



May 13, 2020

EcoFasten Solar LLC
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Phoenix AZ, 85009
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Attn.: Engineering Department,

Re: Engineering Certification for the EcoFasten ClickFit System Installation Manual

This letter is to document that PZSE, Inc.-Structural Engineers has reviewed the following EcoFasten ClickFit System Installation Manual and specifically the "Span Tables".

SCOPE OF THE SYSTEM:

The EcoFasten ClickFit System is a solar panel support system for installing solar photovoltaic arrays on sloped roofs of buildings. Typically, such buildings are residential with shingle or tile roofs. The number and spacing of attachments to the roof structure can vary depending on various site-specific criteria including, but not limited to, roof slope, spacing of supporting structural members and environmental loading.

SCOPE OF OUR REVIEW:

PZSE, Inc.-Structural Engineers provided a review of the following

- ClickFit System design methodology
- ClickFit System Installation Manual
- ClickFit System Loading Tables

and has determined that all information, data and analysis contained within the Installation Manual are based on, and are in compliance with, the structural requirements of the following Reference Documents:

- Minimum Design Loads for Buildings and other Structures, ASCE/SEI 7-16
- International Building Code, 2018 Edition, by International Code Council, Inc.
- International Residential Code, 2018 Edition, by International Code Council, Inc.
- AC428, Acceptance for Modular Framing System Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
- ANSI/AWC NDS-2018, National Design Specification for Wood Construction, by the American Wood Council
- Aluminum Design Manual, 2010 & 2015 Editions, by The Aluminum Association



This letter certifies that the EcoFasten ClickFit System Installation Manual and Loading Tables are in compliance with the above Reference Documents.

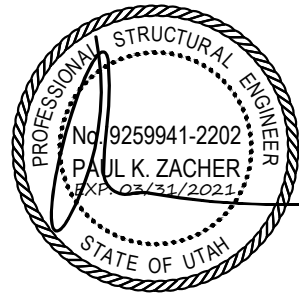
DESIGN RESPONSIBILITY:

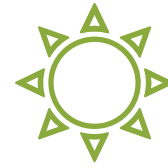
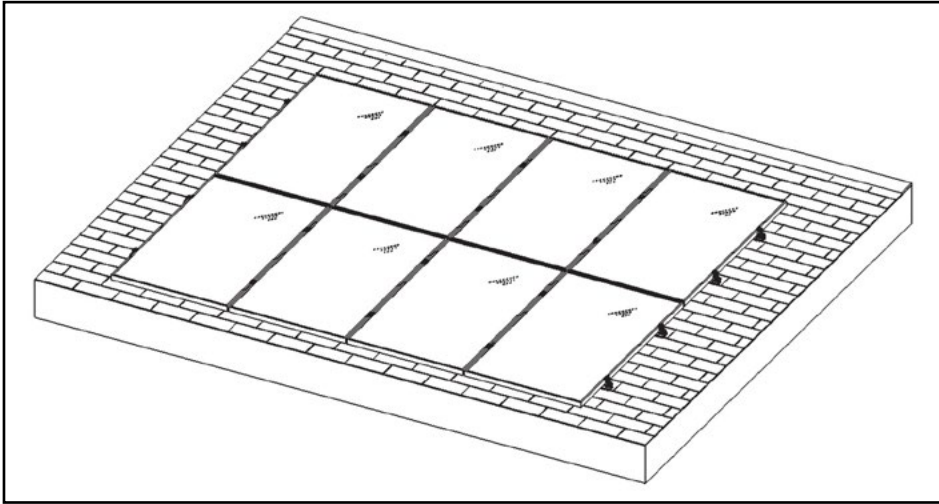
The ClickFit System Installation Manual is intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, the user of the Installation Manual has sole responsibility for the accuracy of the design and integrity of the system.

The Installation Manual does not check the capacity of the building structure to support the loads imposed on the building by the array, such as bending strength of roof rafters spanning between supports. This requires additional knowledge of the building and is outside the scope of the Installation Manual and our review.

If you have any questions on the above, do not hesitate to call.

Prepared By:
PZSE, Inc. - Structural Engineers
Roseville, CA





EcoFasten
An ESDEC Company

**RAPID
INSTALLATION,
HIGH-QUALITY SOLAR
MOUNTING SYSTEM
FOR SHINGLE AND
TILE ROOFS**

CLICKFIT

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1.0 Introduction

This manual describes the installation of the ClickFit mounting system for photo-voltaic modules on steep-slope roofs. Described within are details for composition shingle and tile, attachments for ClickFit for other roof types are available at www.EcoFastenSolar.com. All installation manuals are available for download at www.EcoFastenSolar.com.

2.0 General Installation Conditions

2.1 General

Failure to observe the requirements in this document can lead to the exclusion of all guarantees and product liability. EcoFasten Solar reserves the right to amend this document without prior notice.

2.2 Stability and Condition of the Roof

The roof must be in good condition and strong enough to support the weight of the modules, including the additional equipment, wind and snow loads. When in doubt, consult with the engineer of record, and/or the local building inspector.

2.3 Application Range of ClickFit

- Modules of all brands and models with a frame thickness between 32mm and 50mm having maximum dimensions of 2xlm (2m²), 79.72in x 40in (22ft²) per module.
- Wind zones (1-3).
- Roof height (Less than 30ft). Contact EcoFasten Solar if your roof is higher.
- Roofing types: Steep slope composition shingle or tile. Other roof types available when using EcoFasten Solar's approved attachments. *The assembly is to be mounted over a fire- resistant roof covering rated for the application.*

2.4 Warranty

Guarantee according to the warranty conditions and general terms and conditions of EcoFasten Solar. These conditions can be found on the website at www.EcoFastenSolar.com.

2.5 Liability

EcoFasten Solar cannot accept any liability whatsoever for damage or injury caused by not taking adequate safety precautions or (accurately) following the instructions given, or resulting from negligence during the installation of the product and any corresponding accessories specified in this document.

*Printing errors reserved

3.0 Product Description

The ClickFit mounting system consists of patented adjustable tile hooks and L feet, rails, and the installation materials required for the mounting of photo-voltaic modules on composition shingle or tile roofs. For simplicity, tile hooks and L feet will be referred to as “attachments”.

3.1 Attaching to the Roof

The attachments are fastened to the rafters. Attachments are height-adjustable to level the system on uneven roof surfaces.

3.2 Attaching the Rail

The rail assembles to the attachments with a click-connector, or Clicker. The rail simply clicks into place without the use of any tools.

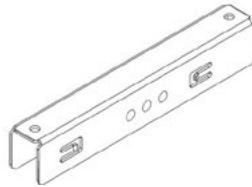
3.3 Attaching the modules

The modules are attached the rails by means of mid clamps and end clamps.

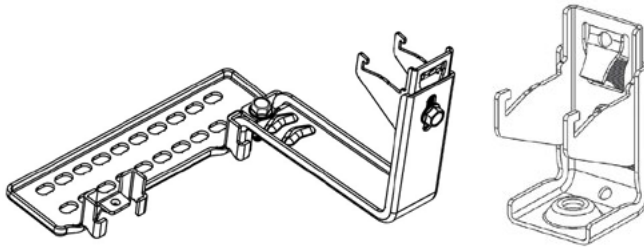
4.0 System Components



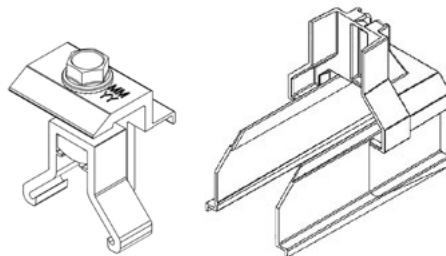
- 1) ClickFit Rail
1500033 (2130mm)
1500034 (3166mm)
1500035 (4202mm)



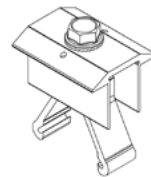
- 2) Rail Splice
1008061



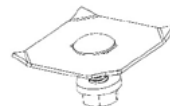
- 3) CF Tile Hook and L foot
1500005 - Tile Hook
1500004 - L foot



- 4) CF End Clamp
See Section 10
- 5) CF End Cap
1510041 (Black)
1510042 (Grey)



- 6) CF Mid Clamp
See Section 10



- 7) MLPE Clip

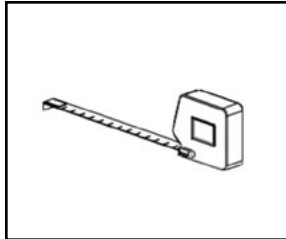


- 8) Module Jumper
1500028

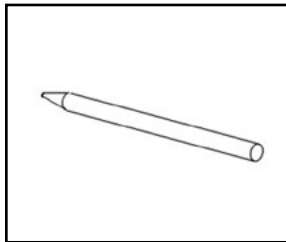
5.0 Preparing for Installation and Layout

5.1 Checklist of tools and accessories

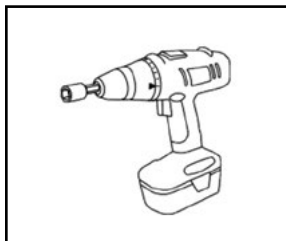
Note: *Proper PPE shall be worn at all times*



Tape measure

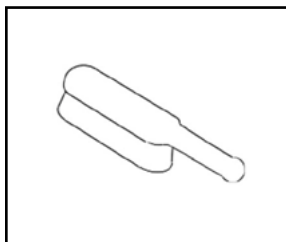


Roof crayon or chalk (a chalk line can be helpful as well)



Cordless drill with torque adjustment and the following bits:

- 1/2" Hex socket
- T-30 Tamper-proof Torx bit
- 1/4" diameter drill bit. (Drilling length no less than lag bolt depth)



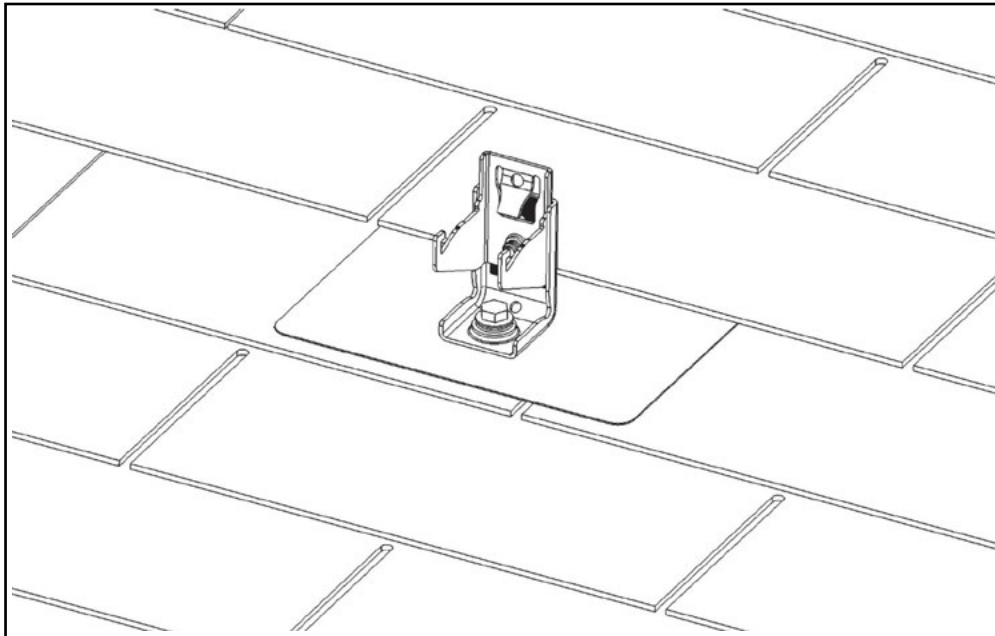
Brush for clearing debris from roof surface. Hint: Leaf blowers work well to remove any leftover moisture prior to installation.



