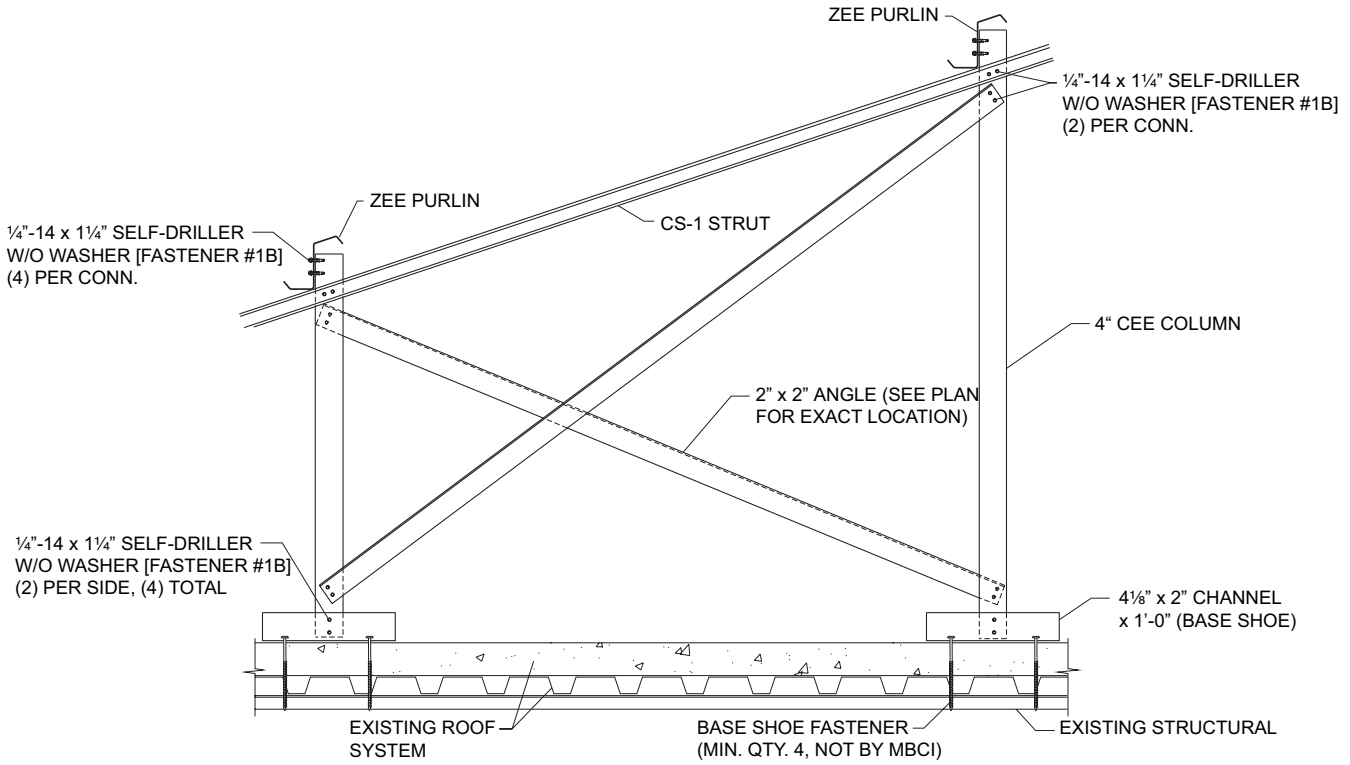
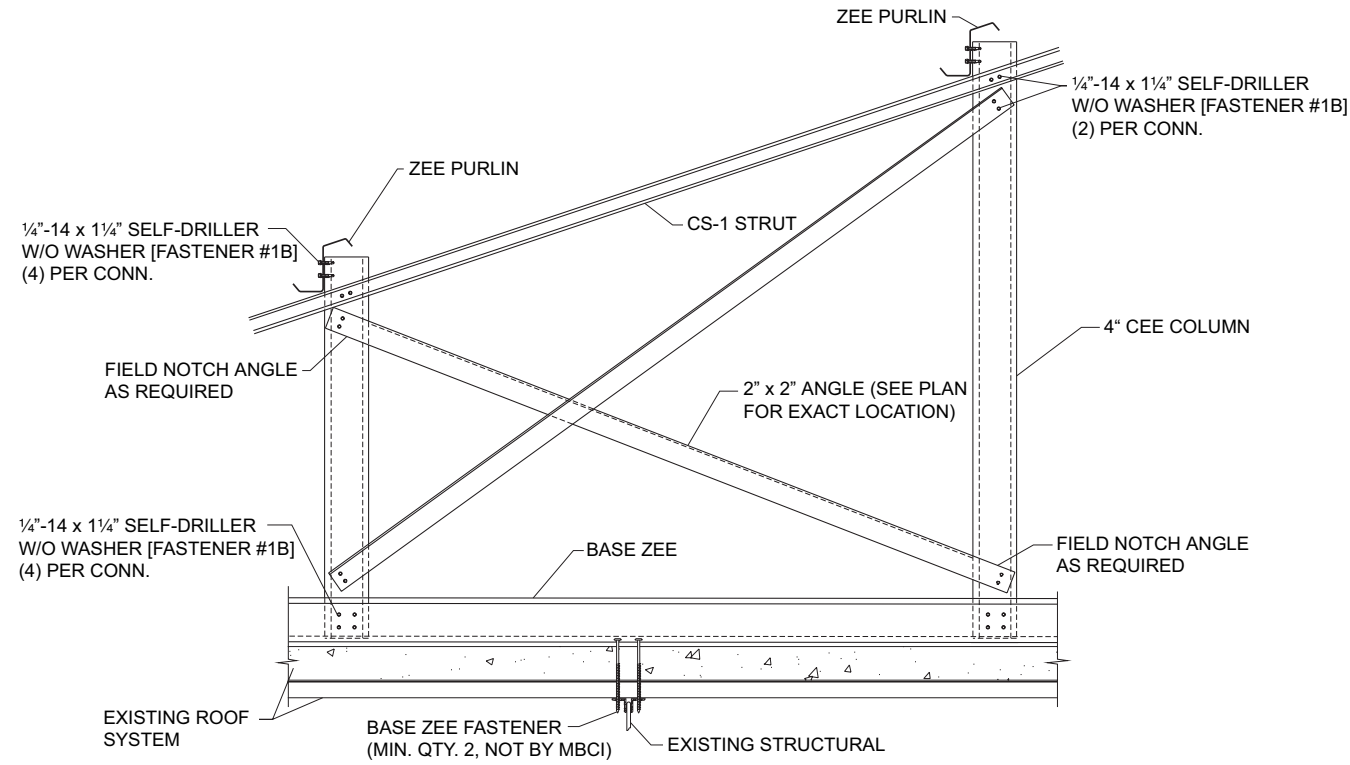
# DETAILS

