



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-1 TYPICAL BEAM-TO-COLUMN MOMENT CONNECTION DETAIL (STRONG AXIS) SIM. AT TOP OF COLUMN

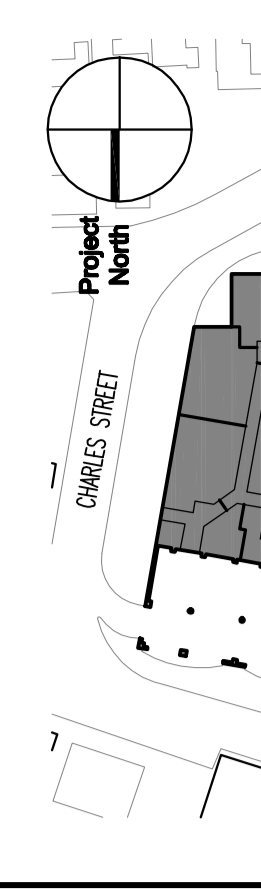


GRAVITY MOMENT CONNECTION SCHEDULE (U.O.N.)

BEAM SIZE	DESIGN MOMENT UNREINFORCED (KIP-FT)	DESIGN MOMENT REINFORCED (KIP-FT)	BEAM SIZE	DESIGN MOMENT UNREINFORCED (KIP-FT)	DESIGN MOMENT REINFORCED (KIP-FT)
W10	20	32	W14	25	40
W12	25	40	W16	35	60
W14	35	60	W18	50	80

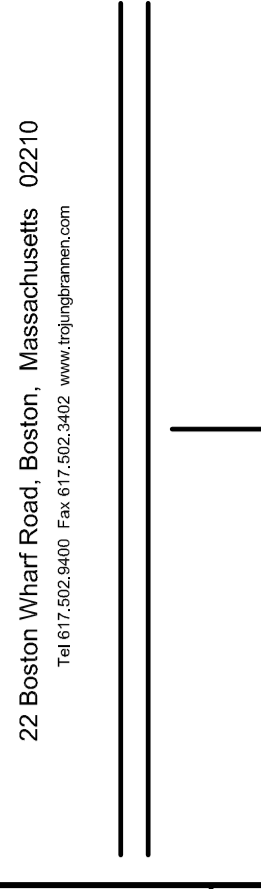
- NOTES:**
- SEE TS-1A THROUGH TS-1E FOR ADDITIONAL INFORMATION.
 - DESIGN MOMENT SHOULD NOT EXCEED MEMBER MOMENT CAPACITY.

TS-2 TYPICAL BEAM-TO-COLUMN MOMENT CONNECTION DETAIL (WEAK AXIS) SIM. AT TOP OF COLUMN



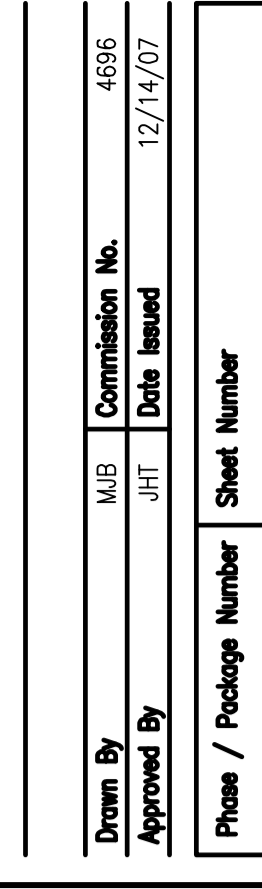
- MOMENT CONNECTION GENERAL NOTES:**
- DESIGN MOMENT TO DEVELOP THE FULL CAPACITY OF THE BEAM.
 - FOR DESIGN MOMENTS AT GRAVITY CONNECTIONS, SEE SCHEDULE ON THIS SHEET.
 - SHEAR CONNECTION TO DEVELOP THE LOWER OF THE FACTORED REACTION LISTED IN THE SCHEDULE + 2.4(M_u/SPAN), OR 80% OF THE UNREINFORCED SHEAR STRENGTH OF THE COPED WEB. BOLTS ARE SUP CRITICAL.
 - INSTALL ALL BOLTS SING TIGHT PRIOR TO FIRST TORQUING. TENSION BOLTS FULLY TORQUED.
 - REMOVE BOTTOM FLANGE BACKING BAR, BACK GOUGE, AND INSTALL REINFORCING 5/16" FILET ON TOP & BOTTOM OF BOTTOM FLANGE WELD.
 - WELD TOP FLANGE BACKING BAR CONTINUOUSLY TO COLUMN FLANGE OR CONTINUITY PLATE.
 - WELD BOTTOM FLANGE BACKING BAR CONTINUOUSLY TO COLUMN FLANGE OR CONTINUITY PLATE.
 - FILLER WELD MATERIAL TO HAVE MINIMUM CHERRY V-NOTCH VALUE OF 20 FT-LBS. AT 40° F.