Torque wrench with in-lb units

5.2 Array Layout

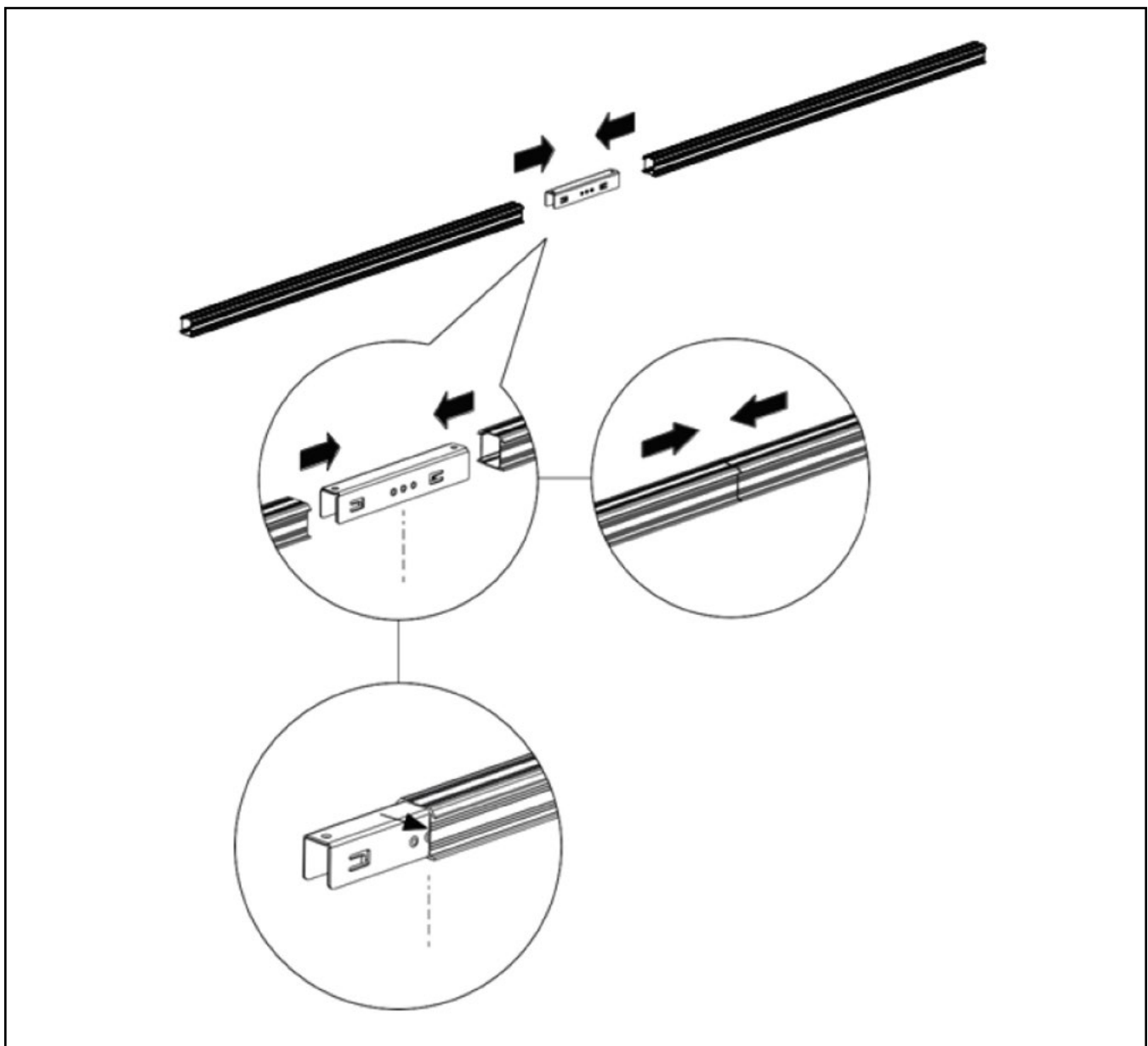
- Refer to span tables, jurisdiction, or engineer of record specifications when determining setbacks from roof edges, attachment spans, etc.
- Mark the perimeter and corners of the array on the roof surface.
 - *Add 1/2" to account for the gap between modules in each direction***
- Draw or snap chalk lines where the rails will be installed, (refer to module manufacturer specs to determine allowable mounting locations).
- Locate rafters within the area of the array. It may be necessary to shift the array East or West on the roof in order to fall within the rail cantilever specs (1/3) of span).
- Stagger rafters every row if required by the jurisdiction, engineer of record, or company policy.



6.0 Installing ClickFit

6.1 Pre-installing rail splices

1. Determine the number of rails required per row of modules.
2. Insert a rail splice into one rail. *Do not push it past the center bump.*
3. Slide the next rail onto the rail splice until the two rail ends meet.
4. Repeat steps 2 and 3 until the desired length is achieved. *This is usually easiest to do from the ground.*



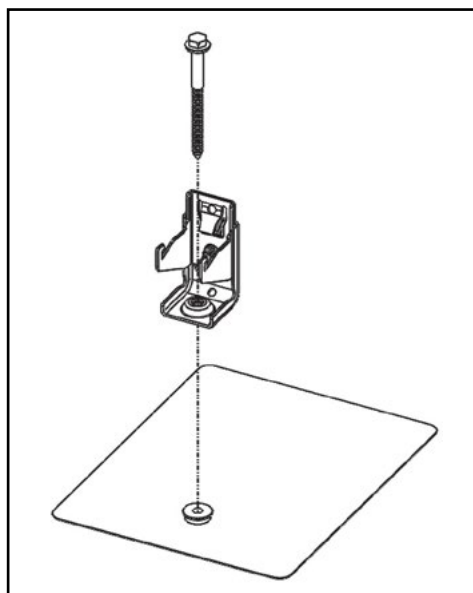
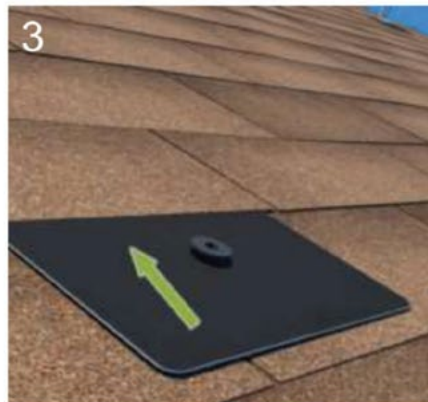
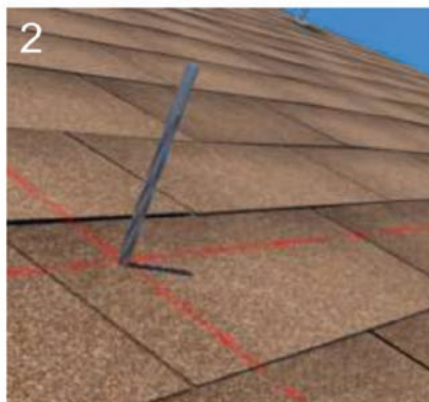
6.2 Installing flashing and L feet

- ClickFit for comp shingle roofs uses EcoFasten Solar's GFI watertight flashing system
- Other roof types may use different EcoFasten Solar attachments, see www.EcoFastenSolar.com for more information.

Installation Steps:

1. Locate rafter lines from section 5.2.
2. Drill 1/4" pilot holes at all attachment points and back fill using roof-compatible sealant.
3. Separate shingles where flashing is to be installed. Insert the flashing so the top portion is under the next row of shingles North. Ensure the flashing is pushed far enough up-slope to prevent water infiltration through the vertical joints between shingles.
4. Align GFI flashing hole with pilot hole. Insert the lag bolt with pre-installed bonded washer through the L foot and EPDM grommet. Tighten the lag bolt until a ring of EPDM is visible around the circumference of the bonded washer.

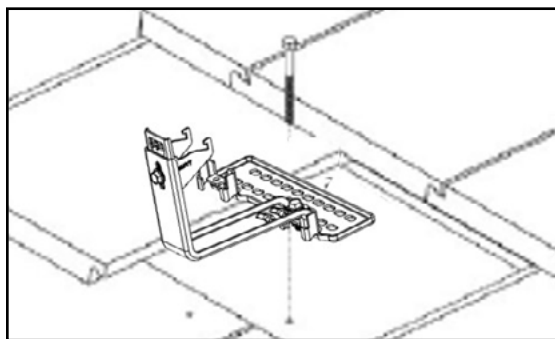
Torque range is usually between 100-140 in-lb depending upon a number of factors. The EPDM ring visual indicator is the most effective way to ensure a watertight seal without damaging the system



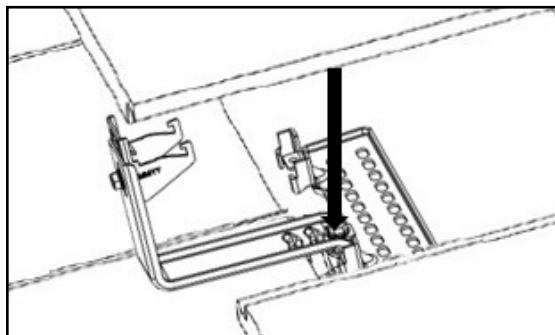
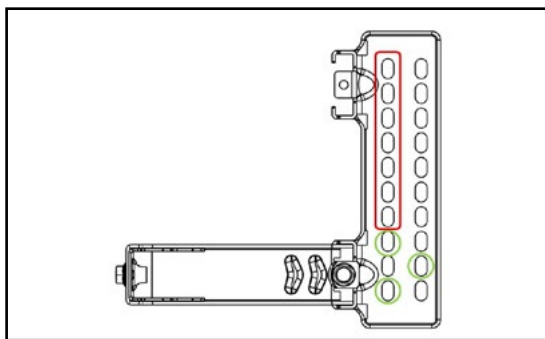
Note the orientation of the L foot and Clicker. The two Clicker "arms" should be facing downslope

6.3 Installing Tile Hooks

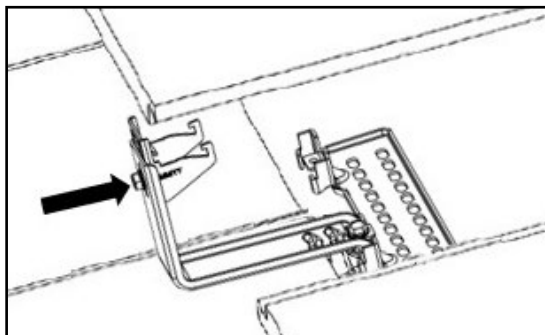
1. Locate rafters on the roof, mark the tiles to be removed. Hint: In some cases rafter tails are visible at the eaves of the roof, making it easy to find the rough location of the rafters. In other cases, the fascia board may have nail heads visible where it was attached to the rafters. In the worst-case a row of tiles may need to be moved to determine the rafter locations.
2. Slide the tile at the desired location upward to expose the roof sub surface. If the tile is to be notched, or if using a replacement flashing, remove it entirely. Clean the sub surface with a brush to remove any debris that could affect the sealing.
3. Locate the rafter center and mark it.
4. Place the tile hook with the hook itself in the valley of the next tile below. Drill one 1/4" pilot hole in the rafter center, taking care to keep the hook in the valley of the tile below. Backfill this hole with a roof-compatible sealant. For flat tiles, try to avoid having the hook land directly under a joint between tiles, this will create a larger gap or more notching than necessary.
5. Install one 5/16" x 4" lag screw on the row of holes closest to the tile hook arm. If possible, install the screw in one of the three holes directly next to the arm. If the lag screw must be installed in one of the seven holes furthest from the arm (denoted by the red rectangle below), install three deck screws in the pattern shown by the green circles below.
6. Adjust the height of the tile hook as necessary using the bolt shown in the fourth image.
7. Flash the surrounding area and lag screw head with roof-compatible sealant as necessary.
8. Replace the tile that was moved and/or removed, or install the tile replacement flashing. If it is to be notched, mark the tile for notching. Notching can be done with a grinding wheel or by using a chisel.



5.

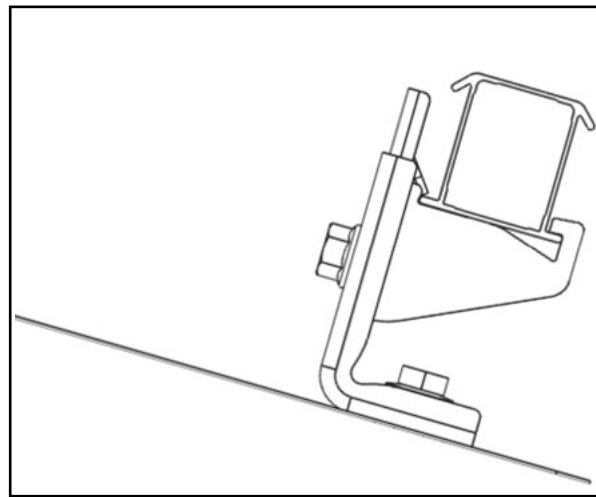
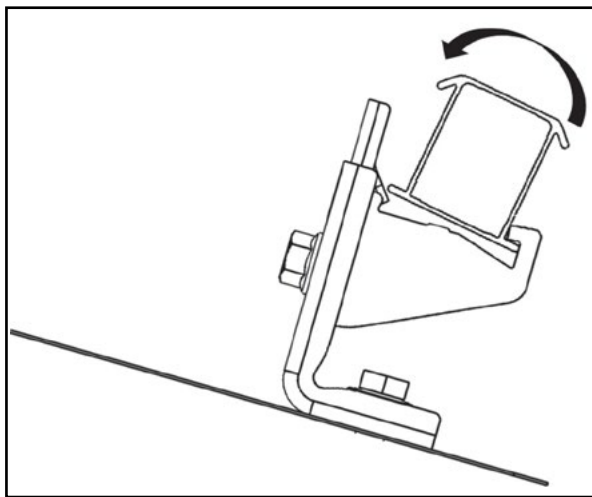


6.

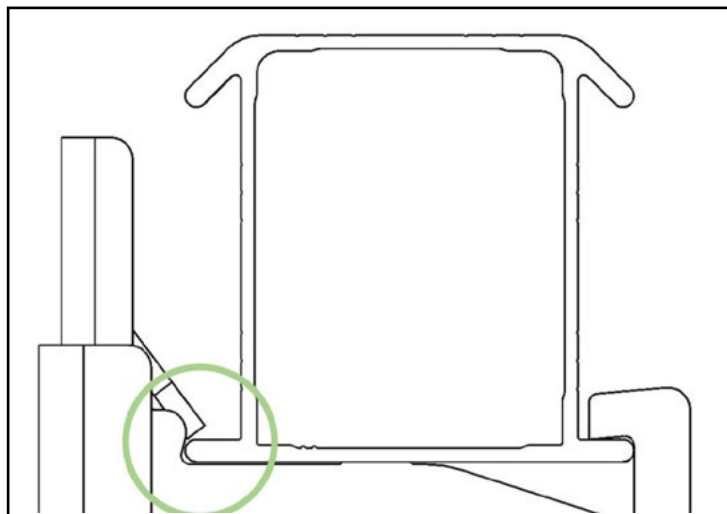


6.4 Installing the Rail

1. Place the rail in the Clickers.
2. Ensure the rails extend a minimum of 2" past the last attachments in each row and that each rail is aligned with the next row North and/or South.
3. Roll the rail into each Clicker, an audible "click" should be heard. If attachments are extremely misaligned it may be necessary to loosen the leveling bolt, snap the Clicker onto the rail, then re-tighten the leveling bolt.
4. Level the rail if necessary by loosening the bolt attaching the Clicker to the L foot or tile hook.

