A. GENERAL NOTES:

1. THE CONTRACTORS MUST VISIT THE SITE AND BECOME FAMILIARIZED WITH ALL CHARACTERISTICS AFFECTING NEW AND EXISTING CONSTRUCTION ON DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK, ANY CHANGES, ALTERATIONS, OR REVISIONS MUST BE REPORTED TO THE ENGINEER.

2. ALL MATERIAL AND WORK SHALL CONFORM TO THE ADOPTED CODE REQUIREMENTS OF THE APPLICABLE BUILDING DEPARTMENT.

3. NEITHER THE OWNER NOR CONTRACTOR WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. IF A LAWSUIT IS FILED BY ONE OF THE CONTRACTOR'S OR SUBCONTRACTOR'S EMPLOYEES, OR ANY ONE ELSE, THE CONTRACTOR WILL INDEMNIFY, DEFEND AND HOLD THE OWNER AND POLAR RACKING HARMLESS OF ANY AND ALL SUCH CLAIMS.

4. NO PIPES, DUCTS, SLEEVES, CHASE ETC., SHALL BE PLACED CONCRETE PIERS, UNLESS SPECIFICALLY SHOWN OR NOTED. NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY SHOWN. OBTAIN PRIOR WRITTEN APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, ETC.

5. CONTRACTOR TO CONFIRM WITH PV MODULE INSTALLATION MANUAL FOR CLAMPING ZONES TO ENSURE THEY ARE FASTENED PER MODULE REQUIREMENTS.

B: LOADING PARAMETERS:

DEAD LOAD

TOTAL WEIGHT	:0.13 kPa
STEEL MEMBERS	:ACTUAL WEIGHT OF MEMBERS

SNOW LOAD

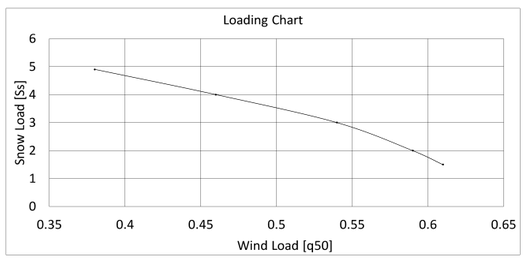
1/50 YEAR SNOW LOAD	:4.9 kPa MAXIMUM (see graph)
RAIN ON SNOW LOAD	:0.4 kPa MAXIMUM

WIND DESIGN DATA

1/50 YEAR WIND SPEED,	:0.61 kPa MAXIMUM (see graph)
C_p C_g	:VARIES, SEE CPP REPORT

REACTIONS:

FACTORED LOADS		
	FRONT/LOW	BACK/HIGH
UPLIFT(kN)	10	60
DOWNFORCE(kN)	30	35
SHEAR(kN)	32	10
MOMENT(kN-m)	5	5



This design is suitable for all sites where the loading (combined Ss and q50) falls below the line above

PILE DESIGN: REFER TO PILE DESIGN DOCUMENTS AND DRAWINGS FOR FOUNDATION REACTION LOADS

C: STRUCTURAL STEEL NOTES:

1. RACKING SYSTEM WAS DESIGNED TO SPECIFIED CLIMATIC LOADS AT GROUND LEVEL
2. WIND LOADS HAVE BEEN PRODUCED BASED ON POLAR RACKING PROPRIETARY WIND TUNNEL TESTS RESULTS BY CPP INC.
3. POSITIVE LOADS ARE DOWNWARD I.E COMPRESSIVE LOADS, NEGATIVE LOADS ARE UPLIFT I.E. TENSION LOADS
4. LOADS ARE SPECIFIED VALUES AND MUST BE COMBINED AS PER NBC PART 4
5. REACTION LOADS ASSUME NOMINAL INSTALLATION LOCATIONS
6. LATEST AISI & CSA STANDARD SHALL BE CONSIDERED TO FABRICATE OR DESIGN ANY STEEL COMPONENTS ON RACK
7. INSTALLATION MANUAL SHALL BE USED FOR TORQUE VALUE ON ALL STRUCTURAL CONNECTION POINTS
8. ALL WELDING OF STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF CSA W59-03" WELDED STEEL CONSTRUCTION (METAL ARC WELDING)" BY WELDERS CERTIFIED AS PER CSA W47.1
9. SELF-DRILLING SCREWS SHOULD BE INSTALLED WITH NON-IMPACTING VARIABLE SPEED DRILL WITH CLUTCH OUT
10. PV MODULE HARDWARE SHOULD BE TORQUED AND INSPECTED AS PER MODULE MANUFACTURER'S RECOMMENDATIONS
11. DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS OF THE CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL 8TH EDITION (2015).
12. STRUCTURAL STEEL GRADES:
13. SHAPES AND PLATES ASTM A572 OR ASTM A992, GRADE 50 (Fy=50 KSI)
14. WIDE FLANGE BEAMS & COLUMNS ASTM A572 OR ASTM A992, GRADE 50 (Fy=50 KSI)
15. HIGH STRENGTH BOLTS,NUTS, AND WASHER: SAE J429 GR.5; NUT: SAE J429 GR.5, (F436)
16. PRE -GALVANIZED MATERIAL SHALL COMPLY WITH ASTM A653 - G90 MIN.
17. ALL CONNECTIONS NOT SHOWN SHALL CONFORM TO THE "CISC", 8TH EDITION.
18. ALL INSTALLATION WORK SHALL BE DONE IN ACCORDANCE WITH THE FEDERAL AND PROVINCIAL CODES AND STANDARD SPECIFICATION.