TS-3 ALTERNATE STRONG AXIS BEAM-TO-COLUMN MOMENT CONNECTION DETAIL

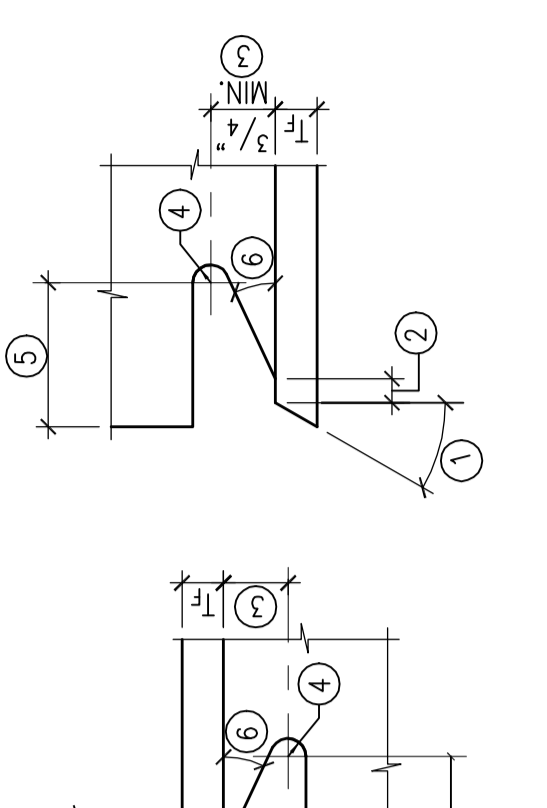


- NOTES:**
- FOR INFORMATION NOT SHOWN, SEE NOTES IN BEAM-TO-COLUMN MOMENT CONNECTION DETAILS.

TS-4 WELD ACCESS HOLE DETAILS

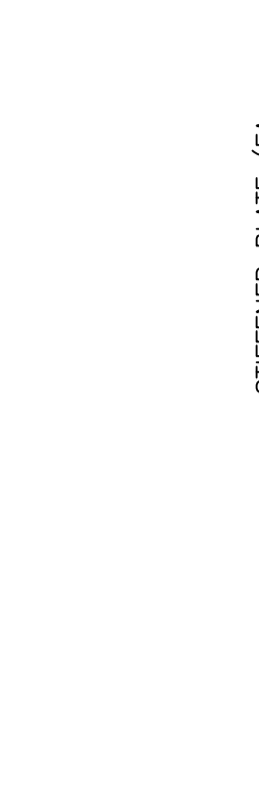


- GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-5 GRAVITY MOMENT FRAME CONNECTION



GRAVITY MOMENT CONNECTION SCHEDULE (U.O.N.)

