Eric.Babcock
2020-03-26 19:27:00

Secondary Framing Table of Contents

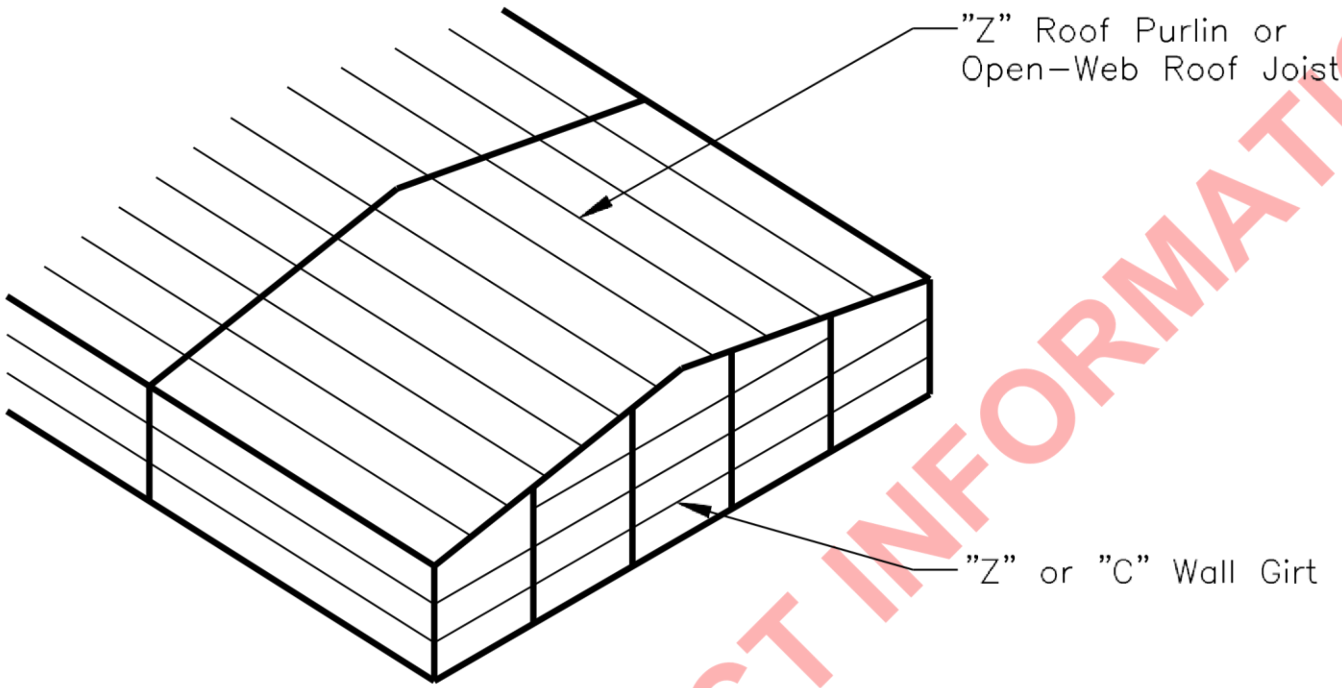
Secondary Framing Table of Contents

VALLEY STEEL CONSTRUCTION INC.

PRODUCT & ENGINEERING MANUAL

VALLEY STEEL CONSTRUCTION INC.

SECONDARY FRAMING

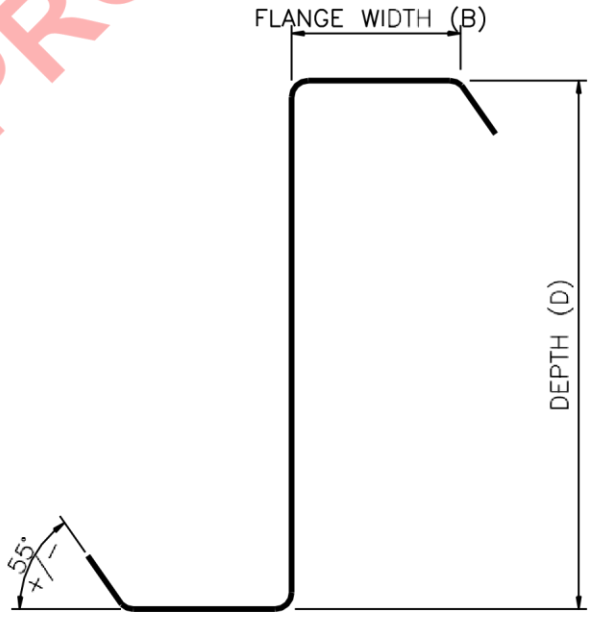


1. Standard Secondary Framing consists of Cold Formed "Z" shaped roof purlins and wall girts. "C" shaped wall girts may be used for framed openings and other special applications.
2. "Z" and "C" members are shop punched for simple field bolted connections.
3. "Z" and "C" members are available in 8, 10, or 12 inch depths. Consult the engineering team for specifics.
4. Optional Open-Web joists are available for wide bay applications with spans over 35 feet, and for mezzanine applications.
5. Section properties listed in this section are determined using the AISI North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100), Latest Edition. Capacities listed represent "fully braced" capacities and are shown without reduction. Any use of these properties for design should also be completed utilizing the required AISI S100 provisions.
6. As a standard, all bypass roof purlins and wall girts will utilize a shop welded clip. Bolted clips are also available.

Some Nucor Divisions may offer welded clips for inset or flush girts. Contact your NBS Division for availability.

