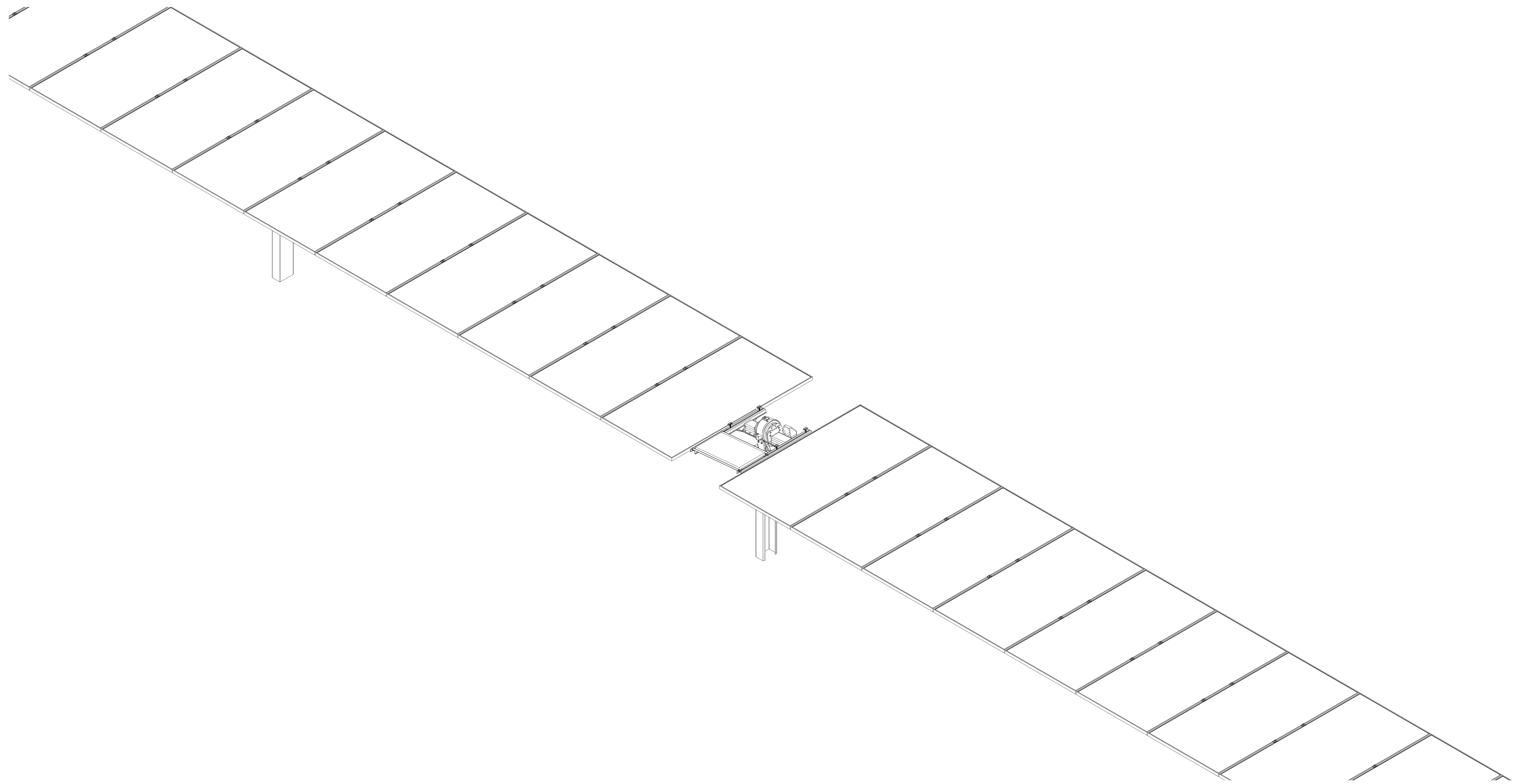
OMCO SOLAR ORIGIN SINGLE AXIS TRACKER FOR GREENSKIES



OMCO SOLAR

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER No. 28284
2/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME: COVER SHEET

DRAWING NUMBER: OS1.0

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
www.omcosolar.com

GENERAL STRUCTURAL NOTES:

1. THE TERM "CONTRACTOR" AS REFERRED IN THIS DOCUMENT SHALL MEAN GREENSKIES CLEAN ENERGY. THE TERM "PROJECT OWNER" AS REFERRED TO IN THIS DOCUMENT SHALL BE DETERMINED BY GREENSKIES CLEAN ENERGY.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE APPROVED STAMPED CONSTRUCTION DOCUMENT IN ITS ENTIRETY PRIOR TO BIDDING THE PROJECT, START OF FABRICATION, ORDERING HARDWARE & MISCELLANEOUS STEEL, START OF CONSTRUCTION AND ASSEMBLY.
3. IF A CONFLICT BETWEEN DRAWING DETAILS, SECTIONS, PLANS AND NOTES IS DISCOVERED, NOTIFY OMCO SOLAR IMMEDIATELY IN WRITING FOR CLARIFICATION AND/OR FOR APPROPRIATE RESPONSE PRIOR TO PROCEEDING WITH CONSTRUCTION AND/OR ASSEMBLY OF THE RACKING SYSTEM.
4. IN THE EVENT A DRAWING DISCREPANCY AND/OR DISCREPANCIES IN MATERIAL RECEIVED IS ENCOUNTERED OR DISCOVERED, NOTIFY OMCO SOLAR IMMEDIATELY IN WRITING FOR CLARIFICATION AND/OR FOR APPROPRIATE RESPONSE PRIOR TO PROCEEDING WITH CONSTRUCTION AND/OR ASSEMBLY OF THE RACKING SYSTEM.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL CONSTRUCTION WORK, RACKING ASSEMBLIES AND INSTALLATIONS ARE IN ACCORDANCE WITH THE LATEST APPROVED STAMPED CONSTRUCTION DOCUMENTS.
6. MEANS AND METHOD OF INSTALLATION, ASSEMBLY AND CONSTRUCTION SEQUENCES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR/INSTALLER TO ENSURE PROPER TECHNIQUES ARE EMPLOYED AND TEMPORARY SHORING AND BRACING ARE PROVIDED FROM START TO COMPLETION OF THE PROJECT CONSTRUCTION PER APPROVED STAMPED CONSTRUCTION DOCUMENTS.
8. ANY WORK COMPLETED DEVIATING FROM THE CONSTRUCTION DOCUMENT SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL LATEST DRAWINGS ARE USED AND DISTRIBUTED TO ALL INVOLVED IN THE PROJECT AND SUBCONTRACTORS.
10. THE PROJECT OWNER SHALL TAKE ALL NECESSARY MEASURES TO PREVENT SOIL EROSIONS, WATER PONDING AND FLOODING AROUND PILES OR IN THE VICINITY.
11. UNLESS SHOWN, DETAILED OR NOTED IN THE CONSTRUCTION DOCUMENT, ANY FIELD MODIFICATIONS, DRILLING, FABRICATION, REPAIRS, DEVIATION AND ADJUSTMENTS IS PROHIBITED WITHOUT THE WRITTEN APPROVAL OF OMCO SOLAR.
12. WHERE MEMBER CORROSION PROTECTION IS COMPROMISED DURING STAGING, FIELD HANDLING, CONSTRUCTION, ASSEMBLY, ETC. CONTRACTOR SHALL REPAIR THE DAMAGE PER APPROVED FIELD REPAIR RECOMMENDATIONS PER OMCO SOLAR'S INSTALLATION MANUAL(S).
13. NOTIFY OMCO SOLAR IMMEDIATELY OF ANY FIELD ISSUES THAT MAY BE ENCOUNTERED DUE TO ARISE RELATING TO STRUCTURAL DAMAGE AND/OR CONSTRUCTION CHALLENGES DUE TO INCORRECT INFORMATION.
14. THE CONSTRUCTION AND FOUNDATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODES AND STANDARDS AND THE LOCAL BUILDING DEPARTMENT "AUTHORITY HAVING JURISDICTIONS" AMENDMENTS.
15. IT IS THE OWNER'S RESPONSIBILITY TO ORDER ANY SPARE PARTS FOR THE PURPOSE OF REPAIRS OR REPLACEMENT AFTER PROJECT COMPLETION AT THE OWNER'S EXPENSE.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT SAFE WORKING CONDITIONS EXIST AND SAFE CONSTRUCTION TECHNIQUES ARE FOLLOWED AND ALL NECESSARY PRECAUTIONS ARE IN PLACE, ADDRESSED AND RESPECTED BY ALL PARTIES INVOLVED WITH THE CONSTRUCTION OF THE PROJECT AT ALL TIMES FROM START TO COMPLETION OF THE PROJECT.
17. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, COORDINATE ALL FIELD CONDITIONS WITH THE APPROVED STAMPED CONSTRUCTION DOCUMENTS PRIOR TO PROCEEDING WITH THE PROJECT CONSTRUCTION.
18. IT IS THE RESPONSIBILITY OF THE PROJECT OWNER TO NOTIFY THE CONTRACTOR OF ANY INVESTIGATIONS RELATED TO ANY KNOWN OBSTRUCTION OR UNANTICIPATED SITE CONDITIONS THAT MAY ALTER THE GROUND MOUNT STRUCTURE DESIGN OR MAY HAVE AN ADVERSE EFFECT ON THE PROJECT CONSTRUCTION.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE CORRECT SOLAR MODULES ARE PROVIDED AND ASSEMBLED PER MODULE MANUFACTURER'S INSTALLATION MANUAL, THIS SET OF DRAWINGS, AND LATEST OMCO SOLAR FIELD FAST INSTALLATION MANUAL PROVIDED.
20. FIELD CUTTING OR WELDING OF COLD-FORM STRUCTURAL ELEMENTS IS NOT REQUIRED NOR PERMITTED WITHOUT THE WRITTEN APPROVAL BY OMCO SOLAR. IN ANY EVENT WHERE FIELD CUTTING AND/OR WELDING IS NECESSARY OR DESIRED, IT IS CRITICAL THAT OMCO SOLAR BE NOTIFIED IMMEDIATELY IN WRITING PRIOR TO FIELD CUTTING OR WELDING.

DESIGN CODES, DATA & CRITERIA

THE SOLAR STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2021 CONNECTICUT BUILDING CODE AND ASCE 7-16.

COLD FORMED STEEL DESIGN STRUCTURAL ELEMENTS SHALL BE PER AISI NORTH AMERICAN SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS 2016 EDITION

STRUCTURE RISK CATEGORY: I

WIND:

BASIC WIND SPEED (3 SECOND GUST): 115 MPH

WIND EXPOSURE CATEGORY: C

WIND TUNNEL TEST AND WIND LOAD ANALYSIS REPORT: PER CPP PROJECT 9795

WIND DESIGN PRESSURES: VARIES WITH MEMBERS AND COMPONENTS

WIND DIRECTIONALITY FACTOR: Kd = 0.85

TOPOGRAPHIC FACTOR: Kzt = 1.00

SEISMIC:

SEISMIC IMPORTANCE FACTOR, I: = 1.00

DESIGN SPECTRAL RESPONSE ACCELERATIONS, SDS: = 0.201g, SD1: = 0.087g

SEISMIC DESIGN CATEGORY: = D

BASIC SEISMIC-FORCE-RESISTING SYSTEMS: = CANTILEVER COLUMN

SEISMIC RESPONSE COEFFICIENT Cs: = 0.122W

SITE CLASS: D

RESPONSE MODIFICATION COEFFICIENTS: R = 1.25

ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE

SNOW:

GROUND SNOW LOAD: (Pg) = 30 PSF

SLOPE FACTOR: (Cs) = 0.19

SNOW EXPOSURE FACTOR: (Ce) = 1.0

SNOW LOAD IMPORTANCE FACTOR: (I) = 0.8

THERMAL FACTOR: (Ct) = 1.1

FLAT ROOF SNOW LOAD: (Pf) = 16.8

DESIGN SNOW LOAD: (Ps) = 3.192

REFERENCE CODES AND STANDARDS (SHALL BE LATEST U.N.O)

ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS

ANSI - AMERICAN NATIONAL STANDARD INSTITUTE

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASCE - AMERICAN SOCIETY OF CIVIL ENGINEERS

AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION

AISI - AMERICAN IRON AND STEEL INSTITUTE

IBC - INTERNATIONAL BUILDING CODE

SEAOC PV1-2012 AND SEAOC PV-2 2012

DESIGN CRITERIA:

GROUND MOUNT TILT ANGLE IS 5-60 DEGREES

MODULE = VARIES

MODULE ORIENTATION = PORTRAIT

MATERIAL SPECIFICATION NOTES:

1. COLD-FORMED STEEL: ASTM A653-17 SS OR HSLAS - MIN. YIELD AND TENSILESTRENGTHS SHOWN ON FRAMING PLANS.
2. STEEL PLATES SHALL BE PER ASTM A36, 36 KSI STEEL.
3. MATERIAL GALVANIZATION MINIMUMS: POSTS/PILES - G235
HARDWARE - 15 MICRON
ALL OTHER STEEL - G90
4. M8 FASTENERS: DIN933 CLASS 8.8.
5. FLANGE HEAD: HEX RIV NUT, OPEN END, STEEL THREAD PROOF LOAD MEETS CLASS 8 PER ISO 898-02.
6. M8, M10, M12 AND M14 FLAT WASHERS: DIN125A AND/OR 3/8", 7/16" , 1/2", AND USS F436 THRU-HARDENED.
7. M10 AND M12 FASTENERS: DIN933/931 CLASS 8.8.
8. M10 AND M12 HEX NUT: DIN934 CLASS 8.
9. MODULE CLAMPS SHALL BE ALUMINUM 6063-T6.
10. CLAMP SPACER SHALL BE ALUMINUM ASTM B221.
11. BEARING CAST ALUMINUM SHALL BE A380 OR B390.

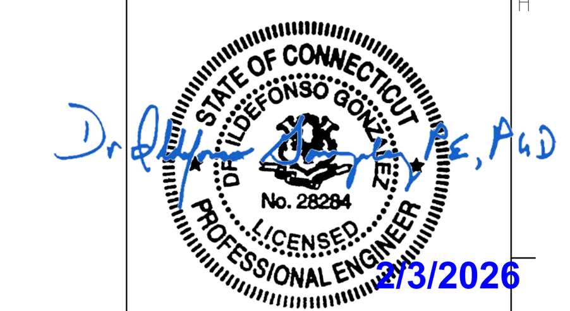
ABBREVIATIONS:

Assembly	ASS'Y
Authority Having Jurisdiction	AHJ
Alternate	ALT
Back to Back	B/B
Beam	BM
Beam End	BE
Bearing	BRG
Between Centers	BC
Bolt Circle	BTC
Both Faces	BFS
Both Sides	BS
Bracket	BRKT
Cap Screw	CAP SCR
Cantilever	CANT'L
Cantilever East	CLE
Cantilever West	CLW
Connection Bracket Long	CBL
Connection Bracket Short	CBS
Center	CTR
Centerline	C.L.
Center to Center	C/C
Circular	CIR
Clear	CLR
Clockwise	CW
Concrete	CONC
Configuration	CONFIG
Connection	Conn
Construction Package	CP
Continuous	CONT
Counterclockwise	CCW
Decimal	DEC
Deep/Depth	DP
Detail	DTL
Diagonal Brace Lower/Upper	DBL, DBU
Dimension	DIM
Distance	DIST
Double	DBLE
Drawing	DWG
Each	EA
East/West Rack Beam Top, Mid, Low	E/W RBT E/W RBM E/W RBL
Elevation	ELEV
End to End	E/E
Equal	EQL
Equally spaced	EQLSP
Elevation	ELEV
Existing	EX.
Exterior	EXT
Embedment	EMBED
Face to Face	F/F
Fastener	FSTNR
Field Fast	F.F.
Fillet	FIL
Foundation	FND
Gage	GA
Ground Mount	GM
Hexagonal	HEX
Horizontal	HORIZ
Hot Dipped Galvnization	HDG

Inch	IN
Inside diameter	ID
Interior	INT
Kilo Pounds	kips
Kilowatt	kW
Lateral Brace	LB
Left hand	LH
Length	L
Lock Nut	LN
Lockwasher	LKWASH
Long	LG
Material	MATL
Maximum	MAX
Mega Watts	MW
Micrometer	um
Millimeter	mm
Minimum	MIN
Module	MOD
Module Clamp	MC
Module Rail	MR
Multiple	MULT
North/South	NS
Not To Scale	NTS
Number	NO
On Center	OC
Outside Diameter	OD
Outside Face	OF
Overall	OA
Perpendicular	PERP
Photovoltaics	PV
Places	PLCS
Post/Pile	P
Point	PT
Pounds	LBS
Quantity	QTY
Radial	RDL
Radius	RAD
Rectangle	RECT
Reference Line	REFL
Required	REQD
Right Hand	RH
Round	RND
Screw	SCR
Scope of Work	SOW
Section	SECT
Set screw	SSCR
Sheet	SHT.
Similar	SIM,
Single	SGL
Sleeve	SLV
Slotted	SLTD
Socket	SKT
Socket head	SCH
Square	SQ
Square Meters	SQM
Standard	STD
Steel	STL
Surface	SURF
Thick	THK
Thread	TRD
Through	THRU
Tilt Bracket	TB
To Be Determined	TBD
Top Of	T.O.
Typical	TYP
Unless Noted Otherwise	UNO
Vertical	VERT
Watt	WT
Wire Management	WM
Work Point	W.P.

Project specific atmospheric loads (dead, snow, wind and seismic) have been calculated as prescribed by the latest locally accepted edition of the ASCE 7 (Minimum Design Loads and Associated Criteria for Buildings and Other Structures) Standard as interpreted by our internal Engineering Department and our Third–Party Engineer of Record for application to solar ground mount structures specifically. These project specific loads have been applied to the project racking structure, through the applicable load combinations, as prescribed by the latest locally accepted edition of the ASCE 7 Standard. Final custom project member sizes, quantities, spacings, connections and final pile embedment depths have been determined through structural analysis based specifically on the application of these above–described loads to the racking structure. Any alternate interpretation of the ASCE 7 Standard or disagreement with how loads were applied or how we performed our analysis by the customers internal engineering department or independent engineer(s), that results in an increase in member sizes or quantities, accepted by the customer shall be at the customer's expense. Any other liquidated damages that result from this acceptance shall be at the owner's expense.

OMCO SOLAR



OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: GENERAL STRUCTURAL NOTES

DRAWING NUMBER: OS1.1

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
www.omcosolar.com

Hi-MO 5 (Assembled in US)

LR5-72HBD
530~550M

- Based on M10 wafer, best choice for ultra-large power plants
- Advanced module technology delivers superior module efficiency

  M10 Gallium-doped Wafer 18-busbar Half-cut Cell
- Globally validated bifacial energy yield
- High module quality ensures long-term reliability

12 12-year Warranty for Materials and Processing

30 30-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO9001:2015: ISO Quality Management System

ISO14001: 2015: ISO Environment Management System

ISO45001: 2018: Occupational Health and Safety

IEC62941: Guideline for module design qualification and type approval

LONGi

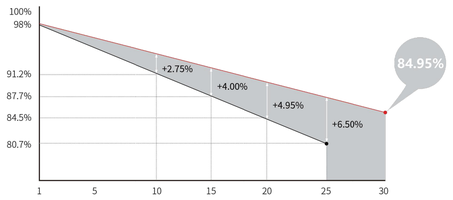
Hi-MO 5

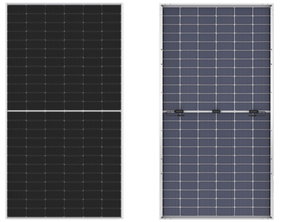
LR5-72HBD 530~550M

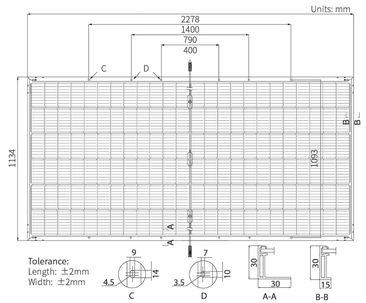
21.3%	0~3%	<2%	0.45%	HALF-CELL
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-30 POWER DEGRADATION	Lower operating temperature

Additional Value

30-Year Power Warranty







Mechanical Parameters

Cell	144(2x72) half-cut, made in USA with imported parts
Junction Box	IP68, three diodes
Output Cable	4mm², +400, -200mm/±1400mm length can be customized
Glass	Dual glass, 2.0+2.0mm heat strengthened glass
Frame	Anodized aluminum alloy frame
Weight	31.8kg
Dimension	2278×1134×30mm
Packaging	36pcs per pallet / 180pcs per 20' GP / 720pcs or 576pcs (Only for USA) per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR5-72HBD-530M		LR5-72HBD-535M		LR5-72HBD-540M		LR5-72HBD-545M		LR5-72HBD-550M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	530	396.2	535	399.9	540	403.6	545	407.4	550	411.1
Open Circuit Voltage (Voc/V)	49.20	46.26	49.35	46.40	49.50	46.54	49.65	46.68	49.80	46.82
Short Circuit Current (Isc/A)	13.71	11.07	13.78	11.12	13.85	11.17	13.92	11.23	13.99	11.29
Voltage at Maximum Power (Vmp/V)	41.35	38.58	41.50	38.72	41.65	38.86	41.80	39.00	41.95	39.14
Current at Maximum Power (Imp/A)	12.82	10.27	12.90	10.33	12.97	10.39	13.04	10.45	13.12	10.51
Module Efficiency(%)	20.5		20.7		20.9		21.1		21.3	

Electrical characteristics with different rear side power gain (reference to 540W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
567	49.50	14.54	41.65	13.61	5%
594	49.50	15.23	41.65	14.26	10%
621	49.60	15.92	41.75	14.91	15%
648	49.60	16.62	41.75	15.56	20%
675	49.60	17.31	41.75	16.21	25%

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Bifaciality	70±5%
Fire Rating	UL type 29 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.265%/°C
Temperature Coefficient of Pmax	-0.340%/°C

LONGi

Web: www.longi.com

Specifications included in this datasheet are subject to change without notice.
LONGi reserves the right of final interpretation. (20250207V19)

SOLAR MODULE SPECIFICATIONS

OMCO SOLAR

STATE OF CONNECTICUT · DEPARTMENT OF CONSUMER PROTECTION · No. 28284 · LICENSED PROFESSIONAL ENGINEER

Dr. [illegible], P.E., PhD

3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: MODULE CUT SHEET

DRAWING NUMBER: OS1.2

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
www.omcosolar.com

Hi-MO 5 (V4)

LR5-72HBD
540~560M

- Based on M10 wafer, best choice for ultra-large power plants
- Advanced module technology delivers superior module efficiency
  - M10 Gallium-doped Wafer • Integrated Segmented Ribbons • 18-busbar Half-cut Cell
- Globally validated bifacial energy yield
- High module quality ensures long-term reliability

12 12-year Warranty for Materials and Processing

30 30-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730
ISO9001:2015: ISO Quality Management System
ISO14001: 2015: Occupational Health and Safety
ISO45001: 2018: Occupational Health and Safety
IEC62941: Guideline for module design qualification and type approval

LONGi

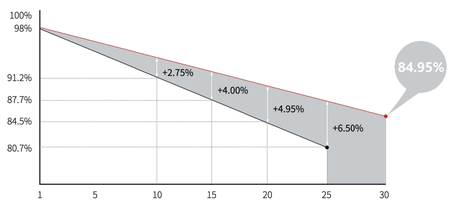
Hi-MO 5

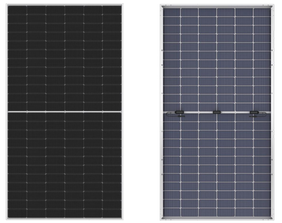
LR5-72HBD 540~560M

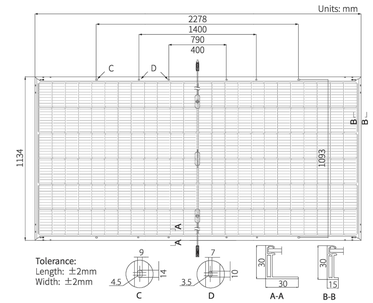
21.7%	0~3%	<2%	0.45%	HALF-CELL
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-30 POWER DEGRADATION	Lower operating temperature

Additional Value

30-Year Power Warranty







Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68, three diodes
Output Cable	4mm², +400, -200mm/±1400mm length can be customized
Glass	Dual glass, 2.0+2.0mm heat strengthened glass
Frame	Anodized aluminum alloy frame
Weight	31.8kg
Dimension	2278×1134×30mm
Packaging	36pcs per pallet / 180pcs per 20' GP / 720pcs or 576pcs (Only for USA) per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR5-72HBD-540M		LR5-72HBD-545M		LR5-72HBD-550M		LR5-72HBD-555M		LR5-72HBD-560M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	540	403.6	545	407.4	550	411.1	555	414.8	560	418.6
Open Circuit Voltage (Voc/V)	49.50	46.54	49.65	46.68	49.80	46.82	49.95	46.97	50.10	47.11
Short Circuit Current (Isc/A)	13.85	11.17	13.92	11.23	13.99	11.29	14.05	11.34	14.10	11.38
Voltage at Maximum Power (Vmp/V)	41.65	38.86	41.80	39.00	41.95	39.14	42.10	39.28	42.25	39.42
Current at Maximum Power (Imp/A)	12.97	10.39	13.04	10.45	13.12	10.51	13.19	10.56	13.26	10.62
Module Efficiency(%)	20.9		21.1		21.3		21.5		21.7	

Electrical characteristics with different rear side power gain (reference to 550W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
578	49.80	14.68	41.95	13.77	5%
605	49.80	15.38	41.95	14.43	10%
633	49.90	16.08	42.05	15.08	15%
660	49.90	16.78	42.05	15.74	20%
688	49.90	17.48	42.05	16.39	25%

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Bifaciality	70±5%
Fire Rating	UL type 29 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.265%/°C
Temperature Coefficient of Pmax	-0.340%/°C

LONGi

No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.
Web: www.longi.com

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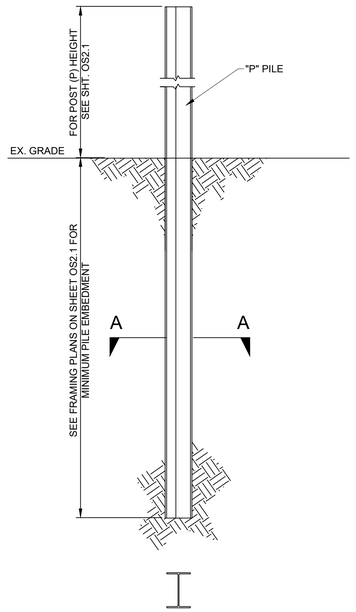
SOLAR MODULE SPECIFICATIONS

FOUNDATION INSTALLATION

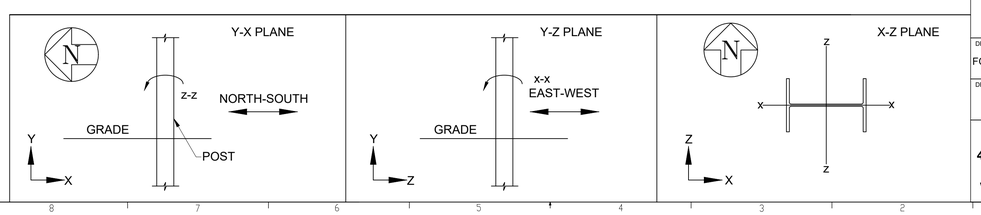


VIEW "A-A"

TYPICAL DRIVEN PILE FND (PD) 1

FOUNDATION NOTES

1. THE FOUNDATION DESIGN OF POST/PILES SHALL BE PER THE LOCAL AHJ ADOPTED BUILDING CODE (IBC), PILE REACTIONS AND/OR LOAD TESTING REPORTS AND GEOTECHNICAL SOILS REPORT RECOMMENDATIONS. FOUNDATION DESIGN SHALL BE PER THE GOVERNING PILE REACTIONS RESULTING FROM THE STRUCTURAL ANALYSIS UTILIZING THE SPECIFIC PROJECT DESIGN MODULE, WIND LOADS, SNOW, AND SEISMIC LOAD SPECIFIED IN THIS SET. SEE TABLE THIS SHEET FOR POST REACTION AT GRADE AND MINIMUM EMBEDMENT REQUIREMENTS.
2. IT IS CRITICAL FOR PILES TO BE INSTALLED IN THE PROPER ORIENTATION AND LOCATION. REFERENCE LATEST OMCO FIELD FAST INSTALLATION MANUAL PROVIDED FOR ALL PILE INSTALLATION TOLERANCES FOR ORIENTATION AND LOCATION.
3. TRENCHING OR EXCAVATION IN THE VICINITY OF PILE FOUNDATIONS SHALL SATISFY THE MINIMUM CLEARANCES NOTED BELOW BETWEEN EDGE OF TRENCH AND PILE.
   EAST-WEST TRENCHING = 60"
   NORTH-SOUTH TRENCHING = 36"
4. ALL CIVIL DESIGN, SITE LAYOUT, AND ASSOCIATED WORK SHALL BE DESIGNED, APPROVED, AND INSTALLED BY OTHERS.
5. PILES NOT DRIVEN TO THE SPECIFIED EMBEDMENT DEPTH SHALL BE REDESIGNED AND/OR MODIFIED AT THE CONTRACTOR'S EXPENSE. REDESIGN SHALL BE APPROVED AND/OR PROVIDED BY OMCO SOLAR.
6. IN THE EVENT OF ENCOUNTERING PILE REFUSAL, NOTIFY OMCO SOLAR IMMEDIATELY PRIOR TO MAKING ANY FIELD ADJUSTMENTS OR MODIFICATIONS.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INFORM THE ENGINEER OF RECORD IF FIELD CONDITIONS AND SOIL CONDITIONS ARE NOT PER THE GEOTECHNICAL REPORT OR APPROVED STAMPED CONSTRUCTION DOCUMENTS.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW THE RECOMMENDATIONS PROVIDED IN THIS APPROVED CONSTRUCTION DOCUMENTS AND THE SITE GEOTECHNICAL REPORTS.
9. PILE SHALL NOT BE DRIVEN OR SET IN LOW POINTS WHERE WATER WILL BE ACCUMULATING OR PONDING.
10. FOUNDATION DESIGN BY OTHERS.



