



CITY OF WASHINGTON, ILLINOIS

City Council Agenda Communication

Meeting Date: November 18, 2019 – **REQUEST TO WAIVE SECOND READING**

Prepared By: Jon Oliphant, AICP, Planning & Development Director

Agenda Item: First Reading Ordinance – Legacy Solar Special Use, 605 Ridge Street

Explanation: John Luginbuhl of Legacy Solar has submitted a special use application on behalf of Alexander Tarter for the installation of a solar energy system on the detached garage at 605 Ridge Street. The zoning code requires a special use be issued in order to install a roof-mount solar energy system on an accessory structure. The property is approximately 0.15 acres and is zoned R-1 (Single- and Two-Family Residential). A detached garage was constructed on the south side of the property in 1976. A 7.875 KW solar photovoltaic array is proposed to be located on both the east-facing principal structure roof and the south-facing garage roof. The site plan submitted shows the installation would be comprised of 25 315-watt panels and cover approximately 20% of the principal structure roof and 44% of the accessory structure roof.

An attached letter submitted by the contractor indicates the reason for placing the panels on the garage is take the most advantage of the possible sun on the south-facing roof in addition to what can be generated on the east-facing principal structure roof.

Legacy Solar has attested that the roof is capable of supporting the proposed array. The City's electrical inspector has reviewed the attachments and has consented to this construction if the special use is approved. While a building permit would need to be issued if the special use is approved, the submitted attachments are thus far in conformance with the solar energy regulations. It would be installed in accordance with the adopted 2012 International Building Code.

The proposed use would not appear to be detrimental to the public's health, safety, or general welfare nor would it diminish property values or the use and enjoyment of properties in the vicinity. Placing the array solely on the roof on the house does not appear to be worthwhile because of the limited return on investment. The additional placement on the south-facing garage roof would be the best fit to allow the owner to take advantage of the cost savings from the solar generation.

Fiscal Impact: The owner would see a long-term return on investment as a result of the energy savings. There would be no fiscal impact to the City.

Recommendation/

Committee Discussion Summary: Staff recommends approval. The Planning and Zoning Commission held a public hearing at its meeting on November 6 and unanimously recommended approval.

Action Requested: Approval of the attached ordinance. Because the PZC meeting was delayed by a month not due to any action of the petitioner or owner, staff recommends waiving the second reading to allow for the installation to occur a little sooner.

ORDINANCE NO. _____

(Synopsis: Adoption of this ordinance would allow for a roof mount solar energy system to be installed on a garage at 605 Ridge Street.)

AN ORDINANCE GRANTING A SPECIAL USE TO ALLOW A ROOF MOUNT SOLAR ENERGY SYSTEM TO BE INSTALLED ON AN ACCESSORY STRUCTURE AT 605 RIDGE STREET

WHEREAS, the City of Washington Zoning Ordinance adopted February 20, 1961, as amended, provides for a special use for the allowance of roof mount solar energy systems on accessory structures within §154.727 where conditions are met; and

WHEREAS, a petition has been filed with the City of Washington and referred to the Planning and Zoning Commission requesting such a special use for the installation of a roof mount solar energy system on an accessory structure at 605 Ridge Street; and

WHEREAS, public notice in the form required by law was given of the public hearing, and the Planning and Zoning Commission held such a public hearing on October 2, 2019, and has recommended such a special use; and

WHEREAS, the Planning and Zoning Commission has made its findings and recommendations concerning the special use permit and the corporate authorities have duly considered said findings and recommendations and find that the special use procedures have complied with the Washington Zoning Code:

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WASHINGTON, TAZEWELL COUNTY, ILLINOIS, that:

Section 1. The reports, findings, and recommendations of the Planning and Zoning Commission are herein incorporated by reference as the findings of the City Council, as completely as if fully recited herein at length. Also, all exhibits submitted at the public hearing are hereby incorporated by reference as fully as if attached hereto. The City Council further finds that the proposed special use is in the public good and in the best interest of the City and its residents and is consistent with and fosters the purposes and spirit of the City of Washington Zoning Code. The special use granted will not be detrimental to the public health, safety, morals, comfort and general welfare, nor shall it be injurious to the use and enjoyment of other properties in the vicinity, nor substantially diminish or impair property values within the neighborhood.

Section 2. That the following described property owned by Alexander Tarter and Lisa Carrabotta be granted a special use permit for the installation of a roof mount solar energy system on an accessory structure and legally described as follows:

SEC 13 T 26N R3W BROOKHILL ADDN 1ST EXT LOT 70 SW 1/4

PIN: 02-02-13-305-002

Section 3. That the City Zoning Officer be directed to issue any permits to allow the installation on the above-described property in compliance with this special use ordinance.

Section 4. That the Zoning Map of the City of Washington, Tazewell County, Illinois, be amended so as to conform to the Special Use Permit granted herein.

Section 5. That this ordinance shall be in full force and effect from and after its passage, approval, and publication as required by law.

PASSED AND APPROVED this _____ day of _____, 2019.

AYES _____

NAYS _____

ATTEST:

Mayor

City Clerk

CITY OF WASHINGTON, ILLINOIS

APPLICATION FOR SPECIAL USE

To have a complete application for a special use, you must submit the following:

- Signed and completed application
- Plat showing subject property and all adjacent properties – See below for plat requirements
- Ownership documentation (lease, deed, mortgage, etc.)
- Accurate legal description obtained from the Warranty Deed
- Application fee of \$100 payable to the City of Washington

Address or location of property: 605 Ridge Street Washington IL

Property Tax ID (PIN) number: 02 - 02 - 13 - 305 - 002

Current zoning classification of the property: R1

Current use of the property: Residential

What is the Special Use for? Solar panels on an accessory structure

How will you meet other requirements of the zoning code (such as parking or landscaping, if applicable)? N/A

Name of Applicant: John Lugubuhl Legacy Solar Phone Number of Applicant: 309-645-0503

Address of Applicant: 19292 N 900 East Rd. Bloomington IL 61705

Owner of Property: Alexander Terker

Address of Owner: 605 Ridge St. Washington IL 61571

I would like to receive correspondence by: ☐ Mail ☒ Email Email address: john@legacysolar.systems

PLAT REQUIREMENTS: Your special use plat must show:

- Building or site plan layout and locations of proposed special uses, including square footage
- Adjacent properties, rights-of-way, streets, roads, railroads, waterways, and other physical features

