



NUANCE ENERGY
Revolutionary Solar Racking Structures

INSTALLATION MANUAL FOR OSPREY POWERRACK™

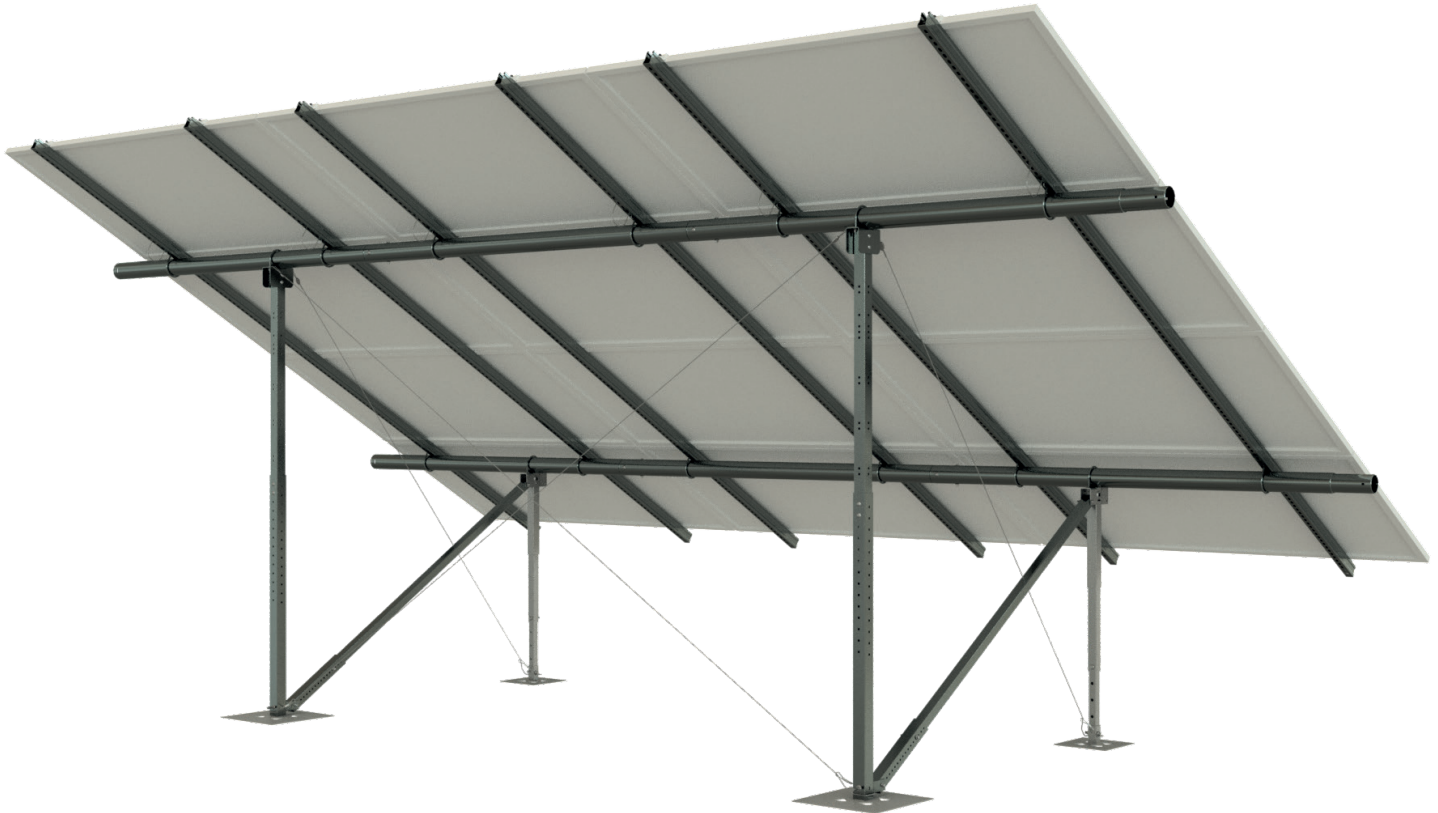
ETL CLASSIFIED



CONFORMS TO
UL2703*
CERTIFIED TO
CSA TIL A-40*



PAT # US 10,622,938 and
PAT # US 11,271,520
USPTO Patent:
#12,063,008
#12,222,327
Patent Pending:
Serial #18,796,243
Serial #19,049,846
Serial #18,627,556



- UL2703 & CSA TIL-A40
- Custom Engineered to Exceed Applicable ASCE, IBC, and UL Standards
- Electrically Bonded System
- 25 Amp Maximum Fuse Rating
- Full Module Compatibility
- Landscape Orientation
- Maximum Capacity of PV Modules:
 - 4x3 - 12 modules
 - 4x4 - 16 modules
 - 4x5 - 20 modules
 - 4x6 - 24 modules
- Linear Option for Larger Projects



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REV: 10.8
11/19/2025
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INSTALLATION MANUAL FOR OSPREY POWERRACK™

Introduction

This manual serves as the installation guide for the Osprey PowerRACK™. It is not intended to function as a complete engineering or technical design manual. Instead, its purpose is to walk installers through the proper assembly and field installation steps for the Osprey PowerRACK system.

The Osprey PowerRACK introduces a transformative approach to ground-mount solar engineering and construction. Its patented Earth Anchor Foundation System replaces traditional concrete and deep-driven foundations, reshaping how ground-mount arrays are designed, deployed, and secured.

Earth anchors have been successfully used for more than a century in demanding applications—including slope stabilization, retaining structures, marine moorings, and municipal infrastructure. Leveraging this proven technology, the Osprey PowerRACK anchors each table directly to the soil, delivering a structurally sound and rapidly deployable foundation.

By integrating Earth Anchor Foundation Technology, construction crews can secure each table and verify holding strength in real time—often eliminating the need for geotechnical reports, soil borings, or impact studies. For unique site conditions or specialized engineering requirements, please contact a Nuance Energy representative.

Product Summary and Intellectual Property

The Osprey PowerRack™ is engineered to these standards and certifications.

- Meets or Exceeds 2019 California Building Code.
- Meets or Exceeds 2018 International Building Code (IBC).
- Certified for grounding and bonding per UL2703* & CSA TIL A40*.
- Osprey tables can be engineered to sustain wind loads up to 140 MPH and Snow Loads up to 60 PSF.
- Structural Packets are provided and engineered and signed by 3rd party structural engineer.
- Site Specific Memos are available for every project.
- Our product names and product designs have been protected in the United States Patent and Trademark office and utility and methodology patents have been granted under (PAT # US 10,622,938 and PAT # US11,271,520), as well as multiple international patents.

Certification Notes

- UL2703* to be used only in combination with the modules that include this specific rack system in the module manufacturers installation manual.
- UL2703* classified for ground and bonding only.
- CSA TIL A-40* mechanical load need further evaluation before installation.





NUANCE ENERGY™
Revolutionary Solar Racking Structures

INSTALLATION MANUAL FOR OSPREY POWERRACK™

Safety

The safety of individuals and property must always be prioritized. All installation personnel should be required to wear personal protective eyewear, clothing, footwear, and any other protective gear that complies with the Contractor's Injury and Illness Protection Plan (IIPP) and meets OSHA requirements for the given site.

The majority of the components that make up the Osprey PowerRack™ are made of steel. These components are heavy and may have sharp edges, posing a risk of injury if not handled properly. Personnel should exercise caution during the assembly of the unit, as components can create pinching hazards. It is the responsibility of each individual to work with care and attentiveness.



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INSTALLATION MANUAL FOR OSPREY POWERRACK™

Tools and Equipment

The Osprey PowerRACK is engineered for fast, straightforward assembly—no specialized equipment required. The following list outlines the recommended tools typically used during installation.

Please note: this list serves as a general guide. Installers may choose alternative tools or methods based on their preferred workflow or site conditions.

Training Videos

Coming soon. Contact a Nuance Energy representative for latest installation videos.

Hand Tools

M18 Milwaukee Impact Wrench.
Model # 2967-20.



Milwaukee SDS Rotary Hammer Heavy Duty.
Serial # A50-B.
(13 amp, 2", 1800bpm min)



SAE and Metric Set
(deep socket preferred)



SAE and Metric Wrench Set



GearWrench.
Model # 85077.
Electronic Torque Wrench 25-100 ft./Lbs



Tape Measure



Digital Angle Level



Shovel/Pick



1/8" Alignment Punch



String Line



Socket Set Adapter



4ft Bubble Level



Milwaukee 48-20-3983 SDS MAX Bit 1 3/8" x 36".



Milwaukee 48-20-6951 15" Max-Lok SDS MAX Extension.



Milwaukee 48-20-6962 29 1/2" Max-Lok SDS MAX Adapter.



Equipment

Portable Generator
3500-6500w



Osprey TALON Load Testing Tool



Anchor Installation Drive Rod*
5/8" hardened Drive Rod
1/2" hardened Drive Rod



SAWZALL tool with Multiple blades for cutting excess rod



Portable Bandsaw for Metal



*For testing Anchors please check manual supplied with the Nuance Energy Anchor Testing Device.

*Load test device, drive rod and drill bit can be purchased through Nuance Energy.



INSTALLATION MANUAL FOR OSPREY POWERRACK™

Approved Module List

The following solar modules have been evaluated and tested to Standard UL2703* and CSA TIL A-40*.