BEAM SIZE	DESIGN MOMENT UNREINFORCED (KIP-FT)	DESIGN MOMENT REINFORCED (KIP-FT)	BEAM SIZE	DESIGN MOMENT UNREINFORCED (KIP-FT)	DESIGN MOMENT REINFORCED (KIP-FT)
W10	20	32	W14	25	40
W12	25	40	W16	35	60
W14	35	60	W18	50	80

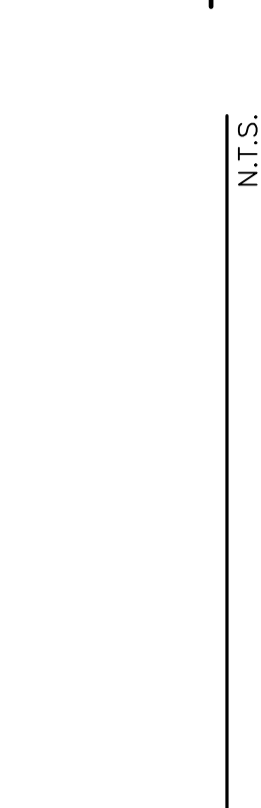
- NOTES:**
- SEE TS-1A THROUGH TS-1E FOR ADDITIONAL INFORMATION.
 - DESIGN MOMENT SHOULD NOT EXCEED MEMBER MOMENT CAPACITY.

TS-6 ALTERNATE BOLTED STRONG AXIS BEAM-TO-COLUMN MOMENT CONNECTION DETAIL



- GRAVITY MOMENT CONNECTION GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-7 BEAM TO BEAM MOMENT CONNECTION

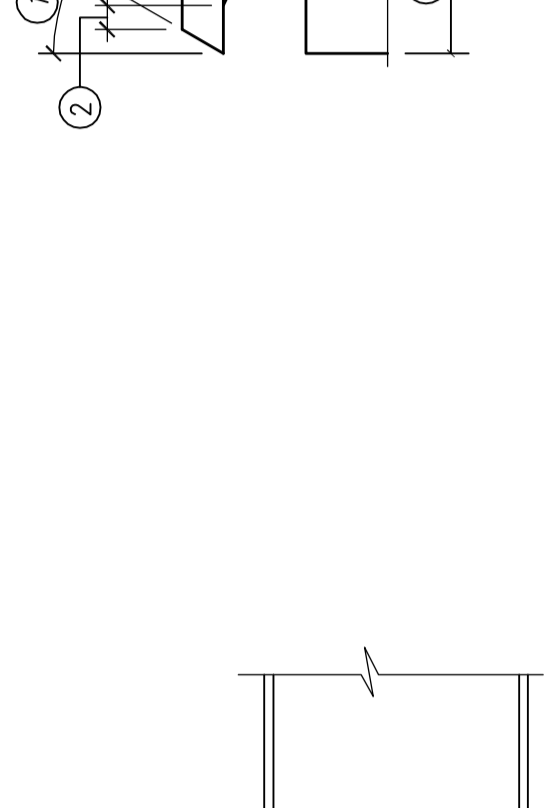


- BEAM TO BEAM MOMENT CONNECTION GENERAL NOTES:**
- DESIGN FLANGE PLATES FOR 0.8 x R_u OF THE SMALLER BEAM, U.O.N. IN PLAN, DESIGN SHEAR CONNECTION FOR 80% OF THE DESIGN REACTIONS SHOWN BY PLAN DOUBLE ANGLE, SINGLE PLATE, AND END PLATE CONNECTIONS ACCEPTABLE.
 - ALL BOLTS ARE SUP CRITICAL.
 - FIELD WELDED FLANGE PLATE ALTERNATES ACCEPTABLE.
 - DETAIL SHIMS AND/OR FILLERS PER ASC LRFD SPECIFICATION PROVIDE DECK SUPPORT AS REQUIRED. DECK SUPPORT BY OVERSIZE THICKNESS AND IT EXTENDS A MINIMUM OF 3" BEYOND THE FLANGES.

