NUANCE ENERGY
Revolutionary Solar Racking Structures

OSPREY
PowerRack

Best Practices - Installation of the Racking System

1. Prior to installation, ensure that there is a copy of the construction plans to review with the installation team, the construction plans include the optimal dimensions on a graded site.
2. Use your best judgment to ensure the foundations, cantilevers and installation locations are within the range of the construction plans.
3. For tilts below 20 degrees a pin hole on the internal and external vertical rear legs dictates the cut line for lower tilts.
4. Verify that the East to West spacing matches the construction plans, then use a string line between the sets of legs to ensure the minimum height is achieved then level the array using a bubble level or angle finder.
    a) It is always preferred to level the array slightly higher than the suggested height as this will be helpful when setting the array tilt and rear leg height.
    b) Note: Depending on module size and array size some arrays may include less EW beams.
5. To set the rear height, use a string line from the top of the rear leg to the top of the front leg and use an angle finder to set tilt angle.
6. The lateral brace contains 3 bolts, the center bolt needs to be installed after the system has been leveled and tilt has been set.
7. Installation of the rear EW tube can be challenging prior to installing anchors, using a purlin create a brace on the rear of the array using a U-bolt and the ground. Ensuring that the EW tube does not sway or fall.
8. To prevent sagging of the EW tube, ensure bolts are installed in a vertical direction. Lateral installation of the bolt can cause the tube to sag once panels are installed. Ensure Tube is centered and fully inserted prior to inserting the carriage bolt.
9. To square the array ensure cantilevers are equal east west, due to site variability use the opposing corner method to ensure array is square. Diagonals should be within 1".
10. Mark E/W beam with optimal purlin spacing required by module specifications or construction plans.
11. Begin purlin installation by installing the opposing exterior purlins. Using a large square ensure purlins are square on both ends.
12. Using the exterior purlins ensure tilt angle is correct on both ends, use the front of the array to adjust.
13. Run a string line on the front of the rails to aid the installation of the interior purlins. The markings on the tube should help square the array verify purlins are square using a framing square.

14. Cable braces can cause the array to shift if they are installed before anchors. Install cable braces but do not tension them as this is the last step of the installation.
15. Refer to the Nuance Anchor Installation Guide for best practices while installing anchors.
16. Prior to installing modules torque and mark all hardware to the following specifications
    a) 3/8" Hardware to 26 ft-lbs
    b) 1/2" Hardware to 64 ft-lbs
17. The rails are designed to house an array of different panels, smaller panels will have rail that extends past the panels on the north and south. Ensure the north and south cantilever is equal.
    a) To verify this the rail is 196" measure the long edge of the panel for the site multiply by 4 and add 6 inches. The answer divided by two is the cantilever on the front.
    i. $$Cantilever\ Lenght = \frac{196 - \left(\left(4 * Module\ Long\ Edge\right) + 6\right)}{2}$$
18. Install modules starting from the bottom to the top and ensure that there is a ½-inch gap between modules.
19. If E/W tubing sticks out past your panels on each outer edge of the array there is no issue with trimming the 4-inch round tube back to within a couple inches of the last rail. One cannot trim the tubing between arrays as the swage connection is needed to join tube to tube between arrays.
20. Tighten cable braces using the supplied tool ensuring there is no slack on the cables, do not over tension cables as this can cause the array to shift. Wrap or zip tie excess cable around array.
21. Once anchors are installed following the Anchor Installation Guide wrap excess cable around the bottom of the leg.