"Z" SECTION PROPERTIES

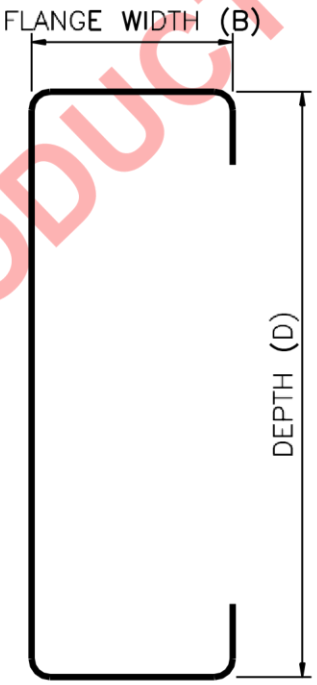
Section Designation	D (in.)	B (in.)	Nominal t (in.)	Design Wt. (plf)	Gross Ix (in^4)	Effective Sx (in^3)	Ma (in-kip)	
							ASD	LSD
08 Z 054	8.00	2.50	0.054	2.65	7.522	1.605	52.850	79.434
08 Z 060	8.00	2.50	0.060	2.94	8.343	1.898	62.518	93.965
08 Z 067	8.00	2.50	0.067	3.29	9.297	2.134	70.268	105.610
08 Z 075	8.00	2.50	0.075	3.68	10.383	2.464	81.158	121.980
08 Z 089	8.00	2.50	0.089	4.36	12.269	3.067	101.020	151.830
08 Z 099	8.00	2.50	0.099	4.85	13.606	3.402	112.030	168.370
08 Z 105	8.00	2.50	0.105	5.15	14.404	3.601	118.600	178.250
10 Z 060	10.00	2.50	0.060	3.35	14.155	2.353	77.500	116.480
10 Z 067	10.00	2.50	0.067	3.74	15.782	2.774	91.351	137.300
10 Z 075	10.00	2.50	0.075	4.19	17.635	3.355	110.480	166.060
10 Z 089	10.00	2.50	0.089	4.97	20.860	4.172	137.400	206.520
10 Z 099	10.00	2.50	0.099	5.53	23.152	4.630	152.500	229.200
10 Z 105	10.00	2.50	0.105	5.86	24.522	4.904	161.520	242.760
10 Z 120	10.00	2.50	0.120	6.70	27.930	5.586	183.970	276.500
12 Z 075	12.00	3.50	0.075	5.21	32.685	4.048	133.330	200.390
12 Z 089	12.00	3.50	0.089	6.18	38.691	5.350	176.200	264.830
12 Z 099	12.00	3.50	0.099	6.87	42.963	6.246	205.700	309.160
12 Z 105	12.00	3.50	0.105	7.29	45.519	6.704	220.800	331.870
12 Z 120	12.00	3.50	0.120	8.33	51.883	8.049	265.070	398.400



VALLEY STEEL CONSTRUCTION INC.

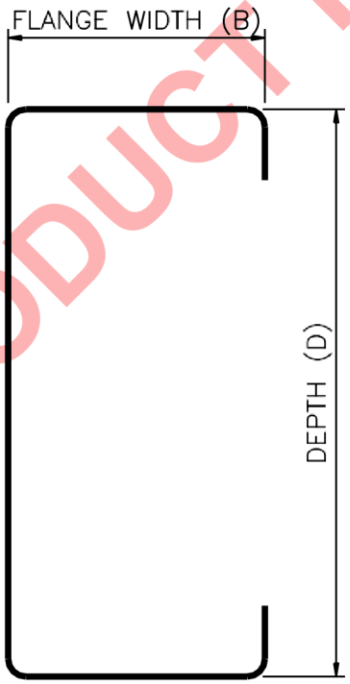
"C" SECTION PROPERTIES

Section Designation	D (in.)	B (in.)	Nominal t (in.)	Design Wt. (plf)	Gross Ix (in^4)	Effective Sx (in^3)	Ma (in-kip)	
							ASD	LSD
08 C 060	8.00	2.75	0.060	2.94	8.393	1.759	57.928	87.066
08 C 067	8.00	2.75	0.067	3.29	9.351	2.033	66.944	100.620
08 C 075	8.00	2.75	0.075	3.68	10.440	2.313	76.182	114.500
08 C 089	8.00	2.75	0.089	4.36	12.330	2.924	96.287	144.720
08 C 099	8.00	2.75	0.099	4.85	13.669	3.318	109.270	164.240
08 C 105	8.00	2.75	0.105	5.15	14.467	3.557	117.150	176.080
10 C 060	10.00	2.75	0.060	3.35	14.218	2.176	71.655	107.700
10 C 067	10.00	2.75	0.067	3.74	15.850	2.599	85.585	128.630
10 C 075	10.00	2.75	0.075	4.19	17.707	3.139	103.390	155.390
10 C 089	10.00	2.75	0.089	4.97	20.938	3.980	131.060	196.980
10 C 099	10.00	2.75	0.099	5.53	23.231	4.514	148.660	223.440
10 C 105	10.00	2.75	0.105	5.86	24.601	4.839	159.360	239.520



"S" SECTION PROPERTIES

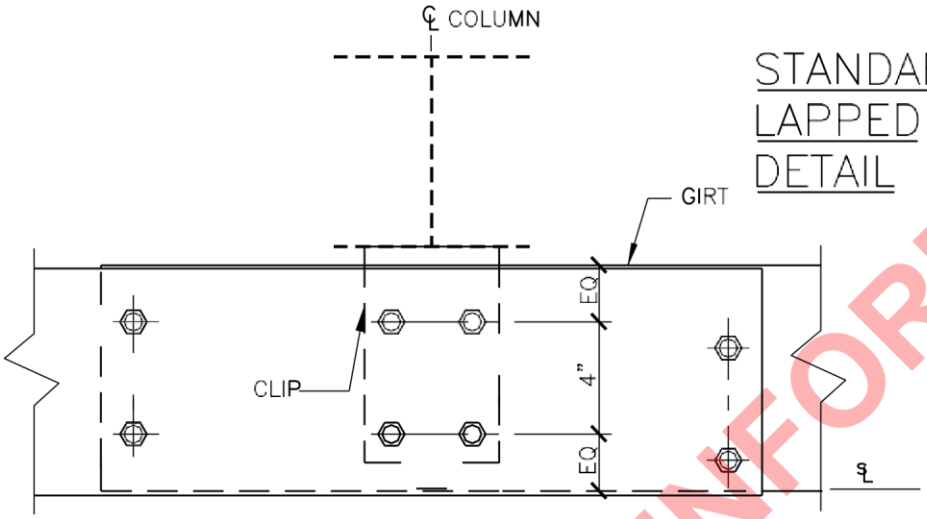
Section Designation	D (in.)	B (in.)	Nominal t (in.)	Design Wt. (plf)	Gross Ix (in^4)	Effective Sx (in^3)	Ma (in-kip)	
							ASD	LSD
08 S 075	8.00	3.625	0.075	4.19	12.684	2.592	85.362	128.300
08 S 089	8.00	3.625	0.089	4.97	14.980	3.169	104.380	156.880
08 S 099	8.00	3.625	0.099	5.53	16.605	3.593	118.340	177.870
08 S 105	8.00	3.625	0.105	5.87	17.575	3.872	127.520	191.660
08 S 120	8.00	3.625	0.120	6.71	19.981	4.673	153.890	231.300
12 S 075	12.00	3.625	0.075	5.21	32.598	4.051	133.430	200.540
12 S 089	12.00	3.625	0.089	6.18	38.573	5.379	177.140	266.240
12 S 099	12.00	3.625	0.099	6.87	42.818	6.278	206.760	310.760
12 S 105	12.00	3.625	0.105	7.29	45.357	6.747	222.210	333.980
12 S 120	12.00	3.625	0.120	8.33	51.673	8.083	266.200	400.100



