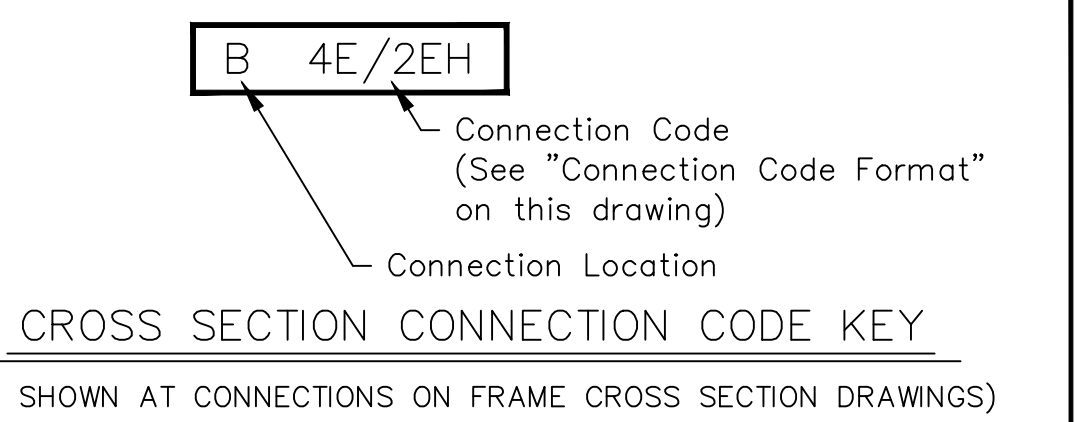
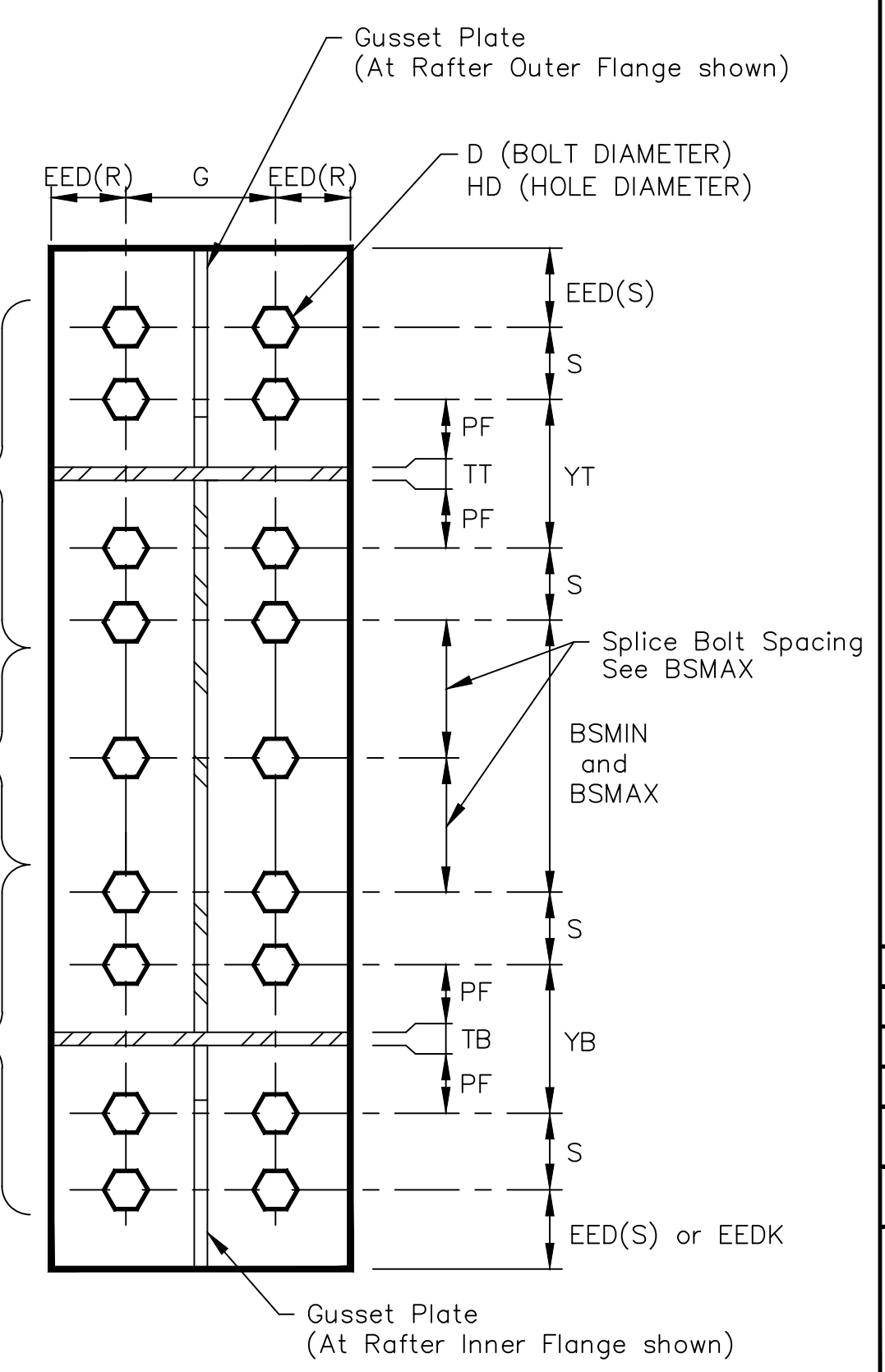