D: LIGHT GAUGE METAL NOTES

1. DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS OF THE CSA-136-16 “NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS|.
2. NORTH-SOUTH BEAMS, EAST-WEST BEAMS AND BRACES SHALL BE FORMED TO CHANNEL SHAPE, PUNCHED WEB AND KNURLED FACES, CONFORMING TO ASTM DESIGNATION: A - 653, GRADE 50 & 70(Fy=50KSI & Fy=70KSI).
3. NORTH-SOUTH BEAMS, EAST-WEST BEAMS AND BRACES MINIMUM GAGE THICKNESSES ARE SIZED AS SHOWN ON THE RACKING DRAWINGS.

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PROFESSIONAL ENGINEER YUKON DEREK J. VAN EE TERRITORY 2023/08/15

PERMIT TO PRACTICE
VAN EE ENGINEERING INC.
SIGNATURE
Date 2023/08/15
PERMIT NUMBER PP713
Association of Professional Engineers of Yukon

REV NO.	ISSUANCE	DATE
0	ISSUED FOR REVIEW	31MAY2023

PROJECT NAME:
YUKON - 2X8 CORE FLEX DUAL C-CHANNEL GROUND MOUNT

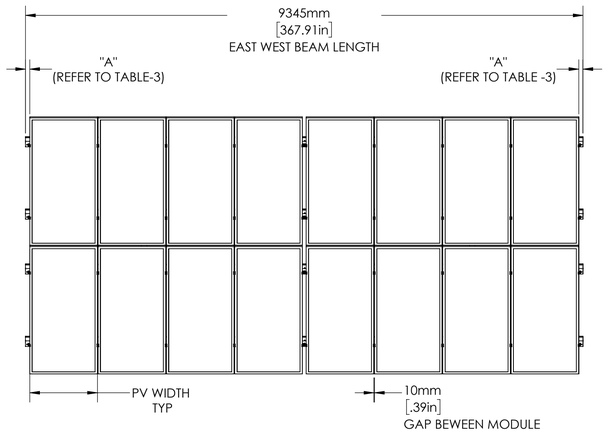
DRAWING NAME:
GENERAL NOTES

DWG. BY:	CHKD. BY:	APPR. BY:
GK	PY	MG

DRAWING NUMBER: G-01

PRINT DATE : May 31, 2023
FILENAME : S-01.DWG

REVISION				
REV.	DATE	DESCRIPTION	ECO	SIGNATURE
A	08JUN2023	INITIAL RELEASE	NA	MG



TOP VIEW

TABLE 1 (300104000 - PRG, Clamp, Top)

PART NO.	DESCRIPTION	PV HEIGHT RANGE (mm)
300104001	PRG, Clamp, Top, 31-35 mm Module Height, 40 mm, Ga12, G90	31 - 35
300104002	PRG, Clamp, Top, 37-40 mm Module Height, 40 mm, Ga12, G90	37 - 40
300104003	PRG, Clamp, Top, 43-46 mm Module Height, 40 mm, Ga12, G90	43 - 46
300104004	PRG, Clamp, Top, 47-50 mm Module Height, 40 mm, Ga12, G90	47 - 50
300104005	PRG, Clamp, Top, 26-30 mm Module Height, 40 mm, Ga12, G90	26 - 30

TABLE 2 (100045000 - Bolt, Carriage, Steel)

