



Brooklyn Solar Canopy Co. Installation Manual V. 1

March, 2018

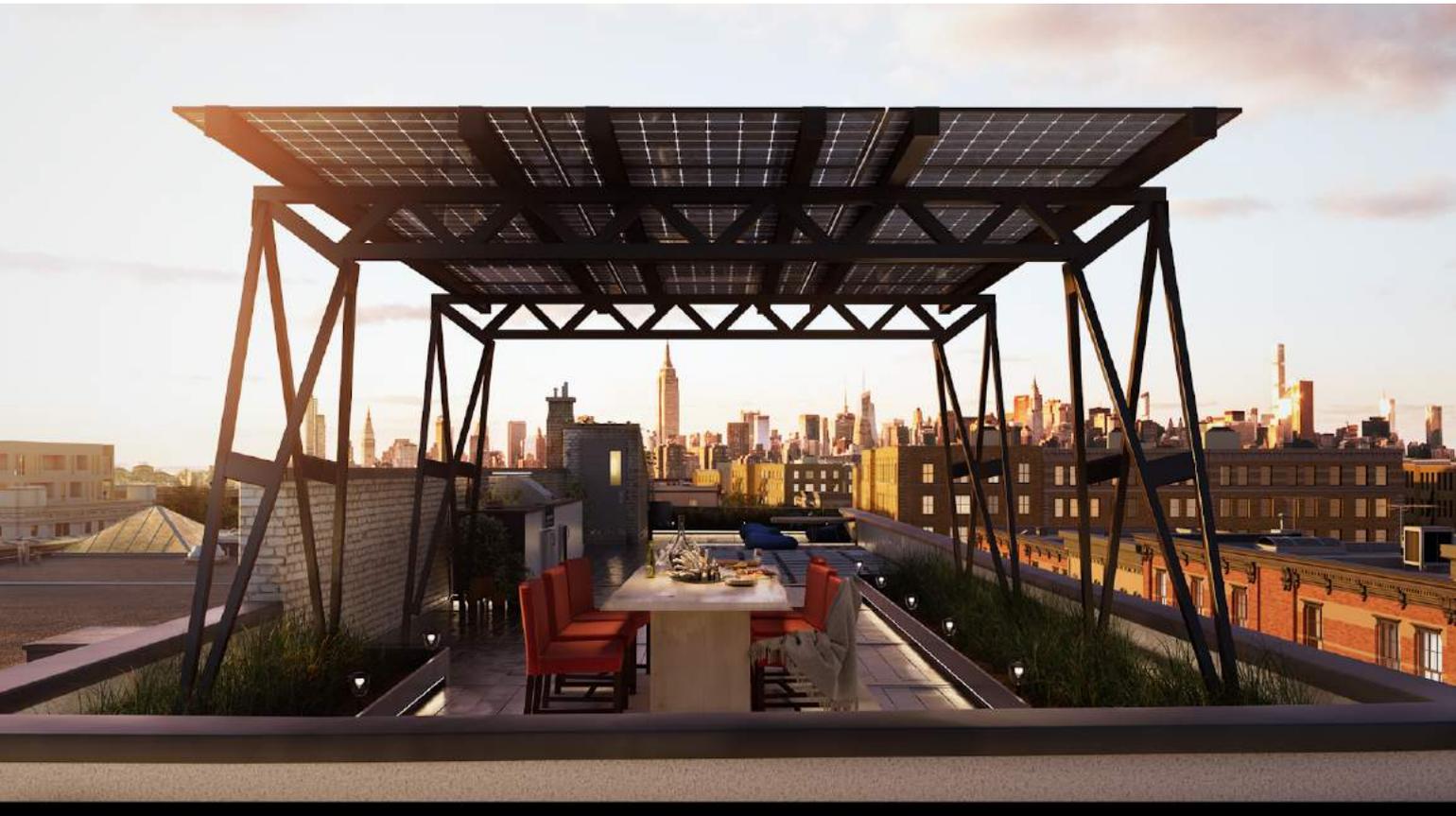


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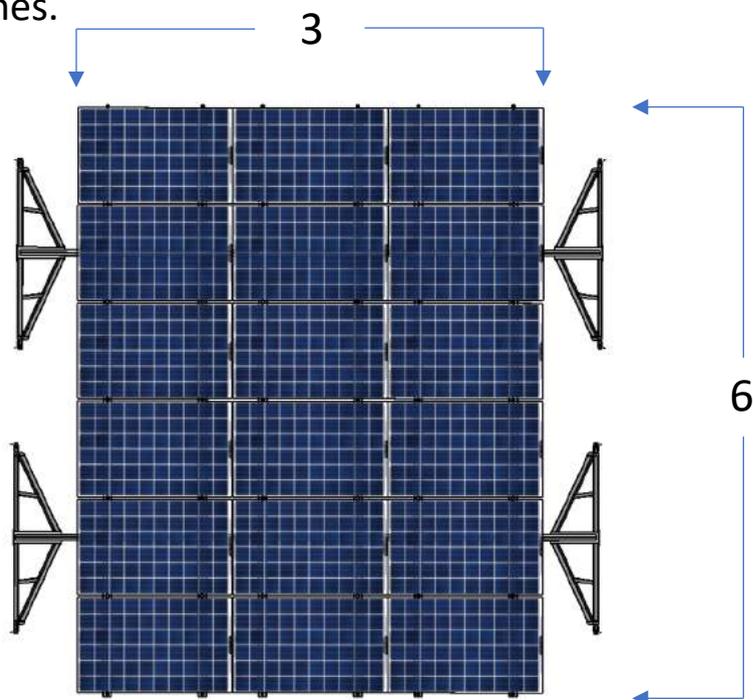
1. Product Introduction