PUBLIC HEARING: Your case will be referred with staff's recommendation to the next regularly scheduled Planning and Zoning Commission meeting for a public hearing. The Planning and Zoning Commission meets the first Wednesday of every month at 6:30 p.m. at the Washington District Library meeting room at 380 N. Wilmor Road. At the Planning and Zoning Commission meeting, you will present your request. A special use cannot be recommended by the Planning and Zoning Commission unless the Commission finds, based upon the application and evidence presented at the public hearing, that all of the following conditions have been met:

1) The special use will not be detrimental to or endanger the public health, safety, morals, comfort, or general welfare; 2) The special use will not be injurious to the use and enjoyment of other property in the immediate vicinity, or substantially diminish or impair property values; 3) The special use will not impede development of surrounding property; 4) Adequate utilities, access roads, drainage, or necessary facilities will be provided; 5) Adequate ingress and egress provided to minimize traffic congestion in public streets; 6) The special use will conform to all other application regulations of the zoning district; and 7) If the special use would not otherwise be acceptable, the Planning Commission may recommend certain conditions be met to make the use acceptable, such as, but not limited to: landscape screening or fencing, specific hours of operation, night lighting or lighting restrictions, parking area requirements, signage restraints, outdoor storage limitations.

Certification: To the best of my knowledge, the information contained herein, and on the attachments, is true, accurate, and correct, and substantially represents the existing features and proposed features. Any error, misstatement, or misrepresentation of material fact or expression of material fact, with or without intention, shall constitute sufficient grounds for the revocation or denial of the proposed Special Use.

Signature of Applicant

Date

8/22/19

Signature of Owner

Date

After receiving a completed application, the City Clerk will file notice of your request with the local newspaper and with the adjoining property owners. If you have any questions, please contact Jon Oliphant, Planning & Development Director at (309) 444-1135.

FOR OFFICE USE ONLY

Case No.: _____

Plat Submitted? Y / N Date: _____

Documentation of Authority Submitted: _____

Commission Action: _____

Fee Paid? Y / N / N/A Amount: _____

Date: _____

Landscaping Plan Submitted? Y / N / N/A Date: _____

Date to go before the Planning and Zoning Commission: _____

Ordinance Review: (first reading) _____ (second reading) _____

Property Information		
Parcel Number 02-02-13-305-002	Site Address 605 RIDGE ST WASHINGTON, IL 61571	Owner Name & Address TARTER ALEXANDER, CARRABOTTA LISA 605 RIDGE ST WASHINGTON, IL, 61571
Tax Year 2019 (Payable 2020) ▼		
Sale Status None		
Property Class 0040 - Improved Residential Lot	Tax Code 02027 -	Tax Status Taxable
Net Taxable Value 0	Tax Rate Unavailable	Total Tax Unavailable
Township WASHINGTON	Acres 0.0000	Mailing Address
Legal Description SEC 13 T26N R3W BROOKHILL ADDN 1ST EXT LOT 70 SW 1/4		
Public Notes 2017-revalue per TA 2018-revalue per TA 2019-Revalue per TA		

Assessments						
Level	Homesite	Dwelling	Farm Land	Farm Building	Mineral	Total
S of A Equalized	7,220	38,670	0	0	0	45,890
Supervisor of Assessments	7,220	38,670	0	0	0	45,890
Township Assessor	7,220	38,670	0	0	0	45,890
Prior Year Equalized	7,220	31,070	0	0	0	38,290
**** Values not final. May be subject to change.						

No Billing Information

Exemptions						
Exemption Type	Begin Date	End Date	Renewal Date	Prorate Date	Requested Amount	Granted Amount
Owner Occupied	1/1/2019	12/31/2019	1/17/2019		6,000	6,000
Exemptions are in progress during the 2019 year, and are subject to addition, omission, or editing.						

No Farmland Information

No Forfeiture Information

No Genealogy Information

Related Names			
OWNER	GRIECO, NICOLE 605 RIDGE ST WASHINGTON, IL 61571		
Deed Document #	201802424		
Mailing Flags	Tax Bill	Change Notice	Exemption Notice
	Delinquent Notice		
OWNER	TARTER ALEXANDER, CARRABOTTA LISA 605 RIDGE ST WASHINGTON, IL 61571		
Deed Document #	201902622		
Mailing Flags	Tax Bill	Change Notice	Exemption Notice
	Delinquent Notice		



**CITY OF
WASHINGTON**
TAZEWELL COUNTY, ILLINOIS

LOCATION MAP



Legend

- AG-1 (Agriculture)
- CE (Country Estates)
- R-1A (Single Family Residential)
- R-1 (1-2 Family Residential)
- R-2 (Multifamily Residential)
- C-1 (Local Retail)
- C-2 (General Retail)
- C-3 (Service Retail)
- I-1 (Light Industrial)
- I-2 (Heavy Industrial)



*Prepared by the City of Washington
Department of Planning and Development*

Printed: September 23, 2019



**CITY OF
WASHINGTON**
TAZEWEILL COUNTY, ILLINOIS

LOCATION MAP



*Prepared by the City of Washington
Department of Planning and Development*

Printed: September 23, 2019



LEGACY SOLAR

Power for generations

September 23, 2019

Dear Special Use Committee,

We are requesting a special use permit to allow for a solar array to be placed on an accessory structure at 605 Ridge Street, Washington.

With the fire code setbacks, and extra space taken up by the small marginal roofs on the back, the primary structure did not allow for the placement of enough solar to meet the homeowner's needs.

Due to fire code setbacks for the residence, we could only fit 11 panels on that structure (192.9 sqft), which will only cover 20% of that structure's roof (960 sqft). This provided for less than half of the family's typical energy usage, and offered no savings with the lease option the family wanted to utilize.

Placing the remaining 14 panels on the freestanding garage allows the family to offset close to 100% of their energy usage, and take advantage of the lease option. This lease allows him to cut his electric expenses overall nearly in half with no upfront cost.

This array will cover 43.8% of the garage roof space. The garage is not visible from the road. It is a southfacing roof face and will maximize the available solar energy. There is no residence in the garage and it is not considered an occupied structure to the best of our knowledge.

Thank you for your consideration. We look forward to serving the Tarter family and others in your community in the future.

Please let us know if you have further questions.