TS-8 BEAM OVER COLUMN DETAIL



- GENERAL NOTES:**
- MINIMUM WELD SIZE PER TABLE J2.4 OF ASC-LRFD SPECIFICATION.
 - CAP BETWEEN BEARING PLATE AND SUPPORTING BEAM.
 - FULLY-TENSION ALL BOLTS.



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-9 COLUMN BASE TO STEEL SUPPORT

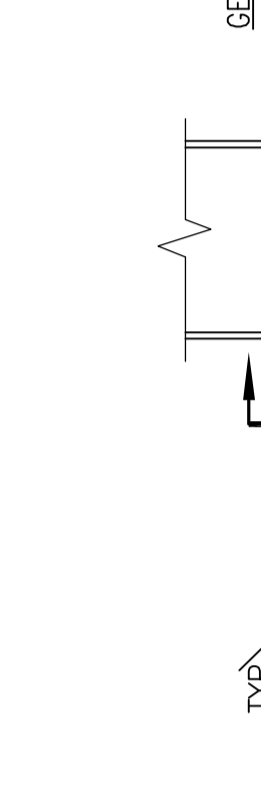


BEAM SHEAR REACTION TABLE

BEAM SIZE	REACTION (KIPS)	MINIMUM NUMBER OF BOLT ROWS
WB	12	2
W10	15	2
W12	25	3
W14	30	3
W16	35	4
W18	45	4
HSS 2x4x6	50	SEE DETAILS
HSS 1x4x4	30	SEE DETAILS
HSS 10x4	15	SEE DETAILS

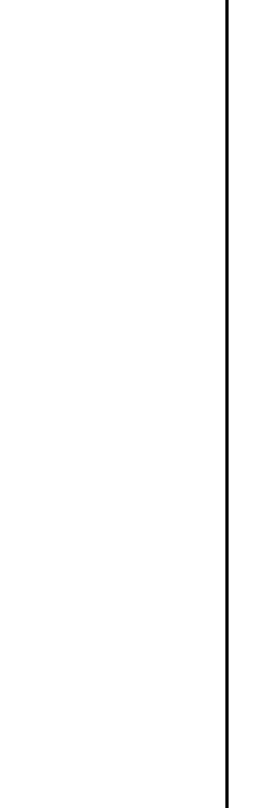
- NOTES:**
- SHEAR VALUES SHOWN ON BEAM SUPERSEDE TABLE VALUES.
 - SHEAR VALUES ARE SERVICE LOADS. USE 1.5 LOAD FACTOR FOR LRFD CONNECTIONS.
 - SEE PLANS FOR BEAMS WITH AXIAL FORCES.
 - SEE DETAILS AND SECTIONS FOR BEAMS REQUIRING FULL DEPTH SHEAR CONNECTIONS.
 - MINIMUM GIRT DIAMETER: 4"

TS-10 STANDARD WIDE FLANGE BEAM SHEAR CONNECTIONS



- BEAM SHEAR CONNECTION GENERAL NOTES:**
- DETAIL SIMILAR AT COLUMN FLANGE OR COLUMN WEB.
 - END PLATE THICKNESS RANGE: FROM 1/2" TO 3/8" INCLUSIVE.
 - DO NOT RETURN WELD ACROSS THICKNESS OF BEAM WEB.
 - END PLATE MATERIAL: ASTM A36
 - DO NOT USE ON UNBOLTED BEAMS.
 - L = GREATER THAN 0.5 X BEAM "T" DIMENSION.

