



PRODUCT & ENGINEERING MANUAL

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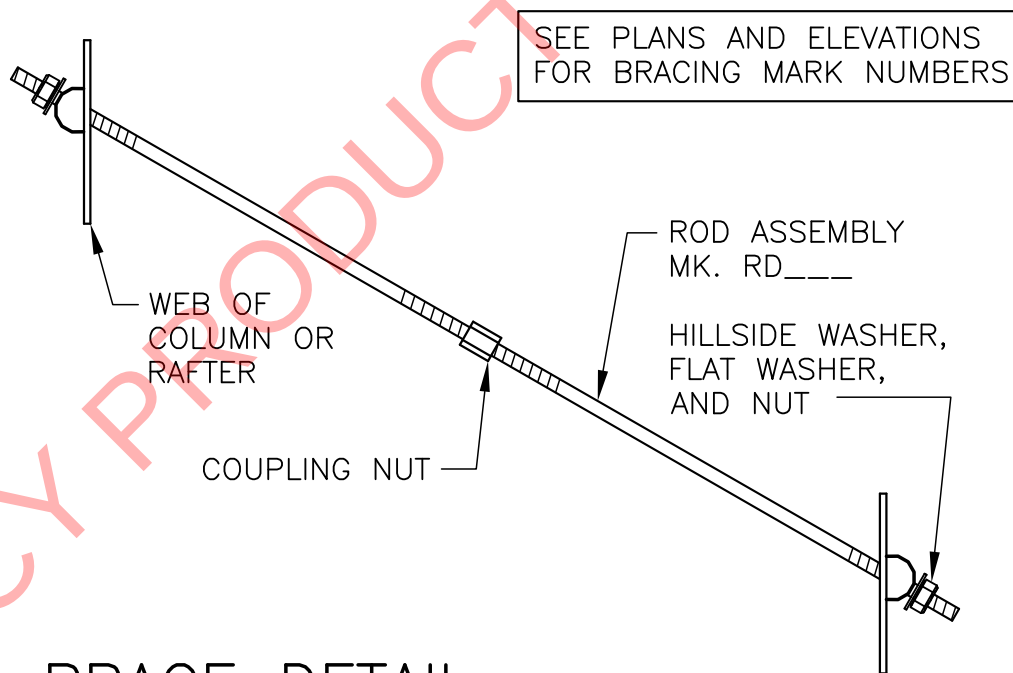


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CABLE AND ROD BRACING DETAILS

AF0010 – ROD BRACING

ROD DIAMETER	MARK NUMBER	HILLSIDE WASHERS	FLAT WASHERS	A307/A325 NUTS	COUPLING NUTS
5/8" ϕ	RDB__	(2) H0930	(2) H0210	(2) H0310	H0810
3/4" ϕ	RDC__	(2) H0930	(2) H0220	(2) H0320	H0820
7/8" ϕ	RDD__	(2) H0930	(2) H0230	(2) H0325	H0830
1" ϕ	RDE__	(2) H0960	(2) H0240	(2) H0330	H0840
1 1/8" ϕ	RDF__	(2) H0960	(2) H0250	(2) H0450	H0850
1 1/4" ϕ	RDG__	(2) H0960	(2) H0260	(2) H0340	H0860



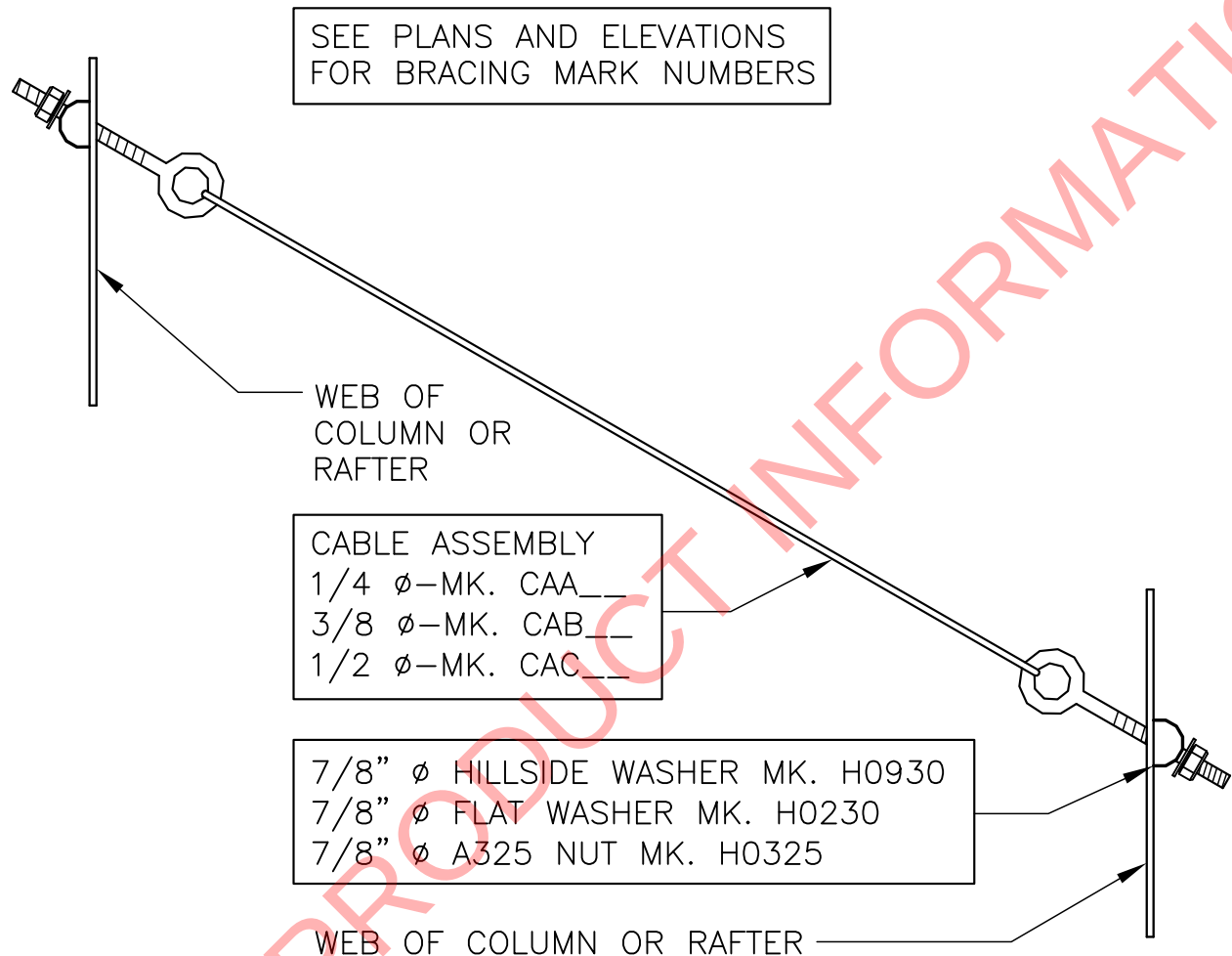
ROD BRACE DETAIL
(WEB TO WEB)

AF0010



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AF0710 – CABLE BRACING



CABLE BRACE DETAIL

(WEB TO WEB)

AF0710

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AF0710.DWG

11.3.3



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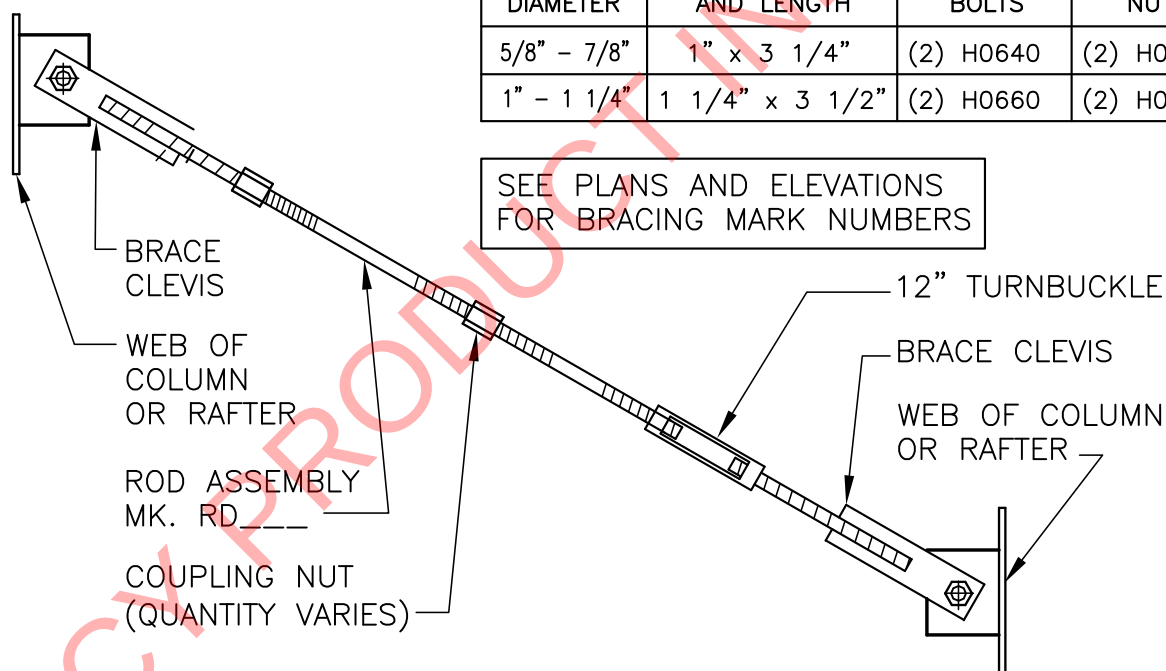
AF0030 – ROD TO CLEVIS CONNECTIONS

