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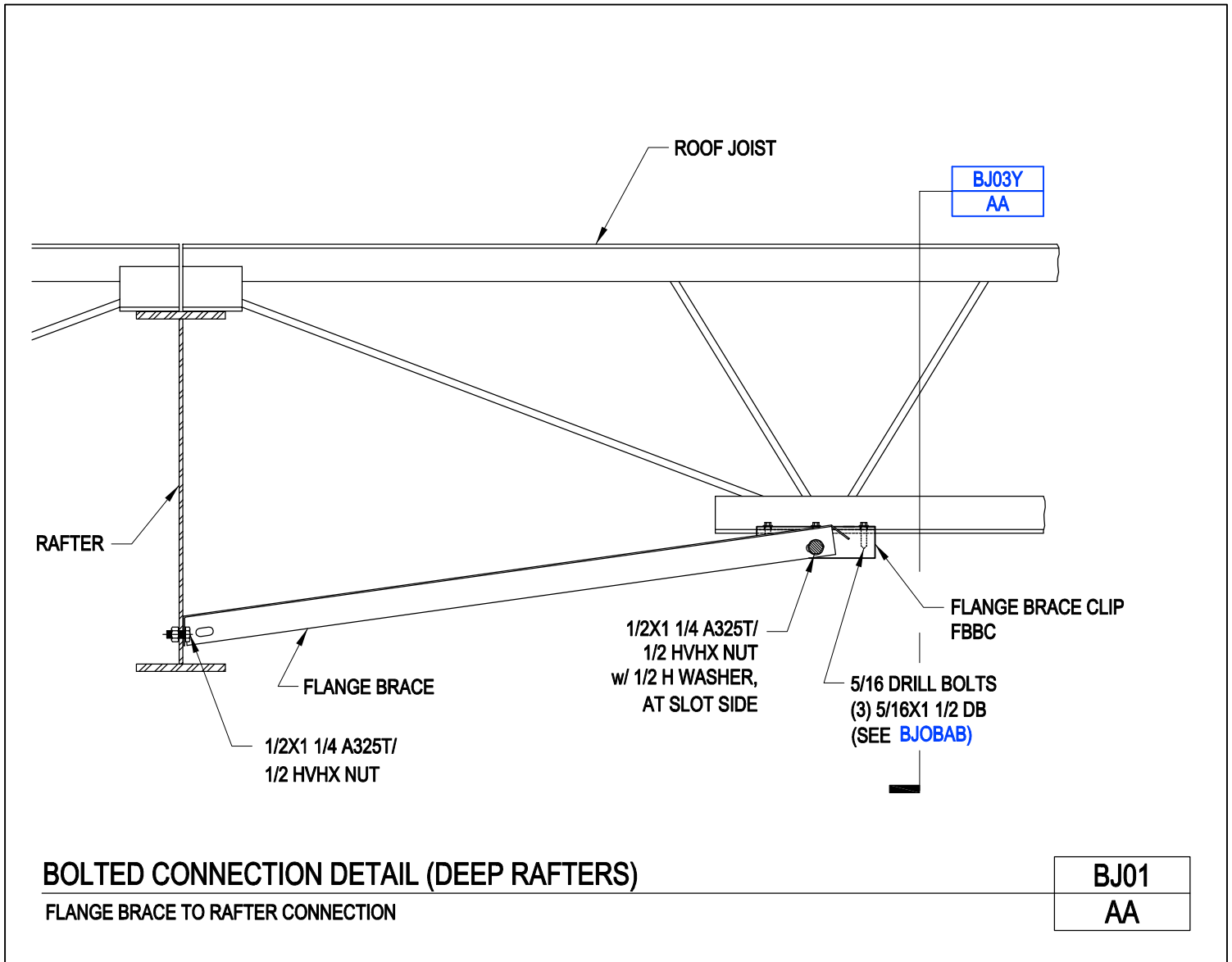
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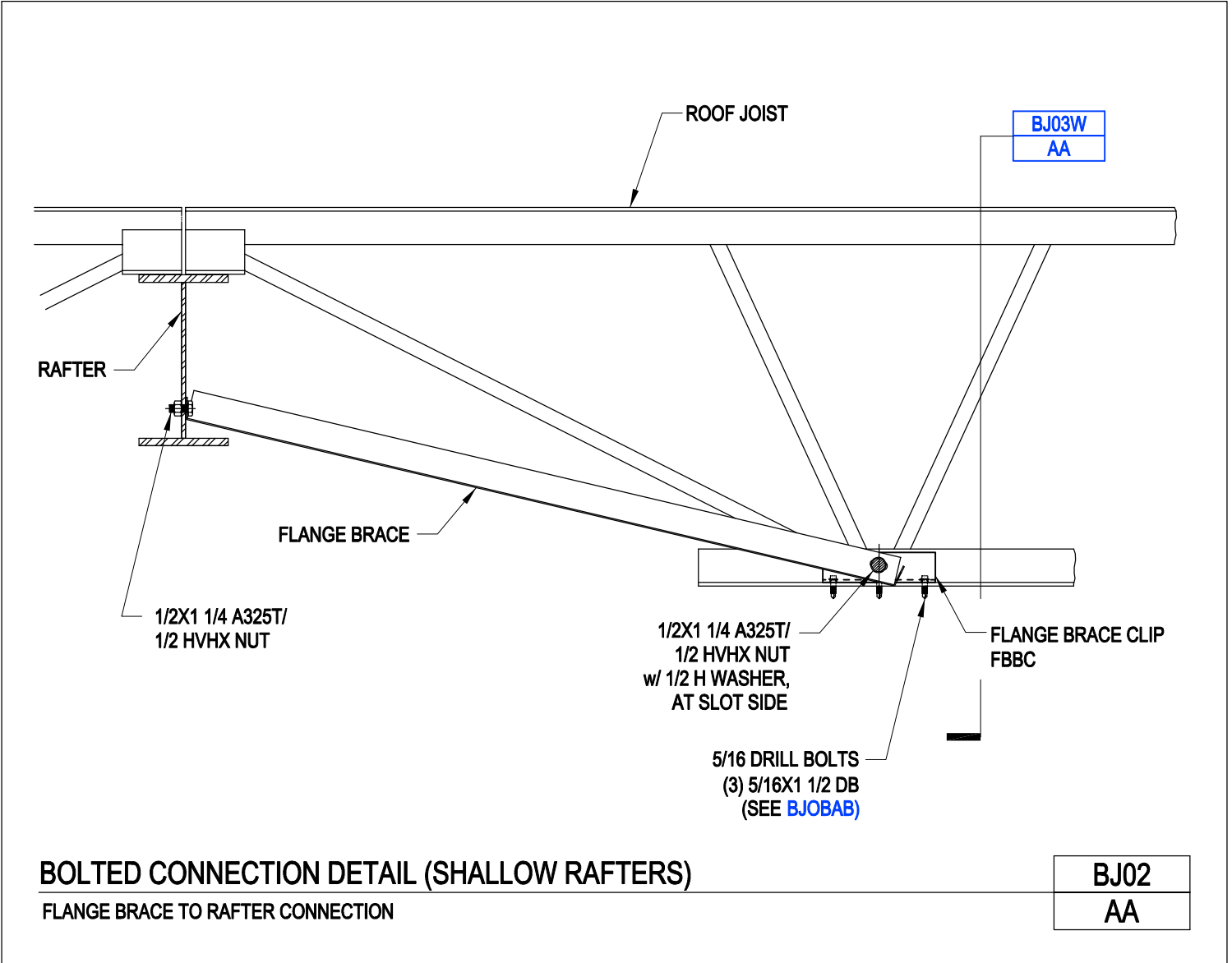
Bolted Connection Detail (Deep Rafters)  
Flange Brace to Rafter Connection  
BJ01/AA



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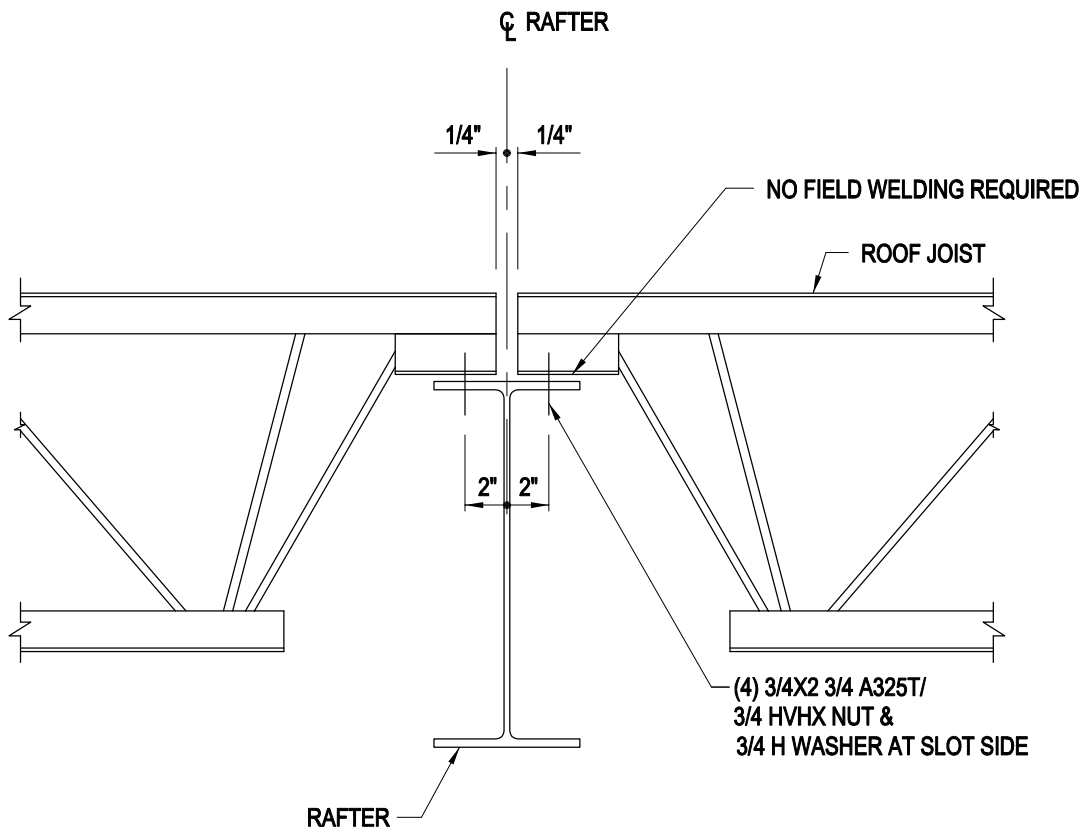
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Typical Bolted Interior Joist Connection With Special 3/4" Bolts  
Shortspan Roof Joist  
BJ02A/AK



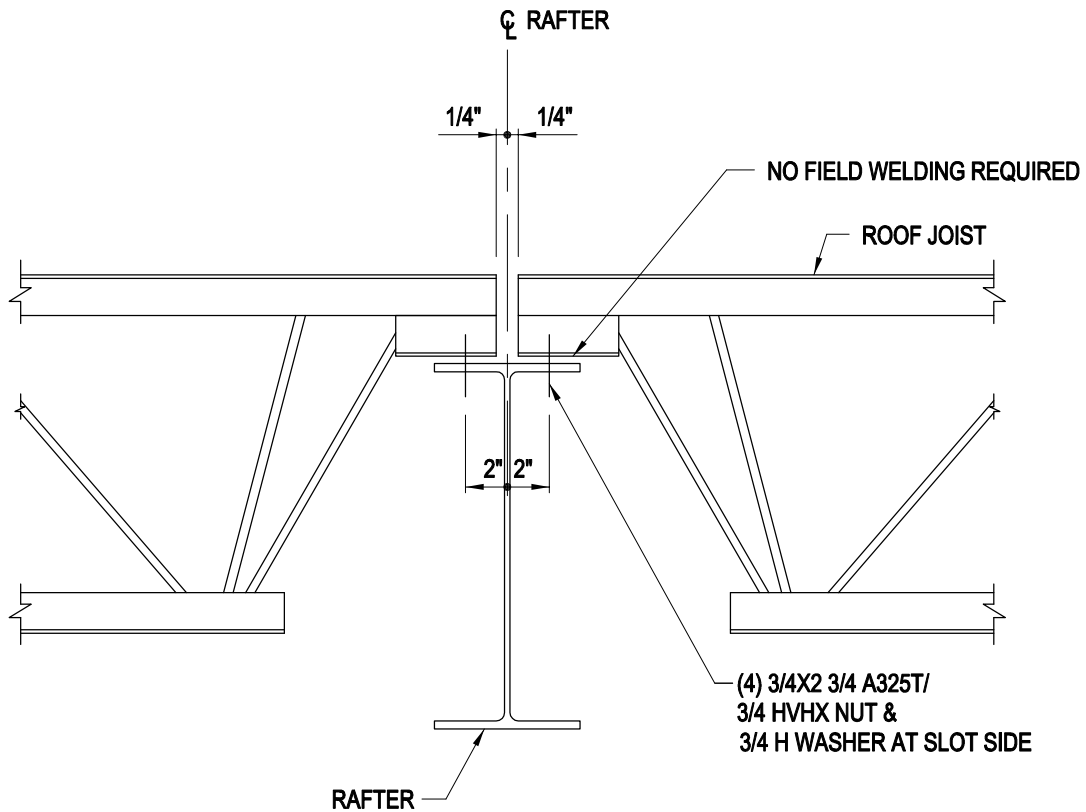
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SHORTSPAN ROOF JOIST

<b>BJ02A</b>
<b>AK</b>

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Typical Bolted Interior Joist Connection  
LongSpan Roof Joist  
BJ02/AH



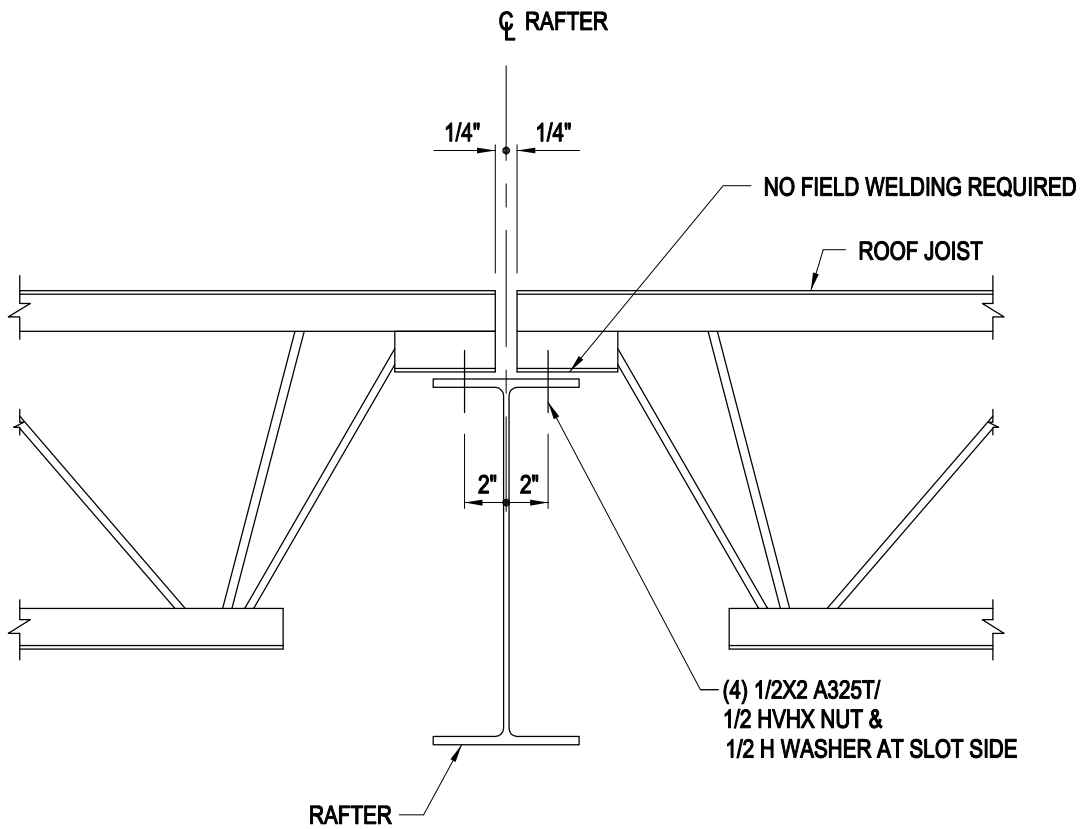
**TYPICAL BOLTED INTERIOR JOIST CONNECTION**  
LONGSPAN ROOF JOIST

<b>BJ02</b>
<b>AH</b>

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Typical Bolted Interior Joist Connection  
Shortspan Roof Joist  
BJ02/AK



**TYPICAL BOLTED INTERIOR JOIST CONNECTION**  
SHORTSPAN ROOF JOIST

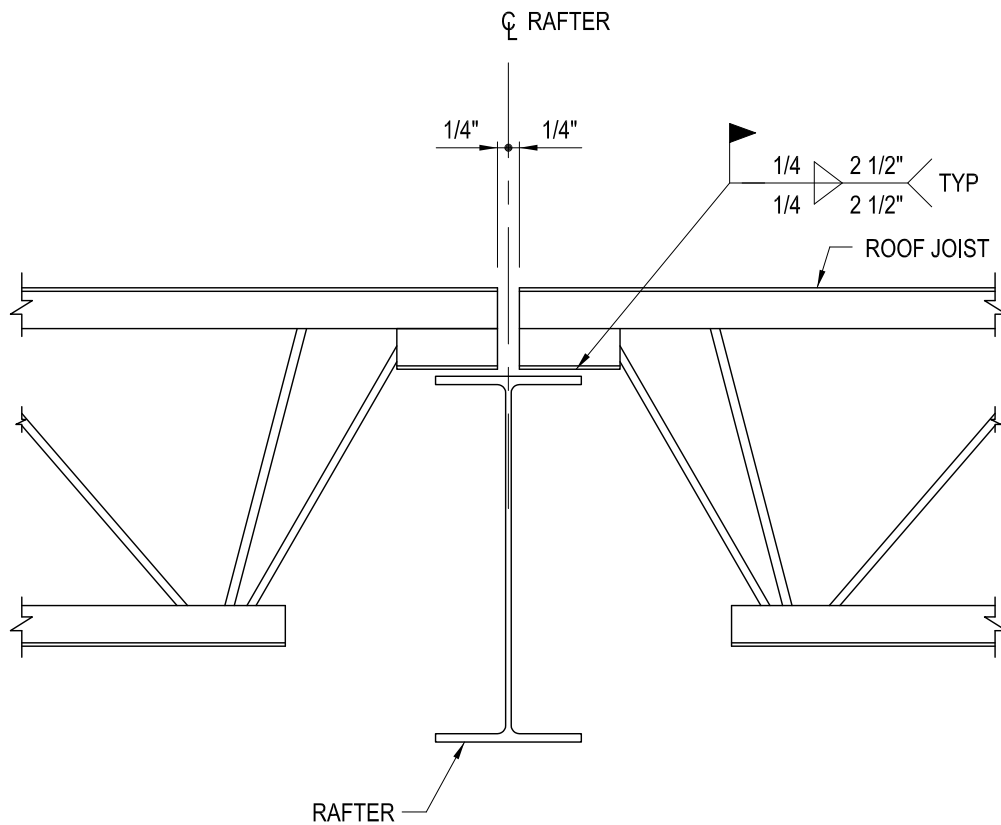
BJ02
AK

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Typical Welded Interior Joist Connection  
 LongSpan Roof Joist  
 BJ02W/AH



NOTE: FIELD WELDING REQUIRED,  
 SEE DETAIL ENFWA\_.

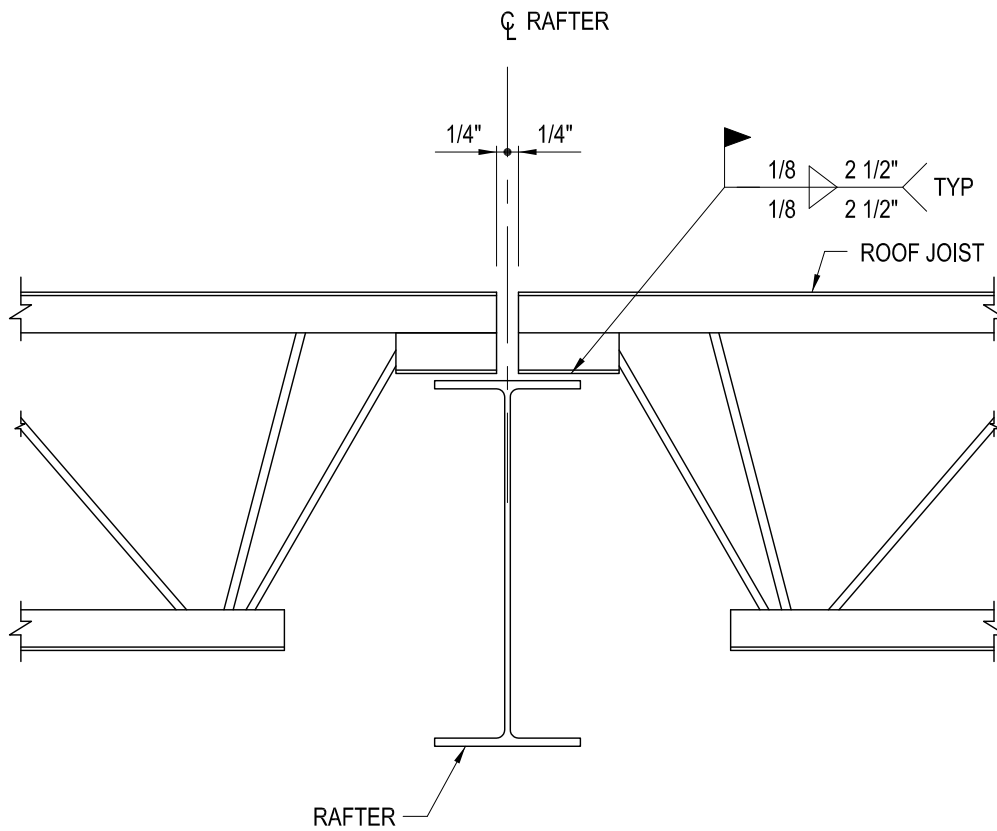
**TYPICAL WELDED INTERIOR JOIST CONNECTION**  
 LONGSPAN ROOF JOIST

BJ02W
AH

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Typical Welded Interior Joist Connection  
Shortspan Roof Joist  
BJ02W/AK



NOTE: FIELD WELDING REQUIRED,  
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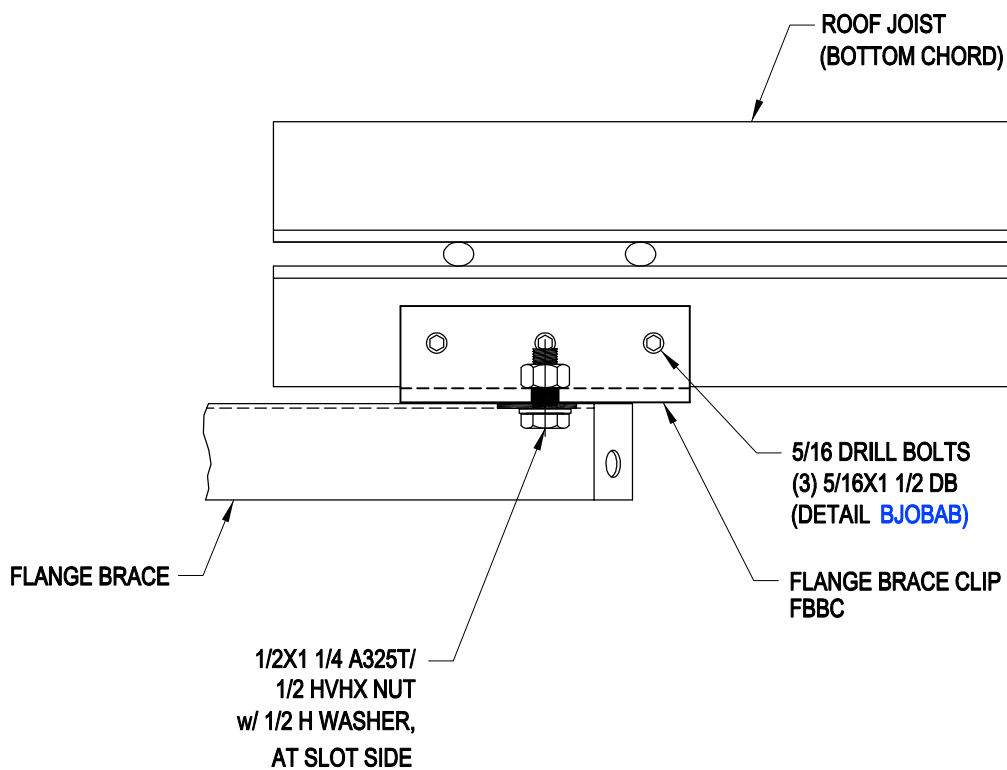
**TYPICAL WELDED INTERIOR JOIST CONNECTION**  
SHORTSPAN ROOF JOIST

BJ02W
AK

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Bolted Section Detail (Deep Rafters)  
Flange Brace to Flange Brace Clip  
BJ03/AA



**BOLTED SECTION DETAIL (DEEP RAFTERS)**

FLANGE BRACE TO FLANGE BRACE CLIP

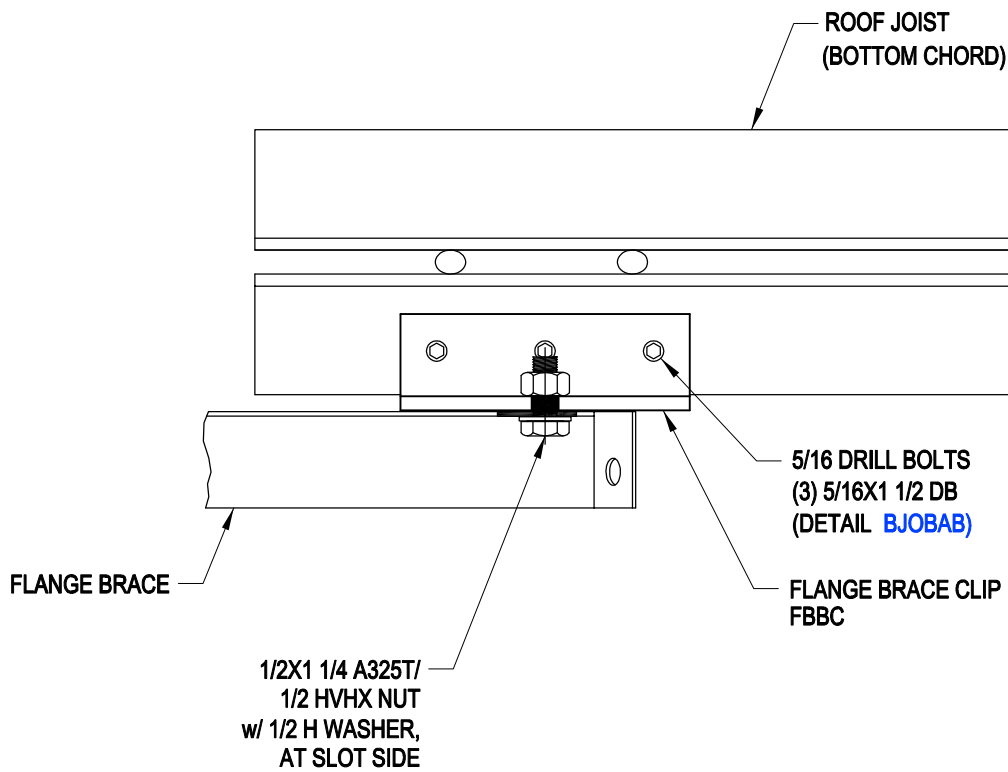
**BJ03**

**AA**

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Bolted Section Detail (Shallow Rafters)  
Flange Brace to Flange Brace Clip  
BJ03A/AA



**BOLTED SECTION DETAIL (SHALLOW RAFTERS)**

FLANGE BRACE TO FLANGE BRACE CLIP

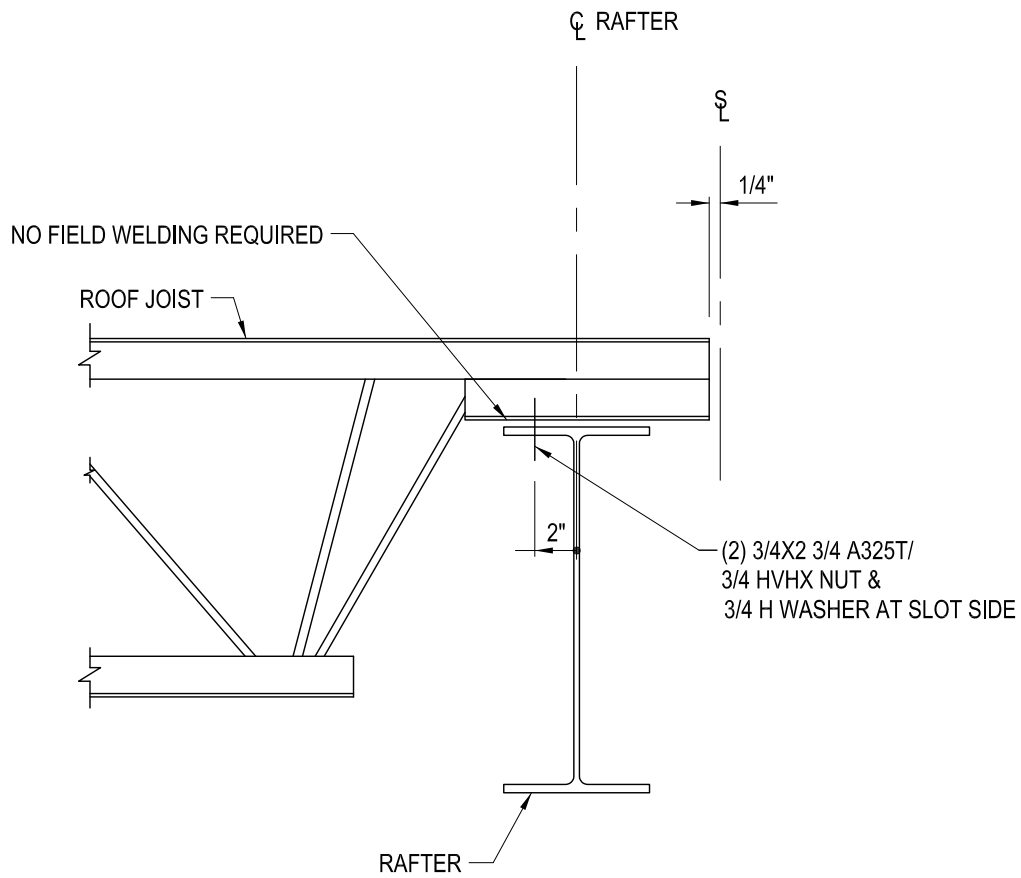
**BJ03A**

**AA**

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Typical Bolted End Joist Connection With Special 3/4" Bolts  
Shortspan Roof Joist  
BJ03A/AK



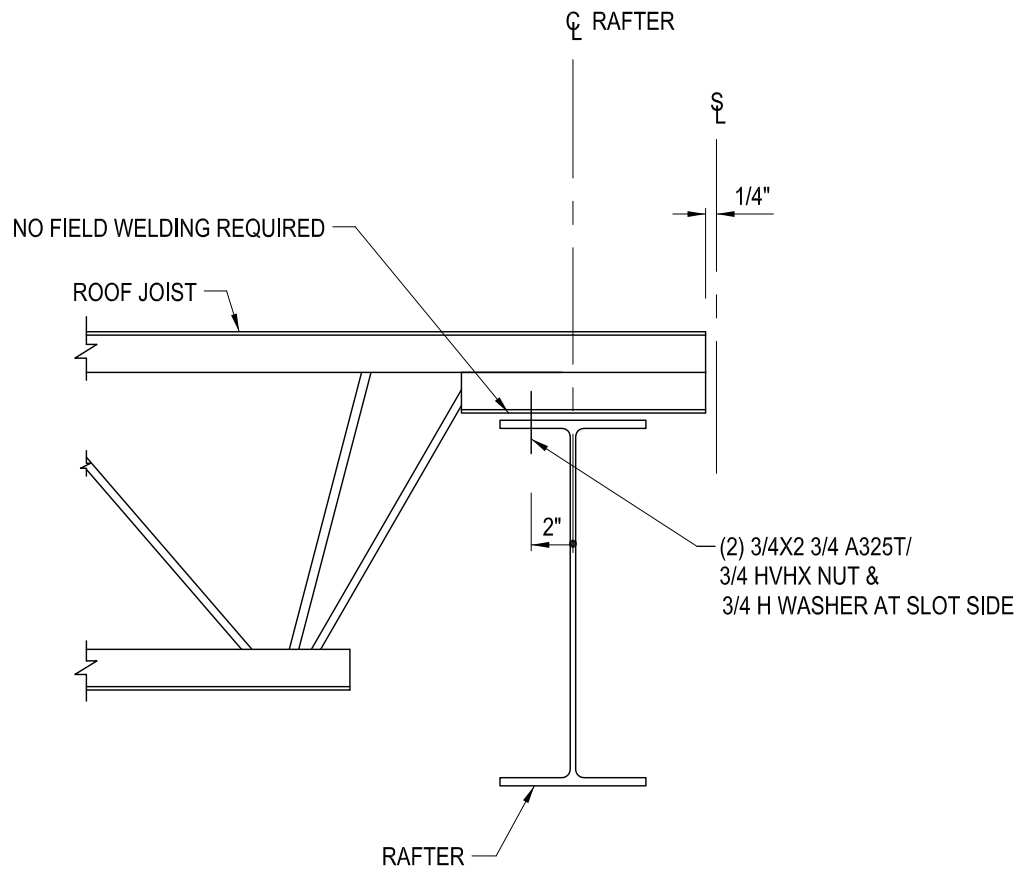
**TYPICAL BOLTED END JOIST CONNECTION WITH SPECIAL 3/4" BOLTS**  
SHORTSPAN ROOF JOIST

BJ03A
AK

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Typical Bolted End Joist Connection  
LongSpan Roof Joist  
BJ03/AH