TS-11 BEAM WEB PENETRATIONS



STEEL BEAM WEB OPENING REINFORCEMENT SCHEDULE

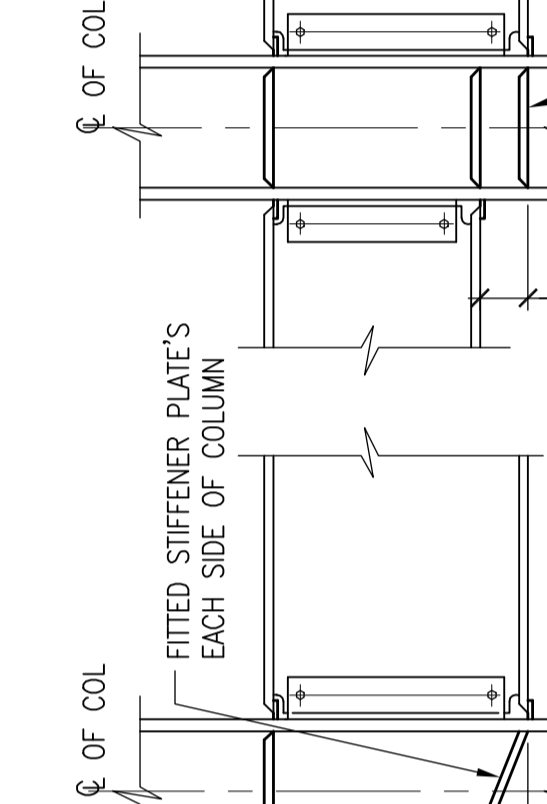
MARK	OPENING DIMENSIONS	PLATE REINFORCEMENT	TYPE**
1	4 - 12	b - t - L ₁ - T	C
2	5 - 11	- - - - -	C
3	- - - - -	- - - - -	-
4	- - - - -	- - - - -	-
5	- - - - -	- - - - -	-

- NOTES:**
- FOR CIRCULAR OPENINGS, L = H
 - A = D/2, UNCL
 - R = RECTANGULAR, C = CIRCULAR
 - R = RADIUS (MAX. OF 2X₁ OR 3/8")
 - ON PLAN, OPENINGS ARE CENTERED ON BEAM SPAN.
 - ON PLAN, OPENINGS ARE CENTERED ON BEAM SPAN.
 - INCLUDE PLATE MATERIAL TO BEAM MATERIAL.
 - SEE NOTE 2.
 - SEE NOTE 3.

TS-12 BEAM REACTION TABLE AND CONNECTION NOTES

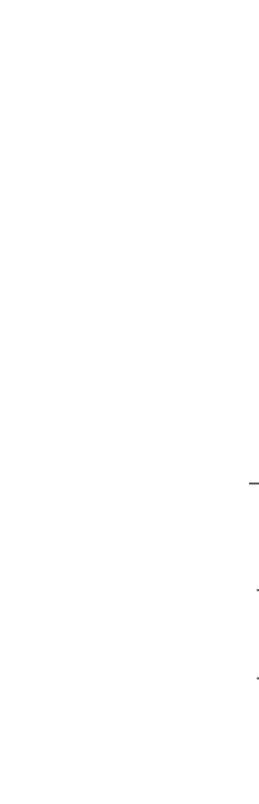
BEAM REACTION TABLE AND CONNECTION NOTES

MARK	REACTION (KIPS)	MINIMUM NUMBER OF BOLT ROWS
WB	12	2
W10	15	2
W12	25	3
W14	30	3
W16	35	4
W18	45	4
HSS 2x4x6	50	SEE DETAILS
HSS 1x4x4	30	SEE DETAILS
HSS 10x4	15	SEE DETAILS