Brooklyn Solar Canopy (BSC) Company's patented Gen1 canopy design is adaptable to multiple flat roof types, carport or pergola applications. All BSC canopies are custom fabricated in the United States using 6061 grade aluminum and have been certified by a structural engineer to meet the wind, snow and seismic loads in New York City.

The BSC Canopy has been UL certified for use with LG, Panasonic and SunPower panels. For specific models see table 2. The BSC Canopy was designed to support 9 60 cell (65" by 40") panels per truss (18 for two trusses) in the below configuration. For each additional truss 9 panels can be added maintaining the below configuration.

Please remember that it is the responsibility of the installer to assess and have structurally certified the underlying building or structure upon which the canopy is being built.

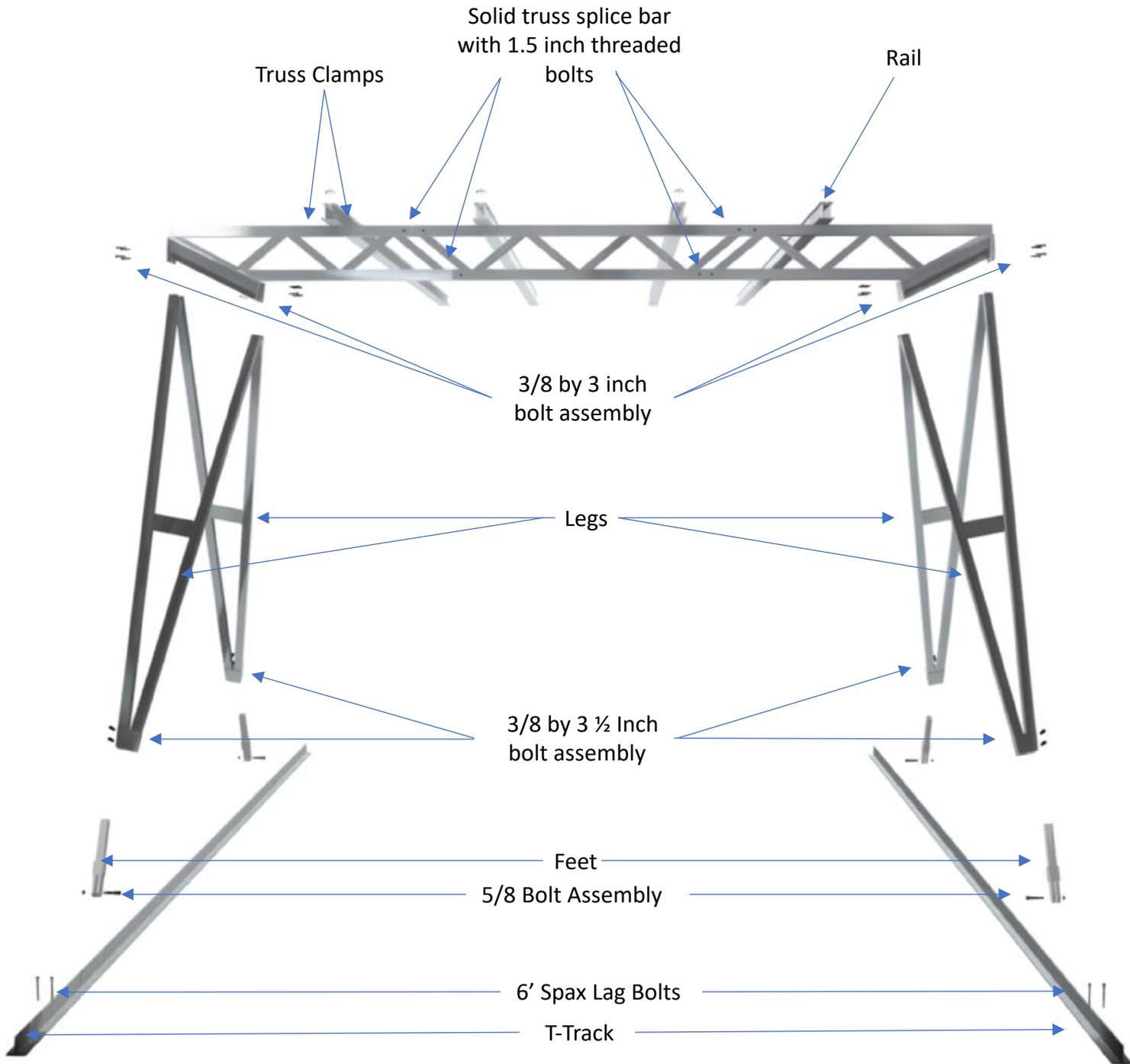
Please read the installation manual fully before installing and follow all design parameters and guidelines.