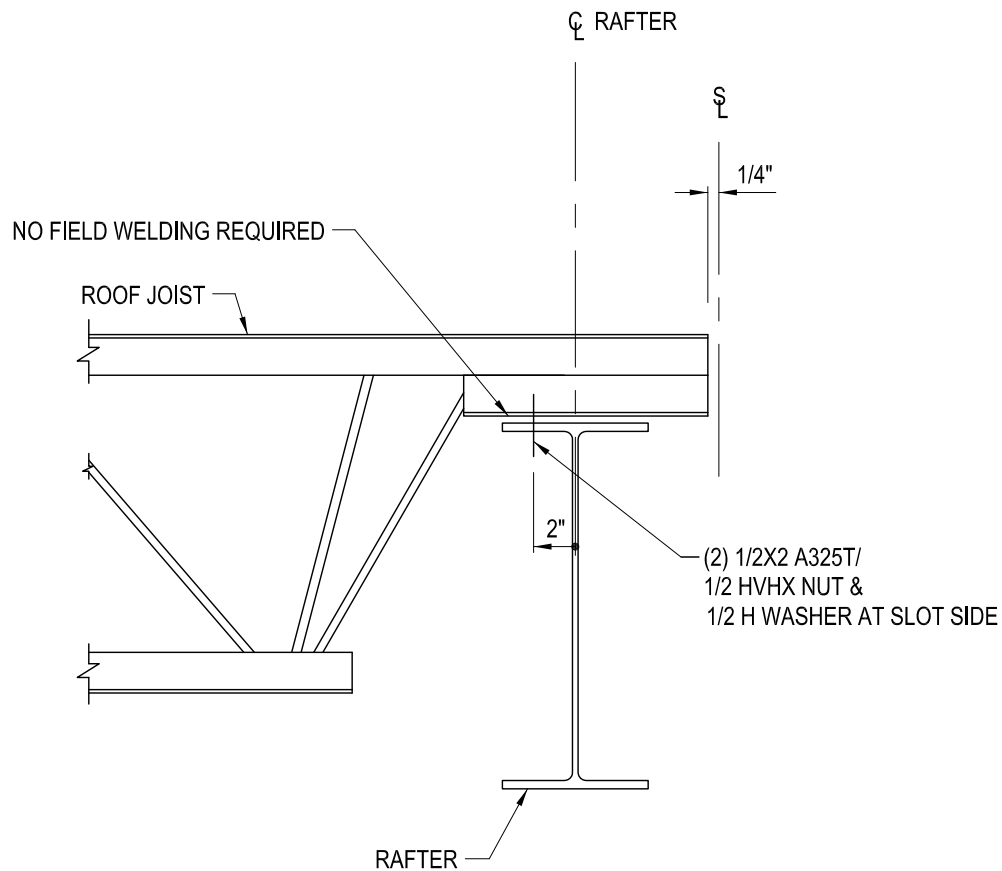
**TYPICAL BOLTED END JOIST CONNECTION**  
LONGSPAN ROOF JOIST

BJ03
AH

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Typical Bolted End Joist Connection  
Shortspan Roof Joist  
BJ03/AK



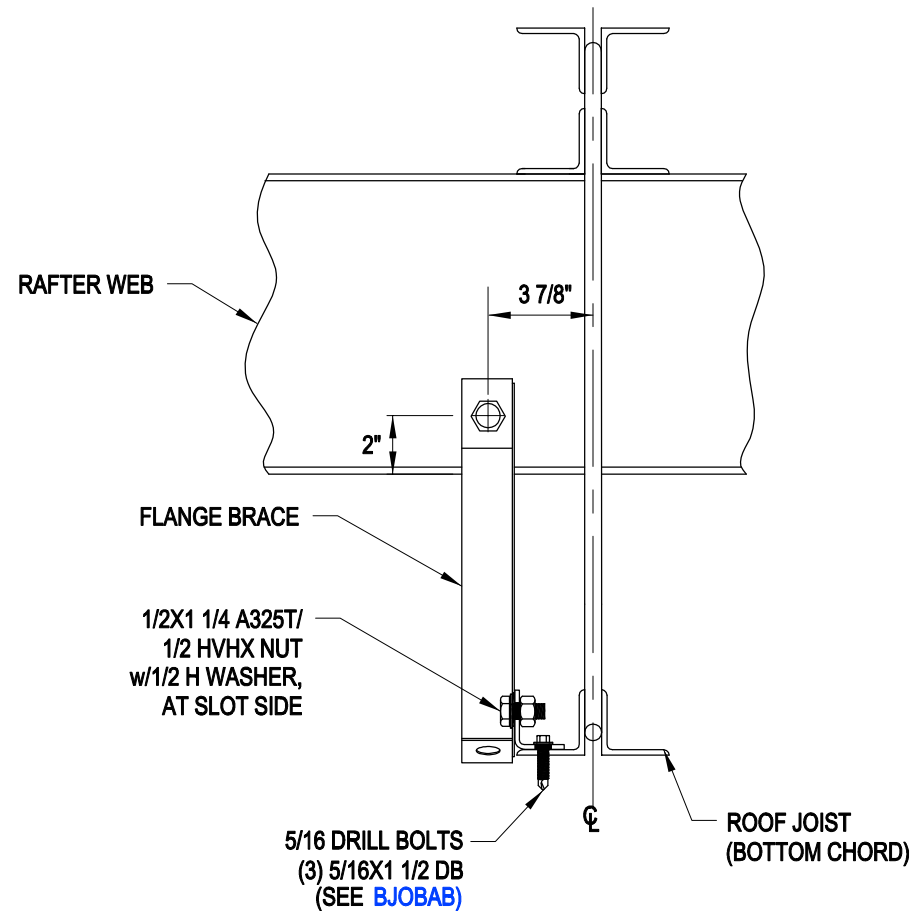
**TYPICAL BOLTED END JOIST CONNECTION**  
SHORTSPAN ROOF JOIST

BJ03
AK

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Bolted Section Detail (Shallow Rafters)  
Flange Brace to Flange Brace Clip  
BJ03W/AA



**BOLTED SECTION DETAIL (SHALLOW RAFTERS)**

FLANGE BRACE TO FLANGE BRACE CLIP

**BJ03W**

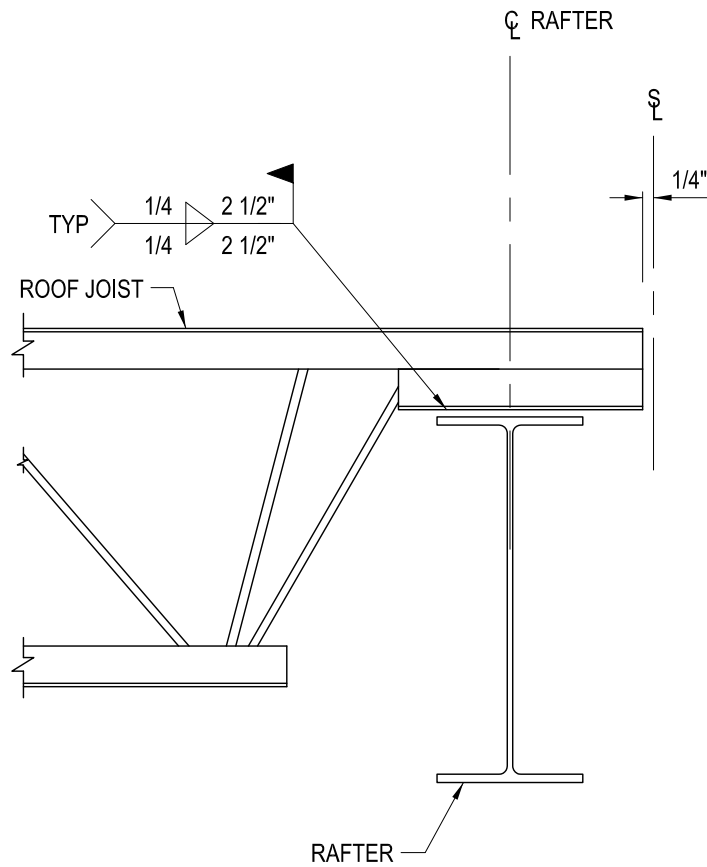
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Typical Welded End Joist Connection  
 LongSpan Roof Joist  
 BJ03W/AH



NOTE: FIELD WELDING REQUIRED,  
 SEE DETAIL ENFWA\_

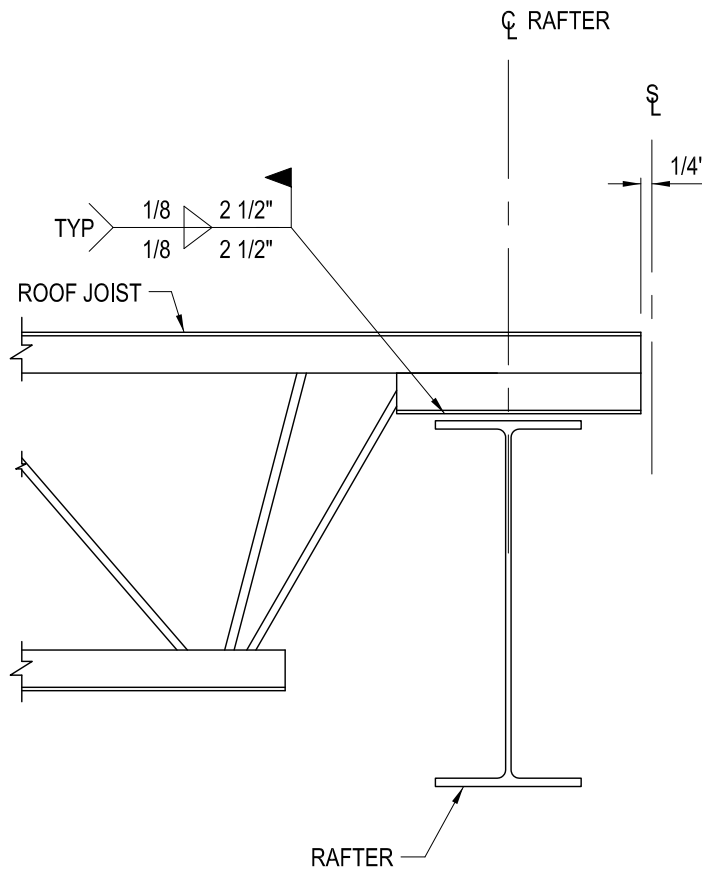
**TYPICAL WELDED END JOIST CONNECTION**  
 LONGSPAN ROOF JOIST

BJ03W
AH

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Typical Welded End Joist Connection  
Shortspan Roof Joist  
BJ03W/AK



NOTE: FIELD WELDING REQUIRED,  
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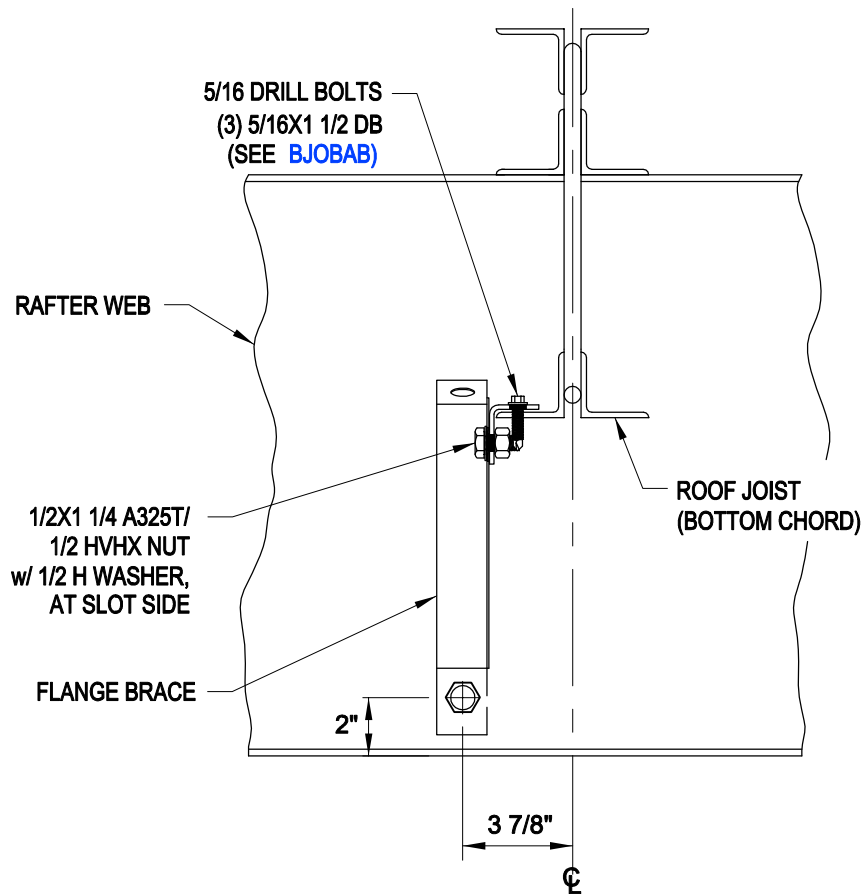
**TYPICAL WELDED END JOIST CONNECTION**  
SHORTSPAN ROOF JOIST

BJ03W
AK

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Bolted Section Detail (Deep Rafters)  
Flange Brace to Flange Brace Clip  
BJ03Y/AA



## BOLTED SECTION DETAIL (DEEP RAFTERS)

FLANGE BRACE TO FLANGE BRACE CLIP

BJ03Y

AA

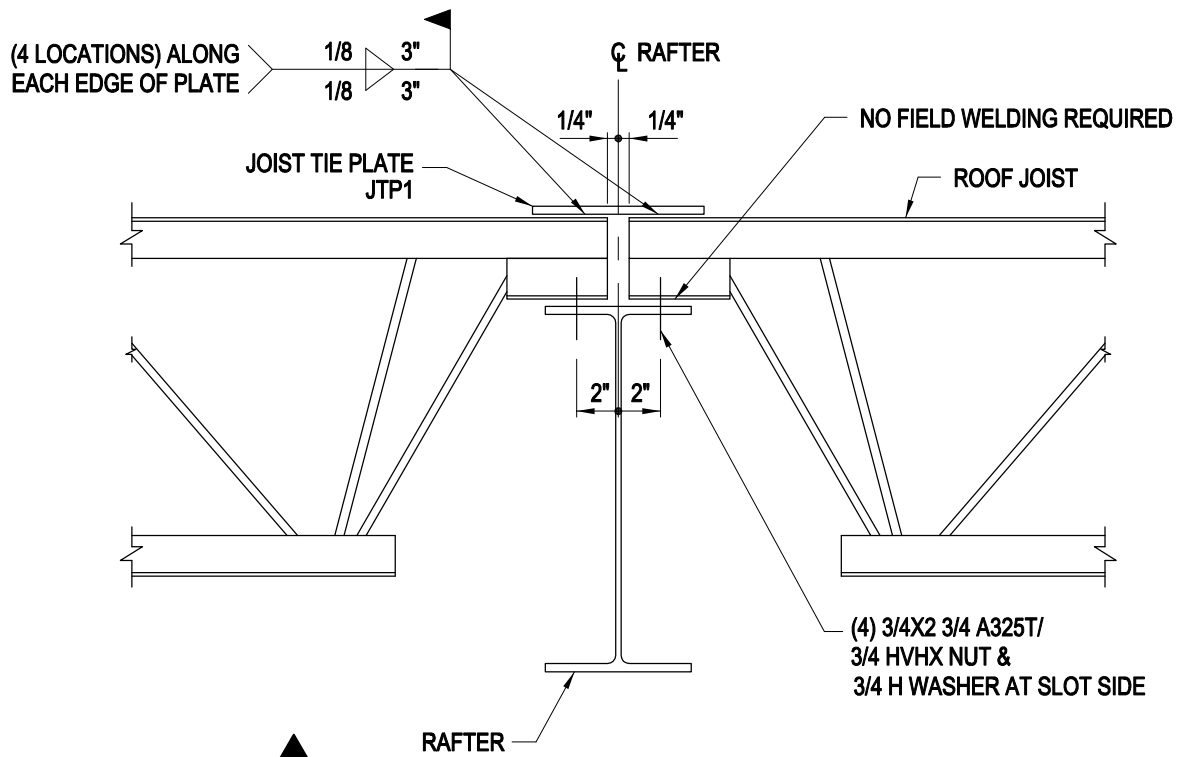
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Typical Bolted Interior Joist Connection With Joist Tie Plate and Special 3/4" Bolts

Shortspan Roof Joist

BJ04A/AK



**APPLIES ONLY TO LOCATIONS DESIGNATED WITH RELATED TRIANGLE SYMBOL**

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

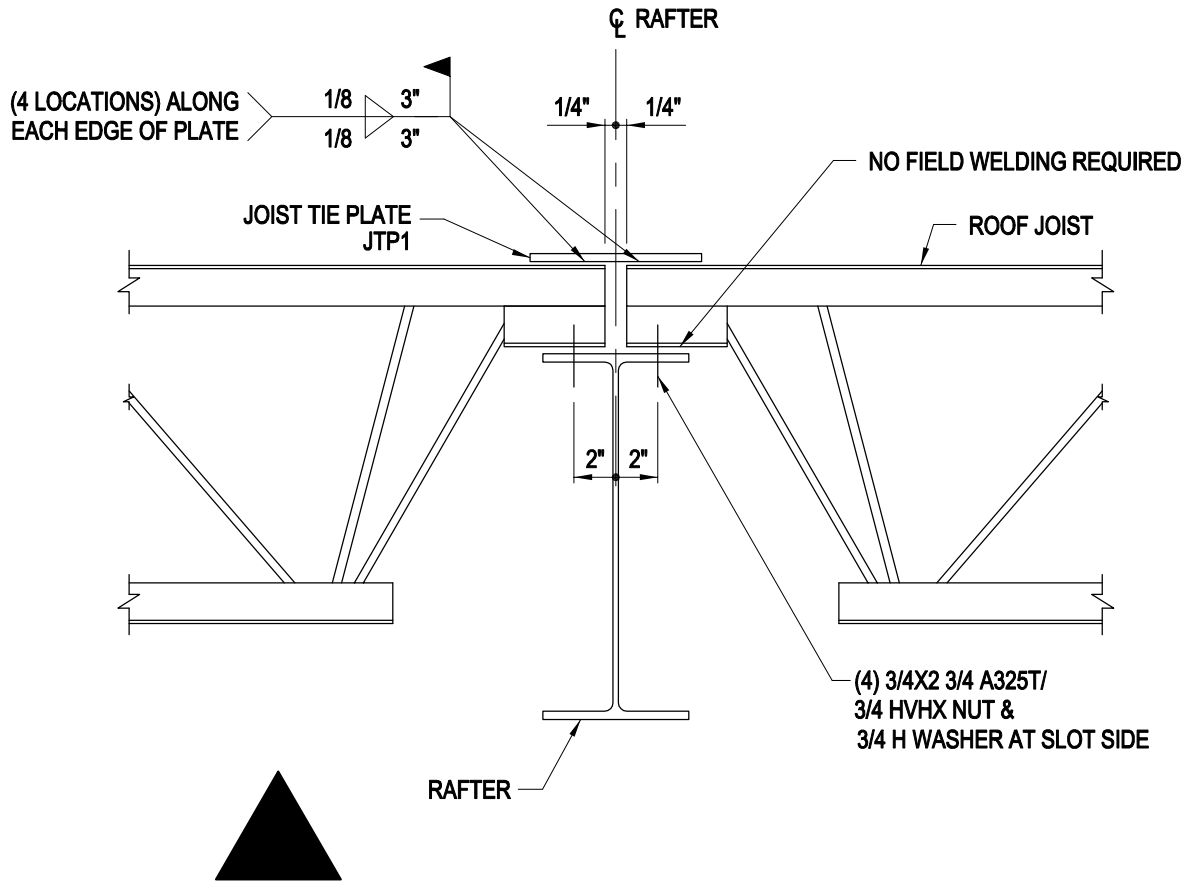
**TYP. BOLTED INTERIOR JOIST CONN. W/ JOIST TIE PLATE & SPECIAL 3/4" BOLTS**  
SHORTSPAN ROOF JOIST

<b>BJ04A</b>
<b>AK</b>

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Typical Bolted Interior Joist Connection With Joist Tie Plate  
 LongSpan Roof Joist  
 BJ04/AH



**APPLIES ONLY TO LOCATIONS DESIGNATED WITH RELATED TRIANGLE SYMBOL**

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

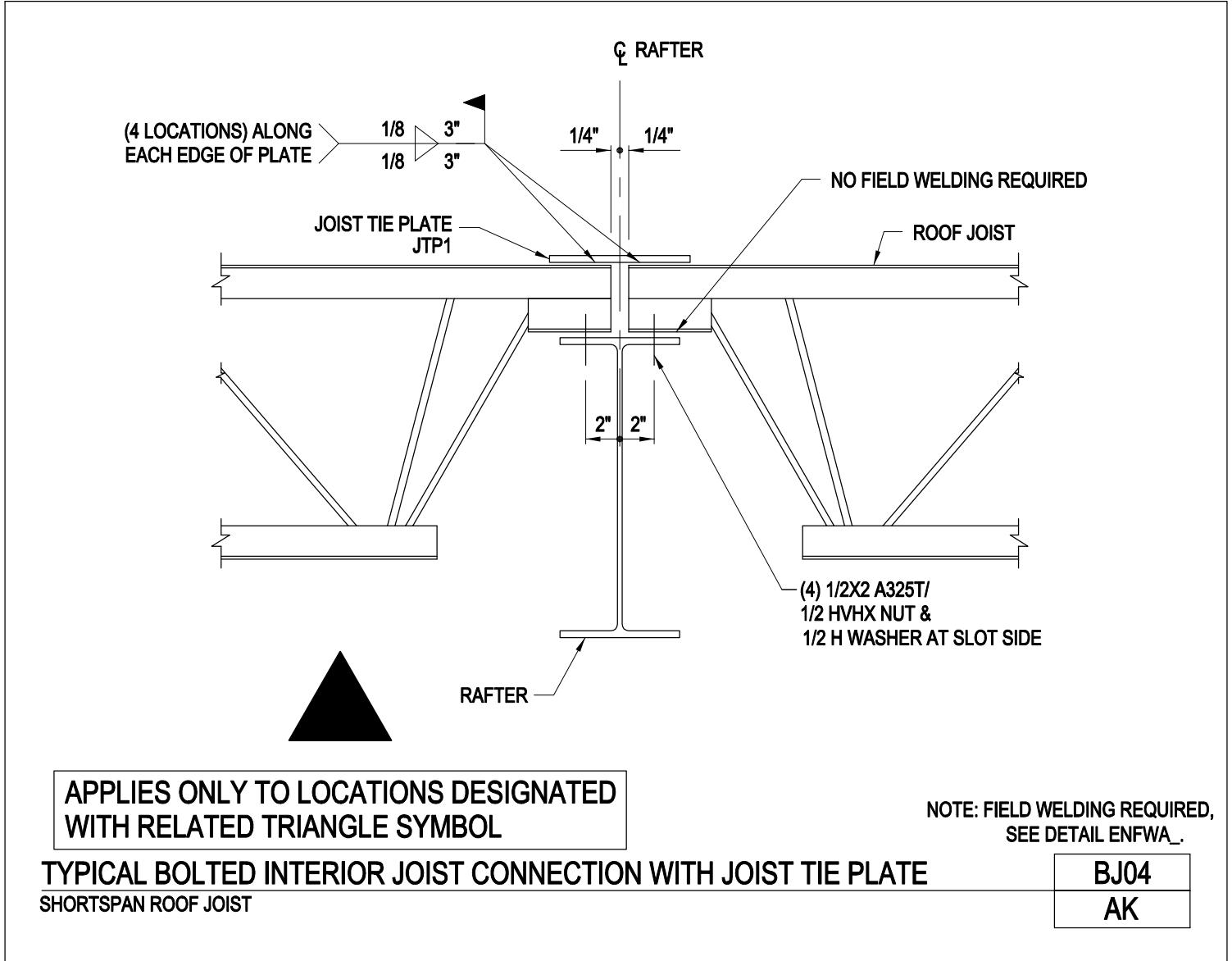
**TYPICAL BOLTED INTERIOR JOIST CONNECTION WITH JOIST TIE PLATE**  
 LONGSPAN ROOF JOIST

<b>BJ04</b>
<b>AH</b>

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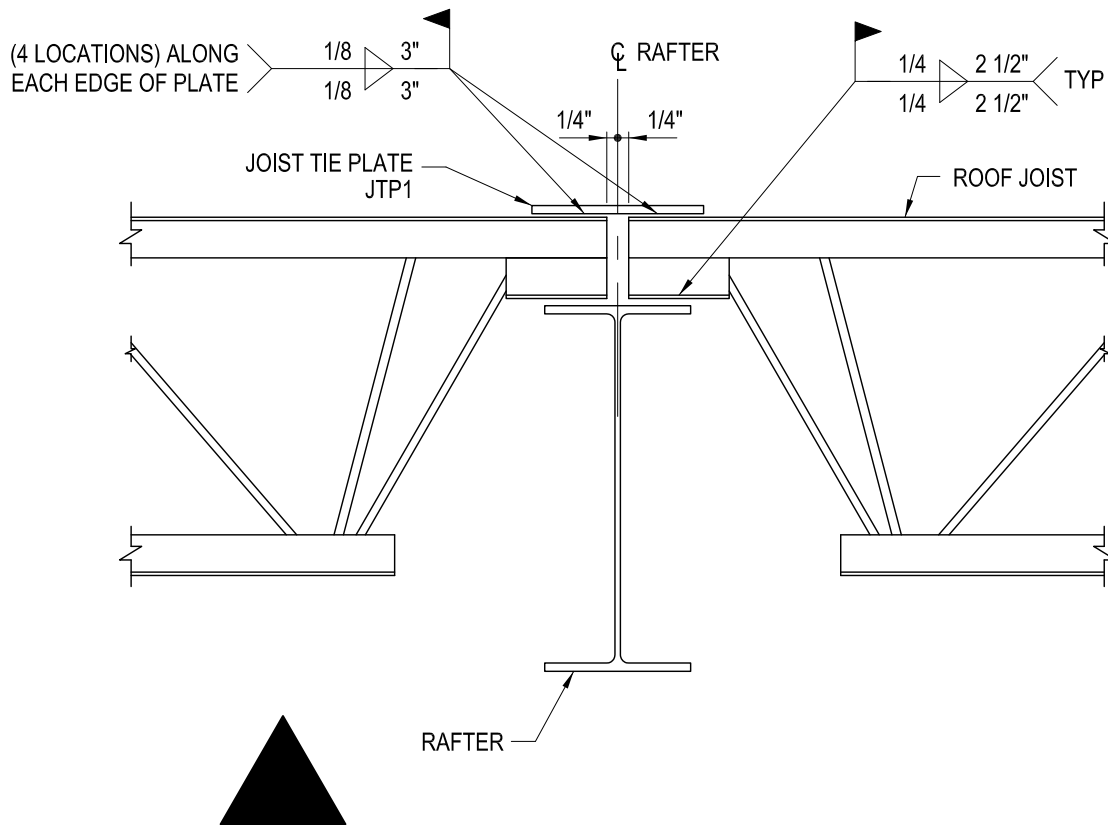
Typical Bolted Interior Joist Connection with Joist Tie Plate  
Shortspan Roof Joist  
BJ04/AK



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Typical Welded Interior Joist Connection with Joist Tie Plate  
LongSpan Roof Joist  
BJ04W/AH



APPLIES ONLY TO LOCATIONS DESIGNATED WITH RELATED TRIANGLE SYMBOL

NOTE: FIELD WELDING REQUIRED, DETAIL ENFWA\_

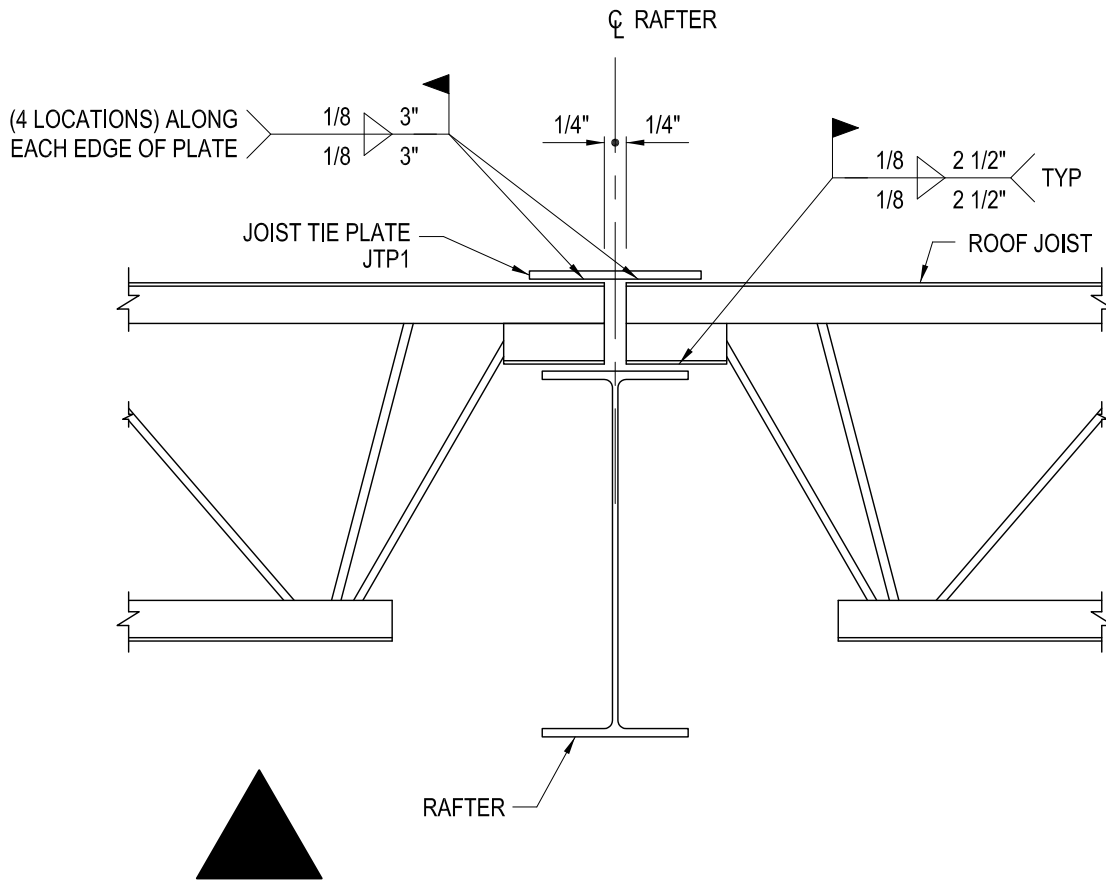
**TYPICAL WELDED INTERIOR JOIST CONNECTION WITH JOIST TIE PLATE**  
LONGSPAN ROOF JOIST

BJ04W
AH

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Typical Welded Interior Joist Connection With Joist Tie Plate  
Shortspan Roof Joist  
BJ04W/AK



APPLIES ONLY TO LOCATIONS DESIGNATED WITH RELATED TRIANGLE SYMBOL

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

**TYPICAL WELDED INTERIOR JOIST CONNECTION WITH JOIST TIE PLATE**  
SHORTSPAN ROOF JOIST

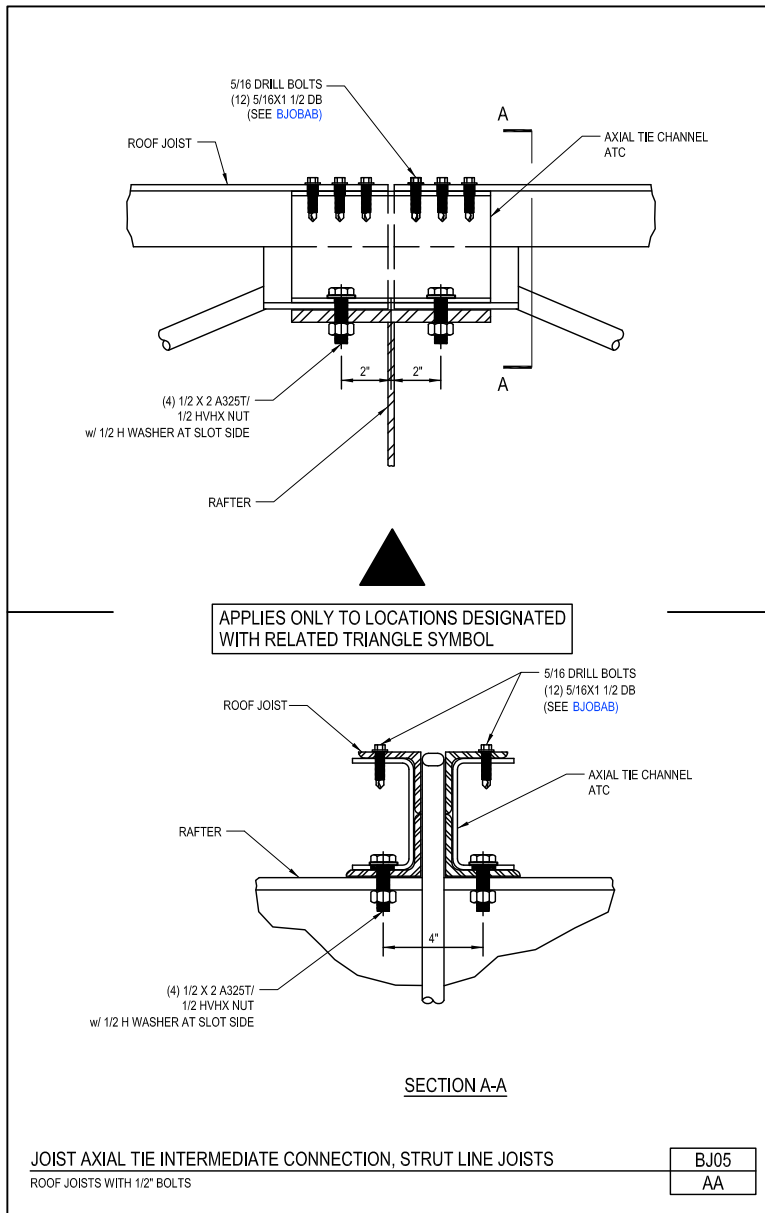
BJ04W
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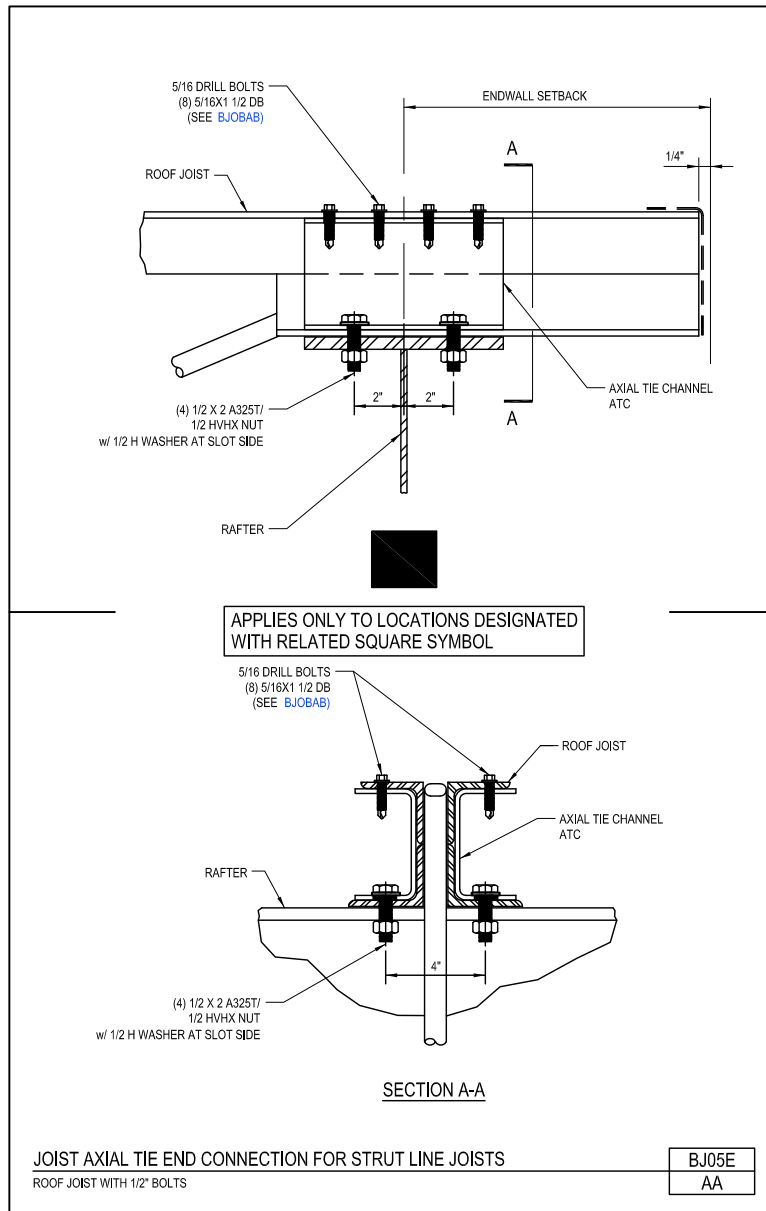
Joist Axial Tie Intermediate Connection, Strut Line Joists  
Roof Joists With 1/2" Bolts  
BJ05/AA