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-13 WELD TABLE

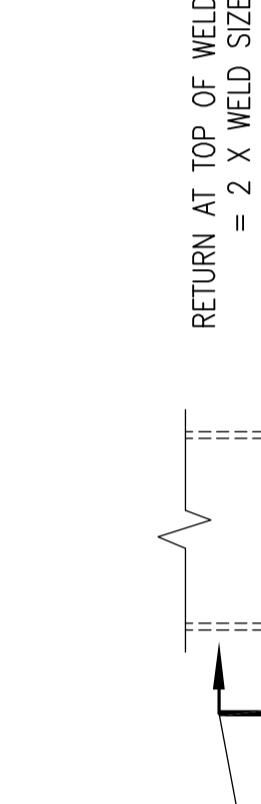


MINIMUM SIZE OF FILLET WELDS TABLE

CLEAR SPAN	ANGLE SIZE (LLV)
4'-0"	1 1/2 x 3/8 x 3/8
6'-0"	1 3/8 x 3/8 x 3/8
8'-0"	1 1/2 x 3/8 x 3/8
10'-0"	1 3/8 x 3/8 x 3/8

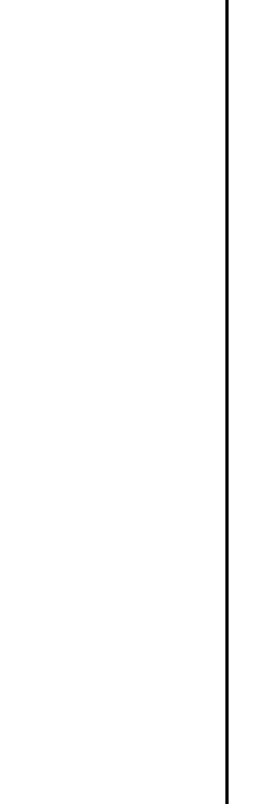
- NOTES:**
- ALL EXTERIOR LINELINES TO BE HOT-DIPPED GALVANIZED.
 - PROVIDE 6" MINIMUM BEARING AT ENDS OF ANGLES, UNCL.
 - FOR DOUBLE W/TH WALLS, USE TWO ANGLES BACK TO BACK AND PLUG WELD VERTICAL LEGS TOGETHER AT 7'-0" O.C.

TS-14 BRICK LOOSE LINTEL SCHEDULE



- BEAM OVER COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-15 BEAM TO COLUMN DETAIL

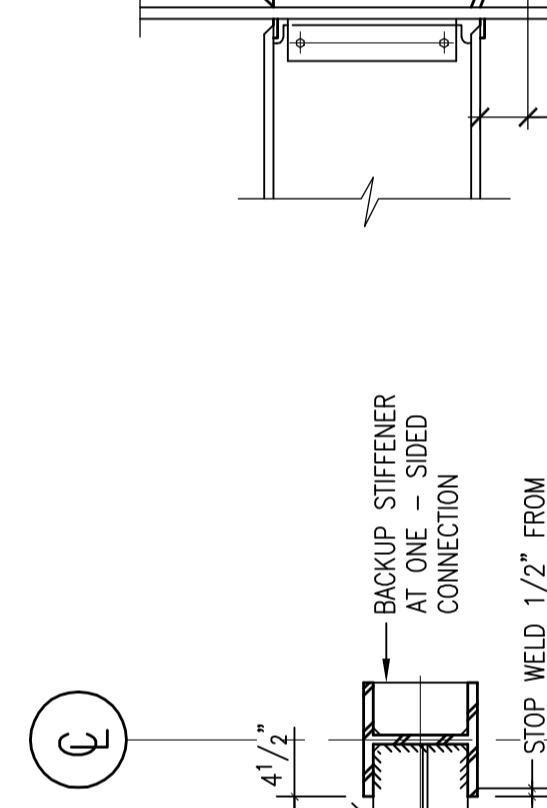


- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-16 BEAM TO COLUMN DETAIL



- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-17 BEAM TO COLUMN DETAIL



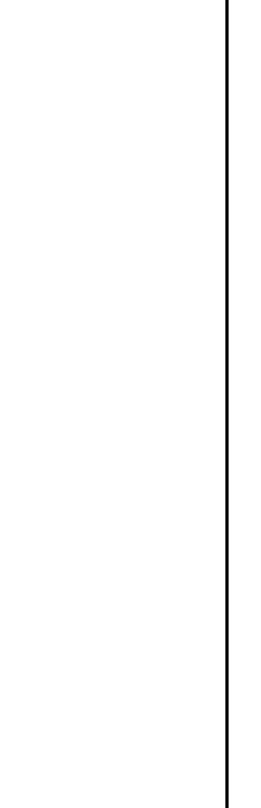
- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-18 BEAM TO COLUMN DETAIL



- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-19 BEAM TO COLUMN DETAIL

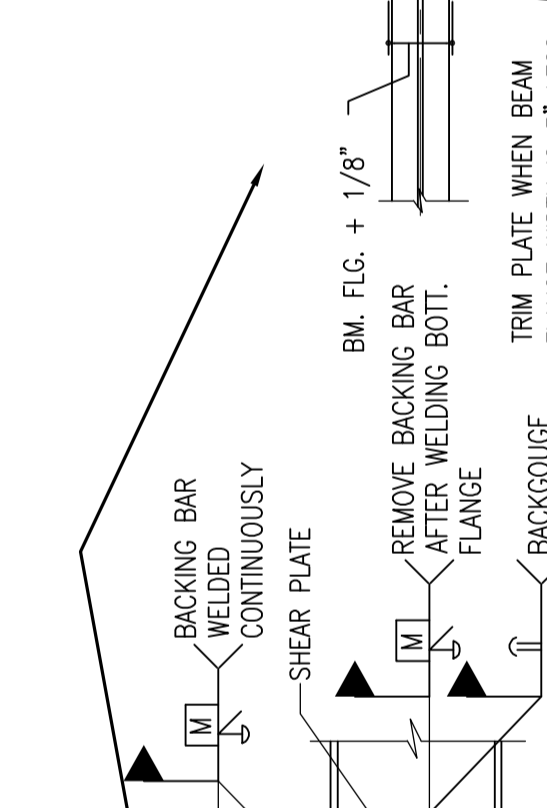


- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-20 BEAM TO COLUMN DETAIL



- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-21 BEAM TO COLUMN DETAIL



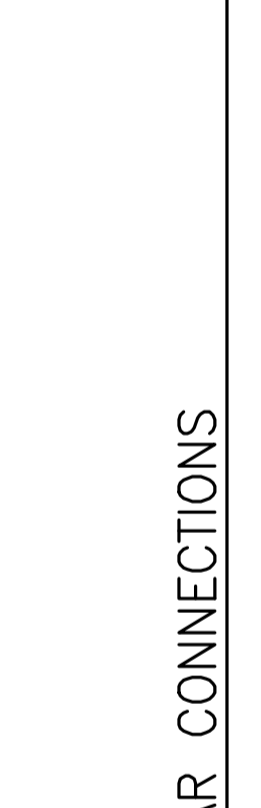
- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-22 BEAM TO COLUMN DETAIL



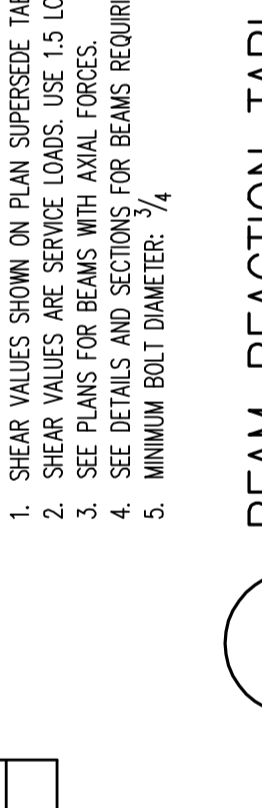
- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-23 BEAM TO COLUMN DETAIL