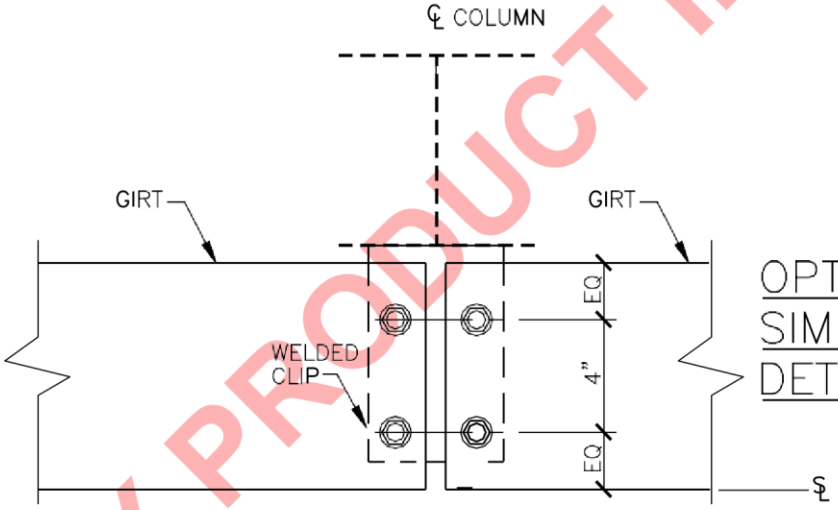
AAJ

VALLEY STEEL CONSTRUCTION INC.

"Z" WALL GIRTS (BYPASS WELDED CLIPS)



STANDARD LAPPED DETAIL



OPTIONAL SIMPLE-SPAN DETAIL

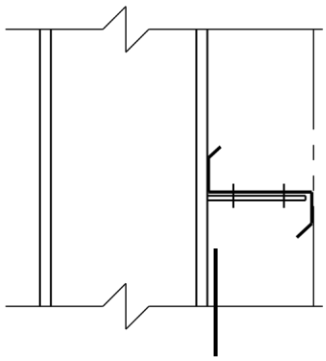
NOTES

1) ALL WALL GIRT CONNECTIONS UTILIZE 1/2" DIAMETER BOLTS.

2) BYPASS CONDITION IS STANDARD SIDEWALLS, OPTIONAL ON ENDWALLS. ON

3) "Z" GIRTS ARE ECONOMICAL FOR SPANS UP TO 40 FEET.

4) 8 AND 10 INCH "C" SHAPED MEMBERS ARE AVAILABLE FOR WALL GIRTS AS AN OPTION.



LAST REVISION DETAIL NAME IF APPLICABLE

DATE: 03/10/15 | 4.3.9

BY: CHK: MDK | SF020PE.DWG

LAST REVISION DETAIL NAME IF APPLICABLE

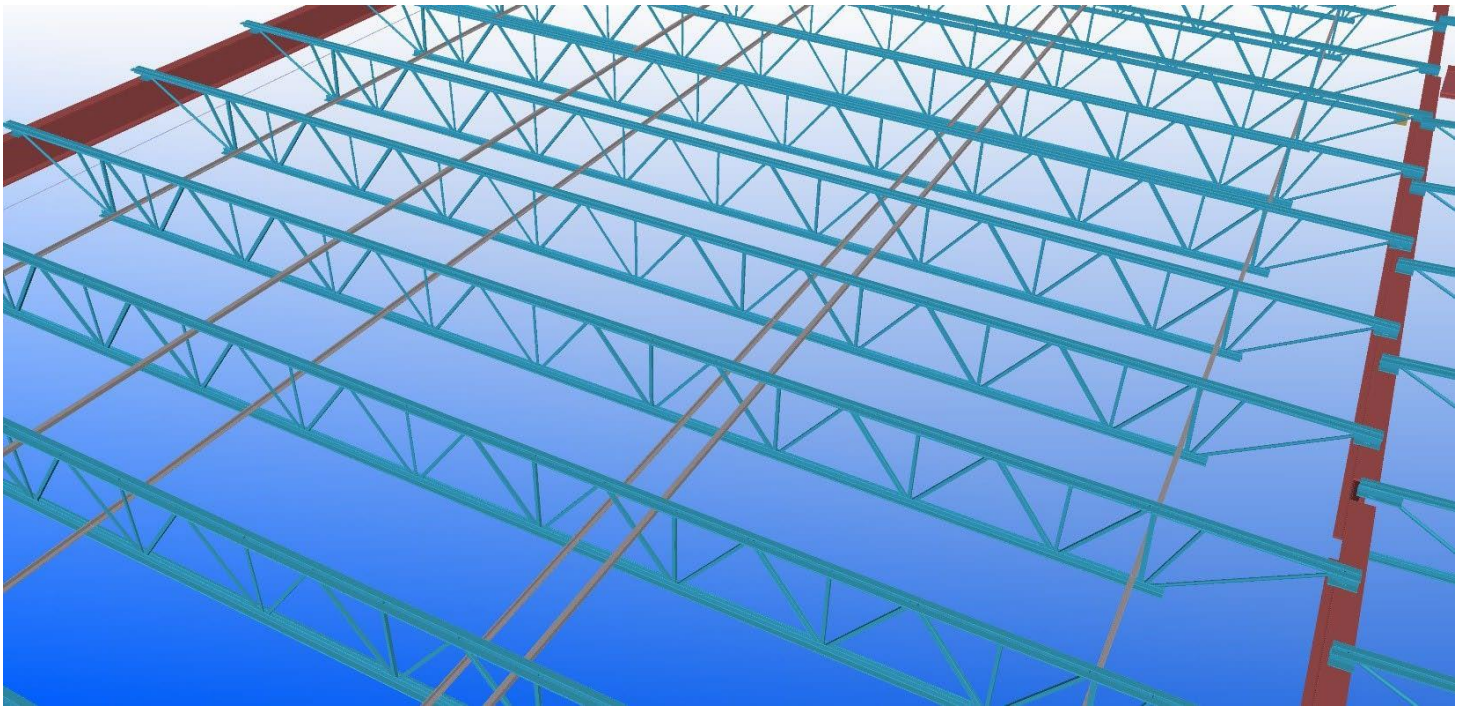
VALLEY STEEL CONSTRUCTION INC.