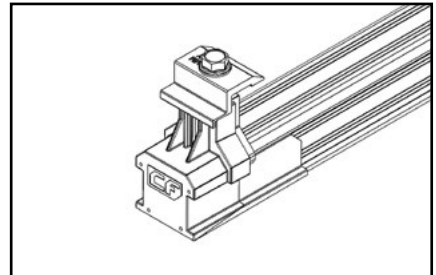
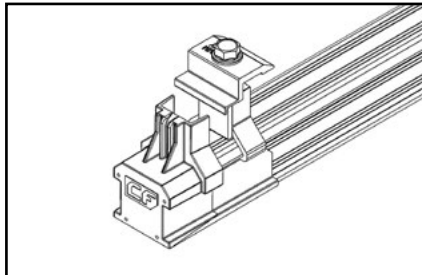
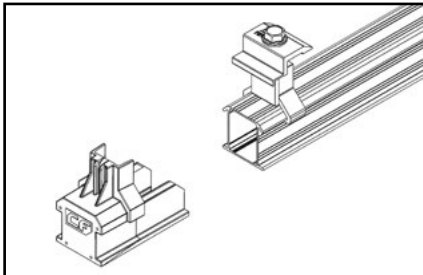


Ensure the tab on the Clicker is aligned with the rail edge as shown below

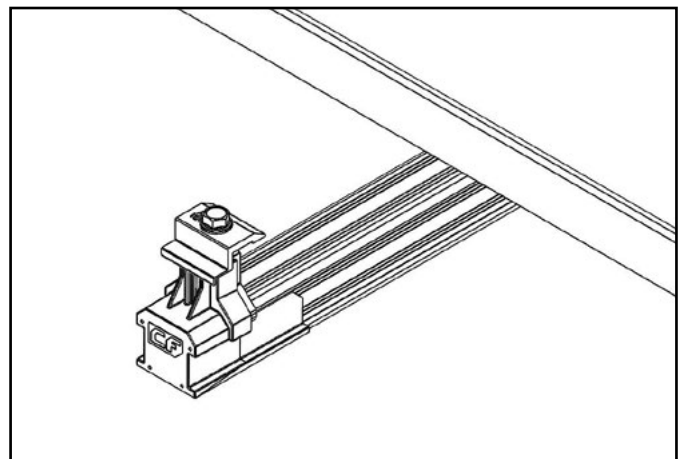


6.5 Installing the First Modules

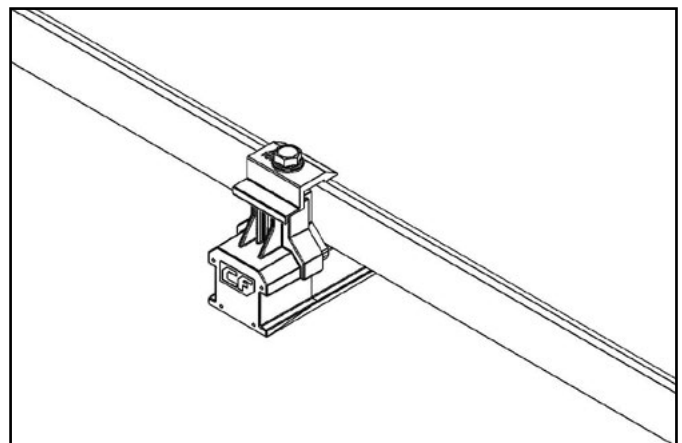
1. Install the end clamps on each rail on whatever end you are starting with.
 - Snap the end clamp onto the rail.
 - Slide the end cap onto the rail.
 - Turn the leg of the end clamp around the cap.



2. Place the module on the rail.
 - *Ensure module junction box is up-slope.*

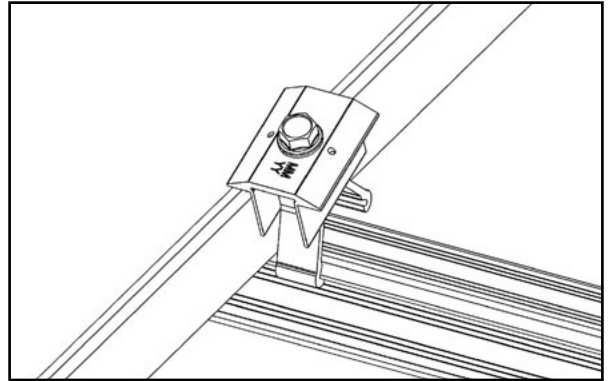


3. Slide the module to the end clamp and align it with the array corners. Tighten the end clamp to 144 in-lb.

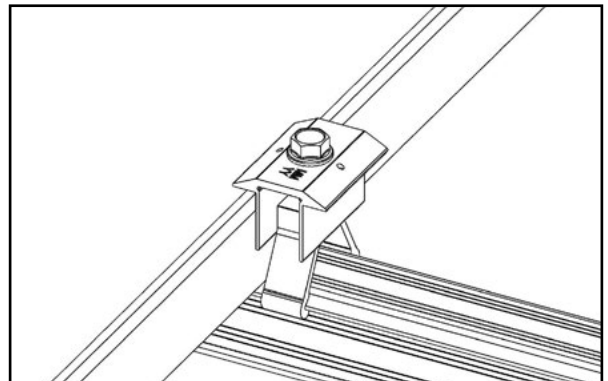


6.6 Installing additional modules on the rail

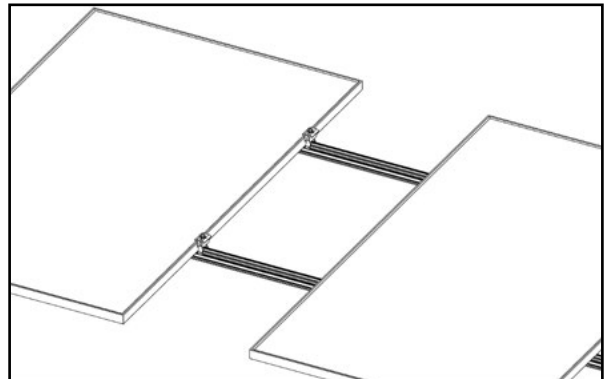
1. Click a mid clamp onto each rail.



2. Slide the mid clamps until they are flush with the side of the existing module.



3. Place and slide the next module firmly against the mid clamps. Align the bottom edges of the modules. Tighten mid clamps to 144 in-lb.

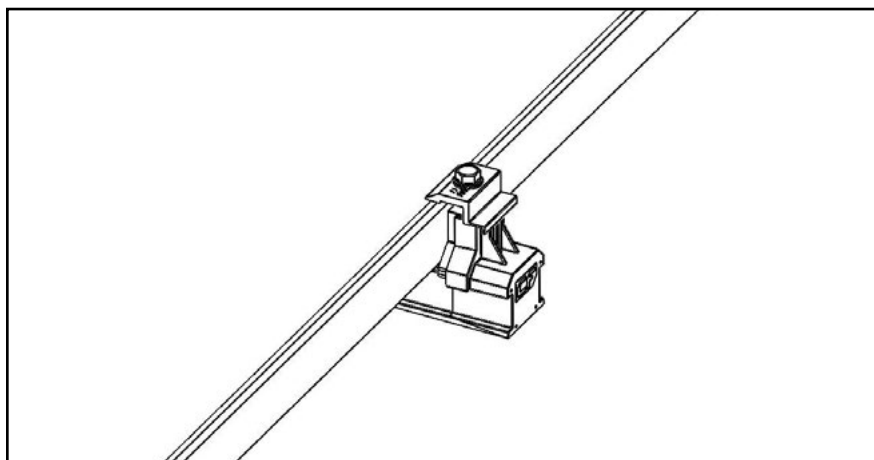
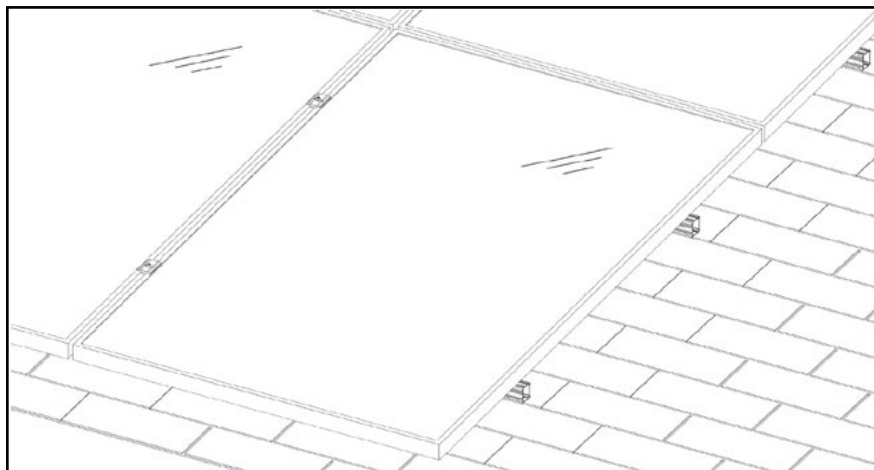


6.7 Installing end clamps at the end of a row

1. Install the last mid clamps in the row.
2. Measure the rails from the last mid clamp to the module width plus 1".
3. Cut the rails at this mark. There is some adjustment in the end cap/clamp so it does not need to be a perfect cut.
4. Install end clamps and end caps, tighten to 144 in-lb

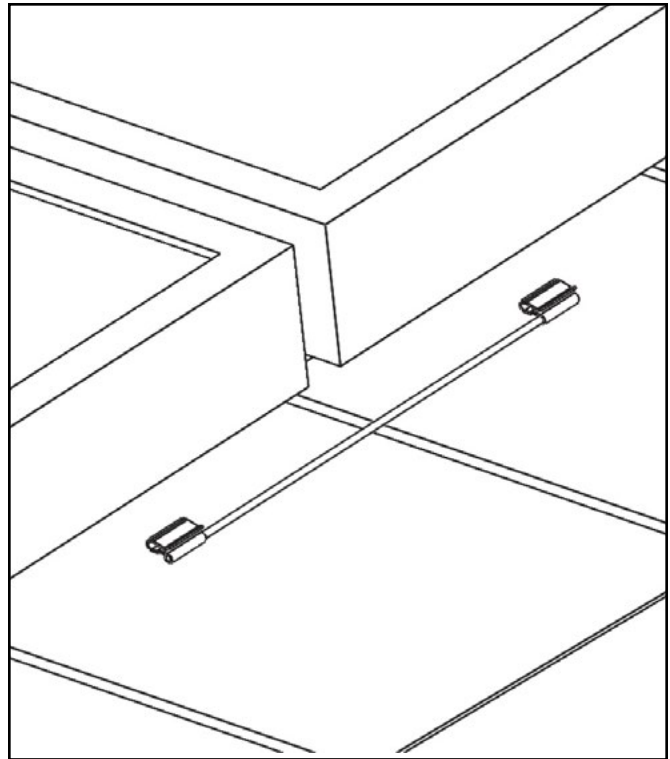
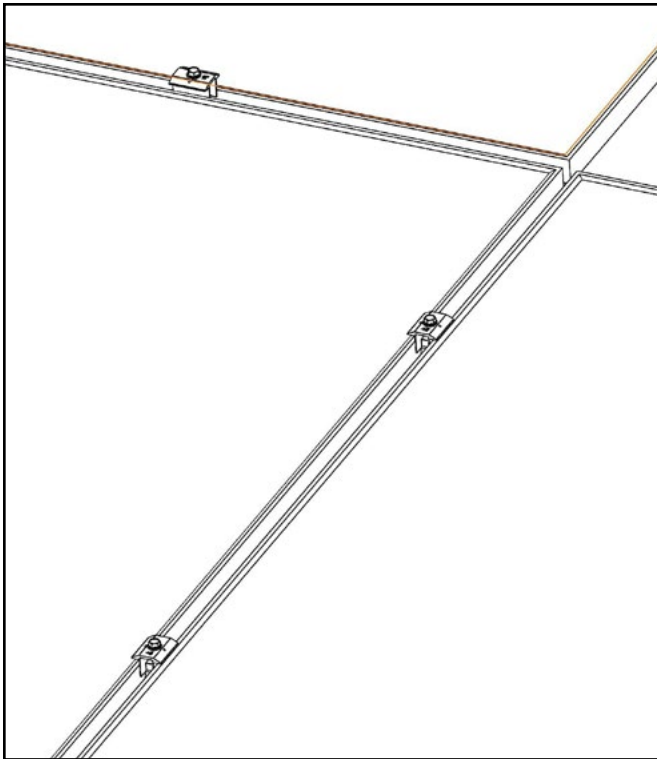
Alternative method:

1. Install the last module in the row, tighten the mid clamps.
2. Using a circular saw with a metal blade, or carefully with a reciprocating saw, cut the rail approximately 1" past the edge of the last module.
3. Install end clamps and end caps, tighten to 144 in-lb