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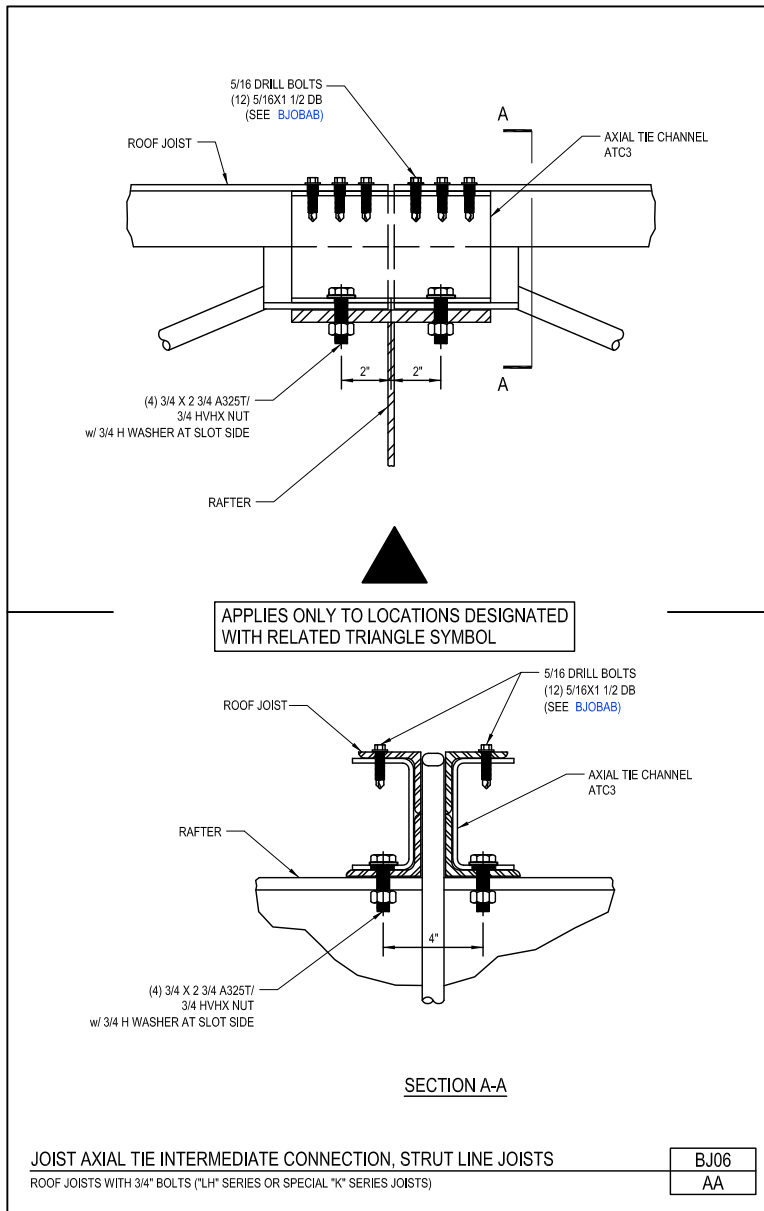
Joist Axial Tie End Connection For Strut Line Joists  
Roof Joist With 1/2" Bolts  
BJ05E/AA



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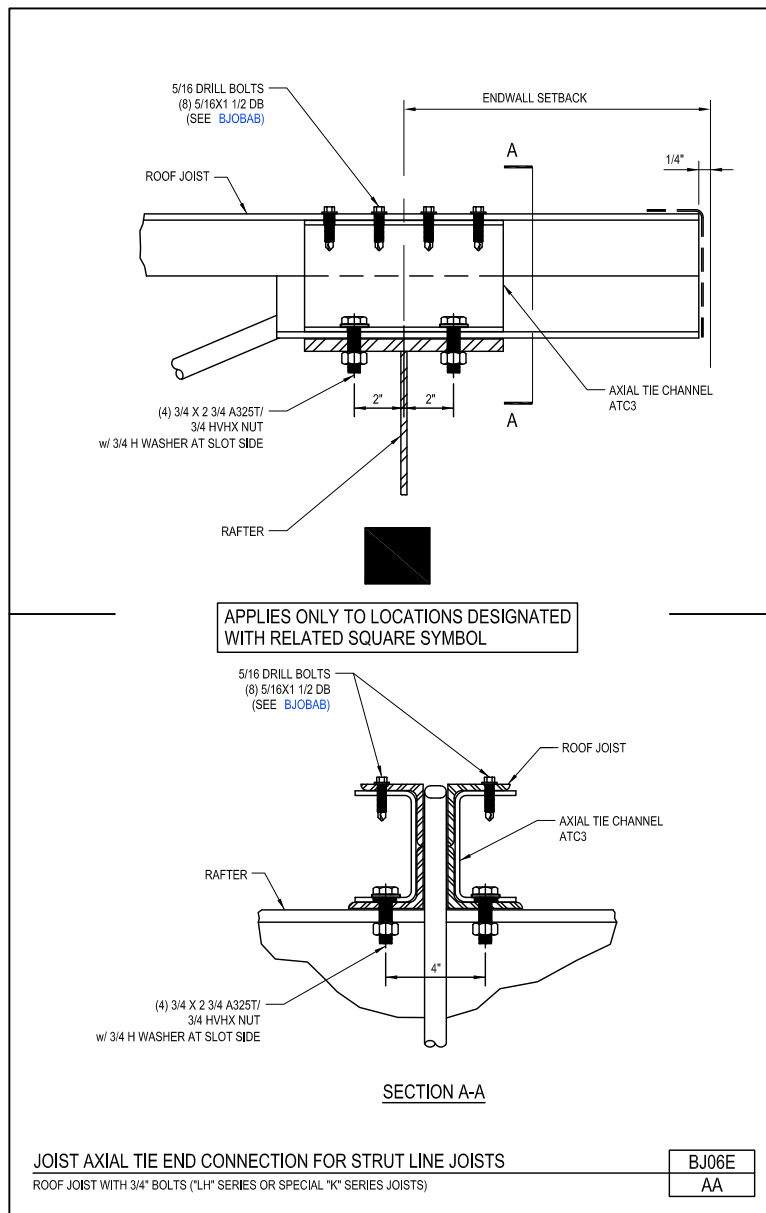
Joist Axial Tie Intermediate Connection, Strut Line Joists  
Roof Joists With 3/4" Bolts ("LH" Series or Special "K" Series Joists)  
BJ06/AA



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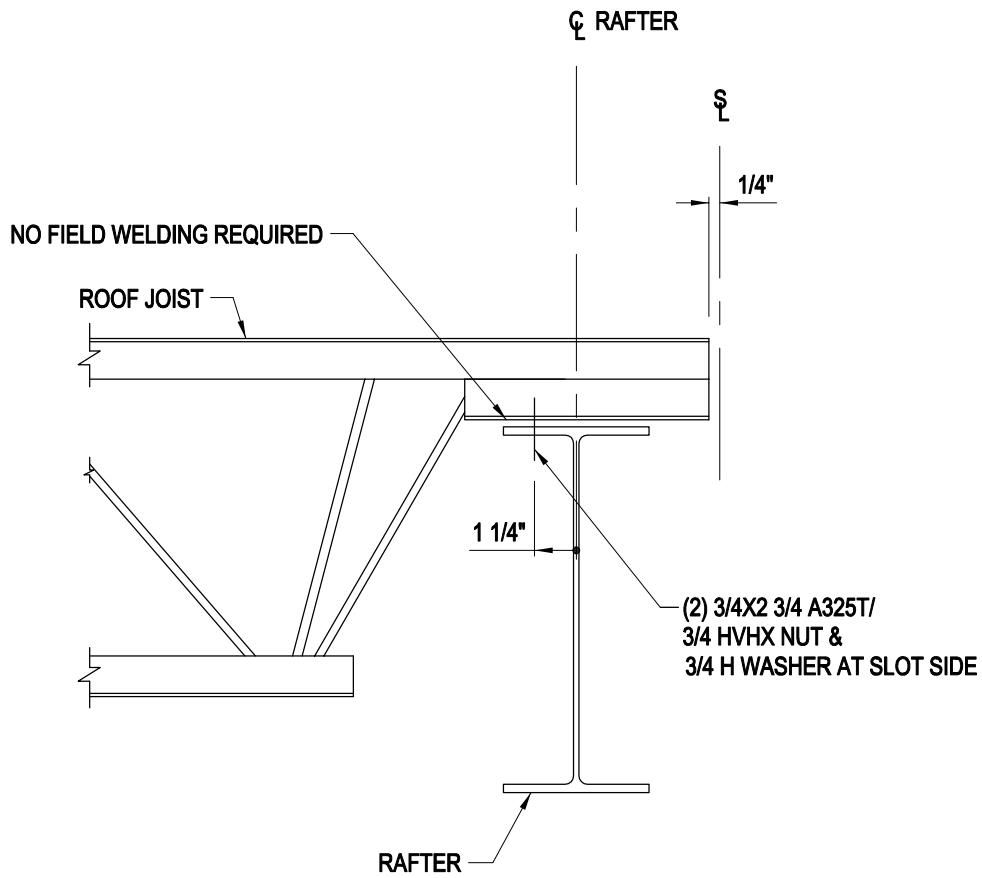
Joist Axial Tie End Connection For Strut Line Joists  
Roof Joist With 3/4" Bolts ("LH" Series or Special "K" Series Joists)  
BJ06E/AA



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4" to 5" Wide Flange 2 Bolted End Joist Connection with Special 3/4" Bolts  
 Shortspan Roof Joist  
 BJ07A/AK



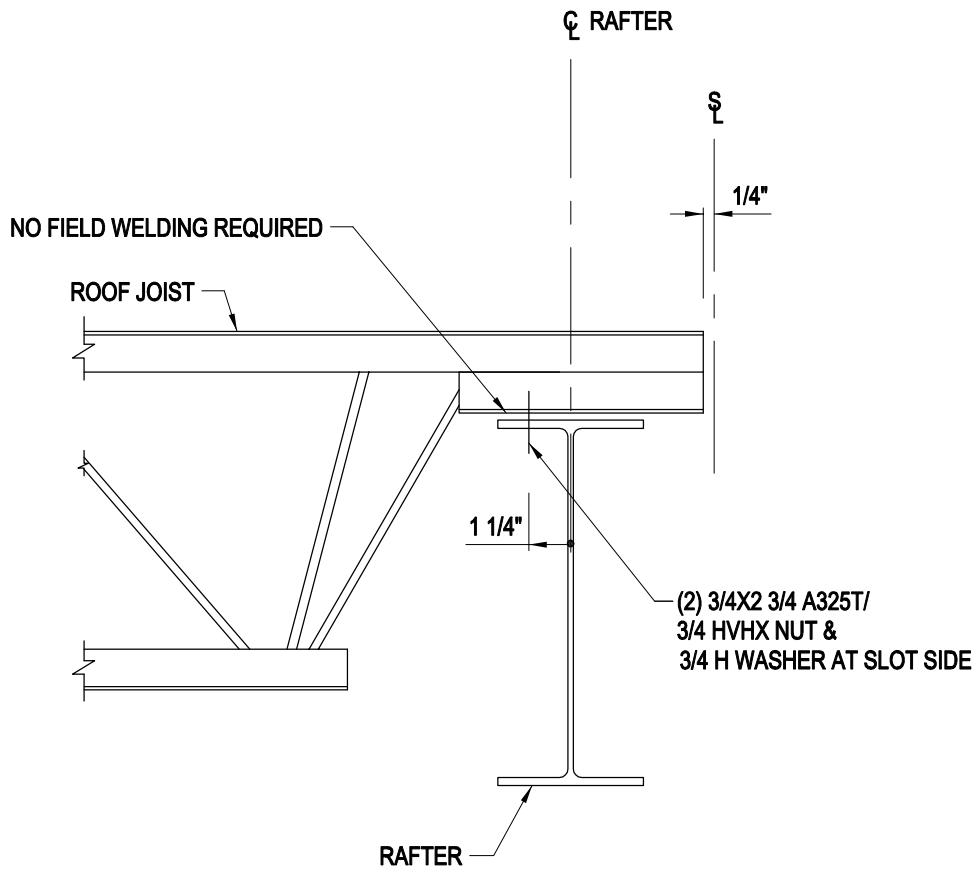
4" TO 5" WIDE FLANGE 2 BOLTED END JOIST CONNECTION WITH SPECIAL 3/4" BOLTS  
 SHORTSPAN ROOF JOIST

<b>BJ07A</b>
<b>AK</b>

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4" to 5" Wide Flange 2 Bolted End Joist Connection  
LongSpan Roof Joist  
BJ07/AH



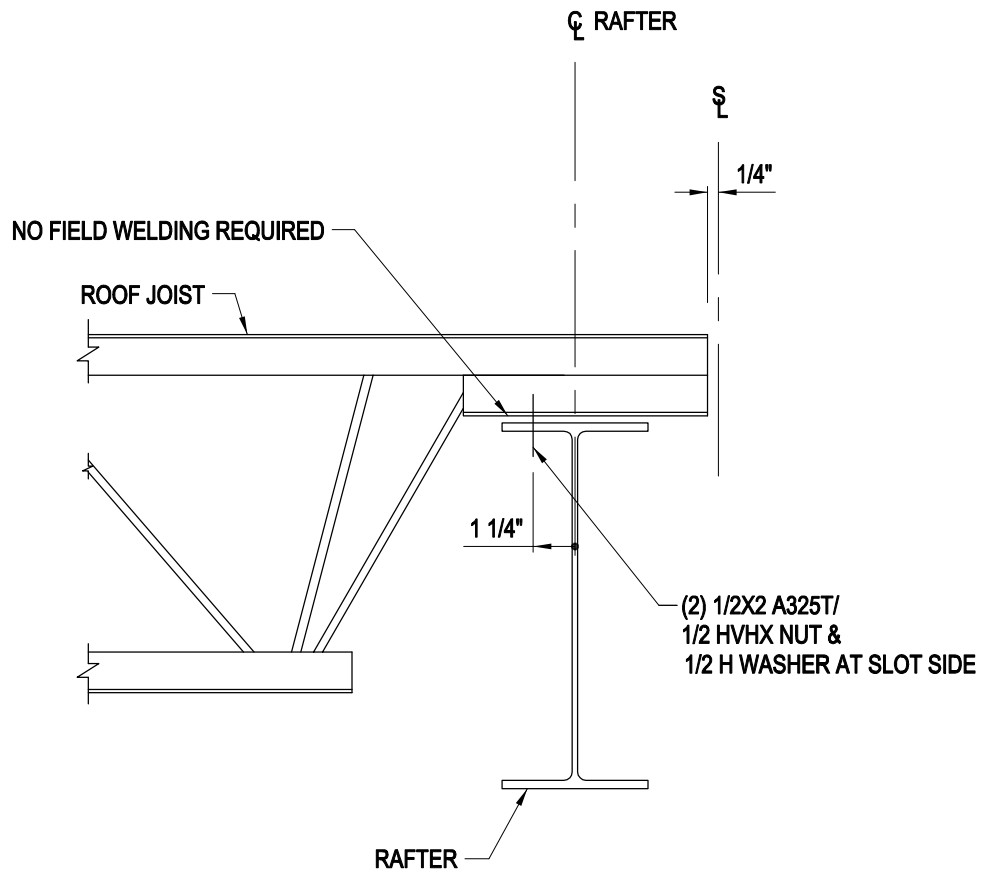
4" TO 5" WIDE FLANGE 2 BOLTED END JOIST CONNECTION  
LONGSPAN ROOF JOIST

BJ07
AH

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4" to 5" Wide Flange 2 Bolted End Joist Connection  
Shortspan Roof Joist  
BJ07/AK



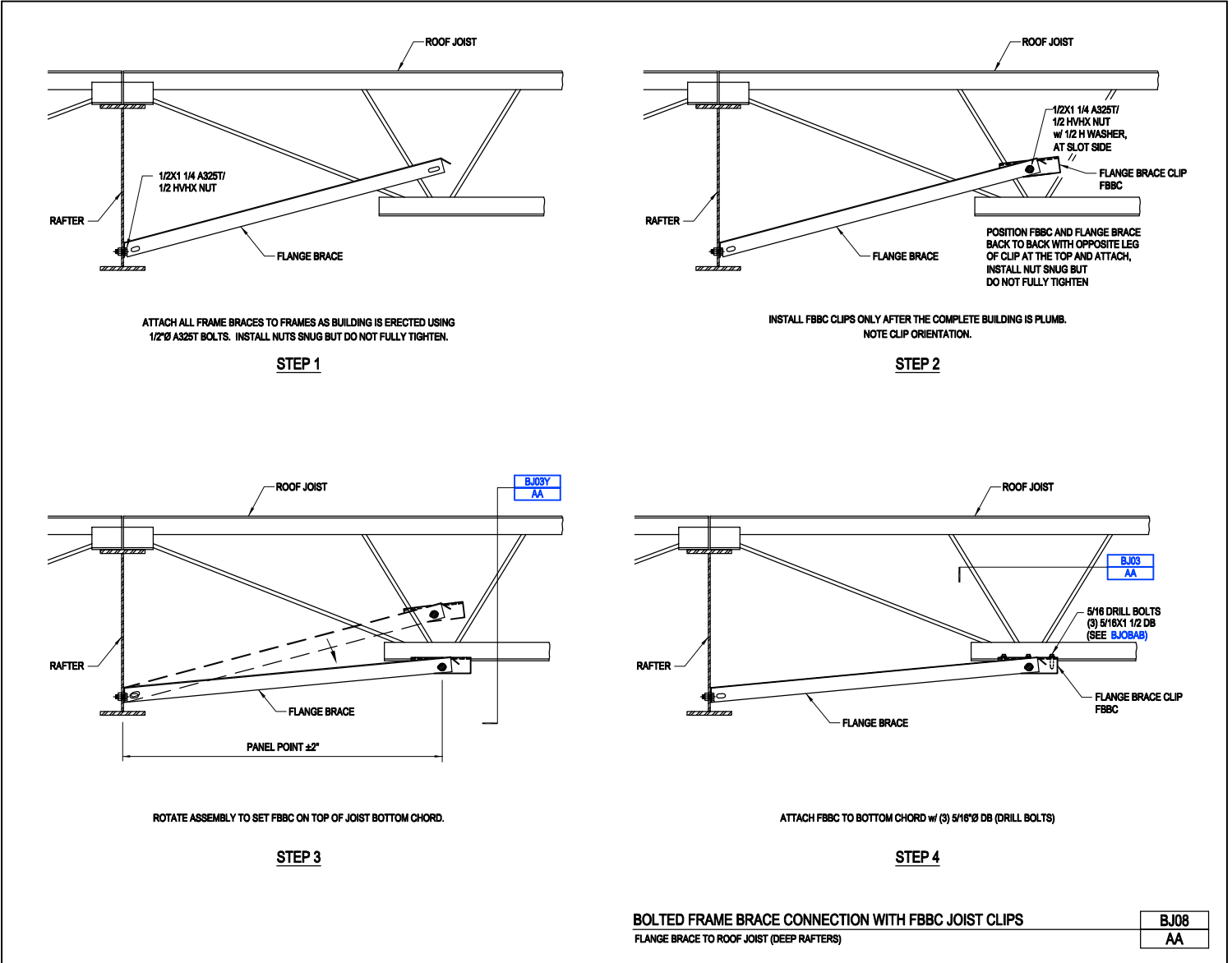
4" TO 5" WIDE FLANGE 2 BOLTED END JOIST CONNECTION  
SHORTSPAN ROOF JOIST

BJ07
AK

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Bolted Frame Brace Connection With FBBC Joist Clips  
 Flange Brace to Roof Joist (Deep Rafter)  
 BJ08/AA

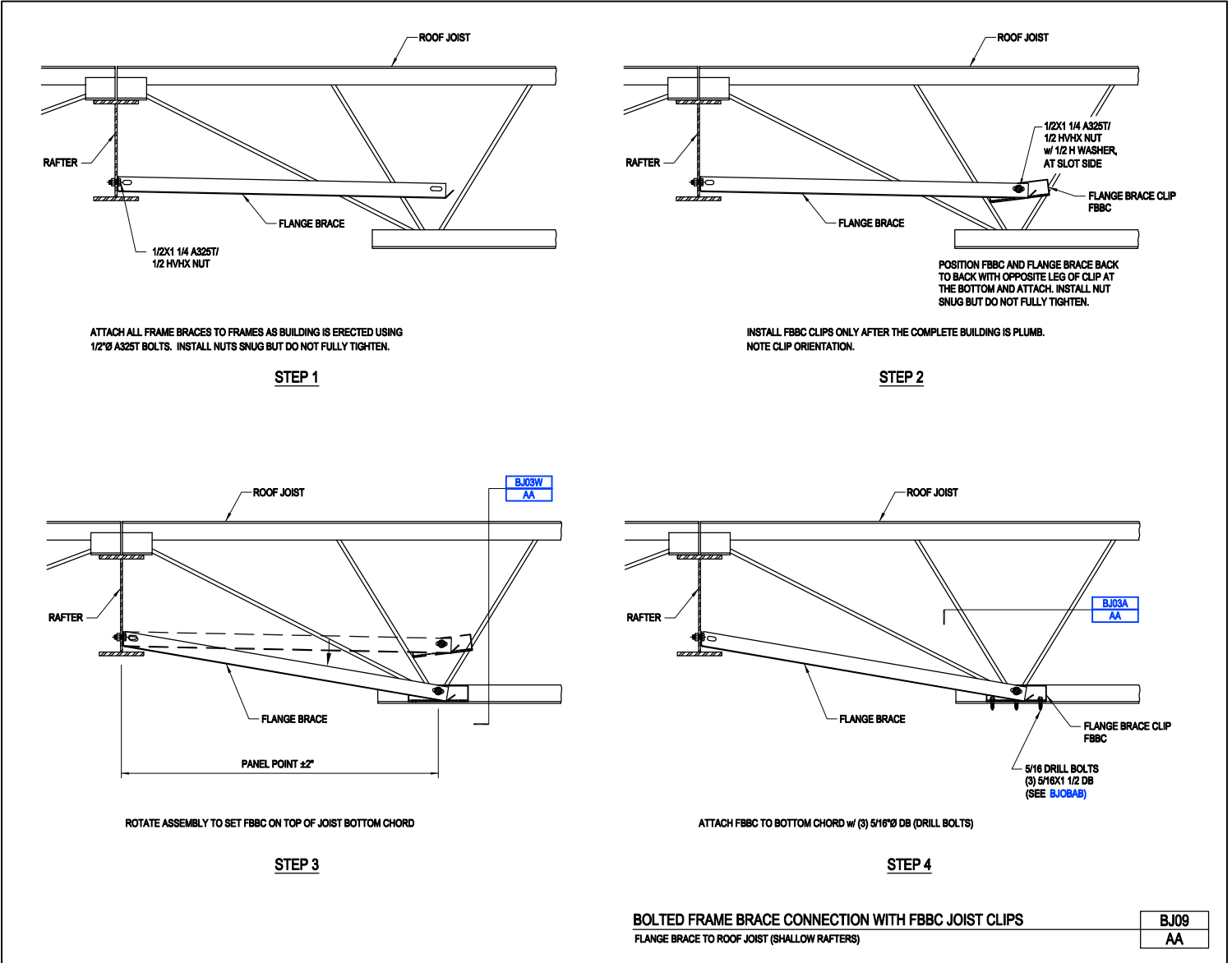


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Bolted Frame Brace Connection With FBBC Joist Clips  
 Flange Brace to Roof Joist (Shallow Rafters)  
 BJ09/AA

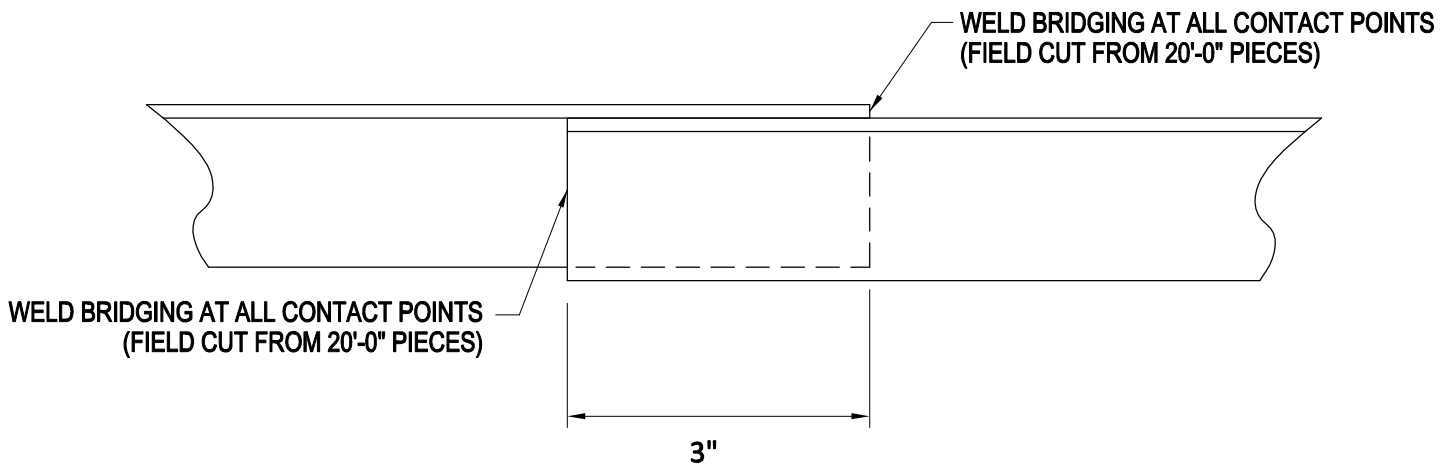


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Typical Horizontal Bridging Lap Splice  
Welded Horizontal Bridging  
BJ11/AA

SEE BJOAAA, NOTES 19 AND 20  
FOR WELDING RECOMMENDATIONS.



NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_.

**TYPICAL HORIZONTAL BRIDGING LAP SPLICE**  
WELDED HORIZONTAL BRIDGING

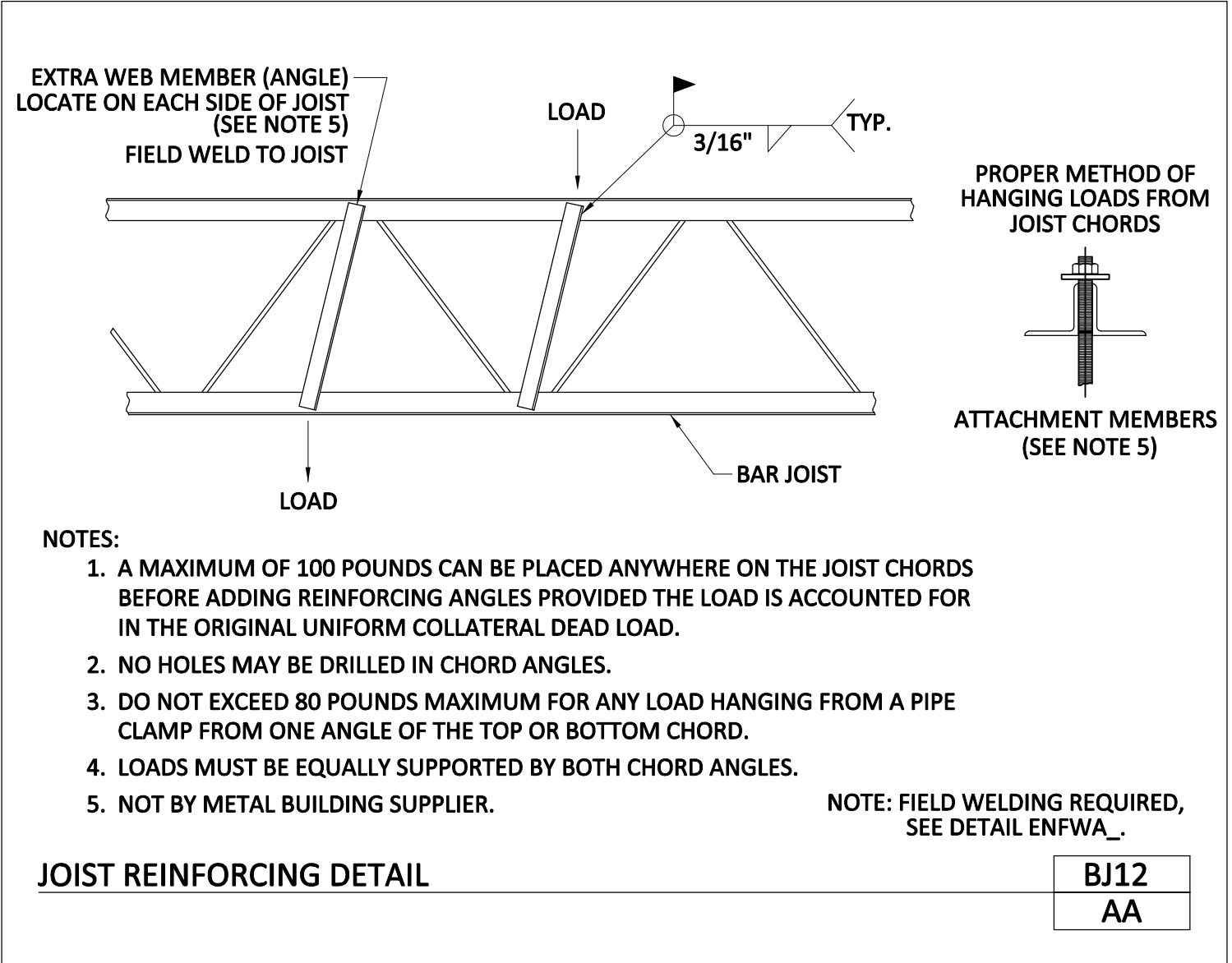
<b>BJ11</b>
<b>AA</b>

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Joist Reinforcing Detail

BJ12/AA

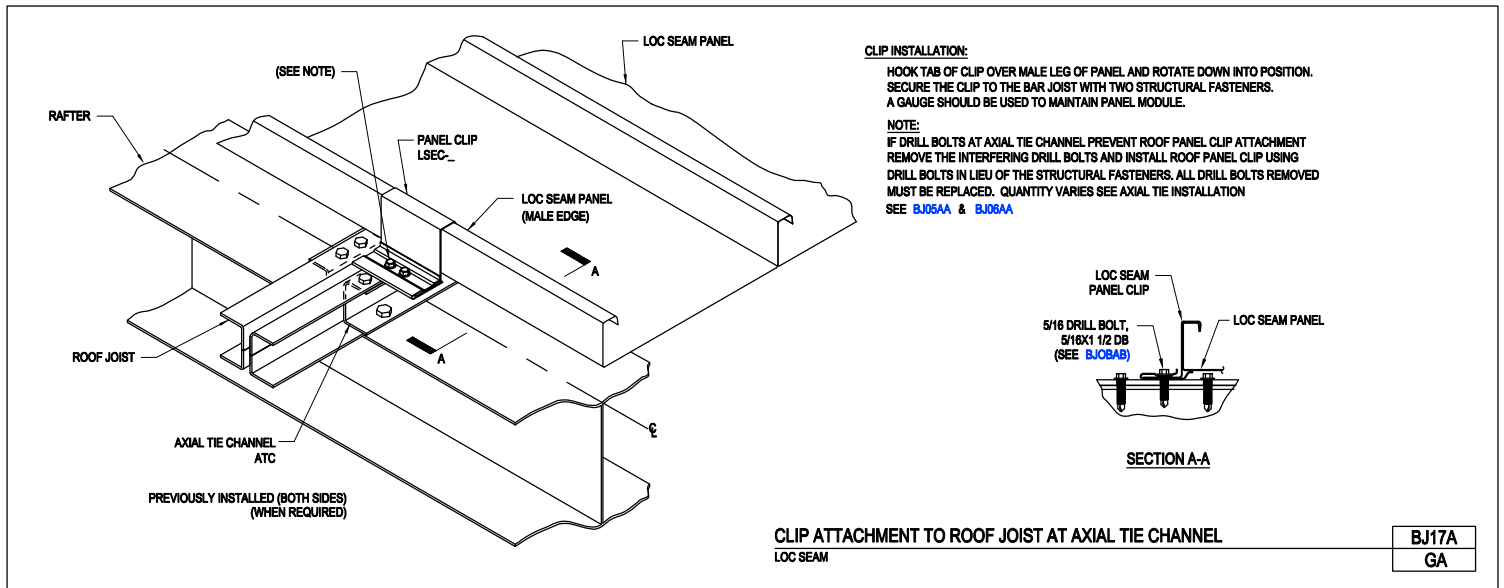


**JOIST REINFORCING DETAIL**

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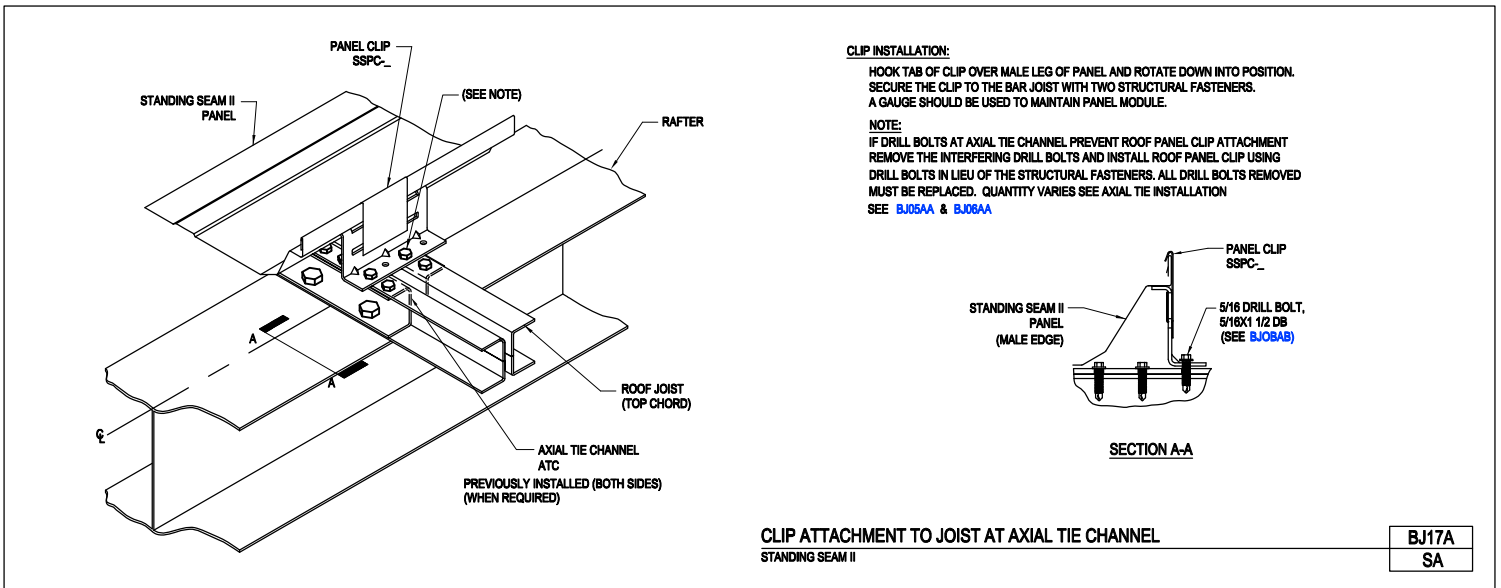
Clip Attachment to Roof Joist at Axial Tie Channel  
Loc Seam  
BJ17A/GA