PRODUCT & ENGINEERING MANUAL

OPEN WEB ROOF JOISTS

CLEARBAY® BRIDGING:

Providing spacious bays of up to 60', ClearBay® is the roof joist system incorporating the Valley Steel CFR™, VR16 II™ Vertical Rib, and Insulated Roof Panel systems. It provides the ultimate in versatility and open spaces for any number of applications, including hangars, large indoor recreational buildings and even storage facilities. By collaborating with our sister division, Vulcraft, NBS is able to engineer the most economical roof joist system for your metal building.



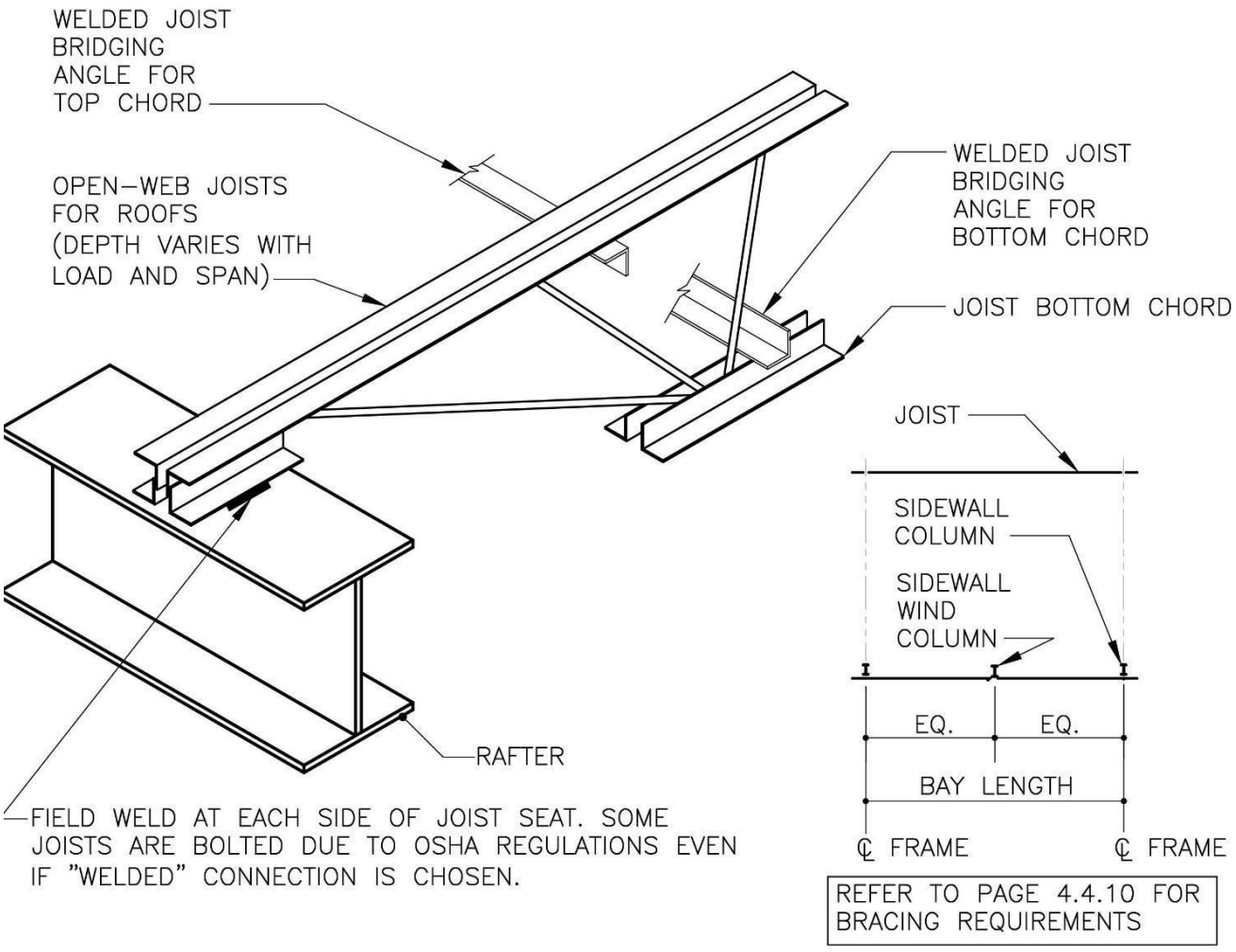
LAST REVISION
DATE: **4.3.10**
BY: KMC

07/27/20 CHK: WME

OPEN-WEB WELDED JOISTS

LAST REVISION

DATE: **4.3.11** BY: KMC



REFER TO PAGE 4.4.10 FOR BRACING REQUIREMENTS

NOTES

1) OPEN–WEB JOISTS ARE ECONOMICAL FOR SPANS OVER 40 FEET.

2) SIDEWALL WIND COLUMNS ARE CENTERED IN THE BAYS UNLESS NOTED OTHERWISE ON THE ORDER DOCUMENTS. PLEASE SPECIFY REQUIREMENTS ON THE ORDER DOCUMENTS.

3) EAVE AND RAKE EXTENSIONS ARE NOT AVAILABLE ON JOIST BUILDINGS.

4) FIELD WELDED BRIDGING IS REQUIRED AT THE TOP AND BOTTOM CHORDS OF THE JOISTS. NUMBER OF ROWS VARIES BASED UPON LOADS AND BAY SIZES.