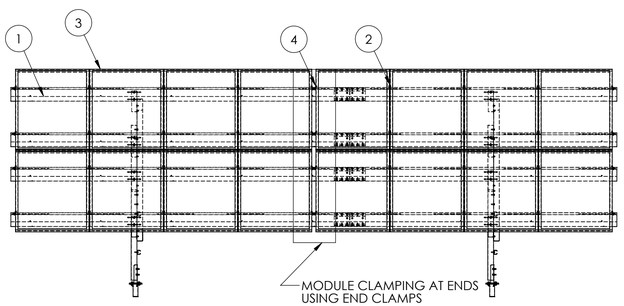
PART NO.	DESCRIPTION	PV HEIGHT RANGE (mm)
100045019	Bolt, Carriage, 5/16"-18 x 2-1/2", 18-8 SS, ASTM F593C	26 - 40
100045022	Bolt, Carriage, 5/16"-18 x 3", 18-8 SS, ASTM F593C	43 - 50

2X8 TABLE CONFIGURATION DETAILS

ASSEMBLY NUMBER	CLAMP, TOP PART NUMBER	BOLT, CARRIAGE PART NUMBER	TABLE CONFIGURATION
900820001	300104001	100045019	CORE FLEX Table Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(31-35) mm
900820002	300104002	100045019	CORE FLEX Table Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(37-40) mm
900820003	300104003	100045022	CORE FLEX Table Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(43-46) mm
900820004	300104004	100045022	CORE FLEX Table Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(47-50) mm
900820005	300104005	100045019	CORE FLEX Table Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(26-30) mm

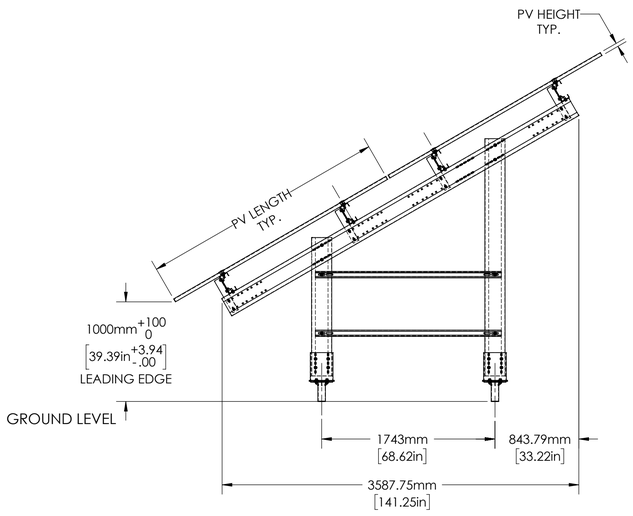
TABLE-3 PANEL SPACING ATABLE

SR.NO	PV WIDTH	A(mm)	SR.NO	PV WIDTH	A(mm)	SR.NO	PV WIDTH	A(mm)
1	990	485	50	1039	362	99	1088	103
2	991	485	51	1040	360	100	1089	103
3	992	485	52	1041	290	101	1090	103
4	993	485	53	1042	290	102	1091	88
5	994	485	54	1043	290	103	1092	88
6	995	485	55	1044	290	104	1093	88
7	996	475	56	1045	280	105	1094	88
8	997	475	57	1046	280	106	1095	83
9	998	475	58	1047	280	107	1096	83
10	999	469	59	1048	270	108	1097	79
11	1000	469	60	1049	270	109	1098	146
12	1001	437	61	1050	268	110	1099	144
13	1002	435	62	1051	260	111	1100	143
14	1003	435	63	1052	260	112	1101	140
15	1004	498	64	1053	285	113	1102	140
16	1005	497	65	1054	285	114	1103	140
17	1006	493	66	1055	285	115	1104	138
18	1007	493	67	1056	275	116	1105	138
19	1008	488	68	1057	275	117	1106	96
20	1009	488	69	1058	275	118	1107	94
21	1010	488	70	1059	275	119	1108	92
22	1011	478	71	1060	275	120	1109	90
23	1012	478	72	1061	255	121	1110	88
24	1013	478	73	1062	255	122	1111	81
25	1014	478	74	1063	255	123	1112	81
26	1015	478	75	1064	255	124	1113	81
27	1016	468	76	1065	255	125	1114	81
28	1017	468	77	1066	255	126	1115	81
29	1018	468	78	1067	255	127	1116	66
30	1019	468	79	1068	255	128	1117	66
31	1020	468	80	1069	255	129	1118	66
32	1021	356	81	1070	255	130	1119	66
33	1022	356	82	1071	142	131	1120	66
34	1023	356	83	1072	142	132	1121	56
35	1024	356	84	1073	142	133	1122	56
36	1025	356	85	1074	142	134	1123	56
37	1026	356	86	1075	142	135	1124	56
38	1027	346	87	1076	142	136	1125	56
39	1028	346	88	1077	142	137	1126	56
40	1029	346	89	1078	142	138	1127	56
41	1030	346	90	1079	142	139	1128	49
42	1031	380	91	1080	142	140	1129	49
43	1032	380	92	1081	103	141	1130	85
44	1033	380	93	1082	103	142	1131	82
45	1034	372	94	1083	103	143	1132	82
46	1035	372	95	1084	103	144	1133	75
47	1036	372	96	1085	103	145	1134	73
48	1037	367	97	1086	103	146	1135	71
49	1038	365	98	1087	103			