ROD DIAMETERS	MARK NUMBERS	TURNBUCKLES	COUPLING NUTS	BRACE CLEVIS (AT TURNBUCKLE)	BRACE CLEVIS (AT COUPLING NUT)
5/8"	RDB ____	(1) H0710	H0810	(1) BCS02	(1) BCS07
3/4"	RDC ____	(1) H0720	H0820	(1) BCS03	(1) BCS08
7/8"	RDD ____	(1) H0730	H0830	(1) BCS04	(1) BCS09
1"	RDE ____	(1) H0740	H0840	(1) BCL05	(1) BCL06
1 1/8"	RDF ____	(1) H0750	H0850	(1) BCL01	(1) BCL03
1 1/4"	RDG ____	(1) H0760	H0860	(1) BCL02	(1) BCL04

BRACE CLEVIS BOLT AND NUT PART NUMBERS

ROD DIAMETER	BOLT DIAMETER AND LENGTH	A325 BOLTS	A325 NUTS
5/8" – 7/8"	1" x 3 1/4"	(2) H0640	(2) H0330
1" – 1 1/4"	1 1/4" x 3 1/2"	(2) H0660	(2) H0340

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS



ROD BRACE DETAIL

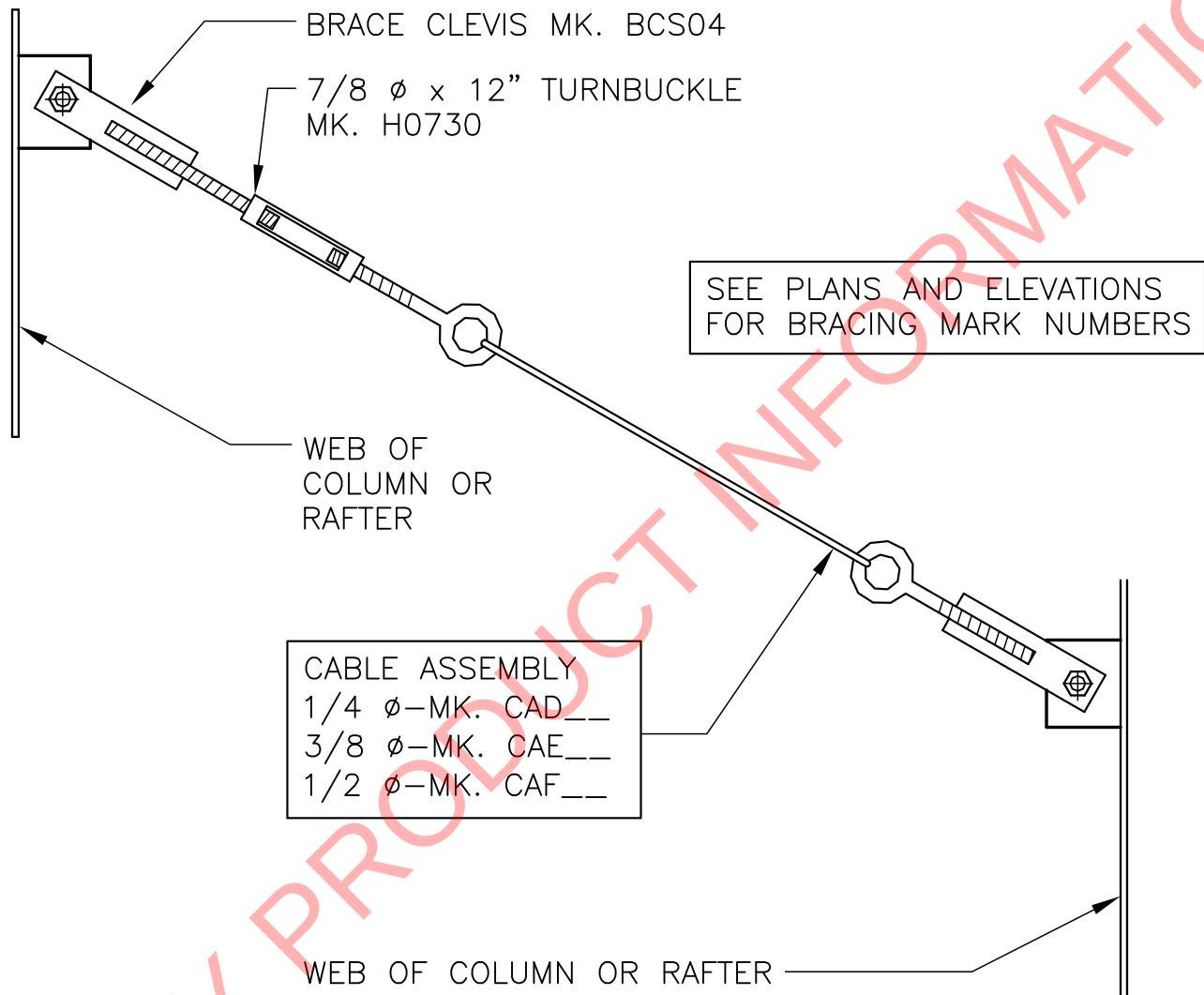
(CLEVIS TO CLEVIS)

AF0030



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AF0730 – CABLE TO CLEVIS CONNECTIONS



CABLE BRACE DETAIL

(CLEVIS TO CLEVIS)

NOTE: USE (2) 1" ϕ x 3 1/4" A325 BOLTS (H0640)
AND NUTS (H0330)

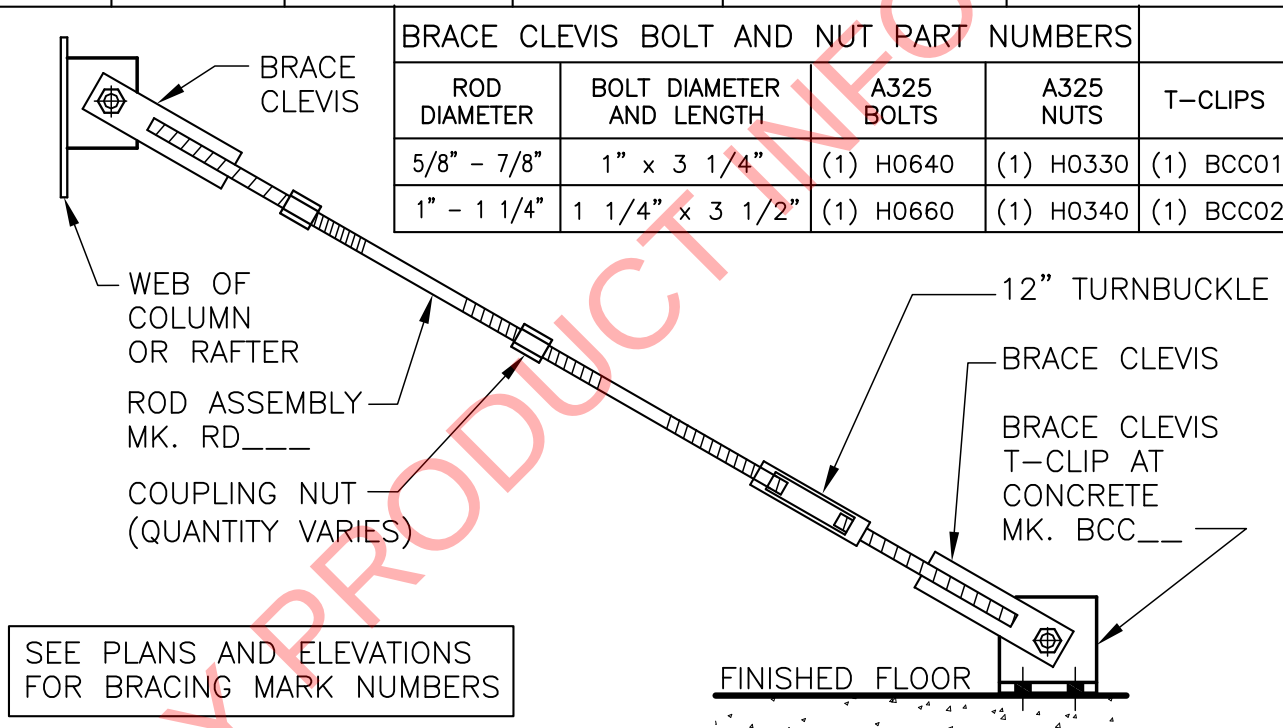
AF0730



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AF0050 – CLEVIS TO FLOOR

ROD DIAMETERS	MARK NUMBERS	TURNBUCKLES	COUPLING NUTS	BRACE CLEVIS (AT TURNBUCKLE)	BRACE CLEVIS (AT COUPLING NUT)
5/8"	RDB ____	(1) H0710	H0810	(1) BCS02	(1) BCS07
3/4"	RDC ____	(1) H0720	H0820	(1) BCS03	(1) BCS08
7/8"	RDD ____	(1) H0730	H0830	(1) BCS04	(1) BCS09
1"	RDE ____	(1) H0740	H0840	(1) BCL05	(1) BCL06
1 1/8"	RDF ____	(1) H0750	H0850	(1) BCL01	(1) BCL03
1 1/4"	RDG ____	(1) H0760	H0860	(1) BCL02	(1) BCL04