OMCO SOLAR

STATE OF CONNECTICUT
DR. LUISFONSO GOMEZ
No. 28284
LICENSED PROFESSIONAL ENGINEER
Dr. Luisfonso Gomez, P.E., Ph.D
3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: FOUNDATIONS

DRAWING NUMBER: OS1.3

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PHOENIX, AZ 85043
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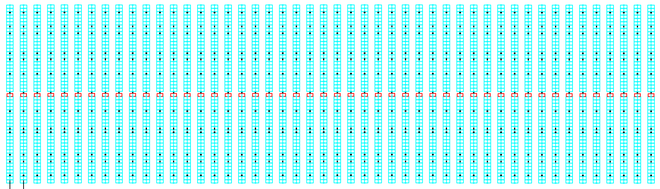

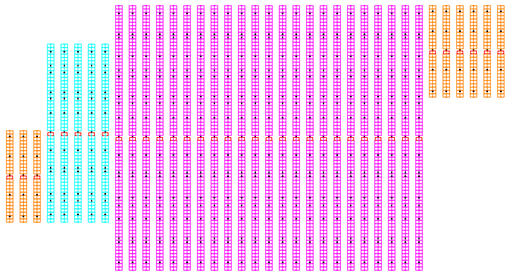

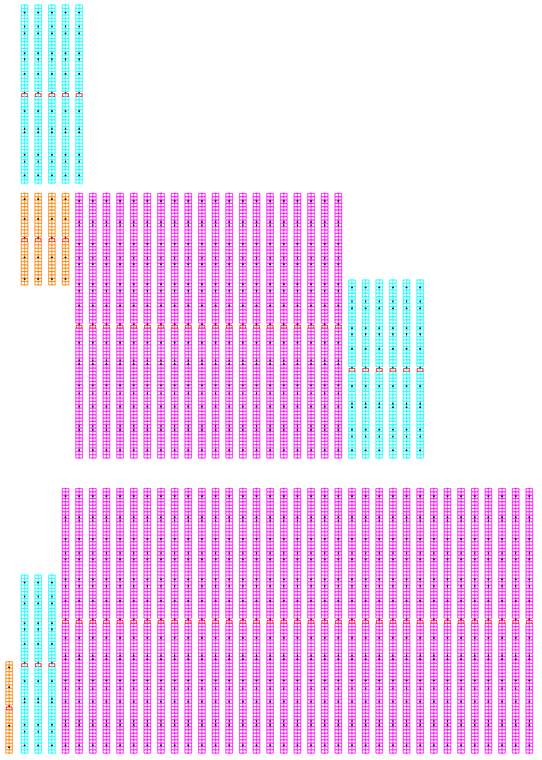

78 PERIMETER TRACKER (78)

52 PERIMETER TRACKER (67)

26 PERIMETER TRACKER (14)

OVERALL STRUCTURE LAYOUT PLAN

(NTS)

OMCO SOLAR

STATE OF CONNECTICUT
DIEGO ALFONSO GONZALEZ
No. 28284
LICENSED PROFESSIONAL ENGINEER
1/27/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME:
SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME:
GENERAL LAYOUT

DRAWING NUMBER:
OS2.0

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PHOENIX, AZ 85043
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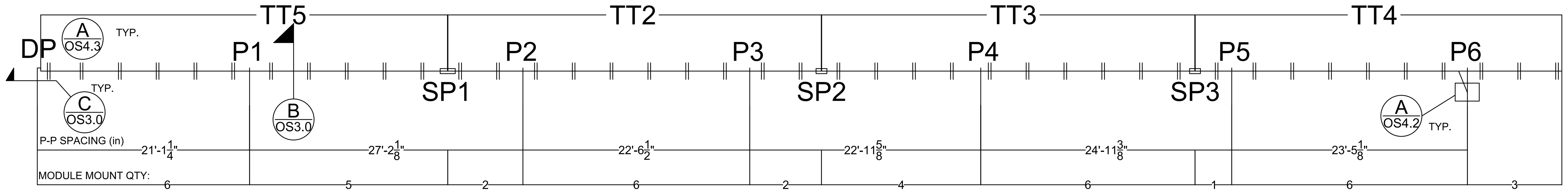
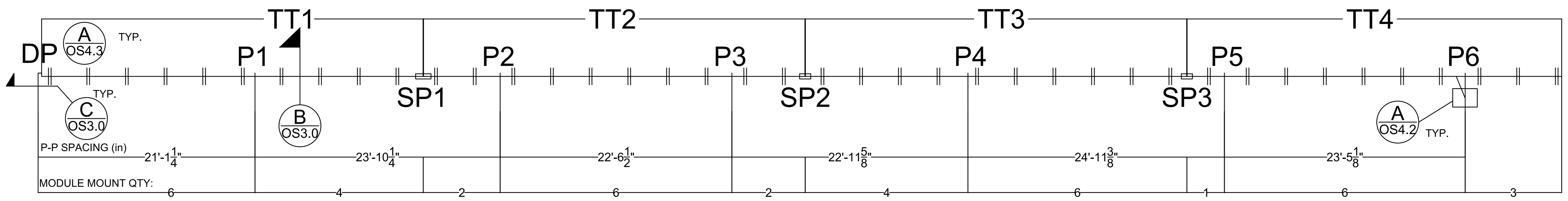
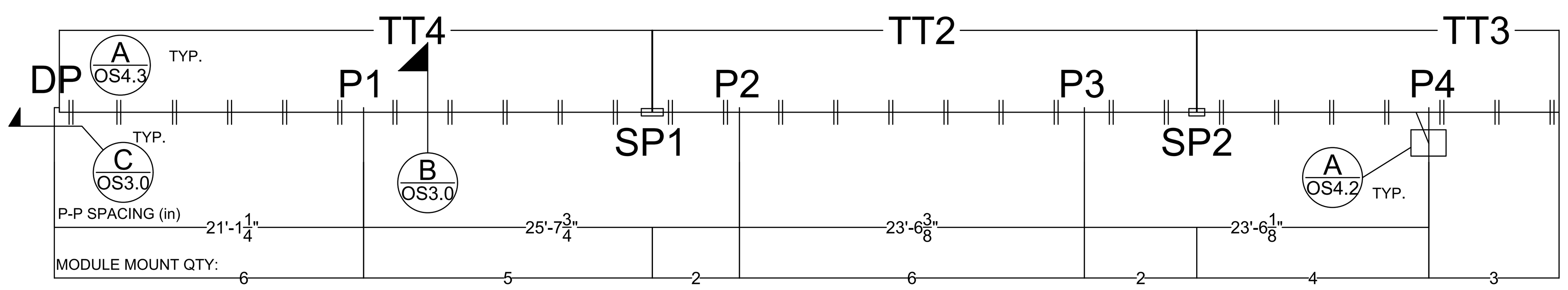
TR78P (SOUTH SIDE)



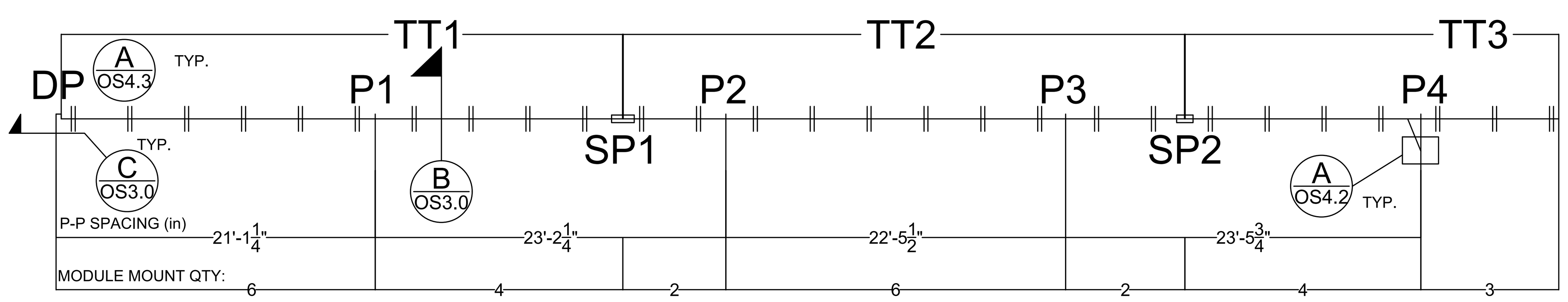
TR78P (NORTH SIDE)



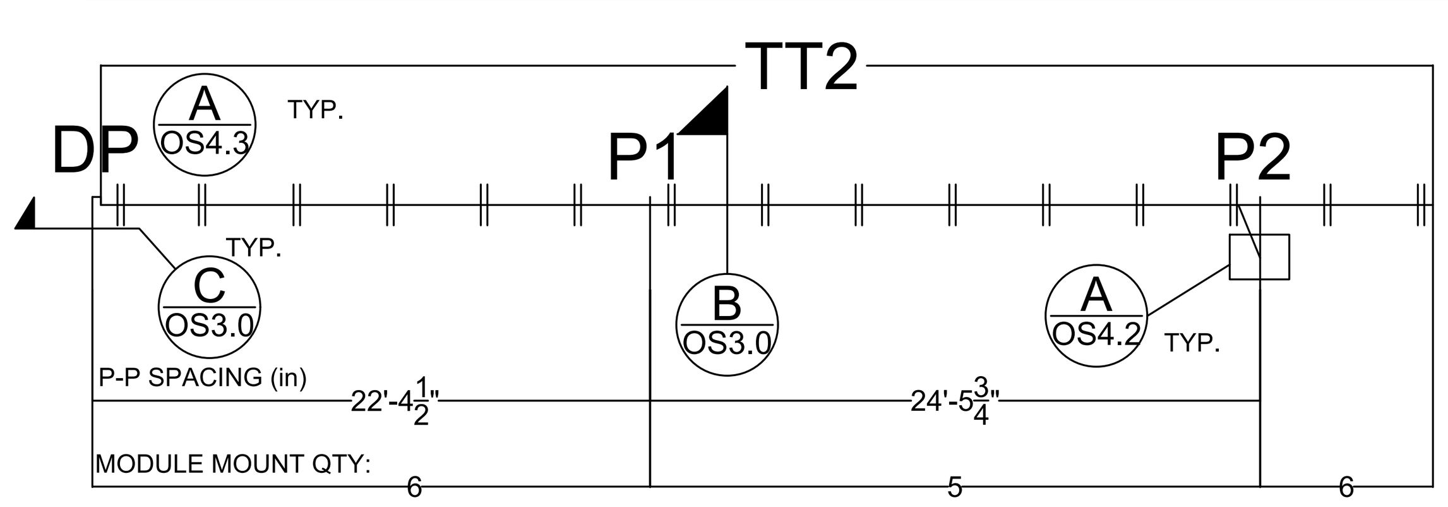
TR52P (SOUTH SIDE)



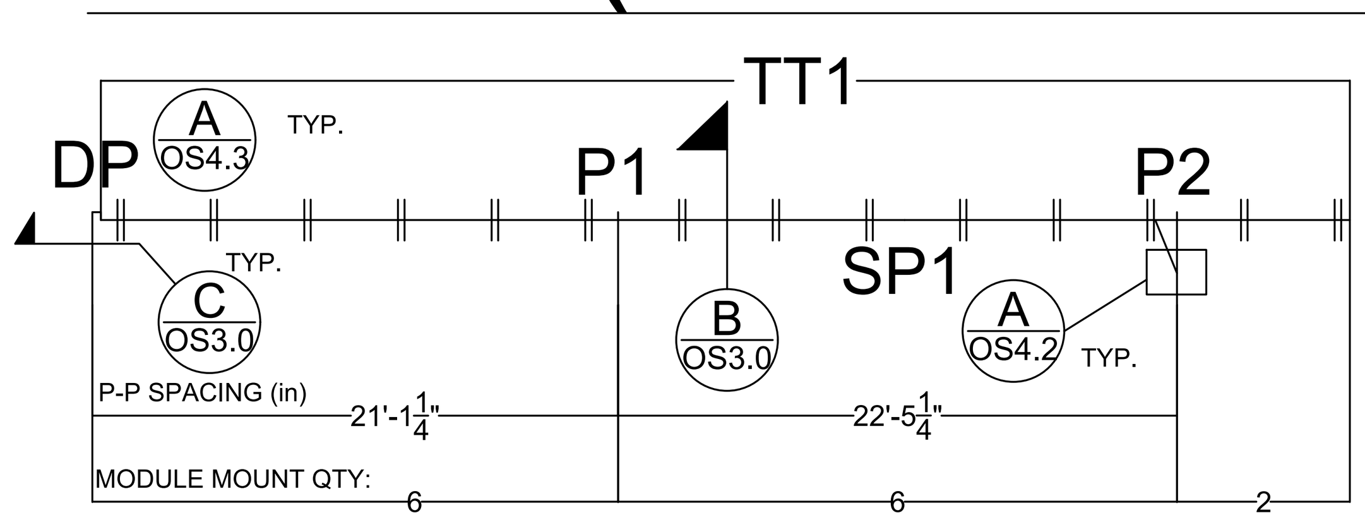
TR52P (NORTH SIDE)



TR26P (SOUTH SIDE)



TR26P (NORTH SIDE)



FRAMING PLAN
(NTS)

TRACKER 78 PER (QTY. 78)

MARK	MEMBERS	DIMENSIONS				Fy(ksi)	Fu(ksi)	LENGTH (in)	MINIMUM EMBEDMENT DEPTH	MEMBER COLOR
		"a"	"b"	"t"	"r"					
DP	DRIVE POST	6.03""	4.00"	0.23"	-	50	60	SEE COLOR-CODED PILE PLAN	10' 6"	SEE COLOR-CODED PILE PLAN
P1	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P2	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P3	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P4	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P5	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P6	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
TT1	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	445.37"	-	NO COLOR
TT2	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	445.37"	-	NO COLOR
TT3	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	445.37"	-	NO COLOR
TT4	TORQUE TUBE	4.00"	4.00"	.106"	0.27"	80	90	476.98"	-	RED
TT5	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	484.78"	-	ORANGE
SP1	SPLICE	SEE DETAIL A OS4.4	-	-	-	-	-	18.00"	-	-
SP2	SPLICE	SEE DETAIL A OS4.4	-	-	-	-	-	18.00"	-	-
SP3	SPLICE	SEE DETAIL A OS4.4	-	-	-	-	-	18.00"	-	-

TRACKER 52 PER (QTY. 67)

MARK	MEMBERS	DIMENSIONS				Fy(ksi)	Fu(ksi)	LENGTH (in)	MINIMUM EMBEDMENT DEPTH	MEMBER COLOR
		"a"	"b"	"t"	"r"					
DP	DRIVE POST	6.03""	4.00"	0.23"	-	50	60	SEE COLOR-CODED PILE PLAN	10' 6"	SEE COLOR-CODED PILE PLAN
P1	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P2	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P3	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P4	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
TT1	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	445.37"	-	NO COLOR
TT2	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	445.37"	-	NO COLOR
TT3	TORQUE TUBE	4.00"	4.00"	.106"	0.27"	80	90	335.56"	-	BLACK
TT4	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	484.78"	-	ORANGE
SP1	SPLICE	SEE DETAIL A OS4.4	-	-	-	-	-	18.00"	-	-
SP2	SPLICE	SEE DETAIL A OS4.4	-	-	-	-	-	18.00"	-	-

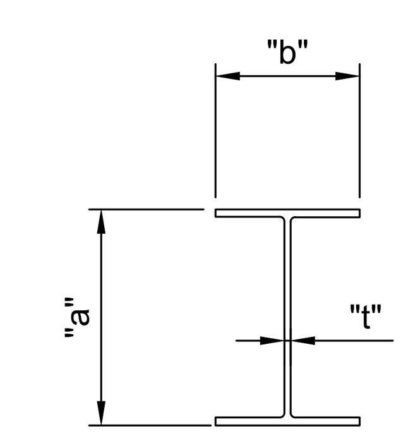
TRACKER 26 PER (QTY. 14)

MARK	MEMBERS	DIMENSIONS				Fy(ksi)	Fu(ksi)	LENGTH (in)	MINIMUM EMBEDMENT DEPTH	MEMBER COLOR
		"a"	"b"	"t"	"r"					
DP	DRIVE POST	6.03""	4.00"	0.23"	-	50	60	SEE COLOR-CODED PILE PLAN	10' 6"	SEE COLOR-CODED PILE PLAN
P1	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
P2	POST	5.99"	5.99"	0.23"	-	50	60		10' 6"	
TT1	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	601.6"	-	YELLOW
TT2	TORQUE TUBE	4.00"	4.00"	.145"	0.27"	80	90	641.01"	-	DARK BLUE

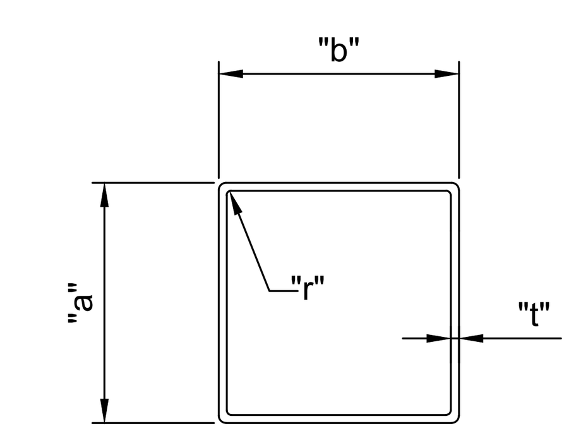
- NOTE: HALF TRACKER SHOWN FOR CLARITY OTHER HALF IS MIRROR IMAGE

FRAMING PLAN NOTES:

- POST SHALL BE ORIENTED WITH OPEN FACE TO THE SOUTH TORQUE TUBE SHALL BE INSTALLED WITH WELDED SIDE ON TOP
- SEE SHEET OS3.1 FOR MODULE MOUNTING REQUIREMENTS



"DP", "P" PROFILE



"TT" PROFILE

MEMBER SECTION PROFILES

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2/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
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GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: TRACKER STRUCTURAL REQUIREMENTS

DRAWING NUMBER: OS2.1

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PHOENIX, AZ 85043
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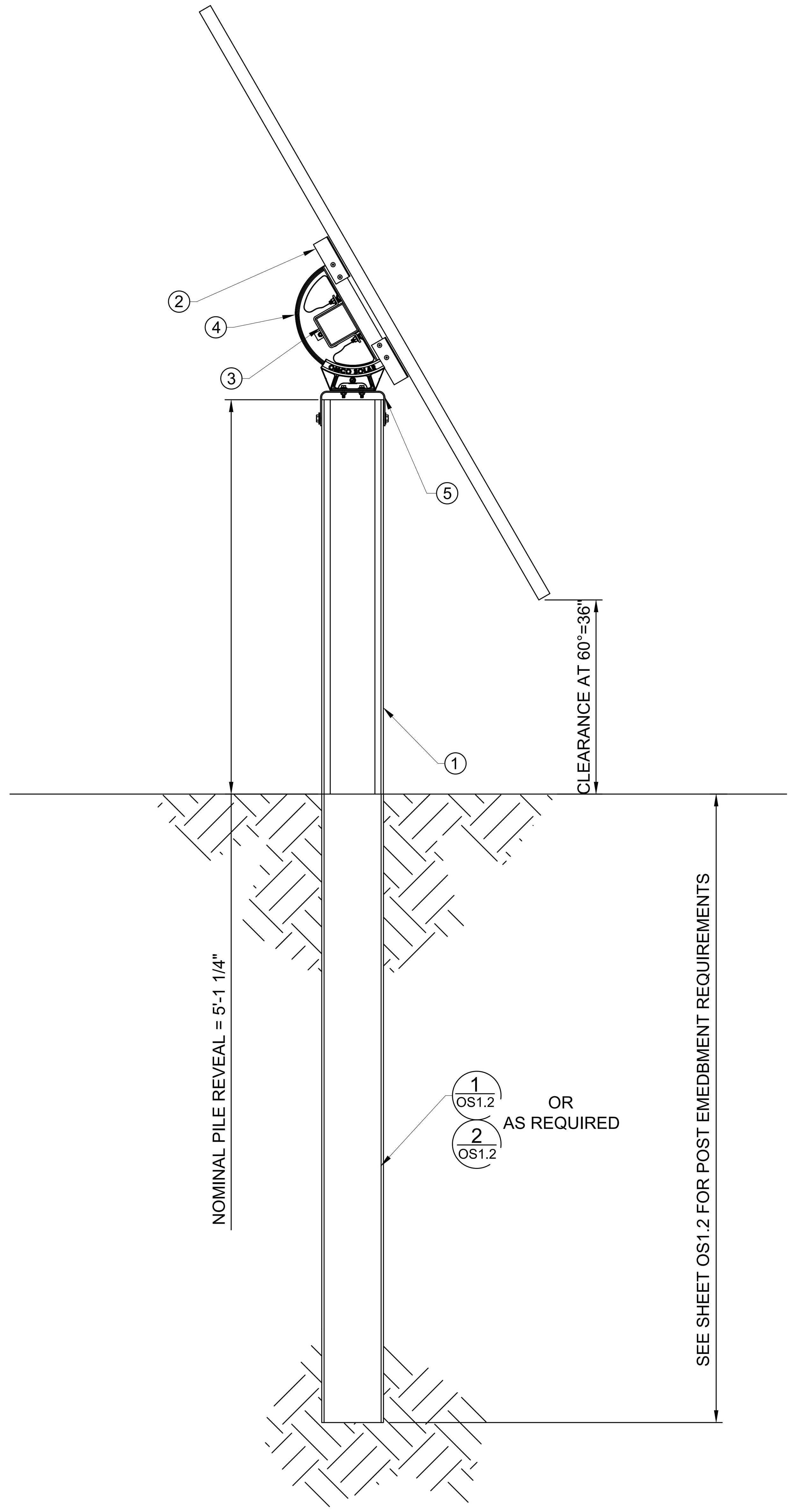
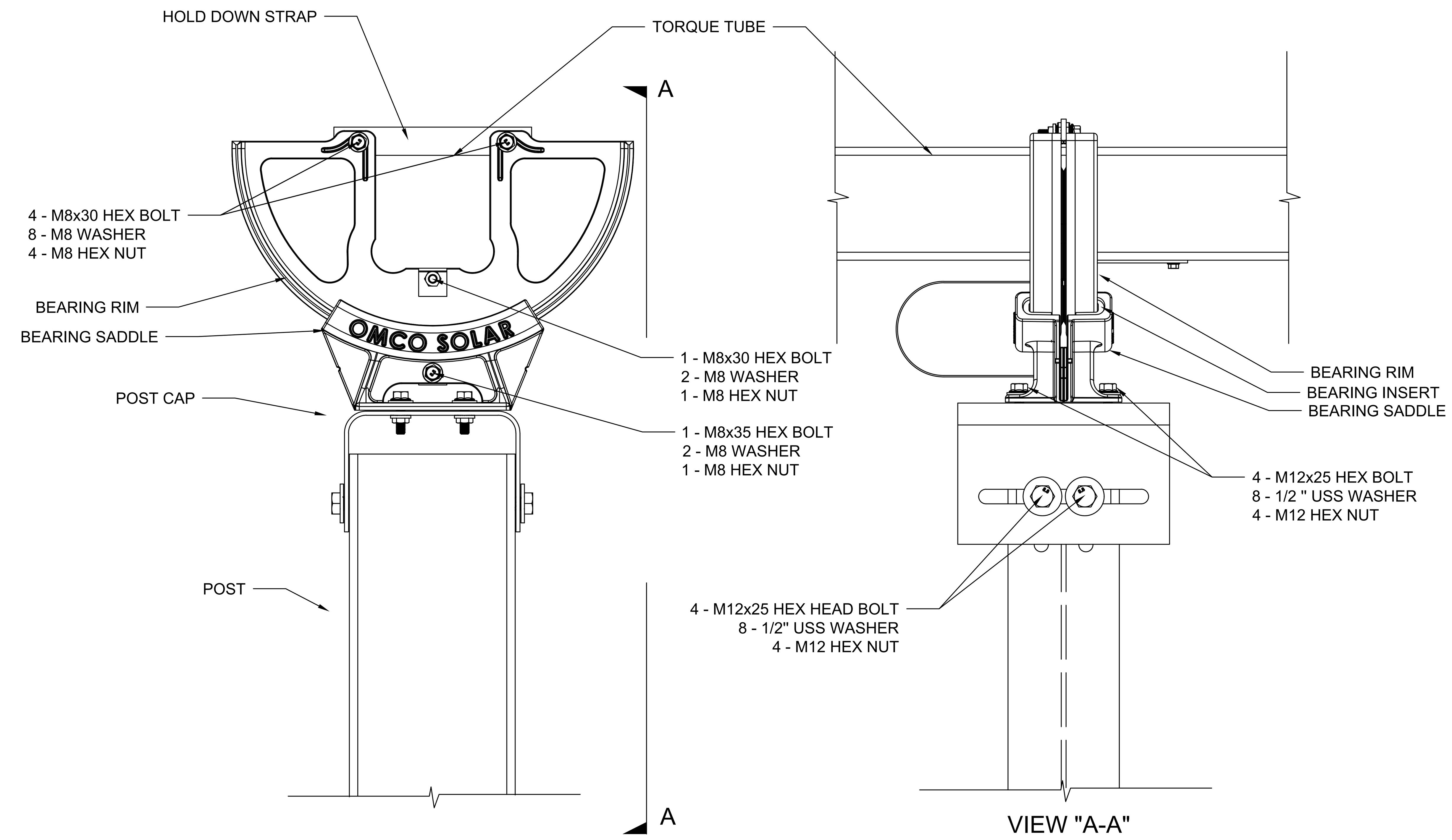