## TRANSVERSE ANGLE BRACING
### (Perpendicular to Purlins)



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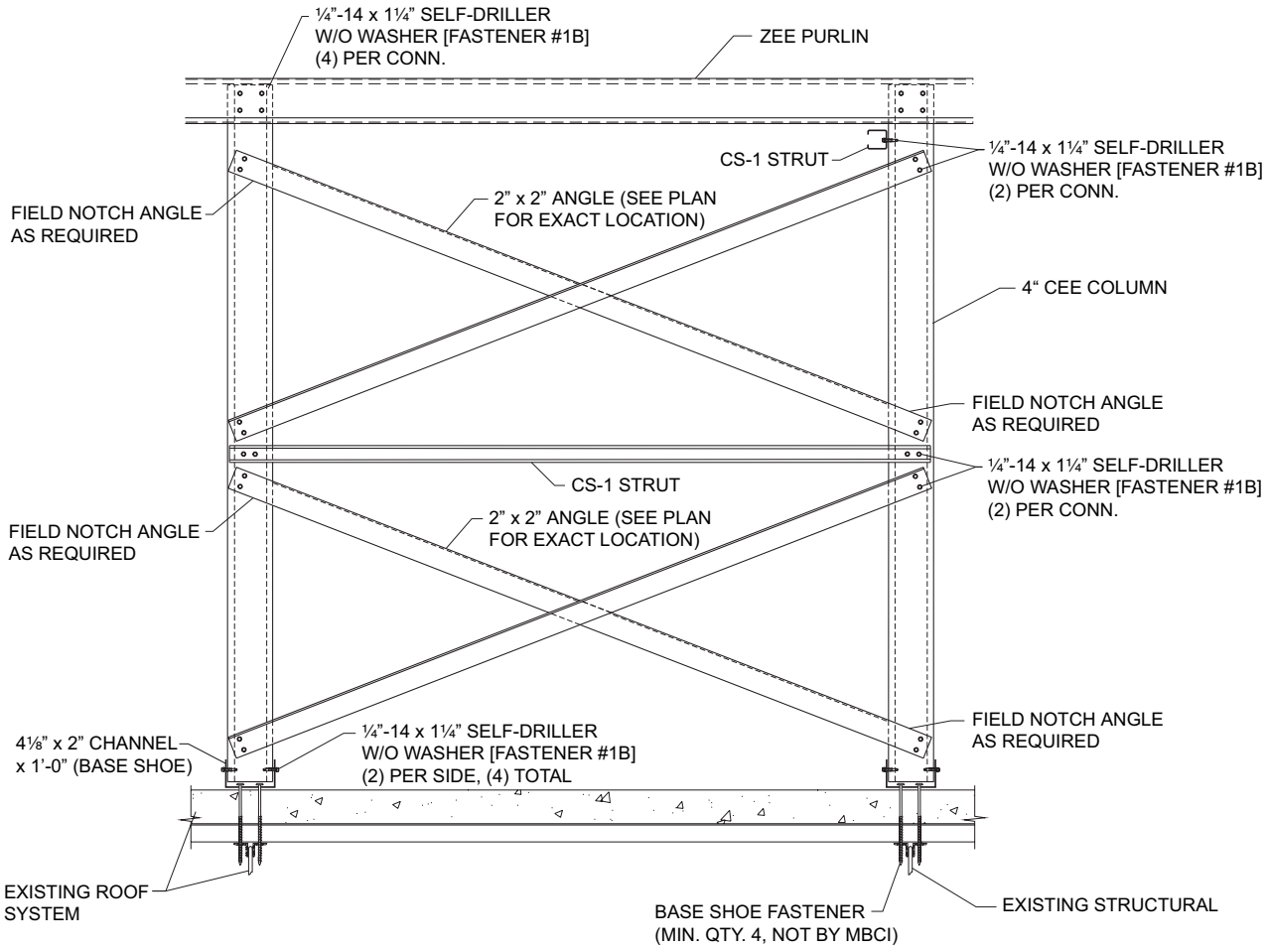
# DOUBLE LONGITUDINAL ANGLE BRACING
## (Parallel to Purlins With Base Shoe)



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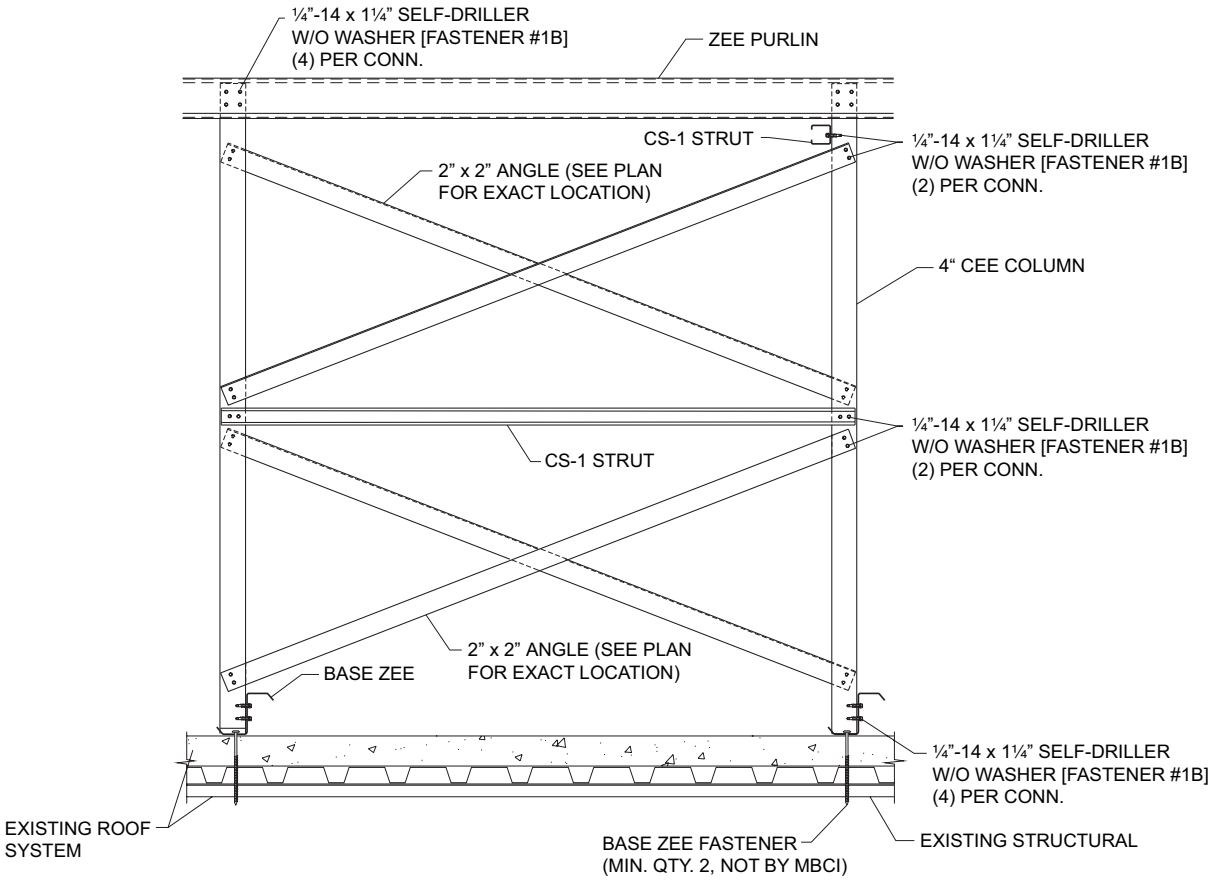
# DETAILS