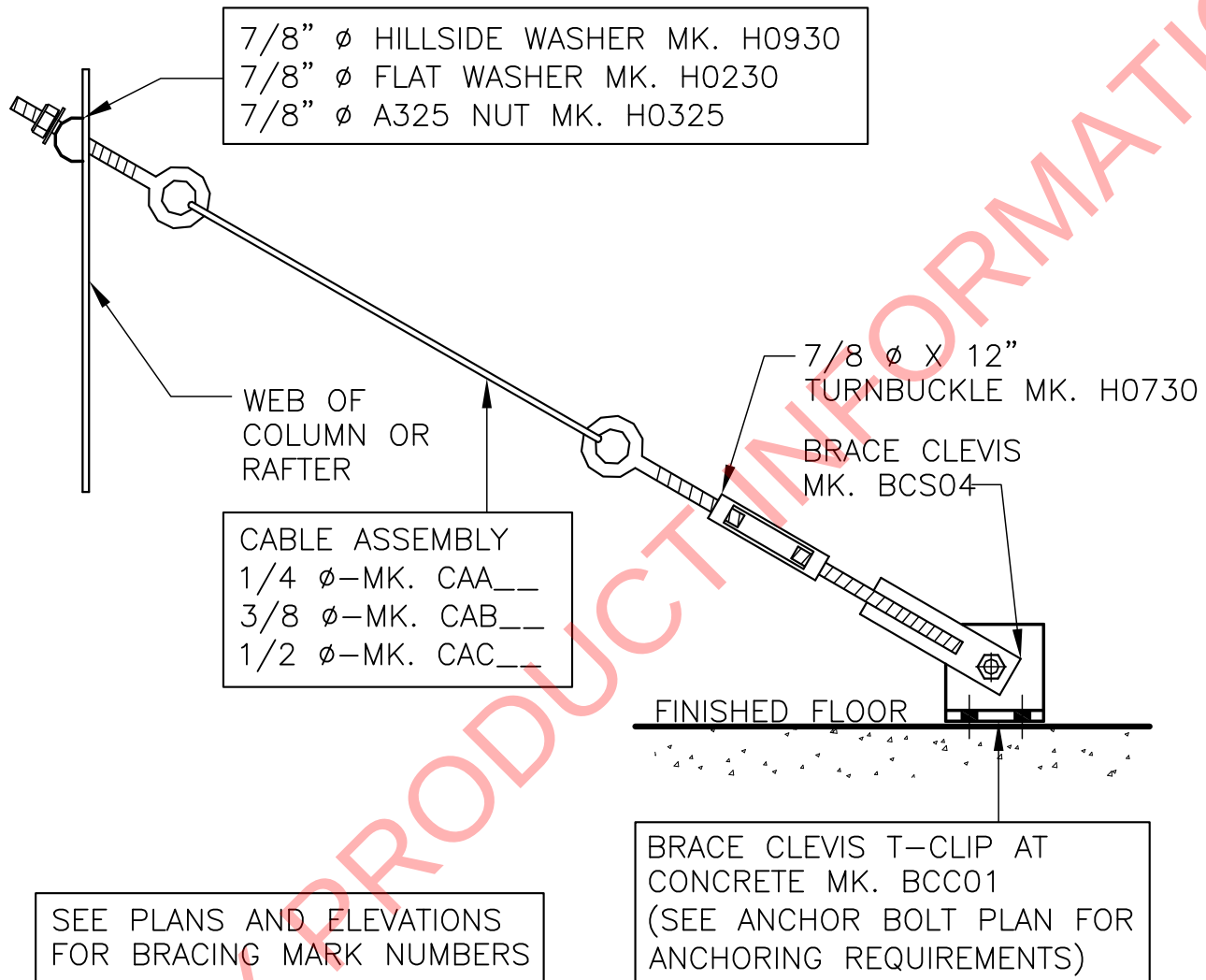
ROD BRACE DETAIL (CLEVIS TO FLOOR)

AF0050



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AF0740 – WEB TO FLOOR



CABLE BRACE DETAIL

(WEB TO FLOOR)

NOTE: USE (1) 1" ϕ x 3 1/4" A325 BOLT (H0640)
AND NUTS (H0330)