TYP. SECTION AT POST (A)
(NTS)

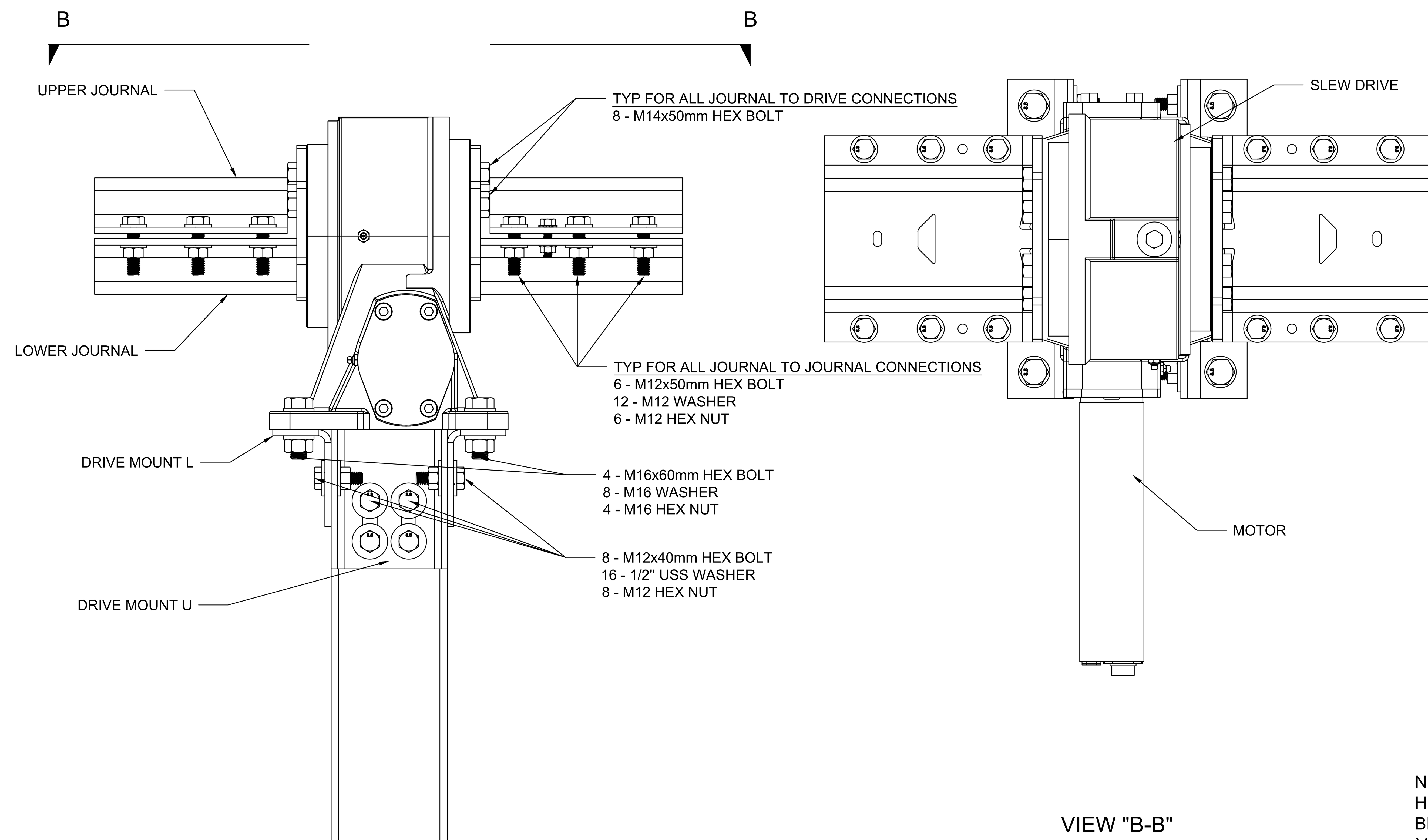
COMPONENTS

ITEM NO.	DESCRIPTION	MARK
1	POST	P
2	MODULE MOUNT ASSEMBLY	MMA
3	TORQUE TUBE	TT
4	BEARING ASSEMBLY	BA
5	POST CAP	PC



TYPICAL BEARING ASSEMBLY & BEARING POST (B)
(NTS)

(NTS)



VIEW "B-B"

DRIVE ASSEMBLY & DRIVE POST (C)

NOTE: EITHER OR BOTH OF THE HEX NUT AND HEX BOLT COULD BE REPLACED WITH FLANGED VERSIONS. IF THERE IS A FLANGE, THE WASHER IS NOT NEEDED FOR THAT FASTENER.

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No. 28284
LICENSED PROFESSIONAL ENGINEER
2/3/2026

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SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: TYPICAL SECTION BEARING & DRIVE DETAILS

DRAWING NUMBER: OS3.0

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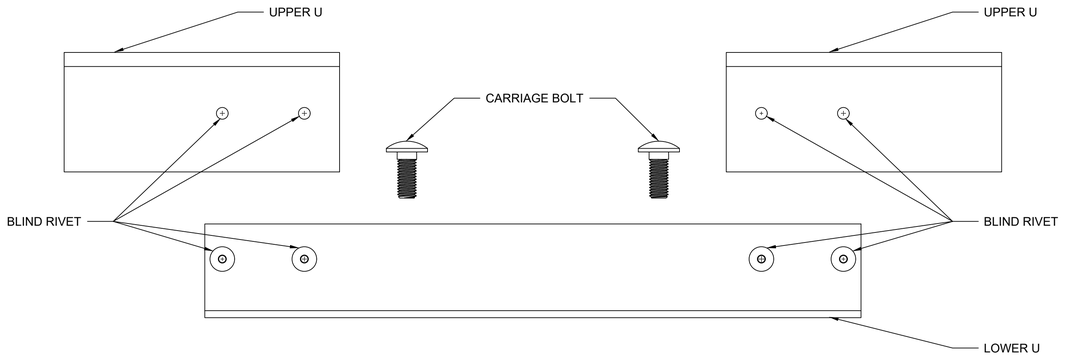
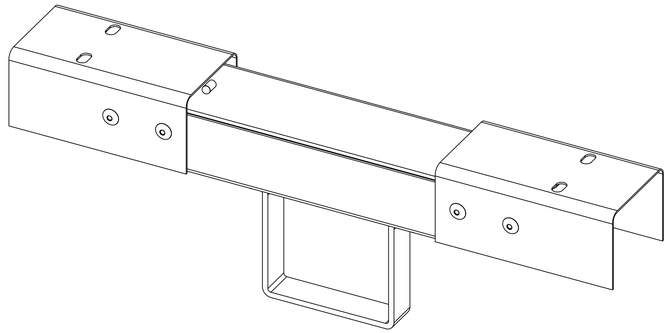
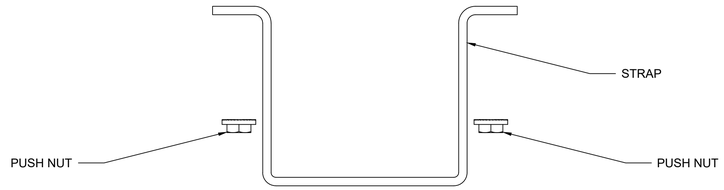
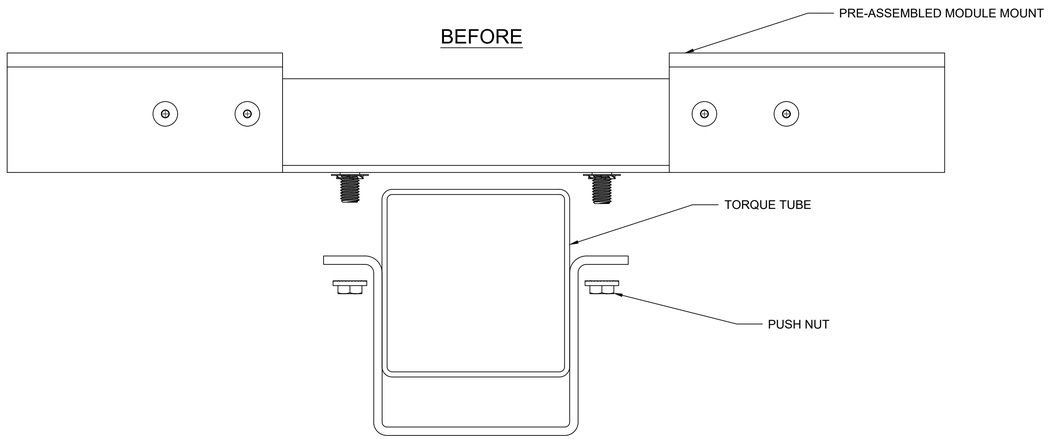






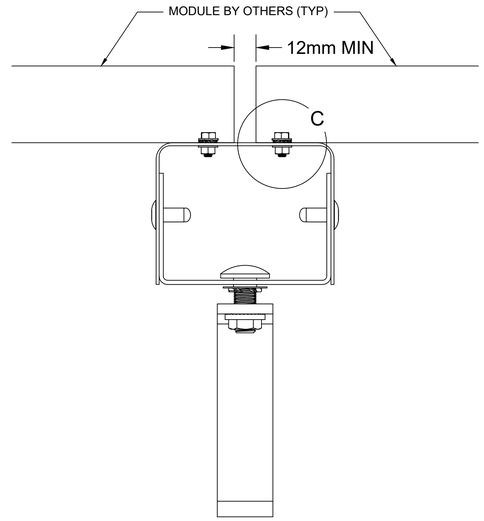
1P DIRECT BOLT COMPONENTS
(NTS)

A

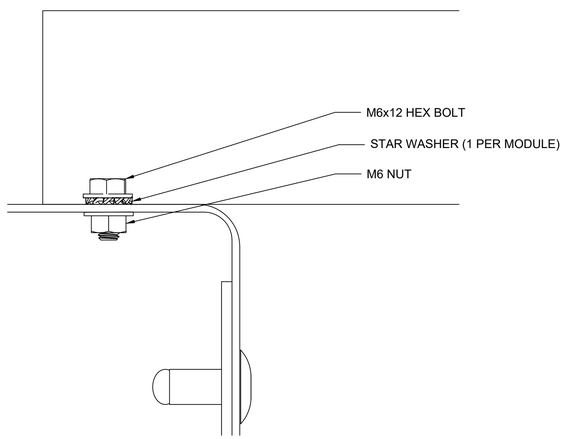


1P DIRECT BOLT MODULE MOUNT
(NTS)

A



VIEW "A-A"



1P DIRECT BOLT HARDWARE STACK
(NTS)

C

OMCO SOLAR

STATE OF CONNECTICUT
DUSTIN LUSEFONSO GOMEZ
No. 28294
LICENSED PROFESSIONAL ENGINEER

Dr. Dustin Gomez, PhD
1/23/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME:
SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME:
MODULE MOUNTING DETAILS

DRAWING NUMBER:
OS3.1A

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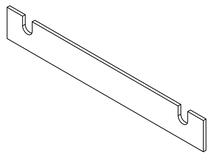
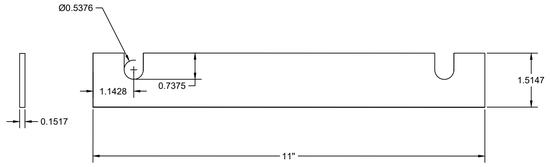


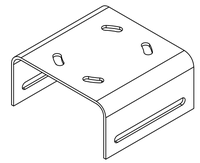


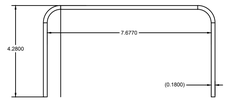
HOLD DOWN STRAP

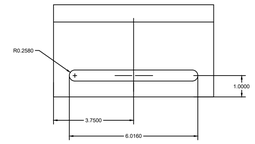
MIN THICKNESS: 0.1517" (MIN SPEC: ASTM A653, Fy = 50 KSI, Fu = 60 KSI)

(NTS)

A





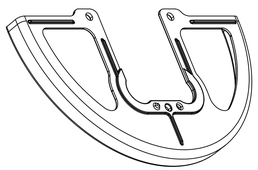


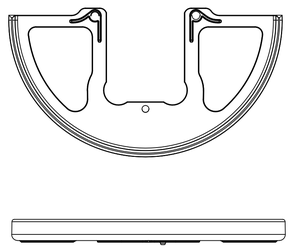
BEARING POST CAP

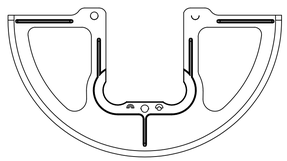
MIN THICKNESS: 0.1800 (MIN SPEC: ASTM A653, Fy = 50 KSI, Fu = 60 KSI)

(NTS)

B





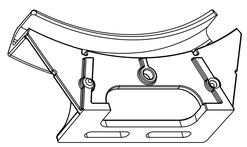


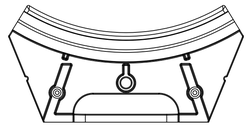
BEARING

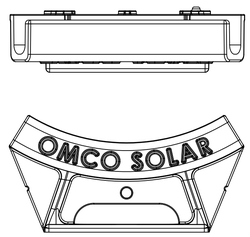
(MIN SPEC: ALUMINUM A380, Fy = 23 KSI, Fu = 47 KSI)

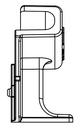
(NTS)

C









SADDLE BEARING

(MIN SPEC: ALUMINUM A380, Fy = 23 KSI, Fu = 47 KSI)

(NTS)

D

OMCO SOLAR

STATE OF CONNECTICUT
DEPARTMENT OF CONSUMER PROTECTION
No. 28294
LICENSED PROFESSIONAL ENGINEER
3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME:
SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME:
TRACKER COMPONENT SPECIFICATIONS

DRAWING NUMBER:
OS4.0

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
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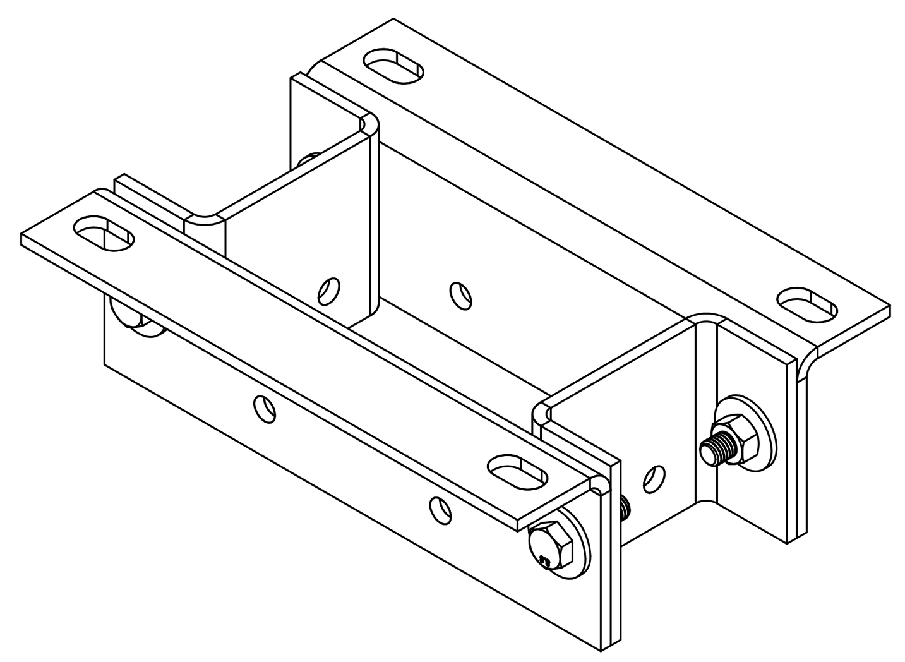
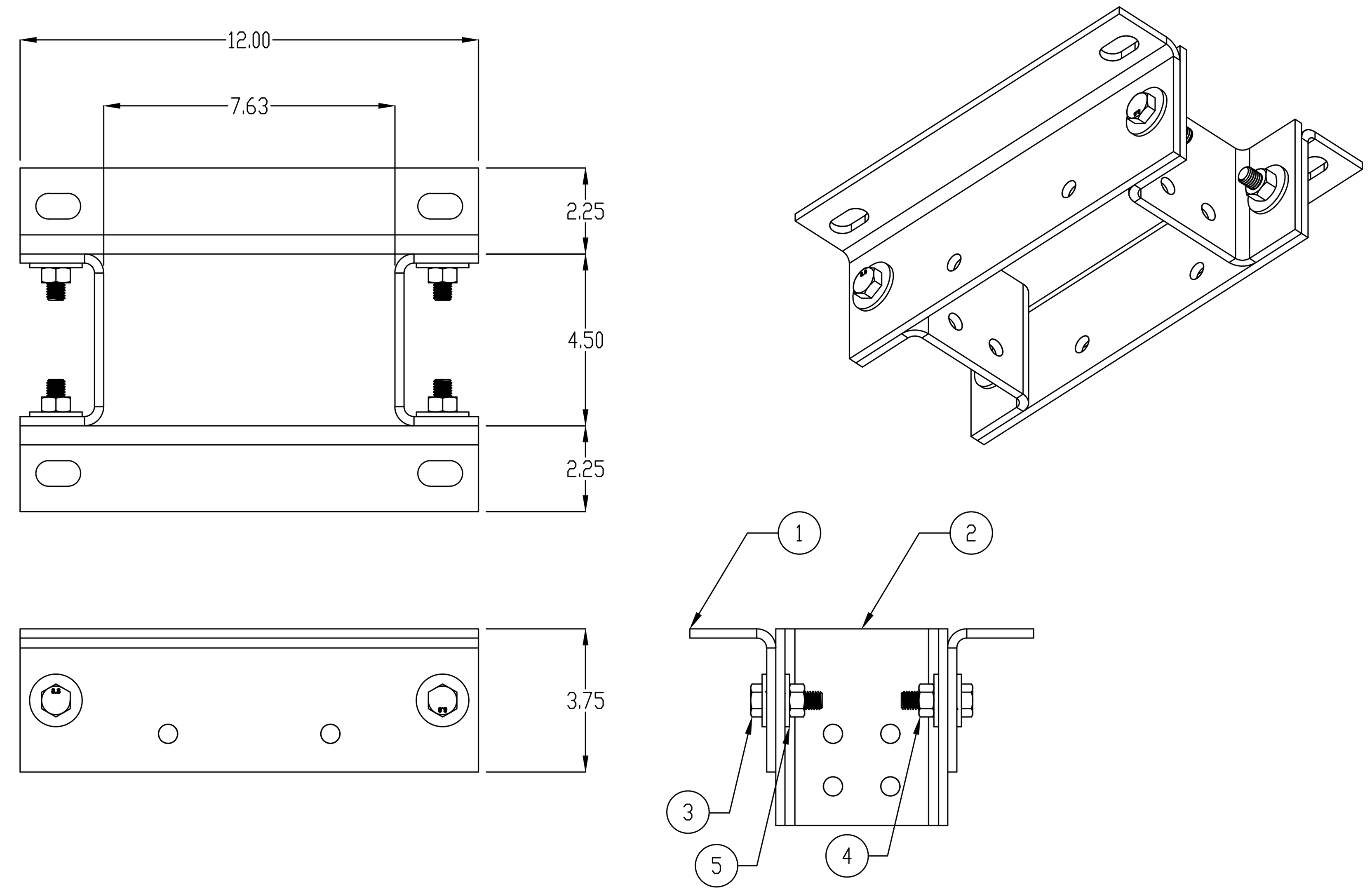
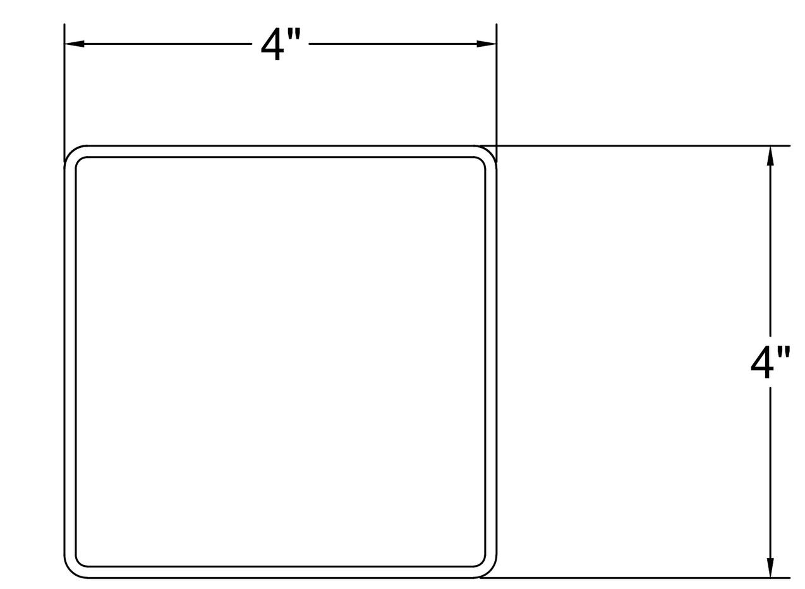


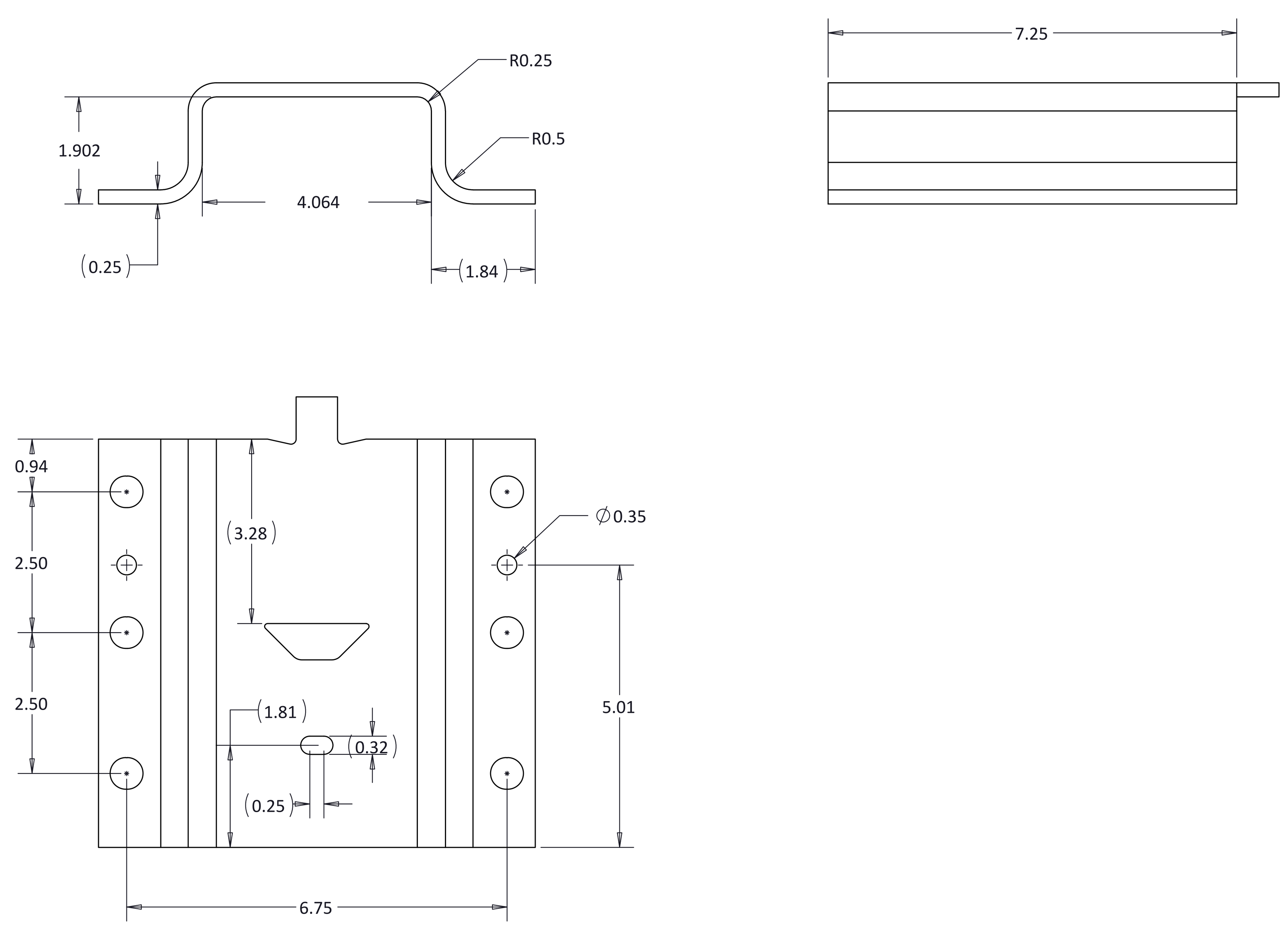
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DML-1000	DRIVE MOUNT L	2
2	DMUS-1000	DRIVE MOUNT U SLOPE	2
3	M12 NUT	M12 HEX NUT	4
4	M12X50 BOLT	M12X1.75X50mm HH BOLT	4
5	1/2" WASHER	1/2" USS FLAT WASHER	8