6.8 Installing additional rows of modules

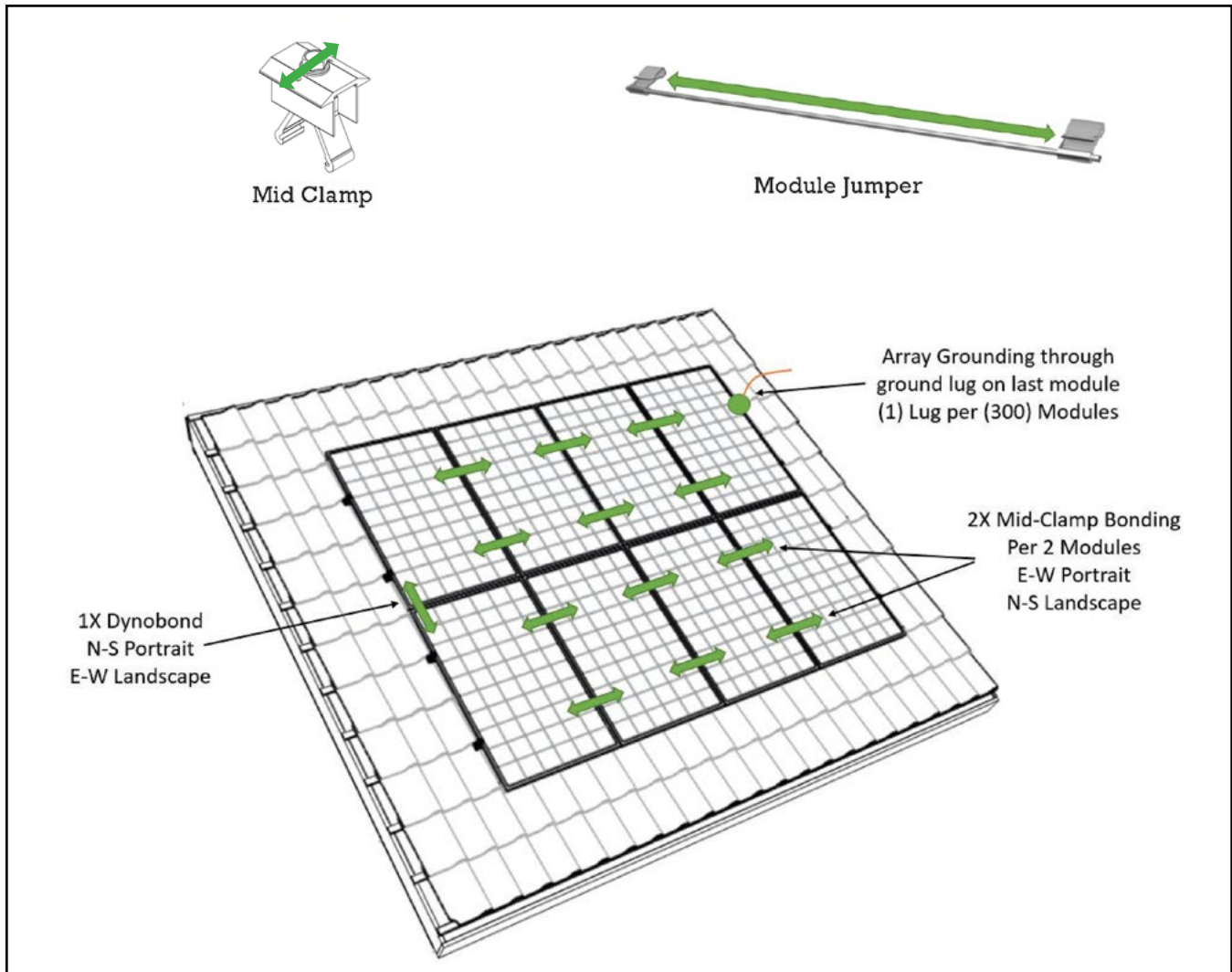
1. Place the first module of the next row against the end clamps.
2. Temporarily place a mid clamp in the N-S gap between rows of modules, slide the modules up to the mid clamp as shown below.
3. Once the modules are aligned tighten the end clamps.
4. Install Dynobond clip on the bottom lip of the module frames to bond rows together.
5. Repeat steps 6.5-6.7 until the array is complete.



7.0 Bonding and Grounding

7.1 Bonding Paths

All bond paths are carried either module-to-module through the mid clamp, or module-to-module through the module jumper shown below (bond paths shown in green):



Mid clamps are multi-use, however, if a mid-clamp is removed after tightening, ensure that the grounding pins bite into “new metal” to ensure proper bonding

7.2 Ground Lug Installation

Grounding Lug Install



Necessary Components:

On of the following ground lugs (or any U 2703 compliant ground lug):

- BurndyCL50-1TN Ground Lug (UL 2703 - E3514343 / UL 467-E9999)
- ILSCO SGB-4 Ground Lug (UL 2703 - E354420 I UL 467 - E34440)
- ILSCOGBL-40BT(UL2703 - E354420 I UL467 - E34440I
- ILSCO GBL-4DBTH (UL 2703 - E354420 / UL 467 - E34440)
- ILSCO GBL-455 (UL 2703 - E354420 I UL 467 - E34440)

Note: Drill and deburr hole in Ground Lug prior to installation 14 AWG- 4 AWG Copper Ground Wire.

- 8-32 x 0.5" Serrated Flange Head Bolt (300 Series SS)
- 8-32 Serrated Flange Nut (300 Series SS)
- 11 /32u and 1 /4" wrenches or ratchets/sockets

"This system needs to be grounded in accordance with the National Electrical Code, ANSI/NFPA 70. See 8.0 "System Specifications" for information on wire size, torque, etc."

Copper wire should not come in direct contact with aluminum at any point on the array

7.3 MLPE Clip Installation (Optional)



Install MLPE Clip Accessory

- Determine mounting location of the MLPE and MLPE Clip on the module frame. Take care not to block drainage holes on the frame.
- Push the nut/bolt of the MLPE Clip so the carriage bolt head is furthest away from the stainless plate.
- Slide the bolt shaft into the slot on the MLPE mounting flange.
- Place the assembly onto the module flange, MLPE mounting flange on the far face (upper side) of the module frame flange, stainless plate on the closer face (bottom side) of the module frame flange.
- Hold the carriage bolt into the MLPE mounting flange slot with your finger, this will keep the carriage bolt from spinning in the slot. Tighten the nut to 12 ft-lb using a 1/2" hex socket.

8.0 System Specifications

| | |
|-----------------------------------|---|
| Max Modules Per Ground Lug | 300 |
| Max Cantilever | 1/3 of allowable Bracket Spacing |
| Fire Rating - Tile | Type 1 on Non-Combustible Roof Surfaces |
| Fire Rating | Type 1 |
| Max System Voltage | 1000VDC |
| Ground Wire Specs | TBD by Engineer of Record |
| Max Downforce/Uplift | TBD by Engineer of Record |
| Warranty | 20 Year Material and Workmanship |
| UL Marketing | System Marketings Per-Install on all End-Caps |
| Roof Pitch | 10-60 Degrees |

UL Mark Example:



(-XXX denotes manufacturer ID)

Torque Specifications

| Component | Torque (in-lb) | Notes |
|----------------------------|-----------------------|--|
| Lag Screw | 120-140 | Changes depending on roof/moisture/etc. Use visual indicator of the black EPDM ring around the bonded washer for torquing. |
| Mid-Clamp | 144 | |
| End-Clamp | 144 | |
| Rail Clicker Leveling Bolt | 50 | Pre-torqued upon delivery. Applies to Tile Hook and L-Footer/Clicker |
| Hook Height Bolt | N/A | Lightly clamp hook to flush with top of next tile row |
| Ground Lug | N/A | Refer to specific ground lug manufacturer's installation manual |

Approved Modules

| Manufacturer | Model/Frame Family | Tested Load Positive (psf) | Tested Load Negative (psf) | Span at Tested Load (in) | Bonding Conductor Test |
|----------------|---------------------------|----------------------------|----------------------------|--------------------------|------------------------|
| Hanwha-Q-Cells | Q.Pro-G4 & Frame Family | 35 | 35 | 72 | X |
| Jinko | JKM255P-60 & Frame Family | | | | X |
| Silfab | SLA255P & Frame Family | | | | X |
| Longi | LR6-60HPB & Frame Family | | | | X |
| Silfab | SLA255P & Frame Family | | | | X |

* Additional modules not on this list to be evaluated by the engineer of record for the site plan*

* Please contact EcoFasten Solar to request adding modules to this list*

* 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*

9.0 Installer Responsibilities

Periodic reinspection of components shall be performed to verify that there is no corrosion detrimental to system strength and electrical conductivity, no loose bolts, and/or other variables that could compromise array safety. Any corroded or damaged components shall be immediately replaced.

10.0 Clamp Tables

End Caps

| Frame Thickness | Article Number |
|-----------------|----------------|
| 30 mm | 1510015 |
| 32 mm | 1510016 |
| 35 mm | 1510017 |
| 38 mm | 1510018 |
| 40 mm | 1510019 |
| 45 mm | 1510020 |
| 50 mm | 1510021 |

Mid Clamps

| Frame Thickness | Article Number |
|-----------------|----------------|
| 40-30 mm | 1510011 |
| 40-50 mm | 1510012 |

