

Customer Info

Name:
Email:
Phone:

Project Info

Identifier: 4815463_preinstall
Street Address Line 1:
Street Address Line 2:
City:
State:
Zip:
Country:

System Info

Module Manufacturer: Jinko Solar
Module Model: JKM260P-60
Module Quantity: 13
Array Size (DC watts): 3380.0
Mounting System Manufacturer: Ecolibrium Solar
Mounting System Product: EcoX
Inverter Manufacturer: SolarEdge Technologies
Inverter Model: v.SE3800A-US (240V)

Project Design Variables

Module Weight: 41.88778 lbs
Module Length: 64.960665 in
Module Width: 39.0551392 in
Basic Wind Speed: 100.0 mph
Ground Snow Load: 40.0 psf
Seismic: 1.5
Exposure Category: B
Importance Factor: I
Exposure on Roof: Partially Exposed
Topographic Factor: 1.0
Wind Directionality Factor: 0.85
Thermal Factor for Snow Load: 1.2
Lag Bolt Design Load - Upward: 820 lbf
Lag Bolt Design Load - Lateral: 288 lbf
EcoX Design Load - Downward: 918 lbf
EcoX Design Load - Upward: 720 lbf
EcoX Design Load - Downslope: 460 lbf
EcoX Design Load - Lateral: 252 lbf
Module Design Moment – Upward: 3655 in-lb
Module Design Moment – Downward: 3655 in-lb
Effective Wind Area: 20 ft²
Min Nominal Framing Depth: 2.5 in
Min Top Chord Specific Gravity: 0.42

Plane Calculations (ASCE 7-10): South Roof 3

Roof Shape:

Roof Type: Composition Shingle

Average Roof Height: 25.0 ft

Least Horizontal Dimension: 8.10988320095647 ft

Roof Slope: 25.0 deg

Truss Spacing: 24.0 in

Edge and Corner Dimension: 3.0 ft

Stagger Attachments: Yes

Include Snow Guards: No

Include North Row Extensions: No

Snow Load Calculations

Description	Interior	Edge	Corner	Unit
Flat Roof Snow Load	26.9	26.9	26.9	psf
Slope Factor	0.82	0.82	0.82	
Roof Snow Load	22.0	22.0	22.0	psf

Wind Pressure Calculations

Description	Interior	Edge	Corner	Unit
Net Design Wind Pressure Uplift	-19.4	-31.9	-47.9	psf
Net Design Wind Pressure Downforce	11.4	11.4	11.4	psf
Adjustment Factor for Height and Exposure Category	1.0	1.0	1.0	
Design Wind Pressure Uplift	-19.4	-31.9	-47.9	psf
Design Wind Pressure Downforce	16.0	16.0	16.0	psf

ASD Load Combinations

Description	Interior	Edge	Corner	Unit
Dead Load	2.4	2.4	2.4	psf
Snow Load	22.0	22.0	22.0	psf
Downslope: Load Combination 3	9.4	9.4	9.4	psf
Down: Load Combination 3	20.3	20.3	20.3	psf
Down: Load Combination 5	11.8	11.8	11.8	psf
Down: Load Combination 6a	22.9	22.9	22.9	psf
Up: Load Combination 7	-10.3	-17.8	-27.4	psf
Down Max	22.9	22.9	22.9	psf