DRIVE MOUNT MIN THICKNESS: 0.50" (MIN SPEC: ASTM A653, Fy = 50 KSI, Fu = 60 KSI)
(NTS)
A

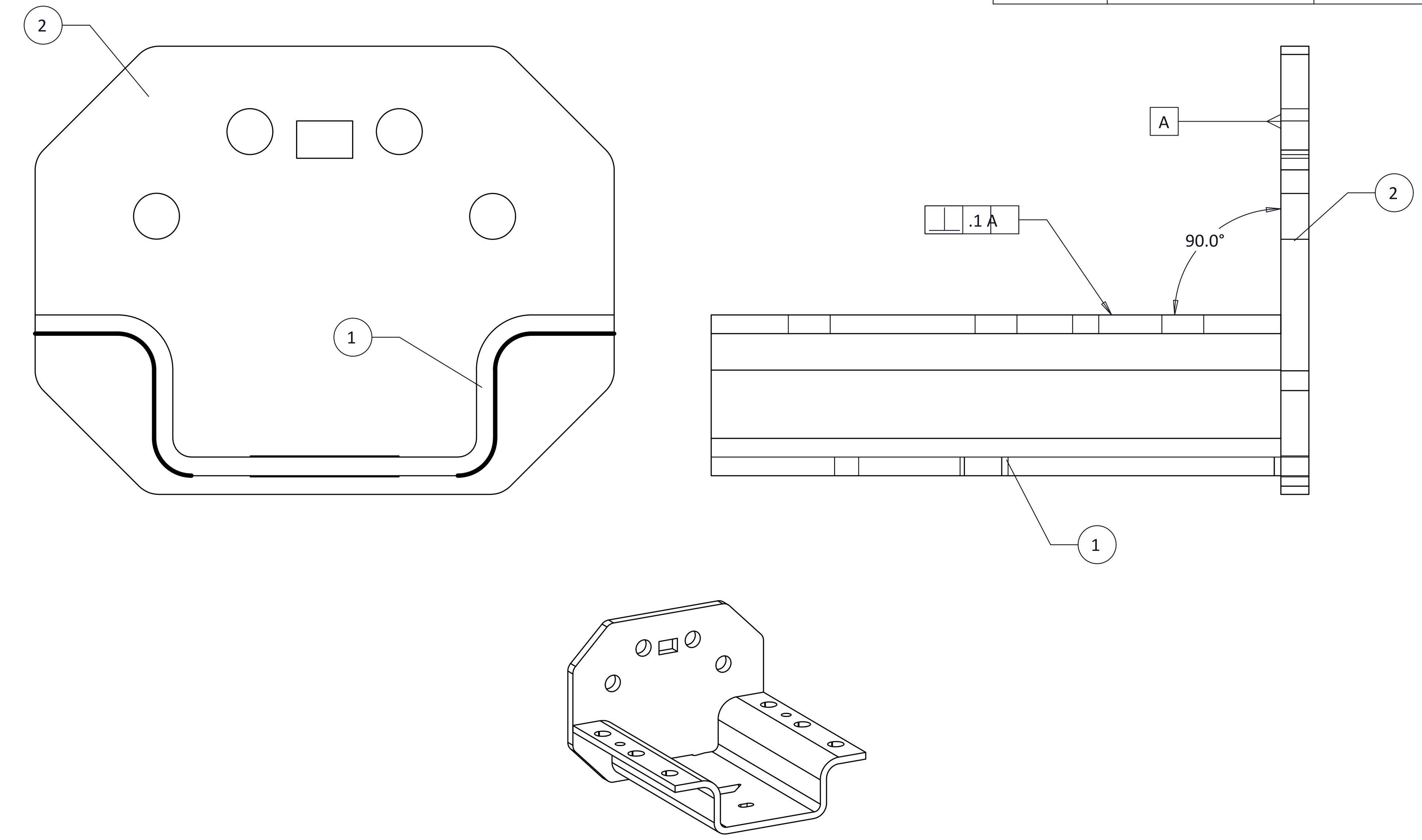


TORQUE TUBE MIN THICKNESS: 0.145" (MIN SPEC: ASTM A500, GRADE B)
(NTS)
B



UPPER JOURNAL MIN THICKNESS: VARIES (MIN SPEC: ASTM A653, Fy = 50 KSI, Fu = 60 KSI)
(NTS)
C

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	CBH-1000	CONCENTRIC JOURNAL BOTTOM HAT	1
2	CJ-1000	CONCENTRIC JOURNAL BACKING-PLATE	1



LOWER JOURNAL MIN THICKNESS: VARIES (MIN SPEC: ASTM A653, Fy = 50 KSI, Fu = 60 KSI)
(NTS)
D

STATE OF CONNECTICUT · LICENSED PROFESSIONAL ENGINEER · No. 28284
2/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME:
SCOTLAND

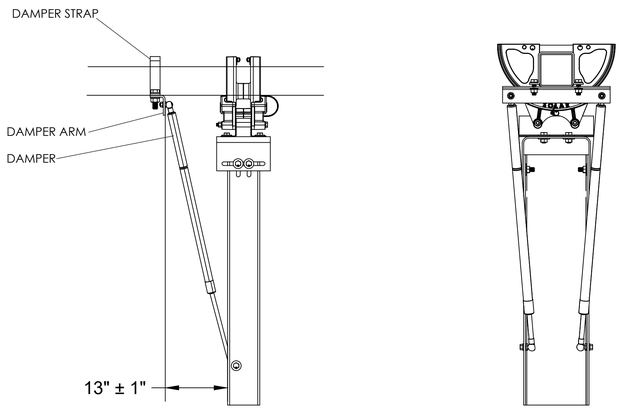
PROJECT NUMBER
10543078381

DRAWING NAME:
TRACKER COMPONENT SPECIFICATIONS

DRAWING NUMBER:
OS4.1

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
www.omcosolar.com

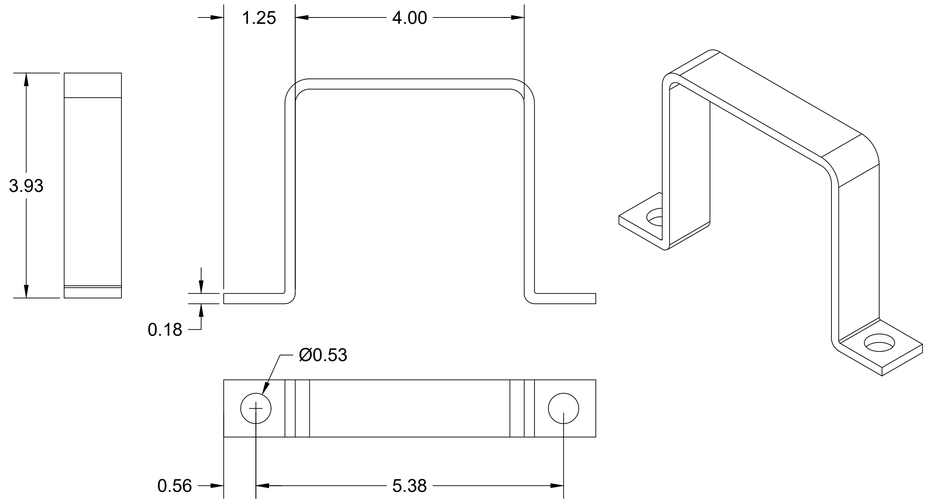
NOTE: SEE INSTALLATION GUIDE FOR DAMPER MOUNT ASSEMBLY



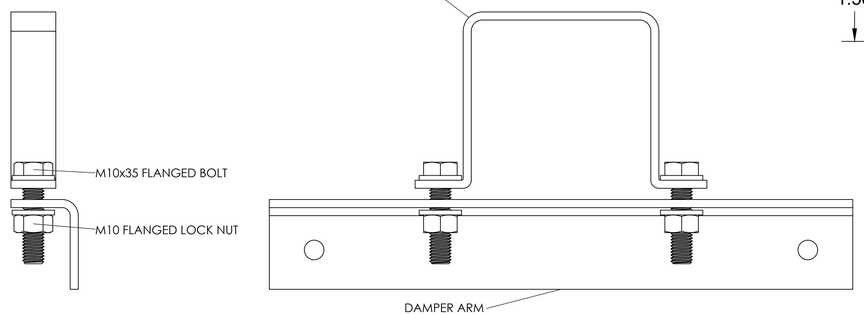
NOTE: 4 DAMPERS PER TRACKER
2 DAMPERS PER END PILE*

*FOR TRACKERS WITH 7 OR MORE TOTAL PILES, IT IS ACCEPTABLE TO MOUNT DAMPERS AT THE SECOND PILE FROM THE END

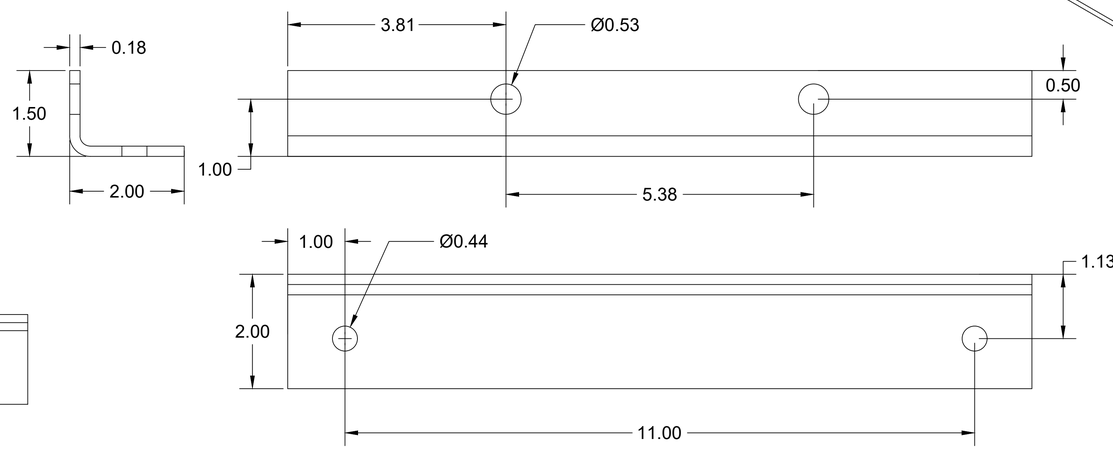
DAMPER MOUNT ASSEMBLY (A)
(NTS)



DAMPER STRAP (B)
(NTS)



DAMPER ASSEMBLY (C)
(NTS)



DAMPER ARM (D)
(NTS)

STATE OF CONNECTICUT — DEPARTMENT OF CONSUMER PROTECTION — No. 28294 — LICENSED PROFESSIONAL ENGINEER

Dr. [illegible], P.E., Ph.D

3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME: DAMPER MOUNT DETAILS

DRAWING NUMBER: OS4.2

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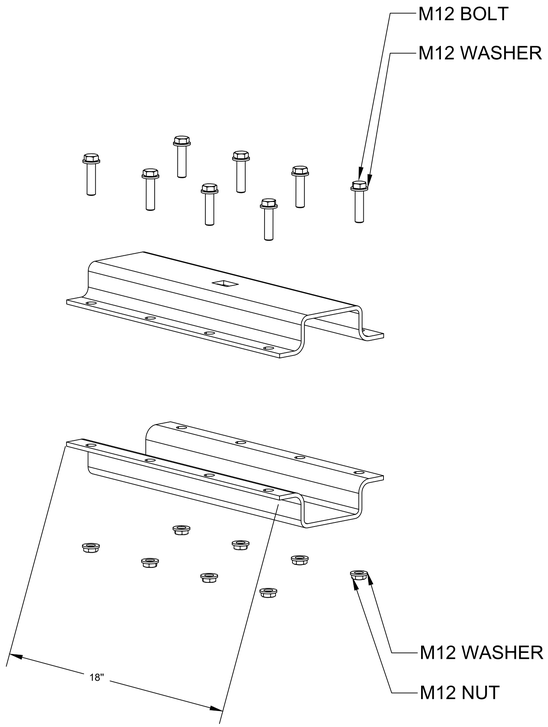
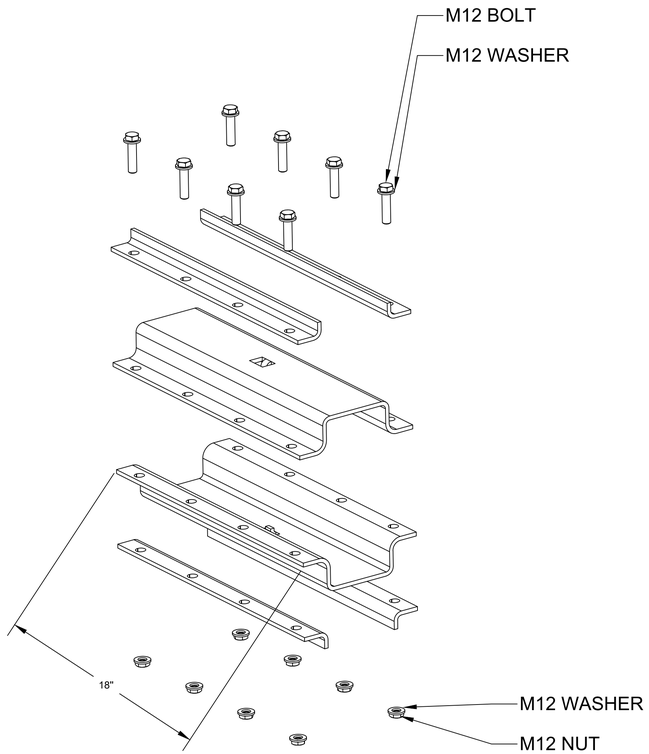
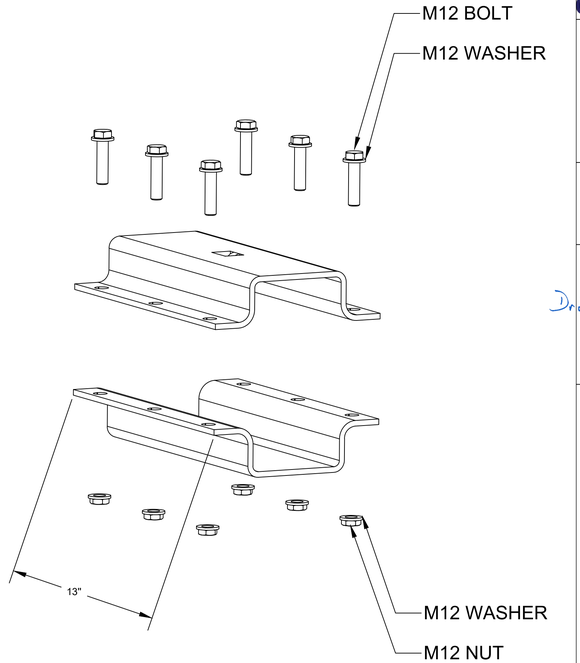
PHOENIX, AZ 85043
www.omcosolar.com



SPLICE (NTS) A



MEGA SPLICE (NTS) B



MINI SPLICE (NTS) C

OMCO SOLAR

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STATE OF CONNECTICUT — DR. ALEJANDRO GONZALEZ — No. 28294 — LICENSED PROFESSIONAL ENGINEER

Dr. Alejandro Gonzalez, PhD 3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME: SCOTLAND

PROJECT NUMBER 10543078381

DRAWING NAME: TORQUE TUBE SPLICE DETAILS

DRAWING NUMBER: OS4.4

OMCO SOLAR
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PHOENIX, AZ 85043
www.omcosolar.com

Electronic Component Specs

OMCO Star Tracker Controller

*Solar Powered Device

Input Ratings: 350Watts @47VDC

Output Voltage: 24 VDC

Fuse Rating: 10A @ 250VAC

Enclosure: IP65

OMCO Star Sensor Bridge

Input Ratings: 50mA @120VAC

Frequency: 50 ~ 60 Hz

Output Voltage: 24 VDC

Fuse Rating: 1A/250VP

Enclosure: IP65

OMCO Star Array Controller

Input Ratings: 600mA @ 100 ~ 240VAC

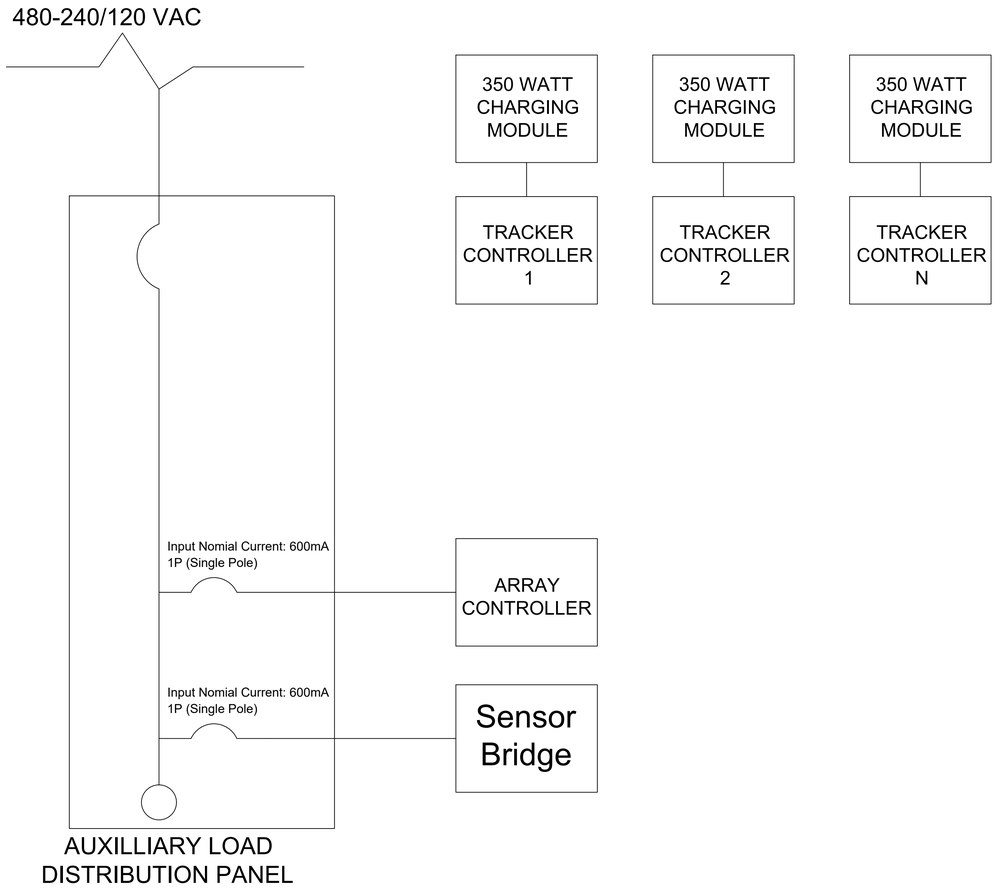
Frequency: 50 ~ 60 Hz

Output Voltage: 24 VDC

Output Current: 4.2A

Enclosure: IP65

Note: For detail installation refer to installation guide. Install electrical system according to local code.



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STATE OF CONNECTICUT — DEPARTMENT OF CONSUMER PROTECTION — No. 28284 — LICENSED PROFESSIONAL ENGINEER

Dr. [illegible] P.E., Ph.D

3/3/2026

OMCO ORIGIN® SINGLE-AXIS TRACKER
SCOTLAND
GAGER HILL ROAD
WINDHAM, CT 06280

REV	DATE	DRAWN	CHECK	RELEASE DESCRIPTION
0	1/27/26	JDL		INITIAL RELEASE

PROJECT NAME:
SCOTLAND

PROJECT NUMBER
10543078381

DRAWING NAME:
TRACKER ELECTRONIC COMPONENT SPECIFICATIONS

DRAWING NUMBER:
OS5.0

OMCO SOLAR
4550 W. WATKINS ST.
PHOENIX, AZ 85043
www.omcosolar.com

Origin Single-Axis Tracker Calculations

Scotland

PROJECT ADDRESS:
Gager Hill Rd
Windham, CT 06280

COORDINATES:
(41.683491 , -72.106352)

PREPARED FOR:
Greenskies Clean Energy
127 Washington Avenue, West Building, Lower Level
North Haven, CT 06473

Contact Name: Katie Barron
Phone Number: 978-727-3006
Email: katie.barron@greenskies.com

OMCO Solar
4550 W. Watkins St.
Phoenix, AZ 85043

OMCO SOLAR
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SEIA Member

Seismic Design Check - The light nature of the SAT structure results in very low seismic forces and does not control the overall design.

	Latitude	Longitude	Ss	S1	Sds	Sd1
Data	41.683491	-72.106352	0.19	0.054	0.202	0.087

Structure Weight

Shape	Weight (lb/ft)	Length (in)	Total Weight
TT149	7.8	2672.19	20843.11322
TT108	5.7	875.1457164	4988.330584

	Qty	Total Weight
Bearing Assembly	12	600
Modules	78	4100
TOTAL SEISMIC WEIGHT		**30531**

Based on the site soil properties, the site shall be classified as Site CLASS A, B, C, D, E or F in accordance with Chapter 20.Where the soil properties are not known in sufficient detail to determine the site CLASS, Site CLASS D shall be used unless the AHJ or geotechnical data determines Site CLASS E or F soils are present at the site.

Base Shear V = CsW

$Cs = S_{DS}/(R/Ie)$:=	0.1616
Ie :=	1
R :=	1.25
$T = Ta = C_t h_n^x$:=	0.062
Ct :=	0.02
x :=	0.75
hn (ft) :=	4.5
TL :=	12

Cs, max = SD1/[T(R/Ie)]; for T < or = TL :=	1.126341
Cs, max = SD1*TL/[T2(R/Ie)]; for T > TL :=	218.7317
Cs, max :=	218.7317
Cs,min = 0.044SDSIe >0.01 :=	0.008888
If S1 is equal to or greater than 0.6g:	FALSE
Cs,min = 0.5S1/(R/Ie) :=	0.0216
Cs, min :=	0.008888

Shear at each pile 411.1568 lbs

General Design Data and Code Information:

The design of the Ground Mounted Single Axis Tracker Solar Racking structures are governed by the 2021 Connecticut Building Code. Loads and load factors are determined in accordance with ASCE 7-16 Building Code & Standards adopted by the local authorities having jurisdictions. Factor of safety & resistances determined by the applicable material design standards.

AISI S100-12 Design Standard: North American Specification for the Design of Cold Formed Steel Structural Members 2012 EDITION.

Risk Category I - Use or Occupancy of Building and Structures: Buildings and other structures that represent a low risk to human life in the event of failure.

Basic Design Criteria:

Base Ground Snow Load (P_g) =	30	psf
Directional Stow?	YES	
Wind Design Speed =	115	mph 3 sec wind gust
Uplift Component Check Wind Speed	75	mph 3 sec wind gust
Exposure Category =	C	
Risk Category =	I	
External Pressure Coefficient =	Varies per CPP Wind Tunnel Report	

*Gust Effect Factor is incorporated into the pressure coefficients from CPP Report

Seismic Design Category =	D	
Seismic Site Class =	D	
Seismic Importance Factor (I_e) =	1.0	Per ASCE 7-16 Table 1.5-2

Module Information:

Manufacturer	Longi	
Model Number	LR5-72HBD-540M	
Length	2278	mm
Width	1134	mm
Height	35	mm
Weight	70.107	lbs

Snow Load

Thermal Factor C_t	1.10	
Importance Factor I	0.8	Per ASCE 7-16 Table 1.5-2
Exposure Factor C_e	1.00	
Roof Slope Factor C_s	0.19	
Snow Dump Tracker Angle	50	
Base Ground Snow Load (Pg) =	30	psf
Flat Roof Snow Load	18.48	psf
Sloped Roof Snow Load	3.54	psf
Module Width	44.646	inches
Module Length	89.685	inches
Design Snow Load on Chord	13.18	lb/ft
Design Snow Load on Torque Tube	26.47	lb/ft

Roof Slope Factor Cs Formula
-2/111 x Tracker Angle + 126/99

Module DL

Manufacturer	Longi	
Model Number	.R5-72HBD-540M	
Length	2278	mm
Width	1134	mm
Height	35	mm
Weight	70.107	lbs
DL (psf)	2.52	
DL (lb/ft) on TT	21.29	

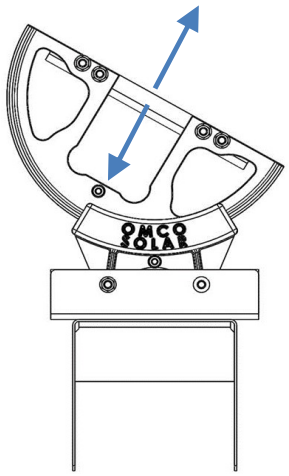
NOTE: ORIGIN SINGLE AXIS TRACKER utilizes snow sensor technology that effectively dumps snow when tracker experiences more than the the load specified in the chart at each angle below 50 degrees

$p_s = C_s p_f$
C_s = Roof slope factor
p_f = Flat roof snow load = $0.7 C_e C_t I p_g$
pf not less than following for angle less than 15
If p_g = 20 or less min $p_f = (I)p_g$
If p_g greater than 20 min $p_f = 20(I)$

BEARING ANALYSIS

Maximum Load at Bearing in uplift and downforce determined from Envelope Max Member Section Forces

Components denoted as P#BRG represent the rigid bearing component and the axial forces in those members represent maximum force in each direction.