11.0 Span Tables

11.1 Composition Shingle Span Tables

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roofs | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|------------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | |
| | | Zones | | | Zones | | | Zones | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r, 3e |
| 110 mph | B | 72 in | 68 in | 56 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in |
| | D | 54 in | 41 in | 34 in | 71 in | 48 in | 45 in | 69 in | 59 in |
| 115 mph | B | 72 in | 62 in | 51 in | 72 in | 72 in | 68 in | 72 in | 71 in |
| | C | 58 in | 44 in | 37 in | 72 in | 52 in | 48 in | 72 in | 64 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 54 in |
| 125 mph | B | 69 in | 52 in | 43 in | 72 in | 62 in | 57 in | 72 in | 72 in |
| | C | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 54 in |
| | D | 41 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 45 in |
| 140 mph | B | 55 in | 42 in | 35 in | 72 in | 49 in | 46 in | 71 in | 60 in |
| | C | 39 in | 30 in | 25 in | 52 in | 35 in | 33 in | 51 in | 43 in |
| | D | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in |
| 150 mph | B | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 62 in | 52 in |
| | C | 34 in | 26 in | 22 in | 45 in | 31 in | 28 in | 44 in | 37 in |
| | D | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in |
| 165 mph | B | 39 in | 30 in | 25 in | 53 in | 35 in | 33 in | 51 in | 43 in |
| | C | 28 in | 21 in | 18 in | 38 in | 25 in | 24 in | 36 in | 31 in |
| | D | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 62 in | 62 in | 56 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 48 in | 40 in | 64 in | 57 in | 53 in | 67 in | 67 in | 56 in |
| | D | 54 in | 41 in | 34 in | 64 in | 48 in | 45 in | 67 in | 59 in | 47 in |
| 115 mph | B | 62 in | 62 in | 51 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 58 in | 44 in | 37 in | 64 in | 52 in | 48 in | 67 in | 64 in | 51 in |
| | D | 49 in | 37 in | 31 in | 64 in | 44 in | 41 in | 63 in | 54 in | 43 in |
| 125 mph | B | 62 in | 52 in | 43 in | 64 in | 62 in | 57 in | 67 in | 67 in | 60 in |
| | C | 49 in | 37 in | 31 in | 64 in | 44 in | 41 in | 63 in | 54 in | 43 in |
| | D | 41 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 45 in | 36 in |
| 140 mph | B | 55 in | 42 in | 35 in | 64 in | 49 in | 46 in | 67 in | 60 in | 48 in |
| | C | 39 in | 30 in | 25 in | 52 in | 35 in | 33 in | 51 in | 43 in | 34 in |
| | D | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| 150 mph | B | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 62 in | 52 in | 42 in |
| | C | 34 in | 26 in | 22 in | 45 in | 31 in | 28 in | 44 in | 37 in | 30 in |
| | D | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| 165 mph | B | 39 in | 30 in | 25 in | 53 in | 35 in | 33 in | 51 in | 43 in | 35 in |
| | C | 28 in | 21 in | 18 in | 38 in | 25 in | 24 in | 36 in | 31 in | 25 in |
| | D | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 55 in | 48 in | 40 in | 56 in | 53 in | 53 in | 53 in | 53 in | 53 in |
| | D | 54 in | 41 in | 34 in | 56 in | 48 in | 45 in | 53 in | 53 in | 47 in |
| 115 mph | B | 55 in | 55 in | 51 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 55 in | 44 in | 37 in | 56 in | 52 in | 48 in | 53 in | 53 in | 51 in |
| | D | 49 in | 37 in | 31 in | 56 in | 44 in | 41 in | 53 in | 53 in | 43 in |
| 125 mph | B | 55 in | 52 in | 43 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 49 in | 37 in | 31 in | 56 in | 44 in | 41 in | 53 in | 53 in | 43 in |
| | D | 41 in | 32 in | 26 in | 55 in | 37 in | 35 in | 53 in | 45 in | 36 in |
| 140 mph | B | 55 in | 42 in | 35 in | 56 in | 49 in | 46 in | 53 in | 53 in | 48 in |
| | C | 39 in | 30 in | 25 in | 52 in | 35 in | 33 in | 51 in | 43 in | 34 in |
| | D | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| 150 mph | B | 48 in | 36 in | 30 in | 56 in | 43 in | 40 in | 53 in | 52 in | 42 in |
| | C | 34 in | 26 in | 22 in | 45 in | 31 in | 28 in | 44 in | 37 in | 30 in |
| | D | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| 165 mph | B | 39 in | 30 in | 25 in | 53 in | 35 in | 33 in | 51 in | 43 in | 35 in |
| | C | 28 in | 21 in | 18 in | 38 in | 25 in | 24 in | 36 in | 31 in | 25 in |
| | D | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 50 in | 48 in | 40 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | D | 50 in | 41 in | 34 in | 51 in | 48 in | 45 in | 43 in | 43 in | 43 in |
| 115 mph | B | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 50 in | 44 in | 37 in | 51 in | 51 in | 48 in | 43 in | 43 in | 43 in |
| | D | 49 in | 37 in | 31 in | 51 in | 44 in | 41 in | 43 in | 43 in | 43 in |
| 125 mph | B | 50 in | 50 in | 43 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 49 in | 37 in | 31 in | 51 in | 44 in | 41 in | 43 in | 43 in | 43 in |
| | D | 41 in | 32 in | 26 in | 51 in | 37 in | 35 in | 43 in | 43 in | 36 in |
| 140 mph | B | 50 in | 42 in | 35 in | 51 in | 49 in | 46 in | 43 in | 43 in | 43 in |
| | C | 39 in | 30 in | 25 in | 51 in | 35 in | 33 in | 43 in | 43 in | 34 in |
| | D | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| 150 mph | B | 48 in | 36 in | 30 in | 51 in | 43 in | 40 in | 43 in | 43 in | 42 in |
| | C | 34 in | 26 in | 22 in | 45 in | 31 in | 28 in | 43 in | 37 in | 30 in |
| | D | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| 165 mph | B | 39 in | 30 in | 25 in | 51 in | 35 in | 33 in | 43 in | 43 in | 35 in |
| | C | 28 in | 21 in | 18 in | 38 in | 25 in | 24 in | 36 in | 31 in | 25 in |
| | D | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 45 in | 40 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 45 in | 41 in | 34 in | 47 in | 47 in | 45 in | 37 in | 37 in | 37 in |
| 115 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 44 in | 37 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 45 in | 37 in | 31 in | 47 in | 44 in | 41 in | 37 in | 37 in | 37 in |
| 125 mph | B | 45 in | 45 in | 43 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 37 in | 31 in | 47 in | 44 in | 41 in | 37 in | 37 in | 37 in |
| | D | 41 in | 32 in | 26 in | 47 in | 37 in | 35 in | 37 in | 37 in | 36 in |
| 140 mph | B | 45 in | 42 in | 35 in | 47 in | 47 in | 46 in | 37 in | 37 in | 37 in |
| | C | 39 in | 30 in | 25 in | 47 in | 35 in | 33 in | 37 in | 37 in | 34 in |
| | D | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 37 in | 36 in | 29 in |
| 150 mph | B | 45 in | 36 in | 30 in | 47 in | 43 in | 40 in | 37 in | 37 in | 37 in |
| | C | 34 in | 26 in | 22 in | 45 in | 31 in | 28 in | 37 in | 37 in | 30 in |
| | D | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| 165 mph | B | 39 in | 30 in | 25 in | 47 in | 35 in | 33 in | 37 in | 37 in | 35 in |
| | C | 28 in | 21 in | 18 in | 38 in | 25 in | 24 in | 36 in | 31 in | 25 in |
| | D | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| | D | 59 in | 49 in | 45 in | 60 in | 60 in | 60 in | 72 in | 53 in | 54 in |
| 115 mph | B | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 53 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 45 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 125 mph | B | 72 in | 62 in | 58 in | 72 in | 72 in | 72 in | 72 in | 68 in | 69 in |
| | C | 55 in | 45 in | 41 in | 55 in | 55 in | 55 in | 66 in | 49 in | 49 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| 140 mph | B | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 54 in | 55 in |
| | C | 43 in | 36 in | 33 in | 44 in | 44 in | 44 in | 52 in | 39 in | 39 in |
| | D | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| 150 mph | B | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | C | 38 in | 31 in | 29 in | 38 in | 38 in | 38 in | 46 in | 34 in | 34 in |
| | D | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 38 in | 28 in | 29 in |
| 165 mph | B | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| | C | 31 in | 26 in | 24 in | 31 in | 31 in | 31 in | 38 in | 28 in | 28 in |
| | D | 26 in | 22 in | 20 in | 26 in | 26 in | 26 in | 32 in | 24 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 58 in | 53 in | 64 in | 64 in | 64 in | 67 in | 63 in | 64 in |
| | D | 59 in | 49 in | 45 in | 60 in | 60 in | 60 in | 67 in | 53 in | 54 in |
| 115 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 53 in | 49 in | 64 in | 64 in | 64 in | 67 in | 57 in | 58 in |
| | D | 54 in | 45 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 125 mph | B | 62 in | 62 in | 58 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 55 in | 45 in | 41 in | 55 in | 55 in | 55 in | 66 in | 49 in | 49 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| 140 mph | B | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 67 in | 54 in | 55 in |
| | C | 43 in | 36 in | 33 in | 44 in | 44 in | 44 in | 52 in | 39 in | 39 in |
| | D | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| 150 mph | B | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | C | 38 in | 31 in | 29 in | 38 in | 38 in | 38 in | 46 in | 34 in | 34 in |
| | D | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 38 in | 28 in | 29 in |
| 165 mph | B | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| | C | 31 in | 26 in | 24 in | 31 in | 31 in | 31 in | 38 in | 28 in | 28 in |
| | D | 26 in | 22 in | 20 in | 26 in | 26 in | 26 in | 32 in | 24 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 55 in | 55 in | 53 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | D | 55 in | 49 in | 45 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| 115 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 55 in | 53 in | 49 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | D | 54 in | 45 in | 41 in | 54 in | 54 in | 54 in | 53 in | 48 in | 49 in |
| 125 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 55 in | 45 in | 41 in | 55 in | 55 in | 55 in | 53 in | 49 in | 49 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 53 in | 41 in | 42 in |
| 140 mph | B | 55 in | 50 in | 46 in | 56 in | 56 in | 56 in | 53 in | 53 in | 53 in |
| | C | 43 in | 36 in | 33 in | 44 in | 44 in | 44 in | 52 in | 39 in | 39 in |
| | D | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| 150 mph | B | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 53 in | 47 in | 48 in |
| | C | 38 in | 31 in | 29 in | 38 in | 38 in | 38 in | 46 in | 34 in | 34 in |
| | D | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 38 in | 28 in | 29 in |
| 165 mph | B | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| | C | 31 in | 26 in | 24 in | 31 in | 31 in | 31 in | 38 in | 28 in | 28 in |
| | D | 26 in | 22 in | 20 in | 26 in | 26 in | 26 in | 32 in | 24 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | D | 50 in | 49 in | 45 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| 115 mph | B | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 50 in | 50 in | 49 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | D | 50 in | 45 in | 41 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| 125 mph | B | 50 in | 50 in | 50 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 50 in | 45 in | 41 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 43 in | 41 in | 42 in |
| 140 mph | B | 50 in | 50 in | 46 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 43 in | 36 in | 33 in | 44 in | 44 in | 44 in | 43 in | 39 in | 39 in |
| | D | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 43 in | 33 in | 33 in |
| 150 mph | B | 50 in | 43 in | 40 in | 51 in | 51 in | 51 in | 43 in | 43 in | 43 in |
| | C | 38 in | 31 in | 29 in | 38 in | 38 in | 38 in | 43 in | 34 in | 34 in |
| | D | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 38 in | 28 in | 29 in |
| 165 mph | B | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 43 in | 39 in | 40 in |
| | C | 31 in | 26 in | 24 in | 31 in | 31 in | 31 in | 38 in | 28 in | 28 in |
| | D | 26 in | 22 in | 20 in | 26 in | 26 in | 26 in | 32 in | 24 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|----------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| 115 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 45 in | 45 in | 41 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| 125 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 45 in | 45 in | 41 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 45 in | 38 in | 35 in | 46 in | 46 in | 46 in | 37 in | 37 in | 37 in |
| 140 mph | B | 45 in | 45 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 43 in | 36 in | 33 in | 44 in | 44 in | 44 in | 37 in | 37 in | 37 in |
| | D | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 37 in | 33 in | 33 in |
| 150 mph | B | 45 in | 43 in | 40 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 38 in | 31 in | 29 in | 38 in | 38 in | 38 in | 37 in | 34 in | 34 in |
| | D | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 37 in | 28 in | 29 in |
| 165 mph | B | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 37 in | 37 in | 37 in |
| | C | 31 in | 26 in | 24 in | 31 in | 31 in | 31 in | 37 in | 28 in | 28 in |
| | D | 26 in | 22 in | 20 in | 26 in | 26 in | 26 in | 32 in | 24 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|----------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 72 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 72 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|---------------------|-------|--------------------------------|-------|---------------------|--------------------------------|-------|-----------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | 1, 2e | Zones 2n, 2r, 3e | | 3r | 1, 2e | Zones 2n, 2r, 3e | | 3r | 1, 2e, 2r |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 72 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 72 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|---------------------|-------|--------------------------------|-------|---------------------|--------------------------------|-------|-----------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | 1, 2e | Zones 2n, 2r, 3e | | 3r | 1, 2e | Zones 2n, 2r, 3e | | 3r | 1, 2e, 2r |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 71 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 71 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|---------------------|-------|--------------------------------|---------------------|-------|--------------------------------|-----------------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e, 2r | Zones 2n, 3r | 3e |
| 110 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 57 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 115 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 62 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 63 in | 52 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 125 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 63 in | 52 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 54 in | 44 in | 66 in | 63 in | 59 in | 69 in | 69 in | 62 in |
| 140 mph | B | 64 in | 64 in | 58 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 51 in | 42 in | 66 in | 60 in | 55 in | 69 in | 69 in | 58 in |
| | D | 56 in | 43 in | 35 in | 66 in | 50 in | 47 in | 69 in | 61 in | 49 in |
| 150 mph | B | 64 in | 62 in | 51 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 58 in | 44 in | 36 in | 66 in | 52 in | 48 in | 69 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 64 in | 51 in | 42 in | 66 in | 60 in | 56 in | 69 in | 69 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 69 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|---------------------|-------|--------------------------------|---------------------|-------|--------------------------------|-----------------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e, 2r | Zones 2n, 3r | 3e |
| 110 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 57 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 115 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 52 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 125 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 52 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 54 in | 44 in | 61 in | 61 in | 59 in | 62 in | 62 in | 62 in |
| 140 mph | B | 59 in | 59 in | 58 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 51 in | 42 in | 61 in | 60 in | 55 in | 62 in | 62 in | 58 in |
| | D | 56 in | 43 in | 35 in | 61 in | 50 in | 47 in | 62 in | 61 in | 49 in |
| 150 mph | B | 59 in | 59 in | 51 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 58 in | 44 in | 36 in | 61 in | 52 in | 48 in | 62 in | 62 in | 51 in |
| | D | 49 in | 37 in | 31 in | 61 in | 44 in | 41 in | 62 in | 53 in | 43 in |
| 165 mph | B | 59 in | 51 in | 42 in | 61 in | 60 in | 56 in | 62 in | 62 in | 59 in |
| | C | 48 in | 36 in | 30 in | 61 in | 43 in | 40 in | 62 in | 62 in | 50 in |
| | D | 48 in | 37 in | 31 in | 61 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|----------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 72 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|----------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 72 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 71 in | 71 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 71 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 115 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 125 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 59 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 140 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 60 in | 56 in | 66 in | 66 in | 66 in | 69 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 69 in | 55 in | 56 in |
| 150 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 69 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 64 in | 61 in | 56 in | 66 in | 66 in | 66 in | 69 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 60 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 115 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 125 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 140 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 56 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 51 in | 47 in | 61 in | 61 in | 61 in | 62 in | 55 in | 56 in |
| 150 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 52 in | 49 in | 61 in | 61 in | 61 in | 62 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 62 in | 48 in | 49 in |
| 165 mph | B | 59 in | 59 in | 56 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 62 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 68 in | 57 in | 47 in | 70 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 70 in | 48 in | 45 in | 69 in | 59 in | 47 in |
| | D | 45 in | 35 in | 29 in | 60 in | 41 in | 38 in | 59 in | 50 in | 40 in |
| 115 mph | B | 68 in | 52 in | 43 in | 70 in | 62 in | 57 in | 72 in | 72 in | 60 in |
| | C | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 54 in | 43 in |
| | D | 41 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 45 in | 36 in |
| 125 mph | B | 58 in | 44 in | 37 in | 70 in | 52 in | 49 in | 72 in | 64 in | 51 in |
| | C | 42 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 46 in | 37 in |
| | D | 35 in | 27 in | 22 in | 47 in | 32 in | 29 in | 45 in | 38 in | 31 in |