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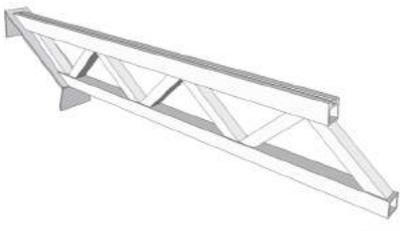
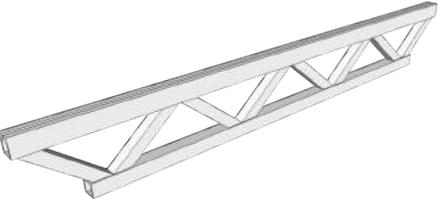
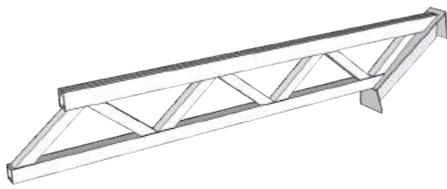
2. Components

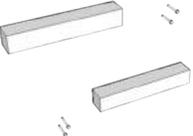




2. Components

				
Spax 001	T-Track 002	Foot 003	Left leg assembly 004	Right leg assembly 005

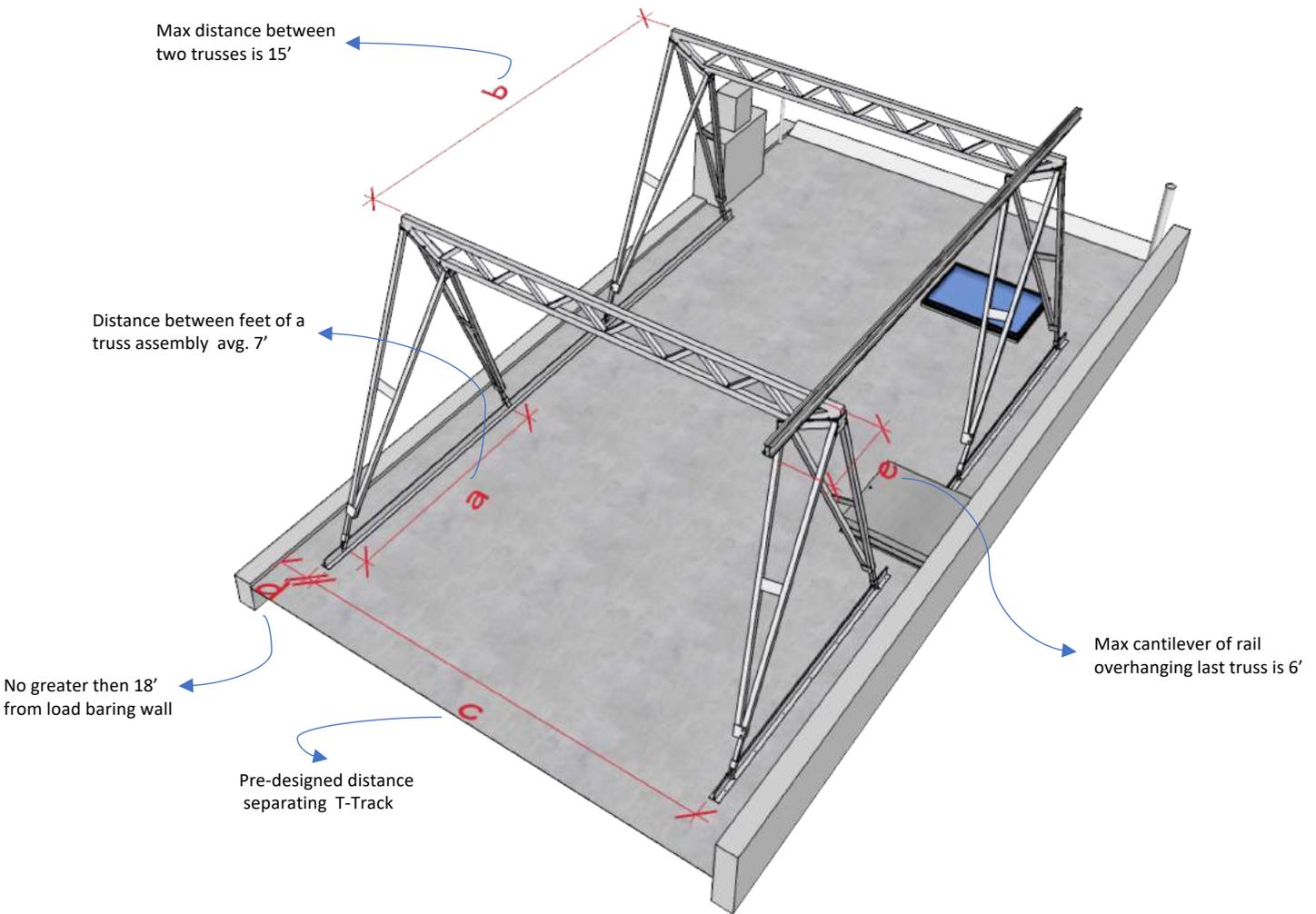
		
Left corner socket 006	Center truss socket 007	Right corner socket 008

			
Truss splice 009	Rail 010	Rail splice 011	Truss clip 012

			
Truss splice tek screw 013	5/8 foot bolt 014	3'' truss socket bolt 015	3.5'' leg bolt 016