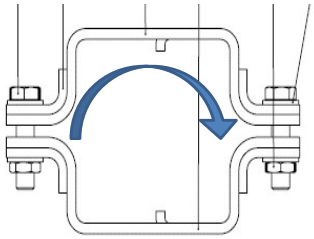
Member		Axial (lb)	Location	LC
P1BRG	max	887.3	3.0	10
P1BRG	min	-2324.2	0.0	12
P2BRG	max	813.4	3.0	10
P2BRG	min	-2323.1	0.0	12
P3BRG	max	747.5	3.0	10
P3BRG	min	-2320.0	0.0	12
P4BRG	max	684.7	3.0	10
P4BRG	min	-2318.2	0.0	12
P5BRG	max	619.4	3.0	10
P5BRG	min	-2317.9	0.0	12
P6BRG	max	559.4	3.0	10
P6BRG	min	-2319.0	0.0	12

	Bearing Capacity		Safety Factor	
Downforce	5000	2324.2	2.2	OK
Uplift	1600	887.3	1.8	OK

See bearing load test report for maximum uplift and downforce

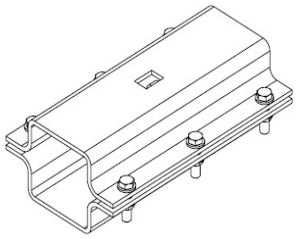
SPLICE ANALYSIS / JOURNAL MAX TORQUE

Maximum Torque at each splice is determined from Envelope Member Section Torsion



See splice load test report in Appendix A for maximum torque capacity

Member	Torque (ft-lb)	LC	SPLICE REQUIRED	Safety Factor
SPLICE 1	538.345	7	MINI	
3854.737	-3854.737	2		1.36
SPLICE2	315.385	7	MINI	
2569.381	-2569.381	2		2.04
SPLICE3	202.297	7	MINI	
1291.365	-1291.365	2		4.07

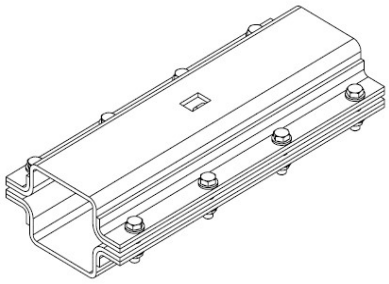


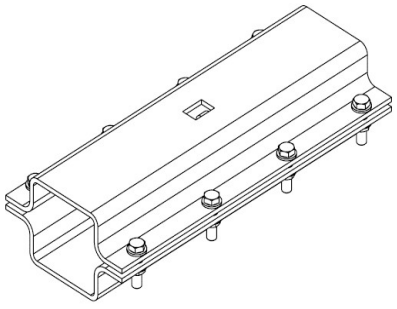
MINI SPLICE ASSEMBLY CAPACITY

5250 FT-LBS

STANDARD SPLICE ASSEMBLY CAPACITY

7000 FT-LBS





MEGA SPLICE ASSEMBLY CAPACITY

10500 FT-LBS

MAX TORQUE ON JOURNAL / DRIVE MOUNT

5154.443 FT-LBS

SEE SOLIDWORKS FEA APPENDIX B FOR ANALYSIS

Node Coordinates

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
1	BP1	239.791684	-47.401924	1.5	
2	BP1A	239.791684	0	0	
3	BP1B	239.791684	2.598076	1.5	
4	BP2	526.023622	-47.401924	1.5	
5	BP2A	526.023622	0	0	
6	BP2B	526.023622	2.598076	1.5	
7	BP3	796.574803	-47.401924	1.5	
8	BP3A	796.574803	0	0	
9	BP3B	796.574803	2.598076	1.5	
10	BP4	1072.166736	-47.401924	1.5	
11	BP4A	1072.166736	0	0	
12	BP4B	1072.166736	2.598076	1.5	
13	BP5	1371.598425	-47.401924	1.5	
14	BP5A	1371.598425	0	0	
15	BP5B	1371.598425	2.598076	1.5	
16	DPILE	-13.4473	-47.401924	1.5	
17	DRIVE	-13.4473	2.598076	1.5	
18	JOURNAL	-9.3139	2.598076	1.5	
19	N1	0	0	0	
20	N2	45.11811	0	0	
21	N3	90.23622	0	0	
22	N4	135.354331	0	0	
23	N5	180.472441	0	0	
24	N6	225.590551	0	0	
25	N7	270.708661	0	0	
26	N8	315.826772	0	0	
27	N9	360.944882	0	0	
28	N10	406.062992	0	0	
29	N11	451.181102	0	0	
30	N12	496.299213	0	0	
31	N13	541.417323	0	0	
32	N14	586.535433	0	0	
33	N15	631.653543	0	0	
34	N16	676.771654	0	0	
35	N17	721.889764	0	0	
36	N18	767.007874	0	0	
37	N19	812.125984	0	0	
38	N20	857.244095	0	0	
39	N21	902.362205	0	0	
40	N22	947.480315	0	0	
41	N23	992.598425	0	0	
42	N24	1037.716535	0	0	
43	N25	1082.834646	0	0	
44	N26	1127.952756	0	0	
45	N27	1173.070866	0	0	
46	N28	1218.188976	0	0	
47	N29	1263.307087	0	0	
48	N30	1308.425197	0	0	
49	N31	1353.543307	0	0	
50	N32	1398.661417	0	0	
51	N33	1443.779528	0	0	
52	N34	1488.897638	0	0	
53	N35	1534.015748	0	0	
54	N36	1579.133858	0	0	
55	N37	1624.251969	0	0	

Node Coordinates (Continued)

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
56	N38	1669.370079	0	0	
57	N39	1714.488189	0	0	
58	N40	1759.606299	0	0	
59	NEND	1765.355958	0	0	
60	NSTART	-9.3139	0	0	
61	SPLICE1	436.301767	0	0	
62	SPLICE2	882.167433	0	0	
63	SPLICE3	1327.7831	0	0	
64	TM1	0	22.421	-38.835	
65	TM2	45.118	22.421	-38.835	
66	TM3	90.236	22.421	-38.835	
67	TM4	135.354	22.421	-38.835	
68	TM5	180.472	22.421	-38.835	
69	TM6	225.591	22.421	-38.835	
70	TM7	270.709	22.421	-38.835	
71	TM8	315.827	22.421	-38.835	
72	TM9	360.945	22.421	-38.835	
73	TM10	406.063	22.421	-38.835	
74	TM11	451.181	22.421	-38.835	
75	TM12	496.299	22.421	-38.835	
76	TM13	541.417	22.421	-38.835	
77	TM14	586.535	22.421	-38.835	
78	TM15	631.654	22.421	-38.835	
79	TM16	676.772	22.421	-38.835	
80	TM17	721.89	22.421	-38.835	
81	TM18	767.008	22.421	-38.835	
82	TM19	812.126	22.421	-38.835	
83	TM20	857.244	22.421	-38.835	
84	TM21	902.362	22.421	-38.835	
85	TM22	947.48	22.421	-38.835	
86	TM23	992.598	22.421	-38.835	
87	TM24	1037.717	22.421	-38.835	
88	TM25	1082.835	22.421	-38.835	
89	TM26	1127.953	22.421	-38.835	
90	TM27	1173.071	22.421	-38.835	
91	TM28	1218.189	22.421	-38.835	
92	TM29	1263.307	22.421	-38.835	
93	TM30	1308.425	22.421	-38.835	
94	TM31	1353.543	22.421	-38.835	
95	TM32	1398.661	22.421	-38.835	
96	TM33	1443.78	22.421	-38.835	
97	TM34	1488.898	22.421	-38.835	
98	TM35	1534.016	22.421	-38.835	
99	TM36	1579.134	22.421	-38.835	
100	TM37	1624.252	22.421	-38.835	
101	TM38	1669.37	22.421	-38.835	
102	TM39	1714.488	22.421	-38.835	
103	TM40	1759.606	22.421	-38.835	
104	BM1	0	-22.421	38.835	
105	BM2	45.118	-22.421	38.835	
106	BM3	90.236	-22.421	38.835	
107	BM4	135.354	-22.421	38.835	
108	BM5	180.472	-22.421	38.835	
109	BM6	225.591	-22.421	38.835	
110	BM7	270.709	-22.421	38.835	

Node Coordinates (Continued)

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
111	BM8	315.827	-22.421	38.835	
112	BM9	360.945	-22.421	38.835	
113	BM10	406.063	-22.421	38.835	
114	BM11	451.181	-22.421	38.835	
115	BM12	496.299	-22.421	38.835	
116	BM13	541.417	-22.421	38.835	
117	BM14	586.535	-22.421	38.835	
118	BM15	631.654	-22.421	38.835	
119	BM16	676.772	-22.421	38.835	
120	BM17	721.89	-22.421	38.835	
121	BM18	767.008	-22.421	38.835	
122	BM19	812.126	-22.421	38.835	
123	BM20	857.244	-22.421	38.835	
124	BM21	902.362	-22.421	38.835	
125	BM22	947.48	-22.421	38.835	
126	BM23	992.598	-22.421	38.835	
127	BM24	1037.717	-22.421	38.835	
128	BM25	1082.835	-22.421	38.835	
129	BM26	1127.953	-22.421	38.835	
130	BM27	1173.071	-22.421	38.835	
131	BM28	1218.189	-22.421	38.835	
132	BM29	1263.307	-22.421	38.835	
133	BM30	1308.425	-22.421	38.835	
134	BM31	1353.543	-22.421	38.835	
135	BM32	1398.661	-22.421	38.835	
136	BM33	1443.78	-22.421	38.835	
137	BM34	1488.898	-22.421	38.835	
138	BM35	1534.016	-22.421	38.835	
139	BM36	1579.134	-22.421	38.835	
140	BM37	1624.252	-22.421	38.835	
141	BM38	1669.37	-22.421	38.835	
142	BM39	1714.488	-22.421	38.835	
143	BM40	1759.606	-22.421	38.835	
144	N144	1652.750104	-47.401924	1.5	
145	N145	1652.750104	0	0	
146	N146	1652.750104	2.598076	1.5	

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A653 SS Gr 80	29000	11154	0.3	0.65	0.49	80	1.1	90	1.1

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr80	29500	11346	0.3	0.65	0.49	80	90
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65
3	A653 SS Gr57	29500	11346	0.3	0.65	0.49	60	70

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	TT108	HSS4X4X_108	Beam	None	A653 SS Gr 80	Typical	1.681	4.248	4.248	6.367
2	TT145	HSS4X4X_149	Beam	Tube	A653 SS Gr 80	Typical	2.236	5.546	5.546	8.307

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	7 PILE HEAVY	7_63X4_5X_145	Column	CS B-to-B	A653 SS Gr57	Typical	2.562	6.916	24.857	0.018
2	7 PILE LIGHT	7_63X4_5X_112	Column	None	A653 SS Gr57	Typical	2.001	5.518	19.629	0.008

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	P1	BP1B	BP1	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
2	P3	BP3B	BP3	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
3	P1BRG	BP1A	BP1B	90	RIGID	None	None	RIGID	Typical
4	P3BRG	BP3A	BP3B	90	RIGID	None	None	RIGID	Typical
5	P4	BP4B	BP4	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
6	P4BRG	BP4A	BP4B	90	RIGID	None	None	RIGID	Typical
7	P2	BP2B	BP2	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
8	P2BRG	BP2A	BP2B	90	RIGID	None	None	RIGID	Typical
9	P5	BP5B	BP5	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
10	P5BRG	BP5A	BP5B	90	RIGID	None	None	RIGID	Typical
11	PDRIVE	DRIVE	DPILE	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
12	DRIVE	DRIVE	JOURNAL		RIGID	None	None	RIGID	Typical
13	JOURNAL	JOURNAL	NSTART		RIGID	None	None	RIGID	Typical
14	M1	NSTART	SPLICE1	30	TT145	Beam	Tube	A653 SS Gr 80	Typical
15	M2	SPLICE1	SPLICE2	30	TT145	Beam	Tube	A653 SS Gr 80	Typical
16	M3	SPLICE2	SPLICE3	30	TT145	Beam	Tube	A653 SS Gr 80	Typical
17	M4	SPLICE3	NEND	30	TT108	Beam	None	A653 SS Gr 80	Typical
18	MR1	TM1	BM1		RIGID	None	None	RIGID	Typical
19	MR2	TM2	BM2		RIGID	None	None	RIGID	Typical
20	MR3	TM3	BM3		RIGID	None	None	RIGID	Typical
21	MR4	TM4	BM4		RIGID	None	None	RIGID	Typical
22	MR5	TM5	BM5		RIGID	None	None	RIGID	Typical
23	MR6	TM6	BM6		RIGID	None	None	RIGID	Typical
24	MR7	TM7	BM7		RIGID	None	None	RIGID	Typical
25	MR8	TM8	BM8		RIGID	None	None	RIGID	Typical
26	MR9	TM9	BM9		RIGID	None	None	RIGID	Typical
27	MR10	TM10	BM10		RIGID	None	None	RIGID	Typical
28	MR11	TM11	BM11		RIGID	None	None	RIGID	Typical
29	MR12	TM12	BM12		RIGID	None	None	RIGID	Typical
30	MR13	TM13	BM13		RIGID	None	None	RIGID	Typical
31	MR14	TM14	BM14		RIGID	None	None	RIGID	Typical
32	MR15	TM15	BM15		RIGID	None	None	RIGID	Typical
33	MR16	TM16	BM16		RIGID	None	None	RIGID	Typical
34	MR17	TM17	BM17		RIGID	None	None	RIGID	Typical
35	MR18	TM18	BM18		RIGID	None	None	RIGID	Typical
36	MR19	TM19	BM19		RIGID	None	None	RIGID	Typical
37	MR20	TM20	BM20		RIGID	None	None	RIGID	Typical
38	MR21	TM21	BM21		RIGID	None	None	RIGID	Typical
39	MR22	TM22	BM22		RIGID	None	None	RIGID	Typical
40	MR23	TM23	BM23		RIGID	None	None	RIGID	Typical
41	MR24	TM24	BM24		RIGID	None	None	RIGID	Typical
42	MR25	TM25	BM25		RIGID	None	None	RIGID	Typical
43	MR26	TM26	BM26		RIGID	None	None	RIGID	Typical
44	MR27	TM27	BM27		RIGID	None	None	RIGID	Typical
45	MR28	TM28	BM28		RIGID	None	None	RIGID	Typical
46	MR29	TM29	BM29		RIGID	None	None	RIGID	Typical
47	MR30	TM30	BM30		RIGID	None	None	RIGID	Typical
48	MR31	TM31	BM31		RIGID	None	None	RIGID	Typical
49	MR32	TM32	BM32		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
50	MR33	TM33	BM33		RIGID	None	None	RIGID	Typical
51	MR34	TM34	BM34		RIGID	None	None	RIGID	Typical
52	MR35	TM35	BM35		RIGID	None	None	RIGID	Typical
53	MR36	TM36	BM36		RIGID	None	None	RIGID	Typical
54	MR37	TM37	BM37		RIGID	None	None	RIGID	Typical
55	MR38	TM38	BM38		RIGID	None	None	RIGID	Typical
56	MR39	TM39	BM39		RIGID	None	None	RIGID	Typical
57	MR40	TM40	BM40		RIGID	None	None	RIGID	Typical
58	M58	N146	N144	90	7 PILE HEAVY	Column	CS B-to-B	A653 SS Gr57	Typical
59	M59	N145	N146	90	RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Channel Conn.	a [in]	Function
1	M1	TT145	445.616	313	313	N/A	N/A	Lateral
2	M2	TT145	445.866	313	313	N/A	N/A	Lateral
3	M3	TT145	445.616	313	313	N/A	N/A	Lateral
4	M4	TT108	437.573	313	313	N/A	N/A	Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Length [in]	Lcomp top [in]	Function
1	P1	7 PILE HEAVY	50	Lbyy	Lateral
2	P3	7 PILE HEAVY	50	Lbyy	Lateral
3	P4	7 PILE HEAVY	50	Lbyy	Lateral
4	P2	7 PILE HEAVY	50	Lbyy	Lateral
5	P5	7 PILE HEAVY	50	Lbyy	Lateral
6	PDRIVE	7 PILE HEAVY	50		Lateral
7	M58	7 PILE HEAVY	50	Lbyy	Lateral

Member Point Loads (BLC 1 : MOMENT (UPLIFT))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	6.105	78.474
2	MR1	y	6.692	56.053
3	MR1	y	21.89	33.632
4	MR1	y	33.574	11.211
5	MR10	y	15.188	78.474
6	MR10	y	24.238	56.053
7	MR10	y	48.241	33.632
8	MR10	y	64.654	11.211
9	MR11	y	17.769	78.474
10	MR11	y	28.111	56.053
11	MR11	y	43.705	33.632
12	MR11	y	49.063	11.211
13	MR12	y	17.769	78.474
14	MR12	y	28.111	56.053
15	MR12	y	43.705	33.632
16	MR12	y	49.063	11.211
17	MR13	y	17.769	78.474
18	MR13	y	28.111	56.053
19	MR13	y	43.705	33.632
20	MR13	y	49.063	11.211
21	MR14	y	17.769	78.474
22	MR14	y	28.111	56.053

Member Point Loads (BLC 1 : MOMENT (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
23	MR14	y	43.705	33.632
24	MR14	y	49.063	11.211
25	MR15	y	17.769	78.474
26	MR15	y	28.111	56.053
27	MR15	y	43.705	33.632
28	MR15	y	49.063	11.211
29	MR16	y	13.355	78.474
30	MR16	y	23.203	56.053
31	MR16	y	42.4	33.632
32	MR16	y	65.731	11.211
33	MR17	y	13.355	78.474
34	MR17	y	23.203	56.053
35	MR17	y	42.4	33.632
36	MR17	y	65.731	11.211
37	MR18	y	13.355	78.474
38	MR18	y	23.203	56.053
39	MR18	y	42.4	33.632
40	MR18	y	65.731	11.211
41	MR19	y	13.355	78.474
42	MR19	y	23.203	56.053
43	MR19	y	42.4	33.632
44	MR19	y	65.731	11.211
45	MR2	y	12.21	78.474
46	MR2	y	13.383	56.053
47	MR2	y	43.78	33.632
48	MR2	y	67.147	11.211
49	MR20	y	13.355	78.474
50	MR20	y	23.203	56.053
51	MR20	y	42.4	33.632
52	MR20	y	65.731	11.211
53	MR21	y	12.714	78.474
54	MR21	y	20.113	56.053
55	MR21	y	32.271	33.632
56	MR21	y	48.101	11.211
57	MR22	y	12.714	78.474
58	MR22	y	20.113	56.053
59	MR22	y	32.271	33.632
60	MR22	y	48.101	11.211
61	MR23	y	12.714	78.474
62	MR23	y	20.113	56.053
63	MR23	y	32.271	33.632
64	MR23	y	48.101	11.211
65	MR24	y	12.714	78.474
66	MR24	y	20.113	56.053
67	MR24	y	32.271	33.632
68	MR24	y	48.101	11.211
69	MR25	y	12.714	78.474
70	MR25	y	20.113	56.053
71	MR25	y	32.271	33.632
72	MR25	y	48.101	11.211
73	MR26	y	11.435	78.474
74	MR26	y	19.341	56.053
75	MR26	y	31.124	33.632
76	MR26	y	41.396	11.211
77	MR27	y	11.435	78.474

Member Point Loads (BLC 1 : MOMENT (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
78	MR27	y	19.341	56.053
79	MR27	y	31.124	33.632
80	MR27	y	41.396	11.211
81	MR28	y	11.435	78.474
82	MR28	y	19.341	56.053
83	MR28	y	31.124	33.632
84	MR28	y	41.396	11.211
85	MR29	y	11.435	78.474
86	MR29	y	19.341	56.053
87	MR29	y	31.124	33.632
88	MR29	y	41.396	11.211
89	MR3	y	12.21	78.474
90	MR3	y	13.383	56.053
91	MR3	y	43.78	33.632
92	MR3	y	67.147	11.211
93	MR30	y	11.435	78.474
94	MR30	y	19.341	56.053
95	MR30	y	31.124	33.632
96	MR30	y	41.396	11.211
97	MR31	y	12.59	78.474
98	MR31	y	20.76	56.053
99	MR31	y	30.019	33.632
100	MR31	y	41.958	11.211
101	MR32	y	12.59	78.474
102	MR32	y	20.76	56.053
103	MR32	y	30.019	33.632
104	MR32	y	41.958	11.211
105	MR33	y	12.59	78.474
106	MR33	y	20.76	56.053
107	MR33	y	30.019	33.632
108	MR33	y	41.958	11.211
109	MR34	y	12.59	78.474
110	MR34	y	20.76	56.053
111	MR34	y	30.019	33.632
112	MR34	y	41.958	11.211
113	MR35	y	12.59	78.474
114	MR35	y	20.76	56.053
115	MR35	y	30.019	33.632
116	MR35	y	41.958	11.211
117	MR36	y	11.606	78.474
118	MR36	y	18.317	56.053
119	MR36	y	31.59	33.632
120	MR36	y	47.261	11.211
121	MR37	y	11.606	78.474
122	MR37	y	18.317	56.053
123	MR37	y	31.59	33.632
124	MR37	y	47.261	11.211
125	MR38	y	11.606	78.474
126	MR38	y	18.317	56.053
127	MR38	y	31.59	33.632
128	MR38	y	47.261	11.211
129	MR39	y	11.606	78.474
130	MR39	y	18.317	56.053
131	MR39	y	31.59	33.632
132	MR39	y	47.261	11.211

Member Point Loads (BLC 1 : MOMENT (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
133	MR4	y	12.21	78.474
134	MR4	y	13.383	56.053
135	MR4	y	43.78	33.632
136	MR4	y	67.147	11.211
137	MR40	y	5.803	78.474
138	MR40	y	9.158	56.053
139	MR40	y	15.795	33.632
140	MR40	y	23.63	11.211
141	MR5	y	12.21	78.474
142	MR5	y	13.383	56.053
143	MR5	y	43.78	33.632
144	MR5	y	67.147	11.211
145	MR6	y	15.188	78.474
146	MR6	y	24.238	56.053
147	MR6	y	48.241	33.632
148	MR6	y	64.654	11.211
149	MR7	y	15.188	78.474
150	MR7	y	24.238	56.053
151	MR7	y	48.241	33.632
152	MR7	y	64.654	11.211
153	MR8	y	15.188	78.474
154	MR8	y	24.238	56.053
155	MR8	y	48.241	33.632
156	MR8	y	64.654	11.211
157	MR9	y	15.188	78.474
158	MR9	y	24.238	56.053
159	MR9	y	48.241	33.632
160	MR9	y	64.654	11.211

Member Point Loads (BLC 2 : MOMENT (DOWN))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	-48.898	78.474
2	MR1	y	-41.623	56.053
3	MR1	y	-31.416	33.632
4	MR1	y	-20.46	11.211
5	MR10	y	-102.589	78.474
6	MR10	y	-83.285	56.053
7	MR10	y	-61.332	33.632
8	MR10	y	-37.585	11.211
9	MR11	y	-106.133	78.474
10	MR11	y	-87.255	56.053
11	MR11	y	-63.506	33.632
12	MR11	y	-41.494	11.211
13	MR12	y	-106.133	78.474
14	MR12	y	-87.255	56.053
15	MR12	y	-63.506	33.632
16	MR12	y	-41.494	11.211
17	MR13	y	-106.133	78.474
18	MR13	y	-87.255	56.053
19	MR13	y	-63.506	33.632
20	MR13	y	-41.494	11.211
21	MR14	y	-106.133	78.474
22	MR14	y	-87.255	56.053
23	MR14	y	-63.506	33.632
24	MR14	y	-41.494	11.211

Member Point Loads (BLC 2 : MOMENT (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
25	MR15	y	-106.133	78.474
26	MR15	y	-87.255	56.053
27	MR15	y	-63.506	33.632
28	MR15	y	-41.494	11.211
29	MR16	y	-110.903	78.474
30	MR16	y	-90.332	56.053
31	MR16	y	-66.423	33.632
32	MR16	y	-43.974	11.211
33	MR17	y	-110.903	78.474
34	MR17	y	-90.332	56.053
35	MR17	y	-66.423	33.632
36	MR17	y	-43.974	11.211
37	MR18	y	-110.903	78.474
38	MR18	y	-90.332	56.053
39	MR18	y	-66.423	33.632
40	MR18	y	-43.974	11.211
41	MR19	y	-110.903	78.474
42	MR19	y	-90.332	56.053
43	MR19	y	-66.423	33.632
44	MR19	y	-43.974	11.211
45	MR2	y	-97.796	78.474
46	MR2	y	-83.246	56.053
47	MR2	y	-62.833	33.632
48	MR2	y	-40.921	11.211
49	MR20	y	-110.903	78.474
50	MR20	y	-90.332	56.053
51	MR20	y	-66.423	33.632
52	MR20	y	-43.974	11.211
53	MR21	y	-123.087	78.474
54	MR21	y	-100.867	56.053
55	MR21	y	-72.327	33.632
56	MR21	y	-46.282	11.211
57	MR22	y	-123.087	78.474
58	MR22	y	-100.867	56.053
59	MR22	y	-72.327	33.632
60	MR22	y	-46.282	11.211
61	MR23	y	-123.087	78.474
62	MR23	y	-100.867	56.053
63	MR23	y	-72.327	33.632
64	MR23	y	-46.282	11.211
65	MR24	y	-123.087	78.474
66	MR24	y	-100.867	56.053
67	MR24	y	-72.327	33.632
68	MR24	y	-46.282	11.211
69	MR25	y	-123.087	78.474
70	MR25	y	-100.867	56.053
71	MR25	y	-72.327	33.632
72	MR25	y	-46.282	11.211
73	MR26	y	-115.345	78.474
74	MR26	y	-94.538	56.053
75	MR26	y	-69.193	33.632
76	MR26	y	-43.739	11.211
77	MR27	y	-115.345	78.474
78	MR27	y	-94.538	56.053
79	MR27	y	-69.193	33.632

Member Point Loads (BLC 2 : MOMENT (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
80	MR27	y	-43.739	11.211
81	MR28	y	-115.345	78.474
82	MR28	y	-94.538	56.053
83	MR28	y	-69.193	33.632
84	MR28	y	-43.739	11.211
85	MR29	y	-115.345	78.474
86	MR29	y	-94.538	56.053
87	MR29	y	-69.193	33.632
88	MR29	y	-43.739	11.211
89	MR3	y	-97.796	78.474
90	MR3	y	-83.246	56.053
91	MR3	y	-62.833	33.632
92	MR3	y	-40.921	11.211
93	MR30	y	-115.345	78.474
94	MR30	y	-94.538	56.053
95	MR30	y	-69.193	33.632
96	MR30	y	-43.739	11.211
97	MR31	y	-105.597	78.474
98	MR31	y	-85.858	56.053
99	MR31	y	-61.983	33.632
100	MR31	y	-37.601	11.211
101	MR32	y	-105.597	78.474
102	MR32	y	-85.858	56.053
103	MR32	y	-61.983	33.632
104	MR32	y	-37.601	11.211
105	MR33	y	-105.597	78.474
106	MR33	y	-85.858	56.053
107	MR33	y	-61.983	33.632
108	MR33	y	-37.601	11.211
109	MR34	y	-105.597	78.474
110	MR34	y	-85.858	56.053
111	MR34	y	-61.983	33.632
112	MR34	y	-37.601	11.211
113	MR35	y	-105.597	78.474
114	MR35	y	-85.858	56.053
115	MR35	y	-61.983	33.632
116	MR35	y	-37.601	11.211
117	MR36	y	-85.699	78.474
118	MR36	y	-70.918	56.053
119	MR36	y	-52.075	33.632
120	MR36	y	-32.059	11.211
121	MR37	y	-85.699	78.474
122	MR37	y	-70.918	56.053
123	MR37	y	-52.075	33.632
124	MR37	y	-32.059	11.211
125	MR38	y	-85.699	78.474
126	MR38	y	-70.918	56.053
127	MR38	y	-52.075	33.632
128	MR38	y	-32.059	11.211
129	MR39	y	-85.699	78.474
130	MR39	y	-70.918	56.053
131	MR39	y	-52.075	33.632
132	MR39	y	-32.059	11.211
133	MR4	y	-97.796	78.474
134	MR4	y	-83.246	56.053

Member Point Loads (BLC 2 : MOMENT (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
135	MR4	y	-62.833	33.632
136	MR4	y	-40.921	11.211
137	MR40	y	-42.849	78.474
138	MR40	y	-35.459	56.053
139	MR40	y	-26.037	33.632
140	MR40	y	-16.029	11.211
141	MR5	y	-97.796	78.474
142	MR5	y	-83.246	56.053
143	MR5	y	-62.833	33.632
144	MR5	y	-40.921	11.211
145	MR6	y	-102.589	78.474
146	MR6	y	-83.285	56.053
147	MR6	y	-61.332	33.632
148	MR6	y	-37.585	11.211
149	MR7	y	-102.589	78.474
150	MR7	y	-83.285	56.053
151	MR7	y	-61.332	33.632
152	MR7	y	-37.585	11.211
153	MR8	y	-102.589	78.474
154	MR8	y	-83.285	56.053
155	MR8	y	-61.332	33.632
156	MR8	y	-37.585	11.211
157	MR9	y	-102.589	78.474
158	MR9	y	-83.285	56.053
159	MR9	y	-61.332	33.632
160	MR9	y	-37.585	11.211

Member Point Loads (BLC 3 : TRACKER SPAN (UPLIFT))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	17.612	78.474
2	MR1	y	27.559	56.053
3	MR1	y	38.014	33.632
4	MR1	y	42.096	11.211
5	MR10	y	25.398	78.474
6	MR10	y	49.223	56.053
7	MR10	y	72.185	33.632
8	MR10	y	88.592	11.211
9	MR11	y	25.398	78.474
10	MR11	y	49.223	56.053
11	MR11	y	72.185	33.632
12	MR11	y	88.592	11.211
13	MR12	y	25.398	78.474
14	MR12	y	49.223	56.053
15	MR12	y	72.185	33.632
16	MR12	y	88.592	11.211
17	MR13	y	25.398	78.474
18	MR13	y	49.223	56.053
19	MR13	y	72.185	33.632
20	MR13	y	88.592	11.211
21	MR14	y	25.398	78.474
22	MR14	y	49.223	56.053
23	MR14	y	72.185	33.632
24	MR14	y	88.592	11.211
25	MR15	y	25.398	78.474
26	MR15	y	49.223	56.053