Sincerely,



John Luginbuhl

Project Manager | Legacy Solar

p [309.645.0503](tel:309.645.0503)

w legacysolarpower.com

e john@legacysolar.systems

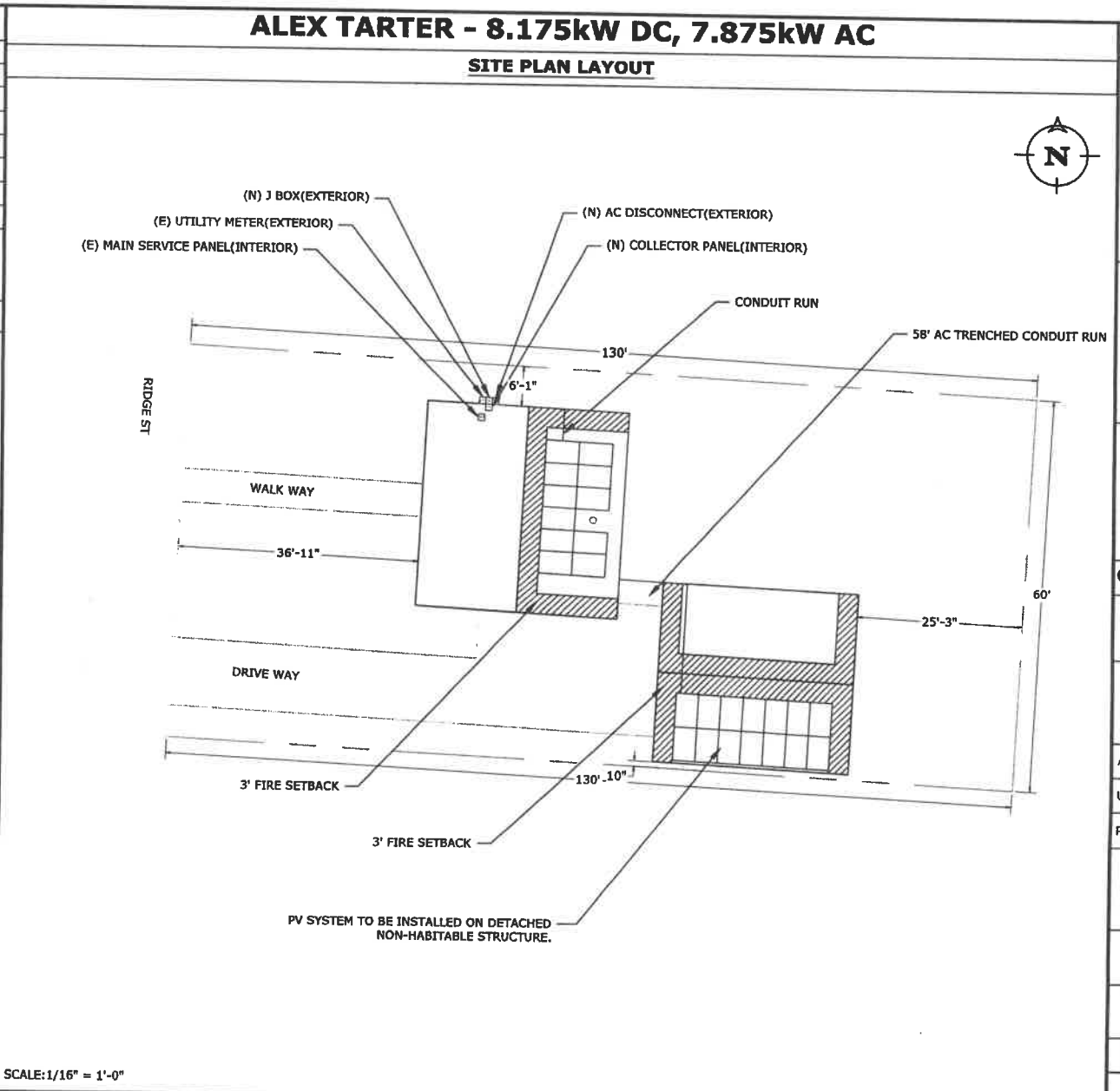
SUNPOWER

Legacy Solar, LLC
19292 N 900 East Rd
Bloomington, IL

WWW.LEGACYSOLARPOWER.COM

Office: 309-231-3138
Find us on social media:
[@legacysolarpower](https://www.instagram.com/legacysolarpower)

SHEET CATALOG	
INDEX NO.	DESCRIPTION
T-1	COVER PAGE
M-1	MOUNTING DETAIL
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E-1	SINGLE LINE DIAGRAM
E-2	LOAD CALCULATIONS
PL-1	WARNING PLACARDS
SS	SPEC SHEET(S)
SCOPE OF WORK	
GENERAL SYSTEM INFORMATION: SYSTEM SIZE: 8175W DC, 7875W AC MODULES: (25)SUNPOWER X22-327-E-AC BRANCH DETAILS: 1X11, 1X7, 1X7 BRANCHES OF AC MODULES	
APPLICABLE CODES	
• ELECTRIC CODE:NEC 2017 • FIRE CODE:IFC 2015 • BUILDING CODE:IBC 2012 • RESIDENTIAL CODE:IRC 2012	
GENERAL NOTES	
1.MODULES ARE LISTED UNDER UL 1703 AND CONFORM TO THE STANDARDS. 2.INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS. 3.DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION MIGHT VARY. 4.WORKING CLEARANCES AROUND THE NEW PV ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26. 5.ALL GROUND WIRING CONNECTED TO THE MAIN SERVICE GROUNDING IN MAIN SERVICE PANEL/ SERVICE EQUIPMENT. 6.ALL CONDUCTORS SHALL BE 600V, 75°C STANDARD COPPER UNLESS OTHERWISE NOTED. 7.WHEN REQUIRED, A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS. 8.THE SYSTEM WILL NOT BE INTERCONNECTED BY THE CONTRACTOR UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND/OR THE UTILITY. 9.ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREES, WIRES OR SIGNS. 10.PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING	



VICINITY MAP

CUSTOMER INFORMATION

NAME: ALEX TARTER

ADDRESS: 605 RIDGE ST, WASHINGTON IL 61571

40°42'34.9"N 89°24'07.4"W
APN: 020-213-305-002

AHJ: IL - CITY OF WASHINGTON

UTILITY: AMEREN

PRN NUMBER: LSS-004535

Because quality matters

COVER PAGE

DESIGNER/CHECKED BY:
SN/AJ

SCALE: AS NOTED	REV: A
DATE: 11/15/19	T-1

INSTALLATION NOTES

1. STRUCTURAL ROOF MEMBER LOCATIONS ARE ESTIMATED AND SHOULD BE LOCATED AND VERIFIED BY THE CONTRACTOR WHEN LAG BOLT PENETRATION OR MECHANICAL ATTACHMENT TO THE STRUCTURE IS REQUIRED.
 2. ROOFTOP PENETRATIONS FOR SOLAR RACKING WILL BE COMPLETED AND SEALED WITH APPROVED SEALANT PER CODE BY A LICENSED CONTRACTOR.
 3. LAGS MUST HAVE A MINIMUM 2.5" THREAD EMBEDMENT INTO THE STRUCTURAL MEMBER.
 4. ALL PV RACKING ATTACHMENTS SHALL BE STAGGERED BY ROW BETWEEN THE ROOF FRAMING MEMBERS AS NECESSARY.
 5. ROOF MOUNTED STANDARD RAIL REQUIRES ONE THERMAL EXPANSION GAP FOR EVERY RUN OF RAIL GREATER THAN 40'.
 6. ALL CONDUCTORS AND CONDUITS ON THE ROOF SHALL BE MINIMUM 2.5" ABOVE THE ROOF SURFACE (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).
 7. THE PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.