AF0740

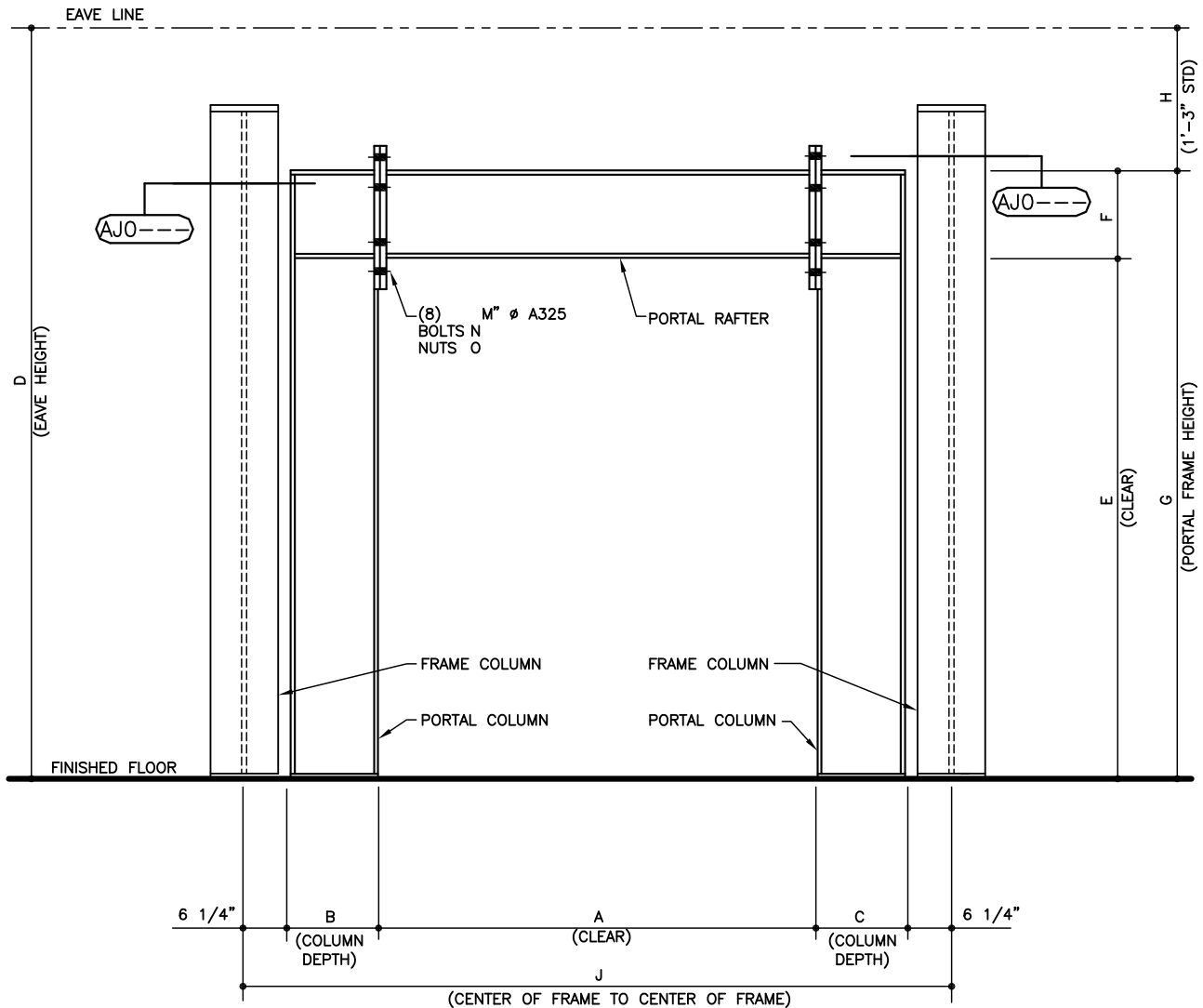


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PORTAL FRAME DETAILS

AJ0020 – FULL HEIGHT PORTAL FRAME

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



FULL HEIGHT PORTAL FRAME DETAIL

SEE PLANS AND/OR ELEVATIONS FOR MARK NUMBERS

AJ0020

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AJ0020.DWG

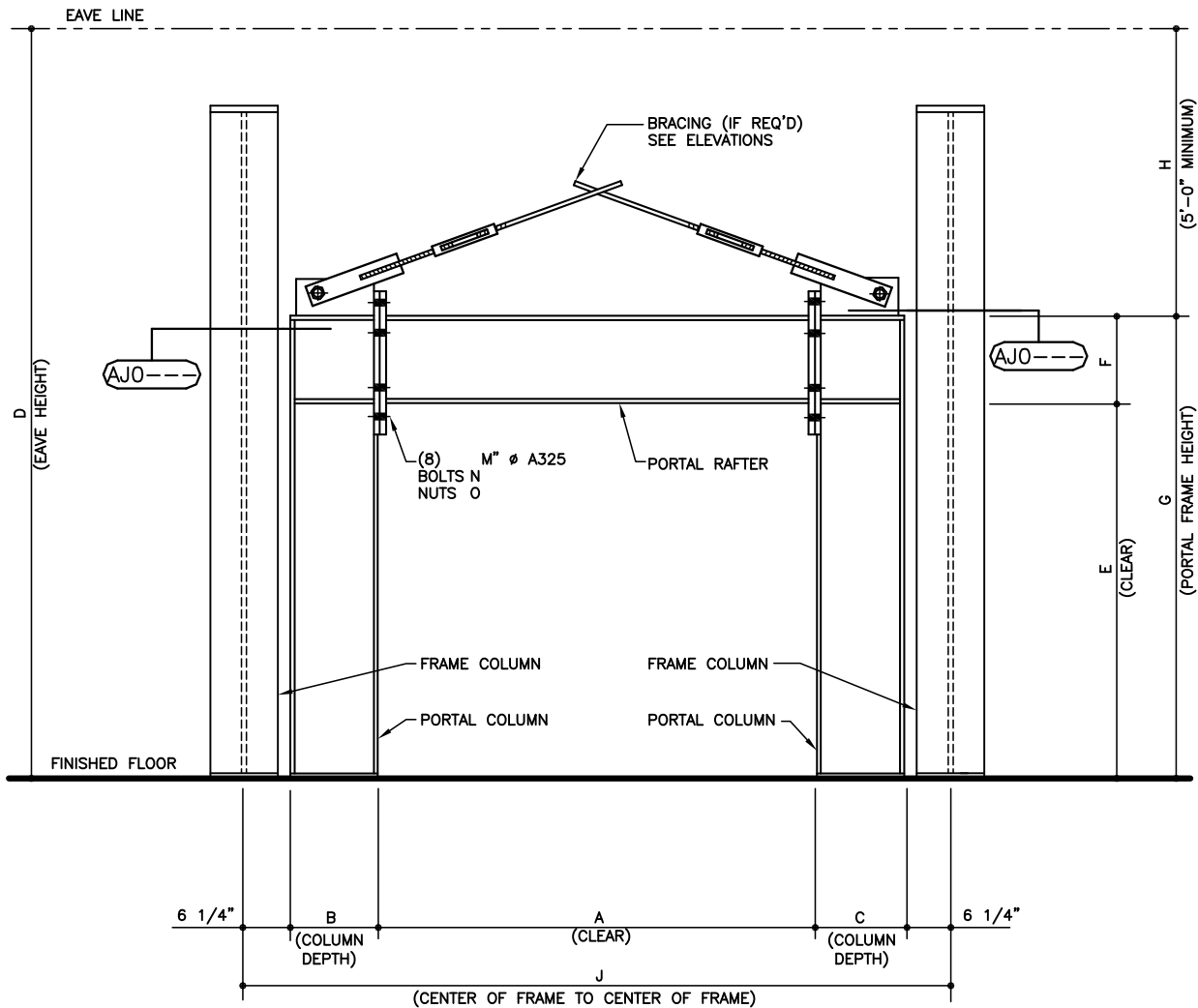
11.3.8



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AJ0010 – PARTIAL HEIGHT PORTAL FRAME

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PARTIAL HEIGHT PORTAL FRAME WITH OPTIONAL ROD BRACING ABOVE

SEE PLANS AND/OR ELEVATIONS FOR MARK NUMBERS

(AJ0010)