[Download the DWG file by clicking here.](#)

[To Section Index](#)

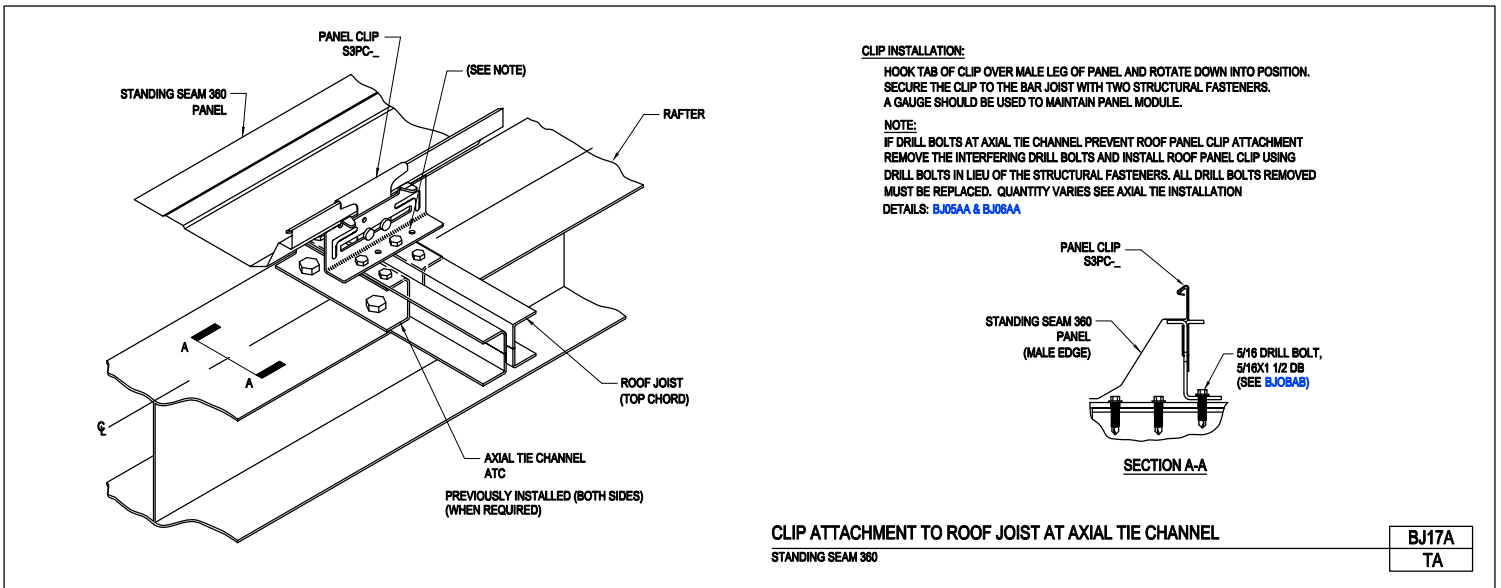
Clip Attachment to Joist at Axial Tie Channel  
Standing Seam II  
BJ17A/SA



[Download the DWG file by clicking here.](#)

[To Section Index](#)

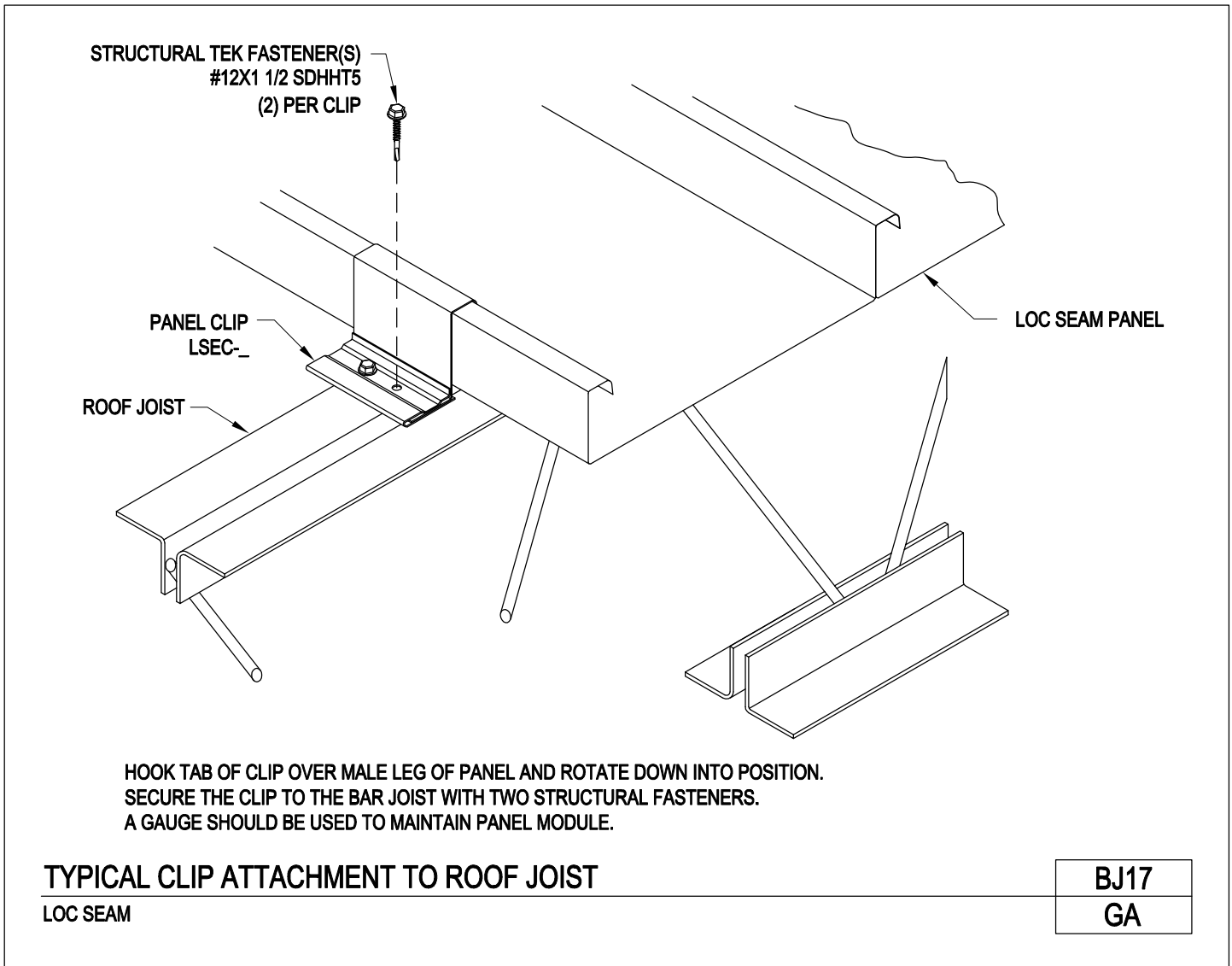
Clip Attachment to Roof Joist at Axial Tie Channel  
Standing Seam 360  
BJ17A/TA



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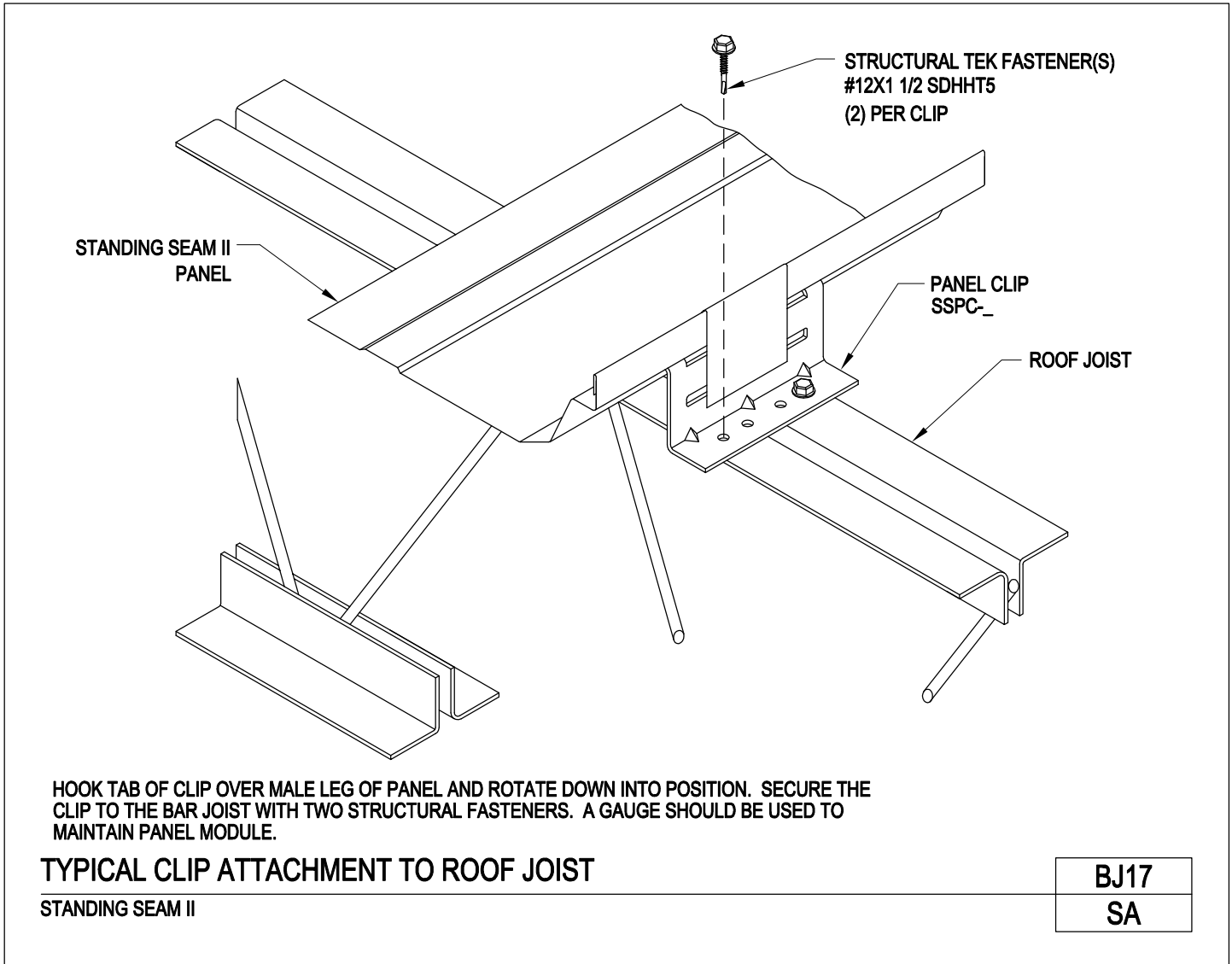
Typical Clip Attachment to Roof Joist  
Loc Seam  
BJ17/GA



[Download the DWG file by clicking here.](#)

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Typical Clip Attachment to Roof Joist  
Standing Seam II  
BJ17/SA

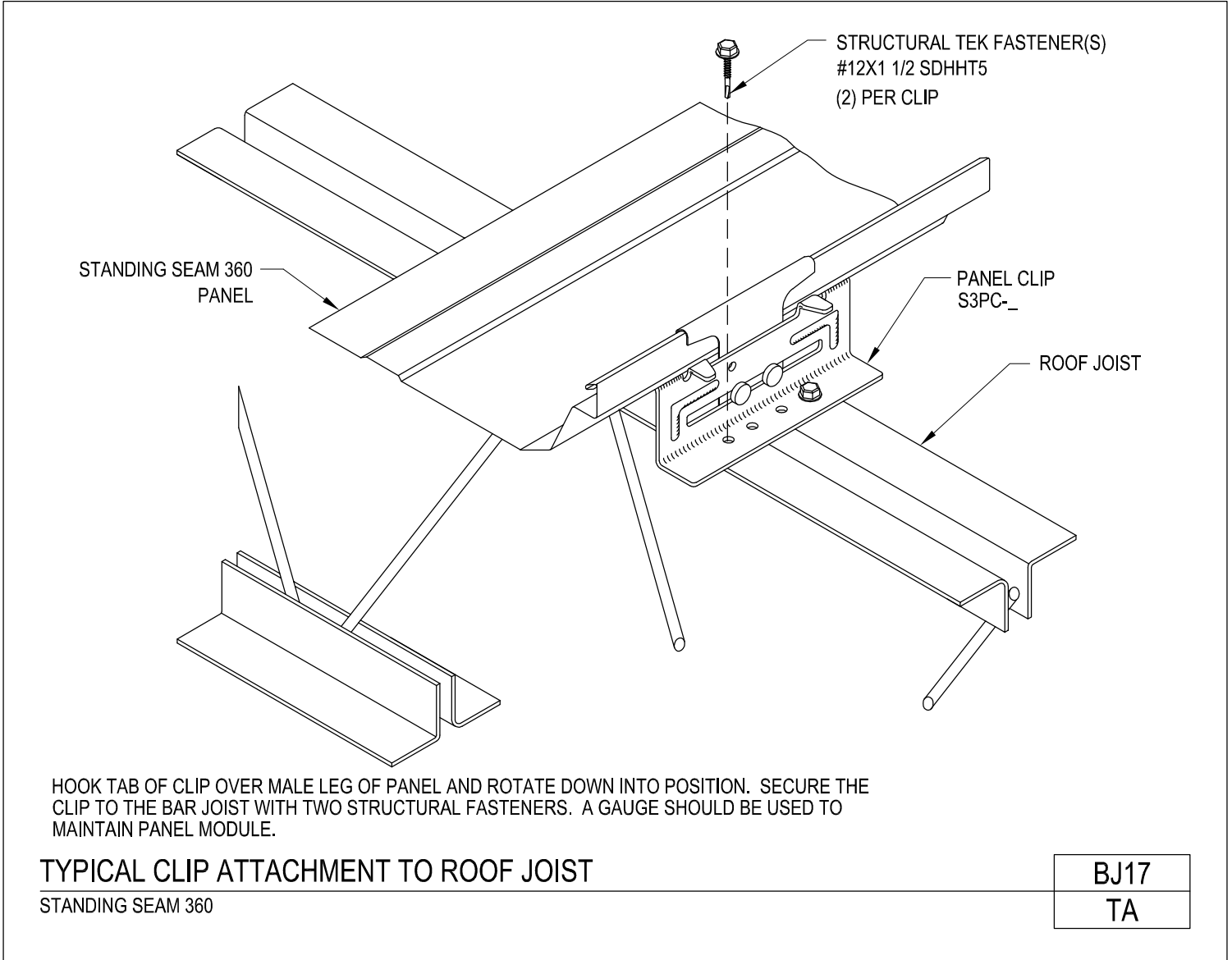


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Typical Clip Attachment to Roof Joist  
Standing Seam 360  
BJ17/TA



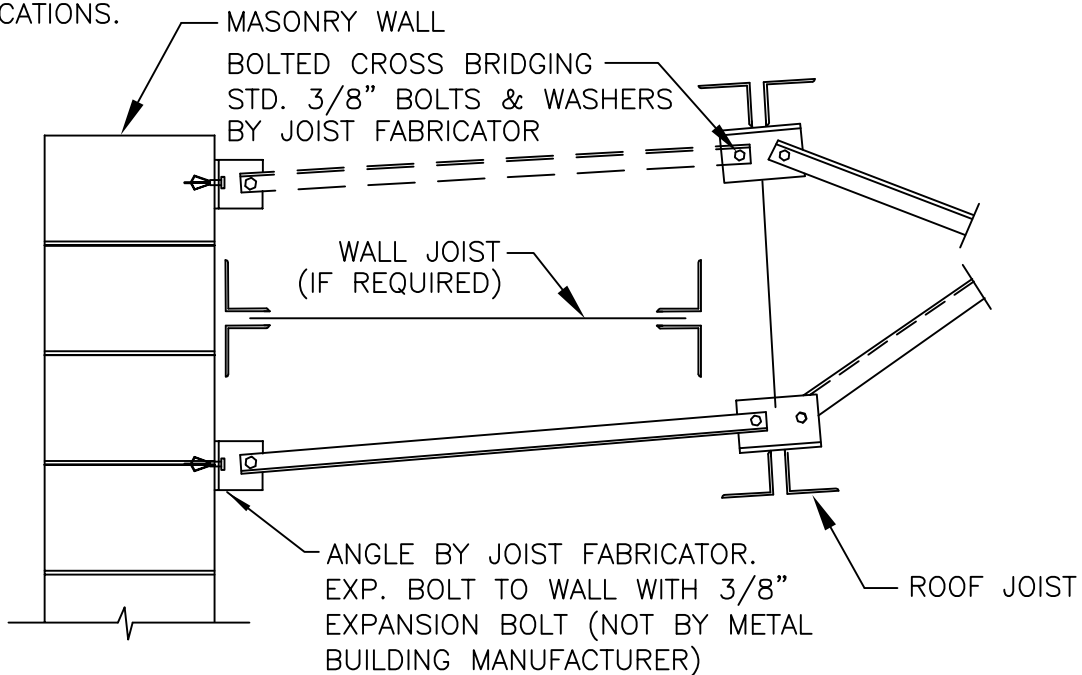
[Download the DWG file by clicking here.](#)

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Low Eave at Masonry Wall ( Similar at High Side)  
Bolted Horizontal Bridging  
BJ20/AA

**NOTE:**

IF TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP, LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS.



## CONDITION V

### LOW EAVE AT MASONRY WALL

**LOW EAVE AT MASONRY WALL (SIMILAR AT HIGH SIDE)**  
**BOLTED HORIZONTAL BRIDGING**

<b>BJ20</b>
<b>AA</b>

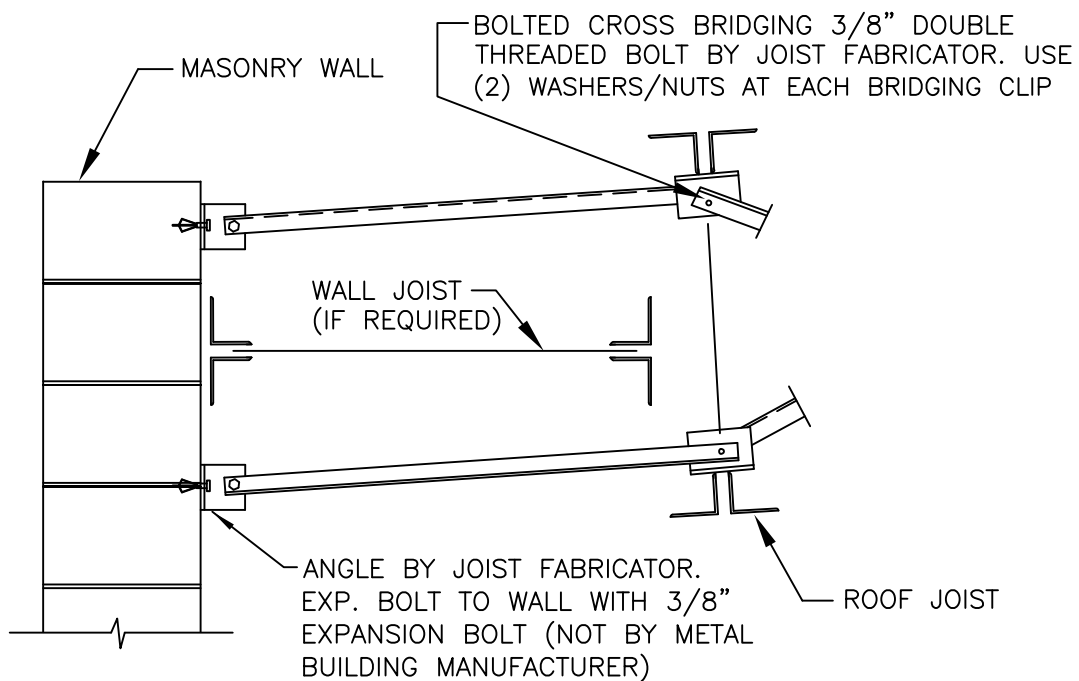
[Download the DWG file by clicking here.](#)

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Low Eave at Masonry Wall (Similar at High Side)  
Bolted Diagonal Bridging  
BJ20A/AA

**NOTE:**

LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD DIAGONAL BRIDGING LOCATIONS.



## CONDITION V

### CONDITION V (BOLTED DIAGONAL BRIDGING)

LOW EAVE AT MASONRY WALL (SIMILAR AT HIGH SIDE)

BJ20A

AA

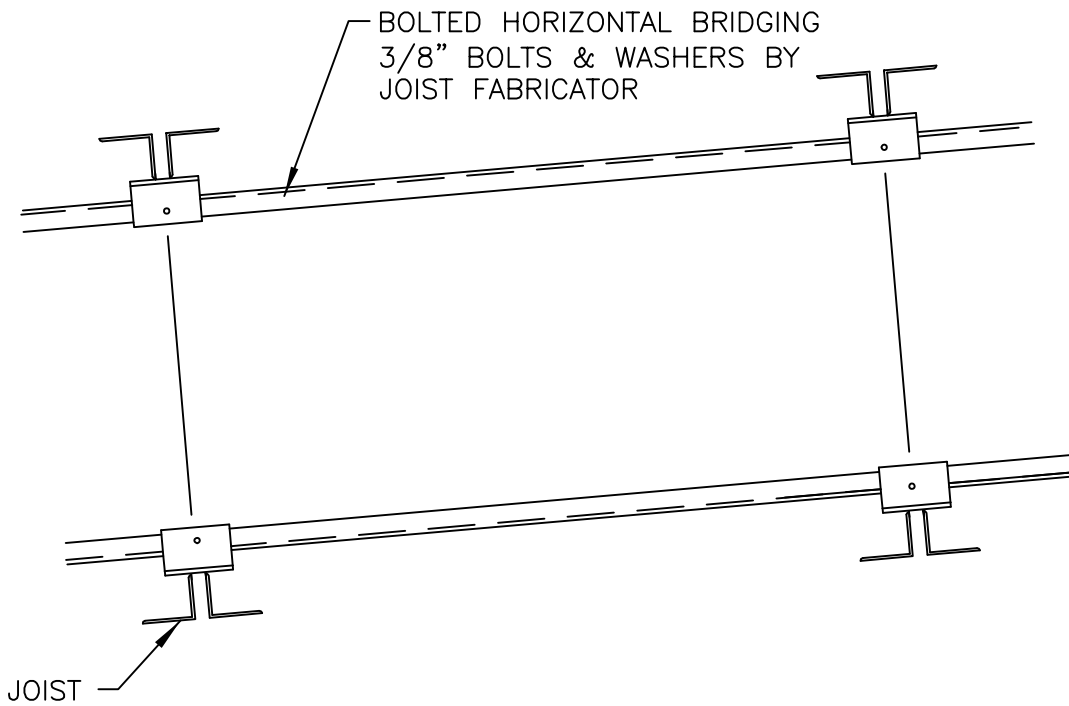
[Download the DWG file by clicking here.](#)

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Standard Horizontal Bridging  
 Bolted Horizontal Bridging  
 BJ22/AA

NOTE:

ONLY PLACE CLIPS WHERE REQUIRED BASED ON BRIDGING LOCATIONS.



CONDITION M  
 STANDARD

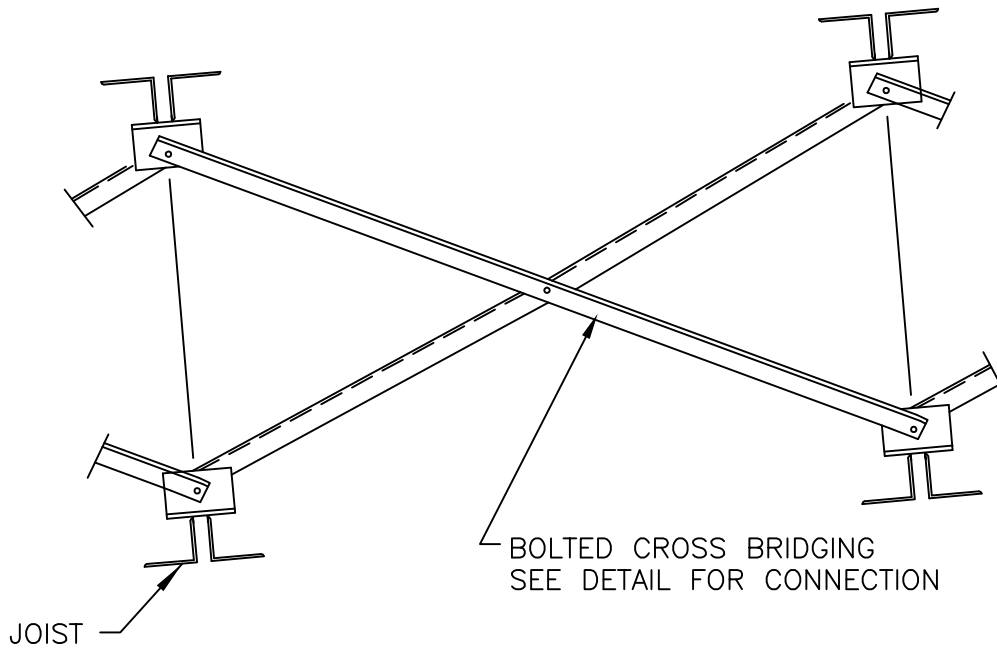
**STANDARD HORIZONTAL BRIDGING**  
**BOLTED HORIZONTAL BRIDGING**

<b>BJ22</b>
<b>AA</b>

[Download the DWG file by clicking here.](#)

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Standard Diagonal Bridging  
 Bolted Diagonal Bridging  
 BJ22A/AA



CONDITION M

STANDARD

**STANDARD DIAGONAL BRIDGING**  
**BOLTED DIAGONAL BRIDGING**

<b>BJ22A</b>
<b>AA</b>

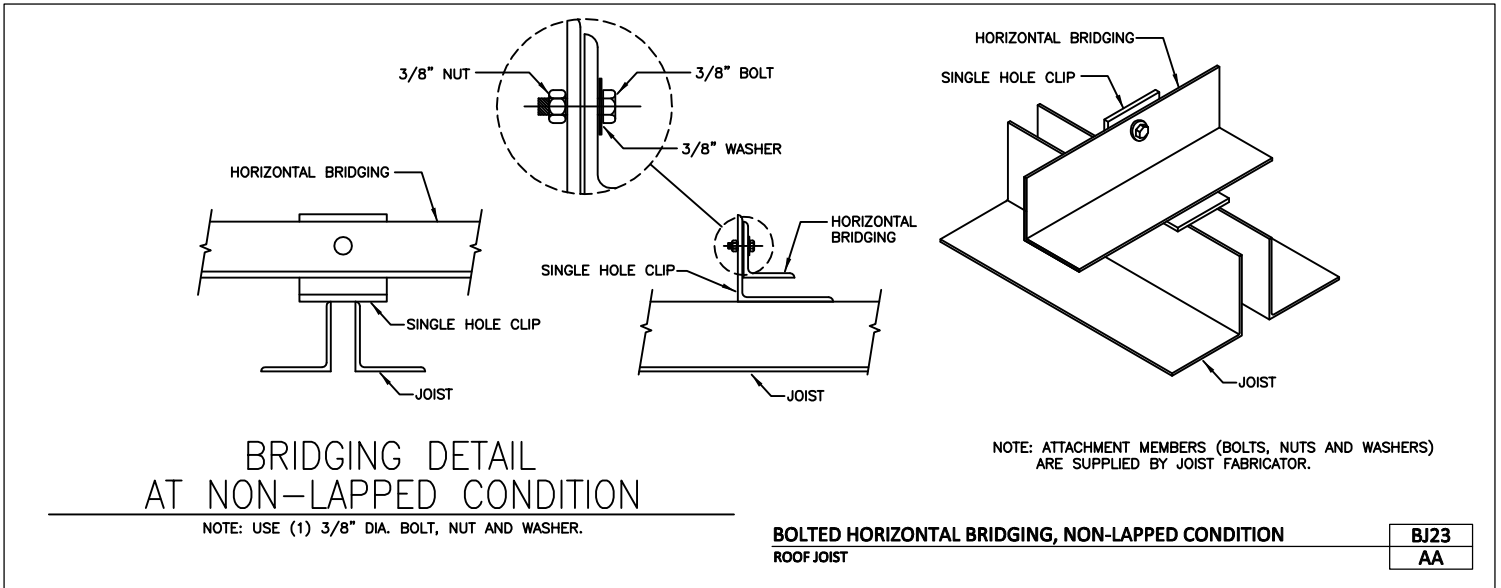
[Download the DWG file by clicking here.](#)

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Bolted Horizontal Bridging, Non-Lapped Condition

Roof Joist

BJ23/AA



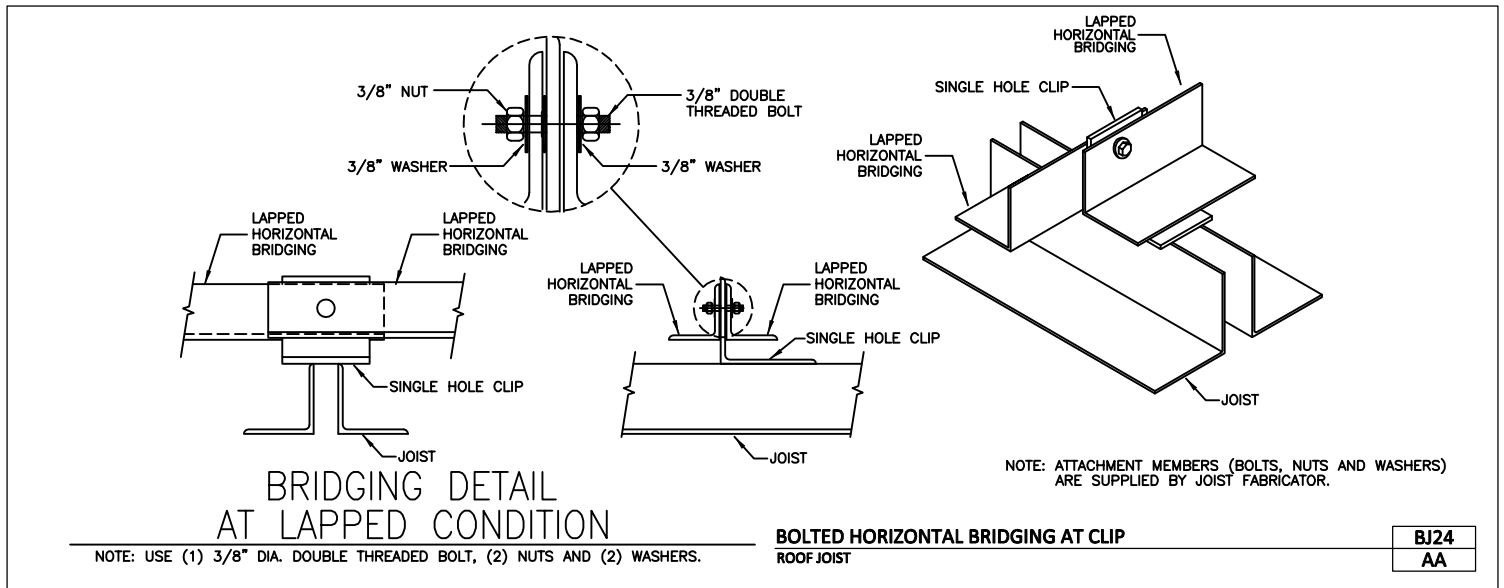
[Download the DWG file by clicking here.](#)

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## Bolted Horizontal Bridging at Clip

Roof Joist

BJ24/AA



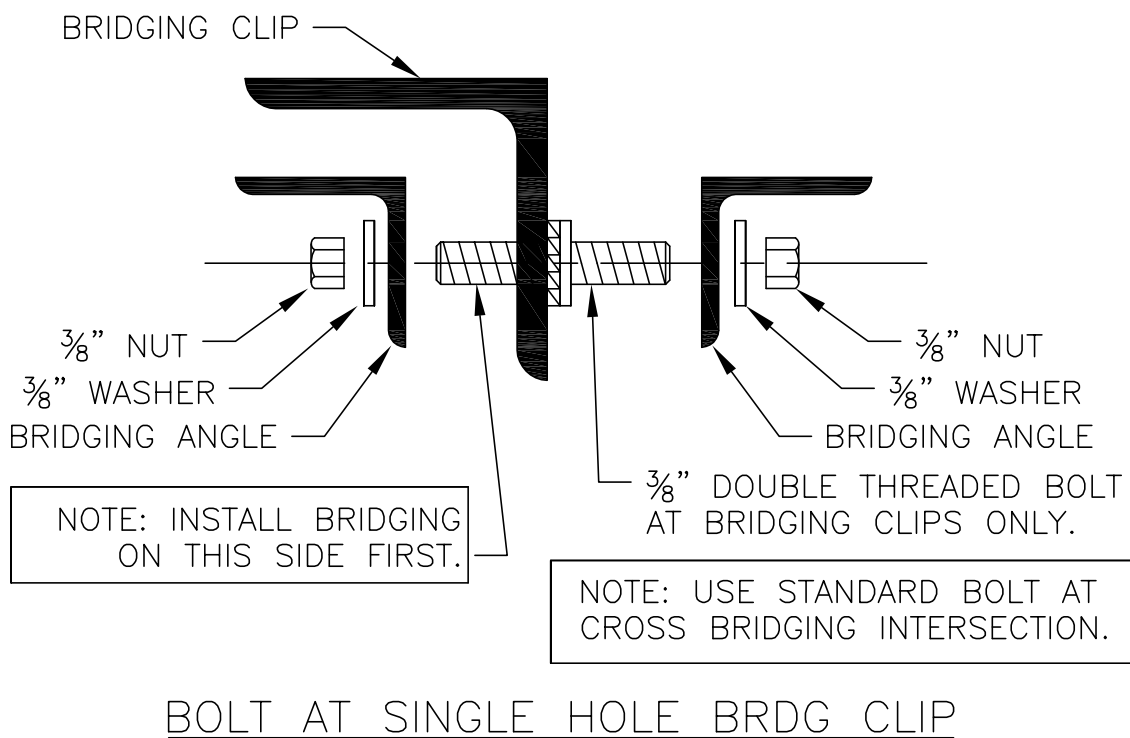
[Download the DWG file by clicking here.](#)

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## Bolted Diagonal Bridging to Shop Welded Clip

Roof Joist

BJ24A/AA



### BOLTED DIAGONAL BRIDGING TO SHOP WELDED CLIP

ROOF JOIST

**BJ24A**

**AA**

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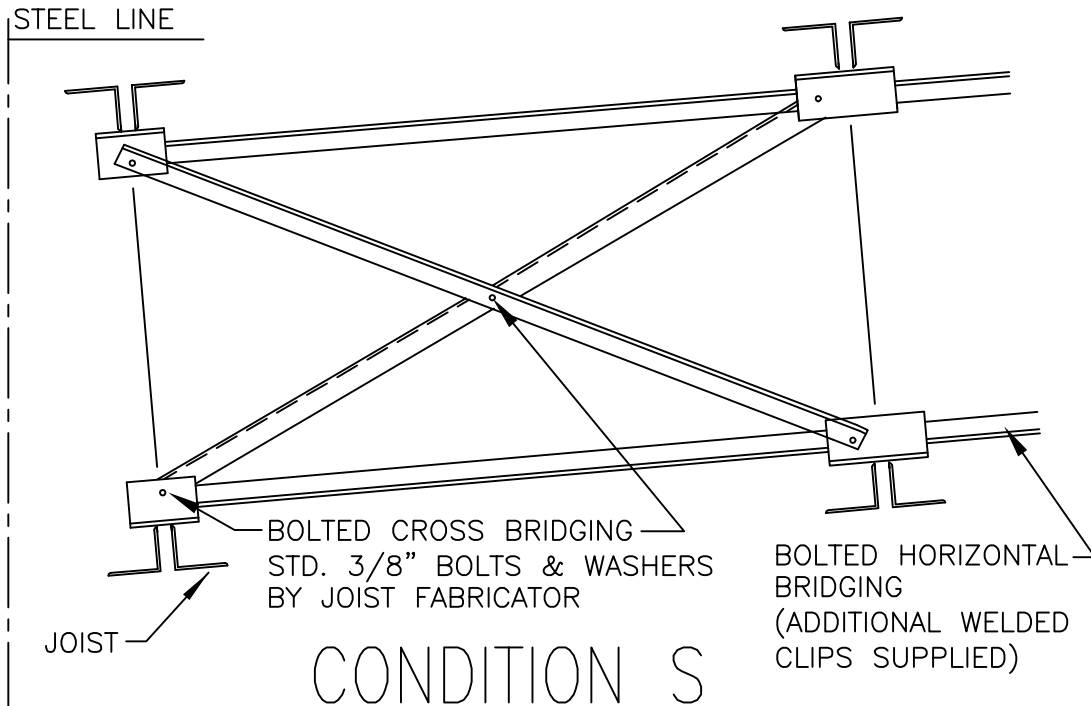
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Bridging Termination at Low Side Eave Joist  
Bolted Horizontal Bridging  
BJ25/AA

NOTE:

WHEN TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP, LOCATE BRIDGING CLIP ON TOP CHORD TO LINE UP WITH BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS FOR ATTACHMENT OF CROSS BRIDGING.