3. Layout Guidelines and Design Parameters



Layout Guidelines

- The layout of each canopy assembly is determined in the design stage.
- The width (**c**) of each canopy is unique and will be labeled on the plan set.
- If the canopy is pitched to a side, the corner sockets of the truss are specific to each side. Refer to each canopies layout manual before splicing the truss together.
- Canopy legs come in varying heights and are unique to their position. Refer to each canopies layout manual to determine leg placement.
- Canopy feet are adjustable and can be used to increase or decrease height.
- The span between canopy legs (**a**) is adjustable within a range of roughly 2 feet. This function can be used to adjust height and helps when leveling.

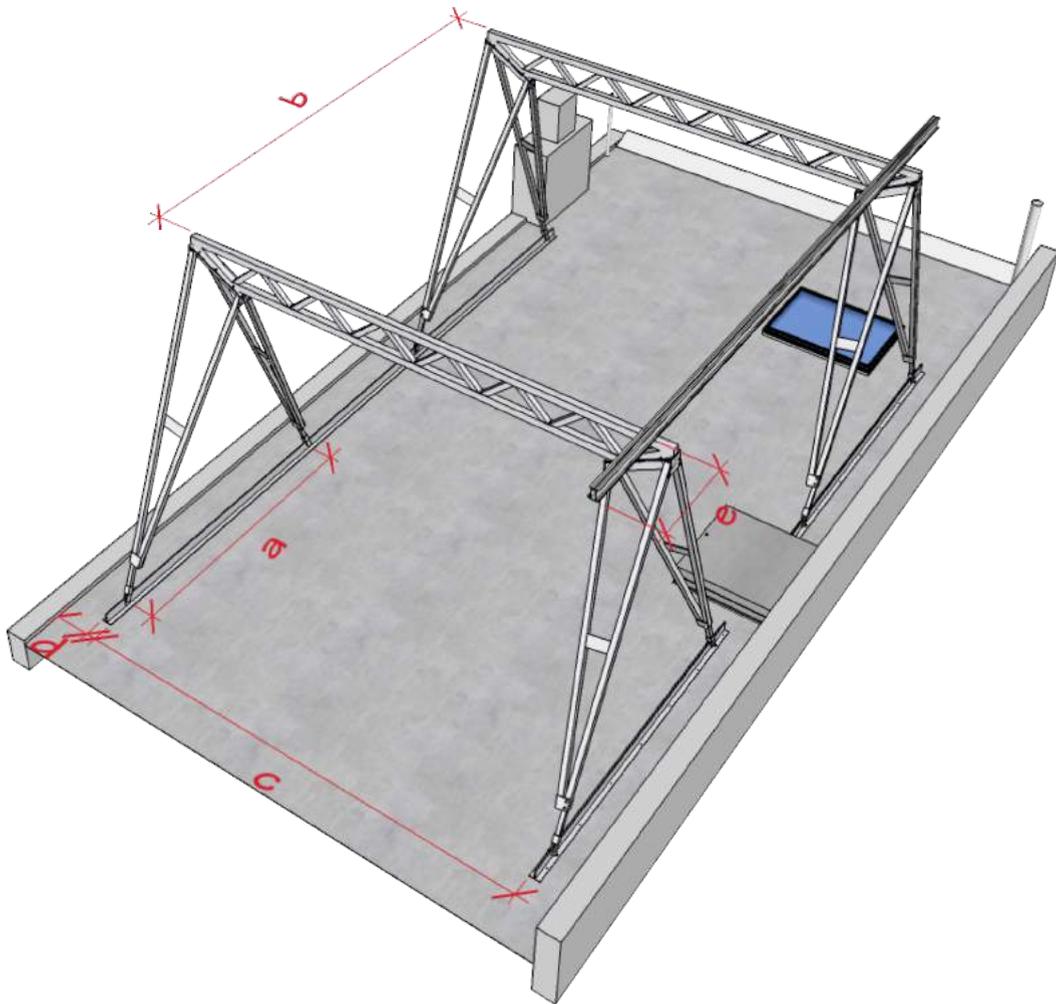
Design Parameters

- The max unsupported span (**b**) for the rail between trusses is 15'.
- The max cantilever (**e**) for the rail on either end of the last truss is 6'.
- The max distance (**d**) T-Track can be installed away from the load bearing wall on either side is 18''.
- The average distance (**a**) between feet on a leg assembly is 7'.
- The load per foot should be spread across no less than two roof rafters.