| 140 mph | B | 46 in | 35 in | 29 in | 62 in | 42 in | 39 in | 60 in | 51 in | 41 in |
| | C | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| | D | 28 in | 21 in | 18 in | 37 in | 25 in | 23 in | 36 in | 31 in | 25 in |
| 150 mph | B | 40 in | 31 in | 25 in | 54 in | 36 in | 34 in | 52 in | 44 in | 36 in |
| | C | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| | D | 24 in | 19 in | 15 in | 32 in | 22 in | 20 in | 31 in | 27 in | 21 in |
| 165 mph | B | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 37 in | 29 in |
| | C | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |
| | D | 20 in | 15 in | 13 in | 27 in | 18 in | 17 in | 26 in | 22 in | 18 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 57 in | 57 in | 47 in | 59 in | 59 in | 59 in | 58 in | 58 in | 58 in |
| | C | 54 in | 41 in | 34 in | 59 in | 48 in | 45 in | 58 in | 58 in | 47 in |
| | D | 45 in | 35 in | 29 in | 59 in | 41 in | 38 in | 58 in | 50 in | 40 in |
| 115 mph | B | 57 in | 52 in | 43 in | 59 in | 59 in | 57 in | 58 in | 58 in | 58 in |
| | C | 49 in | 37 in | 31 in | 59 in | 44 in | 41 in | 58 in | 54 in | 43 in |
| | D | 41 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 45 in | 36 in |
| 125 mph | B | 57 in | 44 in | 37 in | 59 in | 52 in | 49 in | 58 in | 58 in | 51 in |
| | C | 42 in | 32 in | 26 in | 55 in | 37 in | 35 in | 54 in | 46 in | 37 in |
| | D | 35 in | 27 in | 22 in | 47 in | 32 in | 29 in | 45 in | 38 in | 31 in |
| 140 mph | B | 46 in | 35 in | 29 in | 59 in | 42 in | 39 in | 58 in | 51 in | 41 in |
| | C | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| | D | 28 in | 21 in | 18 in | 37 in | 25 in | 23 in | 36 in | 31 in | 25 in |
| 150 mph | B | 40 in | 31 in | 25 in | 54 in | 36 in | 34 in | 52 in | 44 in | 36 in |
| | C | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| | D | 24 in | 19 in | 15 in | 32 in | 22 in | 20 in | 31 in | 27 in | 21 in |
| 165 mph | B | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 37 in | 29 in |
| | C | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |
| | D | 20 in | 15 in | 13 in | 27 in | 18 in | 17 in | 26 in | 22 in | 18 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 47 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 50 in | 41 in | 34 in | 52 in | 48 in | 45 in | 45 in | 45 in | 45 in |
| | D | 45 in | 35 in | 29 in | 52 in | 41 in | 38 in | 45 in | 45 in | 40 in |
| 115 mph | B | 50 in | 50 in | 43 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 49 in | 37 in | 31 in | 52 in | 44 in | 41 in | 45 in | 45 in | 43 in |
| | D | 41 in | 32 in | 26 in | 52 in | 37 in | 35 in | 45 in | 45 in | 36 in |
| 125 mph | B | 50 in | 44 in | 37 in | 52 in | 52 in | 49 in | 45 in | 45 in | 45 in |
| | C | 42 in | 32 in | 26 in | 52 in | 37 in | 35 in | 45 in | 45 in | 37 in |
| | D | 35 in | 27 in | 22 in | 47 in | 32 in | 29 in | 45 in | 38 in | 31 in |
| 140 mph | B | 46 in | 35 in | 29 in | 52 in | 42 in | 39 in | 45 in | 45 in | 41 in |
| | C | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 36 in | 29 in |
| | D | 28 in | 21 in | 18 in | 37 in | 25 in | 23 in | 36 in | 31 in | 25 in |
| 150 mph | B | 40 in | 31 in | 25 in | 52 in | 36 in | 34 in | 45 in | 44 in | 36 in |
| | C | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| | D | 24 in | 19 in | 15 in | 32 in | 22 in | 20 in | 31 in | 27 in | 21 in |
| 165 mph | B | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 43 in | 37 in | 29 in |
| | C | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |
| | D | 20 in | 15 in | 13 in | 27 in | 18 in | 17 in | 26 in | 22 in | 18 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 46 in | 46 in | 46 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 46 in | 41 in | 34 in | 47 in | 47 in | 45 in | 37 in | 37 in | 37 in |
| | D | 45 in | 35 in | 29 in | 47 in | 41 in | 38 in | 37 in | 37 in | 37 in |
| 115 mph | B | 46 in | 46 in | 43 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 46 in | 37 in | 31 in | 47 in | 44 in | 41 in | 37 in | 37 in | 37 in |
| | D | 41 in | 32 in | 26 in | 47 in | 37 in | 35 in | 37 in | 37 in | 36 in |
| 125 mph | B | 46 in | 44 in | 37 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 42 in | 32 in | 26 in | 47 in | 37 in | 35 in | 37 in | 37 in | 37 in |
| | D | 35 in | 27 in | 22 in | 47 in | 32 in | 29 in | 37 in | 37 in | 31 in |
| 140 mph | B | 46 in | 35 in | 29 in | 47 in | 42 in | 39 in | 37 in | 37 in | 37 in |
| | C | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 37 in | 36 in | 29 in |
| | D | 28 in | 21 in | 18 in | 37 in | 25 in | 23 in | 36 in | 31 in | 25 in |
| 150 mph | B | 40 in | 31 in | 25 in | 47 in | 36 in | 34 in | 37 in | 37 in | 36 in |
| | C | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 37 in | 32 in | 25 in |
| | D | 24 in | 19 in | 15 in | 32 in | 22 in | 20 in | 31 in | 27 in | 21 in |
| 165 mph | B | 33 in | 25 in | 21 in | 44 in | 30 in | 28 in | 37 in | 37 in | 29 in |
| | C | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |
| | D | 20 in | 15 in | 13 in | 27 in | 18 in | 17 in | 26 in | 22 in | 18 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 41 in | 34 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | D | 42 in | 35 in | 29 in | 43 in | 41 in | 38 in | 31 in | 31 in | 31 in |
| 115 mph | B | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 37 in | 31 in | 43 in | 43 in | 41 in | 31 in | 31 in | 31 in |
| | D | 41 in | 32 in | 26 in | 43 in | 37 in | 35 in | 31 in | 31 in | 31 in |
| 125 mph | B | 42 in | 42 in | 37 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 32 in | 26 in | 43 in | 37 in | 35 in | 31 in | 31 in | 31 in |
| | D | 35 in | 27 in | 22 in | 43 in | 32 in | 29 in | 31 in | 31 in | 31 in |
| 140 mph | B | 42 in | 35 in | 29 in | 43 in | 42 in | 39 in | 31 in | 31 in | 31 in |
| | C | 33 in | 25 in | 21 in | 43 in | 30 in | 28 in | 31 in | 31 in | 29 in |
| | D | 28 in | 21 in | 18 in | 37 in | 25 in | 23 in | 31 in | 31 in | 25 in |
| 150 mph | B | 40 in | 31 in | 25 in | 43 in | 36 in | 34 in | 31 in | 31 in | 31 in |
| | C | 29 in | 22 in | 18 in | 38 in | 26 in | 24 in | 31 in | 31 in | 25 in |
| | D | 24 in | 19 in | 15 in | 32 in | 22 in | 20 in | 31 in | 27 in | 21 in |
| 165 mph | B | 33 in | 25 in | 21 in | 43 in | 30 in | 28 in | 31 in | 31 in | 29 in |
| | C | 24 in | 18 in | 15 in | 32 in | 21 in | 20 in | 31 in | 26 in | 21 in |
| | D | 20 in | 15 in | 13 in | 27 in | 18 in | 17 in | 26 in | 22 in | 18 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|----------------------|-------------------------------|---------------------|-------|--------------------------------|---------------------|-------|--------------------------------|-----------------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | 1, 2e | Zones 2n, 2r, 3e | 3r | 1, 2e | Zones 2n, 2r, 3e | 3r | 1, 2e, 2r | Zones 2n, 3r | 3e |
| 110 mph | B | 68 in | 68 in | 63 in | 70 in | 70 in | 70 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 72 in | 53 in | 54 in |
| | D | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 61 in | 45 in | 45 in |
| 115 mph | B | 68 in | 62 in | 58 in | 70 in | 70 in | 70 in | 72 in | 68 in | 69 in |
| | C | 54 in | 45 in | 41 in | 55 in | 55 in | 55 in | 66 in | 49 in | 49 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| 125 mph | B | 65 in | 53 in | 49 in | 65 in | 65 in | 65 in | 72 in | 58 in | 58 in |
| | C | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| | D | 39 in | 32 in | 30 in | 39 in | 39 in | 39 in | 47 in | 35 in | 35 in |
| 140 mph | B | 51 in | 42 in | 39 in | 52 in | 52 in | 52 in | 62 in | 46 in | 47 in |
| | C | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| | D | 31 in | 25 in | 24 in | 31 in | 31 in | 31 in | 37 in | 28 in | 28 in |
| 150 mph | B | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 41 in |
| | C | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 39 in | 29 in | 29 in |
| | D | 27 in | 22 in | 21 in | 27 in | 27 in | 27 in | 33 in | 24 in | 24 in |
| 165 mph | B | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 45 in | 33 in | 33 in |
| | C | 26 in | 22 in | 20 in | 27 in | 27 in | 27 in | 32 in | 24 in | 24 in |
| | D | 22 in | 18 in | 17 in | 22 in | 22 in | 22 in | 27 in | 20 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|----------------------|-------------------------------|---------------------|-------|--------------------------------|---------------------|-------|--------------------------------|-----------------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | 1, 2e | Zones 2n, 2r, 3e | 3r | 1, 2e | Zones 2n, 2r, 3e | 3r | 1, 2e, 2r | Zones 2n, 3r | 3e |
| 110 mph | B | 57 in | 57 in | 57 in | 59 in | 59 in | 59 in | 58 in | 58 in | 58 in |
| | C | 57 in | 49 in | 45 in | 59 in | 59 in | 59 in | 58 in | 53 in | 54 in |
| | D | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 58 in | 45 in | 45 in |
| 115 mph | B | 57 in | 57 in | 57 in | 59 in | 59 in | 59 in | 58 in | 58 in | 58 in |
| | C | 54 in | 45 in | 41 in | 55 in | 55 in | 55 in | 58 in | 49 in | 49 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| 125 mph | B | 57 in | 53 in | 49 in | 59 in | 59 in | 59 in | 58 in | 58 in | 58 in |
| | C | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 55 in | 41 in | 42 in |
| | D | 39 in | 32 in | 30 in | 39 in | 39 in | 39 in | 47 in | 35 in | 35 in |
| 140 mph | B | 51 in | 42 in | 39 in | 52 in | 52 in | 52 in | 58 in | 46 in | 47 in |
| | C | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| | D | 31 in | 25 in | 24 in | 31 in | 31 in | 31 in | 37 in | 28 in | 28 in |
| 150 mph | B | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 41 in |
| | C | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 39 in | 29 in | 29 in |
| | D | 27 in | 22 in | 21 in | 27 in | 27 in | 27 in | 33 in | 24 in | 24 in |
| 165 mph | B | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 45 in | 33 in | 33 in |
| | C | 26 in | 22 in | 20 in | 27 in | 27 in | 27 in | 32 in | 24 in | 24 in |
| | D | 22 in | 18 in | 17 in | 22 in | 22 in | 22 in | 27 in | 20 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 50 in | 49 in | 45 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | D | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 45 in | 45 in | 45 in |
| 115 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 50 in | 45 in | 41 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 45 in | 41 in | 42 in |
| 125 mph | B | 50 in | 50 in | 49 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 45 in | 41 in | 42 in |
| | D | 39 in | 32 in | 30 in | 39 in | 39 in | 39 in | 45 in | 35 in | 35 in |
| 140 mph | B | 50 in | 42 in | 39 in | 52 in | 52 in | 52 in | 45 in | 45 in | 45 in |
| | C | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 44 in | 33 in | 33 in |
| | D | 31 in | 25 in | 24 in | 31 in | 31 in | 31 in | 37 in | 28 in | 28 in |
| 150 mph | B | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 45 in | 40 in | 41 in |
| | C | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 39 in | 29 in | 29 in |
| | D | 27 in | 22 in | 21 in | 27 in | 27 in | 27 in | 33 in | 24 in | 24 in |
| 165 mph | B | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 45 in | 33 in | 33 in |
| | C | 26 in | 22 in | 20 in | 27 in | 27 in | 27 in | 32 in | 24 in | 24 in |
| | D | 22 in | 18 in | 17 in | 22 in | 22 in | 22 in | 27 in | 20 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 46 in | 46 in | 46 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 46 in | 46 in | 45 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 46 in | 41 in | 38 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| 115 mph | B | 46 in | 46 in | 46 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 46 in | 45 in | 41 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | D | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 37 in | 37 in | 37 in |
| 125 mph | B | 46 in | 46 in | 46 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 46 in | 38 in | 35 in | 46 in | 46 in | 46 in | 37 in | 37 in | 37 in |
| | D | 39 in | 32 in | 30 in | 39 in | 39 in | 39 in | 37 in | 35 in | 35 in |
| 140 mph | B | 46 in | 42 in | 39 in | 47 in | 47 in | 47 in | 37 in | 37 in | 37 in |
| | C | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 37 in | 33 in | 33 in |
| | D | 31 in | 25 in | 24 in | 31 in | 31 in | 31 in | 37 in | 28 in | 28 in |
| 150 mph | B | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 37 in | 37 in | 37 in |
| | C | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 37 in | 29 in | 29 in |
| | D | 27 in | 22 in | 21 in | 27 in | 27 in | 27 in | 33 in | 24 in | 24 in |
| 165 mph | B | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 37 in | 33 in | 33 in |
| | C | 26 in | 22 in | 20 in | 27 in | 27 in | 27 in | 32 in | 24 in | 24 in |
| | D | 22 in | 18 in | 17 in | 22 in | 22 in | 22 in | 27 in | 20 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | D | 42 in | 41 in | 38 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| 115 mph | B | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 42 in | 41 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | D | 42 in | 38 in | 35 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| 125 mph | B | 42 in | 42 in | 42 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 42 in | 38 in | 35 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | D | 39 in | 32 in | 30 in | 39 in | 39 in | 39 in | 31 in | 31 in | 31 in |
| 140 mph | B | 42 in | 42 in | 39 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 31 in | 31 in | 31 in |
| | D | 31 in | 25 in | 24 in | 31 in | 31 in | 31 in | 31 in | 28 in | 28 in |
| 150 mph | B | 42 in | 37 in | 34 in | 43 in | 43 in | 43 in | 31 in | 31 in | 31 in |
| | C | 32 in | 26 in | 24 in | 32 in | 32 in | 32 in | 31 in | 29 in | 29 in |
| | D | 27 in | 22 in | 21 in | 27 in | 27 in | 27 in | 31 in | 24 in | 24 in |
| 165 mph | B | 37 in | 30 in | 28 in | 37 in | 37 in | 37 in | 31 in | 31 in | 31 in |
| | C | 26 in | 22 in | 20 in | 27 in | 27 in | 27 in | 31 in | 24 in | 24 in |
| | D | 22 in | 18 in | 17 in | 22 in | 22 in | 22 in | 27 in | 20 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 63 in | 52 in | 72 in | 69 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 63 in | 52 in | 72 in | 69 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 72 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 72 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 72 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 72 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 69 in | 57 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 62 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 63 in | 52 in | 72 in | 72 in | 69 in | 72 in | 72 in | 72 in |
| | D | 70 in | 54 in | 44 in | 72 in | 63 in | 59 in | 72 in | 72 in | 62 in |
| 140 mph | B | 71 in | 71 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 51 in | 42 in | 72 in | 60 in | 55 in | 72 in | 72 in | 58 in |
| | D | 56 in | 43 in | 35 in | 72 in | 50 in | 47 in | 72 in | 61 in | 49 in |
| 150 mph | B | 71 in | 62 in | 51 in | 72 in | 72 in | 67 in | 72 in | 72 in | 71 in |
| | C | 58 in | 44 in | 36 in | 72 in | 52 in | 48 in | 72 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 67 in | 51 in | 42 in | 72 in | 60 in | 56 in | 72 in | 72 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 57 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 115 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 62 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 63 in | 52 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 125 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 63 in | 52 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 54 in | 44 in | 66 in | 63 in | 59 in | 69 in | 69 in | 62 in |
| 140 mph | B | 64 in | 64 in | 58 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 51 in | 42 in | 66 in | 60 in | 55 in | 69 in | 69 in | 58 in |
| | D | 56 in | 43 in | 35 in | 66 in | 50 in | 47 in | 69 in | 61 in | 49 in |
| 150 mph | B | 64 in | 62 in | 51 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 58 in | 44 in | 36 in | 66 in | 52 in | 48 in | 69 in | 63 in | 51 in |
| | D | 49 in | 37 in | 31 in | 65 in | 44 in | 41 in | 63 in | 53 in | 43 in |
| 165 mph | B | 64 in | 51 in | 42 in | 66 in | 60 in | 56 in | 69 in | 69 in | 59 in |
| | C | 48 in | 36 in | 30 in | 64 in | 43 in | 40 in | 69 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 57 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 115 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 52 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 125 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 52 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 54 in | 44 in | 61 in | 61 in | 59 in | 62 in | 62 in | 62 in |
| 140 mph | B | 59 in | 59 in | 58 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 51 in | 42 in | 61 in | 60 in | 55 in | 62 in | 62 in | 58 in |
| | D | 56 in | 43 in | 35 in | 61 in | 50 in | 47 in | 62 in | 61 in | 49 in |
| 150 mph | B | 59 in | 59 in | 51 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 58 in | 44 in | 36 in | 61 in | 52 in | 48 in | 62 in | 62 in | 51 in |
| | D | 49 in | 37 in | 31 in | 61 in | 44 in | 41 in | 62 in | 53 in | 43 in |
| 165 mph | B | 59 in | 51 in | 42 in | 61 in | 60 in | 56 in | 62 in | 62 in | 59 in |
| | C | 48 in | 36 in | 30 in | 61 in | 43 in | 40 in | 62 in | 62 in | 50 in |
| | D | 48 in | 37 in | 31 in | 61 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & γe adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) γa adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 72 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 72 in | 72 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 72 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 64 in | 59 in | 72 in | 72 in | 72 in | 72 in | 69 in | 70 in |
| 140 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 60 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 150 mph | B | 71 in | 71 in | 68 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 72 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 71 in | 61 in | 56 in | 72 in | 72 in | 72 in | 72 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 41-50 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 115 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 125 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | D | 64 in | 64 in | 59 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| 140 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 60 in | 56 in | 66 in | 66 in | 66 in | 69 in | 66 in | 66 in |
| | D | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 69 in | 55 in | 56 in |
| 150 mph | B | 64 in | 64 in | 64 in | 66 in | 66 in | 66 in | 69 in | 69 in | 69 in |
| | C | 64 in | 52 in | 49 in | 64 in | 64 in | 64 in | 69 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 65 in | 48 in | 49 in |
| 165 mph | B | 64 in | 61 in | 56 in | 66 in | 66 in | 66 in | 69 in | 66 in | 67 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 64 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 51-60 psf - 72 Cell modules