SOUTH VIEW

*FOR CLAMPING REQUIREMENTS, REFER TO GENERAL NOTES 1



EAST VIEW

BILL OF MATERIAL

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	900819001	CORE FLEX Racking Assembly, 2x8, Portrait, Dual C-Channel Leg, 30°, Mod. (1950-2465)x(990-1135)x(26-50) mm	1
2	400030001	Clamp, Intermodule w/ Bonding, 9 mm Sq. Hole, 50 mm, Ga13, 304 SS	24
3	400026XXX	PV MODULE, VARIOUS SIZES (Not a Polar Supply)	16
4	300104XXX	PRG, Clamp, Top, 31-35 mm Module Height, 40 mm, Ga12, G90	16
5	100064008	Bolt, Hex Flange, Serrated, 5/16"-18 x 1", 18-8 SS, ASTM F593C	16
6	100063008	Nut, Hex Flange, Serrated, 5/16"-18, 18-8 SS, ASTM F594C	40
7	100045XXX	Bolt, Carriage, 5/16"-18 x 2-1/2",18-8 SS, ASTM F593C	24
8	100033019	Washer, Split Lock, 3/8", 18-8 SS	40
9	100011016	Washer, Flat, 3/8" x 1" O.D., 18-8 SS, USS	40

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SHEET 1 OF 1

REV.: **A**

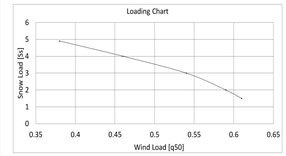
RACK TILT ANGLE (degrees) : 30°

GENERAL NOTES:

1. CONTRACTOR TO CONFIRM WITH PV MODULE INSTALLATION MANUAL FOR CLAMPING ZONES TO ENSURE THEY ARE FASTENED PER MODULE REQUIREMENTS

CLIMATIC DESIGN LOADS

SNOW AND WIND LOAD COMBINATION FALLING BELOW THE LINE IS ACCEPTABLE



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STRUCTURAL CONSULTANT
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PROFESSIONAL ENGINEER
YUKON
DEREK J. VAN EE
TERRITORY
2023/08/15

PERMIT TO PRACTICE
VAN EE ENGINEERING INC.
SIGNATURE
Date 2023/08/15
PERMIT NUMBER PP713
Association of Professional Engineers of Yukon

PROJECT NAME:

2X8 CORE FLEX DUAL C-CHANNEL GROUND MOUNT

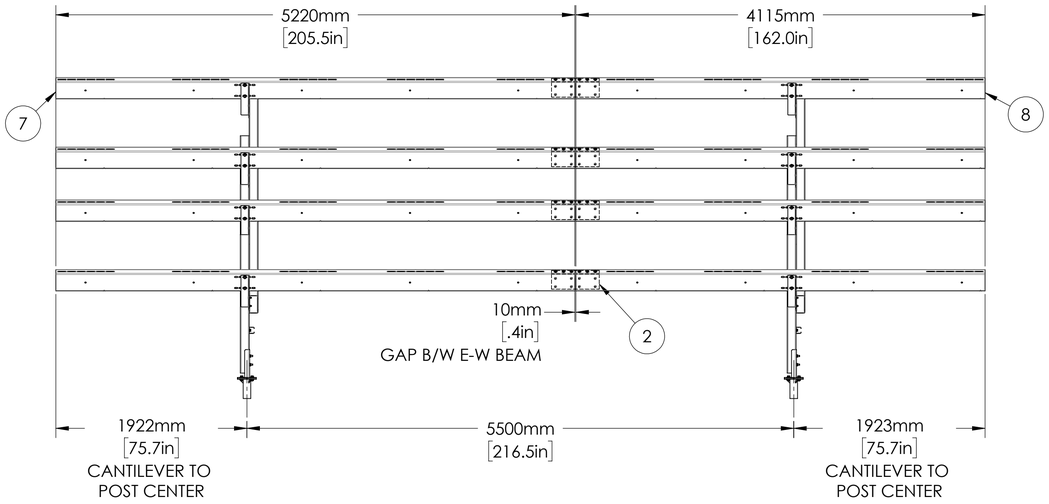
TITLE: RACKING ASSEMBLY DETAILS CORE FLEX 2X8