CONDITION S

TERMINATION @ EAVE JOIST

**BRIDGING TERMINATION AT LOW SIDE EAVE JOIST**

**BOLTED HORIZONTAL BRIDGING**

**BJ25**

**AA**

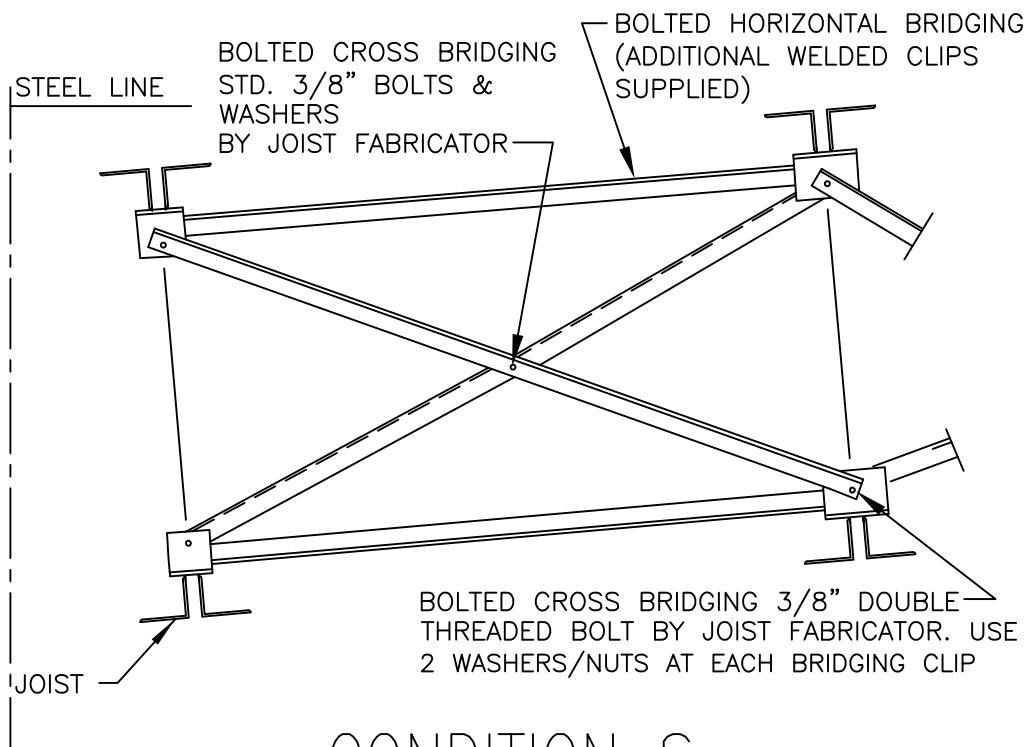
[Download the DWG file by clicking here.](#)

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Bridging Termination at Low Side Eave Joist  
Bolted Diagonal Bridging  
BJ25A/AA

**NOTE:**

LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD DIAGONAL BRIDGING LOCATIONS.



**CONDITION S**

**CONDITION S (BOLTED DIAGONAL BRIDGING)**  
TERMINATION AT EAVE JOIST

BJ25A
AA

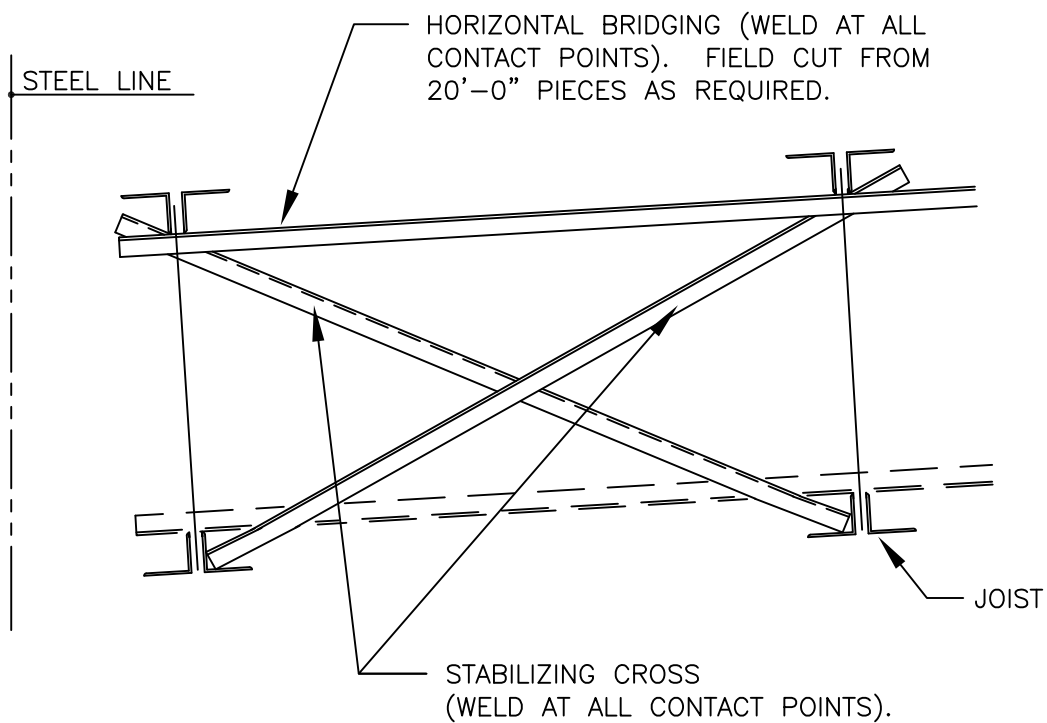
[Download the DWG file by clicking here.](#)

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Bridging Termination at Low Side Eave Joist  
Welded Horizontal Bridging  
BJ25B/AA

**NOTE:**

IF TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP,  
LOCATE BRIDGING "X" AT BOTH TOP & BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS.



CONDITION S

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_.

**CONDITION S (WELDED HORIZONTAL BRIDGING)**

LOW EAVE AT SIMPLE WALL

BJ25B

AA

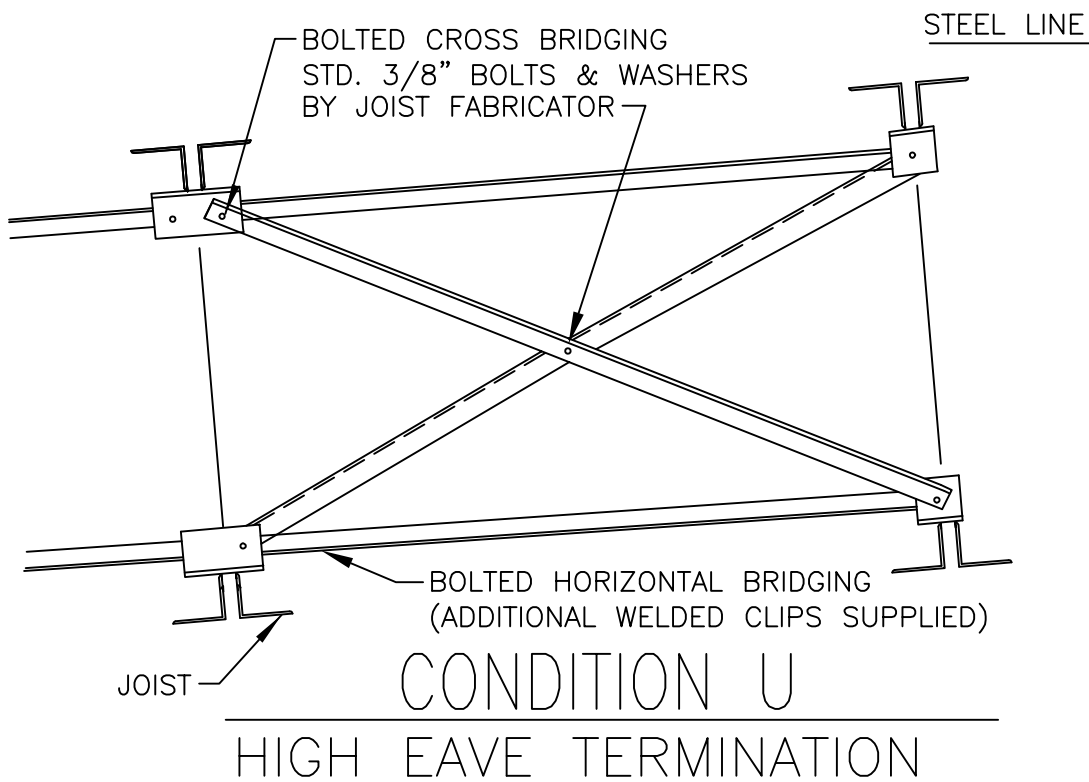
[Download the DWG file by clicking here.](#)

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Bridging Termination at High Side Eave Joist  
Bolted Horizontal Bridging  
BJ26/AA

NOTE:

WHEN TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP, LOCATE BRIDGING CLIP ON TOP CHORD TO LINE UP WITH BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS FOR ATTACHMENT OF CROSS BRIDGING.



**BRIDGING TERMINATION AT HIGH SIDE EAVE JOIST**  
**BOLTED HORIZONTAL BRIDGING**

<b>BJ26</b>
<b>AA</b>

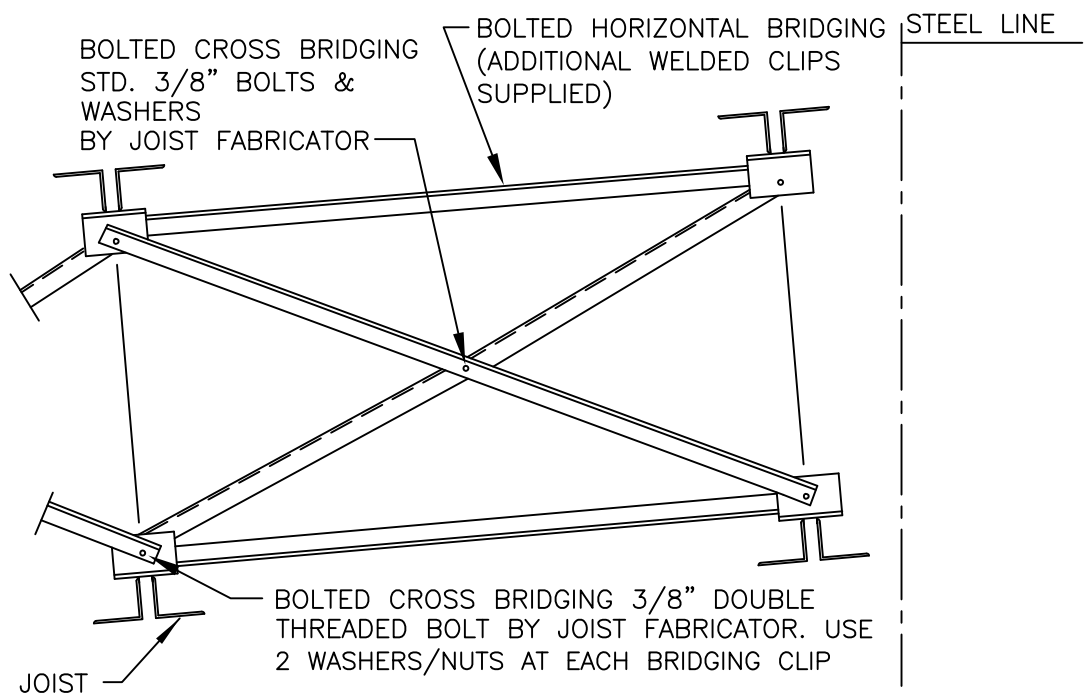
[Download the DWG file by clicking here.](#)

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Bridging Termination at High Side Eave Joist  
Bolted Diagonal Bridging  
BJ26A/AA

**NOTE:**

LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD DIAGONAL BRIDGING LOCATIONS.



## CONDITION U

### CONDITION U (BOLTED DIAGONAL BRIDGING)

HIGH EAVE TERMINATION

BJ26A
AA

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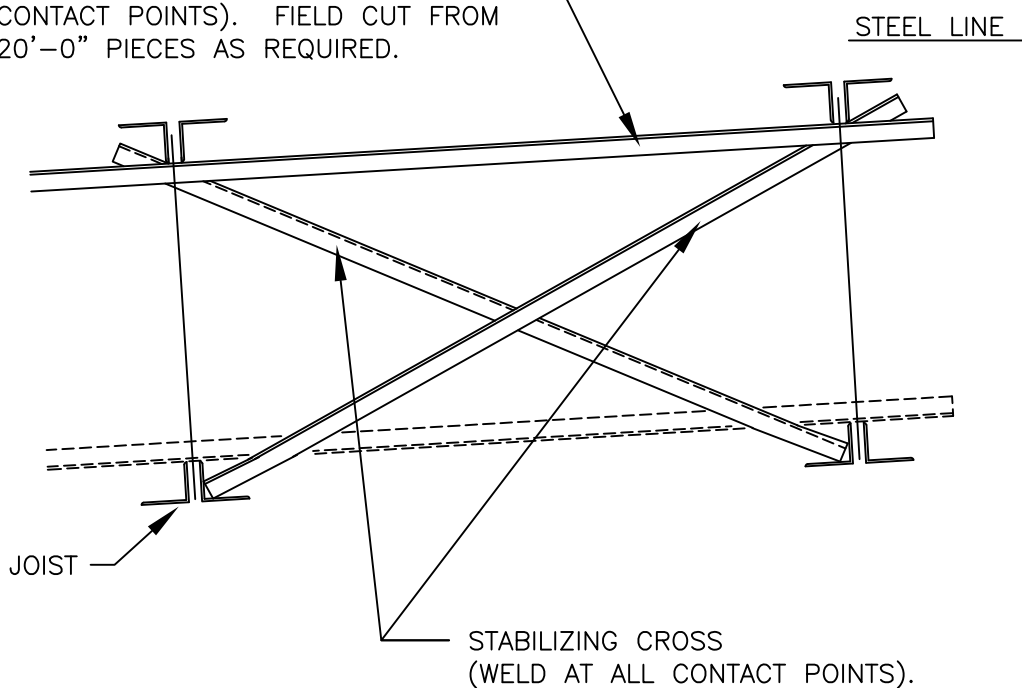
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Bridging Termination at High Side Eave Joist  
Welded Horizontal Bridging  
BJ26B/AA

**NOTE:**

IF TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP,  
LOCATE BRIDGING "X" AT BOTH TOP & BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS.

HORIZONTAL BRIDGING (WELD AT ALL CONTACT POINTS). FIELD CUT FROM 20'-0" PIECES AS REQUIRED.



**CONDITION U**

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_.

**CONDITION U (WELDED HORIZONTAL BRIDGING)**

HIGH EAVE AT SIMPLE WALL

**BJ26B**

**AA**

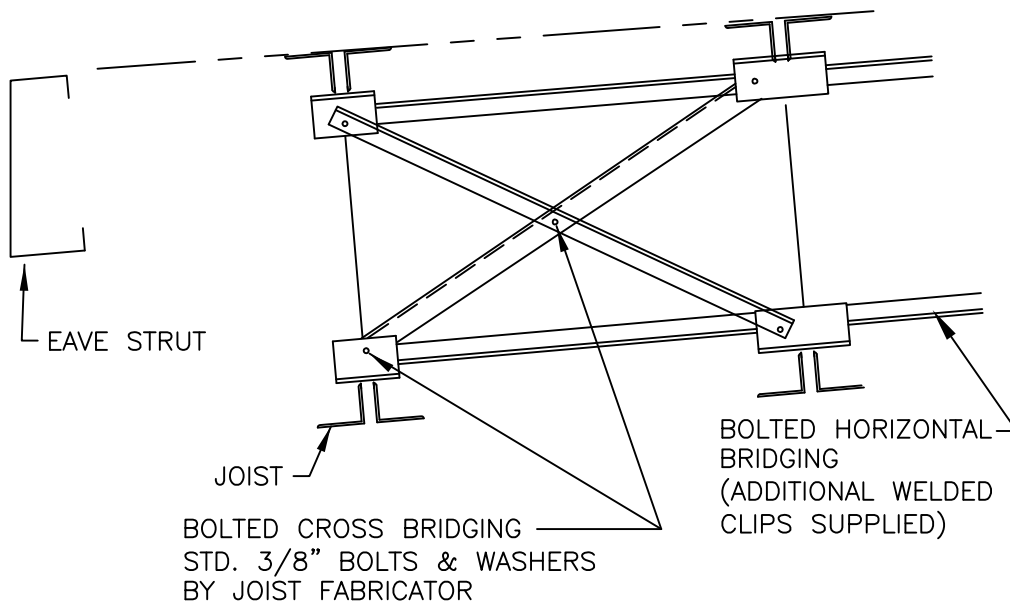
[Download the DWG file by clicking here.](#)

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Low Eave at Eave Strut w/ Beam (Similar at High Side)  
Bolted Horizontal Bridging  
BJ31/AA

**NOTE:**

WHEN TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP,  
LOCATE BRIDGING CLIP ON TOP CHORD TO LINE UP WITH BOTTOM CHORD  
HORIZONTAL BRIDGING LOCATIONS FOR ATTACHMENT OF CROSS BRIDGING.



## CONDITION R

**CONDITION R (BOLTED HORIZONTAL BRIDGING)**

LOW EAVE AT EAVE STRUT (SIMILAR AT HIGH SIDE)

BJ31

AA

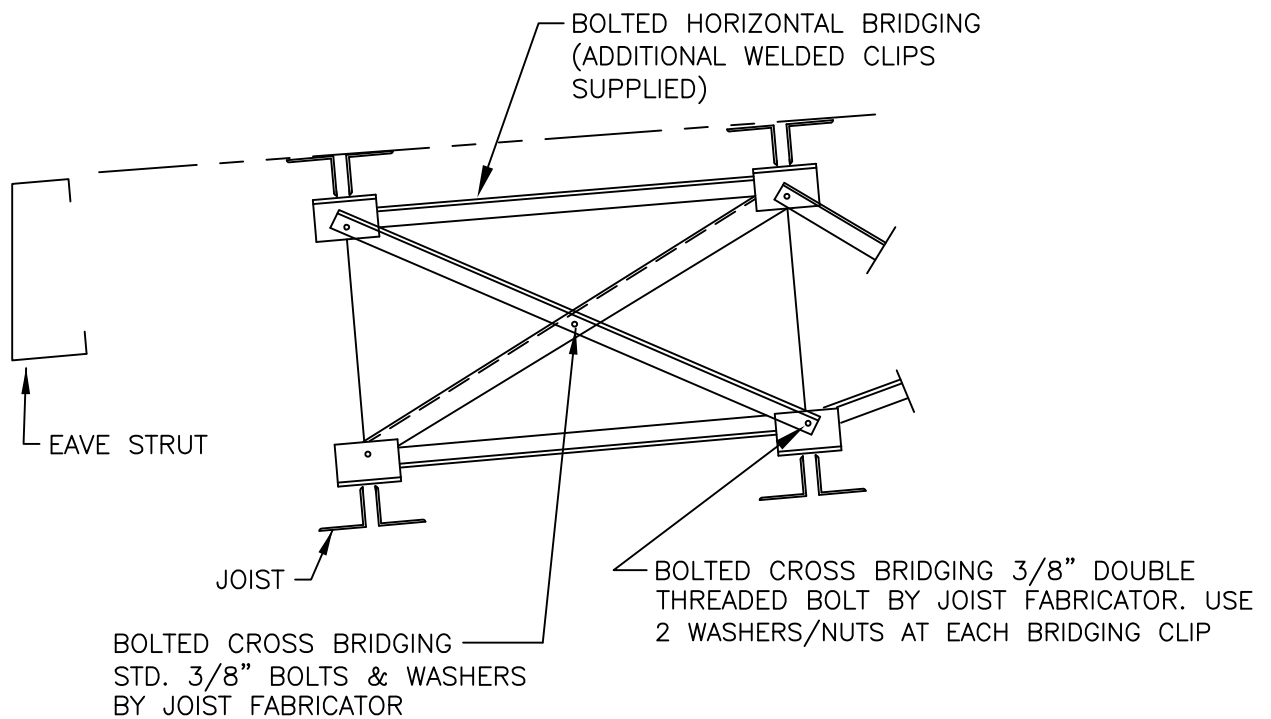
[Download the DWG file by clicking here.](#)

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Low Eave at Eave Strut w/ Beam (Similar at High Side)  
Bolted Diagonal Bridging  
BJ31A/AA

**NOTE:**

LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD DIAGONAL BRIDGING LOCATIONS.



**CONDITION R**

**CONDITION R (BOLTED DIAGONAL BRIDGING)**

LOW EAVE AT EAVE STRUT (SIMILAR AT HIGH SIDE)

BJ31A

AA

[Download the DWG file by clicking here.](#)

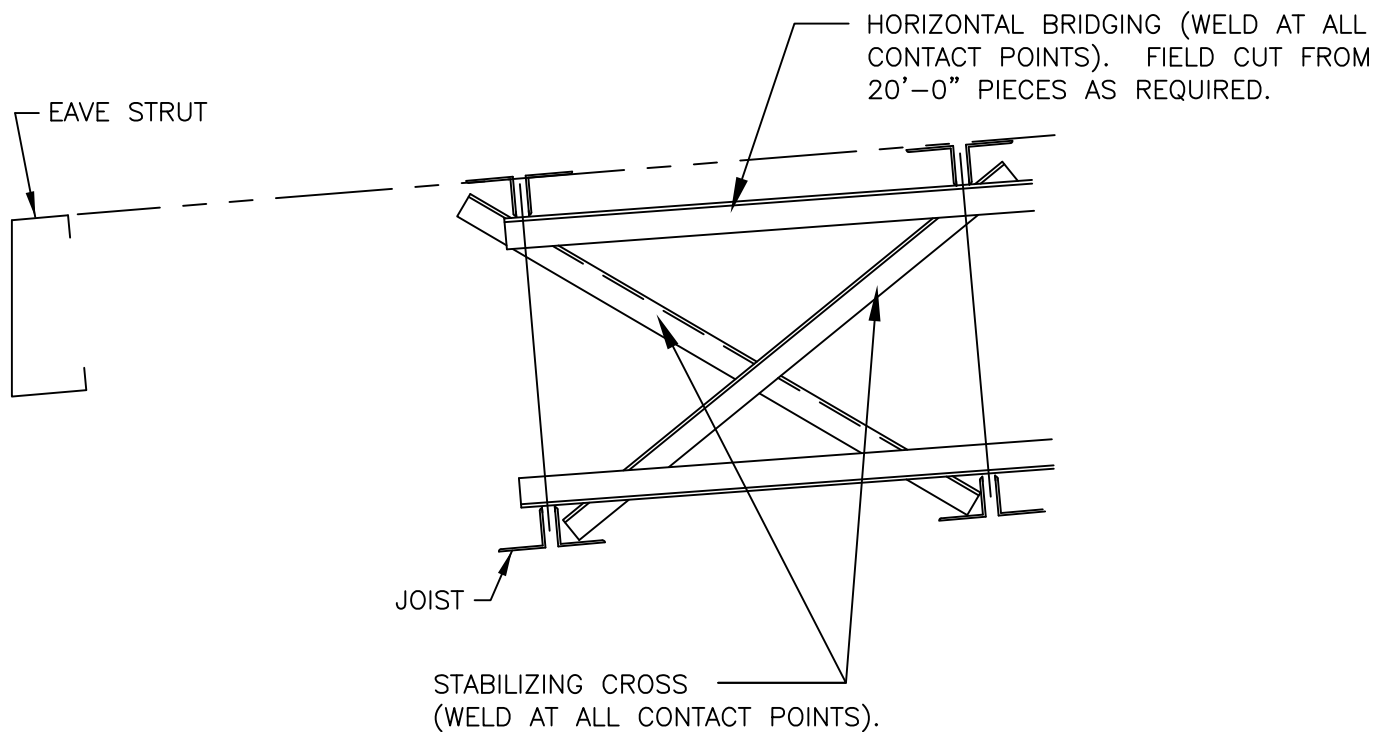
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Low Eave at Eave Strut w/ Beam (Similar at High Side)  
Welded Horizontal Bridging  
BJ31B/AA

**NOTE:**

IF TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP,  
LOCATE BRIDGING "X" AT BOTH TOP & BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS.



**CONDITION R**

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_.

**CONDITION R (WELDED HORIZONTAL BRIDGING)**

LOW EAVE AT EAVE STRUT (SIMILAR AT HIGH SIDE)

BJ31B
AA

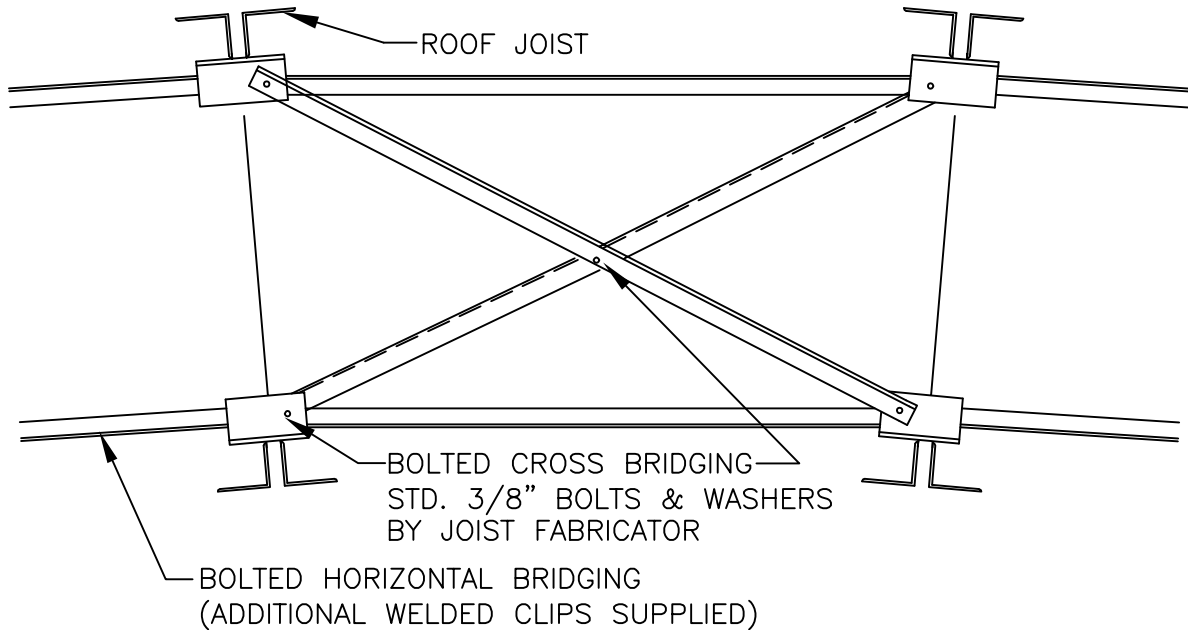
[Download the DWG file by clicking here.](#)

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Horizontal Bridging at Ridge  
Bolted Horizontal Bridging  
BJ33/AA

NOTE:

WHEN TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP, LOCATE BRIDGING CLIP ON TOP CHORD TO LINE UP WITH BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS FOR ATTACHMENT OF CROSS BRIDGING.



CONDITION T  
STANDARD RIDGE TERMINATION

**HORIZONTAL BRIDGING AT RIDGE**  
**BOLTED HORIZONTAL BRIDGING**

<b>BJ33</b>
<b>AA</b>

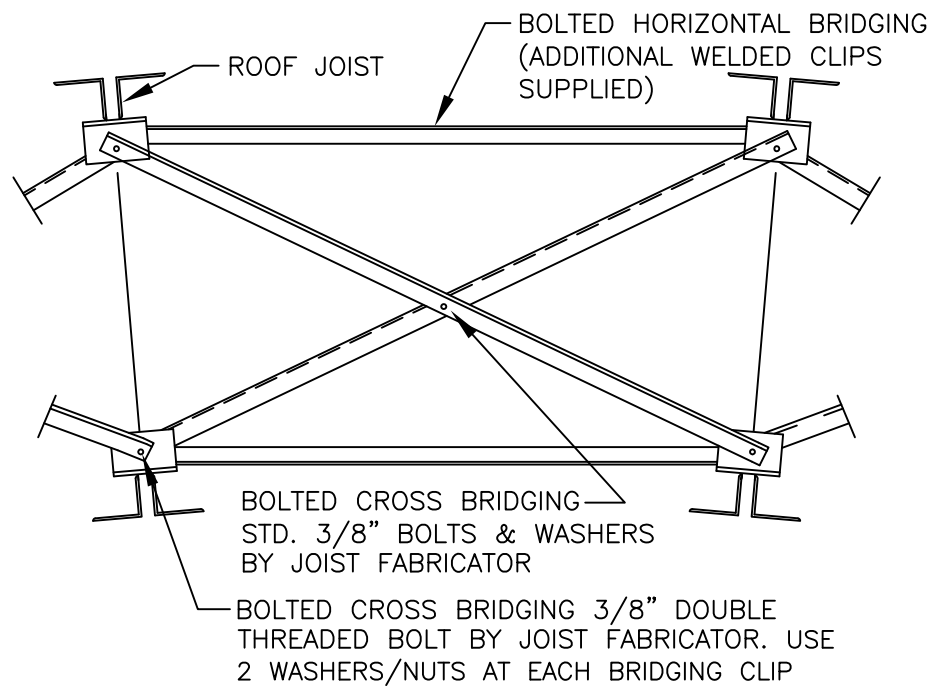
[Download the DWG file by clicking here.](#)

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Diagonal Bridging at Ridge  
Bolted Diagonal Bridging  
BJ33A/AA

**NOTE:**

LOCATE BRIDGING CLIP AT BOTH TOP & BOTTOM CHORD DIAGONAL BRIDGING LOCATIONS.



## CONDITION T

**CONDITION T (BOLTED DIAGONAL BRIDGING)**

STANDARD RIDGE TERMINATION

BJ33A

AA

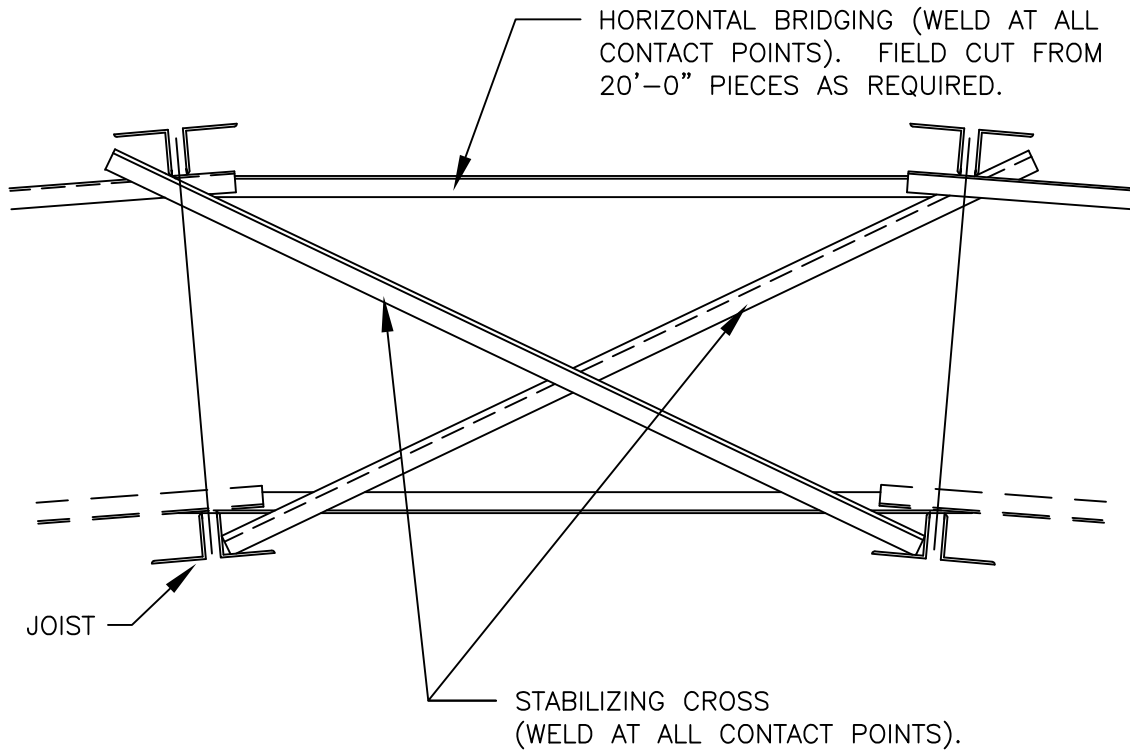
[Download the DWG file by clicking here.](#)

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Horizontal Bridging at Ridge  
Welded Horizontal Bridging  
BJ33B/AA

NOTE:

IF TOP & BOTTOM CHORD HORIZONTAL BRIDGING DOES NOT LINE UP,  
LOCATE BRIDGING "X" AT BOTH TOP & BOTTOM CHORD HORIZONTAL BRIDGING LOCATIONS.