ROOF ACCESS PATHWAYS AND SETBACKS:

IFC 605.11.1.2.2 HIP ROOF LAYOUTS

PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS WITH HIP ROOF LAYOUTS SHALL BE LOCATED IN A MANNER THAT PROVIDES TWO, 3-FOOT WIDE ACCESS PATHWAYS FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE PANELS AND MODULES ARE LOCATED. THE ACCESS PATHWAY SHALL BE AT A LOCATION ON THE BUILDING CAPABLE OF SUPPORTING THE FIRE FIGHTERS ACCESSING THE ROOF.

IFC 605.11.1.2.3 SINGLE-RIDGED ROOFS

PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS WITH A SINGLE RIDGE SHALL BE LOCATED IN A MANNER THAT PROVIDES TWO, 3-FOOT WIDE ACCESS PATHWAYS FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE PANELS AND MODULES ARE LOCATED.

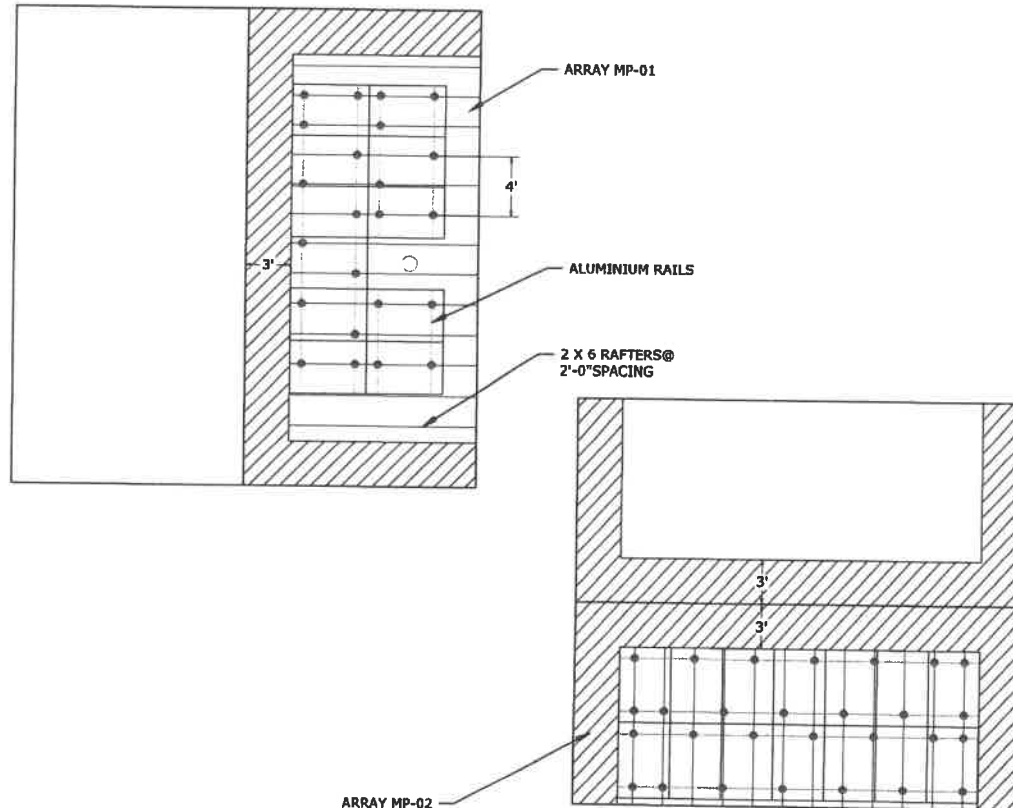
IFC 605.11.1.2.4 ROOFS WITH HIPS AND VALLEYS

PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS WITH ROOF HIPS AND VALLEYS SHALL NOT BE LOCATED CLOSER THAN 18 INCHES TO A HIP OR A VALLEY WHERE PANELS/MODULES ARE TO BE PLACED ON BOTH SIDES OF A HIP OR VALLEY. WHERE PANELS ARE TO BE LOCATED ON ONLY ONE SIDE OF A HIP OR VALLEY THAT IS OF EQUAL LENGTH, THE PANELS SHALL BE PERMITTED TO BE PLACED DIRECTLY ADJACENT TO THE HIP OR VALLEY.

EXCEPTION: THESE REQUIREMENT SHALL NOT APPLY TO ROOFS WITH SLOPES OF TWO UNITS VERTICAL IN 12 UNITS HORIZONTAL (2:12) OR LESS.

SITE INFORMATION - WIND SPEED: 115 MPH AND SNOW LOAD: 20 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	FRAME SIZE	FRAME SPACING	MAX RAIL SPAN	OVER HANG
MP-01	93°	14°	11	192.9	COMPOSITION SHINGLE	FLASHKIT PRO	ATTIC	RAFTERS	2 X 6	2'-0"	4'-0"	2'-0"
MP-02	183°	14°	14	245.5	COMPOSITION SHINGLE	FLASHKIT PRO	ATTIC	RAFTERS	2 X 6	2'-0"	4'-0"	2'-0"



SCALE: 1/8" = 1'-0"