Member Point Loads (BLC 3 : TRACKER SPAN (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
27	MR15	y	72.185	33.632
28	MR15	y	88.592	11.211
29	MR16	y	25.398	78.474
30	MR16	y	49.223	56.053
31	MR16	y	72.185	33.632
32	MR16	y	88.592	11.211
33	MR17	y	25.398	78.474
34	MR17	y	49.223	56.053
35	MR17	y	72.185	33.632
36	MR17	y	88.592	11.211
37	MR18	y	25.398	78.474
38	MR18	y	49.223	56.053
39	MR18	y	72.185	33.632
40	MR18	y	88.592	11.211
41	MR19	y	25.398	78.474
42	MR19	y	49.223	56.053
43	MR19	y	72.185	33.632
44	MR19	y	88.592	11.211
45	MR2	y	35.224	78.474
46	MR2	y	55.118	56.053
47	MR2	y	76.029	33.632
48	MR2	y	84.192	11.211
49	MR20	y	25.398	78.474
50	MR20	y	49.223	56.053
51	MR20	y	72.185	33.632
52	MR20	y	88.592	11.211
53	MR21	y	25.398	78.474
54	MR21	y	49.223	56.053
55	MR21	y	72.185	33.632
56	MR21	y	88.592	11.211
57	MR22	y	25.398	78.474
58	MR22	y	49.223	56.053
59	MR22	y	72.185	33.632
60	MR22	y	88.592	11.211
61	MR23	y	25.398	78.474
62	MR23	y	49.223	56.053
63	MR23	y	72.185	33.632
64	MR23	y	88.592	11.211
65	MR24	y	25.398	78.474
66	MR24	y	49.223	56.053
67	MR24	y	72.185	33.632
68	MR24	y	88.592	11.211
69	MR25	y	25.398	78.474
70	MR25	y	49.223	56.053
71	MR25	y	72.185	33.632
72	MR25	y	88.592	11.211
73	MR26	y	25.398	78.474
74	MR26	y	49.223	56.053
75	MR26	y	72.185	33.632
76	MR26	y	88.592	11.211
77	MR27	y	25.398	78.474
78	MR27	y	49.223	56.053
79	MR27	y	72.185	33.632
80	MR27	y	88.592	11.211
81	MR28	y	25.398	78.474

Member Point Loads (BLC 3 : TRACKER SPAN (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
82	MR28	y	49.223	56.053
83	MR28	y	72.185	33.632
84	MR28	y	88.592	11.211
85	MR29	y	25.398	78.474
86	MR29	y	49.223	56.053
87	MR29	y	72.185	33.632
88	MR29	y	88.592	11.211
89	MR3	y	35.224	78.474
90	MR3	y	55.118	56.053
91	MR3	y	76.029	33.632
92	MR3	y	84.192	11.211
93	MR30	y	25.398	78.474
94	MR30	y	49.223	56.053
95	MR30	y	72.185	33.632
96	MR30	y	88.592	11.211
97	MR31	y	25.398	78.474
98	MR31	y	49.223	56.053
99	MR31	y	72.185	33.632
100	MR31	y	88.592	11.211
101	MR32	y	25.398	78.474
102	MR32	y	49.223	56.053
103	MR32	y	72.185	33.632
104	MR32	y	88.592	11.211
105	MR33	y	25.398	78.474
106	MR33	y	49.223	56.053
107	MR33	y	72.185	33.632
108	MR33	y	88.592	11.211
109	MR34	y	25.398	78.474
110	MR34	y	49.223	56.053
111	MR34	y	72.185	33.632
112	MR34	y	88.592	11.211
113	MR35	y	25.398	78.474
114	MR35	y	49.223	56.053
115	MR35	y	72.185	33.632
116	MR35	y	88.592	11.211
117	MR36	y	25.398	78.474
118	MR36	y	49.223	56.053
119	MR36	y	72.185	33.632
120	MR36	y	88.592	11.211
121	MR37	y	25.398	78.474
122	MR37	y	49.223	56.053
123	MR37	y	72.185	33.632
124	MR37	y	88.592	11.211
125	MR38	y	25.398	78.474
126	MR38	y	49.223	56.053
127	MR38	y	72.185	33.632
128	MR38	y	88.592	11.211
129	MR39	y	35.224	78.474
130	MR39	y	55.118	56.053
131	MR39	y	76.029	33.632
132	MR39	y	84.192	11.211
133	MR4	y	35.224	78.474
134	MR4	y	55.118	56.053
135	MR4	y	76.029	33.632
136	MR4	y	84.192	11.211

Member Point Loads (BLC 3 : TRACKER SPAN (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
137	MR40	y	17.612	78.474
138	MR40	y	27.559	56.053
139	MR40	y	38.014	33.632
140	MR40	y	42.096	11.211
141	MR5	y	35.224	78.474
142	MR5	y	55.118	56.053
143	MR5	y	76.029	33.632
144	MR5	y	84.192	11.211
145	MR6	y	35.224	78.474
146	MR6	y	55.118	56.053
147	MR6	y	76.029	33.632
148	MR6	y	84.192	11.211
149	MR7	y	25.398	78.474
150	MR7	y	49.223	56.053
151	MR7	y	72.185	33.632
152	MR7	y	88.592	11.211
153	MR8	y	25.398	78.474
154	MR8	y	49.223	56.053
155	MR8	y	72.185	33.632
156	MR8	y	88.592	11.211
157	MR9	y	25.398	78.474
158	MR9	y	49.223	56.053
159	MR9	y	72.185	33.632
160	MR9	y	88.592	11.211

Member Point Loads (BLC 4 : TRACKER SPAN (DOWN))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	-105.062	78.474
2	MR1	y	-89.578	56.053
3	MR1	y	-75.309	33.632
4	MR1	y	-49.783	11.211
5	MR10	y	-169.919	78.474
6	MR10	y	-145.43	56.053
7	MR10	y	-106.608	33.632
8	MR10	y	-67.661	11.211
9	MR11	y	-169.919	78.474
10	MR11	y	-145.43	56.053
11	MR11	y	-106.608	33.632
12	MR11	y	-67.661	11.211
13	MR12	y	-169.919	78.474
14	MR12	y	-145.43	56.053
15	MR12	y	-106.608	33.632
16	MR12	y	-67.661	11.211
17	MR13	y	-169.919	78.474
18	MR13	y	-145.43	56.053
19	MR13	y	-106.608	33.632
20	MR13	y	-67.661	11.211
21	MR14	y	-169.919	78.474
22	MR14	y	-145.43	56.053
23	MR14	y	-106.608	33.632
24	MR14	y	-67.661	11.211
25	MR15	y	-169.919	78.474
26	MR15	y	-145.43	56.053
27	MR15	y	-106.608	33.632
28	MR15	y	-67.661	11.211

Member Point Loads (BLC 4 : TRACKER SPAN (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
29	MR16	y	-169.919	78.474
30	MR16	y	-145.43	56.053
31	MR16	y	-106.608	33.632
32	MR16	y	-67.661	11.211
33	MR17	y	-169.919	78.474
34	MR17	y	-145.43	56.053
35	MR17	y	-106.608	33.632
36	MR17	y	-67.661	11.211
37	MR18	y	-169.919	78.474
38	MR18	y	-145.43	56.053
39	MR18	y	-106.608	33.632
40	MR18	y	-67.661	11.211
41	MR19	y	-169.919	78.474
42	MR19	y	-145.43	56.053
43	MR19	y	-106.608	33.632
44	MR19	y	-67.661	11.211
45	MR2	y	-210.125	78.474
46	MR2	y	-179.156	56.053
47	MR2	y	-150.617	33.632
48	MR2	y	-99.566	11.211
49	MR20	y	-169.919	78.474
50	MR20	y	-145.43	56.053
51	MR20	y	-106.608	33.632
52	MR20	y	-67.661	11.211
53	MR21	y	-169.919	78.474
54	MR21	y	-145.43	56.053
55	MR21	y	-106.608	33.632
56	MR21	y	-67.661	11.211
57	MR22	y	-169.919	78.474
58	MR22	y	-145.43	56.053
59	MR22	y	-106.608	33.632
60	MR22	y	-67.661	11.211
61	MR23	y	-169.919	78.474
62	MR23	y	-145.43	56.053
63	MR23	y	-106.608	33.632
64	MR23	y	-67.661	11.211
65	MR24	y	-169.919	78.474
66	MR24	y	-145.43	56.053
67	MR24	y	-106.608	33.632
68	MR24	y	-67.661	11.211
69	MR25	y	-169.919	78.474
70	MR25	y	-145.43	56.053
71	MR25	y	-106.608	33.632
72	MR25	y	-67.661	11.211
73	MR26	y	-169.919	78.474
74	MR26	y	-145.43	56.053
75	MR26	y	-106.608	33.632
76	MR26	y	-67.661	11.211
77	MR27	y	-169.919	78.474
78	MR27	y	-145.43	56.053
79	MR27	y	-106.608	33.632
80	MR27	y	-67.661	11.211
81	MR28	y	-169.919	78.474
82	MR28	y	-145.43	56.053
83	MR28	y	-106.608	33.632

Member Point Loads (BLC 4 : TRACKER SPAN (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
84	MR28	y	-67.661	11.211
85	MR29	y	-169.919	78.474
86	MR29	y	-145.43	56.053
87	MR29	y	-106.608	33.632
88	MR29	y	-67.661	11.211
89	MR3	y	-210.125	78.474
90	MR3	y	-179.156	56.053
91	MR3	y	-150.617	33.632
92	MR3	y	-99.566	11.211
93	MR30	y	-169.919	78.474
94	MR30	y	-145.43	56.053
95	MR30	y	-106.608	33.632
96	MR30	y	-67.661	11.211
97	MR31	y	-169.919	78.474
98	MR31	y	-145.43	56.053
99	MR31	y	-106.608	33.632
100	MR31	y	-67.661	11.211
101	MR32	y	-169.919	78.474
102	MR32	y	-145.43	56.053
103	MR32	y	-106.608	33.632
104	MR32	y	-67.661	11.211
105	MR33	y	-169.919	78.474
106	MR33	y	-145.43	56.053
107	MR33	y	-106.608	33.632
108	MR33	y	-67.661	11.211
109	MR34	y	-169.919	78.474
110	MR34	y	-145.43	56.053
111	MR34	y	-106.608	33.632
112	MR34	y	-67.661	11.211
113	MR35	y	-169.919	78.474
114	MR35	y	-145.43	56.053
115	MR35	y	-106.608	33.632
116	MR35	y	-67.661	11.211
117	MR36	y	-169.919	78.474
118	MR36	y	-145.43	56.053
119	MR36	y	-106.608	33.632
120	MR36	y	-67.661	11.211
121	MR37	y	-169.919	78.474
122	MR37	y	-145.43	56.053
123	MR37	y	-106.608	33.632
124	MR37	y	-67.661	11.211
125	MR38	y	-169.919	78.474
126	MR38	y	-145.43	56.053
127	MR38	y	-106.608	33.632
128	MR38	y	-67.661	11.211
129	MR39	y	-210.125	78.474
130	MR39	y	-179.156	56.053
131	MR39	y	-150.617	33.632
132	MR39	y	-99.566	11.211
133	MR4	y	-210.125	78.474
134	MR4	y	-179.156	56.053
135	MR4	y	-150.617	33.632
136	MR4	y	-99.566	11.211
137	MR40	y	-105.062	78.474
138	MR40	y	-89.578	56.053

Member Point Loads (BLC 4 : TRACKER SPAN (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
139	MR40	y	-75.309	33.632
140	MR40	y	-49.783	11.211
141	MR5	y	-210.125	78.474
142	MR5	y	-179.156	56.053
143	MR5	y	-150.617	33.632
144	MR5	y	-99.566	11.211
145	MR6	y	-210.125	78.474
146	MR6	y	-179.156	56.053
147	MR6	y	-150.617	33.632
148	MR6	y	-99.566	11.211
149	MR7	y	-169.919	78.474
150	MR7	y	-145.43	56.053
151	MR7	y	-106.608	33.632
152	MR7	y	-67.661	11.211
153	MR8	y	-169.919	78.474
154	MR8	y	-145.43	56.053
155	MR8	y	-106.608	33.632
156	MR8	y	-67.661	11.211
157	MR9	y	-169.919	78.474
158	MR9	y	-145.43	56.053
159	MR9	y	-106.608	33.632
160	MR9	y	-67.661	11.211

Member Point Loads (BLC 5 : POST NORMAL (UPLIFT))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	19.829	78.474
2	MR1	y	32.957	56.053
3	MR1	y	46.894	33.632
4	MR1	y	55.341	11.211
5	MR10	y	27.893	78.474
6	MR10	y	56.764	56.053
7	MR10	y	82.772	33.632
8	MR10	y	78.513	11.211
9	MR11	y	27.893	78.474
10	MR11	y	56.764	56.053
11	MR11	y	82.772	33.632
12	MR11	y	78.513	11.211
13	MR12	y	27.893	78.474
14	MR12	y	56.764	56.053
15	MR12	y	82.772	33.632
16	MR12	y	78.513	11.211
17	MR13	y	27.893	78.474
18	MR13	y	56.764	56.053
19	MR13	y	82.772	33.632
20	MR13	y	78.513	11.211
21	MR14	y	27.893	78.474
22	MR14	y	56.764	56.053
23	MR14	y	82.772	33.632
24	MR14	y	78.513	11.211
25	MR15	y	27.893	78.474
26	MR15	y	56.764	56.053
27	MR15	y	82.772	33.632
28	MR15	y	78.513	11.211
29	MR16	y	27.893	78.474
30	MR16	y	56.764	56.053

Member Point Loads (BLC 5 : POST NORMAL (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
31	MR16	y	82.772	33.632
32	MR16	y	78.513	11.211
33	MR17	y	27.893	78.474
34	MR17	y	56.764	56.053
35	MR17	y	82.772	33.632
36	MR17	y	78.513	11.211
37	MR18	y	27.893	78.474
38	MR18	y	56.764	56.053
39	MR18	y	82.772	33.632
40	MR18	y	78.513	11.211
41	MR19	y	27.893	78.474
42	MR19	y	56.764	56.053
43	MR19	y	82.772	33.632
44	MR19	y	78.513	11.211
45	MR2	y	39.657	78.474
46	MR2	y	65.914	56.053
47	MR2	y	93.788	33.632
48	MR2	y	110.682	11.211
49	MR20	y	27.893	78.474
50	MR20	y	56.764	56.053
51	MR20	y	82.772	33.632
52	MR20	y	78.513	11.211
53	MR21	y	27.893	78.474
54	MR21	y	56.764	56.053
55	MR21	y	82.772	33.632
56	MR21	y	78.513	11.211
57	MR22	y	27.893	78.474
58	MR22	y	56.764	56.053
59	MR22	y	82.772	33.632
60	MR22	y	78.513	11.211
61	MR23	y	27.893	78.474
62	MR23	y	56.764	56.053
63	MR23	y	82.772	33.632
64	MR23	y	78.513	11.211
65	MR24	y	27.893	78.474
66	MR24	y	56.764	56.053
67	MR24	y	82.772	33.632
68	MR24	y	78.513	11.211
69	MR25	y	27.893	78.474
70	MR25	y	56.764	56.053
71	MR25	y	82.772	33.632
72	MR25	y	78.513	11.211
73	MR26	y	27.893	78.474
74	MR26	y	56.764	56.053
75	MR26	y	82.772	33.632
76	MR26	y	78.513	11.211
77	MR27	y	27.893	78.474
78	MR27	y	56.764	56.053
79	MR27	y	82.772	33.632
80	MR27	y	78.513	11.211
81	MR28	y	27.893	78.474
82	MR28	y	56.764	56.053
83	MR28	y	82.772	33.632
84	MR28	y	78.513	11.211
85	MR29	y	27.893	78.474

Member Point Loads (BLC 5 : POST NORMAL (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
86	MR29	y	56.764	56.053
87	MR29	y	82.772	33.632
88	MR29	y	78.513	11.211
89	MR3	y	39.657	78.474
90	MR3	y	65.914	56.053
91	MR3	y	93.788	33.632
92	MR3	y	110.682	11.211
93	MR30	y	27.893	78.474
94	MR30	y	56.764	56.053
95	MR30	y	82.772	33.632
96	MR30	y	78.513	11.211
97	MR31	y	27.893	78.474
98	MR31	y	56.764	56.053
99	MR31	y	82.772	33.632
100	MR31	y	78.513	11.211
101	MR32	y	27.893	78.474
102	MR32	y	56.764	56.053
103	MR32	y	82.772	33.632
104	MR32	y	78.513	11.211
105	MR33	y	27.893	78.474
106	MR33	y	56.764	56.053
107	MR33	y	82.772	33.632
108	MR33	y	78.513	11.211
109	MR34	y	27.893	78.474
110	MR34	y	56.764	56.053
111	MR34	y	82.772	33.632
112	MR34	y	78.513	11.211
113	MR35	y	27.893	78.474
114	MR35	y	56.764	56.053
115	MR35	y	82.772	33.632
116	MR35	y	78.513	11.211
117	MR36	y	27.893	78.474
118	MR36	y	56.764	56.053
119	MR36	y	82.772	33.632
120	MR36	y	78.513	11.211
121	MR37	y	27.893	78.474
122	MR37	y	56.764	56.053
123	MR37	y	82.772	33.632
124	MR37	y	78.513	11.211
125	MR38	y	27.893	78.474
126	MR38	y	56.764	56.053
127	MR38	y	82.772	33.632
128	MR38	y	78.513	11.211
129	MR39	y	39.657	78.474
130	MR39	y	65.914	56.053
131	MR39	y	93.788	33.632
132	MR39	y	110.682	11.211
133	MR4	y	39.657	78.474
134	MR4	y	65.914	56.053
135	MR4	y	93.788	33.632
136	MR4	y	110.682	11.211
137	MR40	y	19.829	78.474
138	MR40	y	32.957	56.053
139	MR40	y	46.894	33.632
140	MR40	y	55.341	11.211

Member Point Loads (BLC 5 : POST NORMAL (UPLIFT)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
141	MR5	y	39.657	78.474
142	MR5	y	65.914	56.053
143	MR5	y	93.788	33.632
144	MR5	y	110.682	11.211
145	MR6	y	39.657	78.474
146	MR6	y	65.914	56.053
147	MR6	y	93.788	33.632
148	MR6	y	110.682	11.211
149	MR7	y	27.893	78.474
150	MR7	y	56.764	56.053
151	MR7	y	82.772	33.632
152	MR7	y	78.513	11.211
153	MR8	y	27.893	78.474
154	MR8	y	56.764	56.053
155	MR8	y	82.772	33.632
156	MR8	y	78.513	11.211
157	MR9	y	27.893	78.474
158	MR9	y	56.764	56.053
159	MR9	y	82.772	33.632
160	MR9	y	78.513	11.211

Member Point Loads (BLC 6 : POST NORMAL (DOWN))

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MR1	y	-139.839	78.474
2	MR1	y	-121.428	56.053
3	MR1	y	-99.981	33.632
4	MR1	y	-62.75	11.211
5	MR10	y	-168.134	78.474
6	MR10	y	-142.863	56.053
7	MR10	y	-107.325	33.632
8	MR10	y	-66.63	11.211
9	MR11	y	-168.134	78.474
10	MR11	y	-142.863	56.053
11	MR11	y	-107.325	33.632
12	MR11	y	-66.63	11.211
13	MR12	y	-168.134	78.474
14	MR12	y	-142.863	56.053
15	MR12	y	-107.325	33.632
16	MR12	y	-66.63	11.211
17	MR13	y	-168.134	78.474
18	MR13	y	-142.863	56.053
19	MR13	y	-107.325	33.632
20	MR13	y	-66.63	11.211
21	MR14	y	-168.134	78.474
22	MR14	y	-142.863	56.053
23	MR14	y	-107.325	33.632
24	MR14	y	-66.63	11.211
25	MR15	y	-168.134	78.474
26	MR15	y	-142.863	56.053
27	MR15	y	-107.325	33.632
28	MR15	y	-66.63	11.211
29	MR16	y	-168.134	78.474
30	MR16	y	-142.863	56.053
31	MR16	y	-107.325	33.632
32	MR16	y	-66.63	11.211

Member Point Loads (BLC 6 : POST NORMAL (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
33	MR17	y	-168.134	78.474
34	MR17	y	-142.863	56.053
35	MR17	y	-107.325	33.632
36	MR17	y	-66.63	11.211
37	MR18	y	-168.134	78.474
38	MR18	y	-142.863	56.053
39	MR18	y	-107.325	33.632
40	MR18	y	-66.63	11.211
41	MR19	y	-168.134	78.474
42	MR19	y	-142.863	56.053
43	MR19	y	-107.325	33.632
44	MR19	y	-66.63	11.211
45	MR2	y	-279.677	78.474
46	MR2	y	-242.856	56.053
47	MR2	y	-199.962	33.632
48	MR2	y	-125.501	11.211
49	MR20	y	-168.134	78.474
50	MR20	y	-142.863	56.053
51	MR20	y	-107.325	33.632
52	MR20	y	-66.63	11.211
53	MR21	y	-168.134	78.474
54	MR21	y	-142.863	56.053
55	MR21	y	-107.325	33.632
56	MR21	y	-66.63	11.211
57	MR22	y	-168.134	78.474
58	MR22	y	-142.863	56.053
59	MR22	y	-107.325	33.632
60	MR22	y	-66.63	11.211
61	MR23	y	-168.134	78.474
62	MR23	y	-142.863	56.053
63	MR23	y	-107.325	33.632
64	MR23	y	-66.63	11.211
65	MR24	y	-168.134	78.474
66	MR24	y	-142.863	56.053
67	MR24	y	-107.325	33.632
68	MR24	y	-66.63	11.211
69	MR25	y	-168.134	78.474
70	MR25	y	-142.863	56.053
71	MR25	y	-107.325	33.632
72	MR25	y	-66.63	11.211
73	MR26	y	-168.134	78.474
74	MR26	y	-142.863	56.053
75	MR26	y	-107.325	33.632
76	MR26	y	-66.63	11.211
77	MR27	y	-168.134	78.474
78	MR27	y	-142.863	56.053
79	MR27	y	-107.325	33.632
80	MR27	y	-66.63	11.211
81	MR28	y	-168.134	78.474
82	MR28	y	-142.863	56.053
83	MR28	y	-107.325	33.632
84	MR28	y	-66.63	11.211
85	MR29	y	-168.134	78.474
86	MR29	y	-142.863	56.053
87	MR29	y	-107.325	33.632

Member Point Loads (BLC 6 : POST NORMAL (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
88	MR29	y	-66.63	11.211
89	MR3	y	-279.677	78.474
90	MR3	y	-242.856	56.053
91	MR3	y	-199.962	33.632
92	MR3	y	-125.501	11.211
93	MR30	y	-168.134	78.474
94	MR30	y	-142.863	56.053
95	MR30	y	-107.325	33.632
96	MR30	y	-66.63	11.211
97	MR31	y	-168.134	78.474
98	MR31	y	-142.863	56.053
99	MR31	y	-107.325	33.632
100	MR31	y	-66.63	11.211
101	MR32	y	-168.134	78.474
102	MR32	y	-142.863	56.053
103	MR32	y	-107.325	33.632
104	MR32	y	-66.63	11.211
105	MR33	y	-168.134	78.474
106	MR33	y	-142.863	56.053
107	MR33	y	-107.325	33.632
108	MR33	y	-66.63	11.211
109	MR34	y	-168.134	78.474
110	MR34	y	-142.863	56.053
111	MR34	y	-107.325	33.632
112	MR34	y	-66.63	11.211
113	MR35	y	-168.134	78.474
114	MR35	y	-142.863	56.053
115	MR35	y	-107.325	33.632
116	MR35	y	-66.63	11.211
117	MR36	y	-168.134	78.474
118	MR36	y	-142.863	56.053
119	MR36	y	-107.325	33.632
120	MR36	y	-66.63	11.211
121	MR37	y	-168.134	78.474
122	MR37	y	-142.863	56.053
123	MR37	y	-107.325	33.632
124	MR37	y	-66.63	11.211
125	MR38	y	-168.134	78.474
126	MR38	y	-142.863	56.053
127	MR38	y	-107.325	33.632
128	MR38	y	-66.63	11.211
129	MR39	y	-279.677	78.474
130	MR39	y	-242.856	56.053
131	MR39	y	-199.962	33.632
132	MR39	y	-125.501	11.211
133	MR4	y	-279.677	78.474
134	MR4	y	-242.856	56.053
135	MR4	y	-199.962	33.632
136	MR4	y	-125.501	11.211
137	MR40	y	-139.839	78.474
138	MR40	y	-121.428	56.053
139	MR40	y	-99.981	33.632
140	MR40	y	-62.75	11.211
141	MR5	y	-279.677	78.474
142	MR5	y	-242.856	56.053

Member Point Loads (BLC 6 : POST NORMAL (DOWN)) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
143	MR5	y	-199.962	33.632
144	MR5	y	-125.501	11.211
145	MR6	y	-279.677	78.474
146	MR6	y	-242.856	56.053
147	MR6	y	-199.962	33.632
148	MR6	y	-125.501	11.211
149	MR7	y	-168.134	78.474
150	MR7	y	-142.863	56.053
151	MR7	y	-107.325	33.632
152	MR7	y	-66.63	11.211
153	MR8	y	-168.134	78.474
154	MR8	y	-142.863	56.053
155	MR8	y	-107.325	33.632
156	MR8	y	-66.63	11.211
157	MR9	y	-168.134	78.474
158	MR9	y	-142.863	56.053
159	MR9	y	-107.325	33.632
160	MR9	y	-66.63	11.211

Member Distributed Loads (BLC 7 : SNOW)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, lb-ft/in]	End Magnitude [lb/ft, F, psf, lb-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M1	Y	-24.06	-24.06	0	%100
2	M2	Y	-24.06	-24.06	0	%100
3	M3	Y	-24.06	-24.06	0	%100
4	M4	Y	-24.06	-24.06	0	%100

Member Distributed Loads (BLC 8 : MODULE WEIGHT)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, lb-ft/in]	End Magnitude [lb/ft, F, psf, lb-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M1	Y	-21.41	-21.41	0	%100
2	M2	Y	-21.41	-21.41	0	%100
3	M3	Y	-21.41	-21.41	0	%100
4	M4	Y	-21.41	-21.41	0	%100

Basic Load Cases

	BLC Description	Category	Point	Distributed
1	MOMENT (UPLIFT)	None	160	
2	MOMENT (DOWN)	None	160	
3	TRACKER SPAN (UPLIFT)	None	160	
4	TRACKER SPAN (DOWN)	None	160	
5	POST NORMAL (UPLIFT)	None	160	
6	POST NORMAL (DOWN)	None	160	
7	SNOW	SL		4
8	MODULE WEIGHT	DL		4