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4a. Installation – T-Track



- Set T-Track predetermined distance apart (**c**) measuring on center making sure that each track is parallel. Each canopy's width is unique and determined in the design phase. Setting the T-Track the specified length apart is critical for success.
- If there are obstacles, such as a vent or skylight, the T-Track does not need to be continuous but each segment bearing the weight of a foot should hit a minimum of two roof rafters.
- T-Track should be installed no greater than 18 inches from the load bearing walls.
- When laying out the system mark where feet will land bearing in mind that each foot must be parallel to the foot across from it and that the separation between feet (**a**) is about 7'.
- The distance between trusses (**b**) is not to exceed 15'.
- The cantilever of rail (**e**) should not exceed 6'.
- When T-Track is properly laid out and general location of feet are marked, outline the contour of the T-Track and set T-Track to the side.
- Use 1/8 pilot bit to locate rafters in contour of T-Track targeting the three rafters closest to each foot.
- Transcribe rafter location to the T-Track and drill bolt holes on either side of the track using 7/16 bit.
- Apply patch and sealant to contoured area, replace T-Track and bolt to rafters.



4b. Installation – Truss splicing

- Layout the three truss members (right socket, center piece, left socket) referring to layout manual.
- Use the solid splice bar provided with 3/8 by 1.5 inch threaded bolt with lock washer to splice truss members together. All components should be tightened according to torque levels illustrated in Table 1.



Right socket

Splice bar

Center piece



Center piece

Splice bar

Left socket



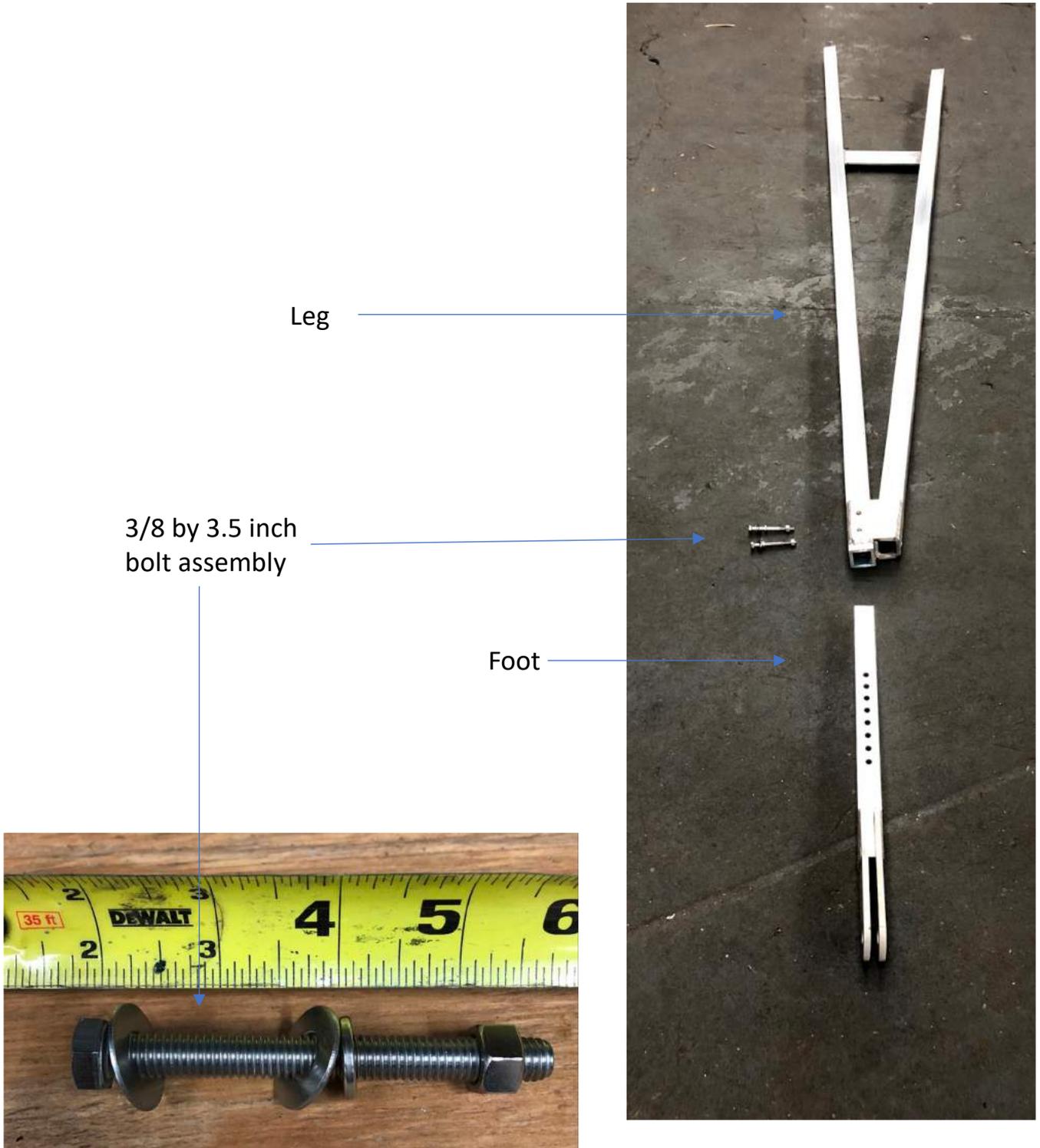
1.5 inch threaded bolt of truss splice

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4c. Installation – Foot to Leg Assembly