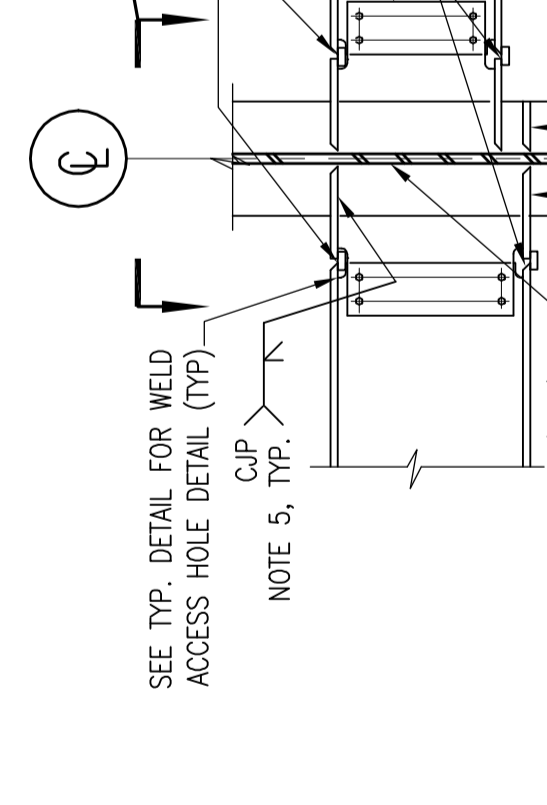


- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.

TS-24 BEAM TO COLUMN DETAIL

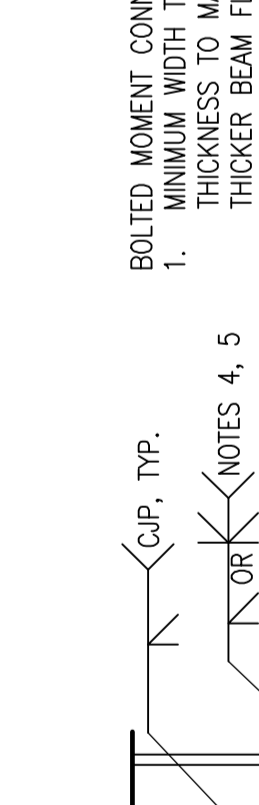


- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
 - DETAIL CONNECTIONS IN CONFORMANCE WITH THE REQUIREMENTS OF "99 CFR PART 1926, SUBPART R - STEEL ERECTION".
 - GRIND COPES FOR GROUP 4 AND 5 SECTIONS PER THE ASC LRFD SPECIFICATION SECTION J1.6.



- WELD ACCESS HOLE NOTES:**
- BACKLAPS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
 - LARGER OF T₁ OR 1/2" (TOLERANCE: PLUS 1/2 T₁ OR MINUS 1/4 T₁)
 - 3/4 T₁ TO T₂, 3/4" MINIMUM (TOLERANCE: ± 1/4")
 - 3/8" MINIMUM RADIUS (TOLERANCE: PLUS NOT LIMITED, OR MINUS 0)
 - 1" MINIMUM AS-BUILT ANGLE AFTER TOLERANCES.
 - 2" MAXIMUM AS-BUILT ANGLE AFTER TOLERANCES.

TS-25 BEAM TO COLUMN DETAIL



- BEAM TO COLUMN DETAIL GENERAL NOTES:**
- DESIGN CONNECTIONS FOR THE FORCES SHOWN ON THE BEAM SHEAR REACTION TABLE, UNLESS SUPERSEDED IN PLAN.
 - MINIMUM BOLT SIZE IS 3/4" A325, U.O.N.
 - PRETENSION BOLTS CONNECTING TO COLUMNS, SING TIGHTER THAN OTHER BOLTS.
 - ALTERNATE CONNECTION TYPES, SUCH AS SINGLE ANGLE, IEE, CEATED CONNECTIONS, ETC. MAY BE ACCEPTABLE UNDER CERTAIN CIRCUMSTANCES. REVIEW WITH ENGINEER.
 - SEE DETAILS & SECTIONS FOR BEAMS REQUIRING FULL DEPTH CONNECTIONS.
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