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	0.6 DL + 0.6 TKR MOMENT (UP)		Y	DL	0.6	1	0.6		
2	0.6 DL + 0.6 TKR SPAN (UP)		Y	DL	0.6	3	0.6		
3	DL + 0.45 TKR MOMENT (DN) + 0.75 SL		Y	DL	1	2	0.45	SL	0.75
4	DL + 0.45 TKR SPAN (DN) + 0.75 SL		Y	DL	1	4	0.45	SL	0.75

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
5	DL + 0.6 TKR MOMENT (DN)		Y	DL	1	2	0.6		
6	DL + 0.6 TKR SPAN (DN)		Y	DL	1	4	0.6		
7	DL + SL		Y	DL	1	SL	1		
8	DL		Y	DL	1				
9	DL + SL		Y	DL	1	SL	1		
10	0.6 DL + 0.6 POST NORMAL (UP)		Y	DL	0.6	5	0.6		
11	DL + 0.45 POST NORMAL (DN) + 0.75 SL		Y	DL	1	6	0.45	SL	0.75
12	DL + 0.6 POST NORMAL (DN)		Y	DL	1	6	0.6		
13	DL + SL - DPILE	Yes	Y	DL	2	SL	2		
14	0.6DL + 0.6 POST NORMAL (UP) - DPILE	Yes	Y	DL	1.2	5	1.2		
15	DL + 0.45 POST NORMAL (DN) + 0.75 SL - DPILE	Yes	Y	DL	2	6	0.9	SL	1.5
16	DL + 0.6 POST NORMAL (DN) - DPILE	Yes	Y	DL	2	6	1.2		
17			Y	DL	1				
18			Y	DL	1				
19			Y	DL	1				
20			Y	DL	1				
21			Y	DL	1				

TORQUE TUBE DESIGN RESULTS

Envelope Maximum Member Section Forces

Member		Axial (lb)	Location	LC	yShear (lb)	Location	LC	zShear (lb)	Loc	LC	Torque (ft-lb)	Loc	LC	y-y t (ft-lb)	Loc	LC	z-z Moment (ft-lb)	Loc	LC
M1	max	384.2	9.284	2	1150.1	250.659	6	286.0	246.017	7	672.1	246.017	7	1123.5	250.659	7	5300.6	250.659	6
M1	min	-857.1	0	6	-1562.1	246.017	6	-274.7	250.659	7	-5154.4	0	6	-713.2	92.837	7	-3842.6	97.478	6
M2	max	295.8	13.933	2	1132.5	92.889	6	261.9	88.244	7	538.3	13.933	7	972.9	88.244	7	4024.4	88.244	6
M2	min	-613.6	0	6	-1045.2	88.244	6	-253.4	92.889	7	-3854.7	0	2	-474.2	227.577	7	-2048.6	236.866	6
M3	max	163.8	18.567	2	1295.1	190.315	6	261.3	185.673	7	315.4	153.18	7	1120.8	190.315	7	4781.7	190.315	6
M3	min	-311.7	0	6	-1061.8	185.673	6	-284.8	190.315	7	-2569.4	0	2	-662.8	338.854	7	-2904.2	338.854	6
M4	max	118.6	22.79	2	1080.0	45.581	6	276.6	41.022	7	202.3	41.022	7	1044.4	45.581	7	4791.6	323.622	6
M4	min	-225.9	0	6	-1214.4	41.022	6	-266.5	45.581	7	-1291.4	0	2	-517.7	186.88	7	-1941.7	173.206	6

Envelope Member Section Torsion

Member	Sec		Torque (ft-lb)	LC	Torsion (ft-lb)	LC	Member	Sec		Torque (ft-lb)	LC	Torsion (ft-lb)	LC
M1	1	max	672.1	7	1.825	7	M3	1	max	315.372	7	0.856	7
M1	1	min	-5154.4	6	-13.996	6	M3	1	min	-2569.381	2	-6.977	2
M1	2	max	672.1	7	1.825	7	M3	2	max	315.385	7	0.856	7
M1	2	min	-4649.7	6	-12.625	6	M3	2	min	-2212.089	2	-6.006	2
M1	3	max	672.1	7	1.825	7	M3	3	max	202.3	7	0.549	7
M1	3	min	-4425.8	2	-12.017	2	M3	3	min	-1887.196	2	-5.124	2
M1	4	max	538.3	7	1.462	7	M3	4	max	202.267	7	0.549	7
M1	4	min	-4093.0	2	-11.114	2	M3	4	min	-1648.894	2	-4.477	2
M1	5	max	538.3	7	1.462	7	M3	5	max	202.297	7	0.549	7
M1	5	min	-3854.7	2	-10.467	2	M3	5	min	-1291.365	2	-3.506	2
M2	1	max	538.3	7	1.462	7	M4	1	max	202.297	7	0.742	7
M2	1	min	-3854.7	2	-10.467	2	M4	1	min	-1291.365	2	-4.736	2
M2	2	max	422.3	7	1.147	7	M4	2	max	92.978	7	0.341	7
M2	2	min	-3462.8	2	-9.403	2	M4	2	min	-954.87	6	-3.502	6
M2	3	max	422.3	7	1.147	7	M4	3	max	92.994	7	0.341	7
M2	3	min	-3224.6	2	-8.756	2	M4	3	min	-593.727	2	-2.178	2
M2	4	max	422.3	7	1.147	7	M4	4	max	0.085	7	0	7
M2	4	min	-2867.2	2	-7.785	2	M4	4	min	-497.183	6	-1.823	6
M2	5	max	315.4	7	0.856	7	M4	5	max	0	7	0	7
M2	5	min	-2569.4	2	-6.977	2	M4	5	min	0	1	0	1

Envelope AISC 15th (360-16): ASD Steel Code Checks

Member	Shape	Code Check	Location	LC	Shear Check	Loc	Dir	LC	Pnc/Om (lb)	Pnt/Om (lb)	Mnyy/Om (ft-lb)	Mnzz/Om (ft-lb)	Cb	Equation
M1	HSS4x4x_149	0.68	250.659	6	0.516	0	y	6	8716.807	109949.51	12344.038	12344.038	1.821	H3-6
M2	HSS4x4x_149	0.483	92.889	6	0.367	0	y	2	8716.807	109949.51	12344.038	12344.038	1.657	H3-6
M3	HSS4x4x_149	0.452	190.315	4	0.247	18.567	y	2	8716.807	109949.51	12344.038	12344.038	1.985	H1-1b
M4	HSS4x4x_108	0.686	323.622	4	0.194	45.581	y	6	6517.446	80543.425	7731.489	7731.489	1.808	H1-1b

PILE DESIGN RESULTS

Envelope Maximum Member Section Forces

Member		Axial (lb)	Location	LC	yShear (lb)	Location	LC	zShear (lb)	Loc	LC	Torque (ft-lb)	Loc	LC	y-y Moment (ft-lb)	Loc	LC	z-z Moment (ft-lb)	Loc	LC
DRIVE	max	116.3	4.133	9	1492.7	4.133	12	681.7	4.133	12	839.0	4.133	9	219.0	4.133	12	178.0	0	11
DRIVE	min	-1693.3	0	12	-140.3	0	10	-45.9	0	9	-7653.5	0	12	-15.8	0	12	-379.3	4.133	12
JOURNAL	max	67.3	3	10	223.9	3	9	117.0	3	9	0.0	3	12	438.0	0	12	839.0	0	9
JOURNAL	min	-1692.3	0	12	-164.5	0	10	-1751.9	0	12	0.0	0	9	-29.3	0	9	-7670.8	3	12
P1	max	2178.6	50	11	923.1	50	12	19.5	50	9	0.0	50	12	81.4	50	9	2900.3	50	10
P1	min	-622.2	0	10	-696.1	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-3846.4	50	12
P1BRG	max	887.3	3	10	282.2	3	12	524.3	3	9	0.0	3	10	0.0	3	9	70.5	0	12
P1BRG	min	-2324.2	0	12	-19.4	0	9	247.1	0	8	0.0	0	11	-131.1	0	9	-4.8	0	9
P2	max	2166.3	50	11	931.6	50	12	19.5	50	9	0.0	50	12	81.4	50	9	2600.3	50	10
P2	min	-578.4	0	10	-624.1	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-3881.7	50	12
P2BRG	max	813.4	3	10	282.2	3	12	523.5	3	9	0.0	3	12	0.0	3	12	70.5	0	12
P2BRG	min	-2323.1	0	12	-19.4	0	9	246.7	0	8	0.0	0	10	-130.9	0	9	-4.8	0	9
P3	max	2153.0	50	11	939.6	50	12	19.5	50	9	0.0	50	12	81.4	50	9	2317.2	50	10
P3	min	-541.7	0	10	-556.1	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-3914.9	50	12
P3BRG	max	747.5	3	10	282.2	3	12	522.8	3	9	0.0	3	12	0.0	3	10	70.6	0	12
P3BRG	min	-2320.0	0	12	-19.4	0	9	207.4	0	10	0.0	0	11	-130.7	0	9	-4.8	0	9
P4	max	2140.5	50	11	947.7	50	12	19.5	50	9	0.0	50	12	81.4	50	9	2029.3	50	10
P4	min	-509.1	0	10	-487.0	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-3948.8	50	12
P4BRG	max	684.7	3	10	282.2	3	12	522.2	3	9	0.0	3	11	0.0	3	12	70.6	0	12
P4BRG	min	-2318.2	0	12	-19.4	0	9	164.1	0	10	0.0	0	8	-130.6	0	9	-4.8	0	9
P5	max	2127.5	50	11	956.5	50	12	19.5	50	9	0.0	50	12	81.4	50	9	1716.9	50	10
P5	min	-477.1	0	10	-412.1	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-3985.6	50	12
P5BRG	max	619.4	3	10	282.2	3	12	520.8	3	9	0.0	3	10	0.0	3	11	70.6	0	12
P5BRG	min	-2317.9	0	12	-19.4	0	9	115.4	0	10	0.0	0	11	-130.2	0	9	-4.8	0	9
P6	max	2123.2	50	12	964.8	50	12	19.5	50	9	0.0	50	12	81.4	50	9	1423.8	50	10
P6	min	-448.5	0	10	-341.7	0	10	-286.7	0	12	0.0	0	8	-1194.4	50	12	-4020.2	50	12
P6BRG	max	559.4	3	10	282.2	3	12	518.6	3	9	0.0	3	11	0.0	3	11	70.6	0	12
P6BRG	min	-2319.0	0	12	-19.4	0	9	69.0	0	10	0.0	0	12	-129.6	0	9	-4.8	0	9
PDRIVE	max	2956.3	50	16	1715.2	50	16	75.3	50	14	2.3	50	13	362.8	0	15	15244.2	0	16
PDRIVE	min	-281.2	0	14	-88.8	0	13	-128.0	0	15	-30.2	0	16	-213.5	0	14	-1675.0	0	13

Envelope AISC 15th (360-16): ASD Steel Code Checks

Member	Shape	Code Check	Location	LC	Shear Check	Loc	Dir	LC	Pn/Om (lb)	Tn/Om (lb)	Mnyy/Om (ft-lb)	Mnzz/Om (ft-lb)	Vny/Om (lb)	Vnz/Om (lb)	Cb	Equation
P1	7_63X4_5X_145	0.457	50	12	0.041	50	y	12	58175.313	89728.673	6574.764	16122.544	22380.117	24854.764	1.667	H1.2-1
P2	7_63X4_5X_145	0.459	50	12	0.042	50	y	12	58175.3	89728.7	6574.8	16124.2	22380.1	24854.8	1.667	H1.2-1
P3	7_63X4_5X_145	0.461	50	12	0.042	50	y	12	58175.3	89728.7	6574.8	16125.8	22380.1	24854.8	1.667	H1.2-1
P4	7_63X4_5X_145	0.463	50	12	0.042	50	y	12	58175.3	89728.7	6574.8	16127.5	22380.1	24854.8	1.667	H1.2-1
P5	7_63X4_5X_145	0.465	50	12	0.043	50	y	12	58175.3	89728.7	6574.8	16129.2	22380.1	24854.8	1.667	H1.2-1
P6	7_63X4_5X_145	0.467	50	12	0.043	50	y	12	58175.313	89728.7	6574.764	16130.7	22380.117	24854.764	1.667	H1.2-1
PDRIVE	7_63X4_5X_145	0.978	0	16	0.175	50	y	16	59649.976	94451.2	7198.008	17137.2	23558.017	26162.91	1.231	H1.2-1

Envelope Joint Reactions

Joint		X (lb)	LC	Y (lb)	LC	Z (lb)	LC	MX (ft-lb)	LC	MY (ft-lb)	LC	MZ (ft-lb)	LC
BP1	max	282.181	12	2178.55	11	918.9	12	3846.434	12	0	12	81.416	9
BP1	min	-19.384	9	-622.206	10	-696.992	10	-2900.283	10	0	8	-1194.395	12
BP2	max	282.194	12	2166.31	11	927.342	12	3881.716	12	0	12	81.417	9
BP2	min	-19.387	9	-578.444	10	-624.831	10	-2600.252	10	0	8	-1194.396	12
BP3	max	282.21	12	2153.011	11	935.298	12	3914.945	12	0	12	81.417	9
BP3	min	-19.389	9	-541.717	10	-556.764	10	-2317.171	10	0	8	-1194.396	12
BP4	max	282.224	12	2140.503	11	943.396	12	3948.782	12	0	12	81.417	9
BP4	min	-19.391	9	-509.084	10	-487.563	10	-2029.31	10	0	8	-1194.395	12
BP5	max	282.235	12	2127.451	11	952.199	12	3985.576	12	0	12	81.417	9
BP5	min	-19.394	9	-477.128	10	-412.482	10	-1716.925	10	0	8	-1194.395	12
BP6	max	282.242	12	2123.199	12	960.472	12	4020.171	12	0	12	81.416	9
BP6	min	-19.396	9	-448.487	10	-342.03	10	-1423.762	10	0	8	-1194.395	12
DPILE	max	127.982	15	2956.255	16	1736.335	16	1305.137	13	2.342	13	100.337	14
DPILE	min	-75.333	14	-281.183	14	-89.5	13	-8097.547	16	-30.158	16	-170.462	15

APPENDIX A
TORQUE TUBE SPLICE REPORT

OMCO Solar	Document Number:		Date:	12/10/2019
	Product:	Tracker	Author:	N. Sava A. Ballentine
	Component:	Splice	Test Type:	Qualification

SUMMARY (Pass)

All variants of the torque tube splice were tested for torque capacity in a specially designed fixture. Each survived testing to 1.5x of its design load.

BACKGROUND

Torque tube splices are used to link drive tubes together. These splices must withstand the forces that the torque tube will exert without excessive deformation or loss of hardware torque.

PASS/FAIL CRITERIA

The test sample passes if there is no plastic deformation of the material after loading. Bolts must retain 15% of initial torque.

COMPONENTS TESTED

- Mini Splice
- Normal Splice
- Mega Splice

Tools/Materials Required

- Hydraulic Test Fixture
- Pressure Gage
- Torque Wrench

TEST SETUP & PROCEDURE

- The test fixture consists of three vertical sections secured to a base plate. A section of torque tube is secured to the end vertical member. Another section of torque tube is connected to a rotatable shaft and set adjacent to the fixed tube. The splice being tested connects the two parts. The rotatable shaft extends through a series of flanged bearings to ensure hydraulic cylinder travel is converted into torque. Between the last set of vertical members a lever arm is connected to the shaft and extends down to a length of 24” where a hydraulic clinder is connected and load is applied to create torque.

- Each sample is mounted to the test fixture with fresh hardware and torqued to the proper value. Mega-Splice hardware is torqued to 75 ft. lbs. while the other two assemblies are torqued to 65 ft. lbs. For installation, bolts are tightened in a cross pattern, alternating between sides of the splice. Each bolt is torqued twice to accommodate deflection of the splice while tightening. Testing consisted of applying torque with the hydraulic cylinder to a maximum value dependent on the configuration being tested. Bolt torque is checked after the load is released.

Figure 1: Test Setup

Figure 2: Close-up of Mega Splice Test Sample

Figure 3: Close-up of Normal Splice Test Sample

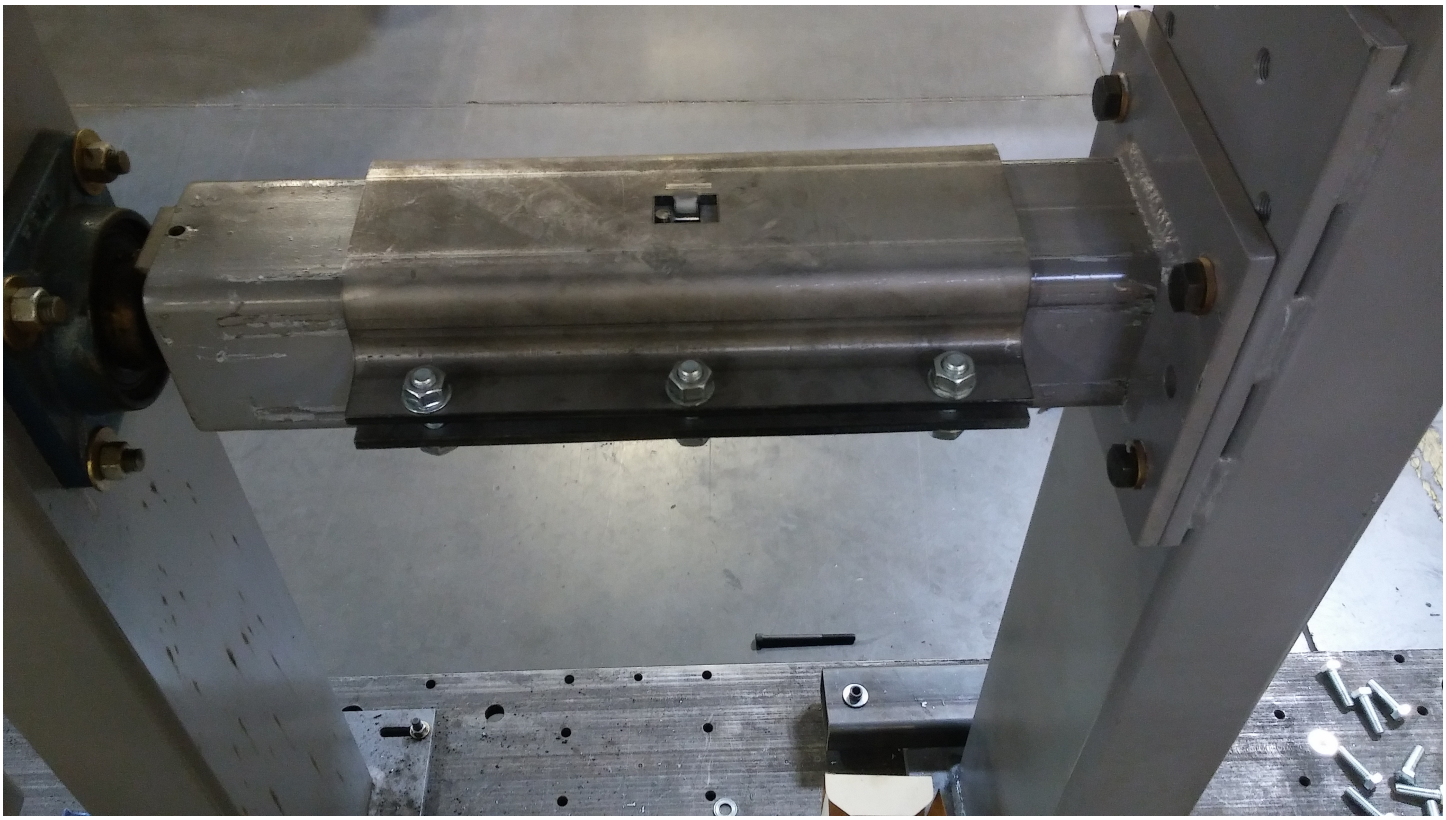


Figure 4: Close-up of Mini Splice Test Sample

TEST DATA

For all test cases, torque was applied in one direction and held for one minute. The torque direction was then reversed and maintained for an additional minute. This was repeated for a total of four load cycles per splice configuration load test.

Target Loads:

- Mini Splice - 5,250 ft. lbs. (3,000 ft./lbs. X 1.75 safety factor)
- Standard Splice -7,000 ft. lbs. (4,000 ft./lbs. X 1.75 safety factor)
- Mega Splice -10,500 ft. lbs. (5,000 ft./lbs. X 1.75 safety factor)

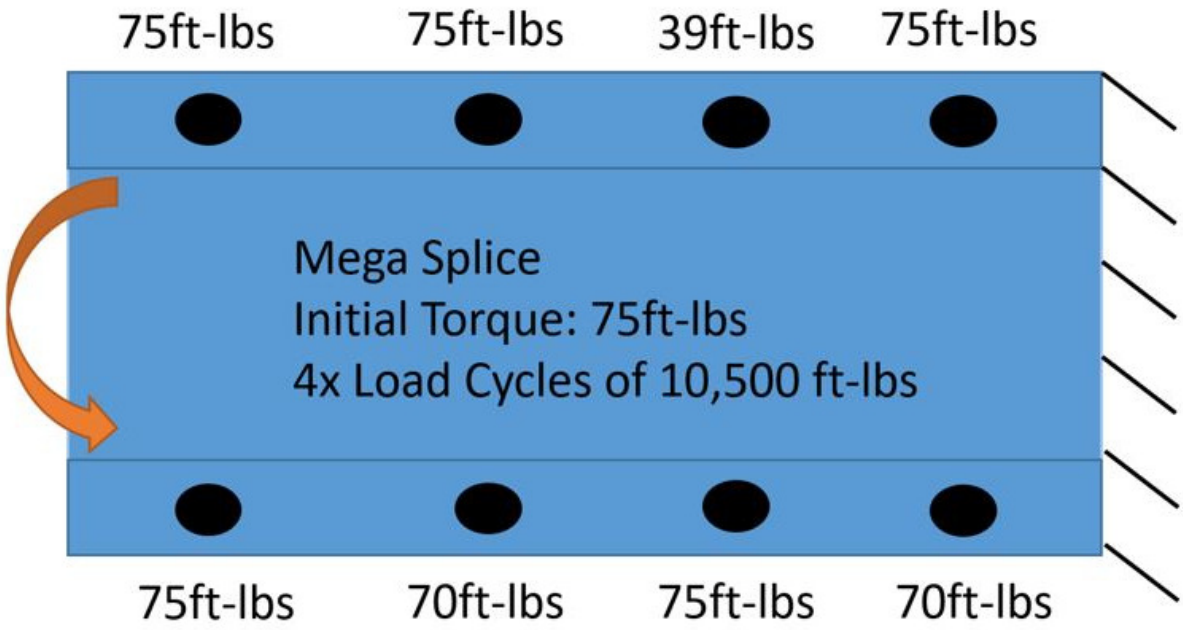


Figure 5: Mega Splice Post-Test Bolt Torque

For the Mega Splice, a target torque value of 10,500 ft-lbs was used. Torque was applied in both directions and held for one minute at a time. This was repeated for a total of four load cycles. The resulting bolt torque values for the Mega Splice are shown above:

- One of the bolts appears to have lost almost half of its installation torque however all other connections maintained initial torque to within 7%. There also appears to be some slight plastic deformation of the vertical leg on the stiffener angles at the ends of the splice as shown in Figure 6. Deformation did not increase after multiple load reversal cycles but did remain after load was removed.

