



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert K. Sutton
Chairman

Date: September 8, 2021

MEMORANDUM

TO: Mitra Pedoeem
Department of Permitting Services

FROM: Dan Bruechert
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit # 964827 - Roof Solar Installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **approved** by historic preservation staff.

The HPC staff has reviewed and stamped the attached construction drawings.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Bryan Moffett
Address: 1 North Street, Brookeville

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete the applicant will contact Dan Bruechert at 301.563.3400 or dan.bruechert@montgomeryplanning.org to schedule a follow-up site visit.





HISTORIC PRESERVATION COMMISSION

HAWP #: _____ at: _____

submitted on: _____

has been reviewed and determined that the proposal fits into the following category/categories:

Repair or replacement of a masonry foundation with new masonry materials that closely match the original in appearance;

Installation of vents or venting pipes in locations not visible from the public right-of-way;

New gutters and downspouts;

Removal of vinyl, aluminum, asbestos, or other artificial siding when the original siding is to be repaired and/or replaced in kind;

Removal of accessory buildings that are not original to the site or non-historic construction;

Repair or replacement of missing or deteriorated architectural details such as trim or other millwork, stairs or stoops, porch decking or ceilings, columns, railings, balusters, brackets shutters, etc., with new materials that match the old in design, texture, visual characteristics, and, where possible materials, so long as the applicant is able to provide one extant example, photographic evidence, or physical evidence that serves as the basis for the work proposed;

Construction of wooden decks that are at the rear of a structure and are not visible from a public right-of-way;

Roof replacement with -compatible roofing materials, or with architectural shingles replacing 3-Tab asphalt shingles;

Installation of storm windows or doors that are compatible with the historic resource or district;

Repair, replacement or installation of foundation-level doors, windows, window wells, and areaways, or foundation vents, venting pipes, or exterior grills that do not alter the character-defining features and/or the historic character of the resource;

Construction of fences that are compatible with the historic site or district in material, height, location, and design;

Fence is lower than 48" in front of rear wall plane;

Construction of walkways, parking pads, patios, driveways, or other paved areas that are not visible from a public right-of-way and measure no more than 150 square feet in size;

Replacement of existing walkways, parking pads, patios, driveways, or other paved areas with materials that are compatible with the visual character of the historic site and district and that are no greater than the dimensions of the existing hardscape;

Construction of small accessory buildings no larger than 250 square feet in size that are not visible from the public right-of-way;

Installations of skylights on the rear of a structure that will not be visible from the public right-of-way, and would not remove or alter character-defining roof materials;

Installation of solar panels and arrays in locations that are not readily visible from the public right-of-way or that are designed so as to have a minimal impact on the historic resource or the historic district (e.g., systems that are ground-mounted in areas other than the front or side yard of a corner lot, located on accessory or outbuildings, on non-historic additions, or on rear facing roof planes);

Installation of car charging stations in any location on a property or in the right-of-way;

Installation of satellite dishes;

Removal of trees greater than 6" in diameter (d.b.h.) that are dead, dying, or present an immediate hazard.

Removal of trees greater than 6" in diameter (d.b.h.) in the rear of the property that will not impact the overall tree canopy of the surrounding district or historic site;