CONDITION T

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_.

**CONDITION T (WELDED HORIZONTAL BRIDGING)**

STANDARD RIDGE CONDITION

BJ33B

AA

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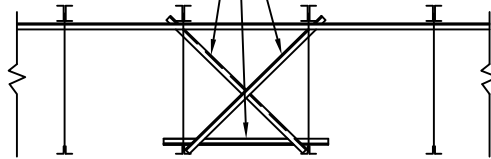
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## Welded Cross Stabilizing

BJ35/AA

ERECTION NOTE:  
WELDED STABILIZING CROSSES SHOWN HERE  
ARE NOT TO BE CONFUSED WITH BOLTED  
DIAGONAL BRIDGING.

WELD A STABILIZING CROSS AND ADDITIONAL  
STABILIZATION HORIZONTAL IN JOIST SPACES  
INDICATED WITH \*\* ON THE BRIDGING PLAN. (ONLY  
REQUIRED AT EACH TOP RUN OF HORIZONTAL  
BRIDGING U.N.D.).



CONDITION X

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA\_

CONDITION X (WELDED CROSS STABILIZING)

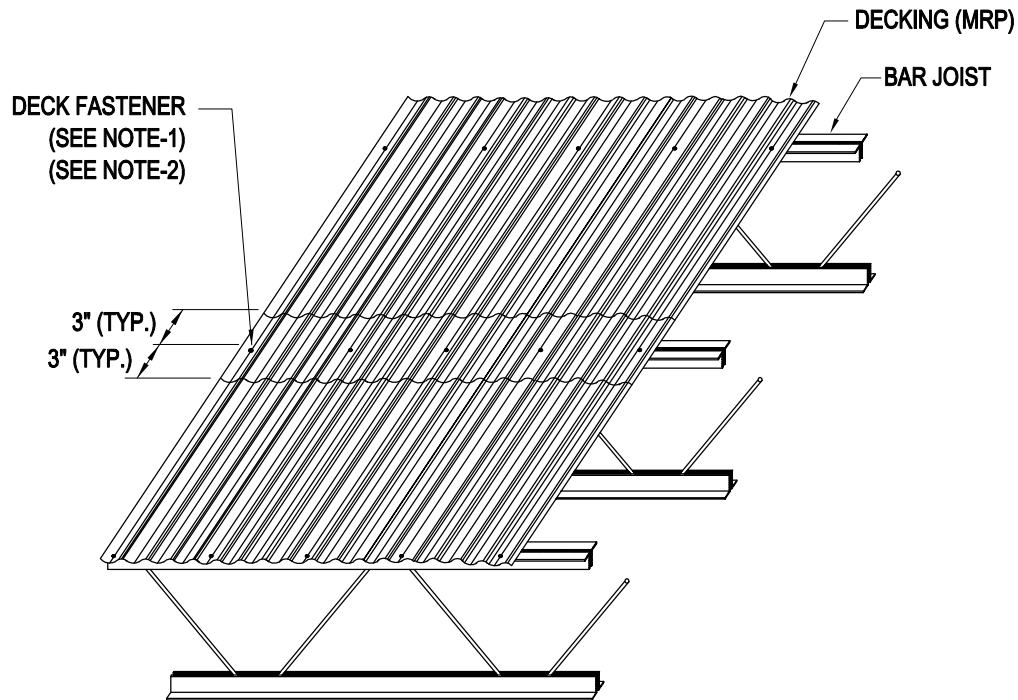
BJ35
AA

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## Decking to Joist Detail

BJ40/AA



**NOTE-1:**  
**DECK FASTENERS**

1. SCREWS
2. WELD WASHERS
3. CONNECTING PINS  
(BY OTHERS)

**NOTE-2:**  
**FASTENER REQUIREMENTS FOR MRP PANEL FOR MEZZANINE**

1. ALL ENDLAPS AND END CONDITIONS SHALL BE FASTENED TO EACH END AND INTERMEDIATE SUPPORT. ADDITIONAL FASTENERS SHALL BE SPACED AN AVERAGE 12" O.C., BUT NO MORE THAN 18" O.C. MAX.
2. AT INTERMEDIATE CONDITIONS USE (3) DECK FASTENERS PER SHEET.
3. CONNECT SHEET SIDELAPS AT EACH INTERMEDIATE SUPPORT AND AT MIDSPAN BETWEEN EACH SUPPORT IF JOIST SPACING EXCEEDS 36".

### DECKING TO JOIST DETAIL

BJ40
AA

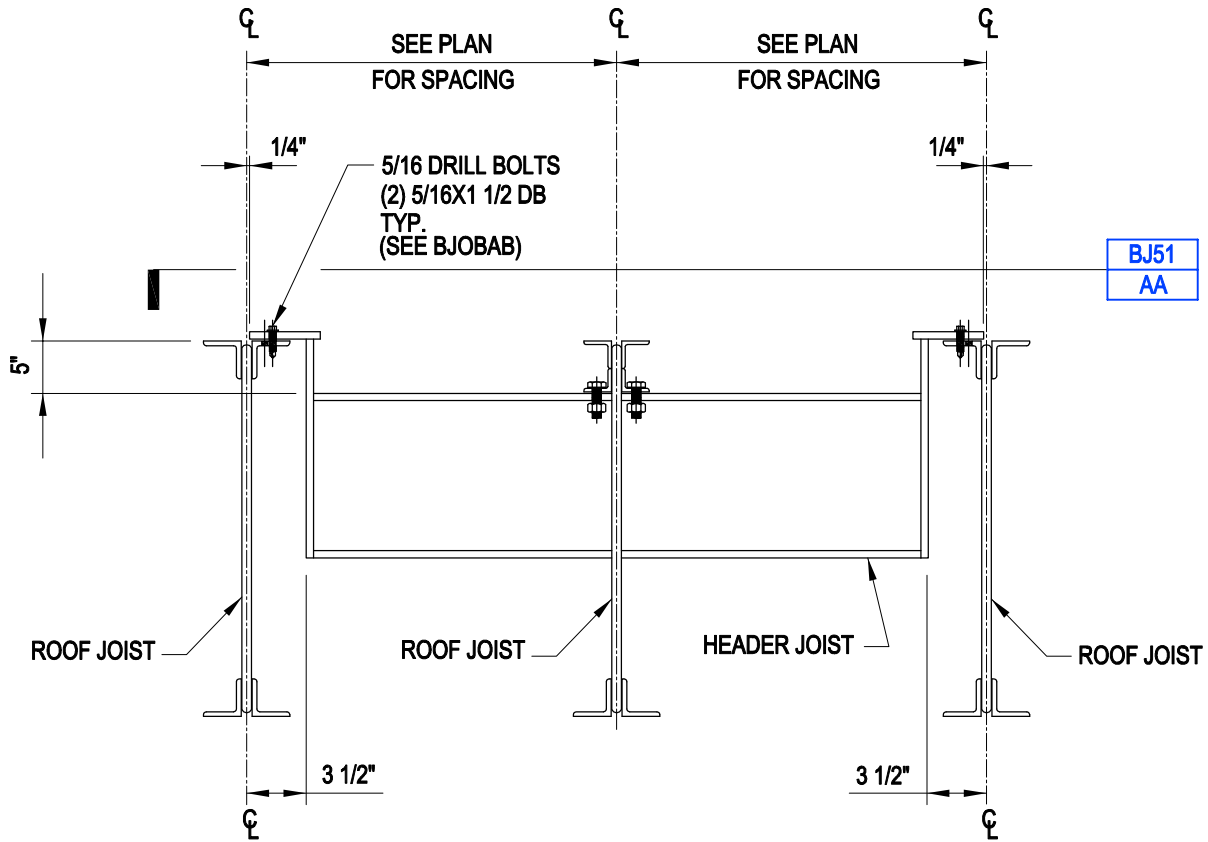
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Roof Header Joist Section

Roof Joists

BJ50/AA



**ROOF HEADER JOIST SECTION**

ROOF JOISTS

**BJ50**

**AA**

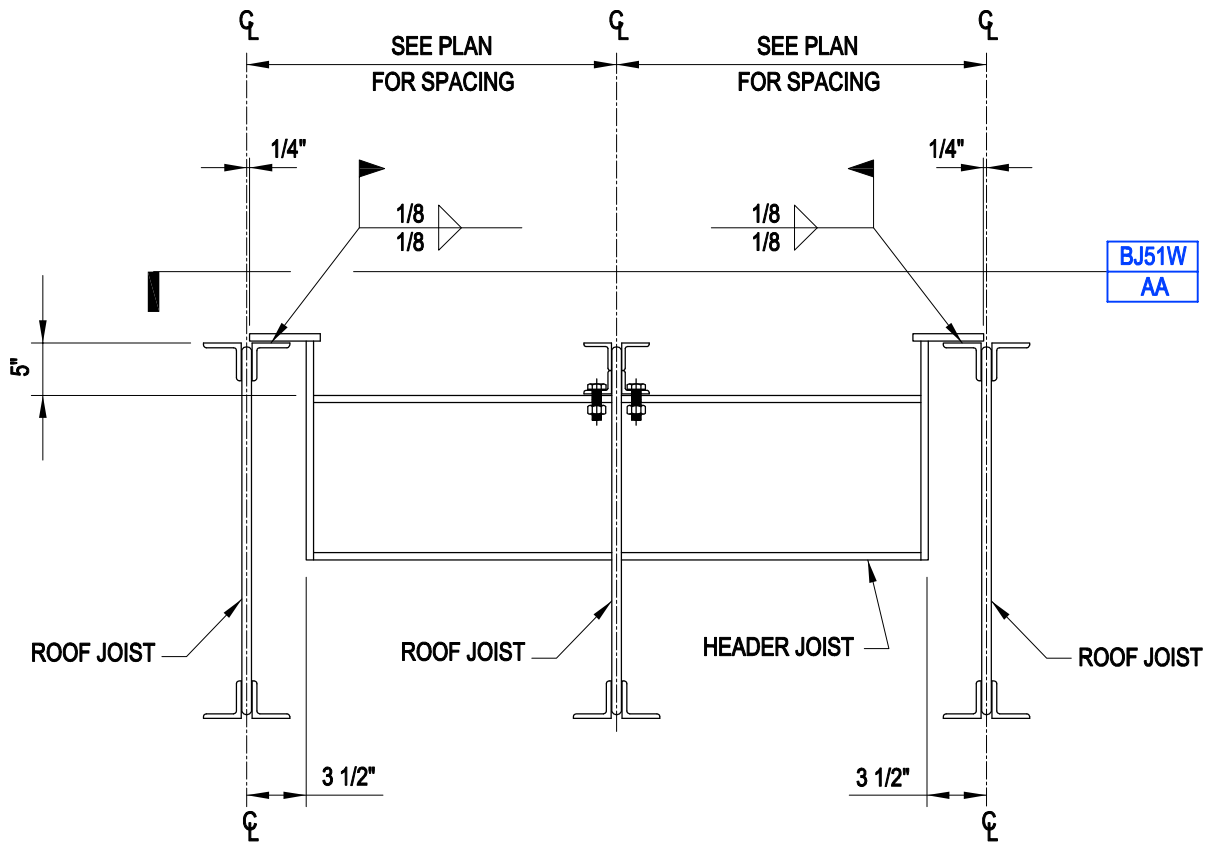
[Download the DWG file by clicking here.](#)

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Welded Roof Header Joist Section

Roof Joists

BJ50W/AA



**WELDED ROOF HEADER JOIST SECTION**

ROOF JOISTS

**BJ50W**

**AA**

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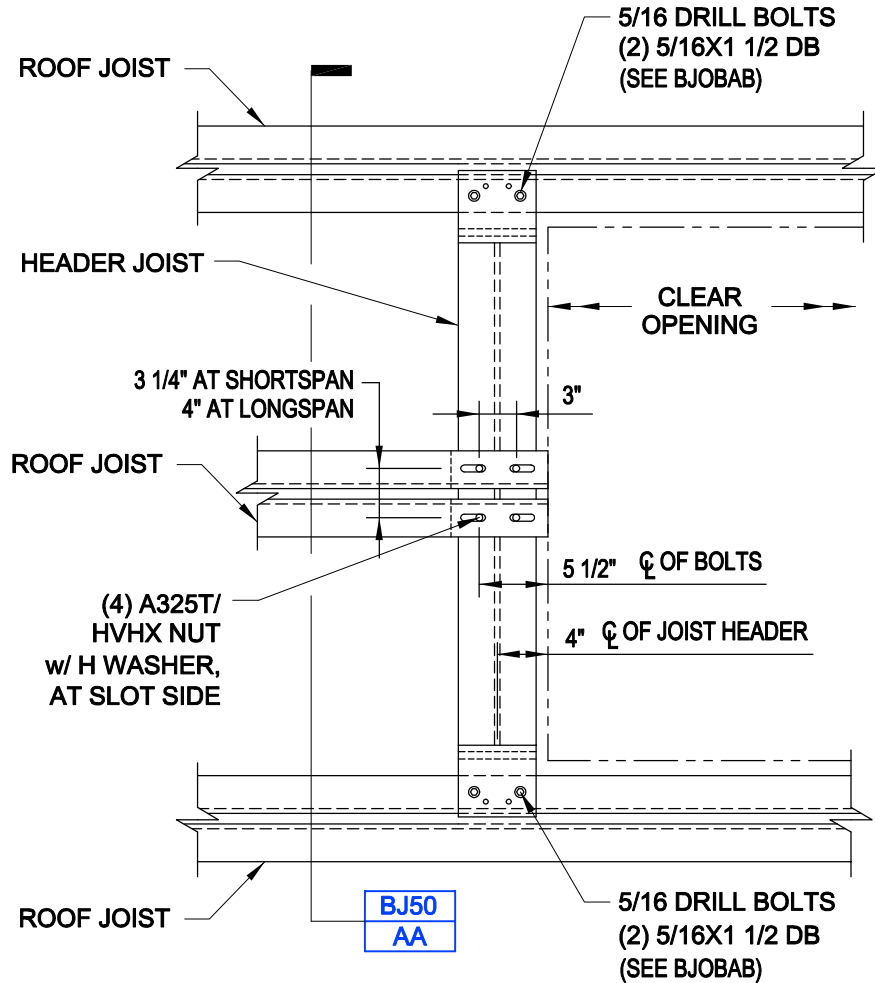
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Bolted Roof Header Joist Connection

Roof Joists

BJ51/AA



**BOLTED ROOF HEADER JOIST CONNECTION**

ROOF JOISTS

**BJ51**

**AA**

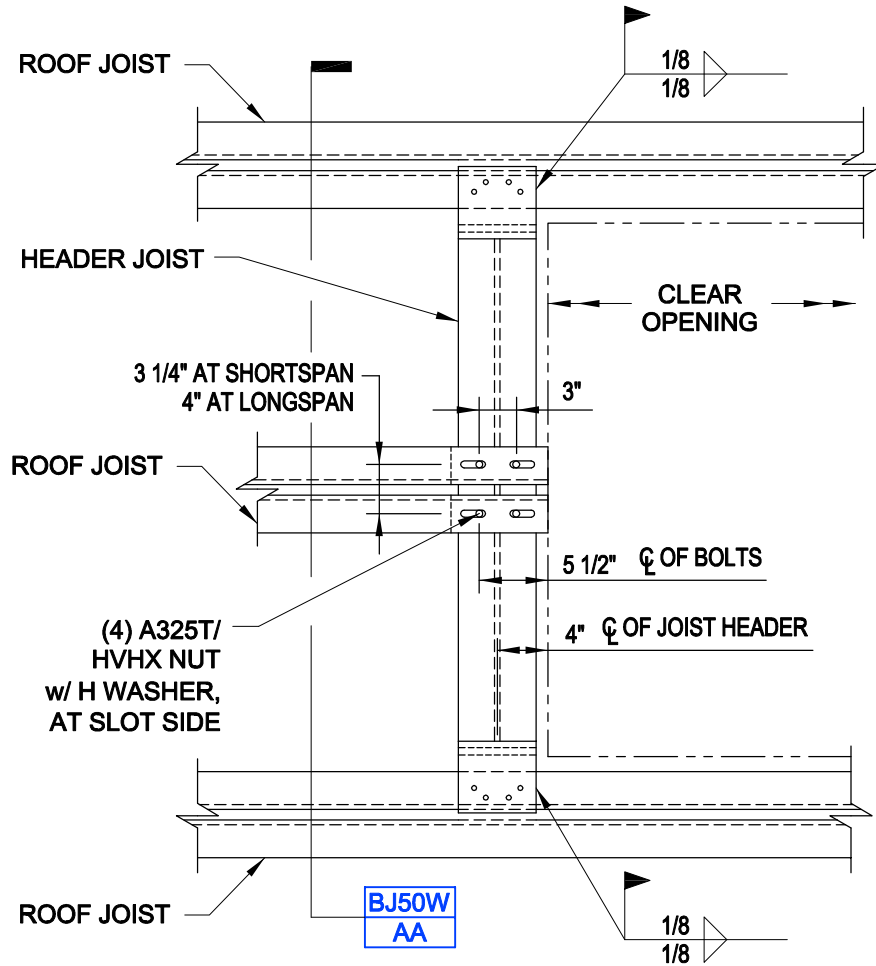
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Welded Roof Header Joist Connection

Roof Joists

BJ51W/AA



## WELDED ROOF HEADER JOIST CONNECTION

ROOF JOISTS

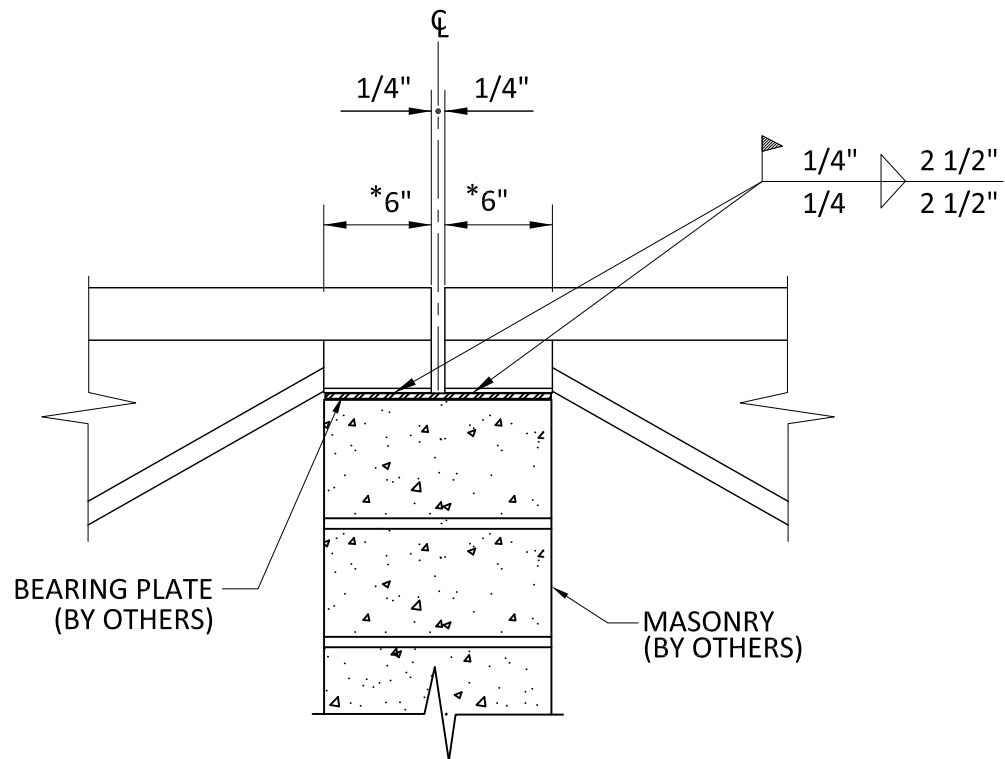
BJ51W

AA

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Interior - Bar Joist to Masonry Connection  
LongSpan Joist  
BJ57/AH



\* 6" MINIMUM MUST FULLY BEAR ON MASONRY (BY OTHERS).

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

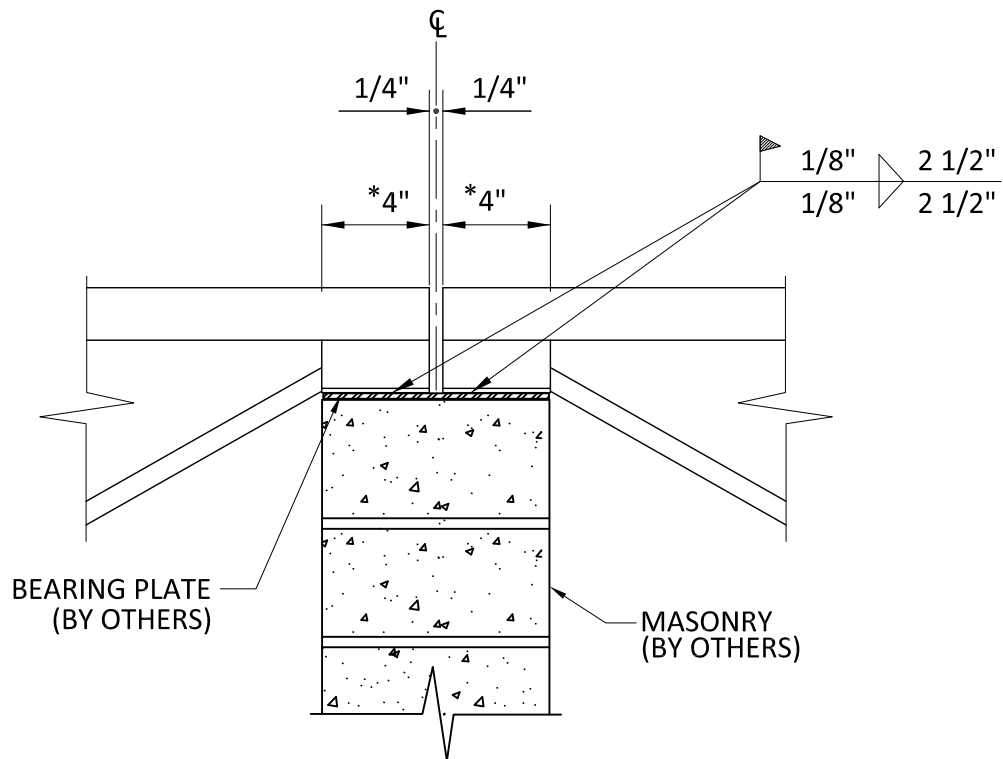
**INTERIOR - BAR JOIST TO MASONRY CONNECTION**  
LONGSPAN JOIST

BJ57
AH

[Download the DWG file by clicking here.](#)

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Interior - Barjoist to Masonry Connection  
Shortspan Roof Joist  
BJ57/AK



\* 4" MINIMUM MUST FULLY BEAR ON MASONRY (BY OTHERS).

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

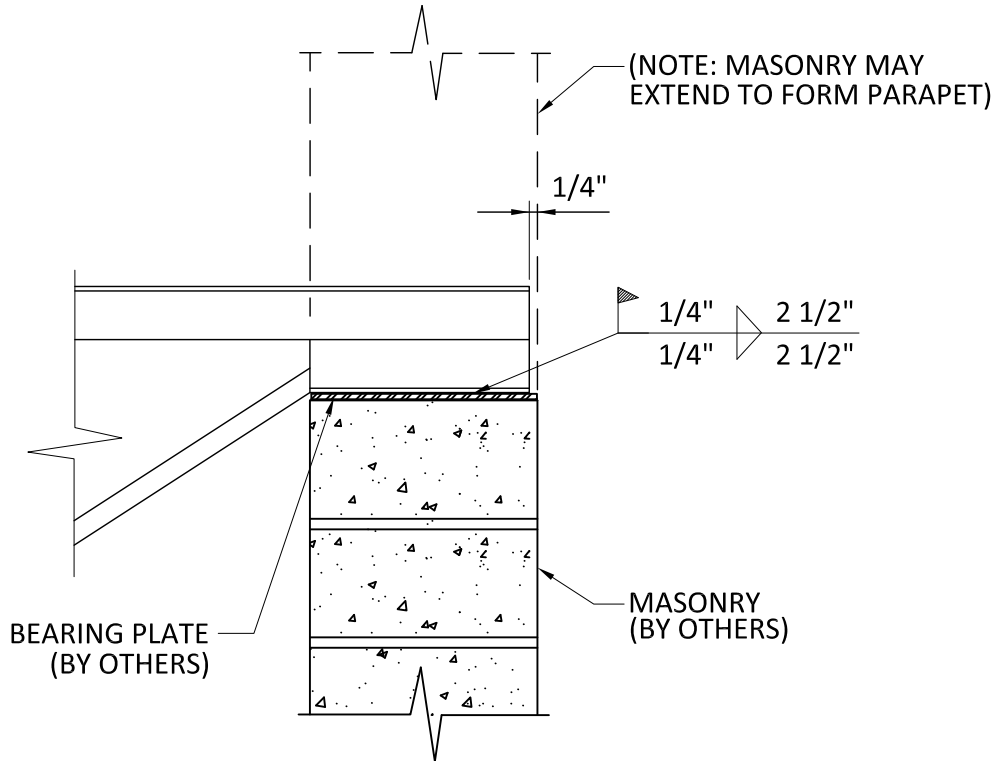
**INTERIOR - BAR JOIST TO MASONRY CONNECTION**  
SHORTSPAN JOIST

BJ57
AK

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End - Bar Joist to Masonry Connection  
LongSpan Roof Joist  
BJ58/AH



\* 6" MINIMUM MUST FULLY BEAR ON MASONRY (BY OTHERS).

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

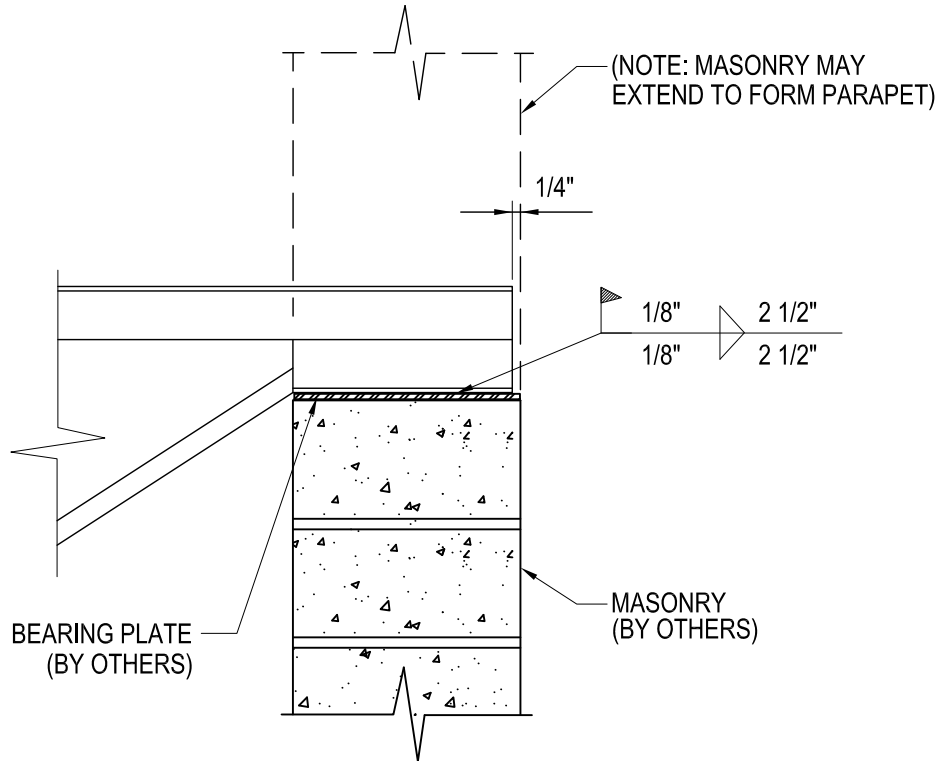
**END - BAR JOIST TO MASONRY CONNECTION**  
LONGSPAN JOIST

BJ58
AH

[Download the DWG file by clicking here.](#)

[To Section Index](#)

End - Bar Joist to Masonry Connection  
Shortspan Roof Joist  
BJ58/AK



\* 4" MINIMUM MUST FULLY BEAR ON MASONRY (BY OTHERS).

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_.

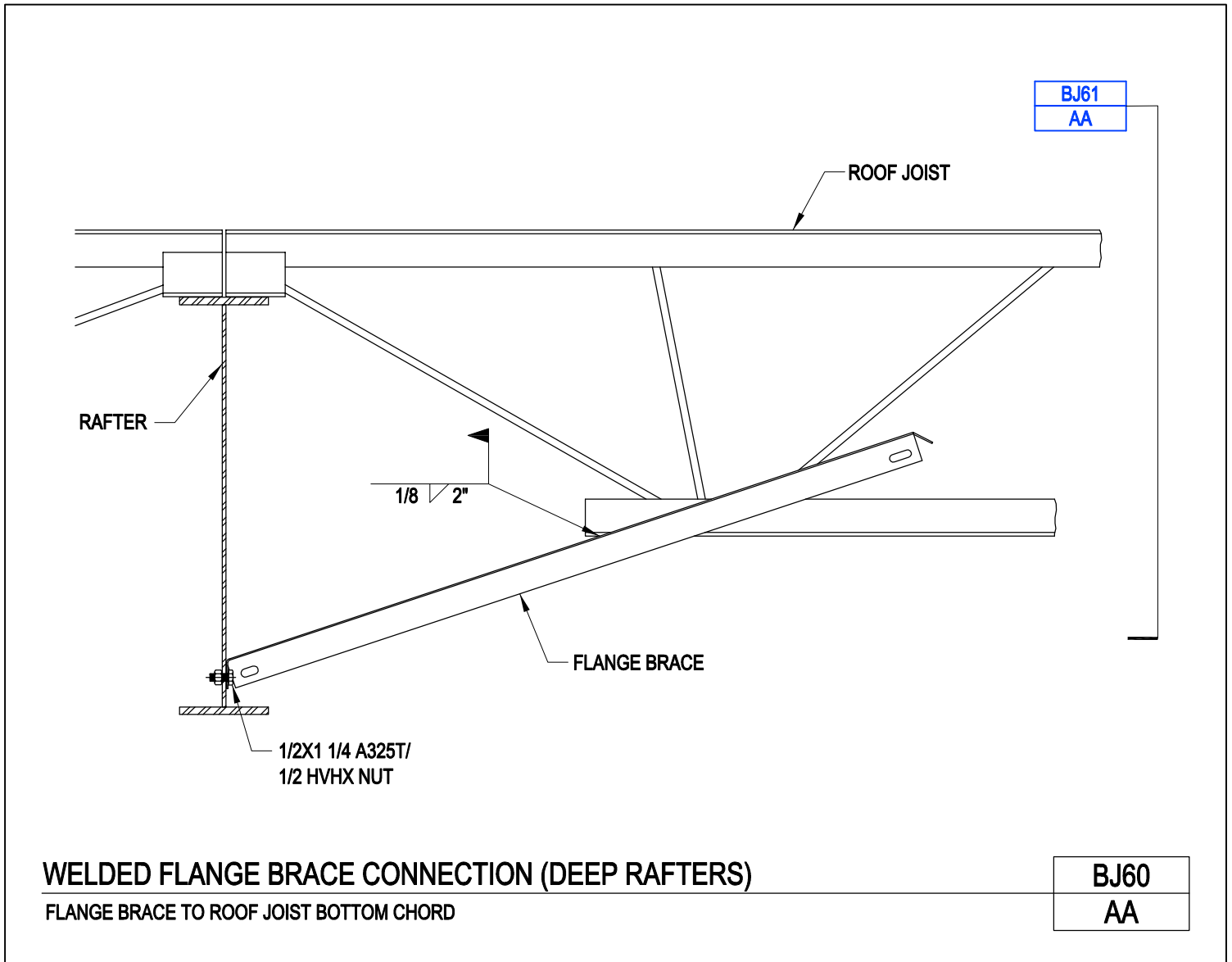
**END - BAR JOIST TO MASONRY CONNECTION**  
SHORTSPAN JOIST

BJ58
AK

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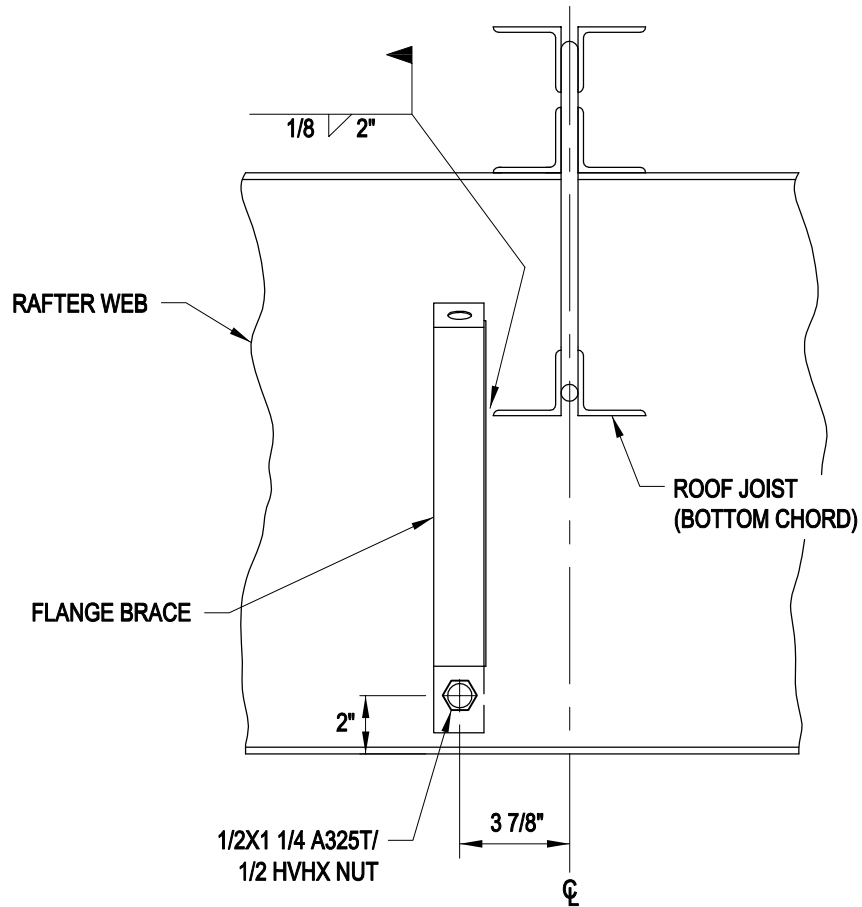
Welded Flange Brace Connection (Deep Rafters)  
 Flange Brace to Roof Joist Bottom Chord  
 BJ60/AA