## DOUBLE LONGITUDINAL ANGLE BRACING
### (Parallel to Purlins With Base Zee)



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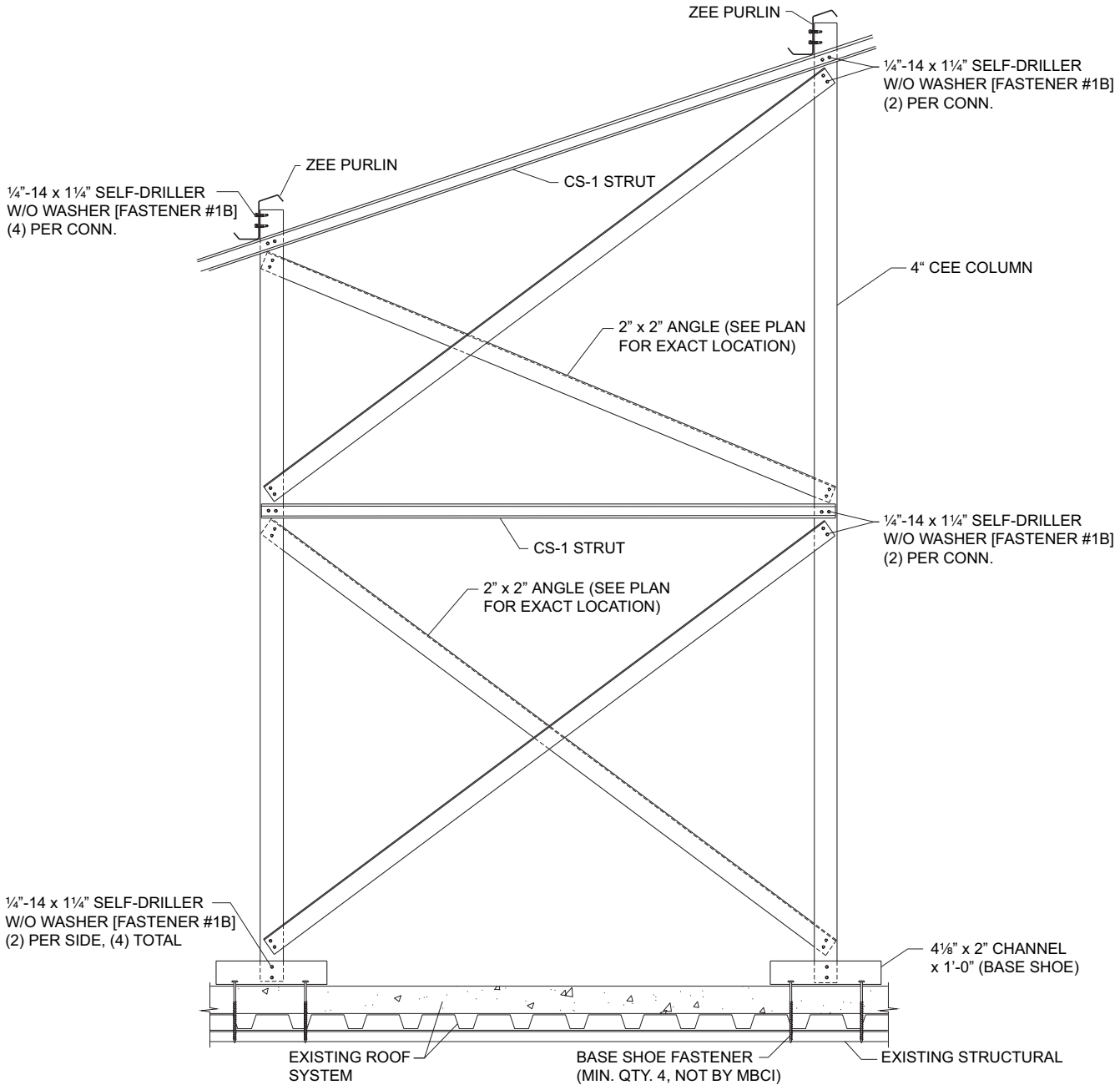
# DOUBLE TRANSVERSE ANGLE BRACING
## (Perpendicular to Purlins With Base Shoe)



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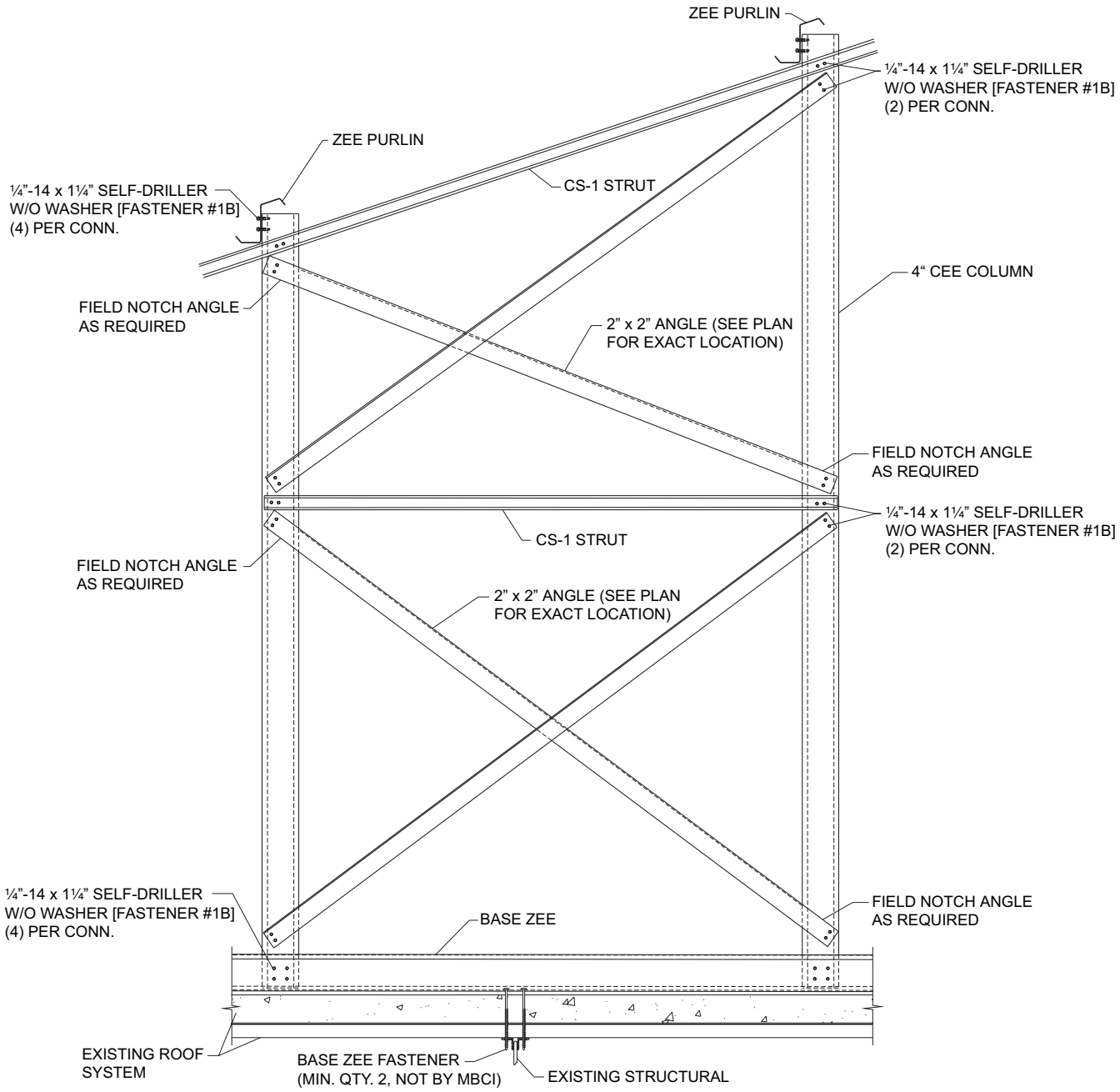
# NuRoof® DETAILS