DETAIL NAME IF APPLICABLE

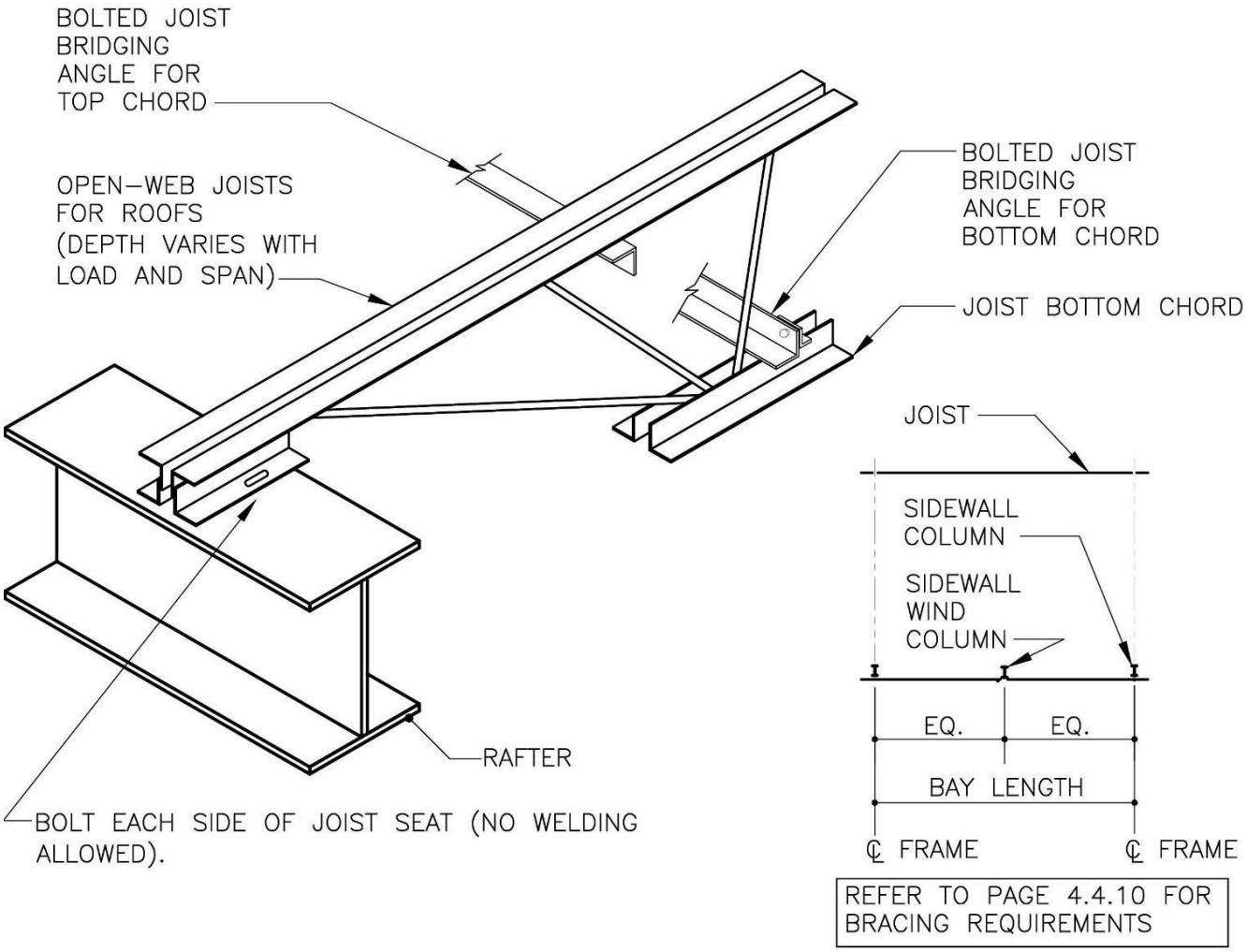
07/27/20

CHK: EGB SF0070PE.DWG

OPEN-WEB ALL BOLTED JOISTS

LAST REVISION

DATE: **4.3.13** BY: KMC



REFER TO PAGE 4.4.10 FOR BRACING REQUIREMENTS

NOTES

1) OPEN–WEB JOISTS ARE ECONOMICAL FOR SPANS OVER 40 FEET.

2) SIDEWALL WIND COLUMNS ARE CENTERED IN THE BAYS UNLESS NOTED OTHERWISE ON THE ORDER DOCUMENTS. PLEASE SPECIFY REQUIREMENTS ON THE ORDER DOCUMENTS.

3) EAVE AND RAKE EXTENSIONS ARE NOT AVAILABLE ON JOIST BUILDINGS.

4) BOLTED BRIDGING IS REQUIRED AT THE TOP AND BOTTOM CHORDS OF THE JOISTS. NUMBER OF ROWS VARIES BASED UPON LOADS AND BAY SIZES.

5) ALL CONNECTIONS WILL BE BOLTED OR DRILL–BOLTED.