| ClickFit - Comp Shingle - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|----------------------|-------------------------------|---------------------|-------|--------------------------------|---------------------|-------|--------------------------------|-----------------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e | Zones 2n, 2r, 3e | 3r | Zones 1, 2e, 2r | Zones 2n, 3r | 3e |
| 110 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 115 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 125 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| 140 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 59 in | 56 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | D | 59 in | 51 in | 47 in | 61 in | 61 in | 61 in | 62 in | 55 in | 56 in |
| 150 mph | B | 59 in | 59 in | 59 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 59 in | 52 in | 49 in | 61 in | 61 in | 61 in | 62 in | 57 in | 58 in |
| | D | 54 in | 44 in | 41 in | 54 in | 54 in | 54 in | 62 in | 48 in | 49 in |
| 165 mph | B | 59 in | 59 in | 56 in | 61 in | 61 in | 61 in | 62 in | 62 in | 62 in |
| | C | 53 in | 43 in | 40 in | 53 in | 53 in | 53 in | 62 in | 47 in | 48 in |
| | D | 45 in | 37 in | 34 in | 45 in | 45 in | 45 in | 54 in | 40 in | 40 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 359.6# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 379# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

11.2 Tile Roof Span Tables

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 55 in | 45 in | 72 in | 65 in | 60 in | 72 in | 72 in | 63 in |
| | D | 61 in | 46 in | 38 in | 72 in | 55 in | 51 in | 72 in | 66 in | 53 in |
| 115 mph | B | 72 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 66 in | 50 in | 41 in | 72 in | 59 in | 55 in | 72 in | 71 in | 58 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 61 in | 49 in |
| 125 mph | B | 72 in | 59 in | 49 in | 72 in | 70 in | 65 in | 72 in | 72 in | 68 in |
| | C | 56 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 61 in | 49 in |
| | D | 47 in | 36 in | 30 in | 63 in | 42 in | 39 in | 61 in | 51 in | 41 in |
| 140 mph | B | 62 in | 47 in | 39 in | 72 in | 56 in | 52 in | 72 in | 68 in | 55 in |
| | C | 44 in | 34 in | 28 in | 59 in | 40 in | 37 in | 57 in | 49 in | 39 in |
| | D | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| 150 mph | B | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 59 in | 48 in |
| | C | 39 in | 29 in | 24 in | 51 in | 35 in | 32 in | 50 in | 42 in | 34 in |
| | D | 33 in | 25 in | 21 in | 43 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| 165 mph | B | 45 in | 34 in | 28 in | 59 in | 40 in | 37 in | 58 in | 49 in | 39 in |
| | C | 32 in | 24 in | 20 in | 42 in | 29 in | 27 in | 41 in | 35 in | 28 in |
| | D | 27 in | 21 in | 17 in | 36 in | 24 in | 22 in | 35 in | 30 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 55 in | 45 in | 64 in | 64 in | 60 in | 67 in | 67 in | 63 in |
| | D | 61 in | 46 in | 38 in | 64 in | 55 in | 51 in | 67 in | 66 in | 53 in |
| 115 mph | B | 62 in | 62 in | 58 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 50 in | 41 in | 64 in | 59 in | 55 in | 67 in | 67 in | 58 in |
| | D | 55 in | 42 in | 35 in | 64 in | 50 in | 46 in | 67 in | 61 in | 49 in |
| 125 mph | B | 62 in | 59 in | 49 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 56 in | 42 in | 35 in | 64 in | 50 in | 46 in | 67 in | 61 in | 49 in |
| | D | 47 in | 36 in | 30 in | 63 in | 42 in | 39 in | 61 in | 51 in | 41 in |
| 140 mph | B | 62 in | 47 in | 39 in | 64 in | 56 in | 52 in | 67 in | 67 in | 55 in |
| | C | 44 in | 34 in | 28 in | 59 in | 40 in | 37 in | 57 in | 49 in | 39 in |
| | D | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| 150 mph | B | 54 in | 41 in | 34 in | 64 in | 49 in | 45 in | 67 in | 59 in | 48 in |
| | C | 39 in | 29 in | 24 in | 51 in | 35 in | 32 in | 50 in | 42 in | 34 in |
| | D | 33 in | 25 in | 21 in | 43 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| 165 mph | B | 45 in | 34 in | 28 in | 59 in | 40 in | 37 in | 58 in | 49 in | 39 in |
| | C | 32 in | 24 in | 20 in | 42 in | 29 in | 27 in | 41 in | 35 in | 28 in |
| | D | 27 in | 21 in | 17 in | 36 in | 24 in | 22 in | 35 in | 30 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 55 in | 45 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | D | 55 in | 46 in | 38 in | 56 in | 55 in | 51 in | 59 in | 59 in | 53 in |
| 115 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 50 in | 41 in | 56 in | 56 in | 55 in | 59 in | 59 in | 58 in |
| | D | 55 in | 42 in | 35 in | 56 in | 50 in | 46 in | 59 in | 59 in | 49 in |
| 125 mph | B | 55 in | 55 in | 49 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 42 in | 35 in | 56 in | 50 in | 46 in | 59 in | 59 in | 49 in |
| | D | 47 in | 36 in | 30 in | 56 in | 42 in | 39 in | 59 in | 51 in | 41 in |
| 140 mph | B | 55 in | 47 in | 39 in | 56 in | 56 in | 52 in | 59 in | 59 in | 55 in |
| | C | 44 in | 34 in | 28 in | 56 in | 40 in | 37 in | 57 in | 49 in | 39 in |
| | D | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| 150 mph | B | 54 in | 41 in | 34 in | 56 in | 49 in | 45 in | 59 in | 59 in | 48 in |
| | C | 39 in | 29 in | 24 in | 51 in | 35 in | 32 in | 50 in | 42 in | 34 in |
| | D | 33 in | 25 in | 21 in | 43 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| 165 mph | B | 45 in | 34 in | 28 in | 56 in | 40 in | 37 in | 58 in | 49 in | 39 in |
| | C | 32 in | 24 in | 20 in | 42 in | 29 in | 27 in | 41 in | 35 in | 28 in |
| | D | 27 in | 21 in | 17 in | 36 in | 24 in | 22 in | 35 in | 30 in | 24 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 65 in | 60 in | 72 in | 72 in | 72 in | 72 in | 71 in | 71 in |
| | D | 67 in | 55 in | 51 in | 67 in | 67 in | 67 in | 72 in | 60 in | 61 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 60 in | 55 in | 72 in | 72 in | 72 in | 72 in | 65 in | 66 in |
| | D | 62 in | 50 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| 125 mph | B | 72 in | 70 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| | D | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 63 in | 46 in | 47 in |
| 140 mph | B | 69 in | 56 in | 52 in | 69 in | 69 in | 69 in | 72 in | 61 in | 62 in |
| | C | 49 in | 40 in | 37 in | 49 in | 49 in | 49 in | 59 in | 44 in | 44 in |
| | D | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| 150 mph | B | 60 in | 49 in | 46 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | C | 43 in | 35 in | 33 in | 43 in | 43 in | 43 in | 52 in | 38 in | 39 in |
| | D | 36 in | 30 in | 27 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| 165 mph | B | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 60 in | 44 in | 45 in |
| | C | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 43 in | 32 in | 32 in |
| | D | 30 in | 24 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 62 in | 60 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | D | 62 in | 55 in | 51 in | 64 in | 64 in | 64 in | 67 in | 60 in | 61 in |
| 115 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 60 in | 55 in | 64 in | 64 in | 64 in | 67 in | 65 in | 66 in |
| | D | 62 in | 50 in | 47 in | 62 in | 62 in | 62 in | 67 in | 55 in | 56 in |
| 125 mph | B | 62 in | 62 in | 62 in | 64 in | 64 in | 64 in | 67 in | 67 in | 67 in |
| | C | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 67 in | 55 in | 56 in |
| | D | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 63 in | 46 in | 47 in |
| 140 mph | B | 62 in | 56 in | 52 in | 64 in | 64 in | 64 in | 67 in | 61 in | 62 in |
| | C | 49 in | 40 in | 37 in | 49 in | 49 in | 49 in | 59 in | 44 in | 44 in |
| | D | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| 150 mph | B | 60 in | 49 in | 46 in | 60 in | 60 in | 60 in | 67 in | 53 in | 54 in |
| | C | 43 in | 35 in | 33 in | 43 in | 43 in | 43 in | 52 in | 38 in | 39 in |
| | D | 36 in | 30 in | 27 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| 165 mph | B | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 60 in | 44 in | 45 in |
| | C | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 43 in | 32 in | 32 in |
| | D | 30 in | 24 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | D | 55 in | 55 in | 51 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| 115 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | D | 55 in | 50 in | 47 in | 56 in | 56 in | 56 in | 59 in | 55 in | 56 in |
| 125 mph | B | 55 in | 55 in | 55 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 55 in | 51 in | 47 in | 56 in | 56 in | 56 in | 59 in | 55 in | 56 in |
| | D | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 59 in | 46 in | 47 in |
| 140 mph | B | 55 in | 55 in | 52 in | 56 in | 56 in | 56 in | 59 in | 59 in | 59 in |
| | C | 49 in | 40 in | 37 in | 49 in | 49 in | 49 in | 59 in | 44 in | 44 in |
| | D | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| 150 mph | B | 55 in | 49 in | 46 in | 56 in | 56 in | 56 in | 59 in | 53 in | 54 in |
| | C | 43 in | 35 in | 33 in | 43 in | 43 in | 43 in | 52 in | 38 in | 39 in |
| | D | 36 in | 30 in | 27 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| 165 mph | B | 50 in | 41 in | 38 in | 50 in | 50 in | 50 in | 59 in | 44 in | 45 in |
| | C | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 43 in | 32 in | 32 in |
| | D | 30 in | 24 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 66" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 72 in | 72 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 72 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 72 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 72 in | 72 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 72 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 72 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 71 in | 71 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 71 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 71 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 59 in | 55 in | 71 in | 71 in | 71 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 55 in | 55 in |
| 165 mph | B | 72 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 59 in | 55 in | 71 in | 71 in | 71 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 55 in | 55 in |
| 165 mph | B | 72 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 60 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 59 in | 55 in | 71 in | 71 in | 71 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 55 in | 55 in |
| 165 mph | B | 71 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (60 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 68 in | 65 in | 54 in | 70 in | 70 in | 70 in | 72 in | 72 in | 72 in |
| | C | 61 in | 46 in | 38 in | 70 in | 55 in | 51 in | 72 in | 67 in | 53 in |
| | D | 51 in | 39 in | 32 in | 68 in | 46 in | 43 in | 66 in | 56 in | 45 in |
| 115 mph | B | 68 in | 59 in | 49 in | 70 in | 70 in | 65 in | 72 in | 72 in | 68 in |
| | C | 56 in | 42 in | 35 in | 70 in | 50 in | 46 in | 71 in | 61 in | 49 in |
| | D | 47 in | 36 in | 30 in | 63 in | 42 in | 39 in | 61 in | 51 in | 41 in |
| 125 mph | B | 66 in | 50 in | 42 in | 70 in | 59 in | 55 in | 72 in | 71 in | 58 in |
| | C | 47 in | 36 in | 30 in | 63 in | 42 in | 39 in | 61 in | 52 in | 41 in |
| | D | 40 in | 30 in | 25 in | 53 in | 36 in | 33 in | 51 in | 44 in | 35 in |
| 140 mph | B | 52 in | 40 in | 33 in | 70 in | 47 in | 44 in | 68 in | 57 in | 46 in |
| | C | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| | D | 32 in | 24 in | 20 in | 42 in | 28 in | 26 in | 41 in | 35 in | 28 in |
| 150 mph | B | 46 in | 35 in | 29 in | 61 in | 41 in | 38 in | 59 in | 50 in | 40 in |
| | C | 33 in | 25 in | 21 in | 44 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| | D | 28 in | 21 in | 17 in | 37 in | 25 in | 23 in | 36 in | 30 in | 24 in |
| 165 mph | B | 38 in | 29 in | 24 in | 50 in | 34 in | 32 in | 49 in | 41 in | 33 in |
| | C | 27 in | 21 in | 17 in | 36 in | 24 in | 23 in | 35 in | 30 in | 24 in |
| | D | 23 in | 17 in | 14 in | 30 in | 21 in | 19 in | 29 in | 25 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 57 in | 57 in | 54 in | 59 in | 59 in | 59 in | 62 in | 62 in | 62 in |