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AJ0010.DWG

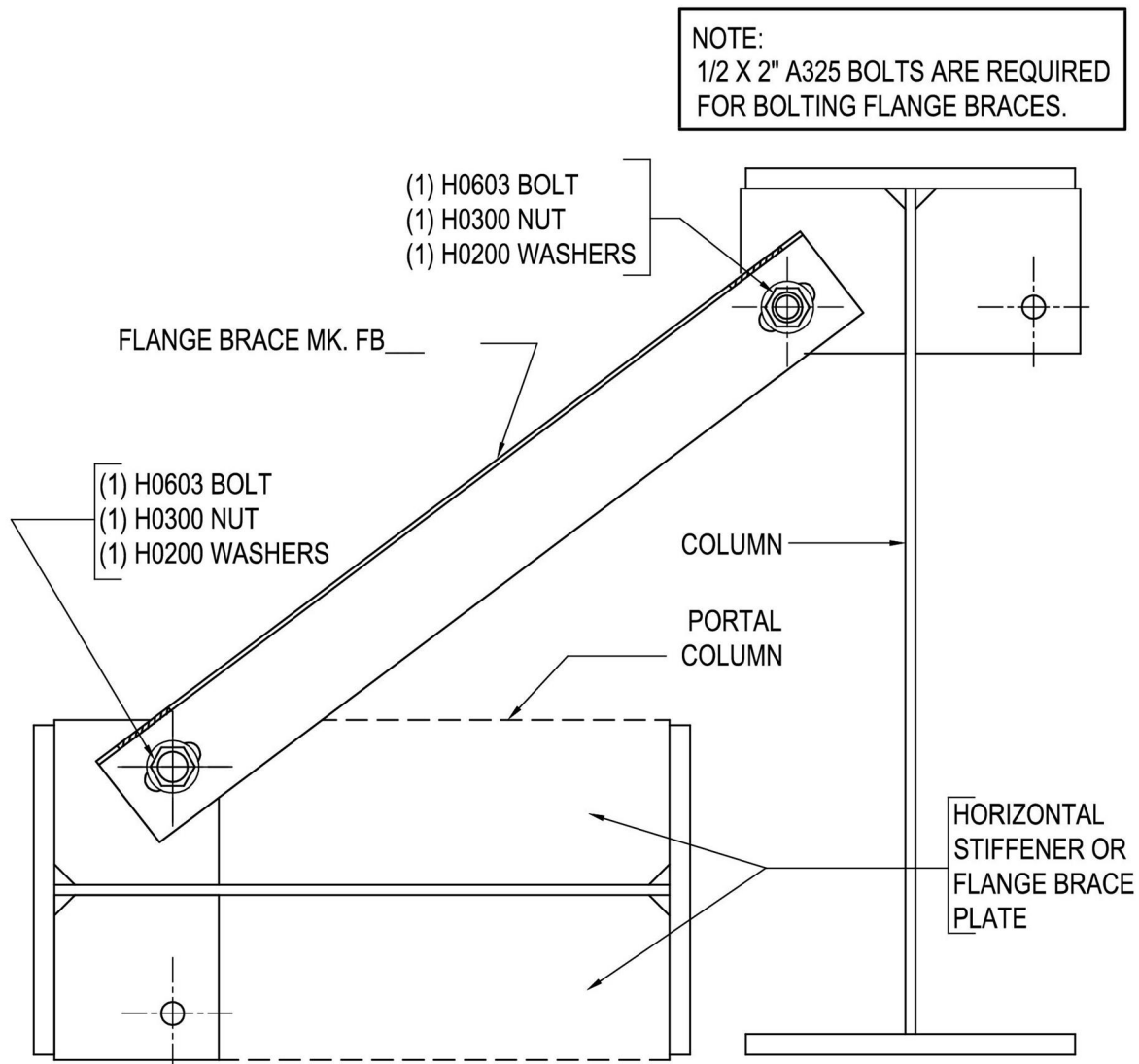
11.3.9



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AJ0050 – FLANGE BRACE @ FRAME/PORTAL COLUMN – STIFFENER

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



TYPICAL FLANGE BRACE AT BU COL & PORTAL COL

AJ0050

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE PART MARKS

AJ0050

LAST REVISION
DATE: 00/00/19
BY: EGB CHK: KMC

DETAIL NAME IF APPLICABLE
AJ0050.DWG

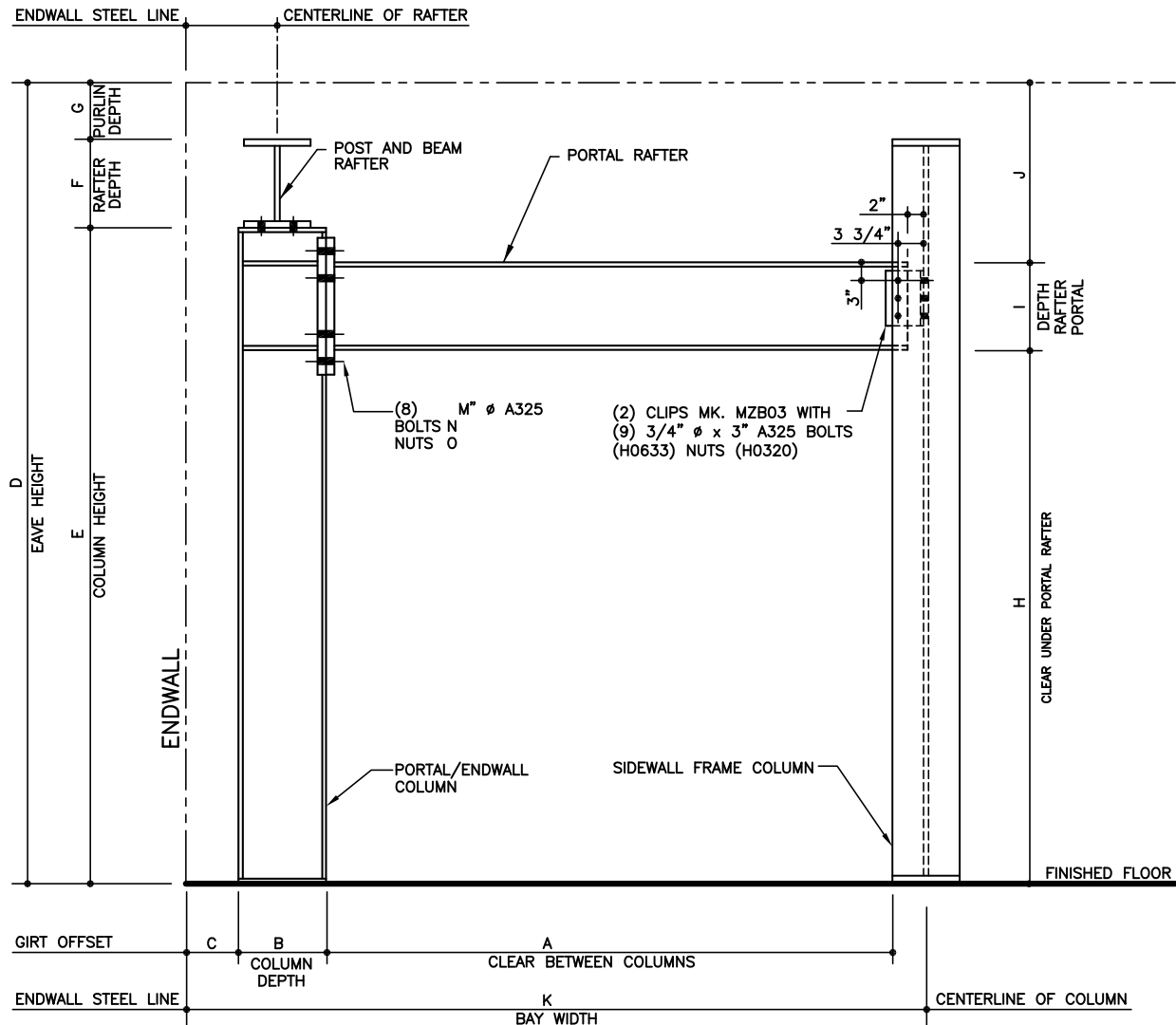
11.3.10



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AJ0150 – SINGLE LEG PORTAL FRAME @ END BAY W/POST & BEAM FRAME

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SINGLE LEG PORTAL FRAME AT END BAY WITH POST & BEAM FRAME

AJ0150

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AJ0150.DWG

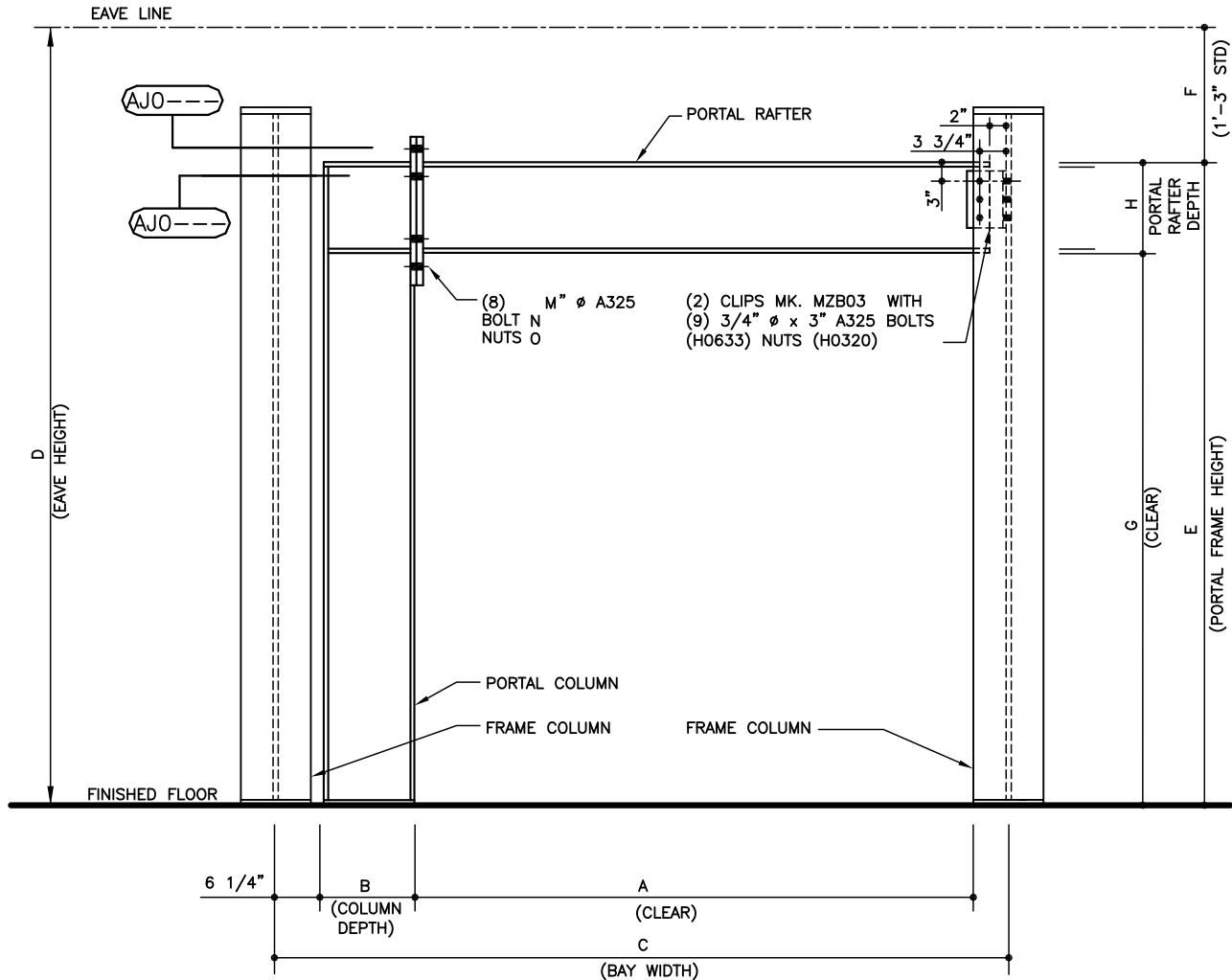
11.3.11



PRODUCT & ENGINEERING MANUAL

AJ0160 – FULL HEIGHT SINGLE LEG PORTAL FRAME

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



FULL HEIGHT SINGLE LEG PORTAL FRAME

PORTAL COLUMN AT LEFT OF BAY SHOWN, RIGHT HAND OPPOSITE

AJ0160

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AJ0160.DWG

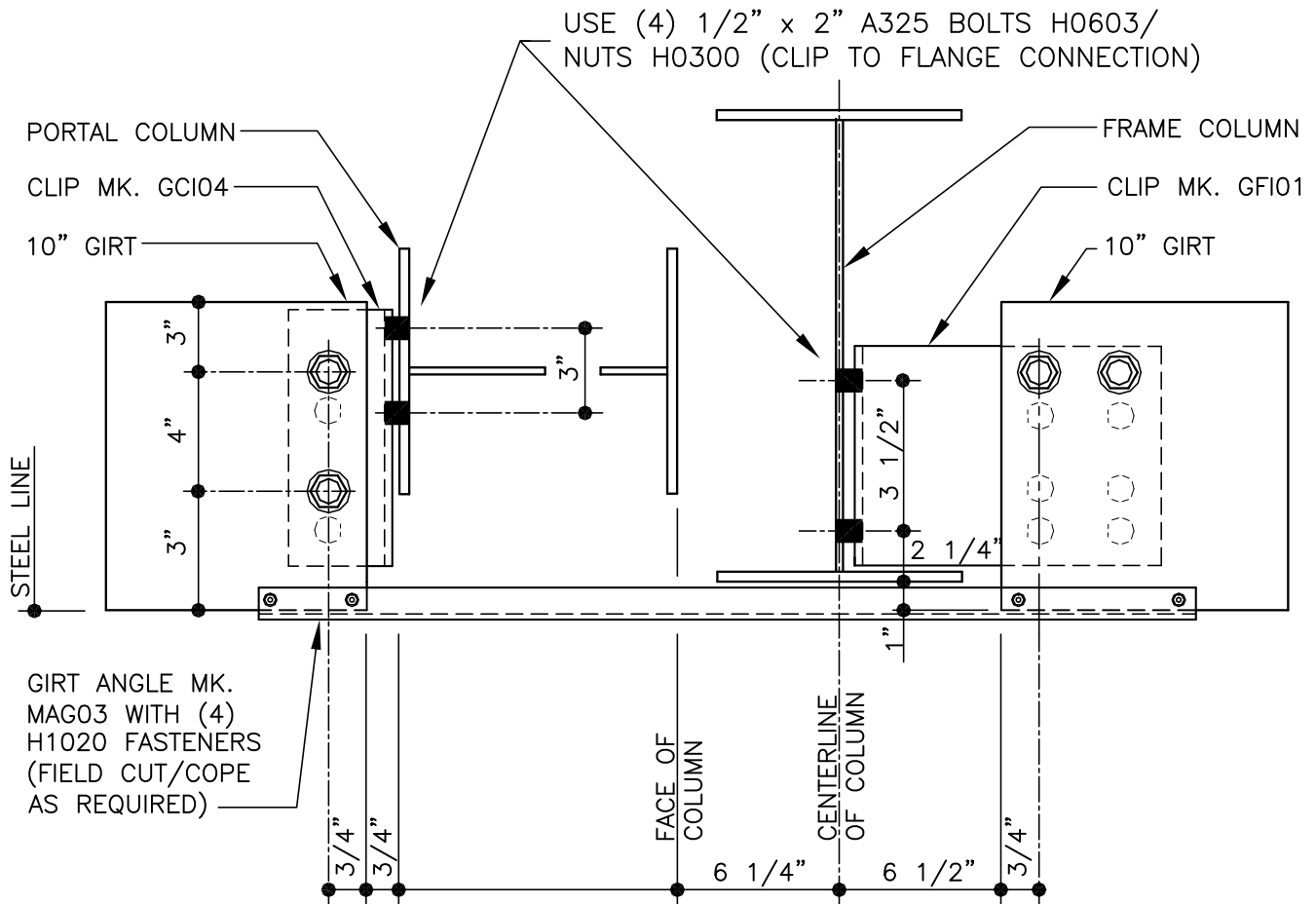
11.3.12



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AJ0140 – FRAME/PORTAL COLUMN GIRT DETAIL – INSET (RIGHT)