## DOUBLE TRANSVERSE ANGLE BRACING
### (Perpendicular to Purlins With Base Zee)



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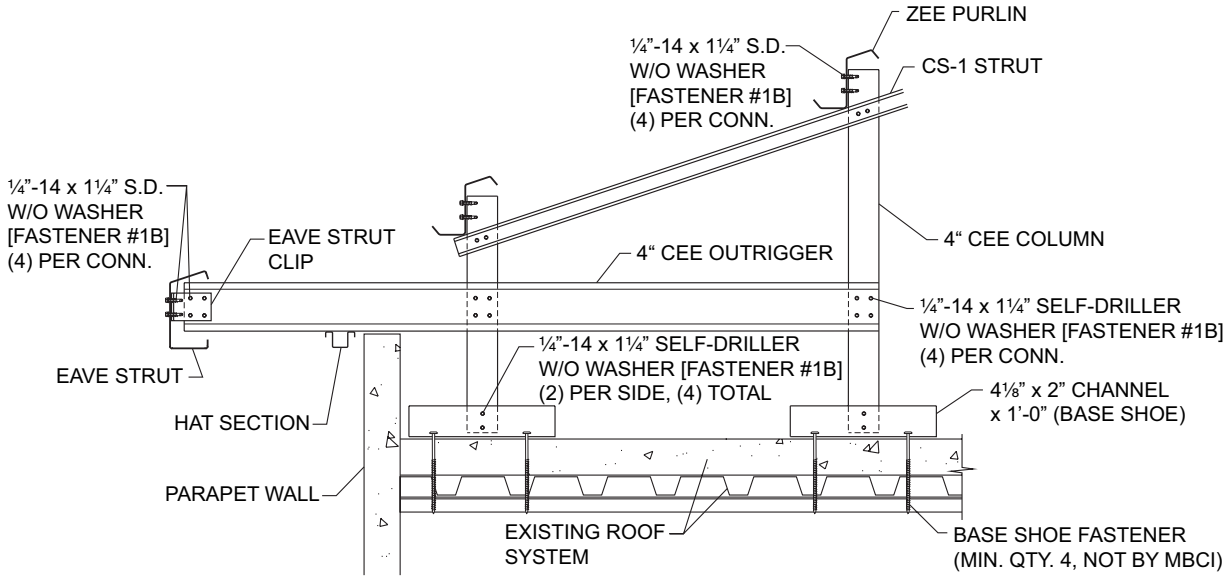
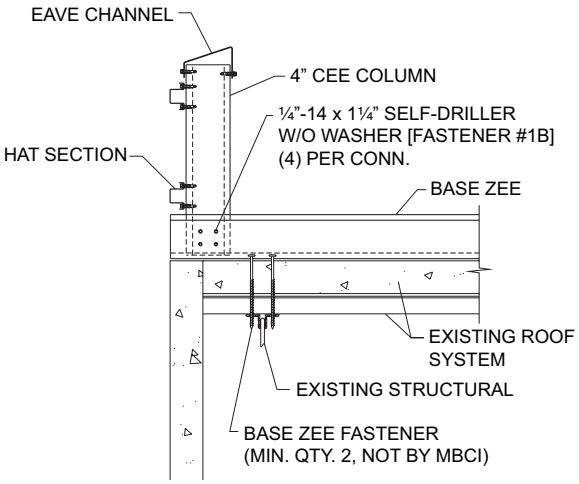
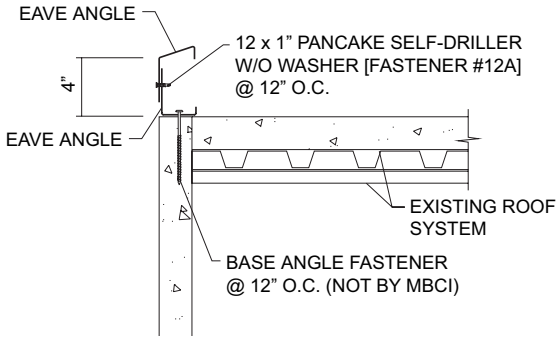
## EAVE OVERHANG
### (With Parapet Wall)




## EAVE DETAILS




### EAVE WITH FASCIA WALL




### EAVE WITH ANGLES

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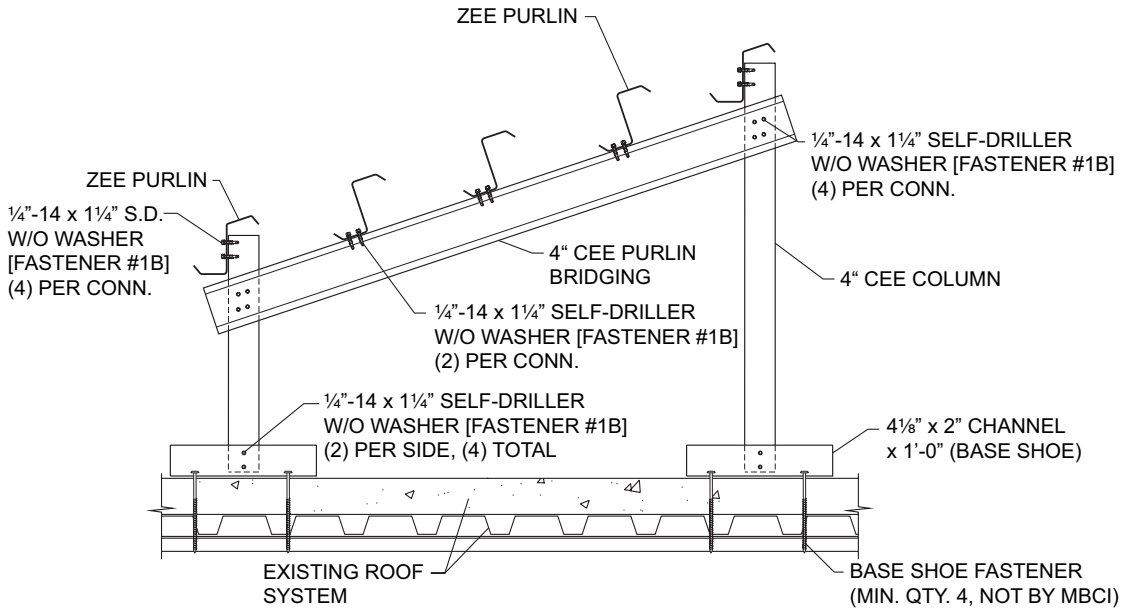
# NuRoof® DETAILS

