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# Cable and Rod Bracing Details

## AF0010 – Rod Bracing

<table>
<thead>
<tr>
<th>Rod Diameter</th>
<th>Mark Number</th>
<th>Hillside Washers</th>
<th>Flat Washers</th>
<th>A307/A325 Nuts</th>
<th>Coupling Nuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8&quot; φ</td>
<td>RDB___</td>
<td>(2) H0930</td>
<td>(2) H0210</td>
<td>(2) H0310</td>
<td>H0810</td>
</tr>
<tr>
<td>3/4&quot; φ</td>
<td>RDC___</td>
<td>(2) H0930</td>
<td>(2) H0220</td>
<td>(2) H0320</td>
<td>H0820</td>
</tr>
<tr>
<td>7/8&quot; φ</td>
<td>RDD___</td>
<td>(2) H0930</td>
<td>(2) H0230</td>
<td>(2) H0325</td>
<td>H0830</td>
</tr>
<tr>
<td>1&quot; φ</td>
<td>RDE___</td>
<td>(2) H0960</td>
<td>(2) H0240</td>
<td>(2) H0330</td>
<td>H0840</td>
</tr>
<tr>
<td>1 1/8&quot; φ</td>
<td>RDF___</td>
<td>(2) H0960</td>
<td>(2) H0250</td>
<td>(2) H0450</td>
<td>H0850</td>
</tr>
<tr>
<td>1 1/4&quot; φ</td>
<td>RDG___</td>
<td>(2) H0960</td>
<td>(2) H0260</td>
<td>(2) H0340</td>
<td>H0860</td>
</tr>
</tbody>
</table>

See plans and elevations for bracing mark numbers.

**Rod Brace Detail**

(Web to Web)

Rod Assembly Mark: RD___

Hillside washer, flat washer, and nut.
AF0710 – CABLE BRACING

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS

CABLE ASSEMBLY
1/4 \( \varnothing \) – MK. CAA___
3/8 \( \varnothing \) – MK. CAB___
1/2 \( \varnothing \) – MK. CAC___

7/8” \( \varnothing \) HILLSIDE WASHER MK. H0930
7/8” \( \varnothing \) FLAT WASHER MK. H0230
7/8” \( \varnothing \) A325 NUT MK. H0325

WEB OF COLUMN OR RAFTER

CABLE BRACE DETAIL
(Web to Web)

AF0710
**AF0030 – ROD TO CLEVIS CONNECTIONS**

<table>
<thead>
<tr>
<th>ROD DIAMETERS</th>
<th>MARK NUMBERS</th>
<th>TURNBUCKLES</th>
<th>COUPLING NUTS</th>
<th>BRACE CLEVIS (AT TURNBUCKLE)</th>
<th>BRACE CLEVIS (AT COUPLING NUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8&quot;</td>
<td>RDB ___</td>
<td>(1) H0710</td>
<td>H0810</td>
<td>(1) BCS02</td>
<td>(1) BCS07</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>RDC ___</td>
<td>(1) H0720</td>
<td>H0820</td>
<td>(1) BCS03</td>
<td>(1) BCS08</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>RDD ___</td>
<td>(1) H0730</td>
<td>H0830</td>
<td>(1) BCS04</td>
<td>(1) BCS09</td>
</tr>
<tr>
<td>1&quot;</td>
<td>RDE ___</td>
<td>(1) H0740</td>
<td>H0840</td>
<td>(1) BCL05</td>
<td>(1) BCL06</td>
</tr>
<tr>
<td>1 1/8&quot;</td>
<td>RDF ___</td>
<td>(1) H0750</td>
<td>H0850</td>
<td>(1) BCL01</td>
<td>(1) BCL03</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td>RDC ___</td>
<td>(1) H0760</td>
<td>H0860</td>
<td>(1) BCL02</td>
<td>(1) BCL04</td>
</tr>
</tbody>
</table>

**BRACE CLEVIS BOLT AND NUT PART NUMBERS**

<table>
<thead>
<tr>
<th>ROD DIAMETER</th>
<th>BOLT DIAMETER AND LENGTH</th>
<th>A325 BOLTS</th>
<th>A325 NUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8&quot; – 7/8&quot;</td>
<td>1&quot; x 3 1/4&quot;</td>
<td>(2) H0640</td>
<td>(2) H0330</td>
</tr>
<tr>
<td>1&quot; – 1 1/4&quot;</td>
<td>1 1/4&quot; x 3 1/2&quot;</td>
<td>(2) H0660</td>
<td>(2) H0340</td>
</tr>
</tbody>
</table>

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS

---

**ROD BRACE DETAIL**
(CLEVIS TO CLEVIS)

[Diagram of AF0030 detail showing ROD, BRACE CLEVIS, WEB OF COLUMN OR RAFTER, ROD ASSEMBLY, MK. RD ____, COUPLING NUT (QUANTITY VARIES), 12" TURNBUCKLE, BRACE CLEVIS, WEB OF COLUMN OR RAFTER]
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)

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS

AF0730

BRAE CLEVIS MK. BCS04
7/8 φ x 12” TURNBUCKLE MK. H0730
WEB OF COLUMN OR RAFTER
CABLE ASSEMBLY
1/4 φ—MK. CAD__
3/8 φ—MK. CAE__
1/2 φ—MK. CAF__
WEB OF COLUMN OR RAFTER
AF0050 – CLEVIS TO FLOOR