Frame Documentation
A325 Connection Bolt Details

By	CK'd								
Date									
Revision									



Flange Brace Material Schedule	
Part Mark	Material
FB4_	L 2" x 2" x 14 Ga.
FB5_	L 2" x 2" x 14 Ga.
FB6_	L 2" x 2" x 8"
FB7_	L 2 1/2" x 2 1/2" x 3/16"



NAME	DESCRIPTION FOR A325 BOLT DIMENSIONS	A325 CONNECTION BOLT DIMENSIONS						
		1/2"	3/4"	7/8"	1"	1 1/4"	1 1/2"	
D	DIAMETER OF THE BOLT	1/2"	3/4"	7/8"	1"	1 1/4"	1 1/2"	
HD	BOLT HOLE DIAMETER	9/16"	13/16"	15/16"	1 1/16"	1 5/16"	1 9/16"	
G	BOLT GAUGE	2 1/2"	3"	4"	3 1/2"	4"	5 1/2"	
	MAX. WEB THICKNESS (Max. 5/16" Fillet Weld) WITHOUT WASHER	1"	1 1/8"	1 7/8"	1 1/4"	1 3/8"	2 1/8"	
	MAX. WEB THICKNESS (Max. 5/16" Fillet Weld) WITH WASHER	3/4"	7/8"	1 5/8"	7/8"	7/8"	1 7/8"	
HG	HEAVY CONN. BOLT GAUGE	N/A	2 1/4"	2 5/8"	3"	3 3/4"	4"	
S	NORMAL BOLT SPACING	2 1/2"	3"	3 1/4"	3 1/2"	4"	4 1/2"	
BSMIN	MINIMUM SPACING BETWEEN TOP & BOTTOM SETS OF BOLTS	1 1/2"	2 1/4"	2 5/8"	3"	3 3/4"	4"	
BSMAX	MAXIMUM BOLT SPACING BETWEEN TOP AND BOTTOM SETS OF BOLTS ON CONNECTION PLATES LESS THAN OR EQUAL TO 3/4" THICK	SPLICE BOLT SPACING { 1/2 BSMAX (±1/8") WHEN BSMAX = 2'-0 1/8" TO 4'-0" } { 1/3 BSMAX (±1/8") WHEN BSMAX = 4'-0 1/8" TO 6'-0" } { 1/4 BSMAX (±1/8") WHEN BSMAX = 6'-0 1/8" TO 8'-0" }						
		2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	
BFGD	MINIMUM BOLT-TO-FLANGE CLEARANCE AT OUT OF NUT SEE BOLT AT FLANGE DETAIL	1 1/2"	1 3/4"	1 7/8"	2 1/4"	2 1/2"	2 3/4"	
PF	MINIMUM BOLT-TO-FLANGE CLEARANCE AT CONNECTION PLATE SEE BOLT AT FLANGE DETAIL	(BFGD + RNWT) PF INSIDE OF FLANGE IS INCREASED BASED ON THE YT & YB VALUE. PF FOR CONNECTION B, F, I AND P ARE THE SAME AS USED ON CONNECTION E						
NWT	NUT AND WASHER THICKNESS	SEE BOLT AT FLANGE DETAIL. NUT THICKNESS IS EQUAL TO THE BOLT DIAMETER AND .15625" WASHER THICKNESS IS USED EVEN IF A WASHER IS NOT REQUIRED.						
RNWT	RISE ON NUT AND WASHER THICKNESS							
TT	THICKNESS TOP FLANGE	REFER TO FRAME CROSS SECTION DRAWING FOR LARGEST FLANGE THICKNESS EITHER SIDE OF THE CONNECTION.						
TB	THICKNESS BOTTOM FLANGE							
YT	BOLT SPACING TOP (ROUND UP TO NEXT 1/2", MIN = S)	3" + TT	3 1/2" + TT	3 3/4" + TT	4 1/2" + TT	5" + TT	5 1/2" + TT	
YB	BOLT SPACING BOTTOM (ROUND UP TO NEXT 1/2", MIN = S)	or TB Sloped	or TB Sloped	or TB Sloped	or TB Sloped	or TB Sloped	or TB Sloped	
EED(S)	MINIMUM SHEARED END EDGE DIMENSION	1 1/4"	1 1/4"	1 1/2"	1 3/4"	2 1/4"	2 5/8"	
EED(R)	MINIMUM ROLLED END EDGE DIMENSION	3/4"	1"	1 1/8"	1 1/4"	1 5/8"	2 1/4"	
EEDK	END EDGE DIMENSION AT KNEE CONNECTION	1 3/8"	1 3/8"	1 5/8"	1 7/8"	2 3/8"	2 3/4"	
BCWM	MINIMUM BOLT CLEARANCE FROM A FLANGE OR WEB WELD	WITHOUT WASHER	7/16"	5/8"	3/4"	13/16"	1"	1 3/8"
		WITH HARDENED WASHER	9/16"	3/4"	7/8"	1"	1 1/4"	1 1/2"
WCSM	MINIMUM WIDTH OF CONNECTION PLATE (Standard Connection)	5"	6"	8"	8"	10"	12"	
WCHM	MINIMUM WIDTH OF CONNECTION PLATE (Heavy Connection)	N/A	10"	12"	12"	16"	18"	
TCMIN	MINIMUM THICKNESS OF CONNECTION PLATE	1/4"	3/8"	7/16"	1/2"	5/8"	1"	