MODULE RANGE
1950 - 2465mm PV LENGTH
990 - 1135mm PV WIDTH
26 - 50mm PV THICKNESS

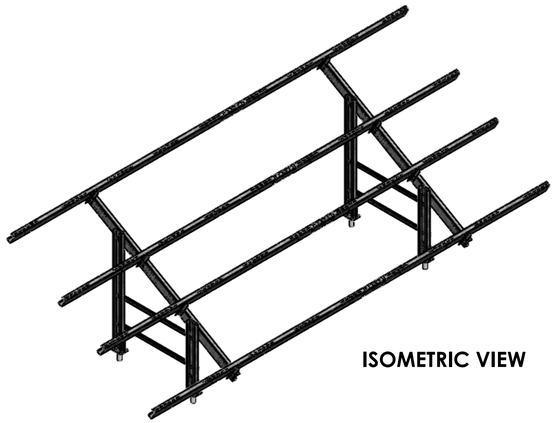
PROJ. NO.:	DWG. BY:	CHECKED. BY:	SCALE:
XXXX	GK	MG	NTS

POLAR INTERNAL ASSEMBLY NUMBER:
900820000

DRAWING NUMBER:
S-02



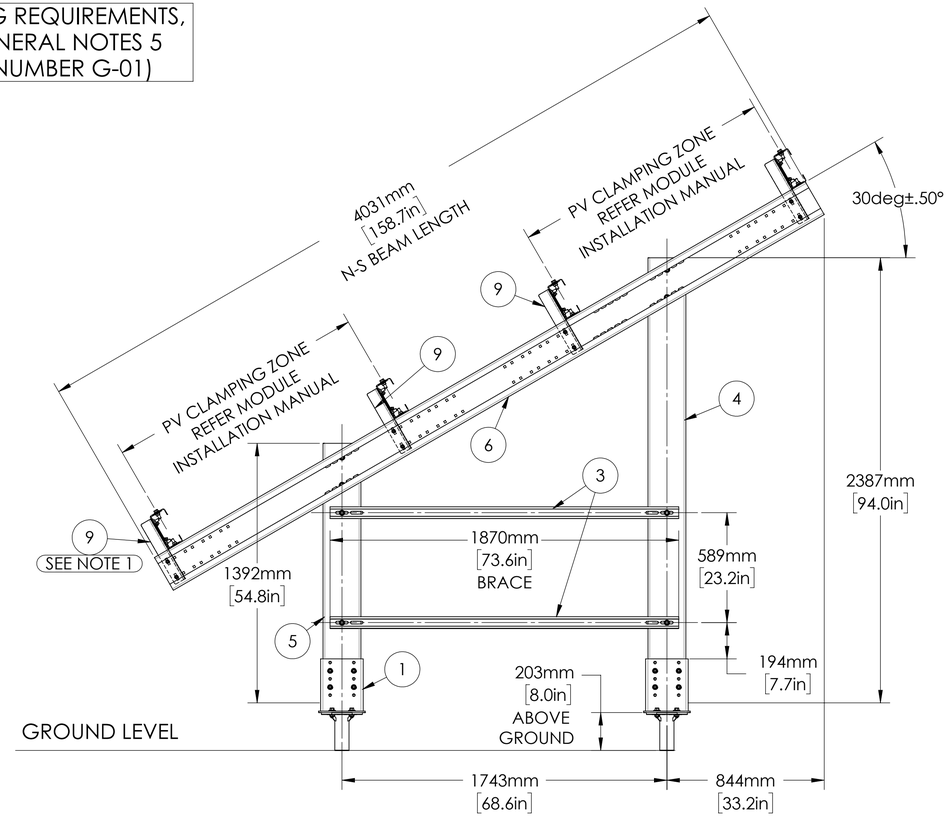
SOUTH ELEVATION



ISOMETRIC VIEW

REVISIONS				
REV.	DATE	DESCRIPTION	ECO	SIGNATURE
A	08JUN2023	INITIAL RELEASE	N/A	MG
B	08AUG2023	FASTENERS QUANTITY UPDATED	N/A	MG

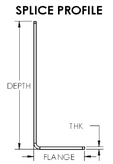
FOR CLAMPING REQUIREMENTS, REFER TO GENERAL NOTES 5 (DRAWING NUMBER G-01)



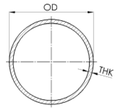
EAST ELEVATION

NOTE:
1. CONNECTION OF E/W BRACKETS TO N/S BEAM IS NOT FIXED AS SHOWN ABOVE. ADJUST THEM ON THE SQUARE HOLES DEPENDING ON MODULE CLAMPING ZONE.