AERIAL VIEW



CUSTOMER INFORMATION

NAME: ALEX TARTER

ADDRESS: 605 RIDGE ST, WASHINGTON IL 61571

40°42'34.9"N 89°24'07.4"W
 APN: 020-213-305-002

AHJ: IL - CITY OF WASHINGTON

UTILITY: AMEREN

PRN NUMBER: LSS-004535



MOUNTING DETAIL

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

REV: A

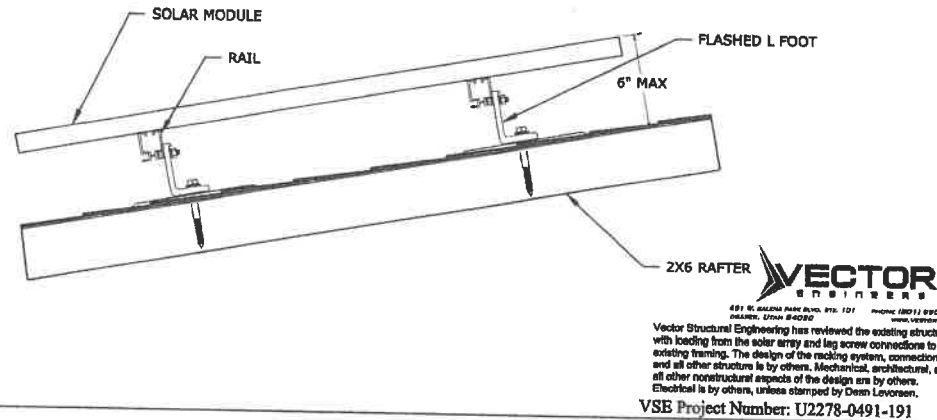
DATE: 11/15/19

M-1

DEAD LOAD CALCULATIONS

BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	25	42.9	1072.50
MID-CLAMP	40	0.1375	5.50
END-CLAMP	20	0.2425	4.85
RAIL LENGTH	167	0.5625	93.94
SPLICE BAR	6	0.5625	3.38
FLASHKIT PRO	51	1.1023	56.22
TOTAL WEIGHT OF THE SYSTEM (LBS)			1236.38
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			438.47
WEIGHT PER SQ. FT.(LBS)			2.82
WEIGHT PER PENETRATION (LBS)			24.24

ATTACHMENT DETAIL-FLASHKIT PRO



Vector Structural Engineering has reviewed the existing structure with loading from the solar array and lag screw connections to the existing framing. The design of the racking system, connections, and all other structural aspects of the design are by others. Electrical is by others, unless stamped by Dean Levensen.

VSB Project Number: U2278-0491-191

MODULES DATA

SUNPOWER X22-327-E-AC

MODULE DIMS	61.3"x41.2"x1.2"
LAG SCREWS	5/16"x3.5":2.5"MIN EMBEDMENT



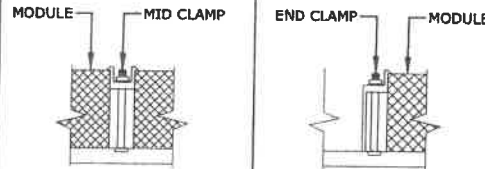
08/12/2019

License Expires: 11-30-2020

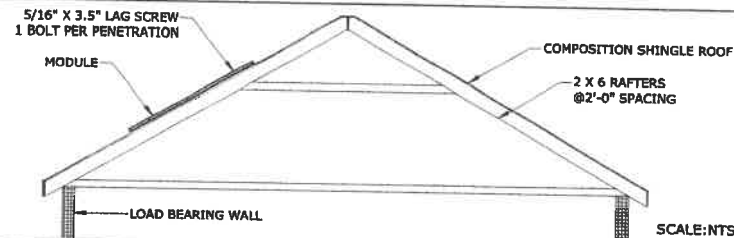
Firm License Number: 184.005810 - COA



MID-CLAMP AND END-CLAMP ANATOMY



ROOF FRAMING DETAILS

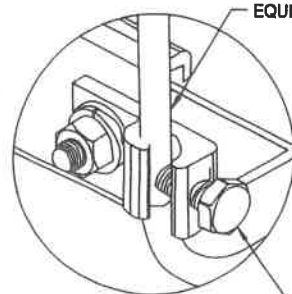


SCALE:NTS

SCALE:NTS

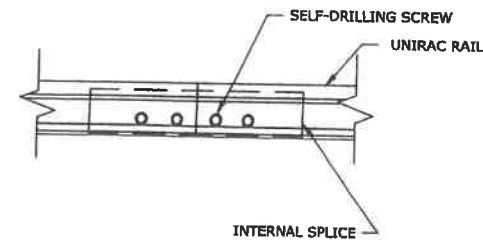
GROUNDING DETAILS

GROUND CONDUCTOR ASSEMBLY



LAY IN EQUIPMENT GROUND CONDUCTOR AND TORQUE BOLT TO 7FT-LB / 10 N-M.

RAIL TO RAIL



SCALE: NTS

CUSTOMER INFORMATION

NAME:ALEX TARTER

ADDRESS:605 RIDGE ST, WASHINGTON IL 61571

40°42'34.9"N 89°24'07.4"W
APN: 020-213-305-002

AHJ: IL - CITY OF WASHINGTON

UTILITY:AMEREN

PRN NUMBER: LSS-004535



STRUCTURAL DETAIL

DESIGNER/CHECKED BY:

SN/AJ

SCALE:AS NOTED

REV:A

DATE:8/10/19

M-2

WARNING PLACARD

WARNING

ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

LABEL LOCATION
DC DISCONNECT, INVERTER
[PER CODE: NEC 690.35(F)]
(To be used when Inverter is ungrounded)

WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.17(E)]

WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.17(E)]

WARNING-Electric Shock Hazard
No User Serviceable Parts Inside
Contact Authorized service provide for assistance

LABEL LOCATION
INVERTER, JUNCTION BOXES(ROOF),
AC DISCONNECT
[PER CODE: NEC 690.13.G.3 & NEC 690.13.G.4]

WARNING PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION
CONDUIT, COMBINER BOX
[PER CODE: NEC690.31(G)(3)(4) & NEC 690.13(G)(4)]

PHOTOVOLTAIC SYSTEM AC DISCONNECT SWITCH

SWITCH AC DISCONNECT CURRENT 32.75 AMPERE
AC DISCONNECT PHOTOVOLTAIC SYSTEM

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.54]

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVER-CURRENT DEVICE

LABEL LOCATION
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(D)(7))
(Not Required if Panel board is rated not less than sum of ampere ratings of all overcurrent devices supplying it)

CAUTION-SOLAR CIRCUIT

LABEL LOCATION
MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES.
(PER CODE: IFC605.11.1.4)

SOLAR DISCONNECT

LABEL LOCATION
DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC690.13(B)]

WARNING
DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION
POINT OF INTERCONNECTION
[PER CODE: NEC705.12(D)(4)]