CONNECTION BOLT DATA

CONNECTION CODES
 (FOR TOP AND BOTTOM BOLT PATTERN)

CONNECTION CODE DESCRIPTION

B = THIS DESCRIPTION CODE IS USED TO DEFINE SHEAR CONNECTIONS. BOLTS ARE LOCATED INSIDE THE TOP FLANGE AND CONNECTION PLATE IS RECESSED 1/8" BELOW THE TOP FLANGE. CONNECTION PLATE LENGTH MUST BE A MINIMUM OF HALF THE RAFTER WEB DEPTH AND SHALL NOT EXCEED THE RAFTER TOTAL DEPTH.

E = THIS DESCRIPTION CODE IS USED TO DEFINE MOMENT CONNECTIONS. BOLTS ARE LOCATED WITH ONE SET OUTSIDE THE TOP OR BOTTOM FLANGE AND THE REMAINING SETS ARE LOCATED INSIDE THE TOP OR BOTTOM FLANGE.

F = THIS DESCRIPTION CODE IS USED TO DEFINE MOMENT CONNECTIONS. BOLTS ARE LOCATED INSIDE THE TOP OR BOTTOM FLANGE AND CONNECTION PLATE PROJECTS 1/2" BEYOND THE TOP OR BOTTOM FLANGE.