## EDGE/CORNER ZONE
### (For Use in High Wind Condition)



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# DESIGN INFORMATION NuRoof®

## ARCHITECT/ENGINEER INFORMATION (Optional Method)

1. The optional NuRoof® Retrofit Systems are designed to go directly over existing sloped roof systems.
2. The optional NuRoof® Grid System allows for additional purlins to be installed when the existing purlin spacing does not meet the current code requirements.
3. The optional NuRoof® Retrofit System over existing PBR requires the use of the MBCI Ultra-Dek® or Double-Lok® roof systems. The high clips used with these systems elevate the roof system 1⅜" over the existing structure, allowing the panels to pass over a standard 1¼" PBR panel. If the existing roof system has a rib height of 1½" a non-compressible ¼" shim can be used.
4. Care must be taken when cutting back the eave of the existing roof system to make sure no shavings land on adjacent or stored new roofing materials. Hot shavings landing on new material can cause premature rusting of the material surface.
5. When installing the optional NuRoof® Retrofit System over a PBR system the module of the existing roof system must be checked. The MBCI Ultra-Dek®/Double-Lok® roof systems hold a 24" module and if the existing roof was stretched ahead or shrunk back the clips will eventually foul into an existing major rib. An 18" panel can be installed in lieu of a 24" panel to allow the new roof system to stay on the module created by the existing roof panels.

## INSTALLATION GUIDELINES

1. Pre-Order
   a. Prior to ordering panels, all dimensions should be confirmed by field measurements.
2. Jobsite Storage and Handling
   a. Check the shipment against the shipping list.
   b. Damaged material must be noted on Bill of Lading.
   c. Materials should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
3. Application Checklist
   a. Check substrate for proper alignment and uniformity.
   b. Periodic check of panel alignment is crucial to proper panel installation.
   c. Material should be cut on the ground to minimize cut fillings on new materials.

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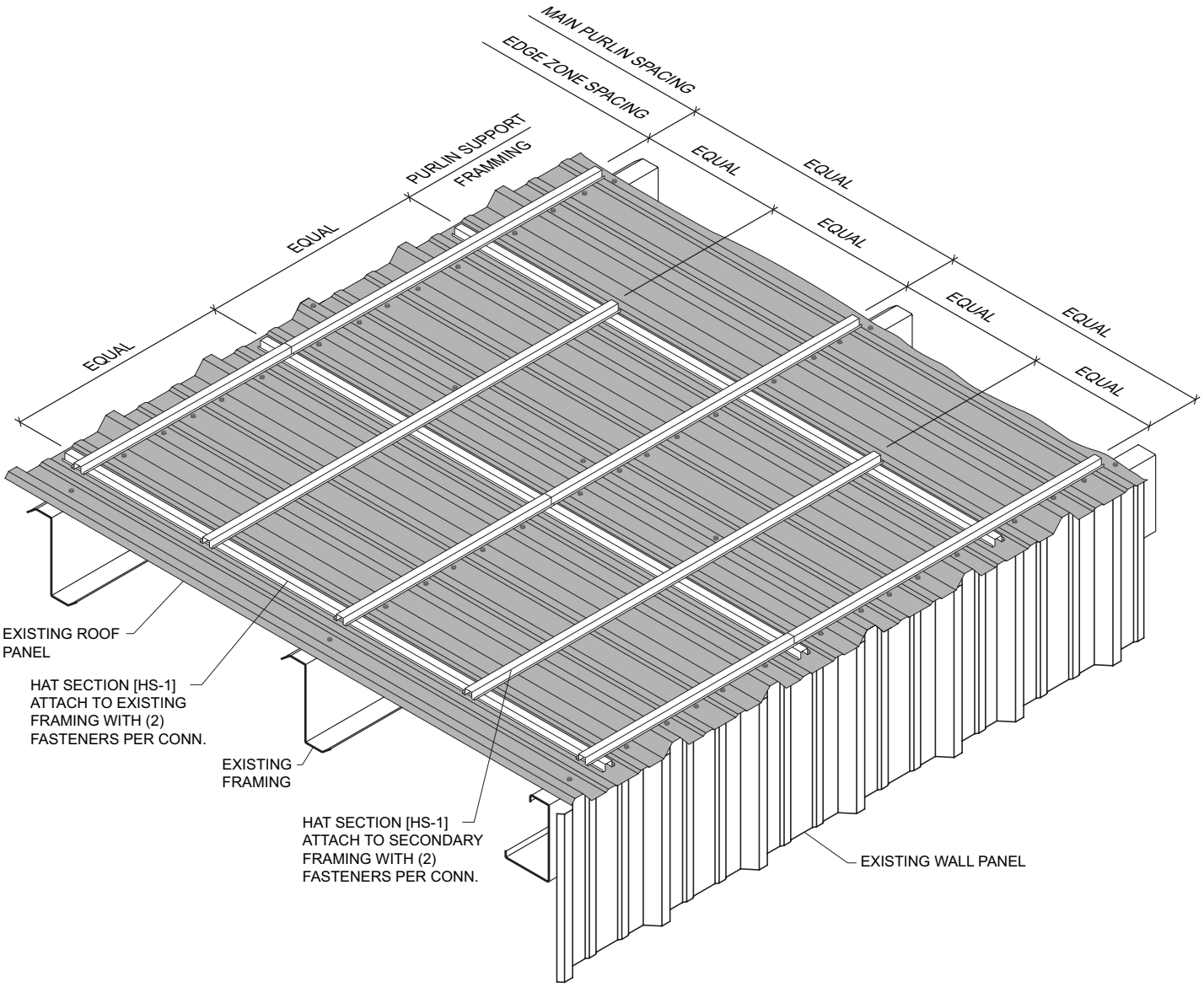
# NuRoof® DETAILS