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



GIRT TO FRAME/PORTAL COLUMN

WITH 10" INSET GIRTS

NOTE: USE (4) 1/2"X 1 1/4" A307 BOLTS (H0500), NUTS (H0400). AND (4) 1/2" WASHERS (H0200) AT SLOTS

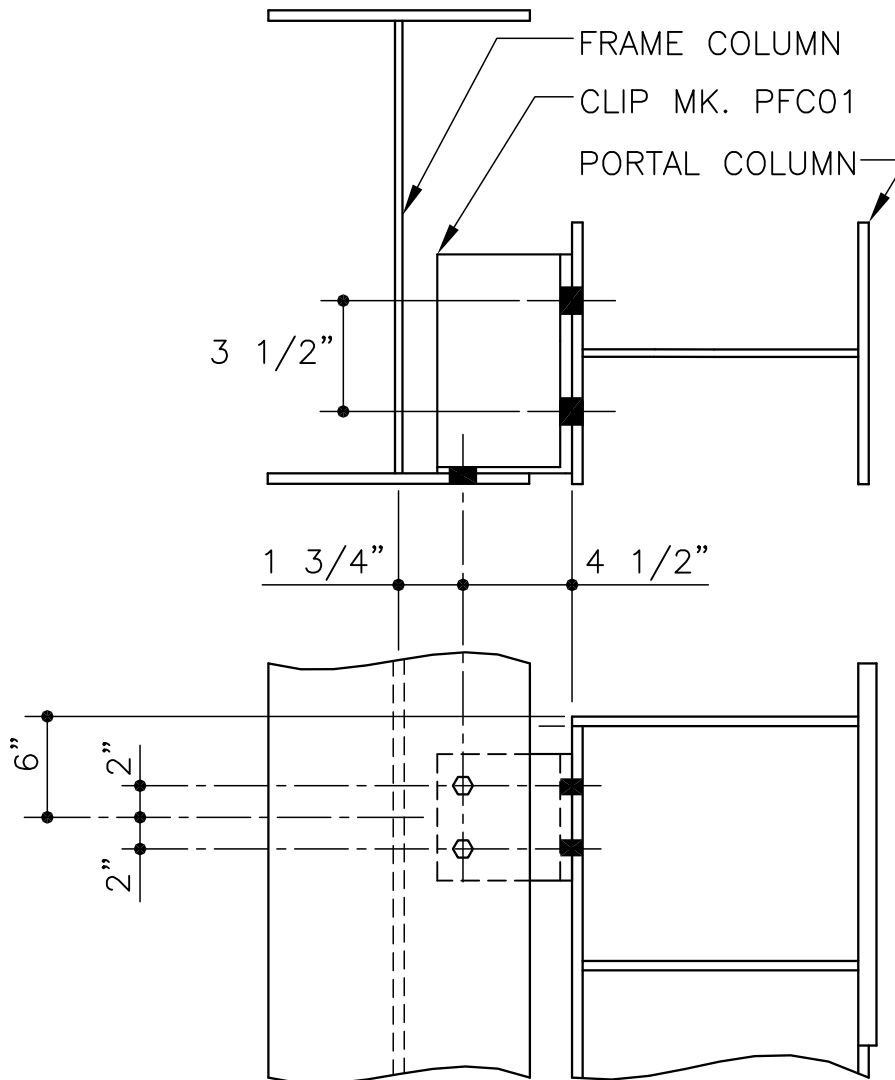
AJ0140



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AJ0040 – FRAME/PORTAL COLUMN GIRT DETAILS - BYPASS

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



FRAME/PORTAL COLUMN ATTACHMENT

WITH INSET OR BYPASS GIRTS

USE (6) 3/4" X 3" A325 BOLTS (H0633), NUTS (H0320),
AND (4) 3/4" WASHERS (H0220) AT SLOTS

AJ0040

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AJ0040.DWG

11.3.15



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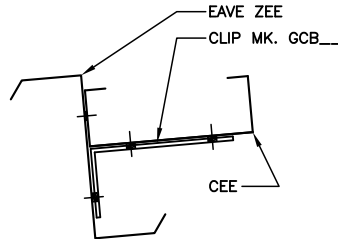
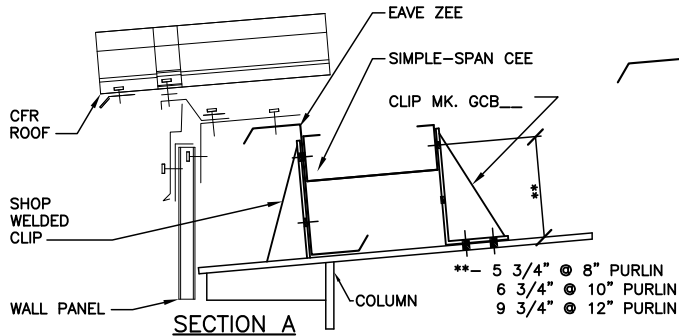
CFR PURLIN BRACING SYSTEM DETAILS

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

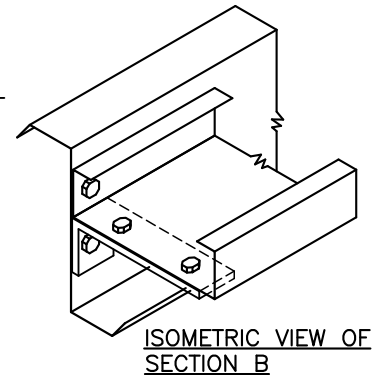
BE1310 – STRONG-BACK EAVE-CEE @ BUILT-UP

☐ STRONG-BACK SINGLE CEE EAVE DETAIL

USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) AT ALL CONNECTIONS



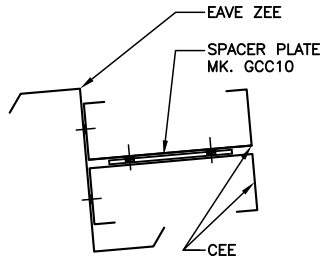
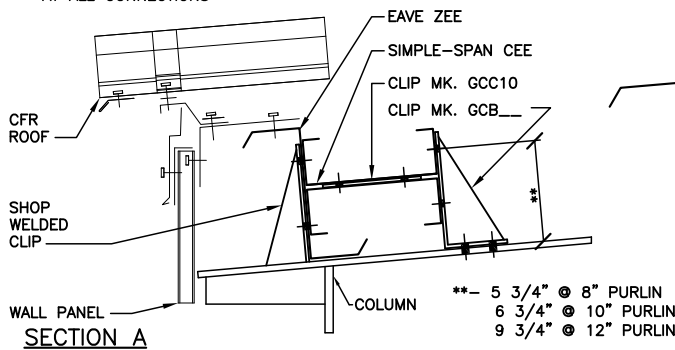
SECTION B
SEE DETAIL AT TOP LEFT
FOR CLIP SPACING



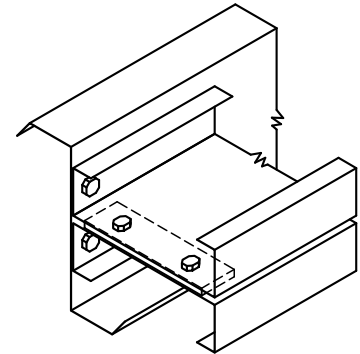
ISOMETRIC VIEW OF SECTION B

☐ STRONG-BACK DOUBLE CEE EAVE DETAIL

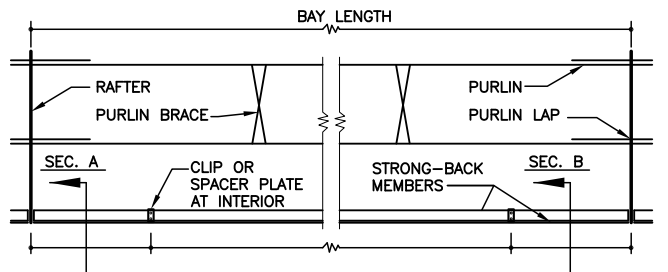
USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) AT ALL CONNECTIONS



SECTION B
SEE DETAIL AT TOP LEFT
FOR CLIP SPACING



ISOMETRIC VIEW OF SECTION B



CLIP OR SPACER PLATE EQUALLY SPACED AT A MAXIMUM SPACING OF: _____

PLAN VIEW

GENERAL NOTES

- 1) CEE EAVE MEMBERS AT THIS DETAIL WILL ALWAYS BE SIMPLE-SPAN (EXCEPT @ END FRAMES WITH LARGER THAN 1'-4" OFFSET, CEES EXTEND TO STEEL LINE).
- 2) REFER TO THE ROOF FRAMING PLAN FOR CEE MEMBER SIZES AND MARK NUMBERS. NOTE: IT IS POSSIBLE TO HAVE A MIXTURE OF THE SINGLE-CEE AND DOUBLE-CEE DETAILS. REVIEW THE ROOF FRAMING PLAN QUANTITIES CAREFULLY.
- 3) THE CEES ARE FACTORY PUNCHED FOR ALL CLIP CONNECTIONS.
- 4) USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) FOR ALL CONNECTIONS
- 5) REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS.