SPLICE PROFILE



POST HSS ROUND CROSS SECTION



TYPICAL PROFILES

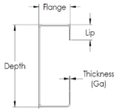


TABLE 1

PART	PROFILE (in.) Depth x Flange x Lip	MIN. THICKNESS (MM)	MATERIAL Fy (ksi)
E-W BEAM	C8X3.5X1.5	2.55	50
		2.30	60
		2.10	70
		1.95	80
N-S BEAM	C8X3.5X1.5	2.55	50
		2.30	60
		2.10	70
		1.95	80
BRACE	C2.5X2X0.5	2.75	50
		2.60	60
		2.50	70
		2.40	80
TABLE LEG (FRONT)	C8X3.5X1.5	1.80	50
		1.70	60
		1.60	70
		1.55	80
TABLE LEG (BACK)	C8X3.5X1.5	1.80	50
		1.70	60
		1.60	70
		1.55	80
SPLICE	L7.09X2.76	3.60	50

-FINAL PART NUMBERS FOR ROLLED FORMED COMPONENTS WILL BE DETERMINED DURING PRODUCTION PLANNING UPON RECEPTION OF THE ORDER. PART NUMBERS MUST COMPLY WITH MINIMUM REQUIREMENTS ESTABLISHED ON TABLE 1"

MAIN COMPONENETS BILL OF MATERIAL

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	900799001	Foot Bracket Assembly, 8" Beam, 4x150mm Bolt Circle, HDG	4
2	301197001	Splice, C8 EW Beam, 3.6 mm THK, HDG, Distr.	8
3	301186XXX	Brace, Lateral, C2.5x2x0.5,1870 mm, G90	4
4	301185XXX	Table Leg, Back, C8x3.5x1.5, 2387 mm, G90, 30° Tilt	2
5	301184XXX	Table Leg, Front, C8x3.5x1.5, 1392 mm, G90, 30° Tilt	2
6	301183XXX	Beam, NS, C8x3.5x1.5, 4031mm, G90, P-1P/2P, Distr	2
7	301182XXX	Beam, EWW, C8x3.5x1.5, 5220 mm, G90, P-2x8, Distr	4
8	301181XXX	Beam, EWE, C8x3.5x1.5, 4115mm, G90, P-2x8, Distr	4
9	300222001	Bracket, East-West, 8" Beam, Ga10, HDG	8

HARDWARE BILL OF MATERIAL

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
10	100064002	Bolt, Hex Flange, Serrated, 1/2"-13 x 1-1/2", Gr. 5, Magni 565	112
11	100063002	Nut, Hex Flange, Serrated, 1/2"-13, Gr. 5, Magni 565	112
12	100063001	Nut, Hex Flange, Serrated, 3/8"-16, Gr. 5, Magni 565	48
13	100045009	Bolt, Carriage, 3/8"-16 x 1", Gr. 5, Magni 565	48
14	100011004	Washer, Flat, 1/2"x 1.375" O.D., HDG	16

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REV.: **B**

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PROFESSIONAL ENGINEER
YUKON
DEREK J. VAN EE
TERRITORY
2023/08/15

PERMIT TO PRACTICE
VAN EE ENGINEERING INC.
SIGNATURE
Date 2023/08/15
PERMIT NUMBER PP713
Association of Professional Engineers of Yukon