## NuRoof® GRID SYSTEM
### (Optional Method)



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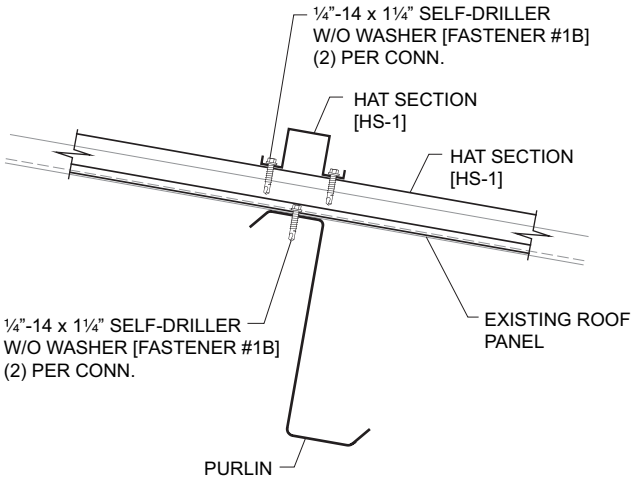
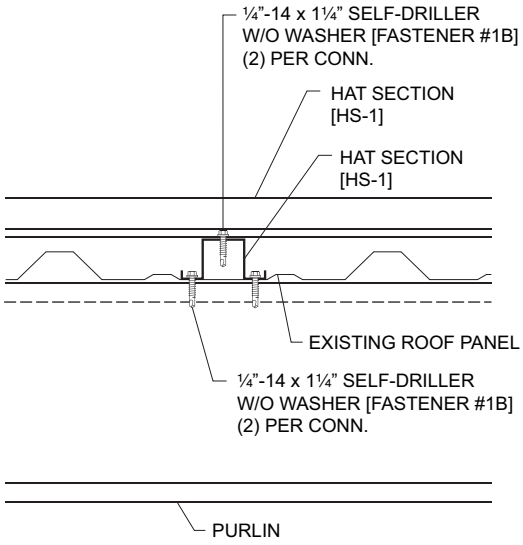
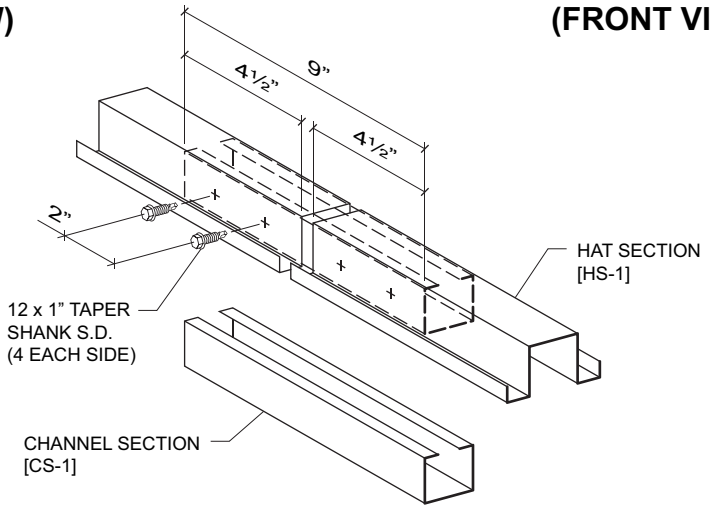
# NuRoof® GRID SYSTEM
## (Optional Method Details)




**CONNECTION OF HAT SECTIONS TO PURLIN (SIDE VIEW)**




**CONNECTION OF HAT SECTIONS TO PURLIN (FRONT VIEW)**




**SPLICE DETAIL**

NOTE: MUST OCCUR OVER A SUPPORT MEMBER.

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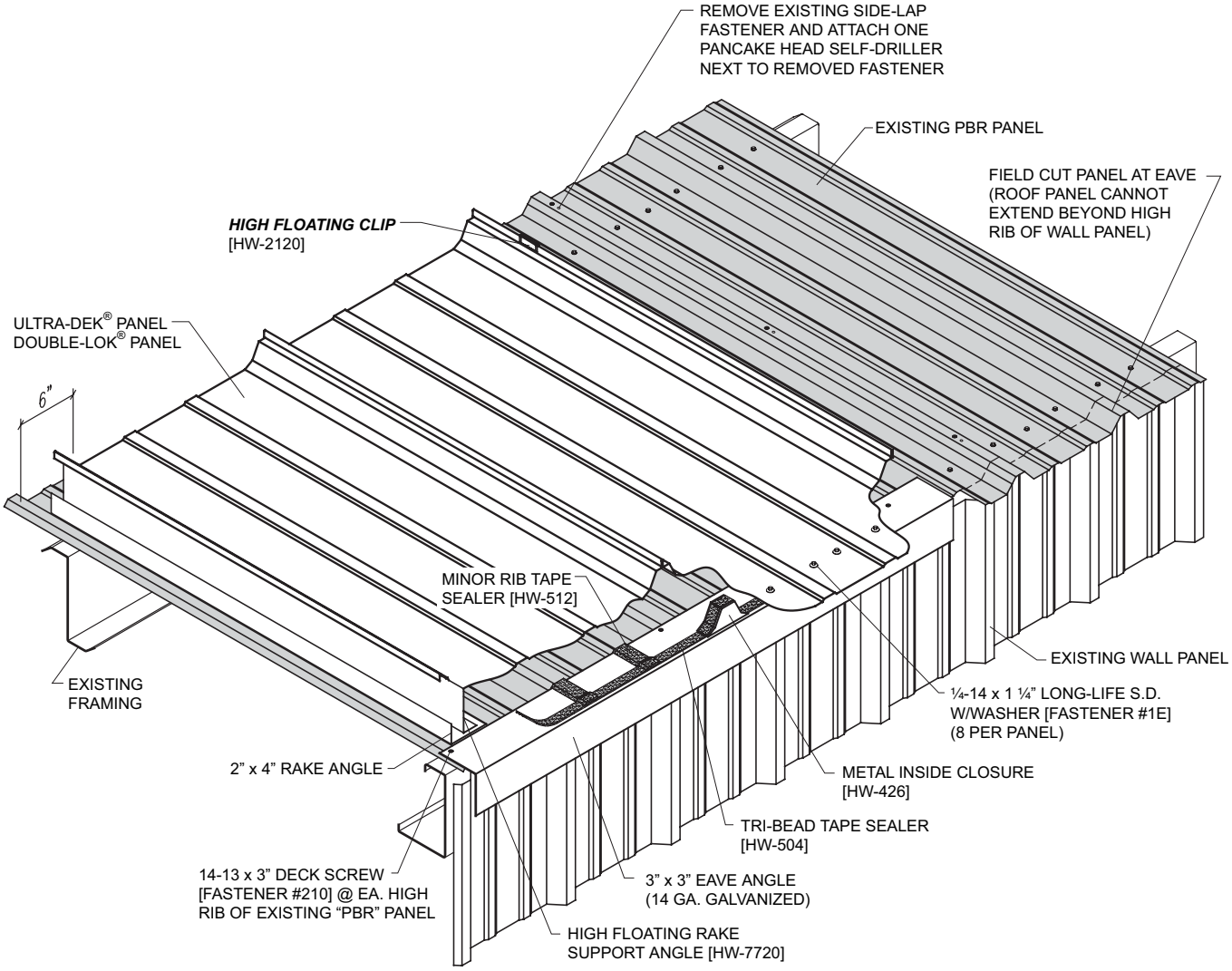
# NuRoof ® DETAILS