STRONG-BACK EAVE CEE DETAILS

BE1310

BE1310

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
BE1310.DWG

11.3.16



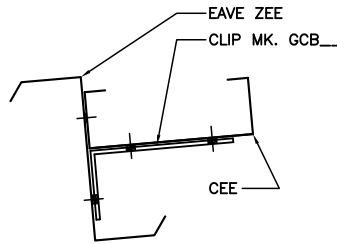
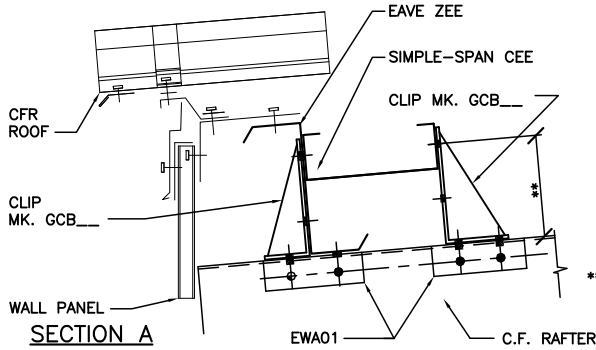
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BE1320 – STRONG-BACK EAVE-CEE @ C.F. RAFTER

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

STRONG-BACK SINGLE CEE EAVE DETAIL

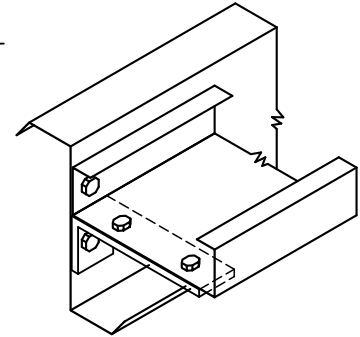
USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) AT ALL CONNECTIONS



SECTION B

SEE DETAIL AT TOP LEFT FOR CLIP SPACING

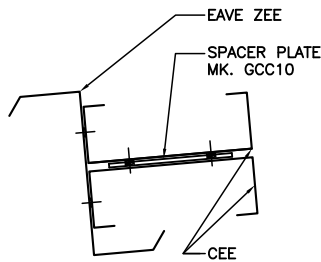
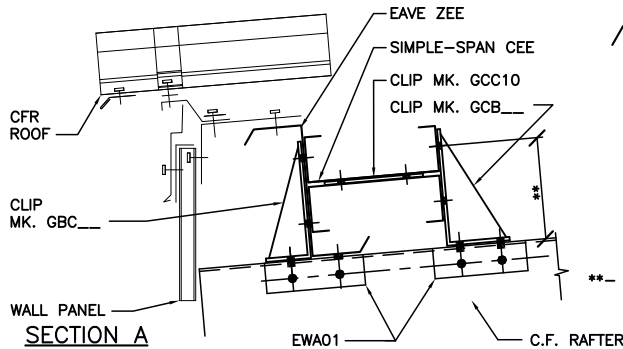
** 5 3/4" @ 8" PURLIN
6 3/4" @ 10" PURLIN
9 3/4" @ 12" PURLIN



ISOMETRIC VIEW OF SECTION B

STRONG-BACK DOUBLE CEE EAVE DETAIL

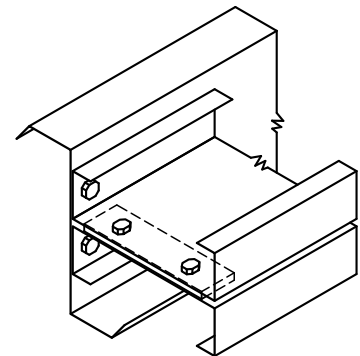
USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) AT ALL CONNECTIONS



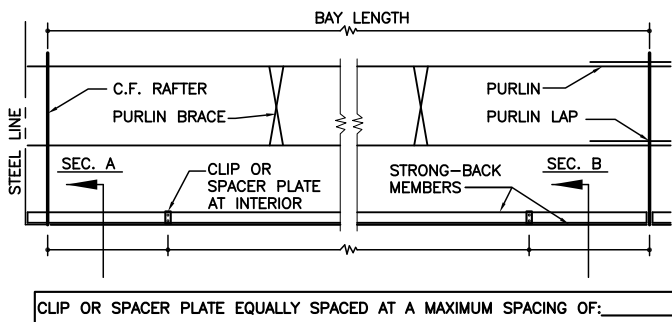
SECTION B

SEE DETAIL AT TOP LEFT FOR CLIP SPACING

** 5 3/4" @ 8" PURLIN
6 3/4" @ 10" PURLIN
9 3/4" @ 12" PURLIN



ISOMETRIC VIEW OF SECTION B



CLIP OR SPACER PLATE EQUALLY SPACED AT A MAXIMUM SPACING OF: _____

PLAN VIEW

GENERAL NOTES

- 1) CEE EAVE MEMBERS AT THIS DETAIL WILL ALWAYS BE SIMPLE-SPAN (EXCEPT @ END FRAMES WITH GREATER THAN 1'-4" OFFSET, CEES EXTEND TO STEEL LINE).
- 2) REFER TO THE ROOF FRAMING PLAN FOR CEE MEMBER SIZES AND MARK NUMBERS. NOTE: IT IS POSSIBLE TO HAVE A MIXTURE OF THE SINGLE-CEE AND DOUBLE-CEE DETAILS. REVIEW THE ROOF FRAMING PLAN QUANTITIES CAREFULLY.
- 3) THE CEES ARE FACTORY PUNCHED FOR ALL CLIP CONNECTIONS.
- 4) USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) FOR ALL CONNECTIONS
- 5) REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS.

STRONG-BACK EAVE CEE DETAILS

BE1320 @ C.F. ENDWALL

BE1320

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
BE1320.DWG

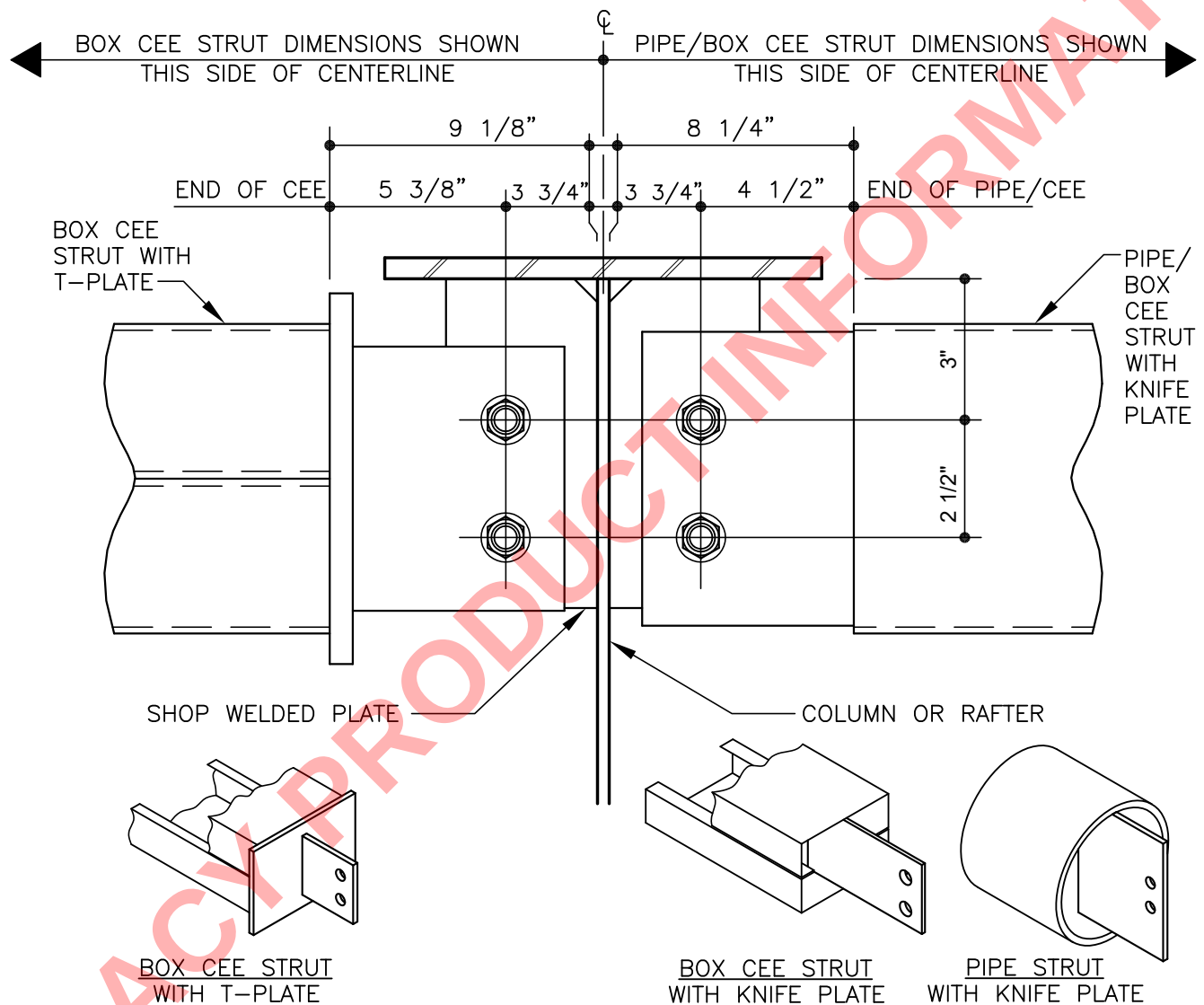
11.3.17



PRODUCT & ENGINEERING MANUAL

GENERAL BRACING DETAILS

AK0160 – STRUT ATTACHED AT WEB OF COLUMN OR RAFTER (6" PIPE)