DETAIL NAME IF APPLICABLE

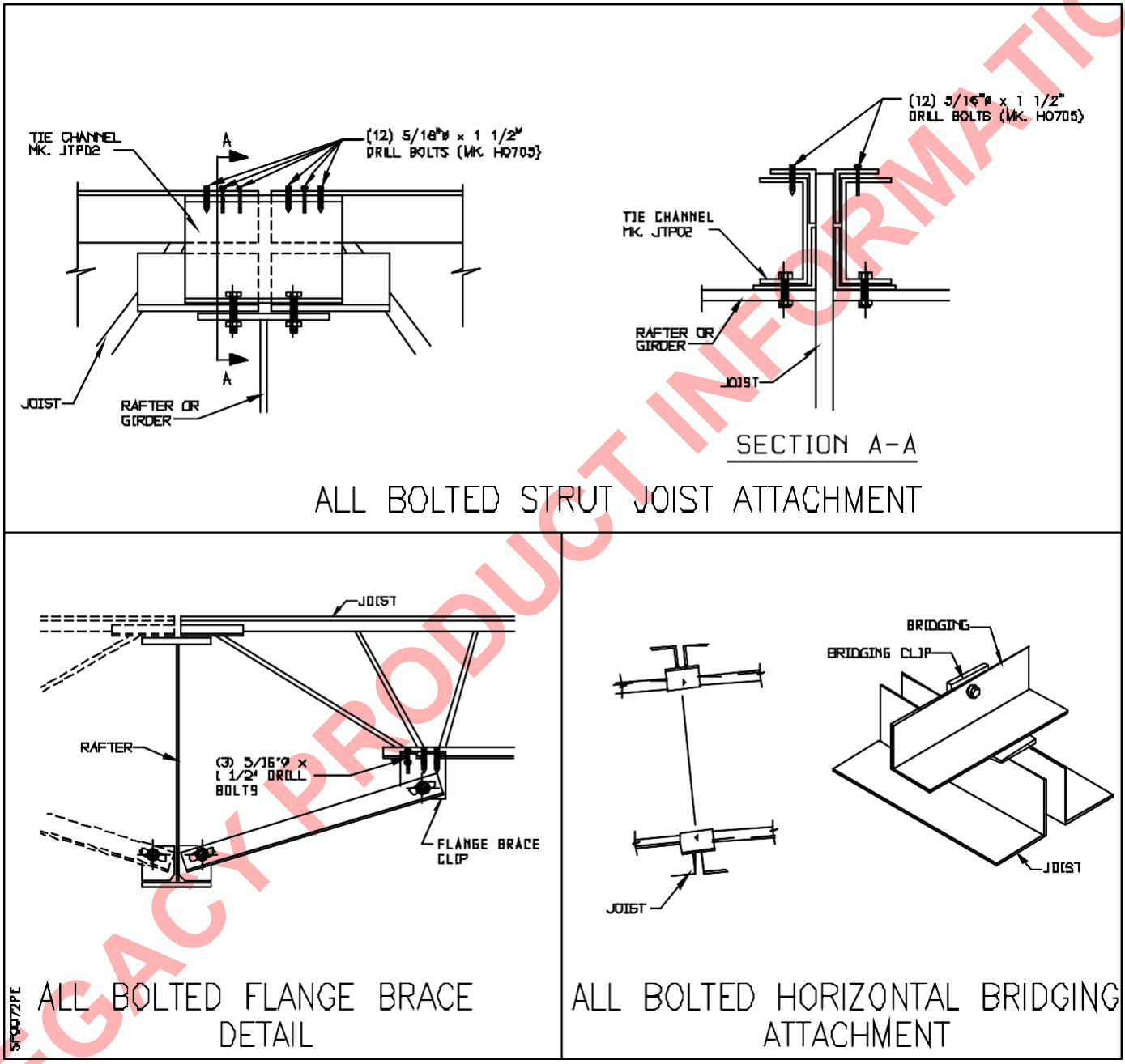
07/27/20
CHK: WME

SF0071PE.DWG

LAST REVISION

DATE: **4.3.15** BY: KMC

OPEN WEB BOLTED JOIST DETAIL (CONTINUED)



LAST DETAIL
DATE: 4.3.16
BY: CHK:

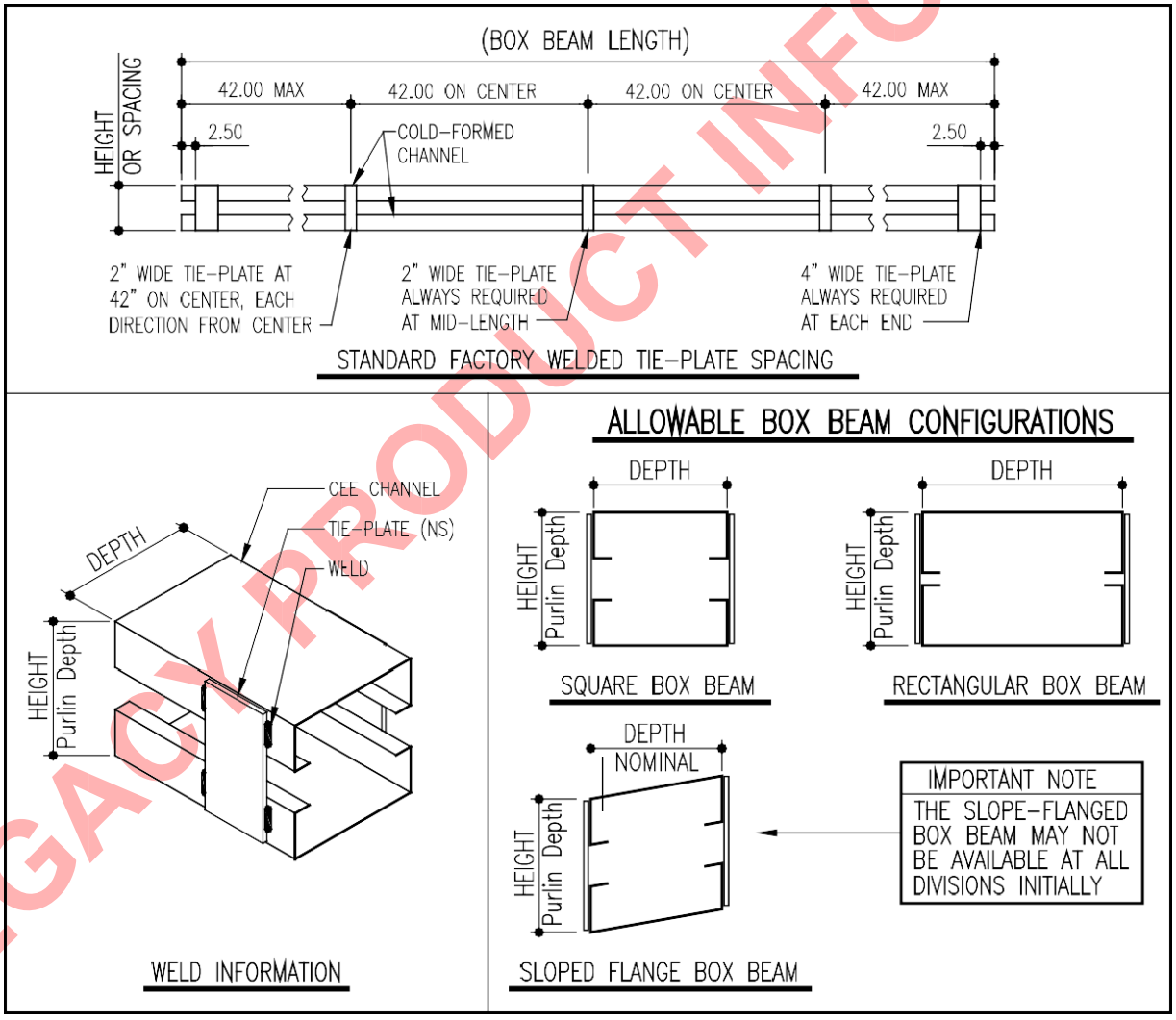
APPLICABLE

REVISION
03/10/15
AAJ MDK
REVISION

NAME IF
SF0072PE.DWG
NAME IF

COLD-FORMED BOX BEAMS

1. Cold-formed box beams consist of two “C” or “S” sections, forming a cold-formed “box”.
2. These sections may be square or rectangular in shape.
3. The height of the box beam matches the purlin depth. The depth of the box beam will be 8”, 10”, or 12”, depending on the design requirements of a particular project.
4. Cold-formed box beams are typically used as a replacement for the eave strut, eave purlin, or strong-back eave beam.
5. Standard connection for the box beam to primary framing member is with either (2) or (4) ½” diameter A325 bolts per end.



10/23/09

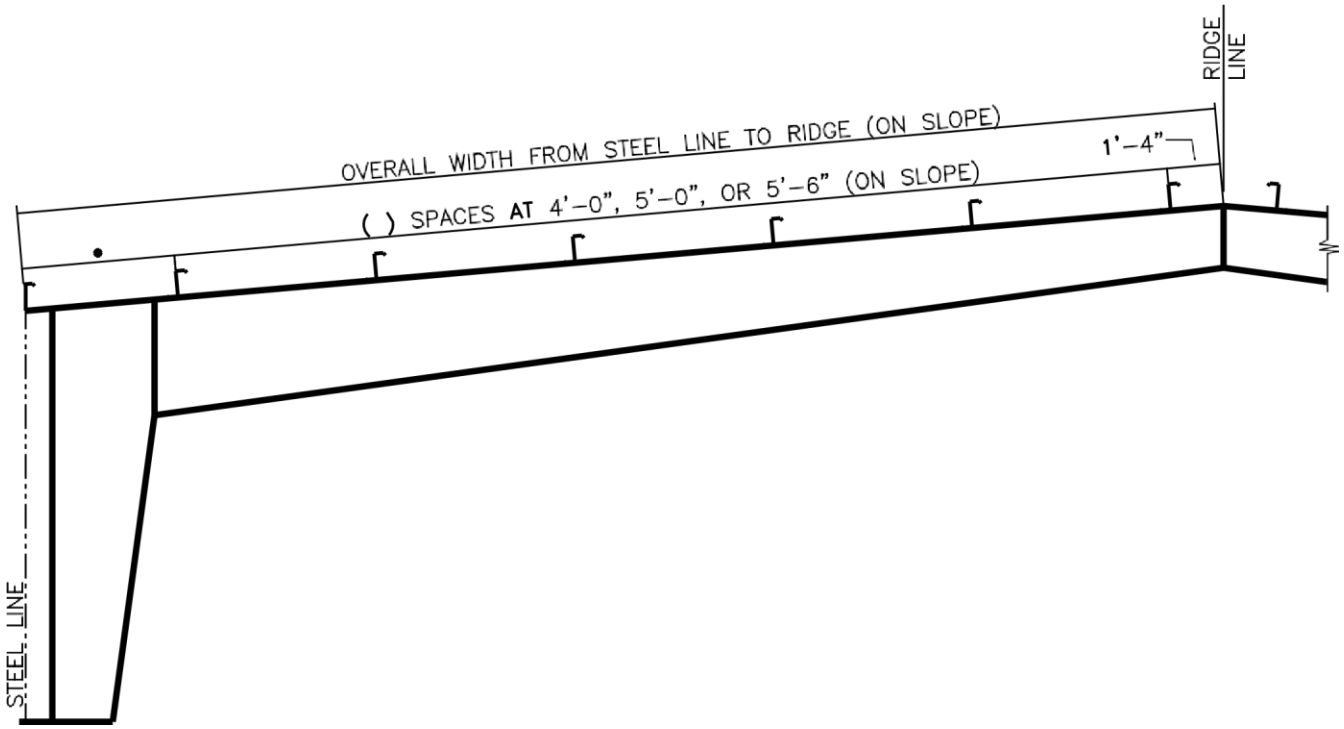
LAST DETAIL DATE: **4.3.18** BY: CHK:

APPLICABLE

AES

STANDARD PURLIN SPACING

STANDARD PURLIN SPACING (GABLE BUILDING)



* INDICATES ODD SPACE AS FOLLOWS:	
ROOF SLOPE	PURLIN SPACE
< 1/2:12	MIN. = 1'-10" MAX = 3'-10"
≥ 1/2:12	MIN. = 1'-10" MAX = 5'-6"

NOTE: THESE SPACINGS ARE TO BE USED FOR BOTH VALLEY STEEL "CFR"□ AND VALLEY STEEL "CLASSIC ROOF"□ SYSTEMS.