	MANUFACTURER	MODEL NUMBERS
1	Canadian Solar	CS6X-310 315 320P, CS6X-P-FG, CS6K-P-FG, CS6K-M, CS6K-MAB, CS6P-P, CS6P-P-SD, CS6V-M, CS6W-530 535 540 545 550 555 MB-AG
2	Certainteed Corp.	CTxxxM00-03, CTxxxM10-03, CTxxxM11-03
3	CSUN	CSUNxxx-72MH (xxx can be 355 – 375 with 5 watt interval) QSAR 255-60M, QSAR 260-60M, QSAR 265-60M, QSAR 270-60M, CSUN310-60MH-BB
4	GCL	P6/72-330, M6/72H 365-400
5	Hansol	HSxxx-UD-AN1, HSxxx-UB-AN1
6	Hanwha Q Cells	Q.PRO BFR G4 G4.1 G4.3, Q.PLUS BFR G4.1, Q.PRO G4, Q.PLUS G4, Q.PRO L G4.1, Q.PLUS L G4.1 G4.2, Q.PEAK-G4.1 G4.1 MAX, Q.PEAK BLK G4.1, Q.PEAK L G4.2, HSL72P6-PC-3-xxxT (xxx = power class), Q.Peak Duo L-G5.2 380-395
7	JA Solar	JAM6(K)-72-xxx/PR
8	Jinko	JKM xxx P-60, JKM xxx PP-60, JKM xxx M-60, JKM xxx M-60B, JKMS xxx PP-60, JKMS xxx P-60, JKMSxxx-72, JKMxxxP-72, JKMSxxxP-72, JKMxxxM-72, JK07A (JKMSxxxPP-60 & JKMSxxxPP-72), JK07B (JKMSxxxPP-60), JKMxxx PP-60(Plus), JKM xxx PP-60B, JKM xxx M-60B, JKMSxxxM-60, JKMSxxxM-60-EP, JKM xxx P-72B, JKMxxxPP-72, JKMxxxPP-72B, JKMxxxPP-72(Plus), JKMSxxxPP-72, JKMxxxM-72-V, JKMxxxPP-72-V, JKMxxx-72L-V, JKMxxx-72HL-V, JKMxxxM-60L, JKMxxxM-60BL, JKMxxxM-60HL
9	LG	LGxxxN1C-G4, LGxxxN1W-G4, LGxxxS1C-G4, LGxxxS1W-G4, LGxxxN1K-G4, LGxxxN2C-B3, LGxxxN2W-B3, LGxxxN1C-A5, LGxxxS1C-A5, LGxxxN2W-A5, LGxxxS2W-A5, NeON 2 Bifacial LGxxxN2T-A5
10	Mission	MSExxxSQ5T
11	Seraphim	SEG-6MA-xxx WW
12	Sunpower	SPR-X21-xxx, SPR-E20-xxx, SPR-P17
13	Talesun	TP572, TP596, TP654, TP660 (35mm/40mm), TP672, Hipor M350+ (40mm), Talesun Smart (35mm) M = Mono P = Poly B = Black T = Transparent (H) = 1500V without (H) is 1000V, TP6H72M / TP6H72(H)
14	Trina	TSM-PD14, TSM-PD05, TSM-PD05.08, TSM-PD05.05, TSM-PEG5, TSM-PEG5.07, TSM-PEG14, TSM-PEG40.07, TSM-DD14A(II), TSM-330-DD14A(II), TSM-335-DD14A(II), TSM-340-DD14A(II), TSM-345-DD14A(II), TSM-350-DD14A(II), TSM-355-DD14A(II), TSM-DD06M.05, TSM-DE15H(II)
15	URE Sola	D6MxxxH4A
16	Yingli	YL xxxP-29b, YL xxxP-35b
17	Phono Solar	PS-xxxMH-24/TH, PS-xxx-60, PS-xxx-72
18	HT Solar	HT72-156M-V, HT60-156(M) (NDV) (-F), HT72-156(M/P)
19	Renesola	JCxxxM-24/Abw, Virus II 250-260W with 5 watt Interval, 156 Series 270-275W
20	Longi	LR6-72BP 355-375M 72 CELL, LR6-60 (40mm), LR6-72 (40mm), LR6-60 HV (40mm), LR6-60 PH (40mm), LR6-72 PH (40mm), LR6-60 PE (40mm), LR6-72 PE (45mm), LR6-60 BK (40mm Black frame), LR6-72 BK (40mm Black frame), LR6-60 PB (40mm Black frame), LR6-72 PB (45mm Black frame) Number in paranthesis signifies frame profile height, LR6-72-xxxM, LR6-72HVxxxM, LR6-72BK-xxxM, LR6-72PE-xxxM, LR6-72PHxxxM, LR6-72PB-xxxM, LR6-60-xxxM, LR6-60BK-xxxM, LR6-60PE-xxxM, LR4-60HPB/HIBxxxM, LR4-60HPH/HH-xxxM, LR4-72HPH/HH-xxxM, LR6-72BP-xxxM, LR672HBD/HIBDxxxM, LR6-60BP-xxxM, LR6-60HBD/HIBD-xxxM
21	REC	REC-320TP2M, PEAK Energy Series, PEAK Energy BLK2 Series, PEAK Energy 72 Series, TWINPEAK 2 SERIES, TWINPEAK 2 BLK2 SERIES, TWINPEAK SERIES
22	Risen	RSM72-6-xxxM/5BB, RSM72-6 (MDG) (M), RSM60-6
23	Heliene	72M, 36M, 60M, 60P, 72P
24	Axitec	AC-xxxMH/120S (AXIblackpremium HCSeries), AXIblackpremium 60 (35mm), AXIpower 60 (35mm), AXIpower 72 (40mm), AXIpremium 60 (35mm), AXIpremium 72 (40mm)
25	Freedom forever	FF-MP-BBB-400

*Classified to UL2703 and CSA TIL A-40 for bonding and grounding only.



INSTALLATION MANUAL FOR OSPREY POWERRACK™

General Component List

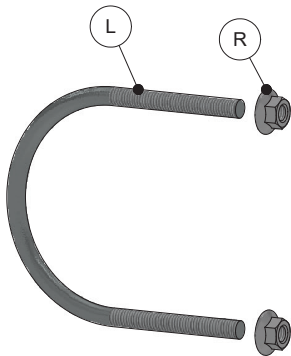
ITEM	DESCRIPTION	SPECIFICATION (IN)	PART NUMBER	PREVIEW
STRUCTURAL COMPONENTS				
A	EAST WEST BEAM	Ø101.6mm	OPR-823-11-235-098	
B	UNIVERSAL EXTERNAL LEG	□70x70mm	OPR-823-14-215-054	
C	UNIVERSAL INTERNAL LEG	□60x60mm	OPR-823-14-215-060	
D	LATERAL BRACE INTERNAL	□50x50mm	OPR-823-14-215-078	
E	LATERAL BRACE EXTERNAL	□60x60mm	OPR-823-14-215-018	
F	FRONT LEG	TRAILER JACK	OPR-810-11-530-051	
G	NS PURLIN	UNI2.56X1.65	OPR-822-11-215-186	
BRACKETS				
H	NORTH BRACKET	PL11.5X5.8	OPR-823-10-115-012	
I	LATERAL BRACKET	PL9.31X2.0	OPR-823-09-115-008	
FOUNDATION				
J	18" FOUNDATION MAX	PL18X18X25	UNV-011-03-345-018	
K	12" FOUNDATION MAX	PL12X12X25	UNV-011-03-345-012	



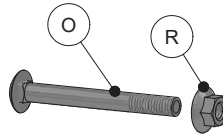
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Hardware

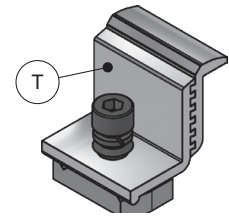
ITEM	DESCRIPTION	SPECIFICATION (IN)	PART NUMBER
L	EW U-BOLT	3/8-16-40D U-BOLT	OPR-831-050-U04
M	ANKLE BOLTS	1/2-13-4.5" CARRIAGE BOLT	OPR-831-050-012-X45
N	CARRIAGE SWAGE BOLTS	3/8-16-4.5" CARRIAGE BOLT	OPR-831-050-038-X45
O	CARRIAGE BOLTS GENERAL	3/8-16-3.5" CARRIAGE BOLT	OPR-833-050-038-X35
P	PAL BOLTS	1/2-13-3" HEX HEAD BOLT	OPR-833-050-012-B3
Q	LAT BOLTS	3/8-16-3.5" HEX HEAD BOLT	OPR-833-050-038-B3
R	3/8" NUTS	3/8-16 SERRATED NUT	UNV-031-050-038-N38
S	1/2" NUTS	1/2-13 SERRATED NUT	OPR-831-050-012-N12
T	END CLAMPS	SOLAR MASTERS	UNV-051-050-E05
U	MID CLAMPS	SOLAR MASTERS	UNV-051-050-M05
V	CABLE BRACE	18FT 4MM CABLE BRACE	OPR-811-500-C18



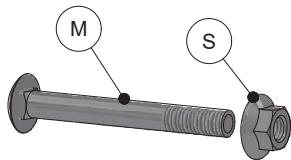
Torque:
32ft-lbs



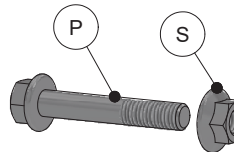
Torque:
32ft-lbs



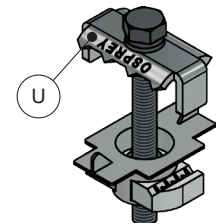
Torque:
11ft-lbs



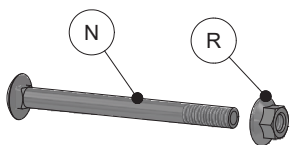
Torque:
32ft-lbs



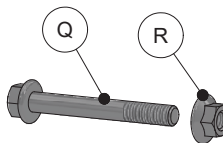
Torque:
64ft-lbs



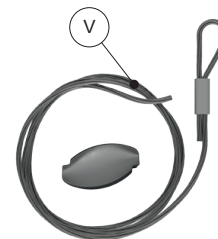
Torque:
11ft-lbs



Torque:
32ft-lbs



Torque:
32ft-lbs



Install by
hand apply
tension using
Tension
tool. Do not
over tension
as this can
shift structure



Best Practices - Installation of the Racking System

This document outlines Nuance Energy's recommended best practices for installing fasteners, cable bracing, anchor foundations, and structural components. Following these guidelines helps ensure mechanical integrity, proper alignment, and a continuous electrical bonding path.

Essential Procedures

- Count and stage all components before beginning the assembly.
- Follow all dimensions shown in the PE stamped, site-specific construction drawings.
- Identify the lowest point on the jobsite.
 - Set the Front Legs to their maximum height per construction drawings.
 - Level the remainder of the racking by lowering subsequent legs as the layout progresses outward from that lowest point.
- Assemble each rack as a standalone unit before linking units together (if continuous rows are approved by engineering).
- Hand-tighten all fasteners per unit, and fully torque hardware only after assembly Step 12.
- Each lateral brace uses three bolts; the center bolt must be installed only after leveling and tilt angle is set (assembly Step 6).
- Level East/West Beams and square the Purlins, Front/Rear Legs, and Lateral Brace for each rack before tightening the cable bracing.
- To square the array, use the opposing-corner method:
 - Install the two exterior purlins per unit first to establish a large reference "square."
 - Confirm that the outermost purlins have equal overhang beyond the East/West Beams.
- Diagonal measurements should be within a 1" tolerance.

Recommendations:

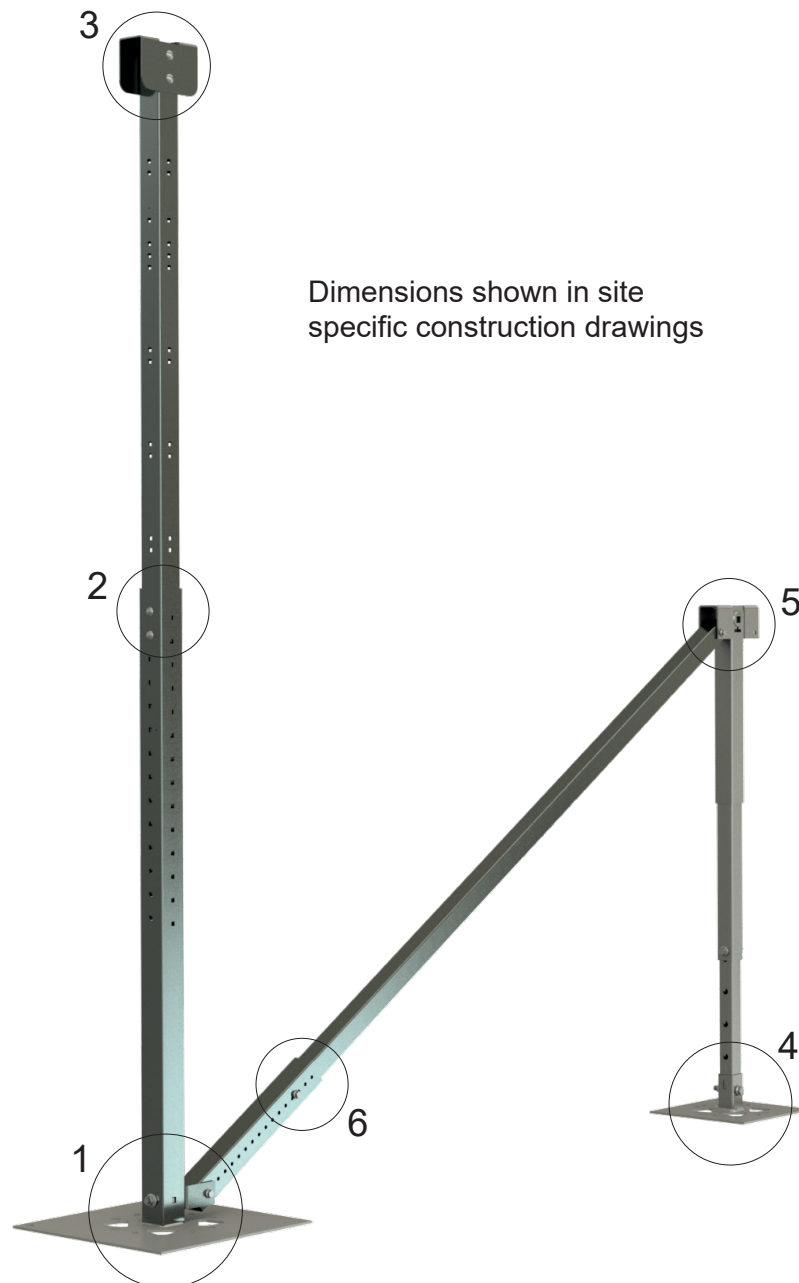
- The rear East/West Beam may be unstable before foundations are installed. Use a purlin or jig to brace it against the rear legs and ground to prevent sway or tipping.
- To prevent sagging at the E/W Beam connection, ensure:
 - Carriage bolts are installed vertically and horizontally aligned
 - The E/W Beam is centered per unit
- Thread stainless-steel nuts by hand to avoid cross-threading.
- Carriage bolts do not require a back-wrench due to the square holes in the components. Standard hardware will require back-wrenching to prevent slipping.
- Avoid over-torquing with an impact driver, as it may deform components or strip hardware.
- Set the torque wrench to the correct value for the fastener size.
- Apply torque with the wrench until the specified load is achieved.
- Mark each torqued fastener with permanent marker to streamline Quality Control (QC).