ARRAY INFORMATION

RACK TYPE	CORE FLEX
ARRAY SIZE	2X8
TILT ANGLE	30°
MODULE TYPE	*VARIES*
MODULE DIMS.	*VARIES AS PER TABLE*
PAPER SIZE	D

PROJECT NAME:
2X8 CORE FLEX DUAL C-CHANNEL GROUND MOUNT

TITLE: RACKING ASSEMBLY DETAILS CORE FLEX 2X8
1950 - 2465mm PV LENGTH
990 - 1135mm PV WIDTH
26 - 50mm PV THICKNES

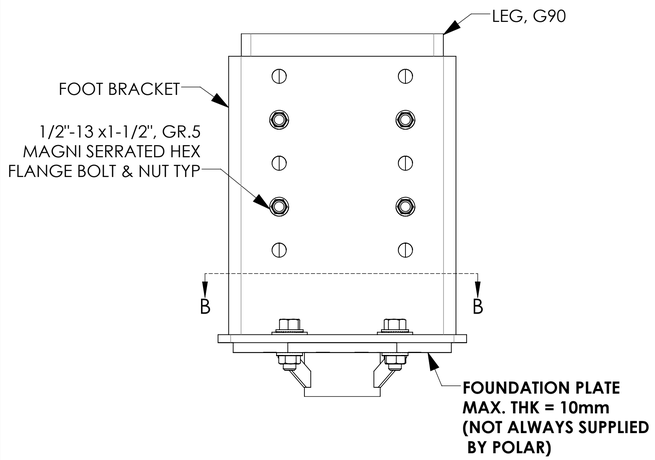
PROJ. NO.:	DWG. BY:	CHECKED. BY:	SCALE:
XXXX	GK	MG	NTS

CUSTOMER DRAWING NUMBER:

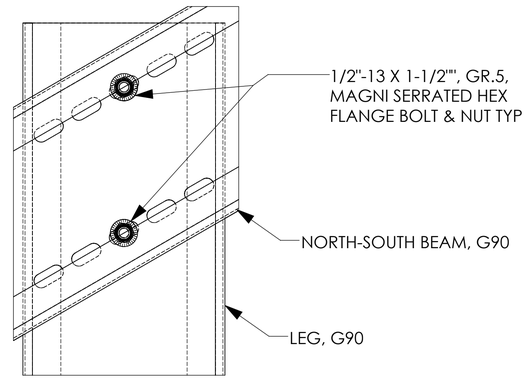
ASSEMBLY NUMBER: 900819001

DRAWING NUMBER: S-03

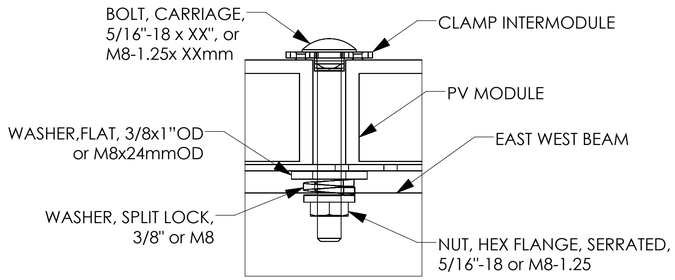
DETAIL A: FOOT BRACKET TO LEG



DETAIL D: NORTH-SOUTH BEAM TO LEG

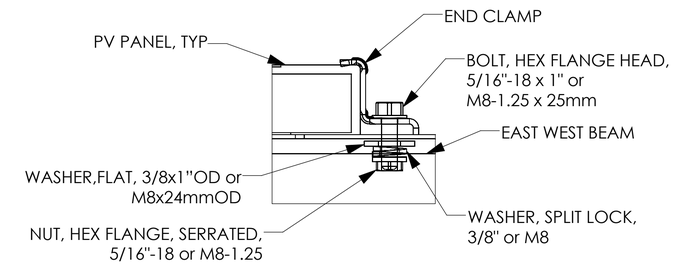


DETAIL K: MID CLAMP TO PV PANELS



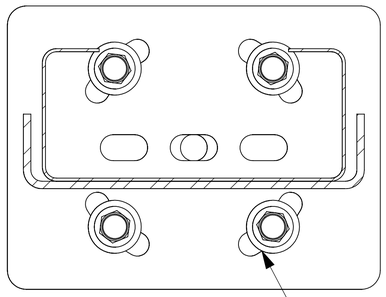
NOTE: FASTENERS CAN EITHER BE OF SS OR HDG