## SSR SYSTEM OVER EXISTING PBR PANEL
### (Optional Method)




**NOTE: MAJOR RIB OF EXISTING ROOF PANEL CANNOT EXCEED 1¼" IN HEIGHT.**

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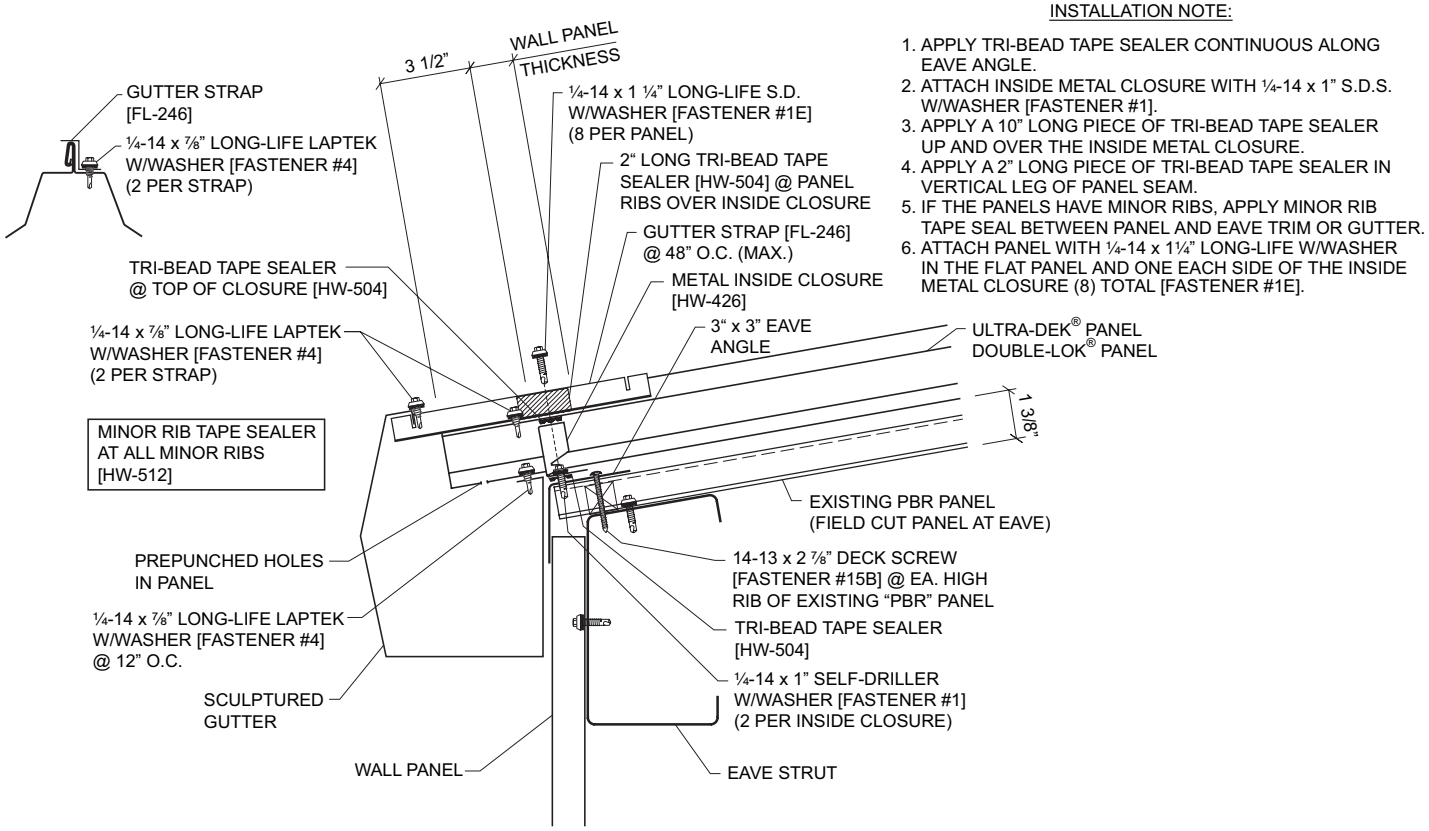
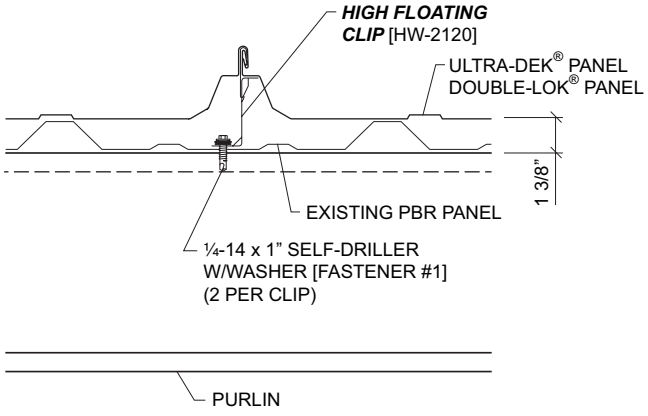
## SSR SYSTEM OVER EXISTING PBR PANEL
### (Eave Detail)




INSTALLATION NOTE:

1. APPLY TRI-BEAD TAPE SEALER CONTINUOUS ALONG EAVE ANGLE.
2. ATTACH INSIDE METAL CLOSURE WITH ¼-14 x 1" S.D.S. W/WASHER [FASTENER #1].
3. APPLY A 10" LONG PIECE OF TRI-BEAD TAPE SEALER UP AND OVER THE INSIDE METAL CLOSURE.
4. APPLY A 2" LONG PIECE OF TRI-BEAD TAPE SEALER IN VERTICAL LEG OF PANEL SEAM.
5. IF THE PANELS HAVE MINOR RIBS, APPLY MINOR RIB TAPE SEAL BETWEEN PANEL AND EAVE TRIM OR GUTTER.
6. ATTACH PANEL WITH ¼-14 x 1¼" LONG-LIFE W/WASHER IN THE FLAT PANEL AND ONE EACH SIDE OF THE INSIDE METAL CLOSURE (8) TOTAL [FASTENER #1E].