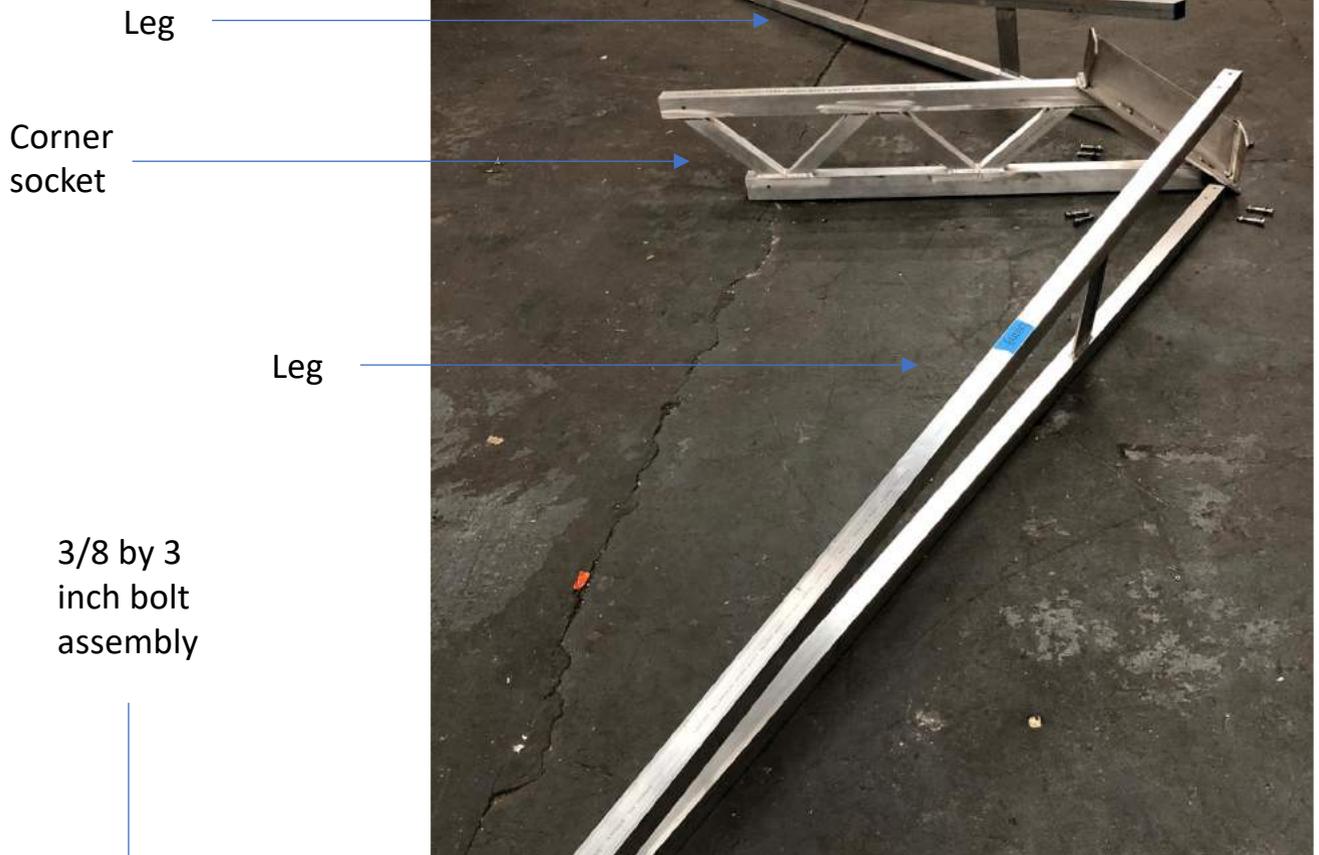
- Assemble feet to legs using 3/8 by 3.5 inch bolt assembly.





4d. Installation – Leg to Truss Assembly

- Position legs referring to layout manual.
- Fit leg into truss corner socket and bolt together using 3/8 by 3 inch bolt assembly.





4e. Installation – Truss Positioning and Securing

- Position truss assembly on T-Track, adjust spacing as desired, level the trusses and secure to T-Track by drilling 5/8 hole through hole in feet and bolting together with 5/8th bolt assembly.



- Bolt foot to T-Track using 5/8 bolt assembly.

5/8 by 3
inch bolt
assembly



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4f. Installation – Rail Splicing

- Splice rail together with 18" aluminum tube rail splice using 3/8 by 1" hex head self tapping screws.