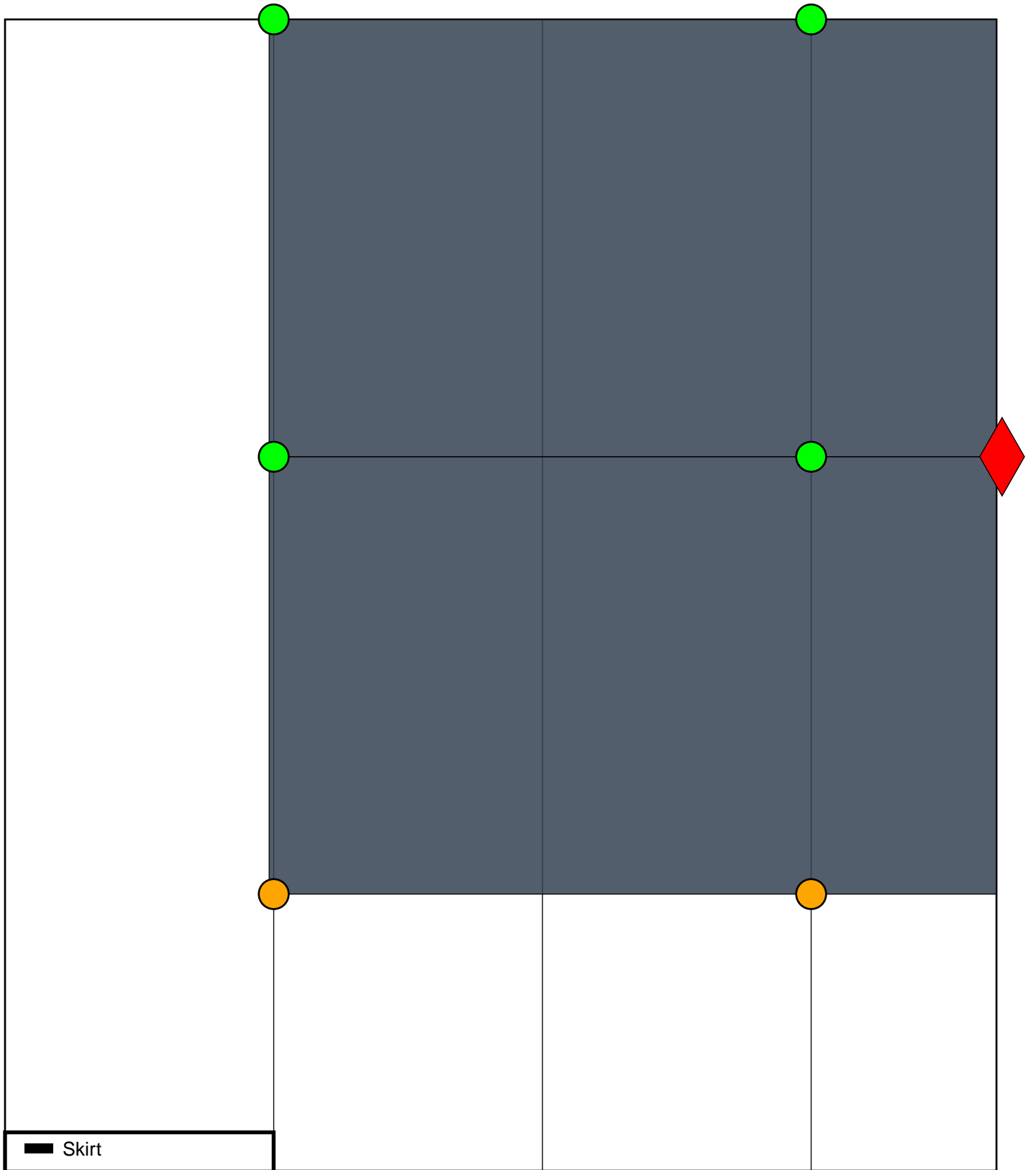
Spacing Results (Landscape)

Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	68.6	68.6	62.7	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	22.9	22.9	20.9	in

Spacing Results (Portrait)

Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	53.2	53.2	48.6	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	17.7	17.7	16.2	in

Layout



	Skirt
	Coupling
	End Coupling
	Clamp
	End Clamp
	North Row Extension
	Bonding Jumper

Note: If the total width of a continuous array exceeds 35 ft, break array to allow for thermal expansion and contraction. See Installation Guide for details.
 Warning: PV Modules may need to be shifted with respect to roof trusses to comply with maximum allowable overhang.

Roof Weights

In Conformance with Solar ABC's Expedited Permit Process

Module Quantity: 2

Weight of Modules: 84 lbs

Weight of Mounting System: 12 lbs

Total Plane Weight: 96 lbs

Total Plane Array Area: 35 ft²

Distributed Weight: 2.72 psf

Number of Attachments: 6

Weight per Attachment Point: 16 lbs

Plane Calculations (ASCE 7-10): East Roof 2

Roof Shape:

Roof Type: Composition Shingle

Average Roof Height: 25.0 ft

Least Horizontal Dimension: 16.500735123185 ft

Roof Slope: 17.0 deg

Truss Spacing: 24.0 in

Edge and Corner Dimension: 3.0 ft

Stagger Attachments: Yes

Include Snow Guards: No

Include North Row Extensions: No

Snow Load Calculations

Description	Interior	Edge	Corner	Unit
Flat Roof Snow Load	26.9	26.9	26.9	psf
Slope Factor	0.97	0.97	0.97	
Roof Snow Load	26.1	26.1	26.1	psf