DETAIL L: END CLAMP TO PV PANEL



NOTE: FASTENERS CAN EITHER BE OF SS OR HDG

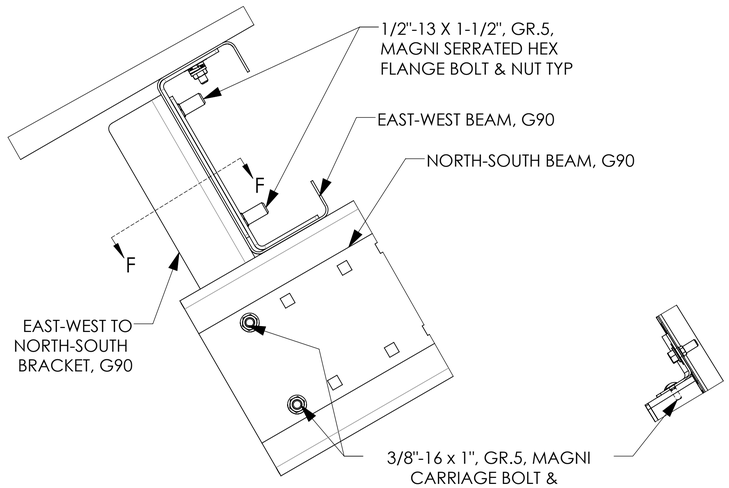
SECTION B: FOOT BRACKET TO HELICAL PILE



SECTION B-B

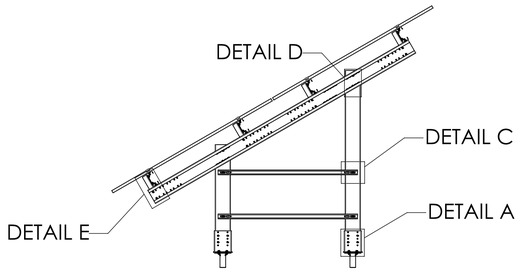
NOTE: WASHER ON TOP SIDE ONLY

DETAIL E: EAST-WEST BRACKET TO NORTH-SOUTH AND EAST-WEST BEAM

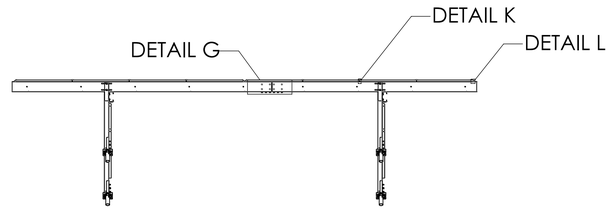


SECTION F-F

FASTENERS TORQUE	
FASTENER SIZE	**TIGHTENING TORQUE (ft-lb)**
5/16" BOLT	9 ± 2
3/8" BOLT	26 ± 2
1/2" BOLT	55 ± 2

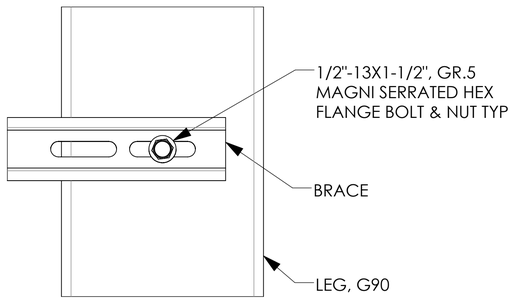


EAST ELEVATION

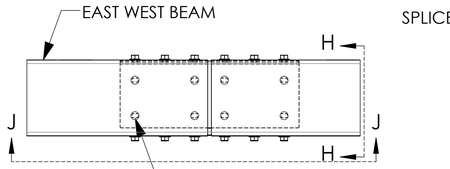


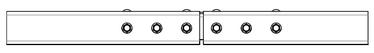
SOUTH ELEVATION

DETAIL C: BRACE TO LEG

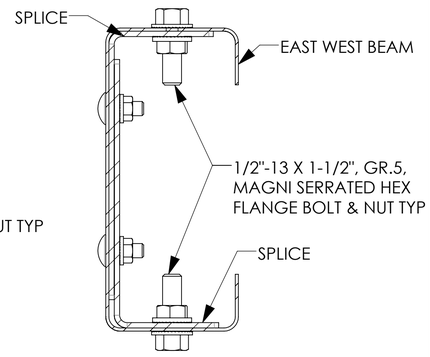


DETAIL G: SPLICE TO EAST-WEST BEAMS





SECTION J-J



SECTION H-H

POLAR RACKING
6889 Rexwood Road, Unit 5, Mississauga, ON L4V 1R2
TEL: (416) 860-6722 FAX: (519) 258-6664
www.polarracking.com

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SHEET 1 OF 1

REV.: A

VAN EE ENGINEERING INC
VAN EE ENGINEERING
STRUCTURAL CONSULTANT
416-659-2222
VANEEENGINEERING.CA

PROFESSIONAL ENGINEER
YUKON
DEREK J. VAN EE
TERRITORY
2023/08/15

PERMIT TO PRACTICE
VAN EE ENGINEERING INC.
SIGNATURE
Date 2023/08/15
PERMIT NUMBER PP713
Association of Professional Engineers of Yukon

PROJECT NAME:
2X8 CORE FLEX DUAL C-CHANNEL GROUND MOUNT

TITLE:
CONNECTIONS SECTIONS AND DETAILS

PROJ. NO.:	DWG. BY:	CHECKED. BY:	SCALE:
XXXX	GK	MG	NTS

POLAR INTERNAL ASSEMBLY NUMBER: 900820000

DRAWING NUMBER: S-04