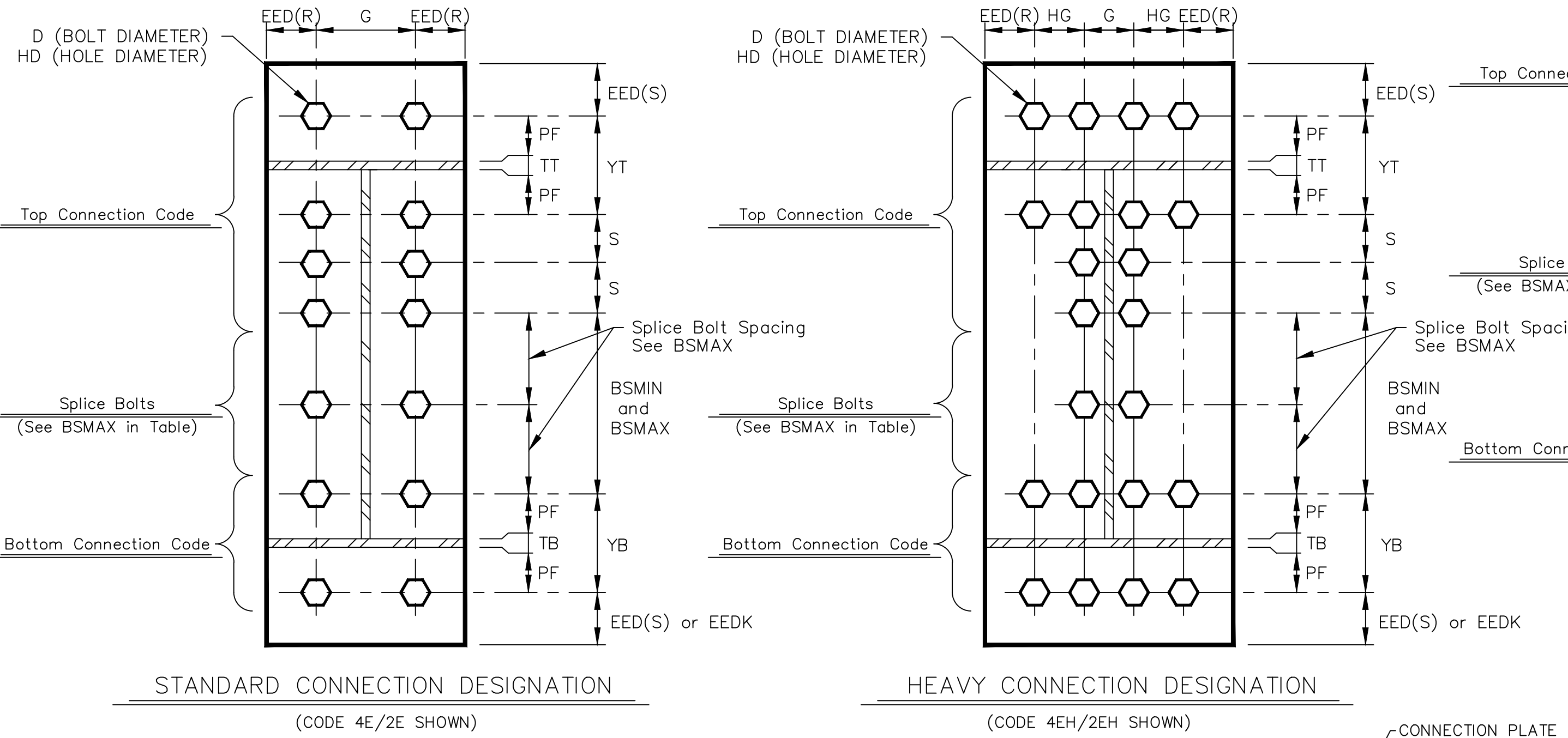
I = THIS DESCRIPTION CODE IS USED TO DEFINE MOMENT CONNECTIONS. BOLTS ARE LOCATED INSIDE THE TOP OR BOTTOM FLANGE AND CONNECTION PLATE IS RECESSED 1/8" BELOW THE TOP OR BOTTOM FLANGE.

P = THIS DESCRIPTION CODE IS USED TO DEFINE SHEAR CONNECTIONS. BOLTS ARE LOCATED INSIDE THE TOP FLANGE AND CONNECTION PLATE IS RECESSED 1/8" BELOW THE TOP FLANGE. CONNECTION PLATE LENGTH MUST BE A MINIMUM OF HALF THE RAFTER WEB DEPTH AND SHALL NOT EXCEED THE RAFTER TOTAL DEPTH.