Wind Pressure Calculations

Description	Interior	Edge	Corner	Unit
Net Design Wind Pressure Uplift	-19.4	-31.9	-47.9	psf
Net Design Wind Pressure Downforce	11.4	11.4	11.4	psf
Adjustment Factor for Height and Exposure Category	1.0	1.0	1.0	
Design Wind Pressure Uplift	-19.4	-31.9	-47.9	psf
Design Wind Pressure Downforce	16.0	16.0	16.0	psf

ASD Load Combinations

Description	Interior	Edge	Corner	Unit
Dead Load	2.4	2.4	2.4	psf
Snow Load	26.1	26.1	26.1	psf
Downslope: Load Combination 3	8.0	8.0	8.0	psf
Down: Load Combination 3	26.1	26.1	26.1	psf
Down: Load Combination 5	11.9	11.9	11.9	psf
Down: Load Combination 6a	27.4	27.4	27.4	psf
Up: Load Combination 7	-10.3	-17.8	-27.4	psf
Down Max	27.4	27.4	27.4	psf

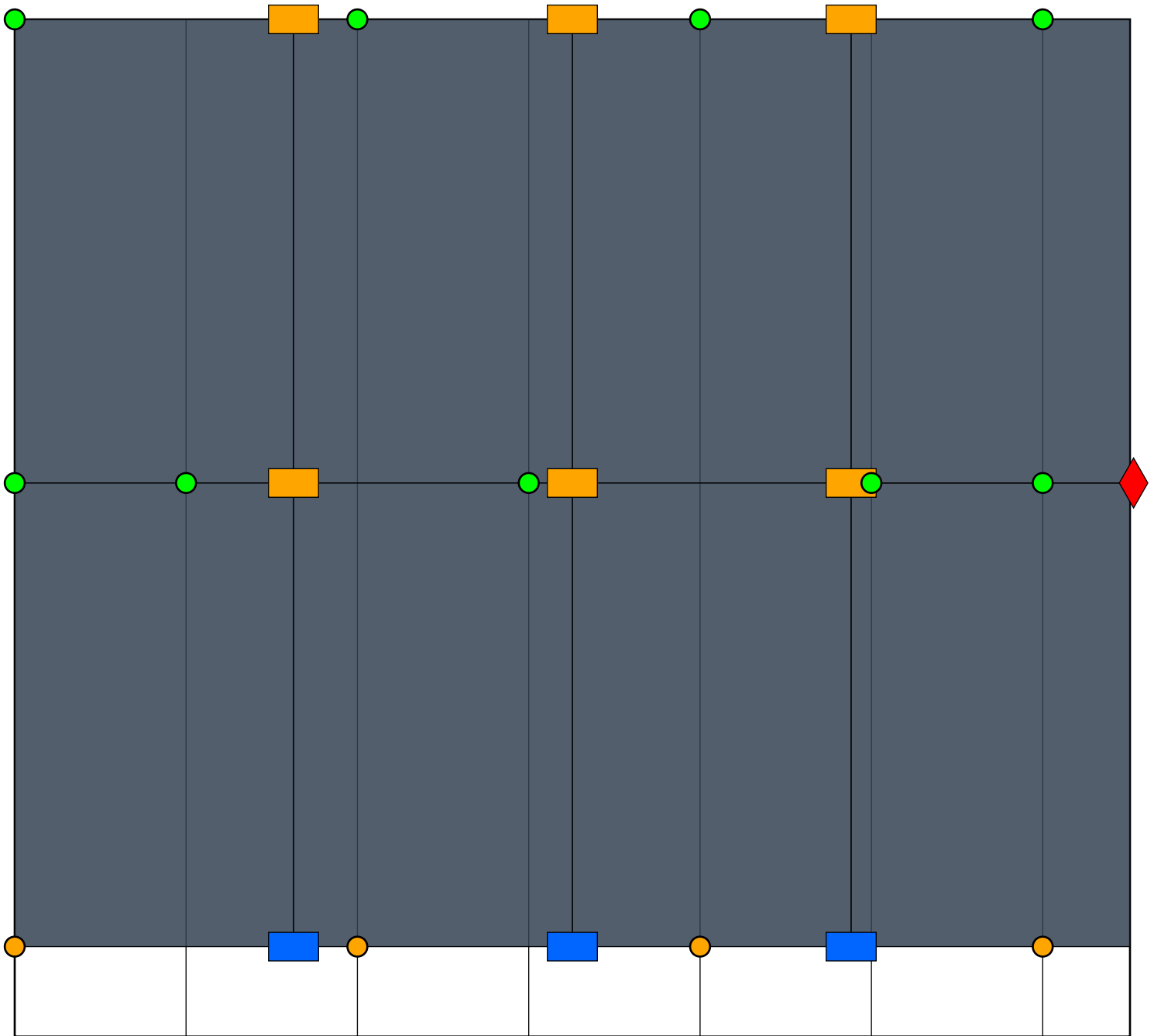
Spacing Results (Landscape)








Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	62.8	62.8	62.8	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	20.9	20.9	20.9	in

Spacing Results (Portrait)

Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	48.7	48.7	48.7	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	16.2	16.2	16.2	in

Layout



-  Skirt
-  Coupling
-  End Coupling
-  Clamp
-  End Clamp
-  North Row Extension
-  Bonding Jumper

Note: If the total width of a continuous array exceeds 35 ft, break array to allow for thermal expansion and contraction. See Installation Guide for details.
 Warning: PV Modules may need to be shifted with respect to roof trusses to comply with maximum allowable overhang.

Roof Weights

In Conformance with Solar ABC's Expedited Permit Process

Module Quantity: 8
Weight of Modules: 335 lbs
Weight of Mounting System: 26 lbs
Total Plane Weight: 361 lbs
Total Plane Array Area: 141 ft²
Distributed Weight: 2.56 psf
Number of Attachments: 13
Weight per Attachment Point: 28 lbs

Plane Calculations (ASCE 7-10): East Roof 3

Roof Shape:

Roof Type: Composition Shingle

Average Roof Height: 25.0 ft

Least Horizontal Dimension: 14.497612818213 ft

Roof Slope: 32.0 deg

Truss Spacing: 24.0 in

Edge and Corner Dimension: 3.0 ft

Stagger Attachments: Yes

Include Snow Guards: No

Include North Row Extensions: No

Snow Load Calculations

Description	Interior	Edge	Corner	Unit
Flat Roof Snow Load	26.9	26.9	26.9	psf
Slope Factor	0.7	0.7	0.7	
Roof Snow Load	18.8	18.8	18.8	psf

Wind Pressure Calculations

Description	Interior	Edge	Corner	Unit
Net Design Wind Pressure Uplift	-20.7	-24.3	-24.3	psf
Net Design Wind Pressure Downforce	19.4	19.4	19.4	psf
Adjustment Factor for Height and Exposure Category	1.0	1.0	1.0	
Design Wind Pressure Uplift	-20.7	-24.3	-24.3	psf
Design Wind Pressure Downforce	19.4	19.4	19.4	psf

ASD Load Combinations

Description	Interior	Edge	Corner	Unit
Dead Load	2.4	2.4	2.4	psf
Snow Load	18.8	18.8	18.8	psf
Downslope: Load Combination 3	9.7	9.7	9.7	psf
Down: Load Combination 3	15.5	15.5	15.5	psf
Down: Load Combination 5	13.7	13.7	13.7	psf
Down: Load Combination 6a	20.9	20.9	20.9	psf
Up: Load Combination 7	-11.2	-13.4	-13.4	psf
Down Max	20.9	20.9	20.9	psf