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PowerRack Assembly Instructions

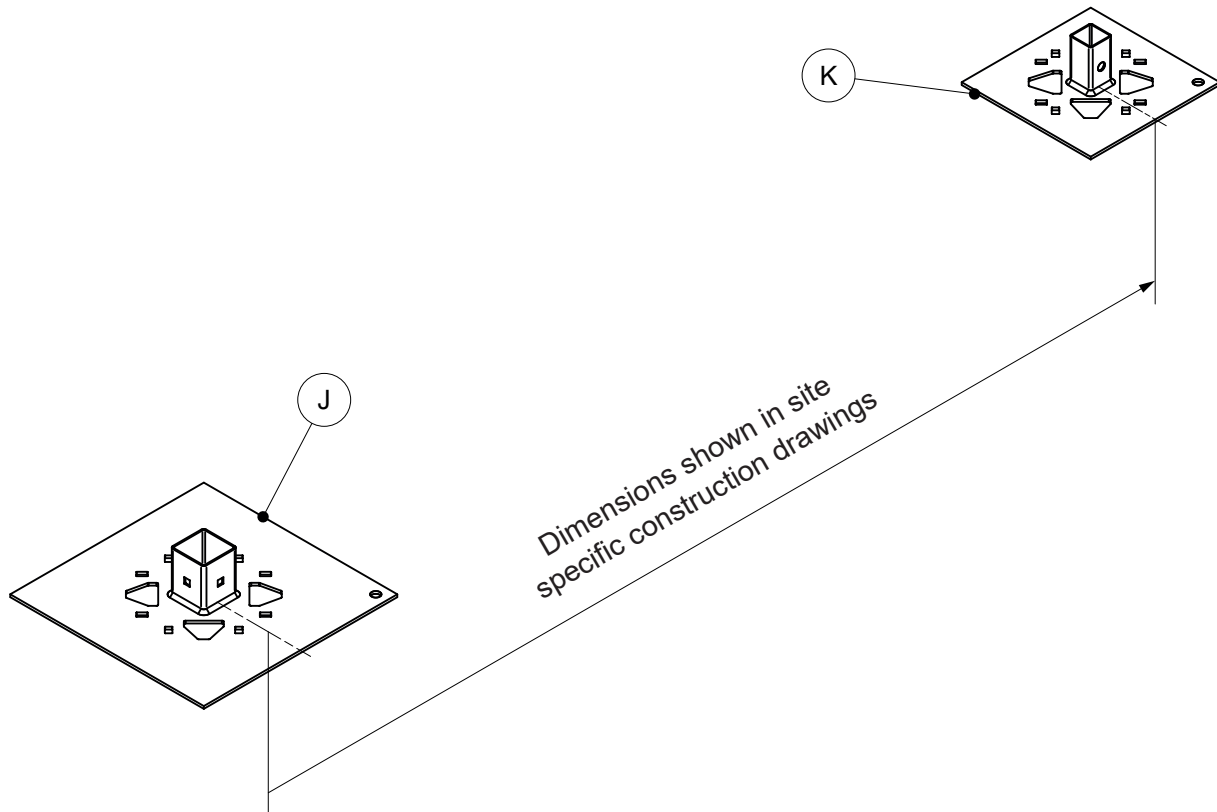
First: Measure & assemble front/rear base plates, front/rear legs, brackets & lateral brace.





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Front & Rear Base Plate spacing:

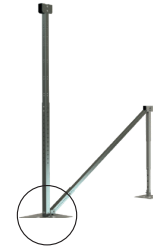
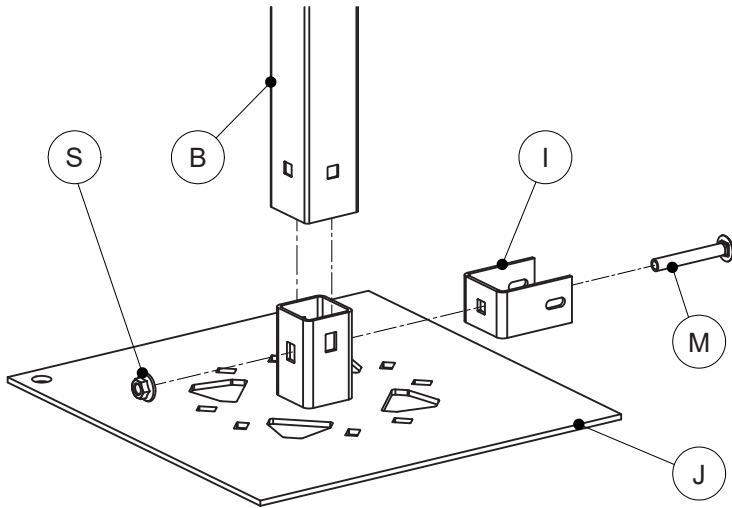


ITEM	DESCRIPTION
J	18" FOUNDATION MAX
K	12" FOUNDATION MAX



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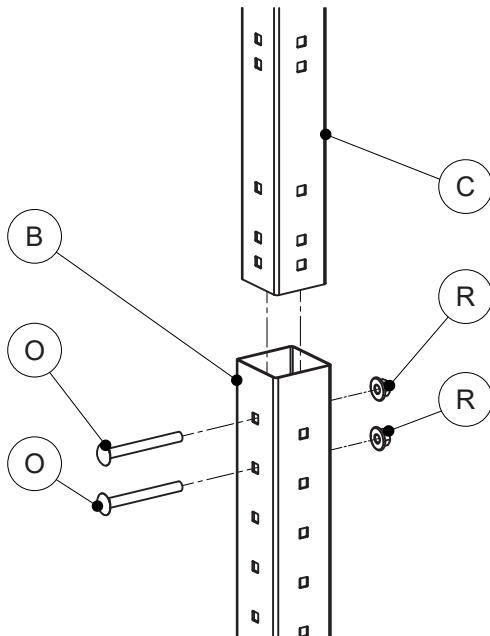
1) Rear Base Plate & Leg Assembly:



ITEM	DESCRIPTION
B	UNIVERSAL EXTERNAL LEG
I	LATERAL BRACKET
J	18" FOUNDATION MAX
M	ANKLE BOLTS
S	1/2" NUTS

* Leg components will vary in length based on tilt angle, loading conditions. Assembly instructions are identical.

2) Rear Leg Assembly:

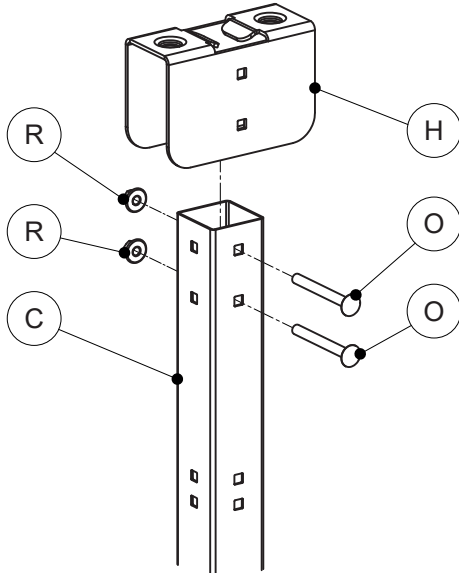


ITEM	DESCRIPTION
B	UNIVERSAL EXTERNAL LEG
C	UNIVERSAL INTERNAL LEG
O	CARRIAGE BOLTS GENERAL
R	3/8" NUTS



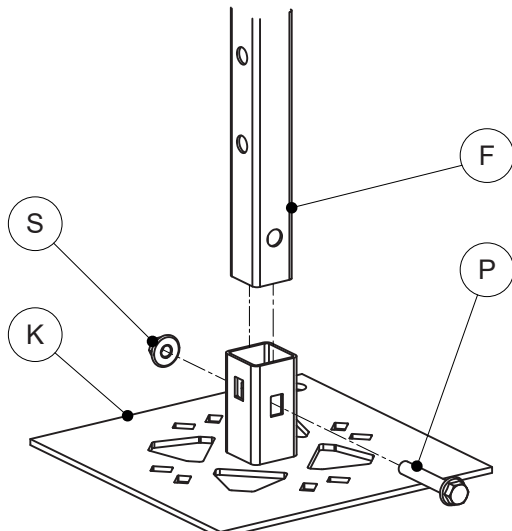
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3) Rear Top Bracket Assembly:



ITEM	DESCRIPTION
C	UNIVERSAL INTERNAL LEG
H	NORTH BRACKET
O	CARRIAGE BOLTS GENERAL
R	3/8" NUTS

4) Front Base Plate & Leg Assembly:

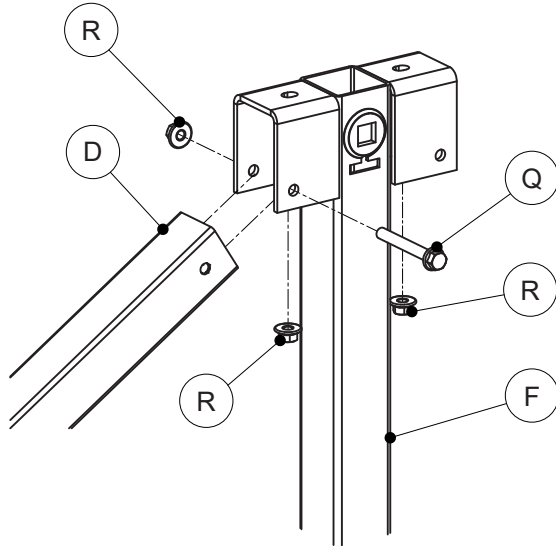


ITEM	DESCRIPTION
F	FRONT LEG
K	12" FOUNDATION MAX
P	PAL BOLTS
S	1/2" NUTS



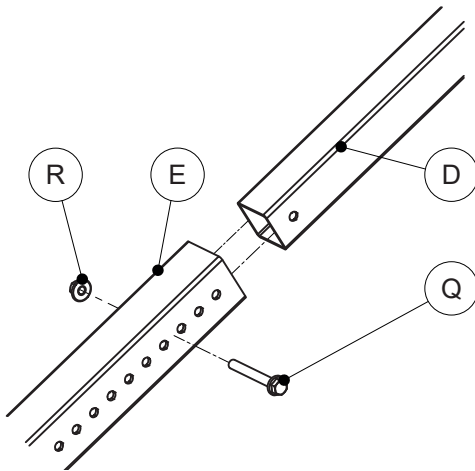
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5) Front Top Bracket Assembly:



ITEM	DESCRIPTION
D	LATERAL BRACE INTERNAL
F	FRONT LEG
Q	LAT BOLTS
R	3/8" NUTS

6) Diagonal Lateral Brace:

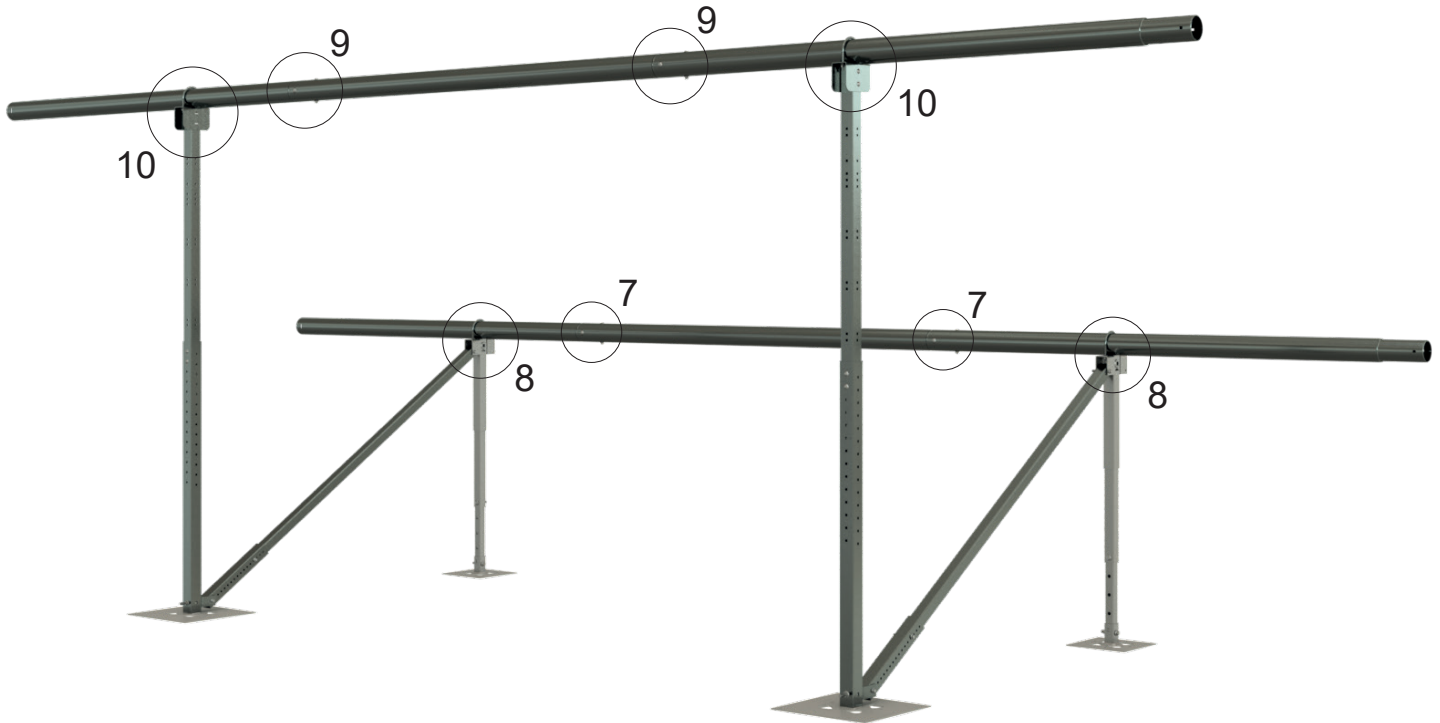


ITEM	DESCRIPTION
D	LATERAL BRACE INTERNAL
E	LATERAL BRACE EXTERNAL
Q	LAT BOLTS
R	3/8" NUTS



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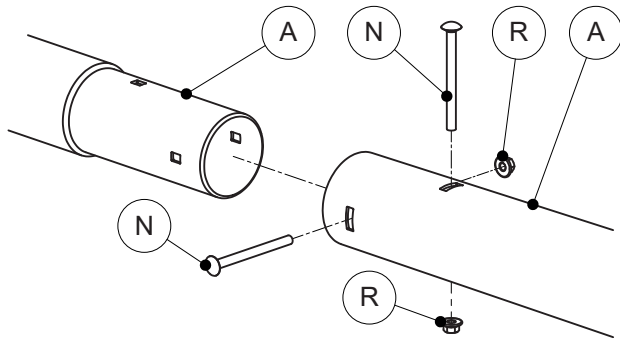
Steps 7 through 10:





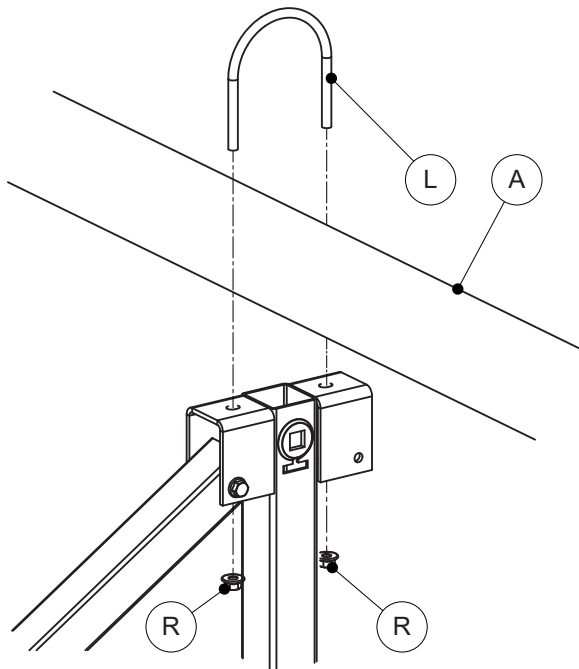
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7) Front East West Beam Assembly:



ITEM	DESCRIPTION
A	EAST WEST BEAM
N	CARRIAGE SWAGE BOLTS
R	3/8" NUTS

8) Front East/West Beam & U-Bolt Installation:



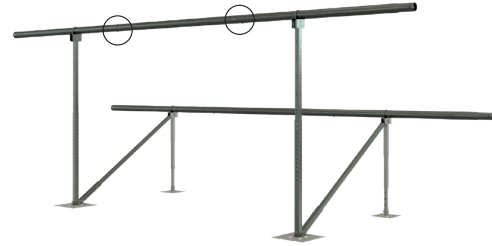
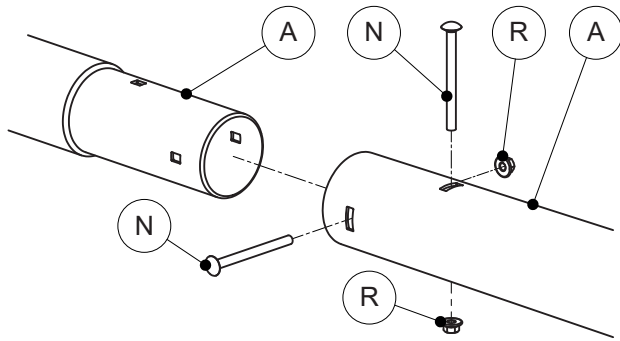
ITEM	DESCRIPTION
A	EAST WEST TUBE
L	EW U-BOLT
R	3/8" NUTS

* Verify Beams are level and square prior to purlin installation.



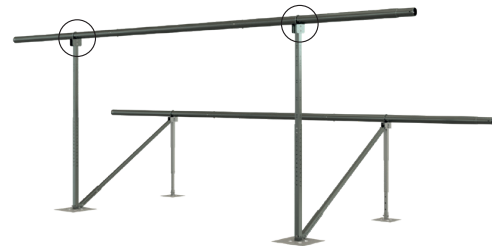
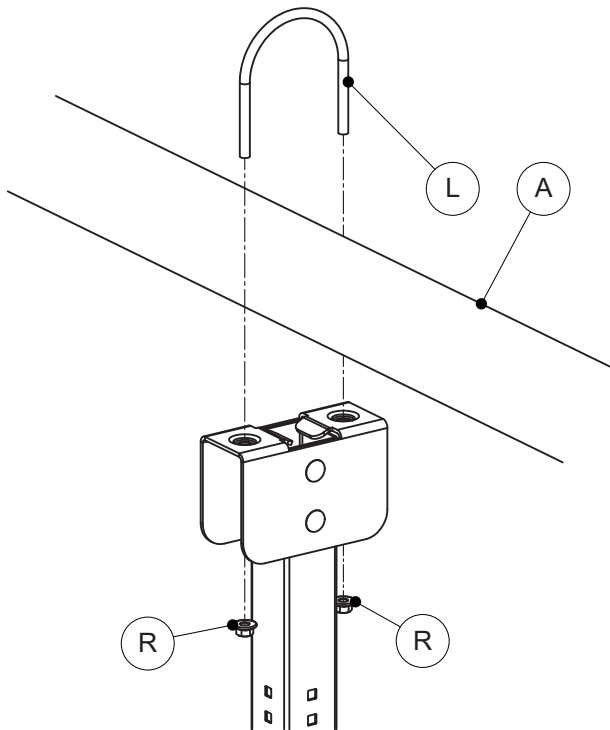
INSTALLATION MANUAL FOR OSPREY POWERRACK™

9) Rear East West Beam Assembly:



ITEM	DESCRIPTION
A	EAST WEST BEAM
N	CARRIAGE SWAGE BOLTS
R	3/8" NUTS

10) Rear East/West Beam & U-Bolt Installation:

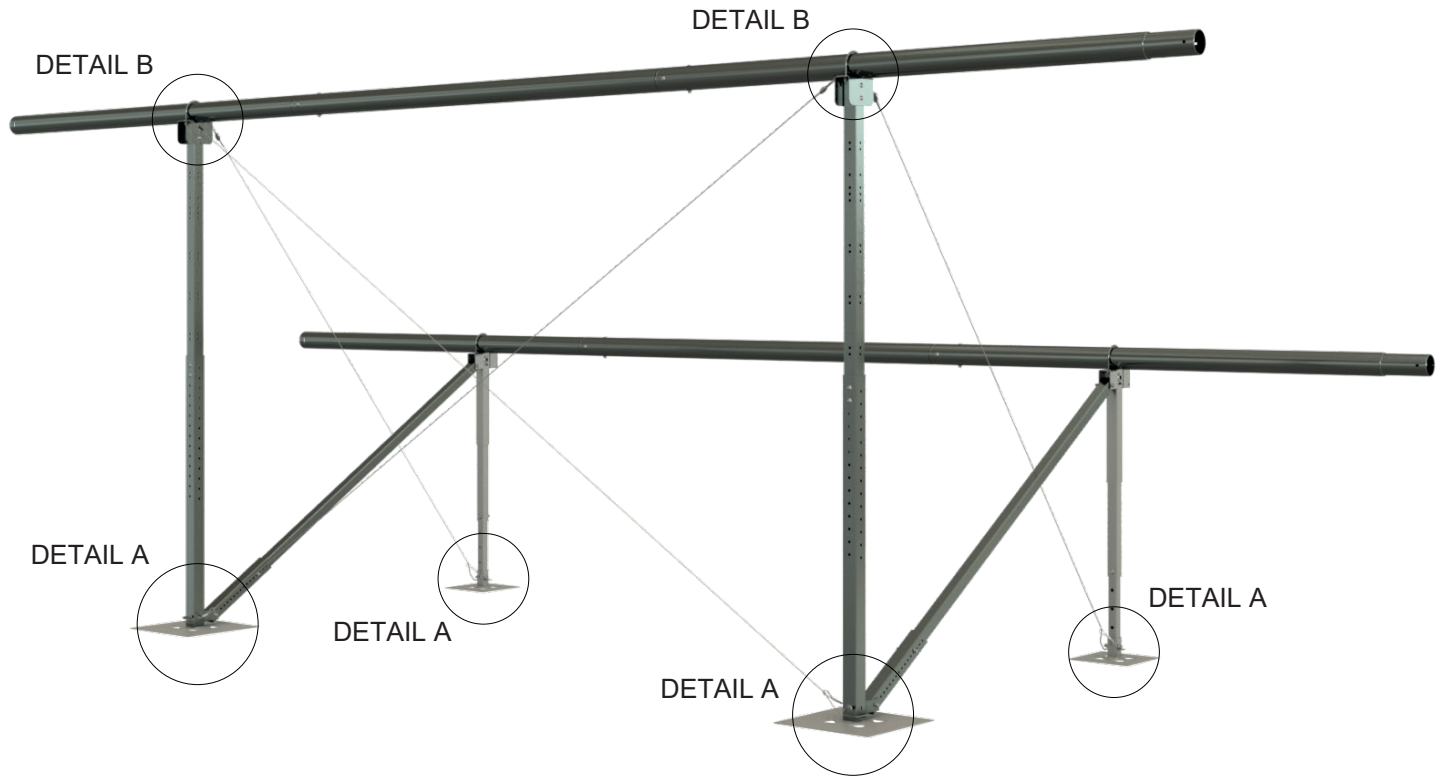


ITEM	DESCRIPTION
A	EAST WEST BEAM
L	EW U-BOLT
R	3/8" NUTS

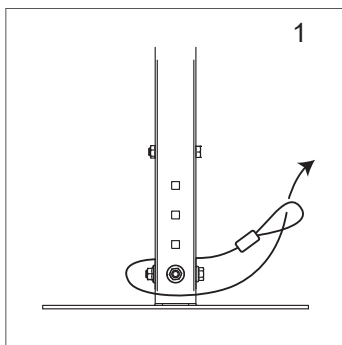


INSTALLATION MANUAL FOR OSPREY POWERRACK™

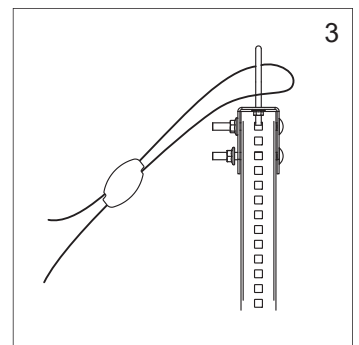
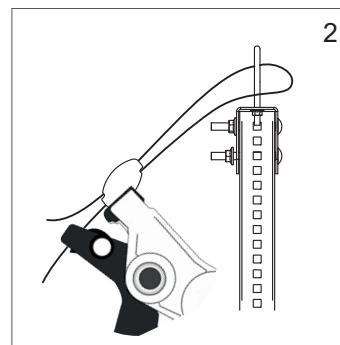
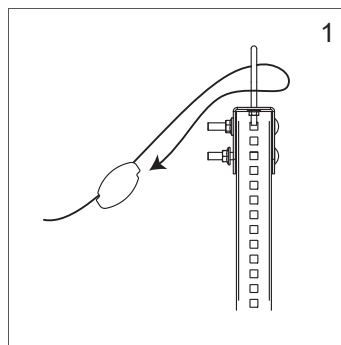
11) Cable Brace Installation:



DETAIL A



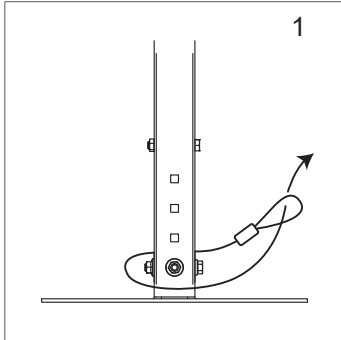
DETAIL B



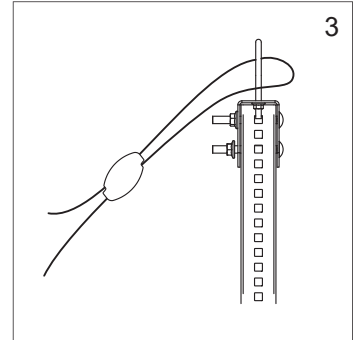
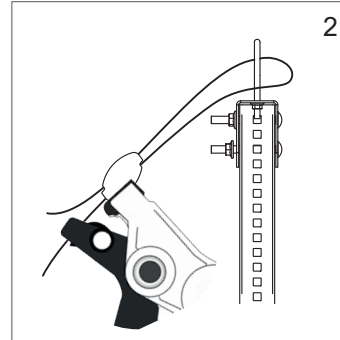
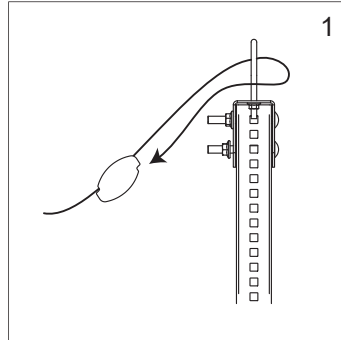


INSTALLATION MANUAL FOR OSPREY POWERRACK™

DETAIL A



DETAIL B



Cable Bracing Overview

Cable bracing should be installed loosely and tightened only after Step 12 (Purlin Installation). This prevents the unordered movement of structural components that have not yet been torqued or squared & leveled.

Step 1) Detail A

Wrap the cable around the bottommost Front Leg hardware and thread the open cable end through the cable loop. Make sure the cable cannot slide or slip from its position.

Step 1) Detail B

Loop the open end of the cable through & back around the U-Bolt on the Rear Leg Assembly & thread the cable back through the dynamic tensioner.

Leave at least 6" of cable through the dynamic tensioner and ensure the dynamic tensioner is more than 18" away from the loop. Pull the cable by hand until it is taut.

Step 2)

Brace one end of the cable tensioning tool against the dynamic tensioner and grip the loose end of the cable using the jaws of the tool. Apply tension to the cable, ensuring that the assembly does not move during this step.

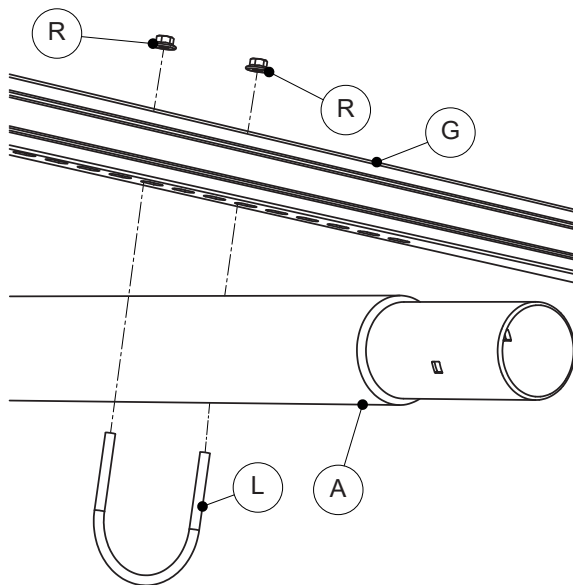
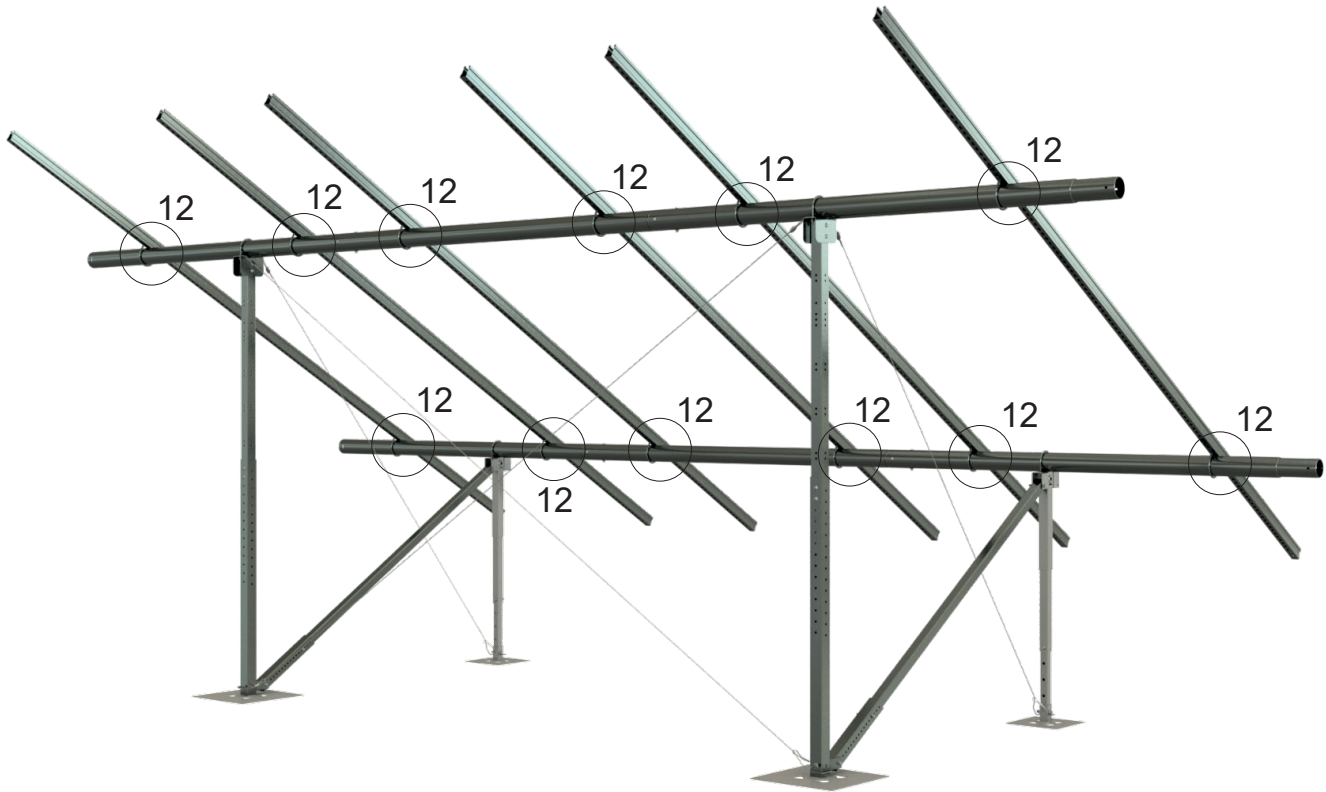
Step 3)

When tension is reached, the tensioner tool will notify the user with an audible click.