CAUTION-SOLAR-ELECTRIC SYSTEM CONNECTED

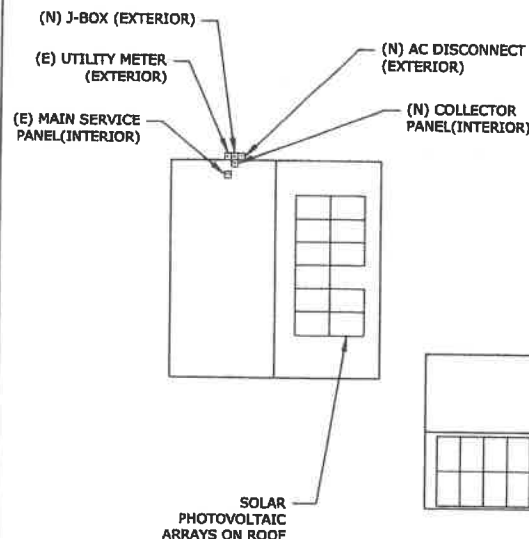
LABEL LOCATION
WEATHER RESISTANT MATERIAL, DURABLE ADHESIVE, UL969 AS STANDARD TO WEATHER RATING (UL LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD, PLACED WITHIN THE MAIN SERVICE DISCONNECT, PLACED ON THE OUTSIDE OF THE COVER WHEN DISCONNECT IS OPERATED WITH THE SERVICE PANEL CLOSED.
(PWER CODE: NEC690.15 ,690.13(B))

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL LOCATION
AC DISCONNECT, DC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC690.56(C))

WARNING: !

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



ALL PLACARDS SHALL BE OF WEATHER PROOF CONSTRUCTION, BACKGROUND ON ALL PLACARDS SHALL BE RED WITH WHITE LETTERING U.O.N. PLACARD SHALL BE MOUNTED DIRECTLY ON THE EXISTING UTILITY ELECTRICAL SERVICE. FASTENERS APPROVED BY THE LOCAL JURISDICTION



CUSTOMER INFORMATION

NAME: ALEX TARTER

ADDRESS: 605 RIDGE ST, WASHINGTON IL 61571

40°42'34.9"N 89°24'07.4"W
APN: 020-213-305-002

AHD: IL - CITY OF WASHINGTON

UTILITY: AMEREN

PRN NUMBER: LSS-004535



WARNING PLACARDS

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

REV: A

DATE: 8/10/19

PL-1

SunPower InvisiMount™ | Residential Mounting System

Simple and Fast Installation

- Integrated module-to-rail grounding
- Pre-assembled mid and end clamps
- Levitating mid clamp for easy placement
- Mid clamp width facilitates consistent, even module spacing
- UL 2703 Listed integrated grounding

Flexible Design

- Addresses nearly all sloped residential roofs
- Design in landscape and portrait with up to 8' rail span
- Pre-drilled rails and rail splice
- Rails enable easy obstacle management

Customer-Preferred Aesthetics

- #1 module and #1 mounting aesthetics
- Best-in-class system aesthetics
- Premium, low-profile design
- Black anodized components
- Hidden mid clamps and new capped, flush end clamps

Part of Superior System

- Built for use with SunPower DC and AC modules
- Best-in-class system reliability and aesthetics
- New optional rooftop transition flashing, rail-mounted J-box, and wire management rail clips
- Combine with SunPower modules and SunPower EnergyLink™ monitoring app



sunpower.com



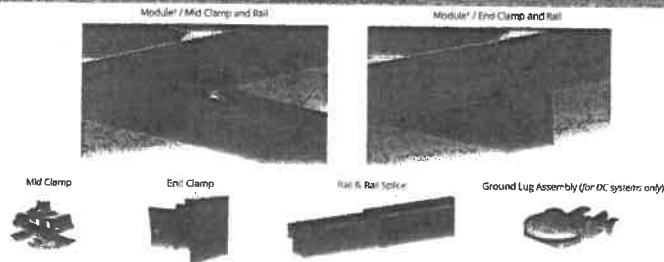
SUNPOWER



Elegant Simplicity

SunPower® InvisiMount™ is a SunPower-designed rail-based mounting system. The InvisiMount system addresses residential sloped roofs and combines faster installation time, design flexibility, and superior aesthetics. The InvisiMount product was specifically envisioned and engineered to pair with SunPower modules. The resulting system-level approach amplifies the aesthetic and installation benefits—for homeowners and for installers.

SunPower InvisiMount™ | Residential Mounting System



Component	Material	Weight
Mid Clamp	Black anodized stainless steel 3003 series	63 g (2.2 oz)
End Clamp	Black anodized aluminum 6000 series	110 g (3.88 oz)
Rail	Black anodized aluminum 6000 series	830 g/m (9 oz/ft)
Rail Splice	Aluminum alloy 6000 series	830 g/m (9 oz/ft)
Ground Lug Assembly	304 stainless steel (A2-70 bolt, tin-plated copper lug)	106.5 g/m (3.75 oz)

Component	Uplift	Shear
Mid Clamp	664 lbf	520 lbf
End Clamp	899 lbf	220 lbf
Rail	Moment: upward	518 lbf-ft
Rail Splice	Moment: downward	580 lbf-ft
L-foot	Moment: upward	580 lbf-ft
L-foot	Moment: downward	580 lbf-ft
L-foot	Uplift	1000 lbf
L-foot	Shear	790 lbf

¹ Module frame that is compatible with the InvisiMount system required for hardware interoperability.

² SunPower recommends that all Equinox™, InvisiMount™, and AC module systems always be designed using the SunPower Design Tool. If a designer decides to instead use the component capacities listed in this document to design a system, note that the capacities shown are Load and Resistance Factor Design (LRFD) design loads, and are NOT to be used for Allowable Stress Design (ASD) calculations; and that a licensed Professional Engineer (PE) must then stamp all calculations. Should you have any questions please contact SunPower Technical Support at 1-800-SUNPOWER (1-800-786-7693).

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50506 Rev.0

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CUSTOMER INFORMATION

NAME: ALEX TARTER

ADDRESS: 605 RIDGE ST, WASHINGTON IL 61571

40°42'34.9"N 89°24'07.4"W
APN: 020-213-305-002

AHD: IL - CITY OF WASHINGTON

UTILITY: AMEREN

PRN NUMBER: LSS-004535



RACKING SPEC SHEET

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

REV: A

DATE: 8/10/19

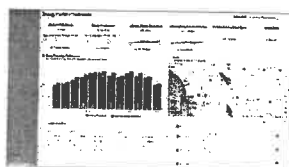
SS-2

SunPower® EnergyLink™ Residential and Commercial PVS6

Improve Support, Reduce Maintenance Costs

An intuitive monitoring website enables you to:

- See a visual map of customer sites
- Remotely manage hundreds of sites
- Receive elective system reports
- Locate system issues and remotely diagnose
- Diagnose issues online
- Drill down for the status of individual devices



Add Value for Customers

With the SunPower Monitoring System customers can:

- See what their solar system produces each day, month, or year
- Optimize their solar investment and save on energy expenses
- See their energy use and estimated bill savings
- See their solar system's performance using the SunPower monitoring website or mobile app



SunPower EnergyLink—Plug-and-Play Installation

This complete solution for residential and commercial monitoring and control includes the SunPower® PV Supervisor 6 (PVS6) which improves the installation process, overall system reliability, and customer experience.