| | C | 57 in | 46 in | 38 in | 59 in | 55 in | 51 in | 62 in | 62 in | 53 in |
| | D | 51 in | 39 in | 32 in | 59 in | 46 in | 43 in | 62 in | 56 in | 45 in |
| 115 mph | B | 57 in | 57 in | 49 in | 59 in | 59 in | 59 in | 62 in | 62 in | 62 in |
| | C | 56 in | 42 in | 35 in | 59 in | 50 in | 46 in | 62 in | 61 in | 49 in |
| | D | 47 in | 36 in | 30 in | 59 in | 42 in | 39 in | 61 in | 51 in | 41 in |
| 125 mph | B | 57 in | 50 in | 42 in | 59 in | 59 in | 55 in | 62 in | 62 in | 58 in |
| | C | 47 in | 36 in | 30 in | 59 in | 42 in | 39 in | 61 in | 52 in | 41 in |
| | D | 40 in | 30 in | 25 in | 53 in | 36 in | 33 in | 51 in | 44 in | 35 in |
| 140 mph | B | 52 in | 40 in | 33 in | 59 in | 47 in | 44 in | 62 in | 57 in | 46 in |
| | C | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| | D | 32 in | 24 in | 20 in | 42 in | 28 in | 26 in | 41 in | 35 in | 28 in |
| 150 mph | B | 46 in | 35 in | 29 in | 59 in | 41 in | 38 in | 59 in | 50 in | 40 in |
| | C | 33 in | 25 in | 21 in | 44 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| | D | 28 in | 21 in | 17 in | 37 in | 25 in | 23 in | 36 in | 30 in | 24 in |
| 165 mph | B | 38 in | 29 in | 24 in | 50 in | 34 in | 32 in | 49 in | 41 in | 33 in |
| | C | 27 in | 21 in | 17 in | 36 in | 24 in | 23 in | 35 in | 30 in | 24 in |
| | D | 23 in | 17 in | 14 in | 30 in | 21 in | 19 in | 29 in | 25 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 50 in | 46 in | 38 in | 52 in | 52 in | 51 in | 54 in | 54 in | 53 in |
| | D | 50 in | 39 in | 32 in | 52 in | 46 in | 43 in | 54 in | 54 in | 45 in |
| 115 mph | B | 50 in | 50 in | 49 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 50 in | 42 in | 35 in | 52 in | 50 in | 46 in | 54 in | 54 in | 49 in |
| | D | 47 in | 36 in | 30 in | 52 in | 42 in | 39 in | 54 in | 51 in | 41 in |
| 125 mph | B | 50 in | 50 in | 42 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 47 in | 36 in | 30 in | 52 in | 42 in | 39 in | 54 in | 52 in | 41 in |
| | D | 40 in | 30 in | 25 in | 52 in | 36 in | 33 in | 51 in | 44 in | 35 in |
| 140 mph | B | 50 in | 40 in | 33 in | 52 in | 47 in | 44 in | 54 in | 54 in | 46 in |
| | C | 37 in | 29 in | 24 in | 50 in | 34 in | 31 in | 48 in | 41 in | 33 in |
| | D | 32 in | 24 in | 20 in | 42 in | 28 in | 26 in | 41 in | 35 in | 28 in |
| 150 mph | B | 46 in | 35 in | 29 in | 52 in | 41 in | 38 in | 54 in | 50 in | 40 in |
| | C | 33 in | 25 in | 21 in | 44 in | 29 in | 27 in | 42 in | 36 in | 29 in |
| | D | 28 in | 21 in | 17 in | 37 in | 25 in | 23 in | 36 in | 30 in | 24 in |
| 165 mph | B | 38 in | 29 in | 24 in | 50 in | 34 in | 32 in | 49 in | 41 in | 33 in |
| | C | 27 in | 21 in | 17 in | 36 in | 24 in | 23 in | 35 in | 30 in | 24 in |
| | D | 23 in | 17 in | 14 in | 30 in | 21 in | 19 in | 29 in | 25 in | 20 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 68 in | 68 in | 68 in | 70 in | 70 in | 70 in | 72 in | 72 in | 72 in |
| | C | 67 in | 55 in | 51 in | 67 in | 67 in | 67 in | 72 in | 60 in | 61 in |
| | D | 57 in | 47 in | 43 in | 57 in | 57 in | 57 in | 69 in | 51 in | 51 in |
| 115 mph | B | 68 in | 68 in | 66 in | 70 in | 70 in | 70 in | 72 in | 72 in | 72 in |
| | C | 62 in | 51 in | 47 in | 62 in | 62 in | 62 in | 72 in | 55 in | 56 in |
| | D | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 63 in | 46 in | 47 in |
| 125 mph | B | 68 in | 60 in | 55 in | 70 in | 70 in | 70 in | 72 in | 65 in | 66 in |
| | C | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 63 in | 47 in | 47 in |
| | D | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| 140 mph | B | 58 in | 48 in | 44 in | 58 in | 58 in | 58 in | 70 in | 52 in | 53 in |
| | C | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | D | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 42 in | 31 in | 32 in |
| 150 mph | B | 51 in | 42 in | 39 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |
| | C | 36 in | 30 in | 28 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| | D | 31 in | 25 in | 23 in | 31 in | 31 in | 31 in | 37 in | 27 in | 28 in |
| 165 mph | B | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | C | 30 in | 25 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |
| | D | 25 in | 21 in | 19 in | 25 in | 25 in | 25 in | 30 in | 23 in | 23 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 57 in | 57 in | 57 in | 59 in | 59 in | 59 in | 62 in | 62 in | 62 in |
| | C | 57 in | 55 in | 51 in | 59 in | 59 in | 59 in | 62 in | 60 in | 61 in |
| | D | 57 in | 47 in | 43 in | 57 in | 57 in | 57 in | 62 in | 51 in | 51 in |
| 115 mph | B | 57 in | 57 in | 57 in | 59 in | 59 in | 59 in | 62 in | 62 in | 62 in |
| | C | 57 in | 51 in | 47 in | 59 in | 59 in | 59 in | 62 in | 55 in | 56 in |
| | D | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 62 in | 46 in | 47 in |
| 125 mph | B | 57 in | 57 in | 55 in | 59 in | 59 in | 59 in | 62 in | 62 in | 62 in |
| | C | 52 in | 43 in | 40 in | 52 in | 52 in | 52 in | 62 in | 47 in | 47 in |
| | D | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| 140 mph | B | 57 in | 48 in | 44 in | 58 in | 58 in | 58 in | 62 in | 52 in | 53 in |
| | C | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | D | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 42 in | 31 in | 32 in |
| 150 mph | B | 51 in | 42 in | 39 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |
| | C | 36 in | 30 in | 28 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| | D | 31 in | 25 in | 23 in | 31 in | 31 in | 31 in | 37 in | 27 in | 28 in |
| 165 mph | B | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | C | 30 in | 25 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |
| | D | 25 in | 21 in | 19 in | 25 in | 25 in | 25 in | 30 in | 23 in | 23 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Tile - Modules in Portrait on Gable/Hip Roof's | | | | | | | | | | |
|---|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | D | 50 in | 47 in | 43 in | 52 in | 52 in | 52 in | 54 in | 51 in | 51 in |
| 115 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 50 in | 50 in | 47 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | D | 50 in | 43 in | 40 in | 52 in | 52 in | 52 in | 54 in | 46 in | 47 in |
| 125 mph | B | 50 in | 50 in | 50 in | 52 in | 52 in | 52 in | 54 in | 54 in | 54 in |
| | C | 50 in | 43 in | 40 in | 52 in | 52 in | 52 in | 54 in | 47 in | 47 in |
| | D | 44 in | 36 in | 33 in | 44 in | 44 in | 44 in | 53 in | 39 in | 40 in |
| 140 mph | B | 50 in | 48 in | 44 in | 52 in | 52 in | 52 in | 54 in | 52 in | 53 in |
| | C | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | D | 35 in | 29 in | 27 in | 35 in | 35 in | 35 in | 42 in | 31 in | 32 in |
| 150 mph | B | 50 in | 42 in | 39 in | 51 in | 51 in | 51 in | 54 in | 45 in | 46 in |
| | C | 36 in | 30 in | 28 in | 36 in | 36 in | 36 in | 44 in | 32 in | 33 in |
| | D | 31 in | 25 in | 23 in | 31 in | 31 in | 31 in | 37 in | 27 in | 28 in |
| 165 mph | B | 42 in | 34 in | 32 in | 42 in | 42 in | 42 in | 50 in | 37 in | 38 in |
| | C | 30 in | 25 in | 23 in | 30 in | 30 in | 30 in | 36 in | 27 in | 27 in |
| | D | 25 in | 21 in | 19 in | 25 in | 25 in | 25 in | 30 in | 23 in | 23 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module length of 78" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 72 in | 72 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 72 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 72 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 72 in | 72 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 72 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 72 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
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- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 65 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 70 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 59 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 61 in | 50 in | 72 in | 71 in | 66 in | 72 in | 72 in | 70 in |
| 140 mph | B | 71 in | 71 in | 66 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 57 in | 47 in | 72 in | 67 in | 63 in | 72 in | 72 in | 66 in |
| | D | 63 in | 48 in | 40 in | 72 in | 57 in | 53 in | 72 in | 69 in | 56 in |
| 150 mph | B | 71 in | 70 in | 58 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 65 in | 50 in | 41 in | 72 in | 59 in | 54 in | 72 in | 71 in | 57 in |
| | D | 55 in | 42 in | 35 in | 72 in | 50 in | 46 in | 71 in | 60 in | 49 in |
| 165 mph | B | 71 in | 58 in | 48 in | 72 in | 68 in | 63 in | 72 in | 72 in | 66 in |
| | C | 54 in | 41 in | 34 in | 71 in | 49 in | 45 in | 70 in | 63 in | 50 in |
| | D | 48 in | 37 in | 31 in | 64 in | 44 in | 40 in | 62 in | 53 in | 43 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
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- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
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Roof Snow Load 0-20 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 59 in | 55 in | 71 in | 71 in | 72 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 72 in | 72 in | 55 in | 55 in |
| 165 mph | B | 72 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
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- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 21-30 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 72 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 72 in | 59 in | 55 in | 71 in | 71 in | 71 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 55 in | 55 in |
| 165 mph | B | 72 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
- 2.) Maximum allowed spacing approved by EcoFasten Solar is 72"
- 3.) Maximum allowed standoff uplift capacity = 407# (per testing results)
- 4.) Maximum allowed standoff lateral capacity = 548# (per product testing)
- 5.) Values based on a maximum module width of 39" (72 Cell)
- 6.) Based on Risk Category II (ASCE 7-16) structures less than 30 feet in height
- 7.) Kzt, Ke & ye adjustment factors are all set to 1. No site specific engineering is included in this table. Project EOR shall verify.
- 8.) ya adjustment factor set to 0.8
- 9.) Effective Wind Area = area of individual PV module
- 10.) Edge Zones (2 & 3) are assumed to have 1/2 the tributary area of load as interior standoffs. Project EOR shall verify.

Roof Snow Load 31-40 psf - 72 Cell modules

| ClickFit - Tile - Modules in Landscape on Gable/Hip Roof's | | | | | | | | | | |
|--|-------------------|-------------------------------|------------|-------|--------------------------------|------------|-------|--------------------------------|--------|-------|
| Wind Speed ASCE 7-16 | Exposure Category | 7 deg. < Roof Pitch ≤ 20 deg. | | | 20 deg. < Roof Pitch ≤ 27 deg. | | | 27 deg. < Roof Pitch ≤ 45 deg. | | |
| | | Zones | | | Zones | | | Zones | | |
| | | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e | 2n, 2r, 3e | 3r | 1, 2e, 2r | 2n, 3r | 3e |
| 110 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 115 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 125 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 71 in | 71 in | 67 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| 140 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 68 in | 63 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | D | 70 in | 58 in | 53 in | 70 in | 70 in | 70 in | 72 in | 63 in | 64 in |
| 150 mph | B | 71 in | 71 in | 71 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 71 in | 59 in | 55 in | 71 in | 71 in | 71 in | 72 in | 65 in | 66 in |
| | D | 61 in | 50 in | 46 in | 61 in | 61 in | 61 in | 72 in | 55 in | 55 in |
| 165 mph | B | 71 in | 69 in | 64 in | 72 in | 72 in | 72 in | 72 in | 72 in | 72 in |
| | C | 60 in | 49 in | 45 in | 60 in | 60 in | 60 in | 71 in | 53 in | 54 in |
| | D | 51 in | 41 in | 38 in | 51 in | 51 in | 51 in | 61 in | 45 in | 46 in |

Notes:

- 1.) Values in above table represent the maximum allowable spacing in inches for EcoFasten Solar standoffs. The values are not applicable for building overhangs.
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