INSTALLATION MANUAL FOR OSPREY POWERRACK™

12) Purlin Installation:



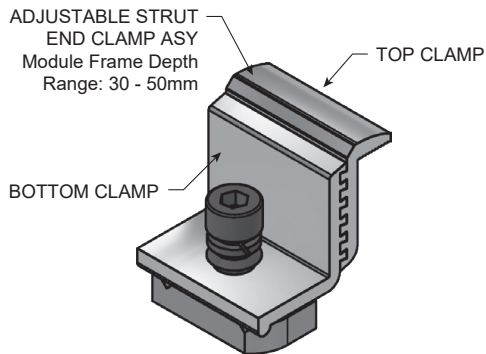
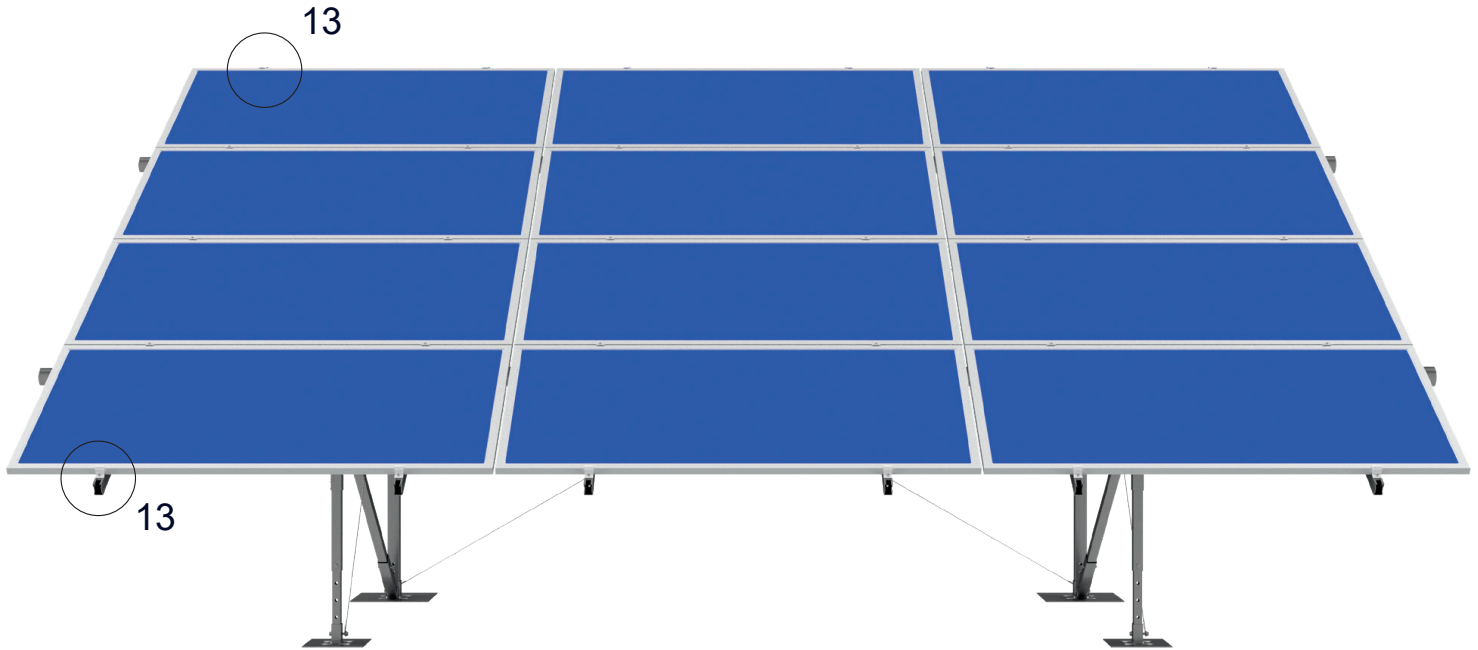
ITEM	DESCRIPTION
A	EAST WEST BEAM
G	NS PURLIN
L	EW U-BOLT
R	3/8" NUTS

* Ensure exterior purlins are square and at the correct tilt prior to installing interior purlins.



INSTALLATION MANUAL FOR OSPREY POWERRACK™

13) Panels, End Clamps:

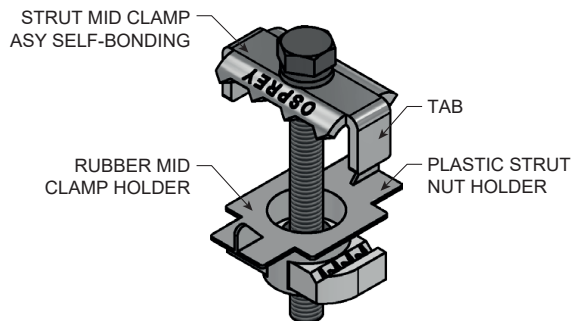
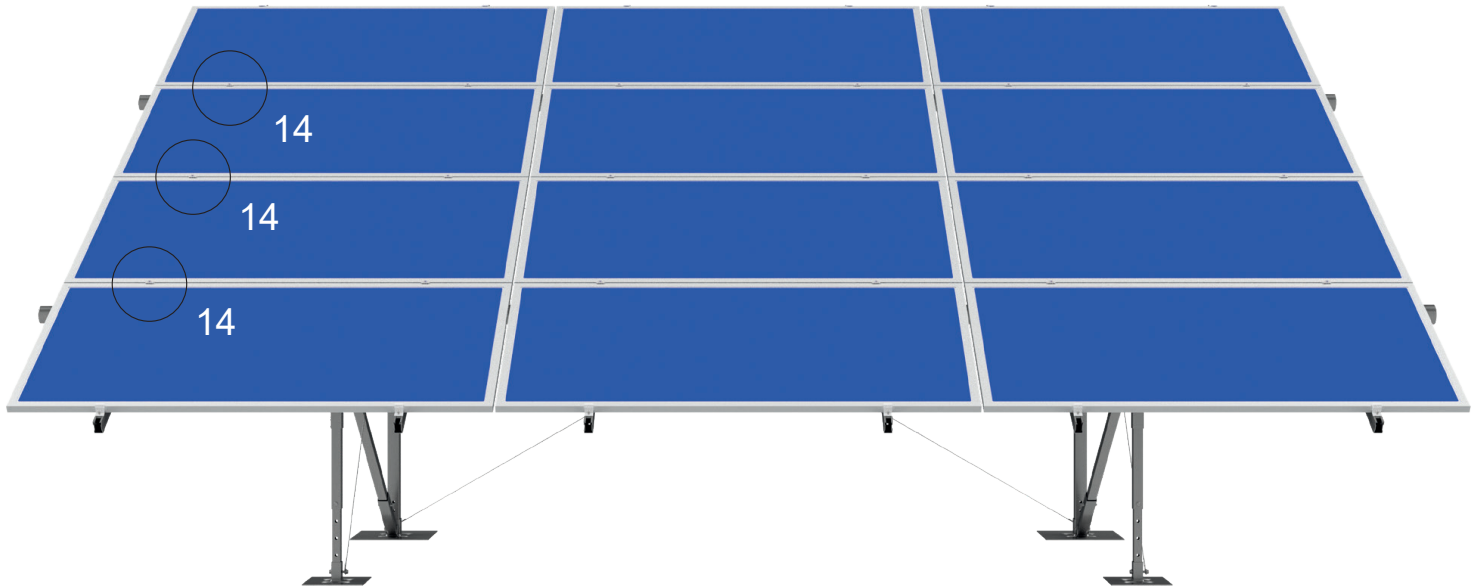


ITEM	DESCRIPTION
T	END CLAMPS 12



INSTALLATION MANUAL FOR OSPREY POWERRACK™

14) Panels, Mid:

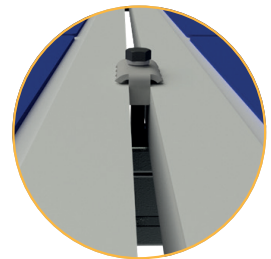
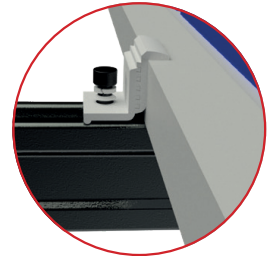
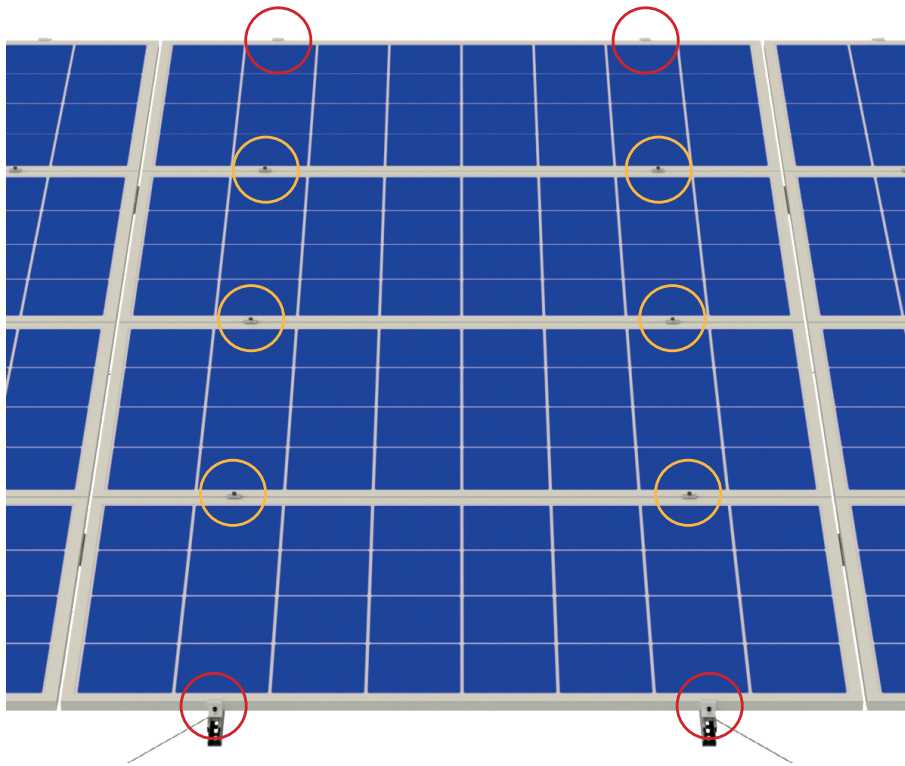


ITEM	DESCRIPTION
U	MID CLAMPS 18



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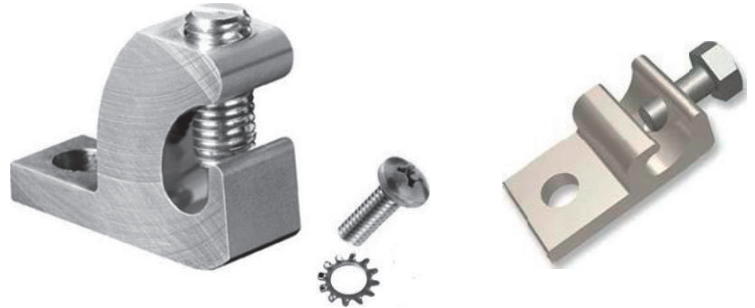
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INSTALLATION MANUAL FOR OSPREY POWERRACK™

Grounding and Bonding

Once the solar panels have been installed connect each solar panel using a UL Listed bonding lug and attach this lug to a copper wire. This assembly is then connected to the ground rod. Please note that Nuance Energy does not provide any electrical components.



Bonding Path

1. Place the lug over the hole, positioning the star washer between the bottom of the grounding lug and the rear chassis. Insert the bolt and torque the grounding assembly.
2. Insert a #4 to #10 AWG copper wire into the lug and tighten the lug set screw onto the copper wire. Torque to 35 in-lbs for #4-6 AWG wire and to 30 in-lbs for #8-10 AWG. The minimum grounding conductor to be used is #10 AWG copper.
3. Connect the grounding electrode conductor to a ground rod or equivalent ground according to the National Electric Code.
4. For multiple rows of Osprey PowerRACK™ units, connect each row's strut rail with an appropriately sized grounding conductor and run it in conduit with string wires to the next row according to the maximum fuse rating of the module string. For example, a bare #6 copper wire is rated for 200A. If this string is rated for 15A DC, then 13 strings can be connected to a single ground rod. If the string has a 20A DC rating, then 10 strings of PowerRACK units can connect to the single ground rod. For large solar arrays, multiple ground rods will be required. Nuance Energy does not supply any electrical components. Solar components can be added to the strut channel of each rail using Spring Channel Nuts and flanged bolts. Another option is to drill through the back of the rails and/or chassis members and tap or use flanged bolts to connect components to the frames. Please note that Nuance Energy does not supply these materials at this time.