- Compact footprint for improved aesthetics
- Robust cloud connectivity and comprehensive local connectivity
- Flexible configuration of devices during installation
- Consumption metering
- Revenue-grade production metering (pending)
- Web-based commissioning
- Remote diagnostics of PVS6 and inverters
- Durable UI, Type 3R enclosure reduces maintenance costs
- Easy integration with SunPower eBOS

Robust Cloud Connectivity

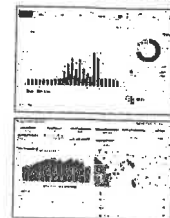
Multiple options to maintain optimal connectivity:

- Hardwired Ethernet
- Wi-Fi
- Cellular backup

SUNPOWER®

SunPower® EnergyLink™ Residential and Commercial PVS6

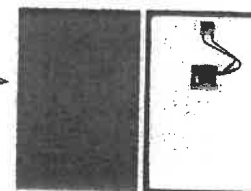
SunPower Monitoring Websites



PVS6



SunPower AC Modules



Multiple communication options include Ethernet, Wi-Fi, and cellular.

Site Requirements	
Number of SunPower AC modules supported per PVS6	85
Internet access:	High-speed Internet access via acceptable router or switch
Power	<ul style="list-style-type: none"> • 100-240 VAC (L-N), 50 or 60 Hz • 200 VAC (L-L) in 3-phase, 60 Hz

Mechanical	
Weight	5.5 lbs (2.5 kg)
Dimensions	11.8 x 8.0 x 4.2 in. (30.5 x 20.5 x 10.8 cm)
Enclosure rating	UL50E Type 3R

Web and Mobile Device Support	
Customer site	monitor.us.sunpower.com
Partner site	pvsmgmt.us.sunpower.com
Browsers	Firefox, Safari, and Chrome
Mobile devices	iPhone®, iPad®, and Android™
Customer app	1. Create account online at: monitor.us.sunpower.com. 2. Or a mobile device: download the SunPower Monitoring app from Apple App Store® or Google Play™ store. 3. Sign in using account email and password.

Operating Conditions	
Temperature	-20°F to +140°F (-30°C to +60°C)
Humidity (maximum)	95% non-condensing

Communication	
RS-485	Inverters and meters
Integrated Metering	<ul style="list-style-type: none"> • One channel of revenue-grade production metering • Two channels of consumption metering
Ethernet	1 LAN (or optional WAN) port
PLC	PLC for SunPower AC modules
Wi-Fi	802.11b/g/n 2.4 GHz and 5 GHz
Cellular	LTE Cat-M1/2G UMTS
ZigBee	IEEE 802.15.4 MAC, 2.4GHz ISM band
Data Storage	60 days
Upgrades	Automatic firmware upgrades

Warranty and Compliance	
Warranty	10-year Limited Warranty
Certifications	UL, cUL, CE, UL 61010-1 and -2, FCC Part 15 (Class B)

FC
FCC ID: YAW529027



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MONITORING SPEC SHEET

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

DATE: 8/10/19

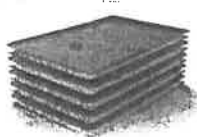
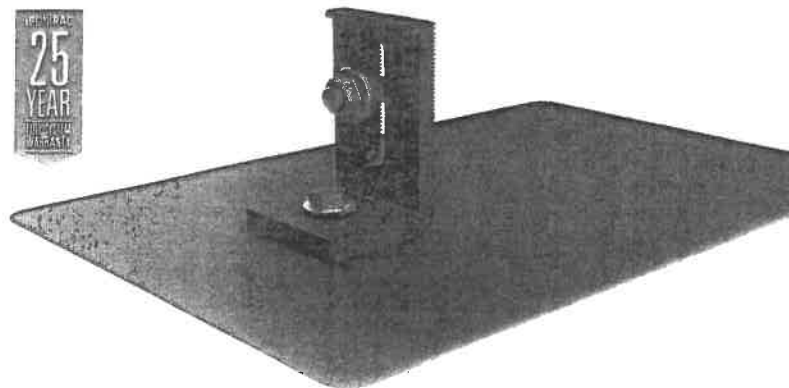
REV: A

SS-3

FLASHKIT PRO



FLASHKIT PRO is the complete attachment solution for composition shingle roofs. Unirac partnered with EcoFasten Solar to bring best-in-class design and performance together in one package. Kitted in 10 packs for maximum convenience, flashings and hardware are available in Mill or Dark finishes. With FLASHKIT PRO, you have everything you need for a quick, professional installation.



TRUSTED WATER SEAL FLASHINGS
FEATURING EcoFasten Solar TECHNOLOGY



YOUR COMPLETE SOLUTION
Flashings, lags, continuous slot L-foot and hardware



CONVENIENT 10 PACKS
Packaged for speed and ease of handling

THE COMPLETE ROOF ATTACHMENT SOLUTION

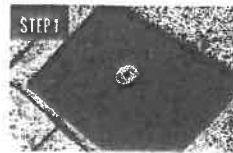
FOR QUOTATIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (800) 345-2702

FLASHKIT PRO

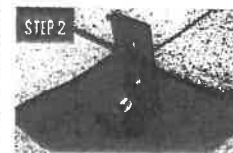
INSTALLATION GUIDE



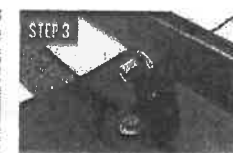
FLASHKIT PRO IS THE COMPLETE FLASHING AND ATTACHMENT SOLUTION FOR COMPOSITION ROOFS.



INSTALL FLASHKIT PRO FLASHING



INSTALL L-FOOT



ATTACH L-FOOT TO RAIL

PRE-INSTALL SYSTEM LAYOUT

- Locate rafters and snap horizontal and vertical lines to mark the installation position for each flashing.
- Drill a pilot hole (1/4" diameter) for the lag bolt. Backfill with sealant.