Rail

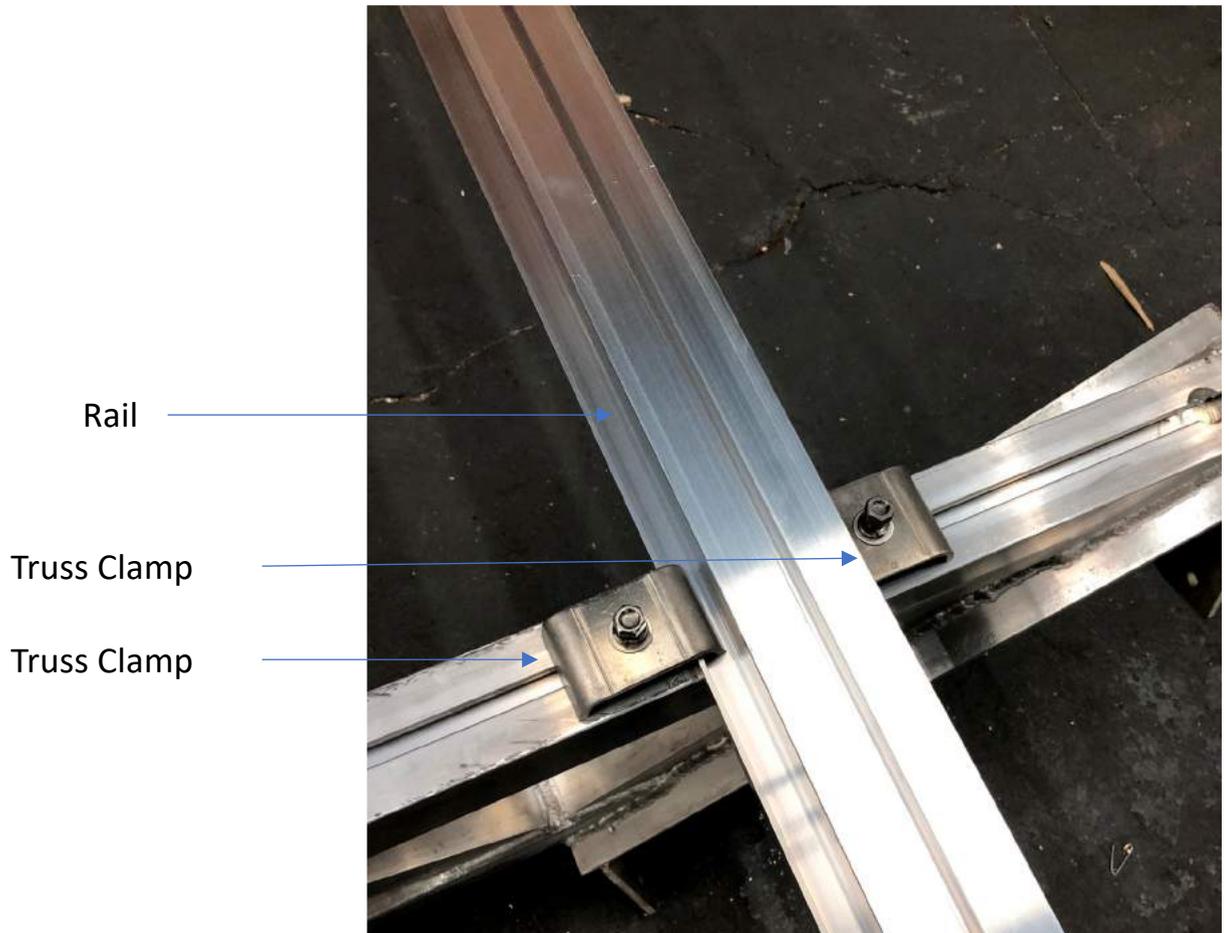
Tube splice bar

Rail



4g. Installation – Rail Installation

- Mark rail location on the truss top in accordance with rail location guidance from panel manufacturer.
- Slide channel bolts into truss channel and position on either side of rail location.
- Place rail on truss and torque truss clamps to appropriate value listed Table 1.



Truss clamp and
channel bolt
assembly



4h. Installation – Panel Installation

- Fasten panels to rail using IronRidge UFO-CL-001 Bonding Module Clamp using 7/16 wrench.
- Note: IronRidge Stopper Sleeve are unique to each panel. Make sure you are using the appropriate sized sleeve for your panel type.
- Torque to 80 pounds per inch ensuring that the IronRidge UFO T-bolt engages in the rail channel.