INSTALLATION MANUAL FOR OSPREY POWERRACK™

Anchor Install Guide

This is a guide covering the requirements of installing anchors with the Osprey PowerRACK. The installation of 1, 2 and, 3 anchors vary depending on the application. Please use the diagrams below as a reference in the field when installing anchors. Contact a Nuance Representative with any questions.

It is recommended to use a SDS MAX Drill Bit, Extension, & Adapter to drive "Pilot Holes" at engineered depth according to the angles in the anchor diagrams below: Pilot holes help ensure the anchors do not catch onto objects in the soil during installation which may cause redirection of the anchor heads.

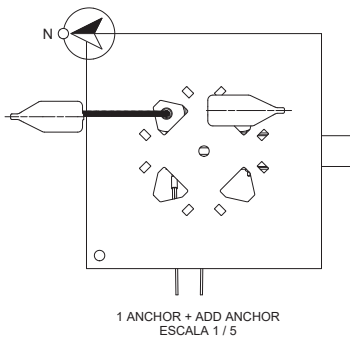
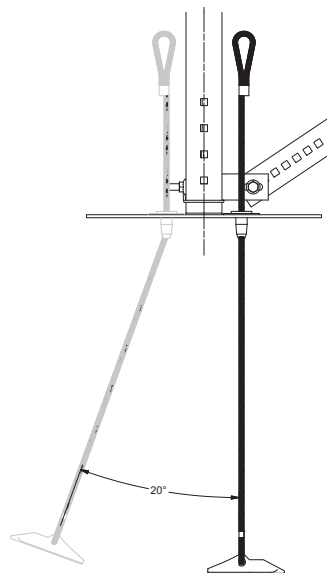


INSTALLATION MANUAL FOR OSPREY POWERRACK™

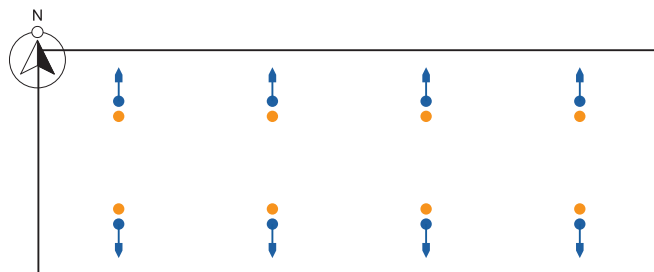
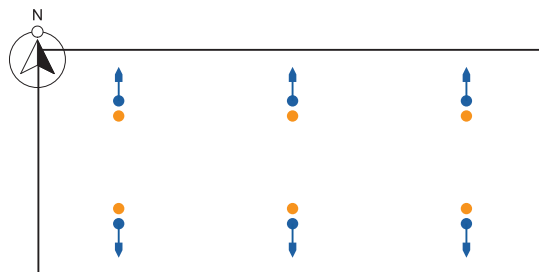
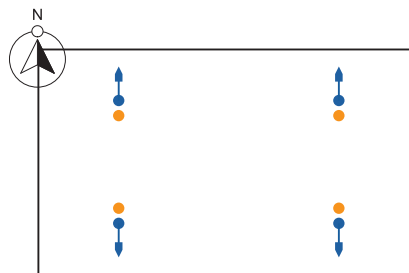
1 Anchor + Anchor

When one anchor is required it is necessary to install the anchor vertically at a 90 degree angle. There is a tolerance of ± 5 degrees during installation. If the required load is not reached install a second anchor 20 degrees from vertical.

When working with the North Shoe plate the anchor must be installed north, when working with the south anchor the anchor must be installed South.



- Primary
- Secondary

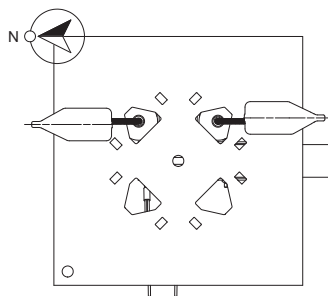
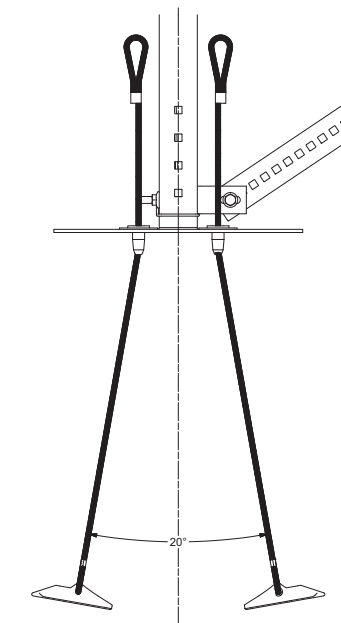




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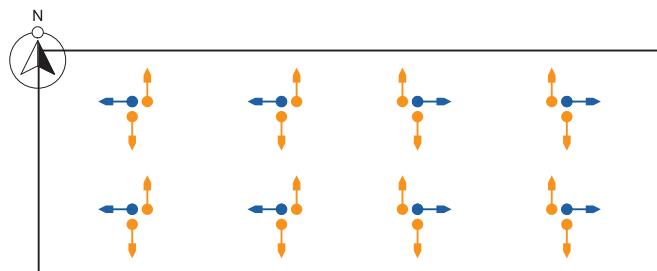
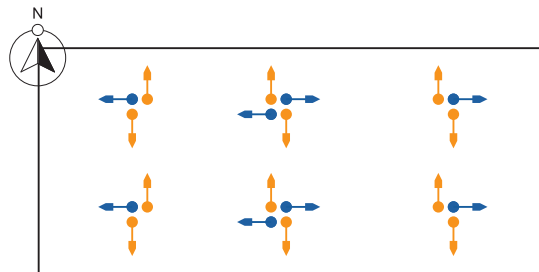
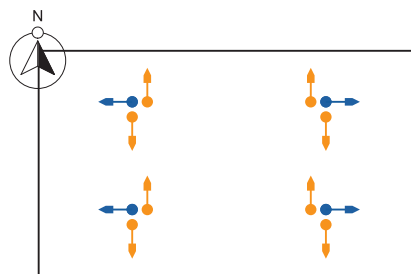
2 Anchors

When installing 2 anchors the anchors must be arranged facing north and south, each anchor must be installed 10 degrees outward from vertical. One anchor is to be pointing North and the second South. If the desired load is not reached an additional anchor must be used. For exterior anchors the third anchor must be installed towards the exterior in the East or West direction. Interior foundations either way is acceptable.



2 ANCHORS
ESCALA 1 / 5

- Primary
- Secondary

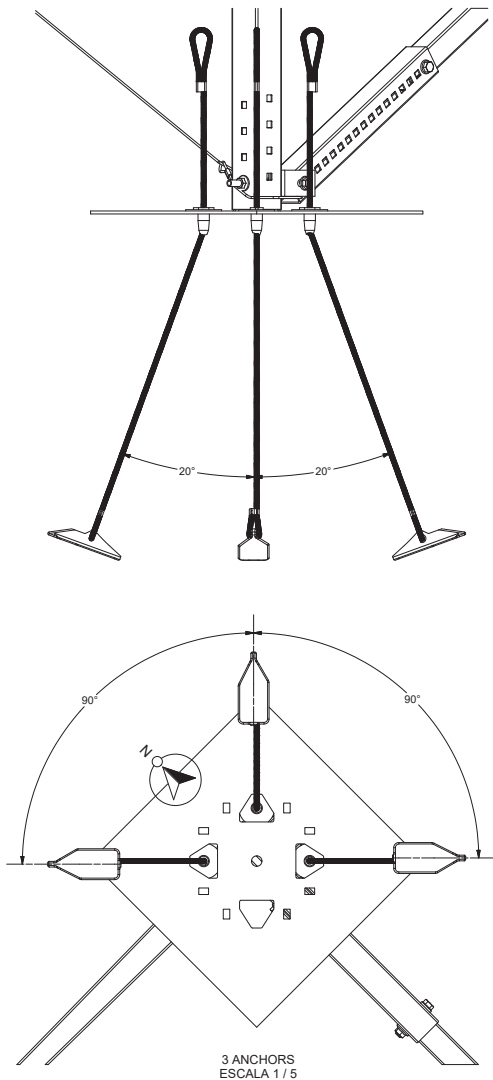




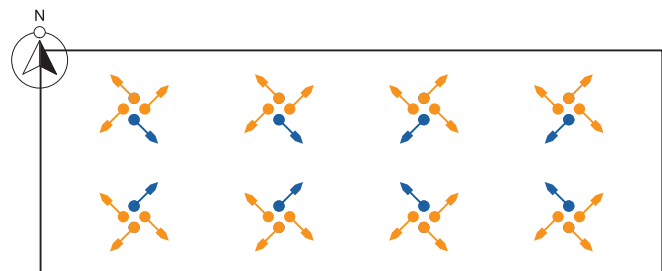
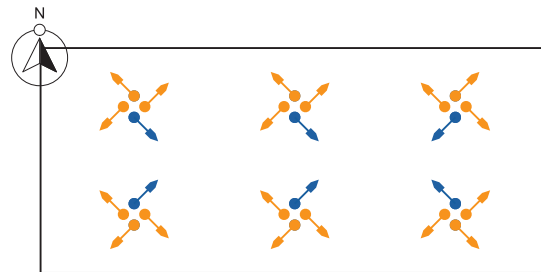
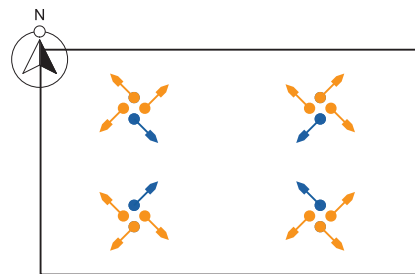
INSTALLATION MANUAL FOR OSPREY POWERACK™

3 Anchors

When installing 3 anchors they must be installed at a 20 degree angle from vertical. Additionally the 3 anchors must be installed away from each other to ensure their capacities don't interfere. Use the holes in the shoe plates as arrows towards where the anchors should point. Preferably the anchors shall be at 90 degrees from each other, however due to the structure some variation is acceptable.



- Primary
- Secondary





INSTALLATION MANUAL FOR OSPREY POWERRACK™

Installer Warning and Notice

It is crucial to carefully read and comprehend the installation manual provided before installing, wiring or operating our product in your PV system. Failure to comply with all instructions and procedures could result in product damage, and most importantly, cause severe injury or even death. It is essential to ensure that all PV systems and Osprey PowerRack™ installations meet the National Electric Code standards. Installers hold the sole responsibility of complying with code and safety regulations, and the consequences thereof

WARNING!



DANGER
Electric
shock risk

PV modules generate electricity when exposed to light and are electrically live when mounted. This DC electricity can pose danger to the installer, user, and/or property. Any contact with electrically active module terminals can result in arcing; leading to shocks, fires, burns, and/or death. Use caution around utility power lines that may be near the work area. Never work when lightning is present. Insure good earth-bonding as part of a lightning protection system.

⚠ DANGER!