## SSR SYSTEM OVER EXISTING PBR PANEL
### (Clip Attachment Detail)



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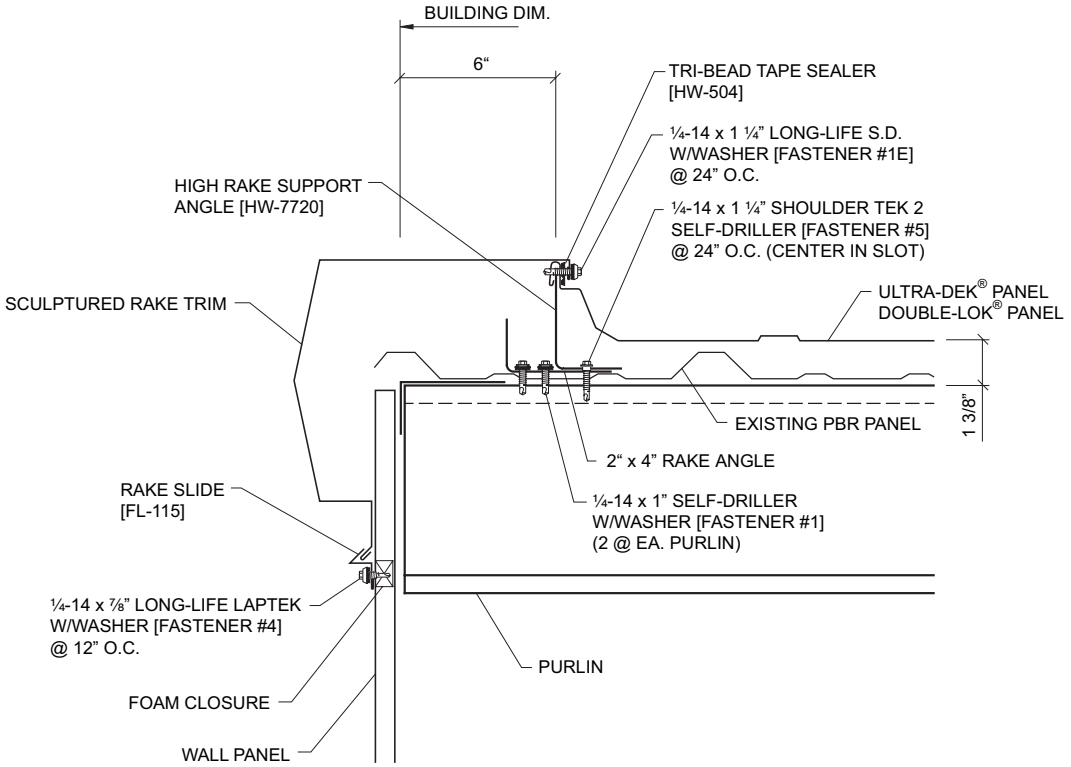
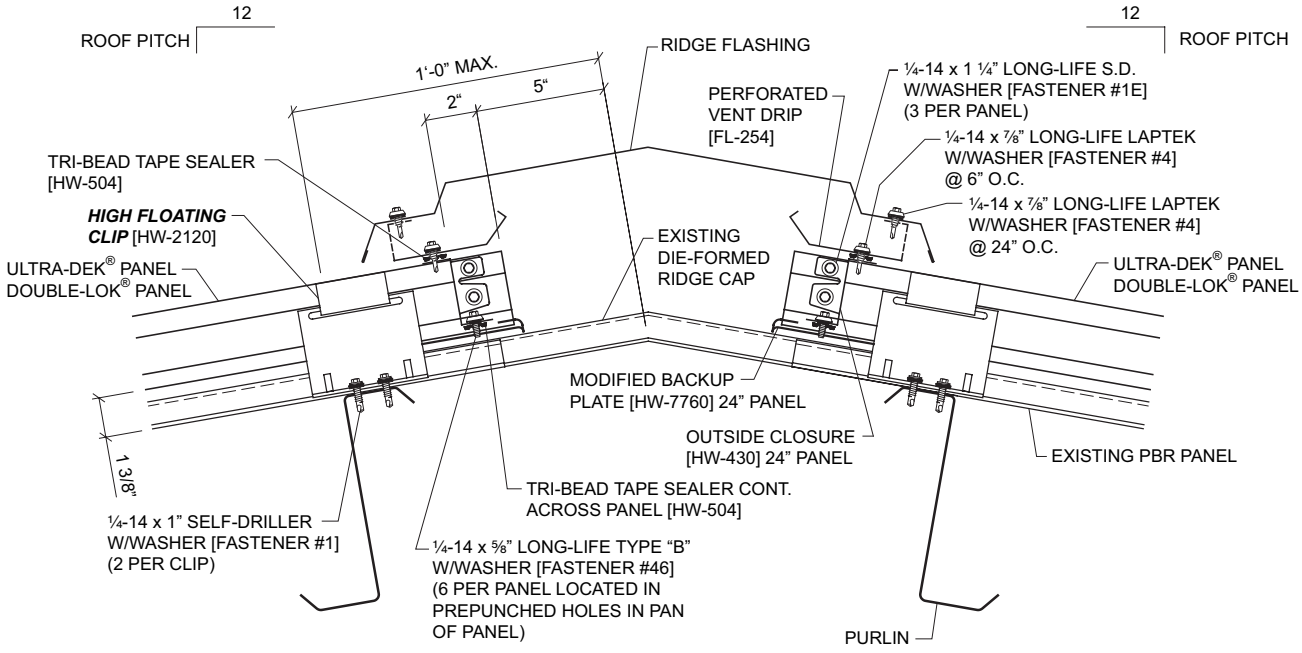
# NuRoof ® DETAILS

## SSR SYSTEM OVER EXISTING PBR PANEL
### (Rake Detail)




## SSR SYSTEM OVER EXISTING PBR PANEL
### (Vented Ridge Detail)



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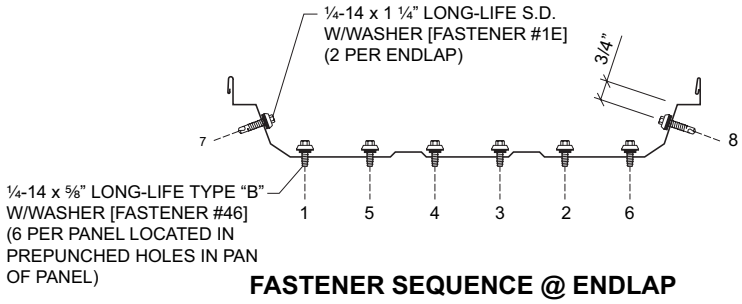
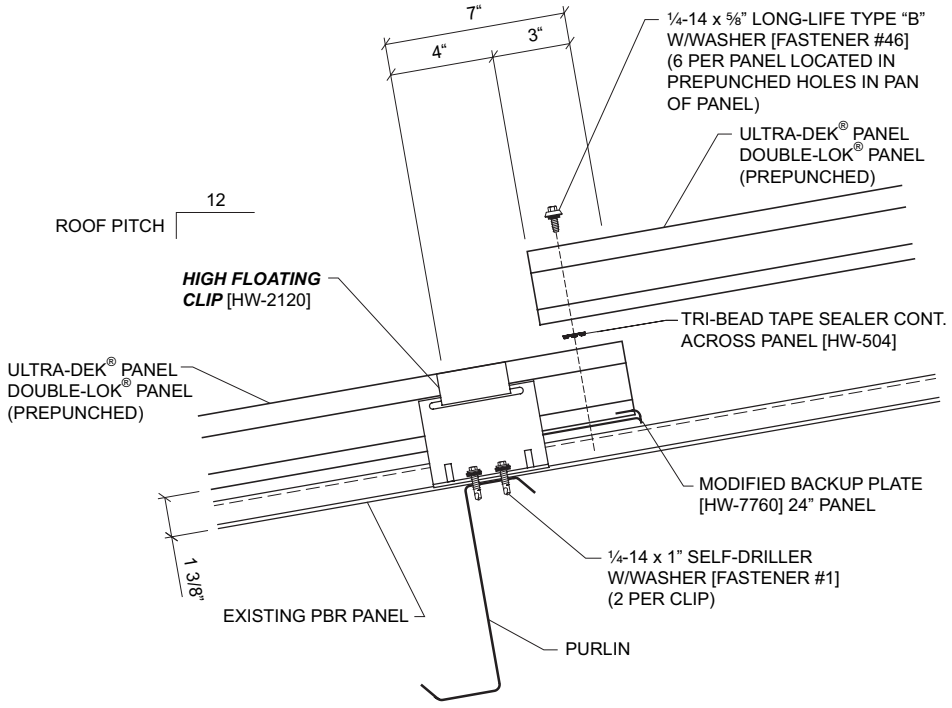
# SSR SYSTEM OVER EXISTING PBR PANEL
## (EndLap Detail)




**FASTENER SEQUENCE @ ENDLAP**



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