IronRidge UFO



IronRidge Stopper Sleeve



UFO with Stopper End Sleeve



Ensure T-bolt fully engages with rail channel



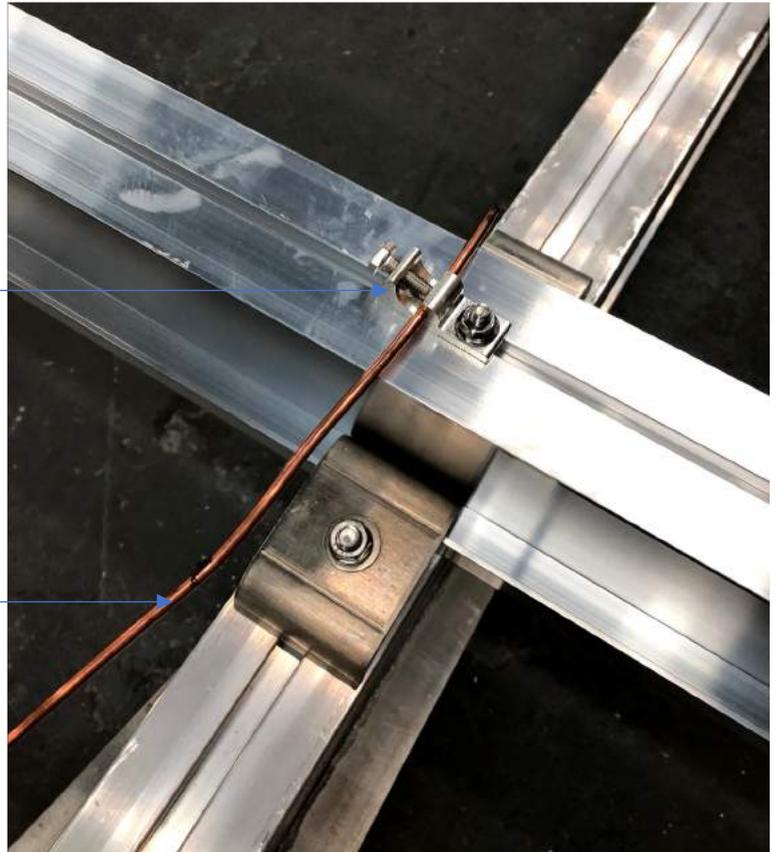
5. Grounding

- Place IronRidge ground lug (GD-LUG-003) in rail nearest to junction box, fasten down using 7/16 wrench and run bare copper #6 to junction box.
- Be sure to torque according to Table 1.

Note: This grounding method is in accordance with National Electrical Code, ANSI/NFPA 70.



Bare copper #6 Grounding
conductor



This racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.

Note: Upon completion of installation all components and fasteners should be checked for appropriate tightness referencing Table 2. Periodic re-inspection of the installation for loose components, loose fasteners and any corrosion should be performed every 5 years. If any affected components are found they should be immediately replaced.



6. Warranty

Warranty; Defects.

BSW warrants that the Products shall be free from Structural Defects (as defined below) for a period of ten (10) years from the date of delivery (the “Warranty Period”).

For purposes of this Agreement, “Structural Defects” means a collapse, material cracking or clear failure of a structural component that is not caused by (i) user error, negligence or misconduct by Customer, its end user customer or any other party, (ii) unsafe conditions or negligence of any materials or components supporting or otherwise touching the Products, (i.e., such as an end user’s roof or panels), (iii) environmental conditions or load strain or usage of the Products in excess of the maximum amounts stated in the Documentation and/or (iv) standard “force majeure” events that are outside of BSW’s control (war, earthquake, tsunami...etc.)

BSW’s liability for defective Products is limited to replacement, repair or refund, at BSW’s option and shall be conditioned upon Customer’s and its end user’s (if applicable) complete cooperation with any reasonable investigation by BSW of the circumstances surrounding the problem and its efforts to schedule replacement. In all cases, if a Product is deemed to be defective, any disposal of the defective Products will be Customer’s sole responsibility. For clarity, BSW shall have no liability to Customer for Structural Defects or other Product defects caused by Customer’s or its end user’s (or any other party that is not BSW) negligence, storage, handling or use.



Table 1 – Torque Values

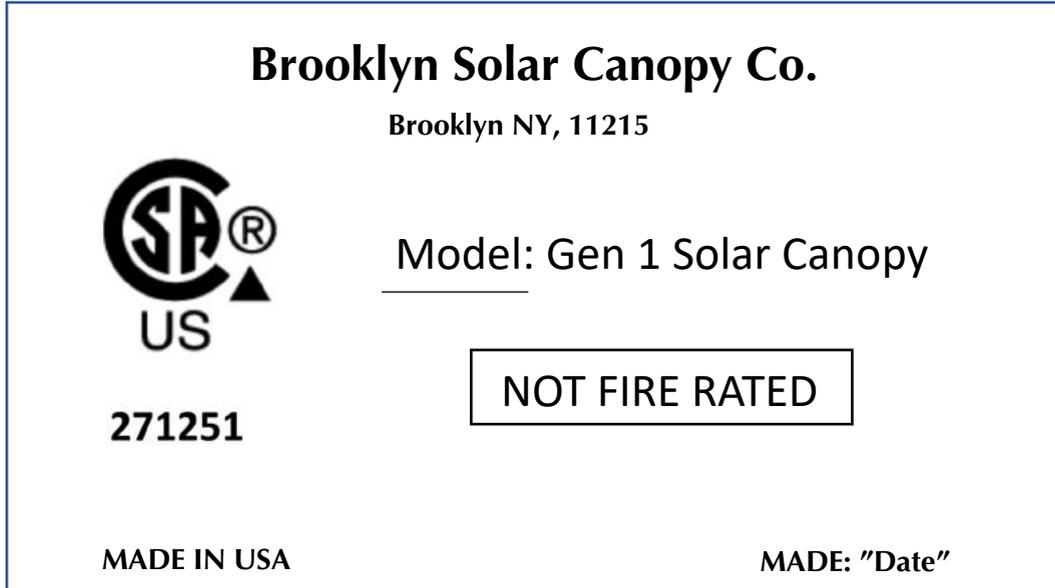
Torque Values	Pounds per Inch
T-Track to Foot	280
Foot to Leg	240
Leg to Corner Socket	240
Truss Splice Connection	240
Truss Clamp to Rail	120
Ground lug to Rail	80
IronRidge to Rail	80

Table 2 – Approved Panels

Panel
SunPower X-Series Residential Solar Panels x22-360
LG NeON R Series
Silfab Solar SLA-X Bifacial 295 Wp 60 Cell
Panasonic HIT N330/N325



Labeling



Label will be aluminum adhered with UL 969 compliant file 3M468 adhesive

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