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Welded Section Detail (Deep Rafters)  
Flange Brace to Roof Joist Bottom Chord  
BJ61/AA



**WELDED SECTION DETAIL (DEEP RAFTERS)**

FLANGE BRACE TO ROOF JOIST BOTTOM CHORD

**BJ61**

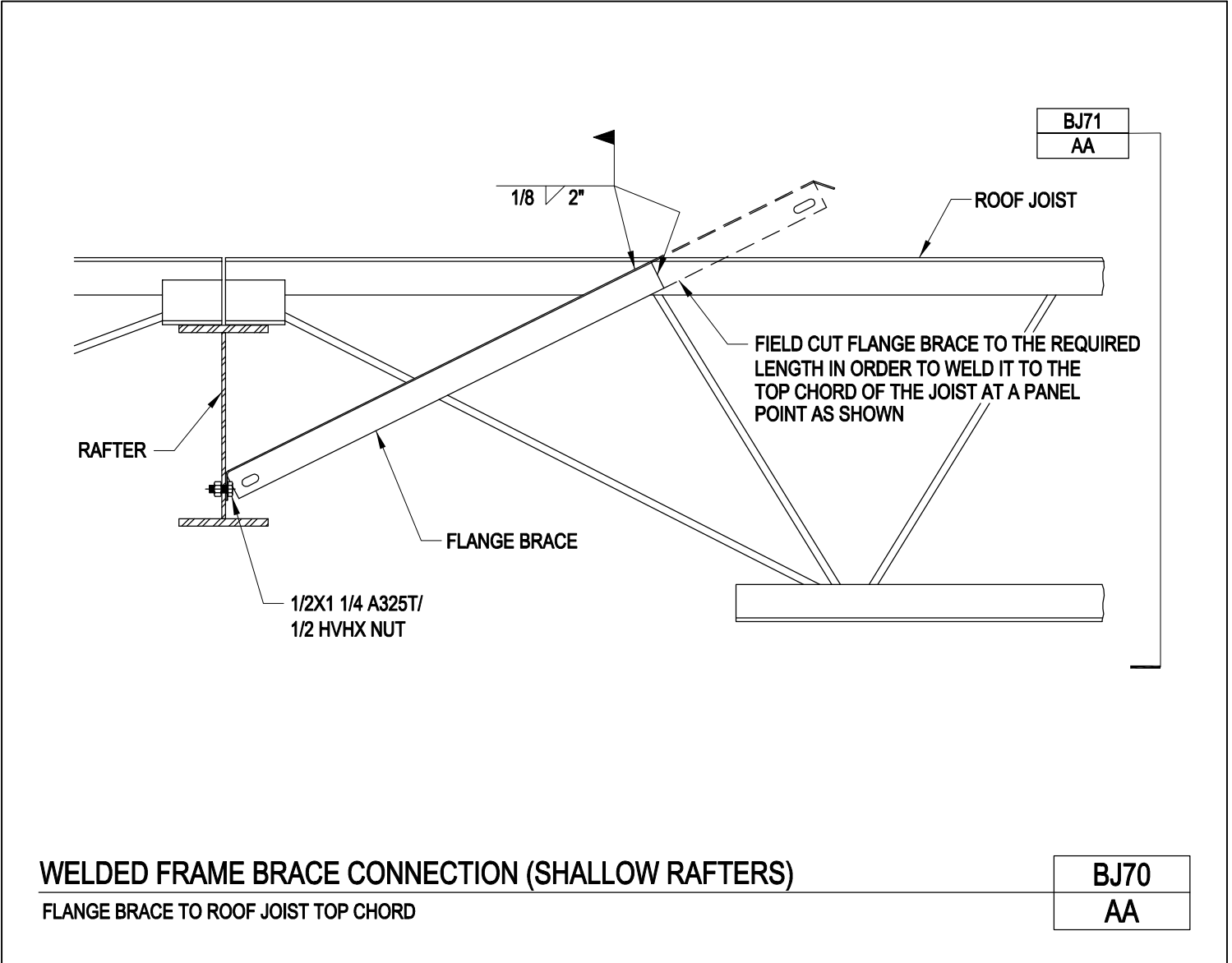
**AA**

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Welded Frame Brace Connection (Shallow Rafters)  
Flange Brace to Roof Joist Top Chord  
BJ70/AA



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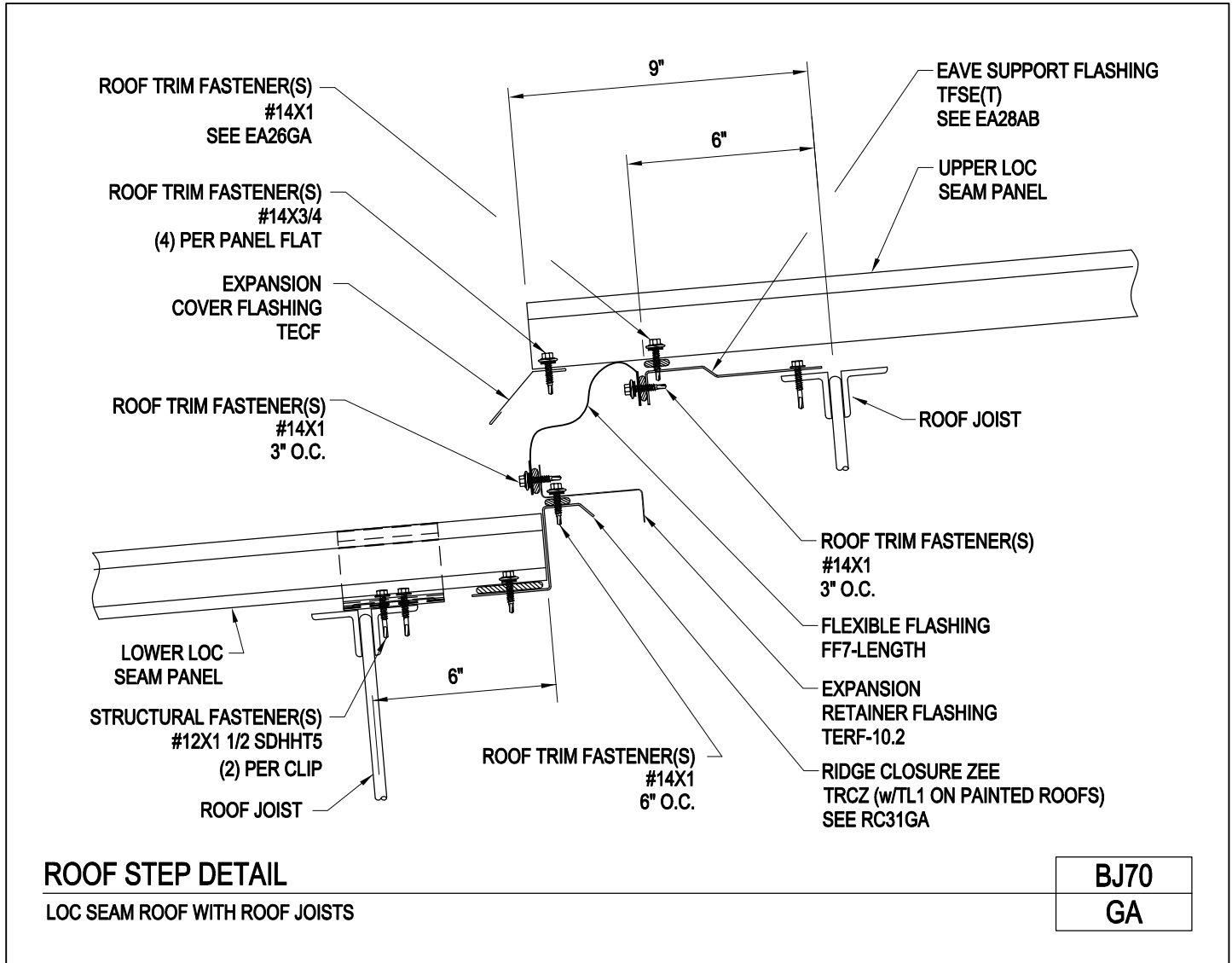
# AMERICAN BUILDINGS

A NUCOR COMPANY

# PRODUCT MANUAL

BAR JOISTS

Roof Step Detail  
Loc Seam Roof With Joists  
BJ70/GA



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Revised: 7-27-2017



**AMERICAN  
BUILDINGS**

A **NUCOR** COMPANY

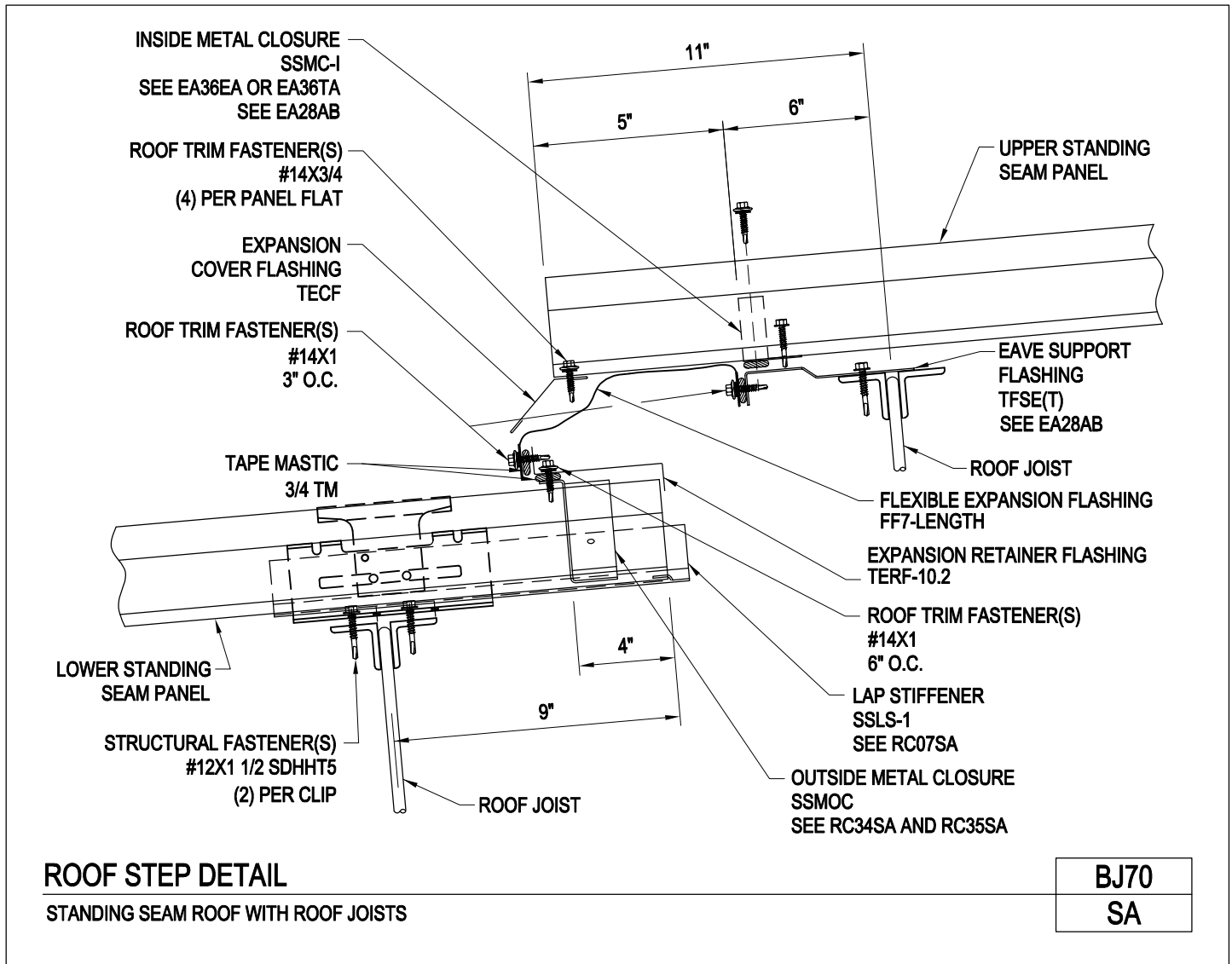
# PRODUCT MANUAL

BAR JOISTS

## Roof Step Detail

Standing Seam Roof With Roof Joists

BJ70/SA

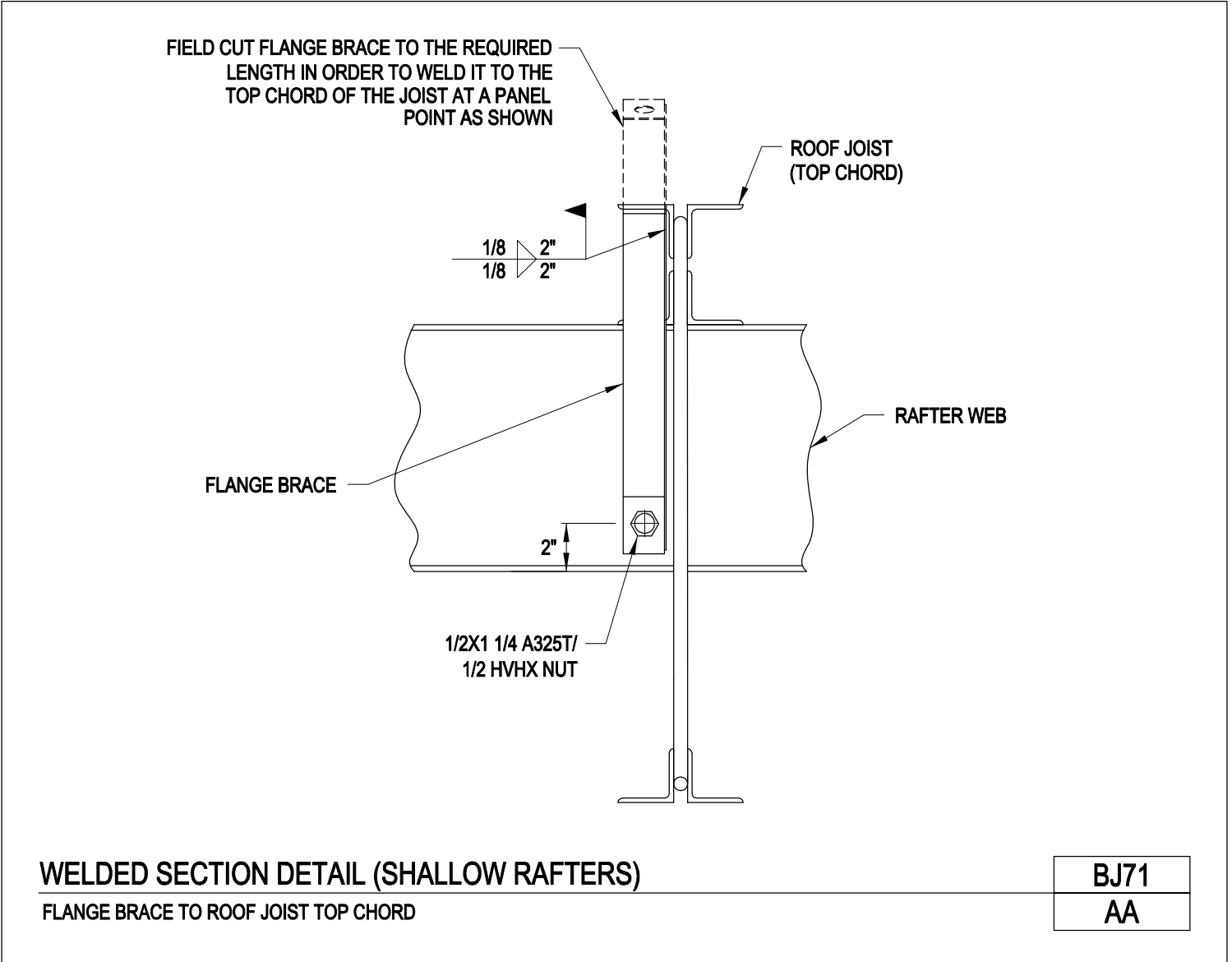


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Revised: 7-27-2017

Welded Section Detail (Shallow Rafters)  
Flange Brace to Roof Joist Top Chord  
BJ71/AA



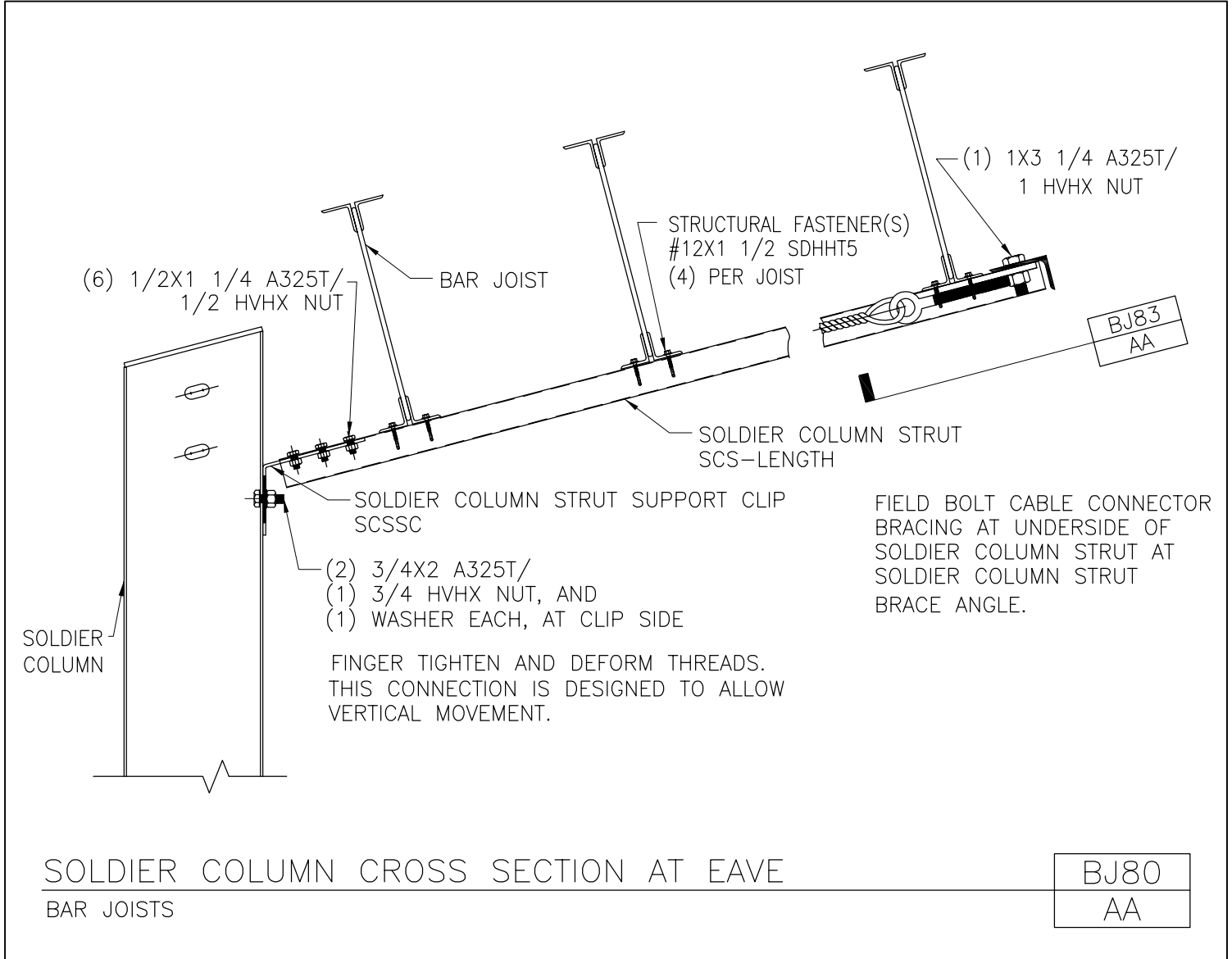
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Soldier Column Cross Section at Eave

BAR JOISTS

BJ80/AA



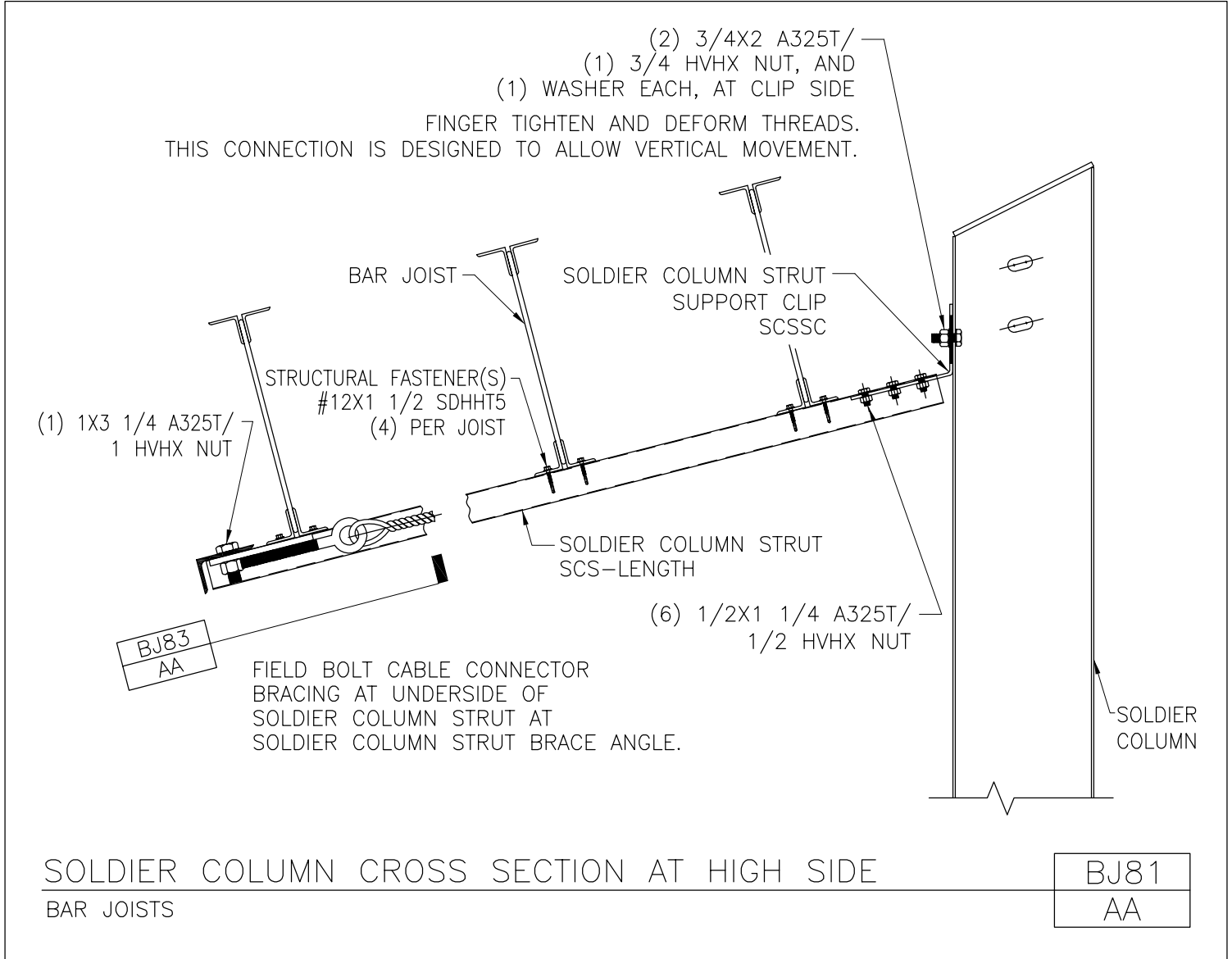
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Soldier Column Cross Section at High Side

BAR JOISTS

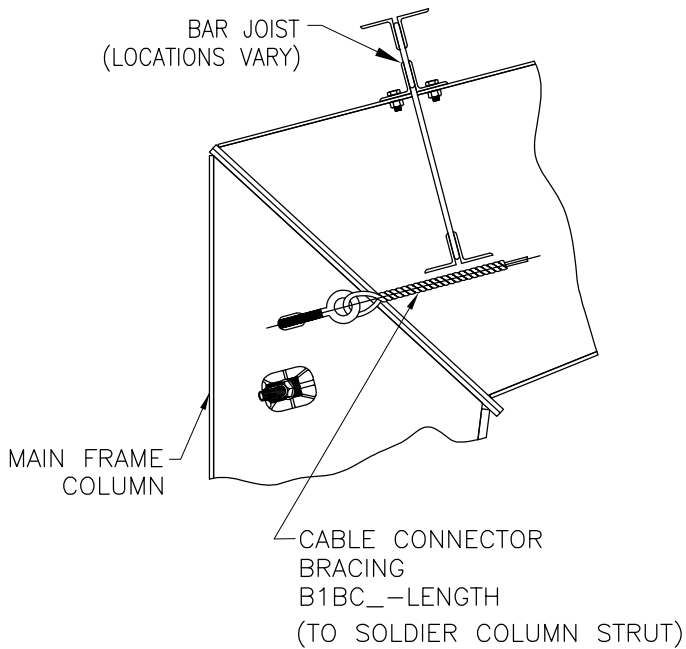
BJ81/AA



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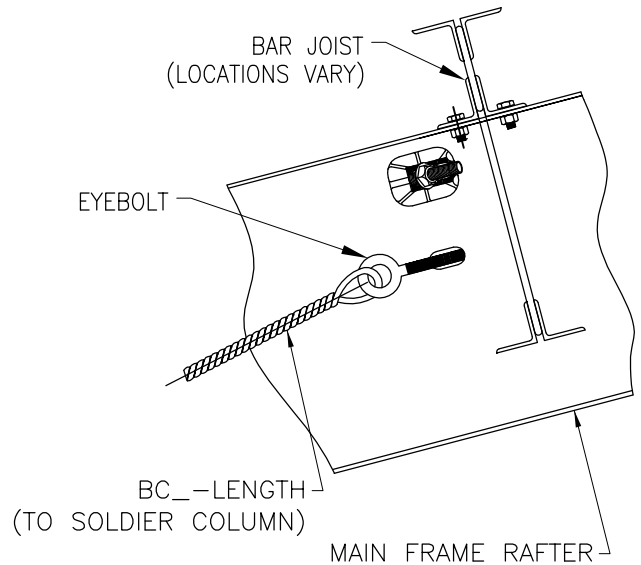
Bracing at Main Frame  
BAR JOISTS  
BJ82/AA



**MAIN FRAME COLUMN**

(COLUMN/FRAME PROFILE MAY VARY)

B1BC\_-LENGTH CABLE CONNECTOR BRACING RUNS UNDERNEATH BAR JOISTS AND CONNECTS TO SHOP WELDED SOLDIER COLUMN STRUT BRACE ANGLE.



**MAIN FRAME RAFTER**

CABLE BRACING, BC\_-LENGTH, TO WEAVE THROUGH BAR JOIST WEBS AND CONNECT AT SLOTS IN SOLDIER COLUMN ABOVE SOLDIER COLUMN STRUT.

BRACING AT MAIN FRAME  
BAR JOISTS

BJ82
AA

REFERENCE DETAIL [BR01HAA](#)

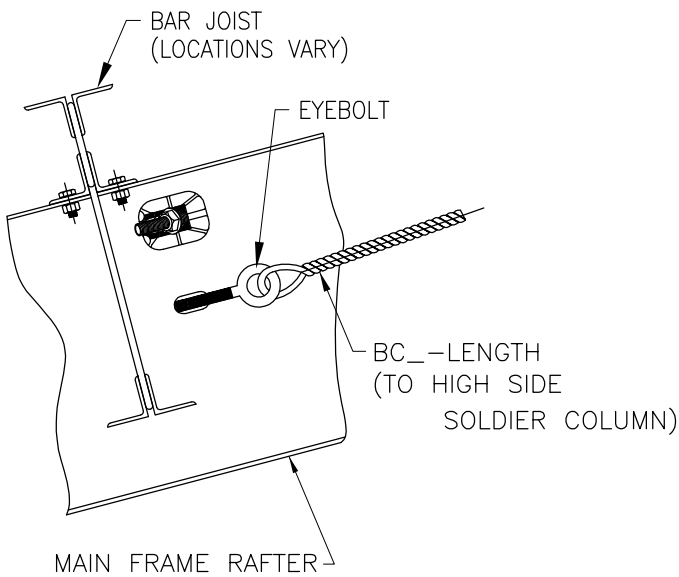
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Bracing at Main Frame High Side Column to Joist Strut

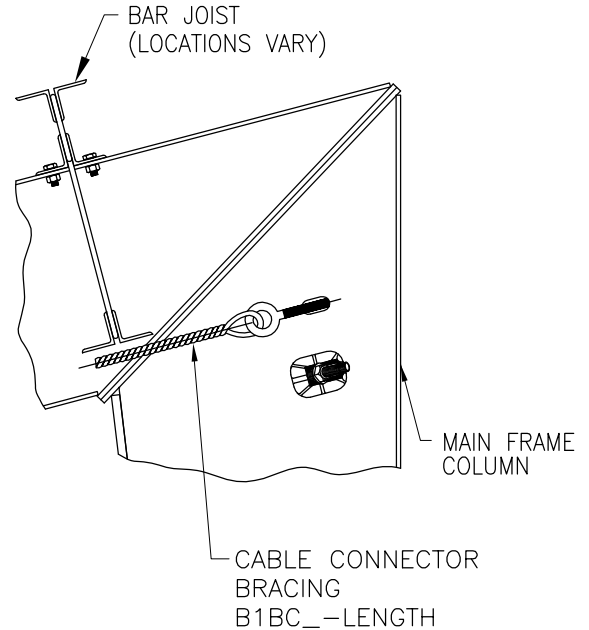
BAR JOISTS

BJ82A/AA



**MAIN FRAME RAFTER**

CABLE BRACING, BC\_-LENGTH, TO WEAVE THROUGH BAR JOIST WEBS AND CONNECT AT SLOTS IN THE SOLDIER COLUMN ABOVE SOLDIER COLUMN STRUT.



**MAIN FRAME HIGH SIDE COLUMN**

(COLUMN/FRAME PROFILE MAY VARY)

B1BC\_-LENGTH CABLE CONNECTOR BRACING RUNS UNDERNEATH BAR JOISTS AND CONNECTS TO THE SHOP WELDED SOLDIER COLUMN STRUT BRACE ANGLE.