STEP 1 INSTALL FLASHKIT PRO FLASHING

- Insert the flashing so the top part is under the next row of shingles and pushed far enough upslope to prevent water infiltration through vertical joint in shingles.
- The leading edge of flashing must butt against upper row of nails to prevent turning when torqued.

QUICK TIP:

- For vertical adjustment when leading edge of flashing hits nails in upper shingle courses, slide flashing up under shingles until leading edge engages nails. Measure remaining distance to adjust upslope.
- Remove flashing and cut a "V" notch at marks where nail shafts engaged leading edge of flashing the distance desired in Step 1. Notch depth not to exceed 2" in length by 1/2" in width.
- Re-install flashing with notched area upslope, and position notched leading edge underneath nail heads.

STEP 2 INSTALL L-FOOT

- Line up pilot hole with FLASHKIT PRO fastener hole.
- Insert the lag bolt through the EPDM washer, the top L-101-3 compression bracket, and the gasketed hole in the flashing and into the rafter.
- Torque to 100-140 torque inch-pounds depending on the type of wood and time of year. The visual indicator for proper torque is when the EPDM on the underside of the bonded washer begins to push out the sides as the washer compresses. If using an impact wrench to install the fasteners be careful not to over torque the fastener. You may need to stop and use a ratchet to finish the install.

STEP 3 ATTACH L-FOOT TO RAIL

- Slide the 3/8"-16 racking hardware into rail slot, spacing bolts to match the spacing of the attachments.
- Torque 3/8" nut to 30ft.-lbs. Use anti-seize to prevent galling.
- If attaching L-Foot to light rail, ensure the L-Foot does not protrude above the top edge of the rail.



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AHJ: IL - CITY OF WASHINGTON

UTILITY: AMEREN

PRN NUMBER: LSS-004535



MOUNT SPEC SHEET

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

REV: A

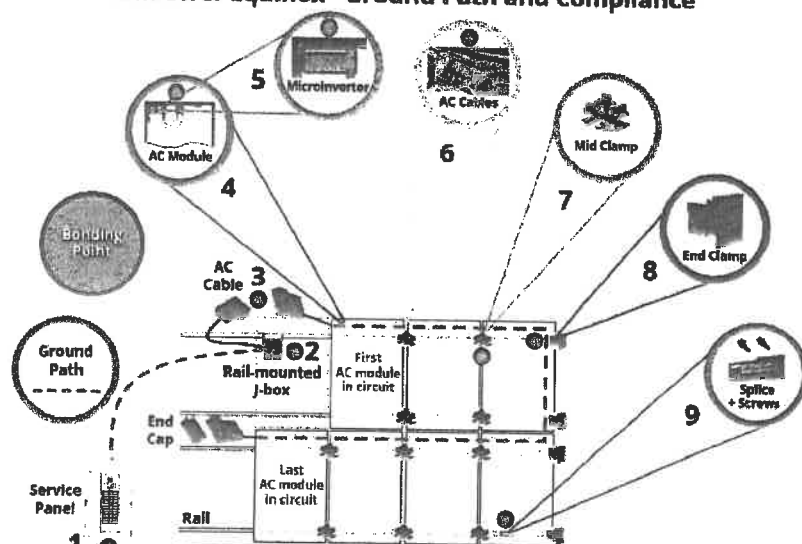
DATE: 8/10/19

SS-A

FASTER INSTALLATION. 25-YEAR WARRANTY.

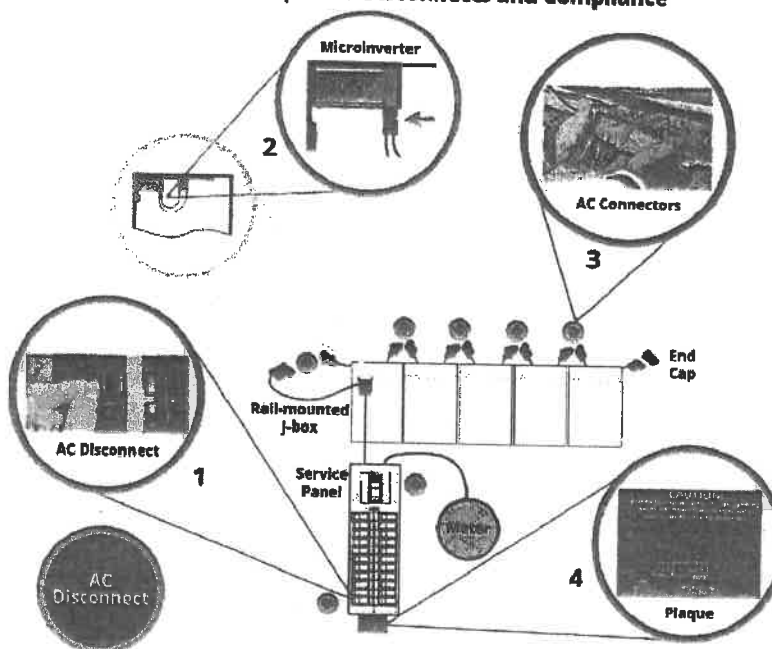
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SunPower Equinox® Ground Path and Compliance



	Bonding Components	Compliance	
		NEC	UL
1	Grounding Electrode to Service Panel	690.47(A) 690.47(D)	N/A
2	Service Panel to Ground Wire in Rail-Mounted J-Box	690.43	N/A
3	Rail-Mounted J-Box to AC Cable	690.43(A)	2703
4	AC Cable to Microinverter	N/A (part of Listing)	1703 1741
5	Microinverter to AC Module Frame	N/A (part of Listing)	1703 1741
6	AC Cable to AC Cable	690.31(D) 690.43(A) 690.43(D)	1741 6703 9703
7	AC Module Frame to Mid Clamp to Rail	690.43(A) 690.43(C) 690.43(D)	2703
8	AC Module Frame to End Clamp to Rail	690.43(A) 690.43(C) 690.43(D)	2703
9	Rail to Splice	690.43(A) 690.43(C) 690.43(D)	2703

SunPower Equinox® Disconnects and Compliance



Compliance	NEC
AC Disconnect in Service Panel	690.12 690.15(A)(3)
DC Disconnect (factory wiring)	N/A (Part of the internal UL Listed AC Module assembly; not field wired.)
AC Connectors as Disconnects	690.15(A)(2) 690.33
Plaque	690.15(A)(4) 690.12 690.56(B) 705.10 Exception



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RSD AND GROUNDING DETAILS

DESIGNER/CHECKED BY:

SN/AJ

SCALE: AS NOTED

DATE: 8/10/19

REV: A

SS-5