STRUT DETAIL

6" PIPE STRUT OR BOX CEE STRUT AT 8" (MIN.) COLUMN OR RAFTER
NOTE: USE (2) 1" X 3 1/4" A325 BOLTS H0640/NUTS H0330
SEE PLANS & ELEVATIONS FOR MARK NUMBERS AND LOCATIONS

AK0160

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

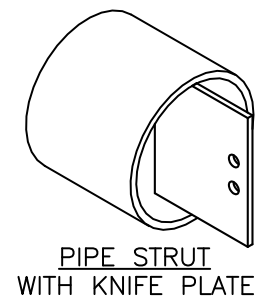
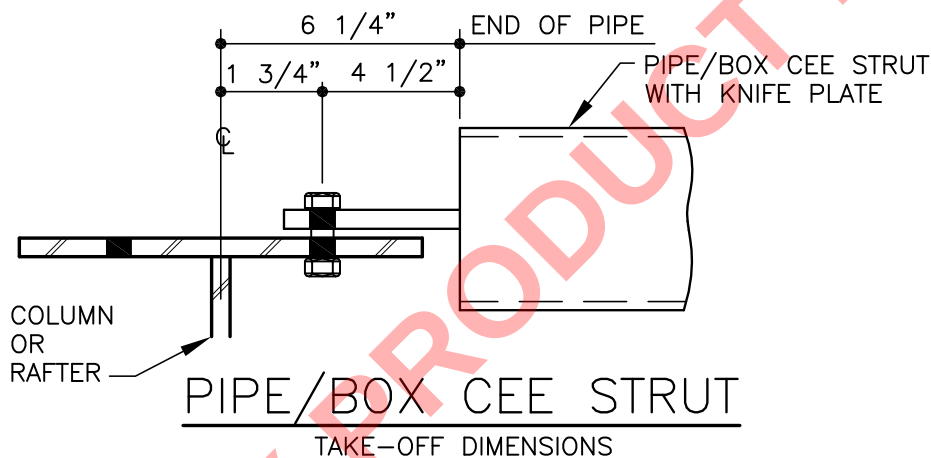
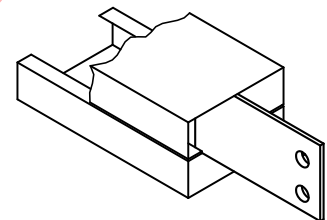
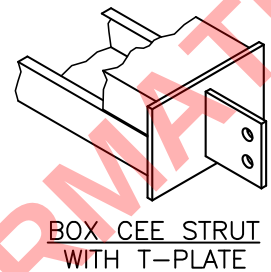
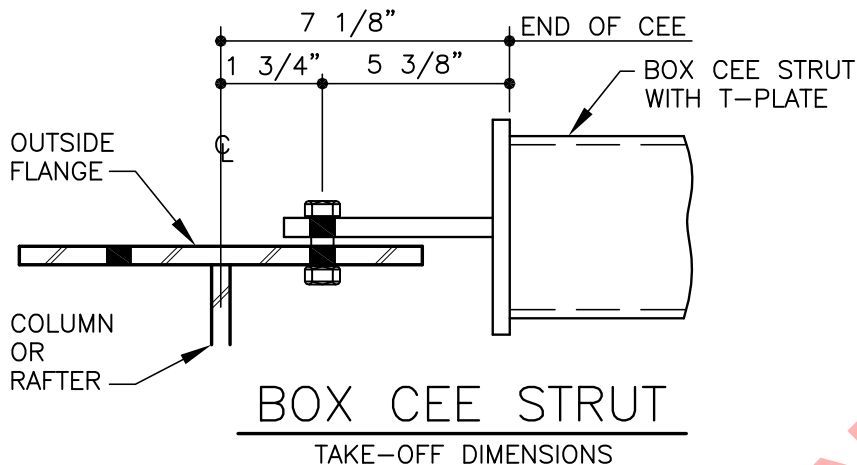
DETAIL NAME IF APPLICABLE
AK0160.DWG

11.3.18



PRODUCT & ENGINEERING MANUAL

AK0050 – STRUT ATTACHED AT FLANGE OF COLUMN OR RAFTER



ALTERNATE STRUT DETAIL

PIPE OR BOX CEE STRUT AT COLUMN OR RAFTER FLANGE
 ON A 6" STRUT USE (2) 1" X 3 1/4" A325 BOLTS H0640/NUTS H0330
 ON A 8" STRUT USE (3) 1" X 3 1/4" A325 BOLTS H0640/NUTS H0330
 ON A BOX CEE STRUT USE (2) 1" X 3 1/4" A325 BOLTS H0640/NUTS H0330
 SEE PLANS AND ELEVATIONS FOR MARK NUMBERS & LOCATIONS

AK0050

LAST REVISION
 DATE: 02/16/15
 BY: AK CHK: EGB

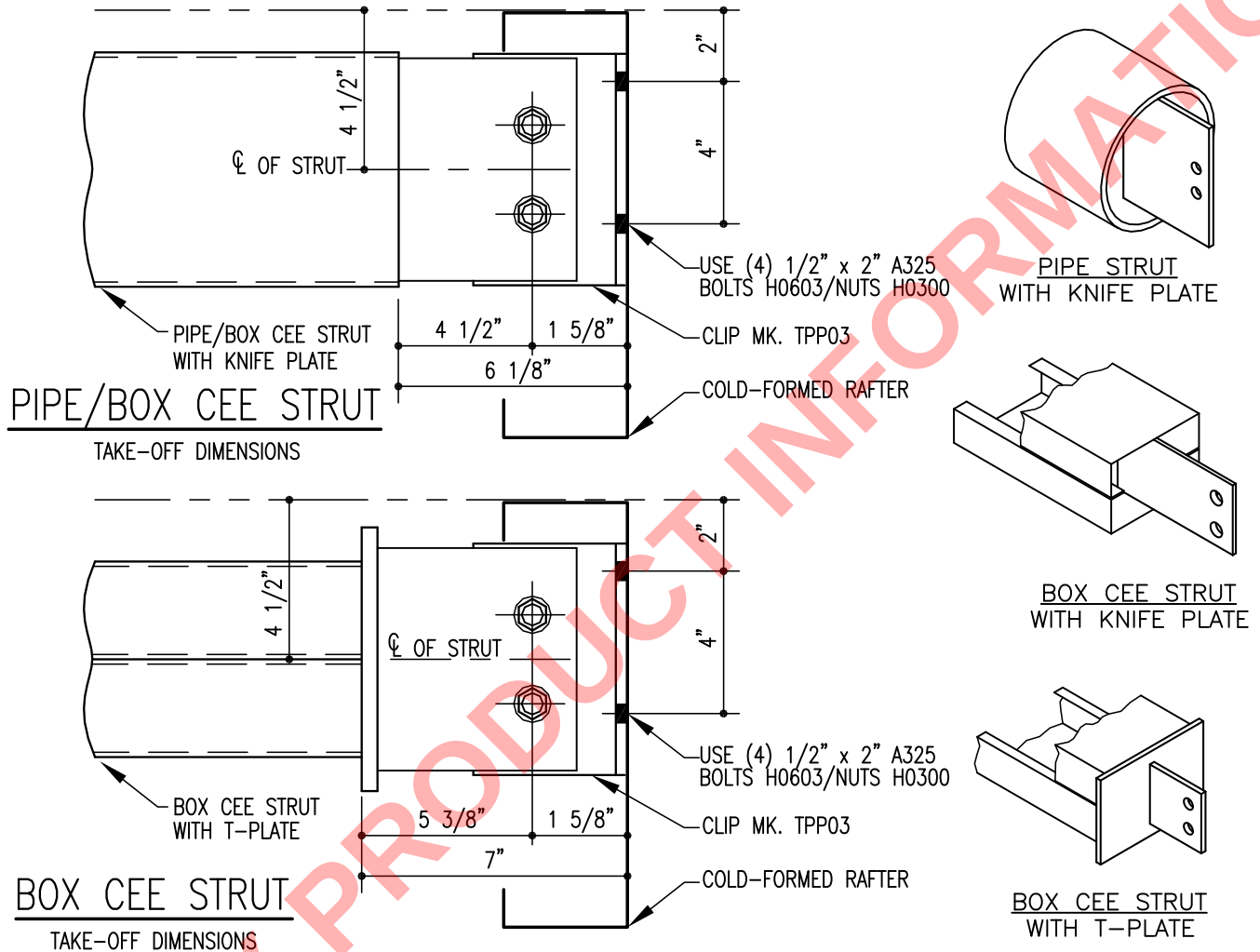
DETAIL NAME IF APPLICABLE
AK0050.DWG

11.3.19



PRODUCT & ENGINEERING MANUAL

AK0080 – STRUT ATTACHED TO C.F. RAFTER



STRUT DETAIL

6" PIPE STRUT OR BOX CEE STRUT AT 12" COLD-FORMED RAFTER

NOTE: USE (2) 1" X 3 1/4" A325 BOLTS H0640/NUTS H0330

SEE PLANS & ELEVATIONS FOR MARK NUMBERS & LOCATIONS

REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

AK0080

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE
AK0080.DWG

11.3.20