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

BRACE CLEVIS BOLT AND NUT PART NUMBERS

<table>
<thead>
<tr>
<th>ROD DIAMETER</th>
<th>BOLT DIAMETER AND LENGTH</th>
<th>A325 BOLTS</th>
<th>A325 NUTS</th>
<th>T-CLIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8” – 7/8”</td>
<td>1” x 3 1/4”</td>
<td>(1) H0640</td>
<td>(1) H0330</td>
<td>(1) BCC01</td>
</tr>
<tr>
<td>1” – 1 1/4”</td>
<td>1 1/4” x 3 1/2”</td>
<td>(1) H0660</td>
<td>(1) H0340</td>
<td>(1) BCC02</td>
</tr>
</tbody>
</table>

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS

ROD BRACE DETAIL
(CLEVIS TO FLOOR)
CABLE BRACE DETAIL

(WEB TO FLOOR)

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

AF0740

SEE PLANS AND ELEVATIONS FOR BRACING MARK NUMBERS

BRACE CLEVIS T-CLIP AT CONCRETE MK. BCC01
(SEE ANCHOR BOLT PLAN FOR ANCHORING REQUIREMENTS)

7/8” ø HILLSIDE WASHER MK. H0930
7/8” ø FLAT WASHER MK. H0230
7/8” ø A325 NUT MK. H0325

7/8” ø X 12” TURNBUCKLE MK. H0730

CABLE ASSEMBLY
1/4 ø – MK. CAA___
3/8 ø – MK. CAB___
1/2 ø – MK. CAC___

WEB OF COLUMN OR RAFTER

FINISHED FLOOR
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
AJ0010 – PARTIAL HEIGHT PORTAL FRAME

Download the DWG file by clicking here.
AJ0050 – FLANGE BRACE @ FRAME/PORTAL COLUMN – STIFFENER

Download the DWG file by clicking here.

NOTE:
1/2 X 2" A325 BOLTS ARE REQUIRED FOR BOLTING FLANGE BRACES.

(1) H0603 BOLT
(1) H0300 NUT
(1) H0200 WASHERS

FLANGE BRACE MK. FB

(1) H0603 BOLT
(1) H0300 NUT
(1) H0200 WASHERS

COLUMN

PORTAL COLUMN

HORIZONTAL STIFFENER OR FLANGE BRACE PLATE

TYPICAL FLANGE BRACE AT BU COL & PORTAL COL

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE PART MARKS

AJ0050

AJ050

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

Download the DWG file by clicking here.
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
AJ0120 – FRAME/PORTAL COLUMN GIRT DETAIL – INSET (LEFT)

Download the DWG file by clicking here.

USE (4) 1/2” x 2” A325 BOLTS H0603/
NUTS H0300 (CLIP TO FLANGE CONNECTION)

FRAME COLUMN

CLIP MK. GFI01

10” GIRT

PORTAL COLUMN

CLIP MK. GCI03

10” GIRT

STEEL LINE

GIRT ANGLE MK.
MAG03 WITH (4)
H1020 FASTENERS
(FIELD CUT/COPE
AS REQUIRED)

GIRT ANGLE MK.
MAG03 WITH (4)
H1020 FASTENERS
(FIELD CUT/COPE
AS REQUIRED)

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

AJ0120

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

DETAIL NAME IF APPLICABLE
AJ0120.DWG

11.3.13
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
AJ0040 – FRAME/PORTAL COLUMN GIRT DETAILS - BYPASS

Download the DWG file by clicking here.

FRAME/COLUMN
CLIP MK. PFC01
PORTAL COLUMN

3 1/2"

1 3/4"

4 1/2"

6"

2"

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
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
  - EAVE ZEE
  - SIMPLE-SPAN CEE
  - CLIP MK. GCB
  - **EAVE ZEE
  - CLIP MK. GCB**

- **STRONG-BACK DOUBLE CEE EAVE DETAIL**
  - USE 1/2" x 2" A325 BOLTS (H0603) AND NUTS (H0300) AT ALL CONNECTIONS
  - EAVE ZEE
  - SIMPLE-SPAN CEE
  - CLIP MK. GCC10
  - **EAVE ZEE
  - SPACER PLATE MK. GCC10**

**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**

**PLAN VIEW**

**BE1310**

**LAST REVISION**

**DATE:** 02/16/15

**BY:** AK  CHK: EGB

**DETAIL NAME IF APPLICABLE**

**BE1310.DWG**

**11.3.16**
BE1320 – STRONG-BACK EAVE-CEE @ C.F. RAFTER

Download the DWG file by clicking here.

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. REVISE 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 EXECDOR NOTE FOR TYPICAL WASHER REQUIREMENTS.

STRONG-BACK EAVE CEE DETAILS

PLAN VIEW

C.F. RAFTER
PURLIN BRACE
PURLIN
PURLIN Lap

SEC. A
CLIP OR SPACER PLATE AT INTERIOR

SEC. B
STRONG-BACK MEMBERS

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

BE1320.DWG
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

11.3.18
AK0050 – STRUT ATTACHED AT FLANGE OF COLUMN OR RAFTER

BOX CEE STRUT
TAKE-OFF DIMENSIONS

PIPE/BOX CEE STRUT
TAKE-OFF DIMENSIONS

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
AK0080 – STRUT ATTACHED TO C.F. RAFTER

PIPE/BOX CEE STRUT WITH KNIFE PLATE

PIPE/BOX CEE STRUT WITH T-PLATE

BOX CEE STRUT WITH T-PLATE

STRUT DETAIL

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

NOTE: USE (4) 1/2" x 2" A325 BOLTS H0603/NUTS H0300

CLIP MK. TPP03

COLD-FORMED RAFTER

USE (4) 1/2" x 2" A325 BOLTS H0603/NUTS H0300

CLIP MK. TPP03

COLD-FORMED RAFTER

AK0080

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

DETAIL NAME IF APPLICABLE
AK0080.DWG

LEGACY PRODUCT INFORMATION