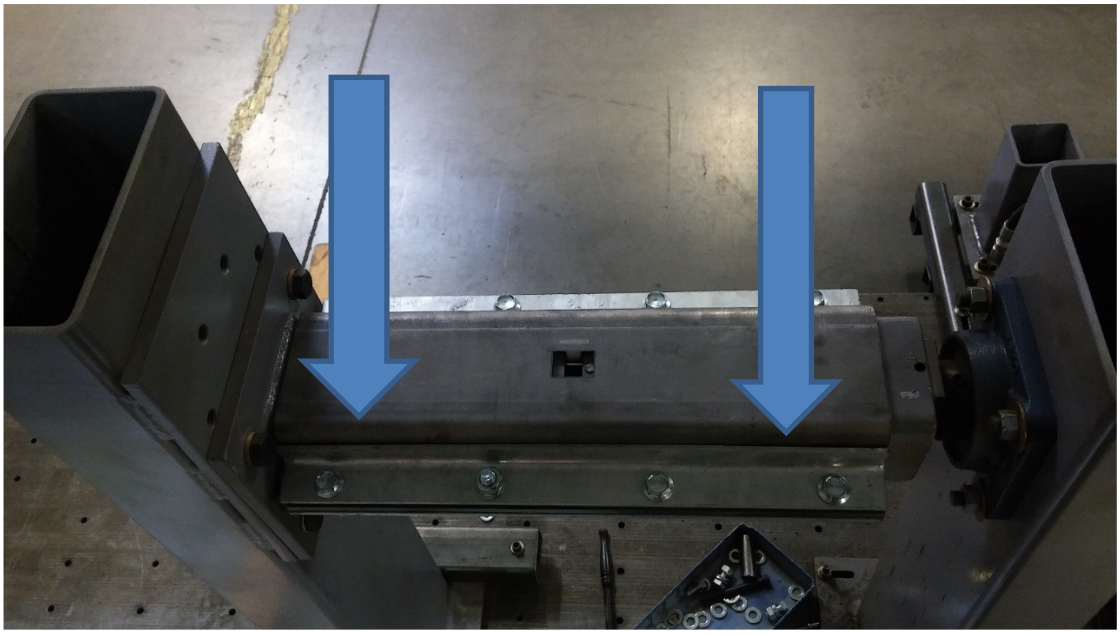


Figure 6: Mega Splice Sample after Test

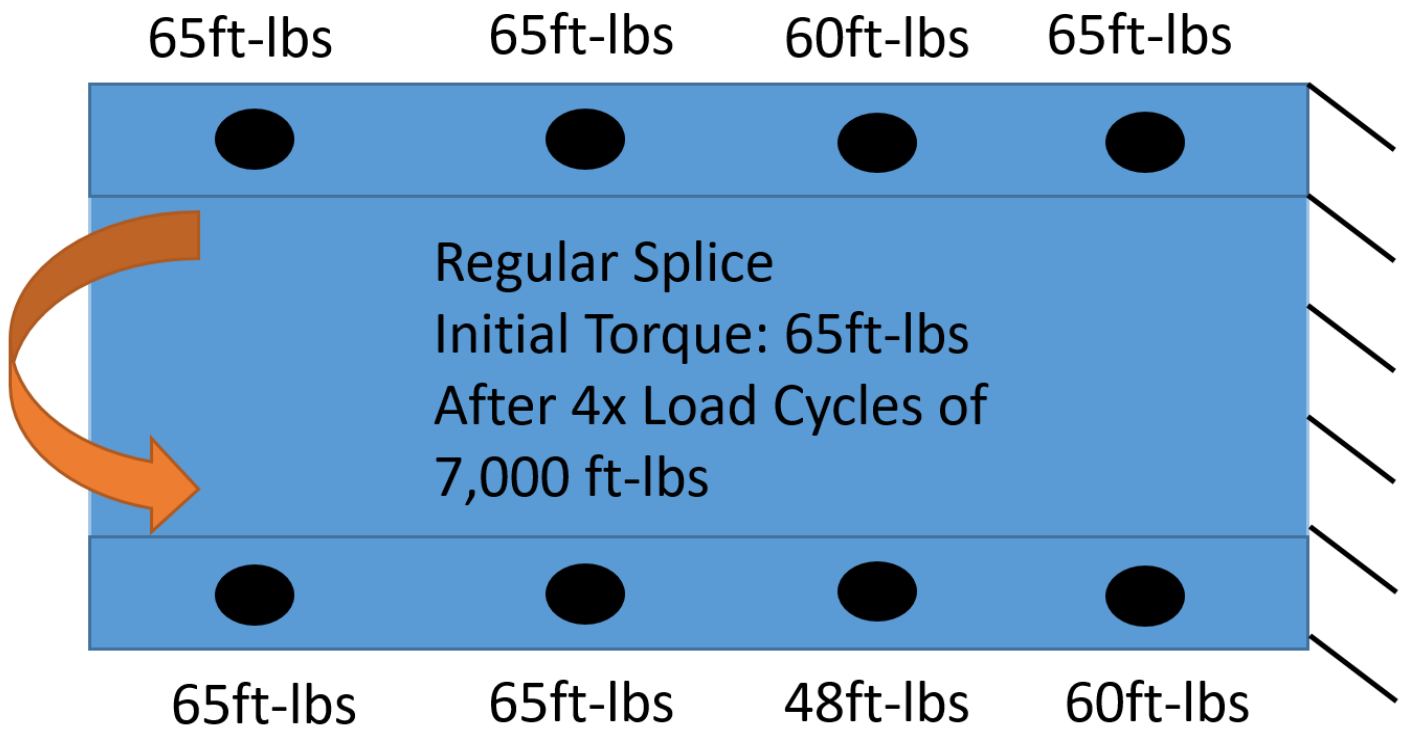
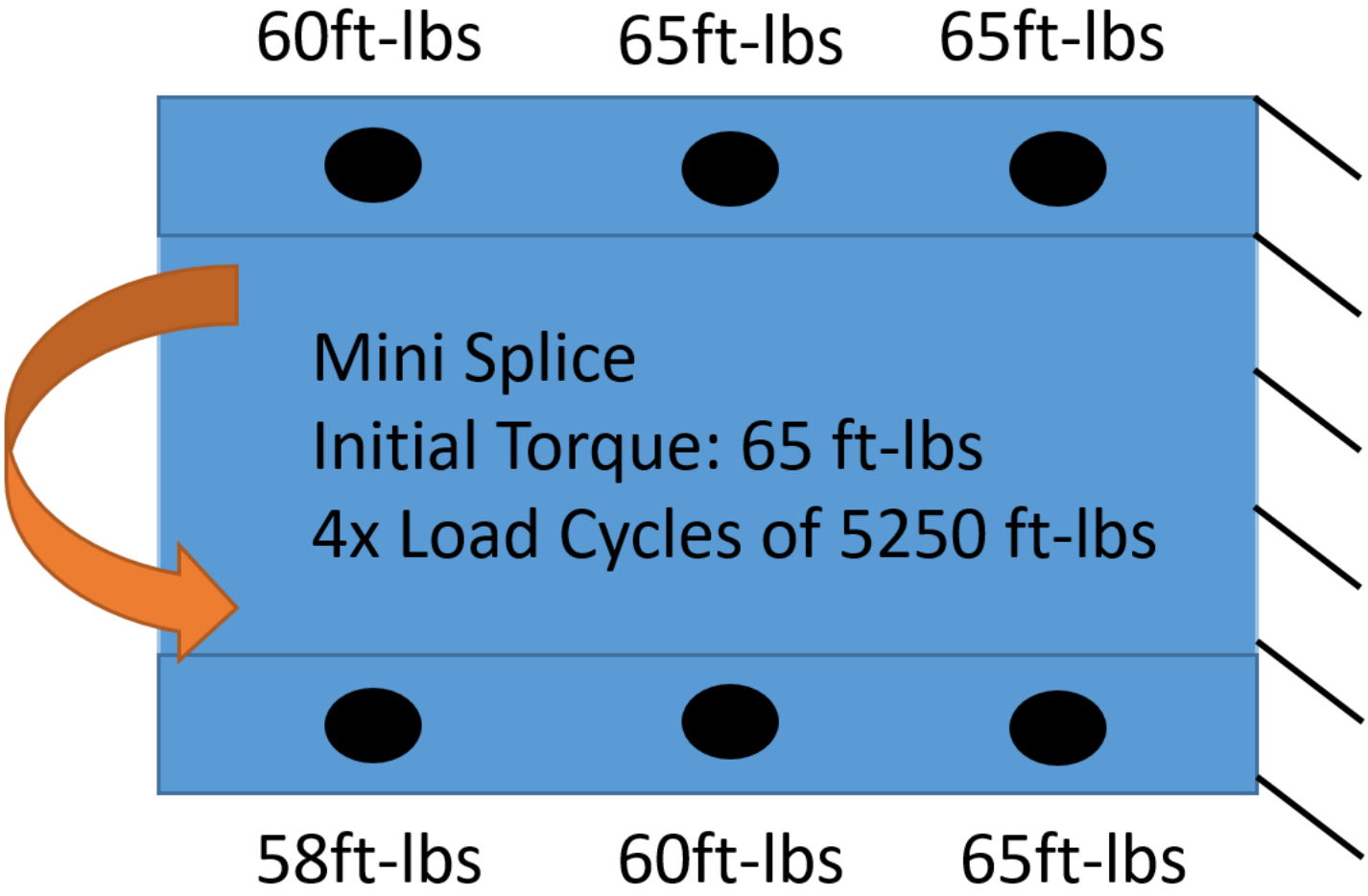


Figure 7: Regular Splice Bolt Torque

For the standard splice, a target torque value of 7,000 ft-lbs was used. Torque was applied in both directions and held for one minute at a time. This was repeated for a total of four load cycles. The resulting bolt torque values are shown below:

- All but one bolt maintained torque to within 8% of the initial value. While there was some plastic deformation of the splice around the bolt locations caused by the bolts being torqued down, no plastic deformations occurred as a result of the applied load.



For the mini splice, a target torque value of 5,250 ft-lbs was used. Torque was applied in both directions and held for one minute at a time. This was repeated for a total of four load cycles. The resulting bolt torque values are shown below:

- Once again there was some plastic deformation of the splice around the bolt locations caused by the bolts being torqued down, but no plastic deformations occurred as a result of the applied load.

FAILURE MODE

None

CONCLUSION AND RECOMMENDATIONS

All three of the splice configurations withstood loading to their design load with a 1.75x safety factor without failure.

APPENDIX B
JOURNAL / DRIVE MOUNT TEST REPORT

OMCO Solar	Document Number:		Date:	1/9/24
	Product:	Tracker	Author:	Andrew Ballentine
	Component:	Weldless Drive Mount	Test Type:	Qualification

SUMMARY (Pass)

A static load test of the Weldless Drive Mount was conducted to evaluate torque capacity. The drive mount assembly was able to hold maximum load target of 12,00ft-lbs of torque without major plastic deformation. At 7,500 ft-lbs using standard hardware configuration (M12 bolts,nuts & ½ USS washers) the drive mount begins to slip on the post connections. For trackers that have an expectation of torque at the drive higher than 7,500 ft-lb plate washers will be included and installed on the inside of the pile (replaces internal ½" USS washers) Once these plate washers were installed and the assembly retested, we reached our maximum target load of 12,000 ft-lbs without connection slip or significant deformation.

BACKGROUND

The drive mount of the tracker is responsible for providing a solid foundation for the slew drive and resisting the accumulative wind and snow loads of the tracker. After several years of successful deployment of our original welded drive mount design we decided to pivot to a simplified version that does not require welding.

PASS/FAIL CRITERIA

The test sample passes if there is no significant plastic deformation of the parts under the applied load or connection slip.

COMPONENTS TESTED

- Drive Mount Assembly

Tools/Materials Required

- Hydraulic Test Fixture
- Torque Wrench
- Sections of Torque Tube
- Bearings
- Drive and Bearing Posts
- 2' lever arms

TEST SETUP & PROCEDURE

Testing was performed using a shortened version of the tracker consisting of a drive post, two bearing posts and two short torque tube segments. Torque load is applied using a pair of hydraulic cylinders placed on either side of the slew drive mounted to the floor and connected to a set of lever arms mounted on the torque tubes. Testing consisted of applying load with the hydraulic cylinder at increasing levels, starting at 5,000 ft-lbs and increasing load in 1,000 ft-lb increments and held for one minute. All components are checked for plastic deformation and connection slip at each interval.

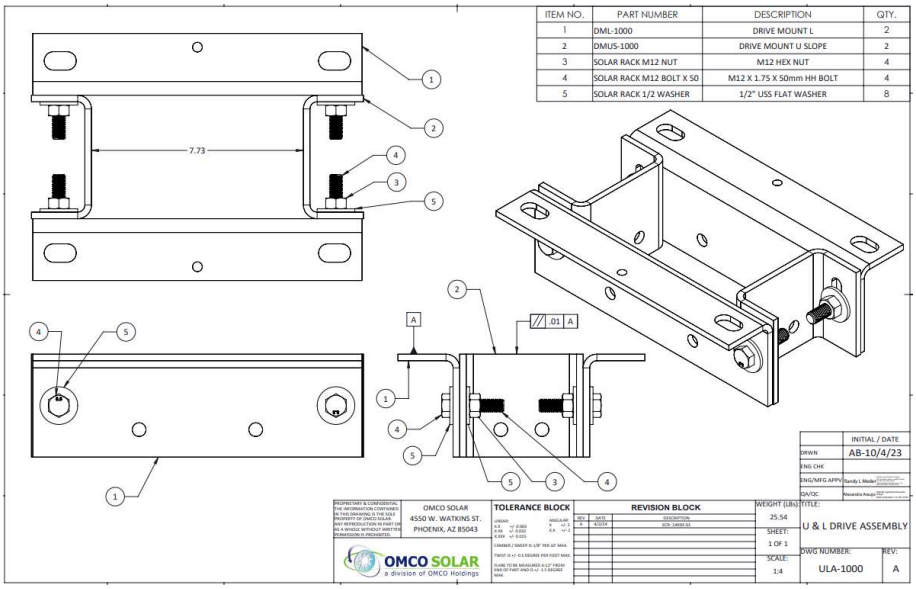


Figure 1: Drive Mount Assembly Drawing

Figure 2: Test Setup

TEST RESULTS

At 7,500 ft-lbs of torque, the Drive Mount began to slip in its mounting slots to the pile. At this point testing was stopped and the plate washers were installed on the inside of the pile bolt locations. Testing was then resumed and achieved maximum torque target load of 12,000 ft-lbs without connection slip. After the maximum load was achieved the Drive mount L's were found to have some deformation on center of the upper flange; (.078" out of plane below both ends of part) Drive mount maintained position and full functionality after load testing.

Figure 3: Connection slip at 7,500 ft-lbs w/ standard hardware configuration

Figure 4: Post max loading

FAILURE MODE

None

CONCLUSION AND RECOMMENDATIONS

Testing has shown that the Weldless Drive Mount is able to withstand torque loading of 7,500 ft-lbs with standard hardware and 12,000 ft-lbs with the use of plate washers.

APPENDIX C
BEARING TEST REPORT

OMCO Solar	Document Number:		Date:	1/8/25
	Product:	Origin Tracker	Author:	N. Sava and A. Ballentine
	Component:	Bearing Assembly BAO-2000	Test Type:	Qualification

SUMMARY (Pass)

A revised Origin tracker bearing assembly was tested for static load capacity. Testing was performed at the stow angle of 30 degrees as that is our designed stow position and the position the structure would experience the highest loading. Downforce loading of 5,000 lbs at 30 degrees was applied plus 1,700 lbs of vertical hanging load (Estimated dead load of a typical span). Uplift loading of 3,600 lbs was also applied at the same angle. The bearing retained full functionality after testing.

BACKGROUND

Bearing assemblies are required to support the tracker structure and transfer wind & snow loads into the pile as well as provide the ability to rotate freely. Multiple design variables have been tested independently and the results are compiled in this meta analysis.

PASS/FAIL CRITERIA

The test sample passes if there is minimal deformation of components, no cracks in any of the bearing castings, the bearing operates as required after loading and the bolted connections have not slipped.

COMPONENTS TESTED

- Complete Bearing Assembly
  - Post Cap
  - Saddle
  - Rim Bearing
  - Hold Down
  - Insert
  - Bearing plate washer
- Standard Origin C pile

TOOLS/MATERIALS REQUIRED

- Hydraulic Cylinders
- Custom Test Fixture
- Pressure Gage
- Load Cells/Displays
- Torque Wrench

TEST SETUP & PROCEDURE

The test fixture consists of the bearing assembly under test attached to a length of tracker post using standard hardware. A section of torque tube is installed into and centered on the test bearing and supported on both ends. A pair of hydraulic cylinders are attached between the torque tube and the floor on either side of the bearing. These are used to apply upward and downward loads to the bearing at a 30°. In one of the tests, ballast bags are installed to simulate the expected dead load of the structure, in the other test a full length span with modules was tested on.

Testing consisted of applying a combined load using both cylinders simultaneously. The load was then held for one minute. After one minute, the load was removed, and a second load was applied in the opposite direction. This was also held for one minute before removing.

Test loads were as follows:

Downforce Test: 2500 lbs per cylinder (5000lbs total)

Uplift Test: 1800 lbs per cylinder (3600lbs total)

Figure 1: Test Setup

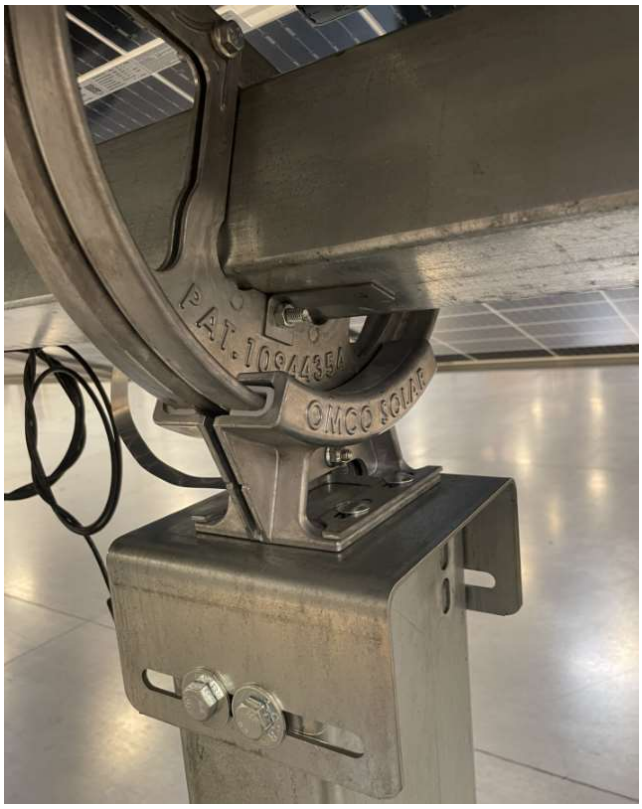


Figure 2: Test Sample Installed Prior to loading

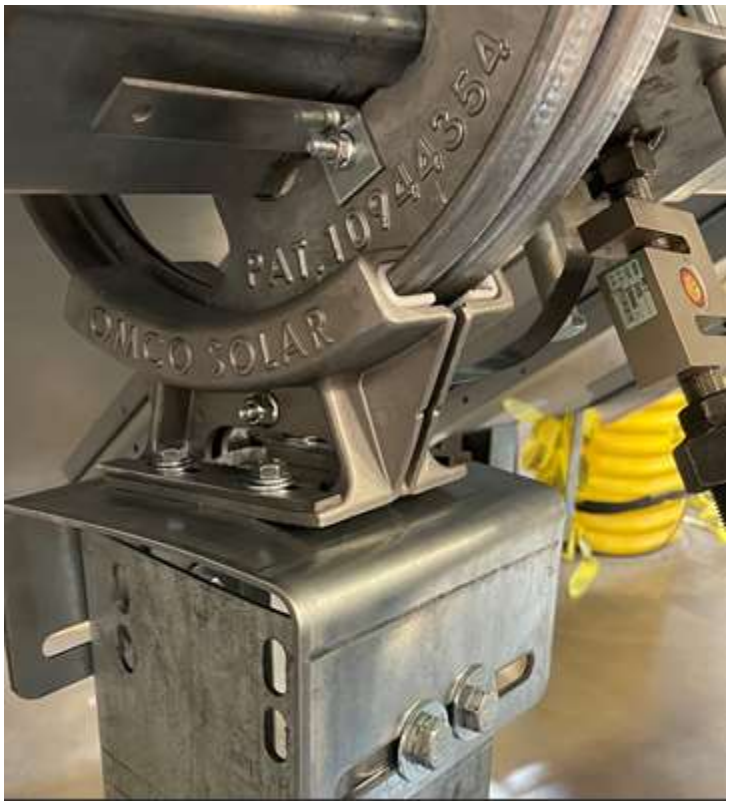


Figure 3: During Max Uplift Loading

Figure 4: During Max Downforce Loading

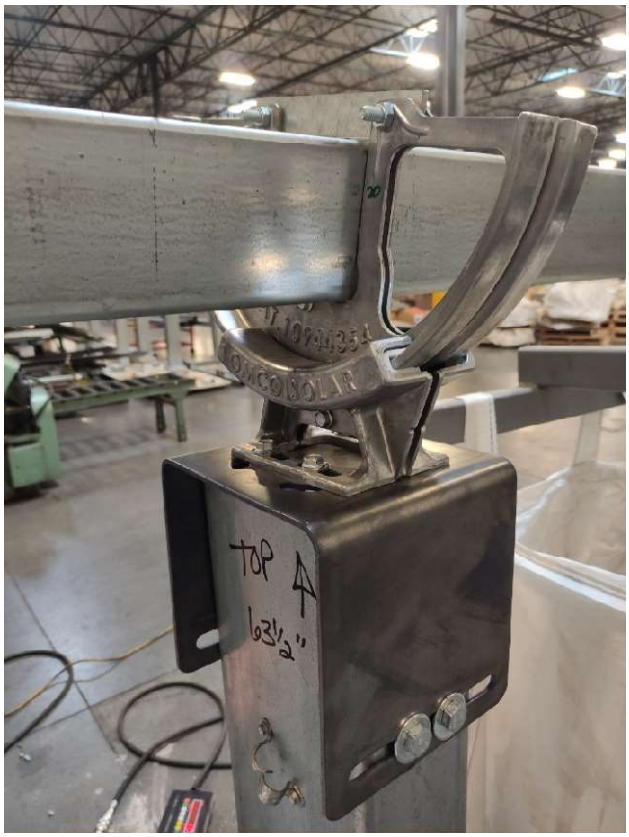


Figure 5: Sample after testing

TEST DATA

The test sample was loaded in both directions without structural failure or significant plastic deformation. While under maximum downforce load, the post and bearing assembly experienced some deflection, most of which reversed when the load was removed. It was noted that the pile rotates slightly around its vertical axis while under load. This is likely due to the piles open C profile asymmetry and thus asymmetric section properties. After load was removed the pile returns to its original position. The rotation of the pile *can* subject the bearing to some amount of torque around its vertical axis however no cracks or permanent deformations were observed in any of the cast components. The post cap had some plastic deformation in the web (.035" subduction on center out of plane) but maintained full functionality and did not slip on the pile connection during testing. After loading the fixture was operated through six full rotation cycles (+60° to -60°) and showed no signs of excess current draw or functional abnormalities.

FAILURE MODE

None

CONCLUSION AND RECOMMENDATIONS

The Revised Bearing Assembly has been shown to withstand the required loads without failure. The parts maintained full functionality after the testing with no adverse effects.

APPENDIX D
MODULE MOUNT

OMCO Solar	Document Number:		Date:	10/16/2023
	Product:	Tracker	Author:	Andrew Ballentine
	Component:	1 in Portrait Large Format Module Mount	Test Type:	Qualification

SUMMARY (PASS)

Wind proxy load was applied to the 1 in portrait large format module mounting system to qualify its structural integrity when subjected to high wind speeds. The system was successfully subjected to a load equivalent of 105 mph wind.

BACKGROUND

OMCO's 1 in portrait large format module mounting system was designed in response to the recent trend of increasing module sizes. Our mounting system is also optimized for bifacial modules via an increased/adjustable offset from the torque tube which minimizes backside shading.

PASS/FAIL CRITERIA

- Module mount must not damage the module
- No evidence of structural or mechanical failure (UL 2703 21.6)
- No shifting/movement of module (UL 2703 21.6)
- No visible permanent deformation that may adversely affect system safety (UL 2703 21.6)
- No evidence of major visual defects (IEC 61215 4.16.5)
- No excessive deformation of any structural members

TOOLS/MATERIALS REQUIRED

- Digital Torque Wrench
- Sand Ballast
- Digital Calipers

COMPONENTS TESTED

- 1PM-1000 *(Figure 1)*
  - MODULE MOUNT
  - 1P STRAP

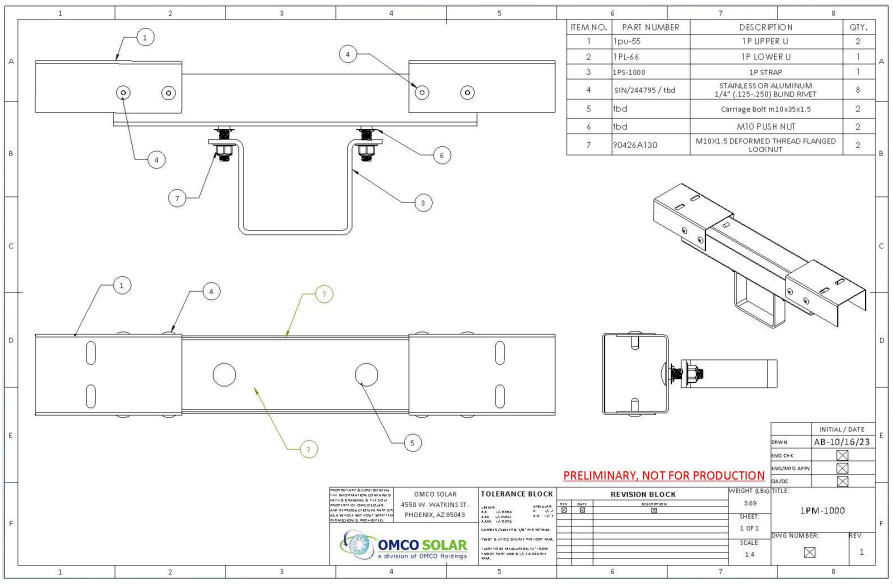
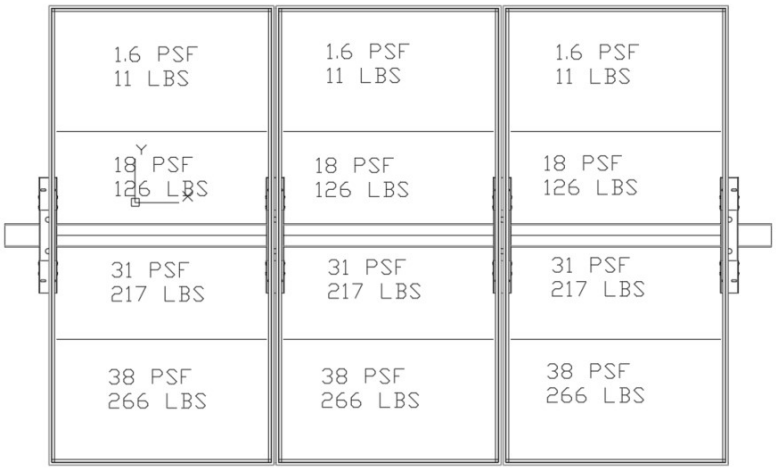


Figure 1: Mid Table Assembly

TEST SETUP & PROCEDURE

Load pressures are established via wind tunnel analysis. Test report shows pressures increase as the wind travels across the module surface. To simulate dynamic wind pressures with a static load the module's surface is divided into 4 equally sized zones, each zone has an increasing load set across the module's surface from top to bottom as shown in diagram below. Sand bags are used as ballast.

Figure 3: Test Setup



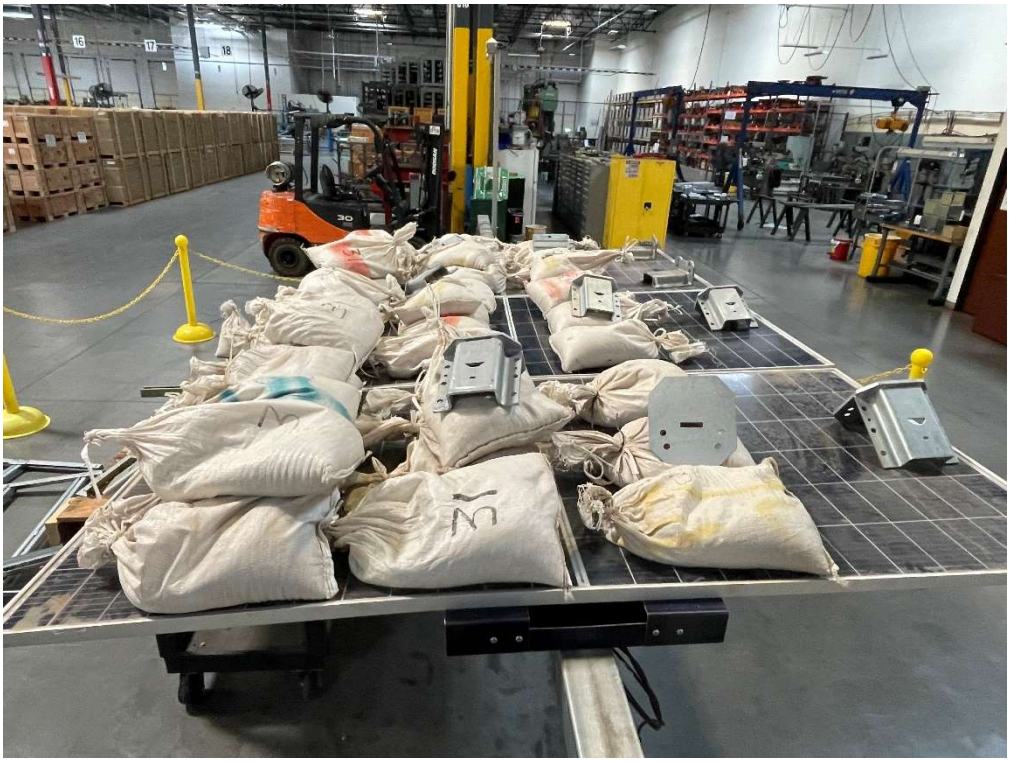


Figure 4: Test table assembly under load

Figure 5: Test table assembly under load

Figure 6: Test table assembly under load

OBSERVATIONS & CONCLUSION

- No plastic deformation was observed in the modules during or after static load testing.
- All modules remained firmly secured to the structure without loss in fastener torque.
- No plastic deformation was observed in any of the module mounting assembly components during or after static load testing.
- Omco's directional stowing capability limits uplift loads to a maximum of 35 mph. Due to this feature uplift loads are negligible and, in most cases do not exceed dead load of the structure.
- Structure adequately supported the modules during 105 mph wind equivalent down-force loading.