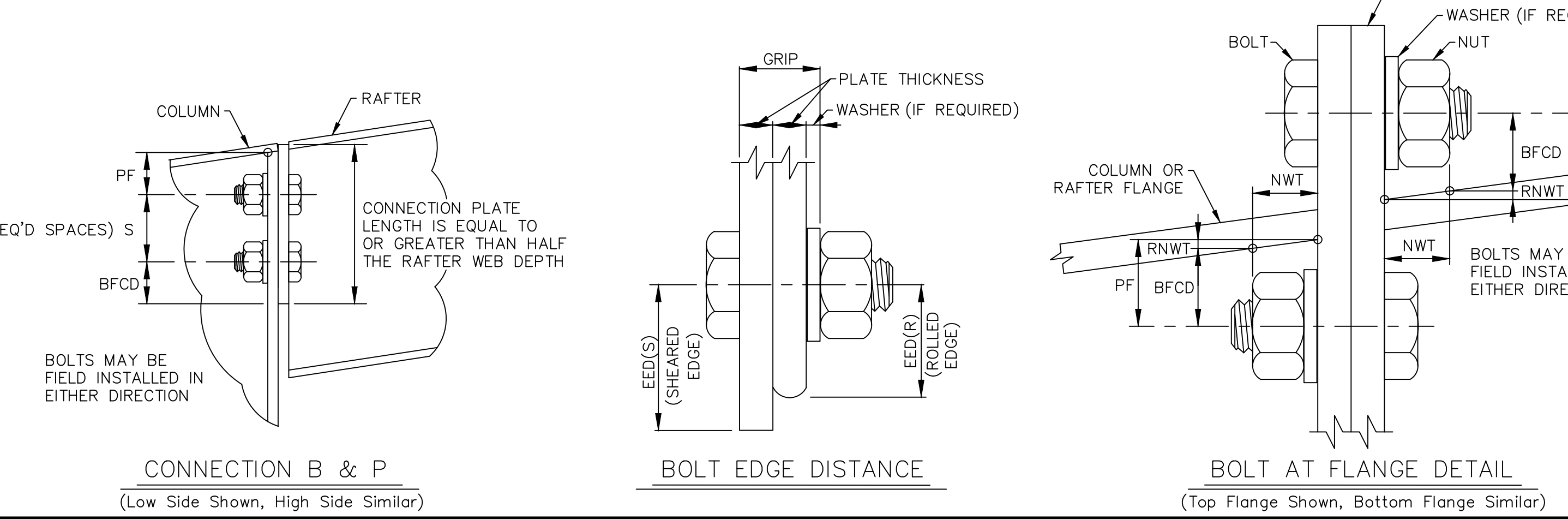
4X = THIS DESCRIPTION CODE IS USED TO DEFINE MOMENT CONNECTIONS. BOLTS ARE LOCATED WITH TWO SETS EACH SIDE OF THE TOP OR BOTTOM FLANGE WITH A GUSSET PLATE OUTSIDE THE TOP AND BOTTOM FLANGE OR COLUMN CAP PLATE.

CONNECTION CODE FORMAT

4 E / 2 E H
 CONNECTION DESIGNATION
 BLANK = STANDARD CONNECTION
 H = HEAVY CONNECTION
 BOTTOM CONNECTION CODE
 BOTTOM QUANTITY OF BOLT ROWS
 CONNECTION DESIGNATION
 BLANK = STANDARD CONNECTION
 H = HEAVY CONNECTION
 TOP CONNECTION CODE
 TOP QUANTITY OF BOLT ROWS
 CONNECTION CODE FORMAT



4X CONNECTION DESIGNATION
 (CODE 4X/4X SHOWN)



A&S BUILDING SYSTEMS
 1880 HWY. 116, CARYVILLE, TENNESSEE 37714
 PHONE: 865-426-2141 FAX: 865-426-2011

Customer Name & Location:
 AMERICAN AERIAL SERVICES, INC.
 58 ALLEN AVENUE EXT.
 FALMOUTH, ME. 04105

Project Name & Location:
 BAYSIDE BOWL ADDITION
 58 ALLEN STREET
 PORTLAND, ME. 04101

Drawing Status:
 Preliminary (Not For Construction)
 For Approval (Not For Construction)
 For Construction Permit
 For Erector Installation

Scale: NOT TO SCALE
Drawn by: DRF 4/26/16
Checked by: NC 4/26/16
Project Engineer: BDC
Job Number: 15-B-26518-1
Sheet Number: E30 of 30

The engineer whose seal appears hereon is an employee for the manufacturer for the materials described herein. Said seal or certification is limited to the products designed and manufactured by manufacturer only. The undersigned engineer is not the overall engineer of record for this project.

Lee W. Lowe, P.E.
 Maine P.E. 8861

Apr 26, 2016