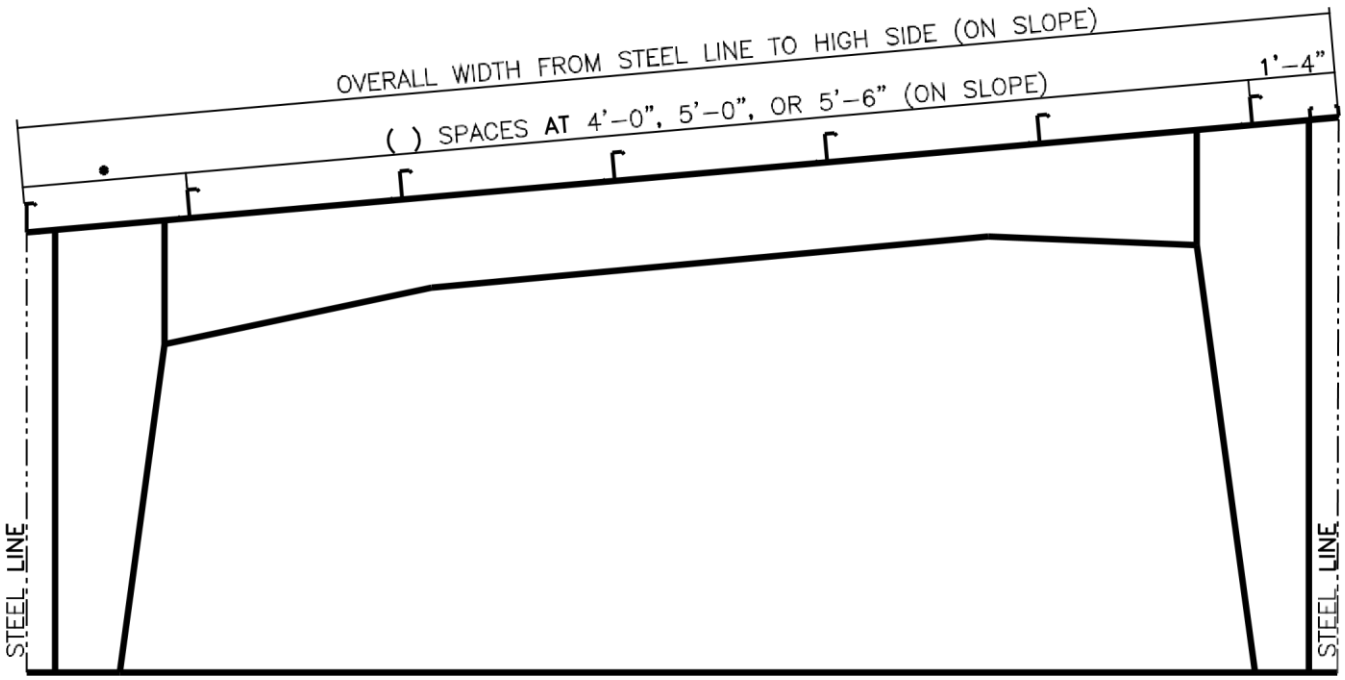
WITH VALLEY STEEL "CFR"□ ROOF (UL CLASS 90, UL 580, CONSTRUCTION NO. 590).

- MAXIMUM PURLIN SPACING IS 5’-0” W/ PURLINS.
- MAXIMUM PURLIN SPACING IS 5’-6” W/ JOISTS.

REVISION
10/11/11
RT EGB

NAME IF
SF0090PE.DWG

STANDARD PURLIN SPACING (SINGLE SLOPE BUILDING)



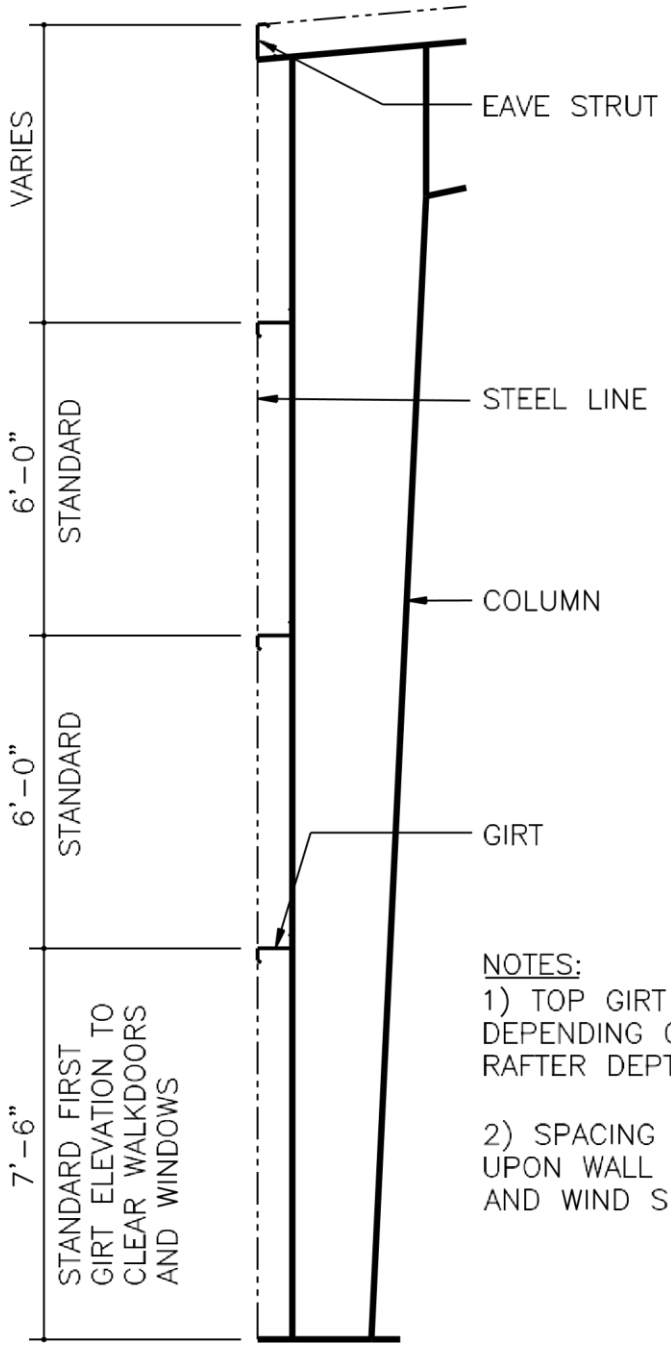
* INDICATES ODD SPACE AS FOLLOWS:	
ROOF SLOPE	PURLIN SPACE
< 1/2:12	MIN. = 1'-10" MAX = 3'-10"
≥ 1/2:12	MIN. = 1'-10" MAX = 5'-6"

NOTE: THESE SPACINGS ARE TO BE USED FOR BOTH VALLEY STEEL "CFR"□ AND VALLEY STEEL "CLASSIC ROOF"□ SYSTEMS.

WITH VALLEY STEEL "CFR"□ ROOF (UL CLASS 90, UL 580, CONSTRUCTION NO. 590).

- MAXIMUM PURLIN SPACING IS 5'-0" W/ PURLINS.
- MAXIMUM PURLIN SPACING IS 5'-6" W/ JOISTS.

STANDARD GIRT SPACING



NOTES:
1) TOP GIRT SPACE 2'–0" MINIMUM DEPENDING ON ROOF SLOPE AND RAFTER DEPTH.

2) SPACING MAY VARY DEPENDING UPON WALL COVERING APPLICATION AND WIND SPEED.