Electrical shock potential of PV modules increases with higher parallel currents and series voltage connections. The PV installer must assume all inherent risk of property damage and/or personal injury related to the mishandling of PV modules during installation and safety standards. These standards include but are not limited to applicable National Electrical Code (NEC®) sections, UL Standards, OSHA Regulations, State or Local Fire Marshall Codes, NFPA 70E. Installation must comply with NEC 250 (Grounding and Bonding), NEC 690 (Solar Photovoltaic Systems), CSA 22.1 (Safety Standard for Electrical Installations), Canadian Electrical Code Part 1, and all other applicable state, provincial, and local electrical code requirements. Dual Rack Solar Racking Systems must be used with UL1703 listed equipment including but not limited to; PV modules, combiners and disconnects.

⚠ DANGER!



Avoid electrical injuries by preventing the accidental or unintentional release of hazardous energy. Modules produce electricity when exposed to light. To avoid electric shock and injury, completely cover the front of the module with an opaque material before making any electrical connections. Lock out/tag out and disconnect the PV system from all electrical energy before any maintenance or cleaning. NEVER disconnect or connect modules under load. NEVER disconnect the earth bond to the array.



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~ END OF INSTALLATION MANUAL ~



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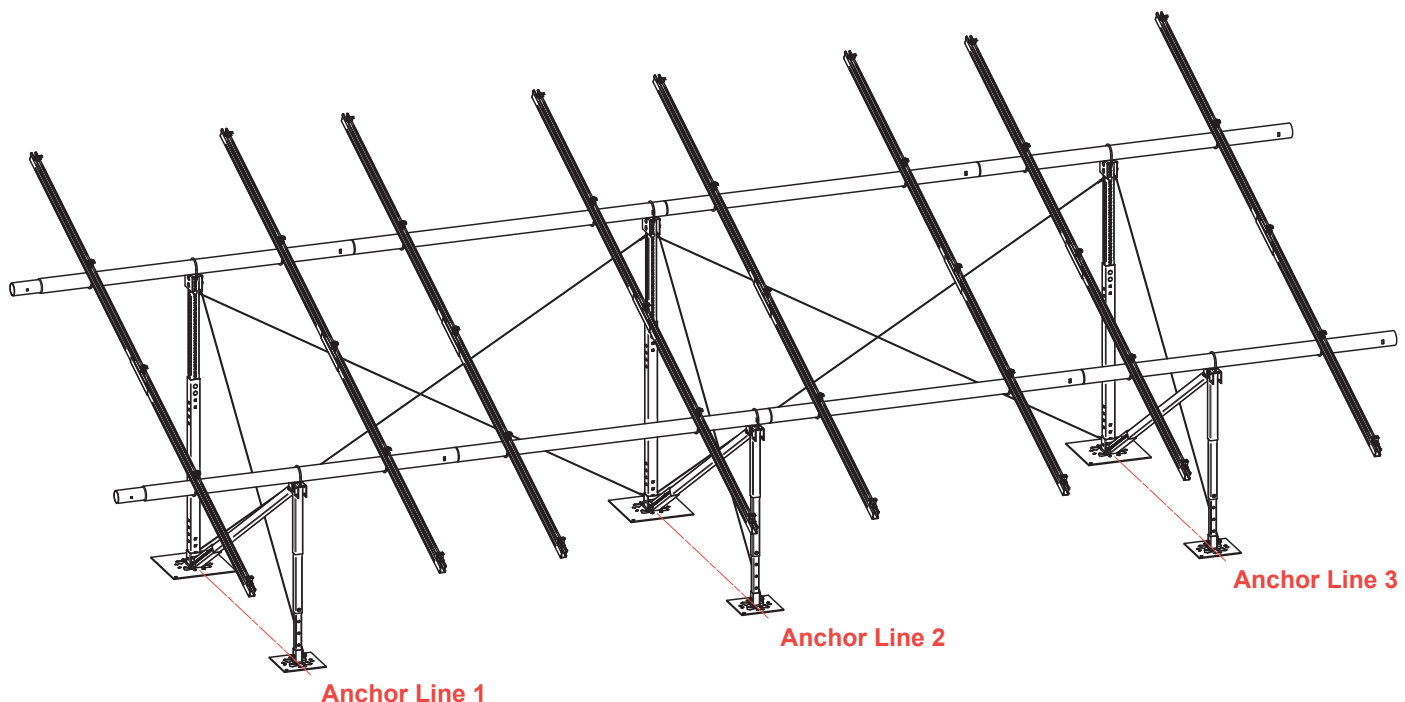
INSTALLATION MANUAL FOR OSPREY POWERRACK™

Installation and Testing of Earth Anchors

After completing the Osprey PowerRACK™ table unit assembly, ensuring proper alignment, squaring, leveling, and splicing to the next tables, the installers must commence the installation of Earth Anchors. Each Base Plate must contain a minimum of one Earth Anchor, and all anchors must undergo rigorous load testing. In certain cases of severe frost or extremely hard soil, our Drill Bit as specified on page 5 may be required to create pilot holes for the anchors. It's important to note that these pilot holes are not wide enough to accommodate the anchor's passage through solid rock. In such cases, we use epoxy spin-in Chemical capsule methods, HOG All Thread with a 3/4" Drill Bit purchased from a source other than Nuance Energy, or our NEW Galvanized Expansion Rock Anchors that utilize our current 13/8" dia. drill bits. For more details, see the Supplementary Earth Anchor Instructions.

To comply with safety regulations, installers must request Structural Calculations packets directly from Nuance. Installers are responsible for selecting the appropriate design values and anchor quantity based on live pull testing results or via SSM request. It is recommended to purchase additional anchors to account for unforeseen circumstances.

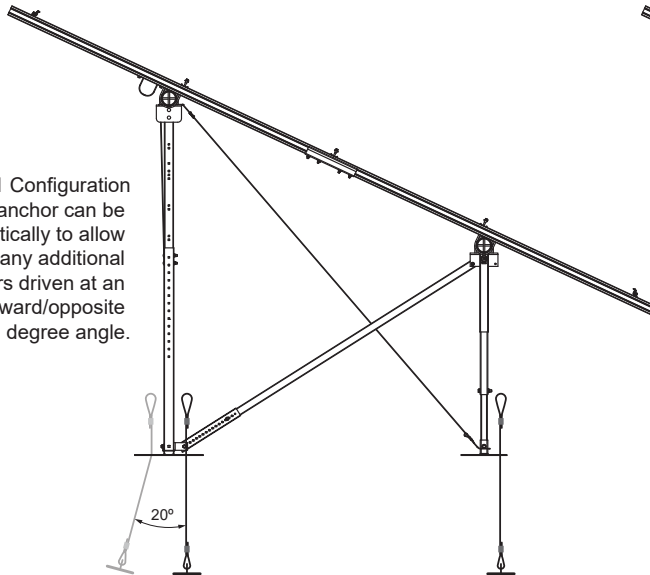
Nuance Energy's website offers Site-Specific Memo's (SSM) upon RFQ request, which provides project site-specific parameters and PE stamps.



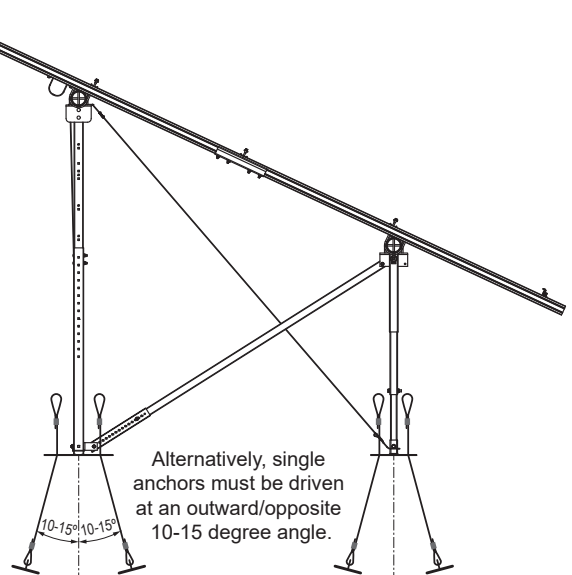


INSTALLATION MANUAL FOR OSPREY POWERRACK™

Anchor Line 1 Configuration with single anchor can be driven vertically to allow room for any additional anchors driven at an outward/opposite 20 degree angle.



Alternatively, single anchors must be driven at an outward/opposite 10-15 degree angle.



Disclosure Statement

The Installer, responsible for the installation and assembly of Nuance Energy's Osprey PowerRack™ Product, acknowledges and agrees to the following terms:

- The Installer has read the Manufacturer's Installation Manual version 6 or newer and is aware of the section on Anchor Installation and requirements.
- The Installer shall assemble and install the Product and Anchors to Nuance Energy's specifications as required in this Manual.
- The Installer must install Anchors at no less than a 10-15 degree angle (unless using rock anchors) into the soil facing outward from the racking system and in the opposite direction of Product leg support assemblies.
- Nuance Energy reserves the right to void its Manufacturer's warranty of the Product if the Installer or the Buyer's representative fails to sign this Disclosure Statement before installing the Product.
- Due to potential ground settling, it is recommended that the contractor revisit the site up to one year after installation to re-cinch the wedge grips on the anchors to the base plates and realign the system if necessary. After the first year, ground settling should not occur again but should be monitored annually.

Buyer: _____
NAME OF CONTRACTOR

Date: _____

Buyer's Rep: _____
NAME OF CONTRACTOR

Date: _____





INSTALLATION MANUAL FOR OSPREY POWERRACK™

Anchor Load Test Proof Form

The required load test values will be provided through your SSM and can be obtained directly from Nuance Energy. It is important to keep in mind any special considerations when using multiple anchors per leg.

To be eligible for a 20-year warranty from Nuance Energy, submit this information online within 60 days of installation at nuanceenergy.com/warranty.

It is recommended to purchase additional anchors for each project in case loads cannot be reached with required number of anchors.

Extra anchors can be obtained through our Distributor Partners or directly from Nuance Energy as required.

PROJECT SIZE (DC):		CONTRACTOR:	
TILT:		PROJECT NAME:	
PANEL COUNT:			
WIND SPEED/(ACSE 7 EDITION):		SITE ADDRESS:	
SNOW LOAD:			

ANCHOR REDUCTION TABLE		
REQUIRED ANCHORS PER SSM		1 ADDITIONAL ANCHOR
ANCHORS REQUIRED	REVISED CAPACITY FACTOR	REDUCED VALUE
1	100%	60%
2	67%	38%
3	45%	24%
4	34%	N/A

Anchor Reduction Table Notes:

The (%) Capacity Factor represents the percentage of the required (uplift) loading requirements (lbs) per foundation of the Osprey Unit. The specific loading requirements for your project are indicated in the site specific memo (SSM).

If 1 anchor is required per foundation, then each anchor must achieve 100% of the specified loading requirements. If 2 anchors are required per foundation, then each anchor must achieve at least 67% of the specified loading requirements. And so on...

If 2 anchors are pull tested and do not achieve the 67% capacity factor, then an additional anchor can be driven and pull tested. In this case, all 3 anchors must achieve at least 38% (Column 3) of the specified loading requirements.





INSTALLATION MANUAL FOR OSPREY POWERACK™

Array Number		SSM Required Load	Individual Anchor Load	Recorded Test Values Per Anchor							
				East		East/Center		West/Center		West	
1	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
2	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
3	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
4	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
5	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
6	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
7	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
8	Front			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4
	Rear			1	2	1	2	1	2	1	2
				3	4	3	4	3	4	3	4

*Loads are all in pounds.

Duplicate this worksheet and use multiple pages for bigger projects.

Signature: _____ Date: _____