BRACING AT MAIN FRAME HIGH SIDE COLUMN TO JOIST STRUT  
BAR JOISTS

BJ82A
AA

REFERENCE DETAIL [BR01HAA](#)

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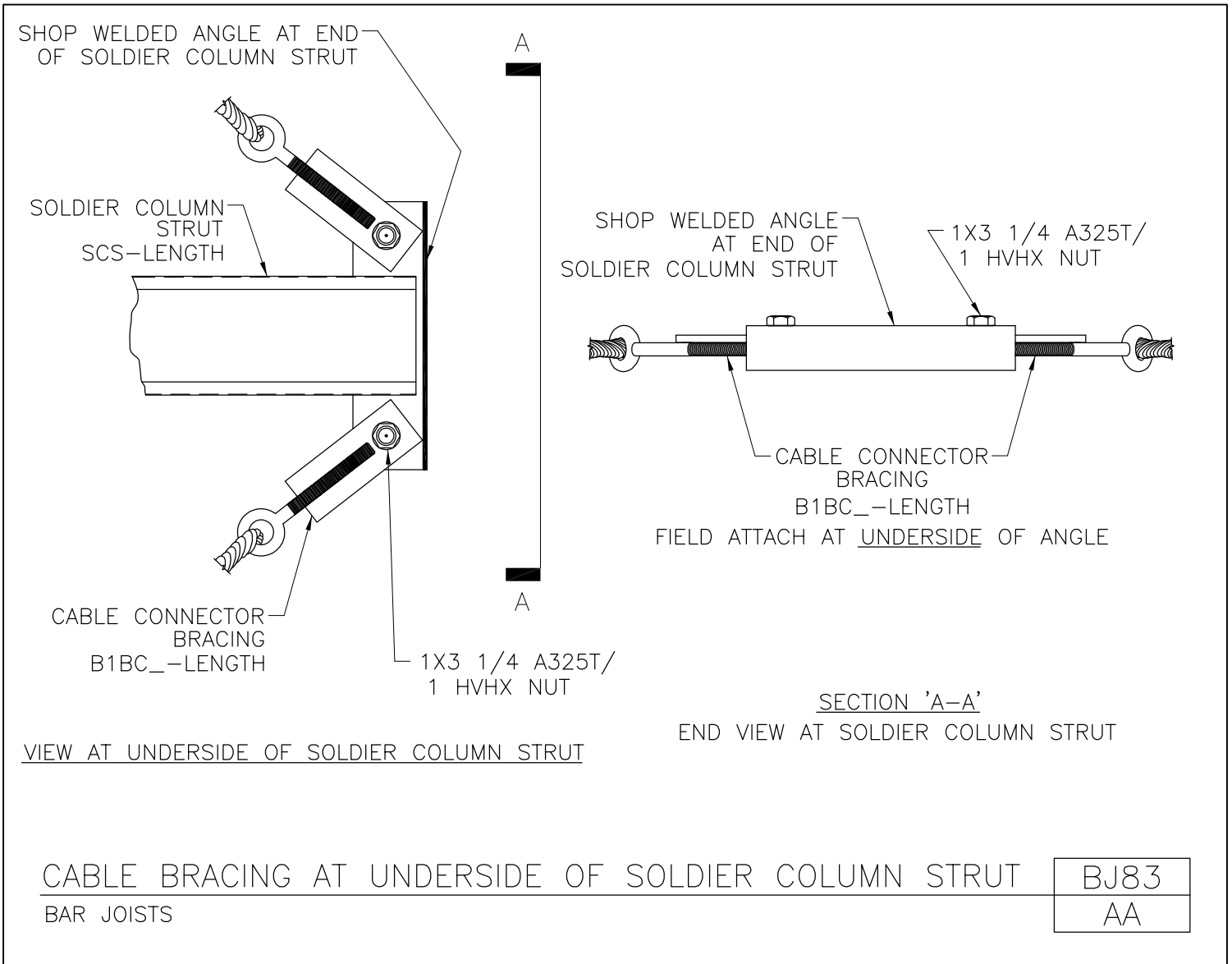
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## Cable Bracing at Underside of Soldier Column Strut

BAR JOISTS

BJ83/AA

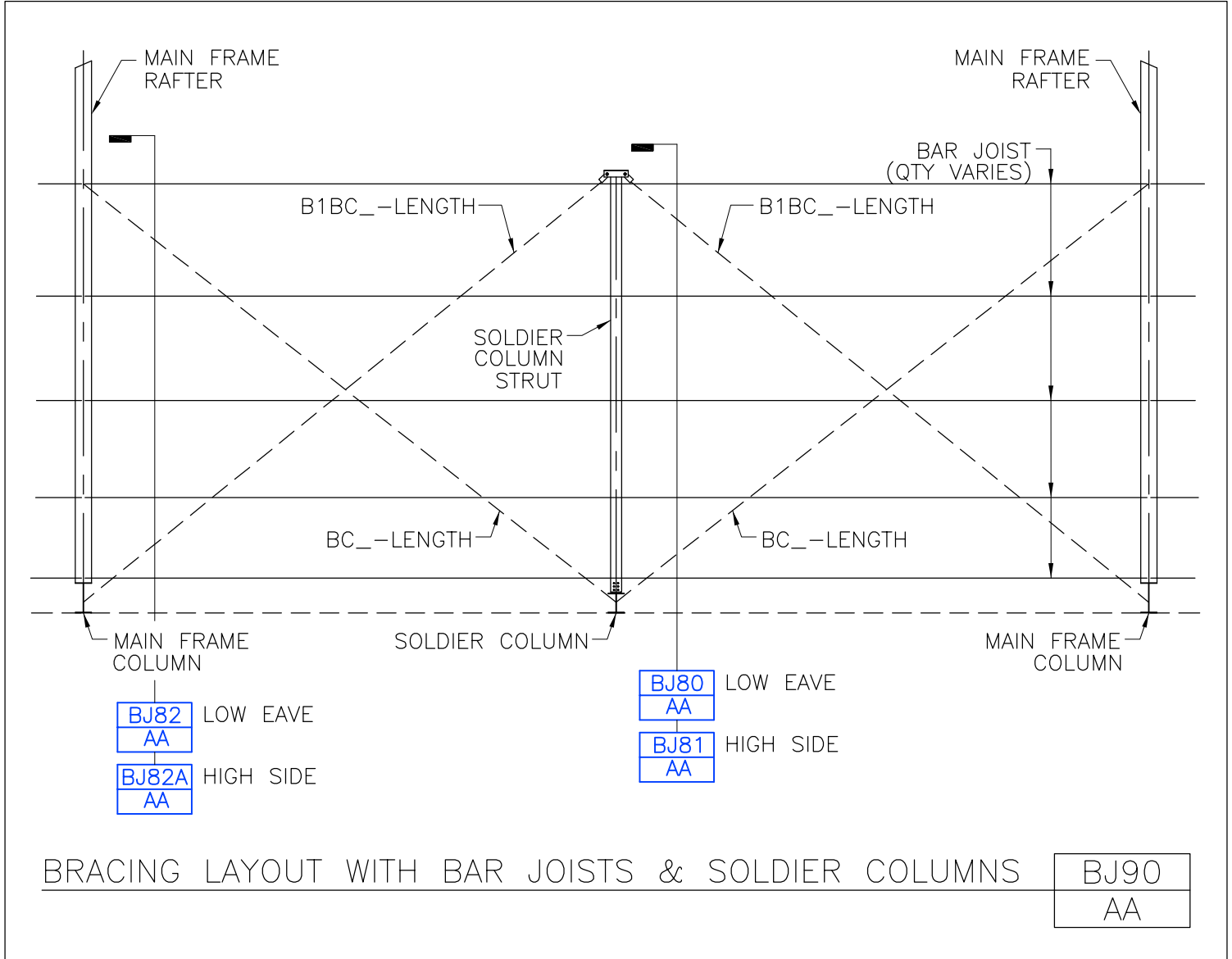


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## Bracing Layout With Bar Joists & Soldier Columns

BJ90/AA

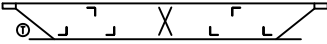
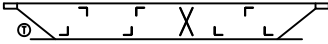
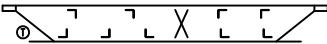
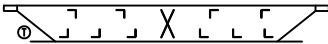
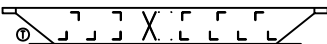
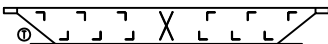
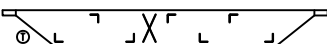
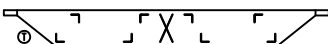
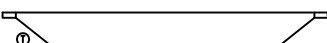
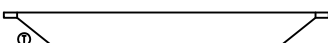


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Bridging Locations

BJBC/AA

 <p><u>CONDITION A</u> 2 ROWS H TOP, 4 ROWS H BOTTOM, 1 ROW X</p>	 <p><u>CONDITION B</u> 3 ROWS H TOP, 4 ROWS H BOTTOM, 1 ROW X</p>
 <p><u>CONDITION C</u> 4 ROWS H TOP, 5 ROWS H BOTTOM, 1 ROW X</p>	 <p><u>CONDITION D</u> 4 ROWS H TOP, 6 ROWS H BOTTOM 1 ROW X</p>
 <p><u>CONDITION E</u> 5 ROWS H TOP, 7 ROWS H BOTTOM, 1 ROW X</p>	 <p><u>CONDITION F</u> 6 ROWS H TOP &amp; 6 ROWS H BOTTOM, 1 ROW X</p>
 <p><u>CONDITION G</u> 3 ROWS H TOP, 4 ROWS H BOTTOM, 1 ROW X</p>	 <p><u>CONDITION H</u> 4 ROWS H TOP, 4 ROWS H BOTTOM, 1 ROW X</p>
 <p><u>CONDITION J</u> OTHER</p>	 <p><u>CONDITION K</u> OTHER</p>

**BRIDGING REQUIREMENT CONDITIONS FOR ROOF**

**NOTES:**

- H = HORIZONTAL BRIDGING
- X = DIAGONAL BRIDGING
- ⓪ = TAGGED END OF JOIST
- TOP AND BOTTOM BRIDGING ROWS SHOULD BE EQUALLY SPACED AND ARE INDEPENDENT OF EACH OTHER, AND MAY NOT LINE UP
- LOCATE THE FIRST ROW OF BOTTOM CHORD BRIDGING AT THE FIRST BOTTOM CHORD PANEL POINT, AT EACH END.

BRIDGING LOCATIONS

BJBC
AA

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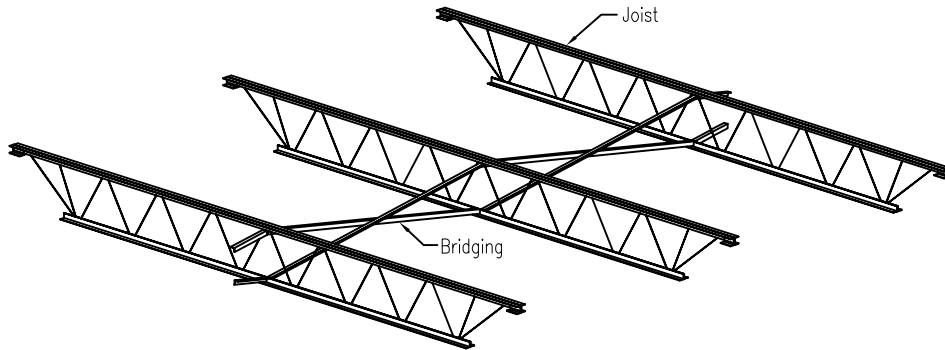
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Diagonal Bridging Reference Layout

BJBDB/AA

# **BOLTED      DIAGONAL**

## **JOIST BRIDGING DETAIL**



This bolted diagonal bridging is to be installed PRIOR to any horizontal bolted bridging. Refer to plan page for bridging marks and bay locations.

**DIAGONAL BRIDGING REFERENCE LAYOUT**

<b>BJBDB</b>
<b>AA</b>

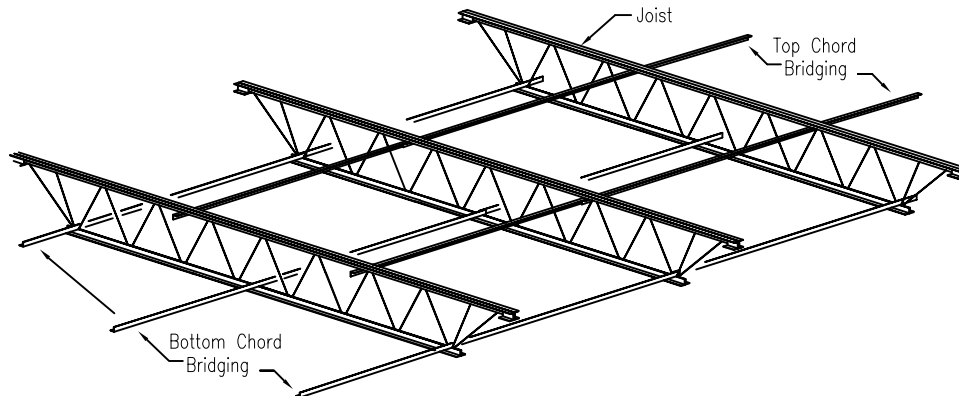
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Horizontal Bridging Reference Layout

BJBHB/AA

**BOLTED HORIZONTAL**  
**JOIST BRIDGING DETAIL**



Outside bottom chord runs located at first bottom chord panel points.  
with balance of Bottom Chord bridging rows to be equally spaced.

**HORIZONTAL BRIDGING REFERENCE LAYOUT**

**BJBHB**  
**AA**

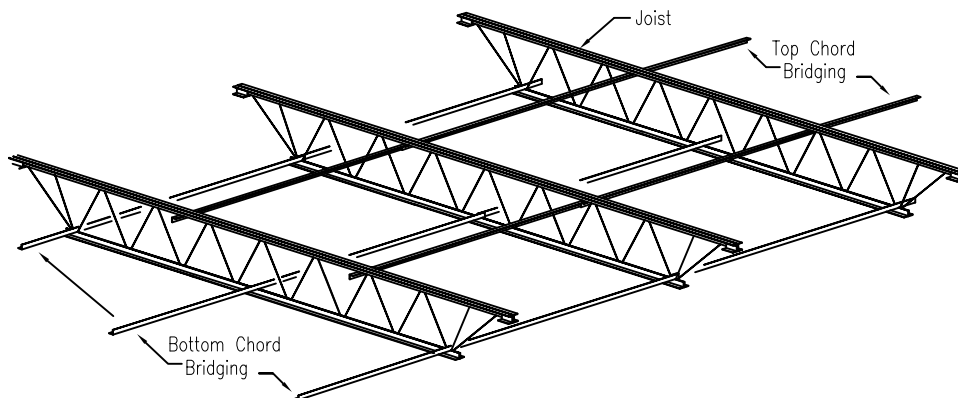
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Horizontal Bridging Reference Layout

BJBHW/AA

**WELDED HORIZONTAL  
JOIST BRIDGING DETAIL**



Outside bottom chord runs located at first bottom chord panel points, with balance of Bottom Chord bridging rows to be equally spaced.

**HORIZONTAL BRIDGING REFERENCE LAYOUT**

NOTE: FIELD WELDING REQUIRED,  
SEE DETAIL ENFWA

<b>BJBHW</b>
<b>AA</b>

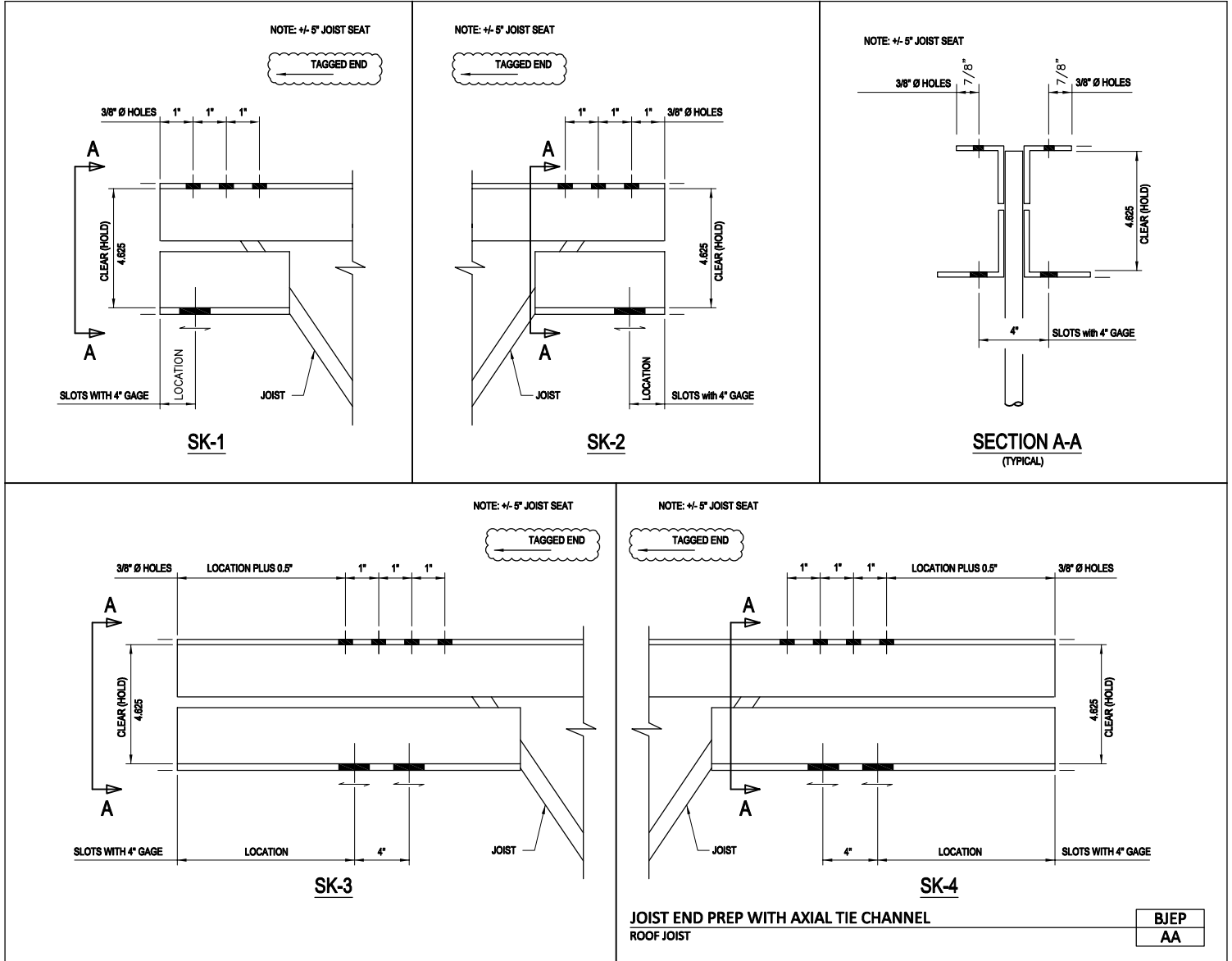
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Joist End Prep With Axial Tie Channel

Roof Joist

BJEP/AA



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## General Bar Joist Erection Notes

### BJOA/AA

#### **\*\*IMPORTANT NOTICE FOR THE HANDLING AND ERECTION OF STEEL JOISTS\*\***

THE FOLLOWING NOTES ARE GENERAL NOTES ONLY.  
IF A DISCREPANCY EXISTS BETWEEN THE FINAL ERECTION DRAWINGS OR FINAL PLANS FOR FIELD USE AND THESE NOTES, THE GENERAL NOTES SHOULD BE CONSIDERED A MINIMUM. THE FINAL DRAWINGS OR FINAL PLANS WILL TAKE PRECEDENCE.

1. CHECK PART MARKS, QUANTITIES AND CONDITION OF JOISTS AND ACCESSORIES UPON ARRIVAL. NOTE ON THE DELIVERY TICKETS ANY SHORTAGES OR DISCREPANCIES. INFORM THE METAL BUILDING SUPPLIER IMMEDIATELY OF ANY SHORTAGES, DISCREPANCIES OR DAMAGES. THE METAL BUILDING SUPPLIER WILL NOT BE LIABLE FOR ANY SHORTAGES OR DAMAGE NOT NOTED.
2. WHEN UNLOADING BY CRANE, ALWAYS HOOK CHAINS OR SLINGS TO THE TOP OR BOTTOM CHORDS AT PANEL POINTS, PREFERABLY AT 1/3 POINTS OF THE JOIST LENGTH. NEVER HOOK TO WEB MEMBERS, OR JERK WHILE LIFTING. WHEN UNLOADING BY HAND, BREAK BUNDLES WITH EXTREME CARE, AND UNLOAD EACH JOIST SEPARATELY.
3. STORE JOISTS IN BUNDLES IN A VERTICAL POSITION OFF THE GROUND WITH WOODEN SKIDS OR BLOCKS PLACED AT PANEL POINTS. LIGHTER JOISTS SHOULD BE STACKED ON HEAVIER JOISTS IF MORE THAN ONE LAYER IS REQUIRED. STORE JOISTS ON THEIR SIDES IF THE HEIGHT OF THE BUNDLE IS GREATER THAN TWICE ITS WIDTH. JOISTS FROM BROKEN BUNDLES SHOULD BE LAID FLAT ON BLOCKING TO PREVENT SAGGING OF THE JOISTS. IF THE JOISTS ARE NOT ERECTED IMMEDIATELY, COVER THE JOISTS IN A MANNER THAT PROVIDES ADEQUATE VENTILATION AND PROTECTS THE PRIMER COAT.
4. ERECTION MUST BE DONE FROM ERECTION DRAWINGS NOTED "FOR CONSTRUCTION" OR "FINAL PLANS FOR FIELD USE". REFERENCE THE ERECTION DRAWINGS FOR ORIENTATION OF TAGGED ENDS OF JOISTS AND ANY BOLTED STABILITY REQUIREMENTS.
5. THE ERECTION OF ALL JOIST PRODUCTS AND ACCESSORIES MUST BE DONE IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATION OF THE STEEL JOIST INSTITUTE (SJI).
6. JOISTS FURNISHED BY THE METAL BUILDING SUPPLIER ARE FABRICATED TO MEET THE ERECTION REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) 29 CFR 1926 SUBPART R - STEEL ERECTION. FIELD COMPLIANCE WITH THIS ACT IS NECESSARY. REFER TO THE APPLICABLE ERECTION DRAWINGS FOR ANY OSHA COMPLIANT DETAILS. IT IS IMPERATIVE THAT THE OSHA ERECTION REQUIREMENTS ARE READ, UNDERSTOOD AND FOLLOWED, ESPECIALLY THOSE RELATING TO THE ATTACHMENT OF THE JOISTS TO THE SUPPORTING STRUCTURE, AND THE INSTALLATION AND ANCHORING OF BRIDGING. FAILURE TO DO SO COULD LEAD TO SERIOUS INJURY OR DEATH.
7. THE METAL BUILDING SUPPLIER MUST BE NOTIFIED IMMEDIATELY IF THE JOISTS OR ACCESSORIES CANNOT BE ERECTED ACCORDING TO THE FINAL ERECTION DRAWINGS. THE METAL BUILDING SUPPLIER WILL NOT BE RESPONSIBLE FOR ANY EXPENSES INCURRED FOR ANY FIELD REPAIRS, CORRECTIONS OR CHANGES MADE WITHOUT PRIOR APPROVAL BY THE METAL BUILDING SUPPLIER.
8. DO NOT CUT AWAY ANY CHORDS, WEBS OR ANY PORTION THEREOF.
9. FIELD WELDING MUST NOT DAMAGE JOISTS.
10. JOIST CHORDS ARE NOT DESIGNED FOR BENDING DUE TO CONCENTRATED LOADS UNLESS NOTED OTHERWISE. PLACE LOADS AT TRUSS PANEL POINTS, OR INSTALL (FIELD WELD) AN EXTRA WEB MEMBER FROM THE LOAD POINT TO THE NEAREST PANEL POINT ON THE OPPOSITE CHORD AT NO EXPENSE TO THE METAL BUILDING SUPPLIER. SEE THE SPECIFIC JOIST REINFORCING DETAIL ON THESE DRAWINGS. CONSULT THE PROJECT STRUCTURAL ENGINEER OF RECORD FOR SIZING OF THESE EXTRA WEB MEMBERS.
11. CONCENTRATED LOADS, UNLESS EXPLICITLY INCLUDED IN THE DESIGN PARAMETERS PROVIDED BY THE METAL BUILDING SUPPLIER, MAY ONLY BE ADDED WITH THE APPROVAL BY AND UNDER THE SUPERVISION OF THE PROJECT STRUCTURAL ENGINEER OF RECORD.
12. THE CONTRACTOR MUST PROVIDE MEANS FOR ADEQUATE DISTRIBUTION OF CONCENTRATED LOADS SO THAT THE CARRYING CAPACITY OF ANY JOIST IS NOT EXCEEDED. UNDER NO CIRCUMSTANCES CAN DECK BUNDLES OR CONSTRUCTION LOADS OF ANY DESCRIPTION BE PLACED ON THE JOISTS UNTIL ALL BRIDGING IS COMPLETELY INSTALLED AND ANCHORED, AND JOISTS ARE PERMANENTLY FASTENED INTO PLACE. FAILURE TO DO THIS CAN RESULT IN SERIOUS INJURY OR DEATH.
13. BOTTOM CHORD EXTENSIONS, IF REQUIRED, ARE INDICATED ON THE ERECTION DRAWINGS. CONNECTION OF ANY BOTTOM CHORD EXTENSIONS MUST BE MADE ONLY WHEN INSTRUCTED TO DO SO, AND MUST BE MADE IN ACCORDANCE WITH THE INSTRUCTIONS SHOWN ON THE FINAL ERECTION DRAWINGS. DO NOT ATTACH THE BOTTOM CHORD EXTENSIONS UNTIL ALL DEAD LOADS HAVE BEEN APPLIED.
14. NO HOLES ARE PROVIDED IN THE JOISTS FOR THE ATTACHMENT OF ANY PIPING, EQUIPMENT, ACCESSORIES, ETC. BY OTHER TRADES, AND ARE DESIGNED AS SUCH. NO HOLES CAN BE DRILLED OR BURNED IN A WEB OR CHORD MEMBER.
15. ALL BOTTOM BEARING CHORD JOISTS ARE TO BE ERECTED WITH CAMBER UPWARD.
16. ONLY MATCHED HALVES OF BOLTED FIELD SPliced JOISTS ARE TO BE BOLTED TOGETHER. REFER TO INSTRUCTIONS PROVIDED ON THE METAL BUILDING SUPPLIER ERECTION DRAWINGS.
17. METAL DECK OR CENTERING MUST BE RIGIDLY ATTACHED TO THE TOP CHORD OF THE JOISTS AT A SPACING NOT TO EXCEED 36" O.C. IN ORDER TO PROVIDE ADEQUATE LATERAL SUPPORT TO THE JOISTS. EACH ATTACHMENT MUST BE CAPABLE OF RESISTING A LATERAL FORCE AS SPECIFIED IN THE LATEST STANDARD SPECIFICATION OF THE STEEL JOIST INSTITUTE (SJI). FOLLOW THE MANUFACTURERS RECOMMENDATIONS FOR DECK INSTALLATION OR REFER TO THE DECK ATTACHMENT DETAIL.
18. IT IS RECOMMENDED THAT ROOF PANEL BUNDLES BE PLACED DIRECTLY OVER THE RIGID FRAMES AS STATED ON THE ROOF PANEL ERECTION DRAWINGS.
19. ALL HORIZONTAL BRIDGING IS SHIPPED IN 20' LENGTHS, AND IS TO BE INSTALLED WITH STANDARD 3" LAPS. ALL DROPS MUST BE USED.
  - WHEN BOLTED CONNECTIONS ARE USED, REFER TO THE METAL BUILDING SUPPLIERS ERECTION DRAWINGS FOR BUILDING ANCHORAGE REQUIREMENTS.
  - BOLTS MUST BE "SNUG-TIGHTENED" PER THE LATEST AISC SPECIFICATION.
  - WHEN WELDED CONNECTIONS ARE USED, BRIDGING SHALL BE CONNECTED TO THE JOIST CHORDS WITH A MINIMUM OF:
    - SHORTSPAN "K" SERIES - 1/8" FILLET WELD, 1/2" LONG OR EQUIVALENT.
    - LONGSPAN "LH" SERIES - 1/8" FILLET WELD, 1" LONG OR EQUIVALENT.
20. DIAGONAL BRIDGING MEMBERS MUST BE CONNECTED AT THEIR POINT OF INTERSECTION BY EITHER BOLTING OR WELDING.
21. DO NOT COMPLETELY WELD JOISTS OR TIGHTEN BOLTS TO THE BEARING SUPPORT UNTIL THE JOISTS ARE PROPERLY ALIGNED. AS SOON AS THE JOISTS ARE IN POSITION, THE JOIST END ATTACHMENTS TO THE SUPPORT MUST BE MADE. ANY NECESSARY ALIGNMENT MUST BE DONE DURING THE INSTALLATION OF THE BRIDGING. AFTER BRIDGING IS INSTALLED, JOISTS MUST BE COMPLETELY ATTACHED TO THE BEARING SUPPORTS AT BOTH ENDS.
  - DO NOT ATTEMPT TO ALIGN OR STRAIGHTEN THE JOISTS AFTER INSTALLATION OF THE BRIDGING AND PERMANENT ATTACHMENT TO THE BEARING SUPPORTS HAVE BEEN MADE.
  - REFER TO THE METAL BUILDING SUPPLIERS ERECTION DRAWINGS FOR ANY SPECIAL END ANCHORAGE REQUIREMENTS.
  - WHEN BOLTED CONNECTIONS ARE USED, BOLTS MUST BE "SNUG TIGHTENED" PER THE LATEST AISC SPECIFICATION.
22. CERTAIN JOISTS MAY REQUIRE BOLTED DIAGONAL (ERECTION) BRIDGING. WHEN REQUIRED, THIS BRIDGING MUST BE INSTALLED AND ANCHORED PRIOR TO SLACKENING OF THE HOISTING CABLES.
23. WHEN IT IS NECESSARY FOR THE ERECTOR TO CLIMB ON THE JOISTS, EXTREME CAUTION MUST BE EXERCISED SINCE UNBRIDGED JOISTS MAY EXHIBIT SOME DEGREE OF INSTABILITY UNDER THE ERECTOR'S WEIGHT. BOTH ENDS OF JOISTS AT COLUMNS AND ONE END OF ALL OTHER JOISTS MUST BE ATTACHED TO ITS SUPPORT BEFORE ALLOWING THE WEIGHT ON AN ERECTOR ON THE JOISTS.
24. THE METAL BUILDING SUPPLIER RECOMMENDS THAT NO ONE BE ALLOWED TO WALK OR CLIMB ON A JOIST UNTIL ALL BRIDGING IS COMPLETELY INSTALLED AND ANCHORED.
25. STEEL JOISTS MUST NOT BE USED AS ANCHORAGE POINTS FOR A FALL ARREST SYSTEM.
 

NOTE: FIELD WELDING REQUIRED, SEE DETAIL ENFWA\_

GENERAL BAR JOIST ERECTION NOTES

BJOA  
AA

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General Notes  
Roof Joists  
BJOB/AA

1. See detail BJOAAA,  
**\*\*IMPORTANT NOTICE FOR THE HANDLING AND ERECTION OF STEEL JOISTS\*\***
2. Bridging to be specified by the roof joist supplier.
3. Insulation not shown in these details for clarity.
4. Bracing attachment and clip orientation will vary according to joist size and rafter depth. See erection drawings for specific frame brace connection.

## GENERAL NOTES

Roof Joists

<b>BJOB</b>
<b>AA</b>

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A **NUCOR** COMPANY

# PRODUCT MANUAL

BAR JOISTS

General Drill Bolt Notes

Roof Joists

BJOB/AB

**Note:**

Drill Bolts are only required for Axial Tie connections (where required by design), Flange Brace Clip attachment and Roof Top Unit Clip installations. Each of these connections do contain pre-punching of joist, flange brace clip and roof top unit clip respectively so that the drill bolt only has one material thickness to drill and tap.

**Recommended Tool:**

Heavy Duty Milwaukee Impact Wrench,  
Catalog No./Model No. #9072-20,  
No load rpm.....600-1800,  
1/2" drive,  
1000-2600 impacts per minute,  
Average torque output 100-300 ft-lbs.

**GENERAL DRILL BOLT NOTES**

ROOF JOISTS

**BJOB**

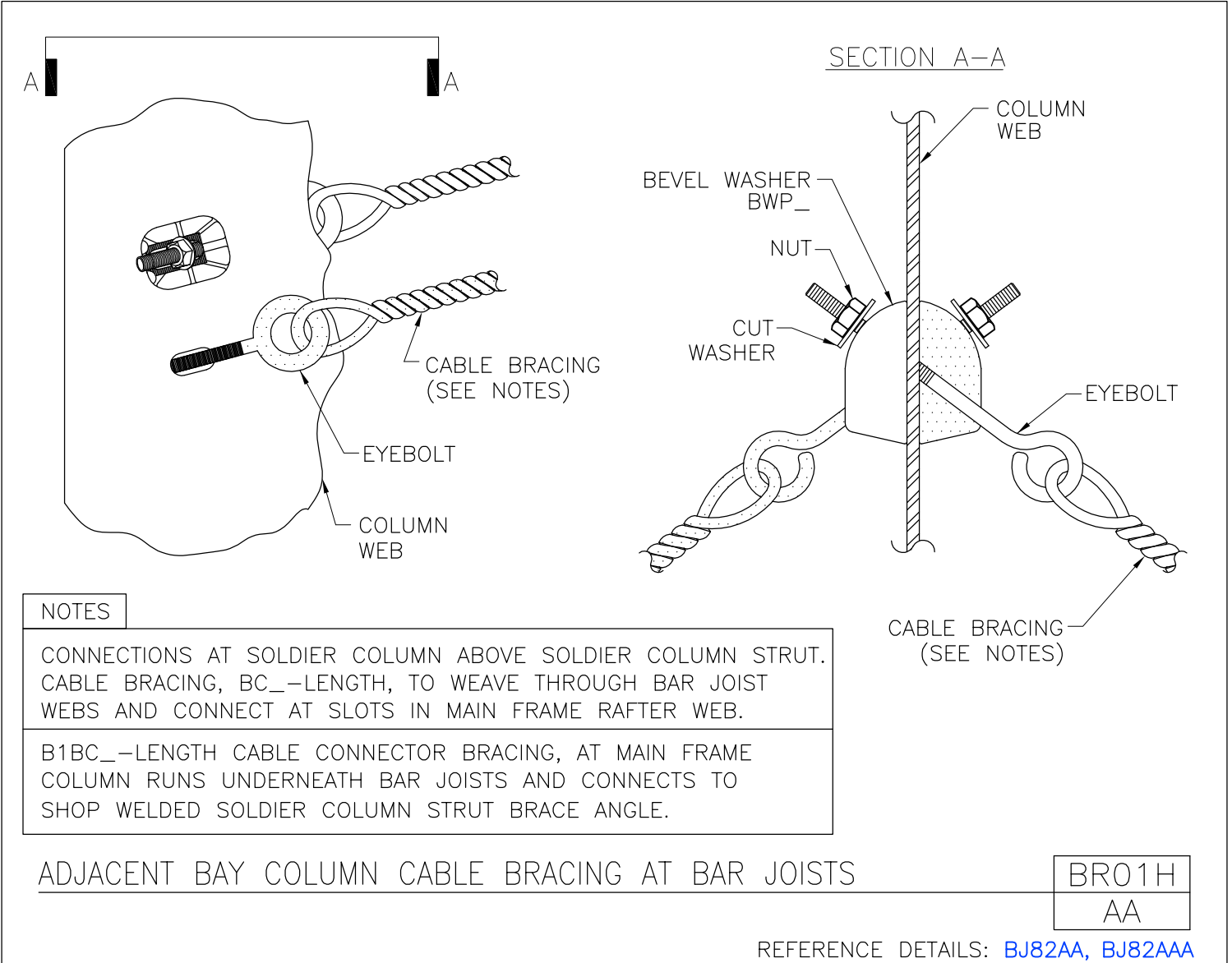
**AB**

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Adjacent Bay Column Cable Bracing at Bar Joists

BR01H/AA



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## Safety Commitment

GE70/AA

### SAFETY NOTES:

THE METAL BUILDING SUPPLIER STRONGLY RECOMMENDS THAT SAFE WORKING CONDITIONS AND ACCIDENT PREVENTION PRACTICES BE THE TOP PRIORITY ON ANY JOB SITE.

LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS SHOULD ALWAYS BE FOLLOWED TO HELP ENSURE WORKER SAFETY.

MAKE CERTAIN ALL EMPLOYEES KNOW THE SAFEST AND MOST PRODUCTIVE WAY OF ERECTING A BUILDING. EMERGENCY TELEPHONE NUMBERS, LOCATIONS OF FIRST AID STATIONS AND EMERGENCY PROCEDURES SHOULD BE KNOWN TO ALL EMPLOYEES.

DAILY MEETINGS HIGHLIGHTING SAFETY PROCEDURES, THE USE OF HARD HATS, RUBBER SOLE SHOES FOR ROOF WORK, PROPER EQUIPMENT FOR HANDLING MATERIAL AND SAFETY NETS WHERE POSSIBLE ARE RECOMMENDED ERECTION PRACTICES.

THE METAL BUILDING SUPPLIER INTENDS THAT THESE DRAWINGS BE INTERPRETED AND ADMINISTERED WITH SOUND JUDGMENT CONSISTENT WITH GOOD SAFETY PRACTICES.

ALL SAFETY PRECAUTIONS, OSHA SAFETY REQUIREMENTS, OR ANY OTHER APPROPRIATE SAFETY REQUIREMENTS, CUSTOMARY OR STATUTORY, MUST BE ADHERED TO, TO ENSURE MAXIMUM WORKER SAFETY.

IF OIL OR OTHER SLIPPERY SUBSTANCES ARE SPILLED ON THE ROOF/DECK PANELS, WIPE THEM OFF IMMEDIATELY TO PREVENT SLIPPING OR FALLING.

YOU SHOULD MAINTAIN A FIRM, SAFE POSITION WHEN USING ANY TOOL.

YOU SHOULD MAINTAIN A CONSTANT AWARENESS OF YOUR LOCATION IN RELATION TO THE ROOF EDGE WHEN USING TOOLS AND MACHINES OR PERFORMING ANY OTHER FUNCTION ON THE ROOF AREA.

DO NOT UNDER ANY CIRCUMSTANCES STEP OR WALK ON THE SURFACE OF ANY FIBERGLASS SKYLIGHT. IF FOOT TRAFFIC IS NECESSARY OVER SKYLIGHT, USE WALK BOARDS THAT ARE PROPERLY SUPPORTED BY THE BUILDING PURLINS.

SAFETY COMMITMENT

GE70
AA

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