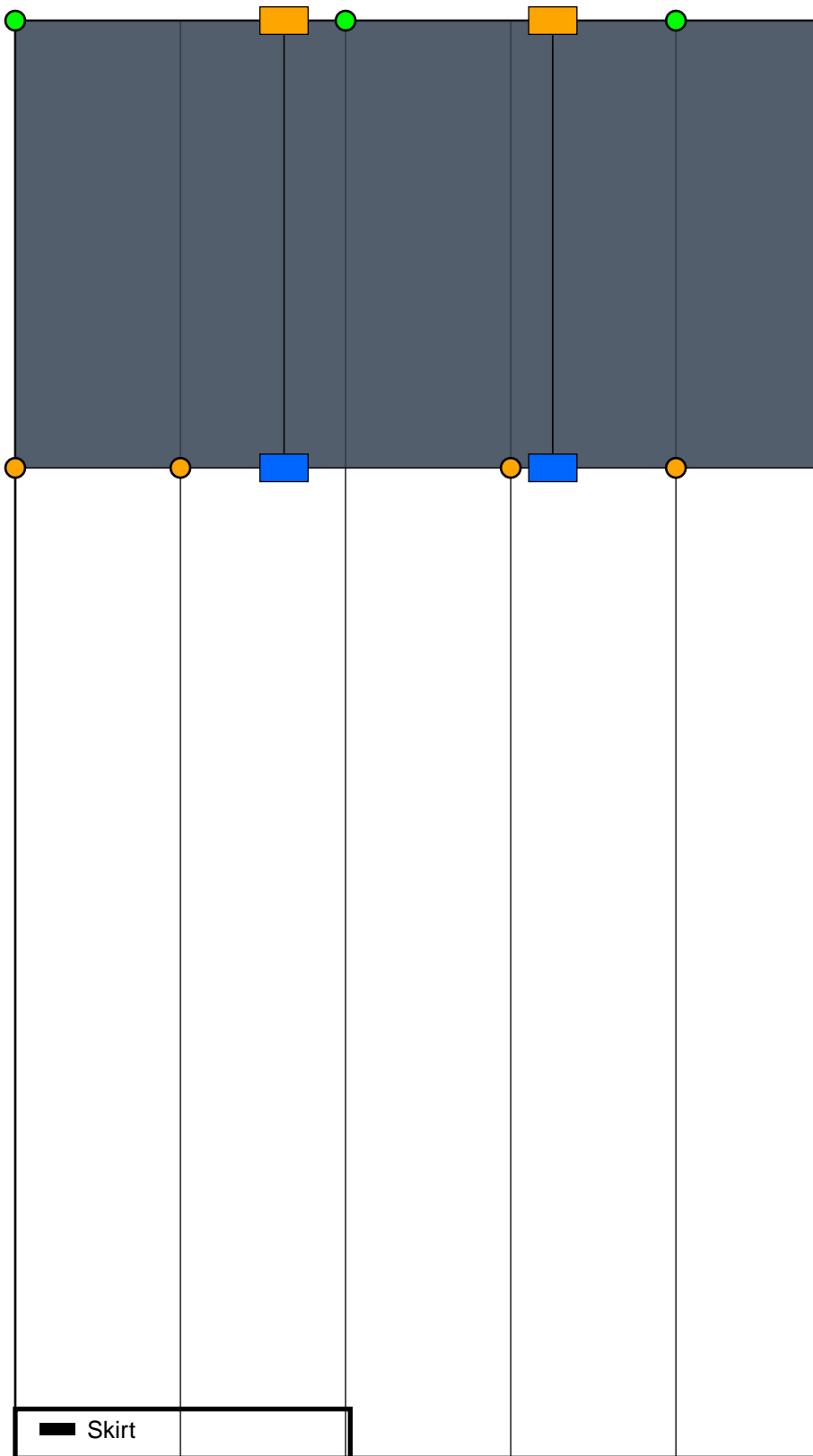
Spacing Results (Landscape)








Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	71.8	71.8	71.8	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	23.9	23.9	23.9	in

Spacing Results (Portrait)

Description	Interior	Edge	Corner	Unit
Max Allowable Spacing Between Attachments	55.7	55.7	55.7	in
Max Spacing Between Attachments With Rafter/Truss Spacing of 24.0 in	48.0	48.0	48.0	in
Max Cantilever from Attachment to Perimeter of PV Array	18.6	18.6	18.6	in

Layout



	Skirt
	Coupling
	End Coupling
	Clamp
	End Clamp
	North Row Extension
	Bonding Jumper

Note: If the total width of a continuous array exceeds 35 ft, break array to allow for thermal expansion and contraction. See Installation Guide for details.
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Roof Weights

In Conformance with Solar ABC's Expedited Permit Process

Module Quantity: 3

Weight of Modules: 126 lbs

Weight of Mounting System: 14 lbs

Total Plane Weight: 140 lbs

Total Plane Array Area: 53 ft²

Distributed Weight: 2.64 psf

Number of Attachments: 7

Weight per Attachment Point: 20 lbs

Bill Of Materials

Part	Name	Quantity
ES10195	EcoX Base, Comp Shingle	26
ES10197	EcoX Flashing, Comp Shingle	26
ES10144	EcoX Junction Box Bracket	3 (Optional)
ES10132	EcoX Power Accessory Bracket	13
ES10184	PV Cable Clip	65
ES10103	EcoX Clamp Assembly	16
ES10136	EcoX End Clamp Assembly	10
ES10201	EcoX Bonding Jumper	2
ES10121	EcoX Coupling Assembly	8
ES10146	EcoX End Coupling	5