Replacement tree required as a condition; and,

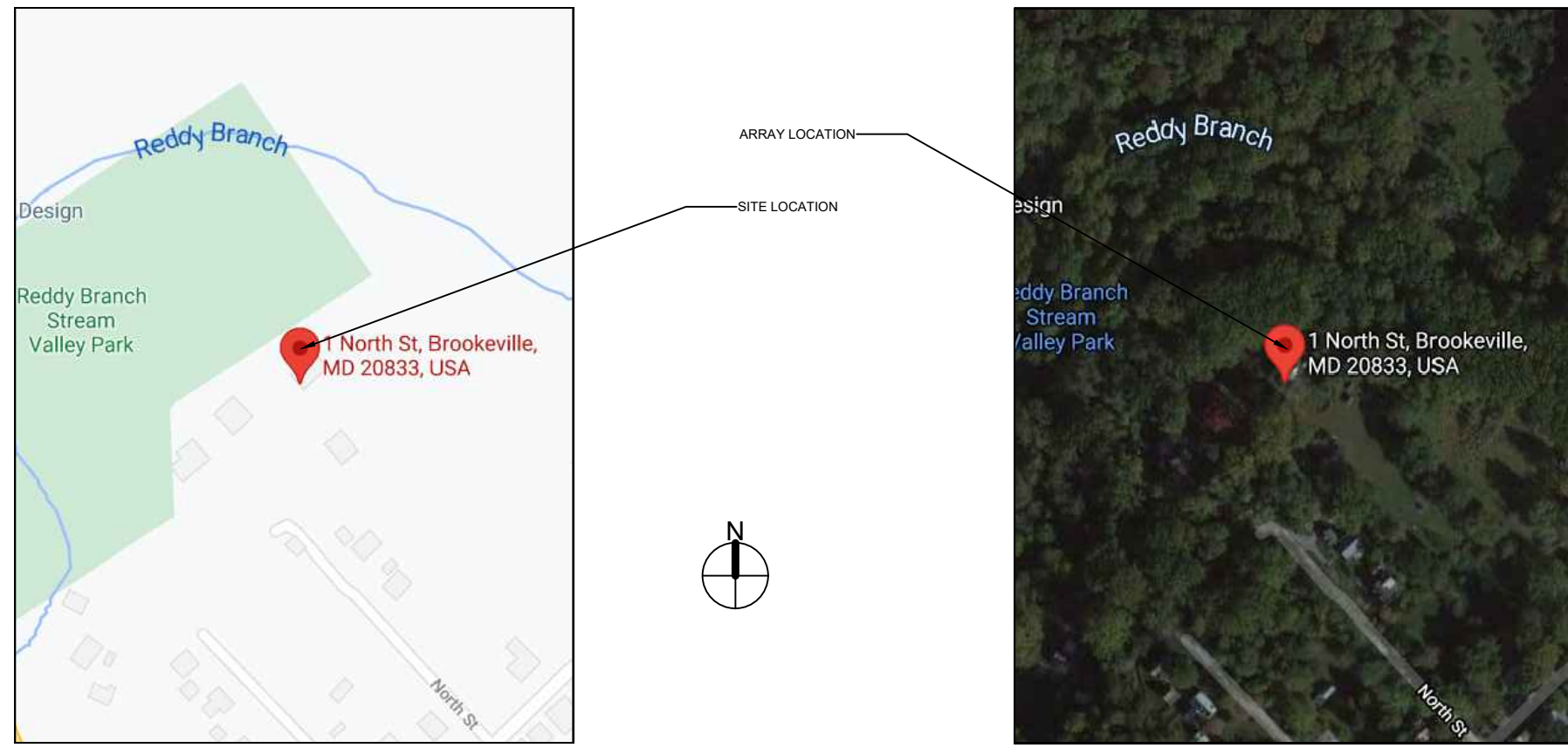
Other minor alterations that may be required by the Department of Permitting Services post-Commission approval that would have no material effect on the historic character of the property.

Staff finds the proposal complies with Chapter 24A, the Secretary of the Interior's Standards for Rehabilitation, and any additional requisite guidance. Under the authority of COMCOR No. 24A.04.01, this HAWP is approved by J. Brueckert on _____. The approval memo and stamped drawings follow.

**DESCRIPTION : NEW GRID-INTERACTIVE,
ROOF-MOUNTED, PHOTOVOLTAIC
SYSTEM - 13.32 kW**

MICRO INVERTER : IQ7PLUS-72-2-US
NO OF MICRO INVERTERS : 37
PV PANELS : SIL 360W
NO OF MODULES : 37


TABLE OF CONTENTS	
G001	INDEX
Z001	TOP VIEW
S001	ROOF FRAMING PLAN & ATTACHMENT SYSTEM
E001	ELECTRICAL LINE DIAGRAM

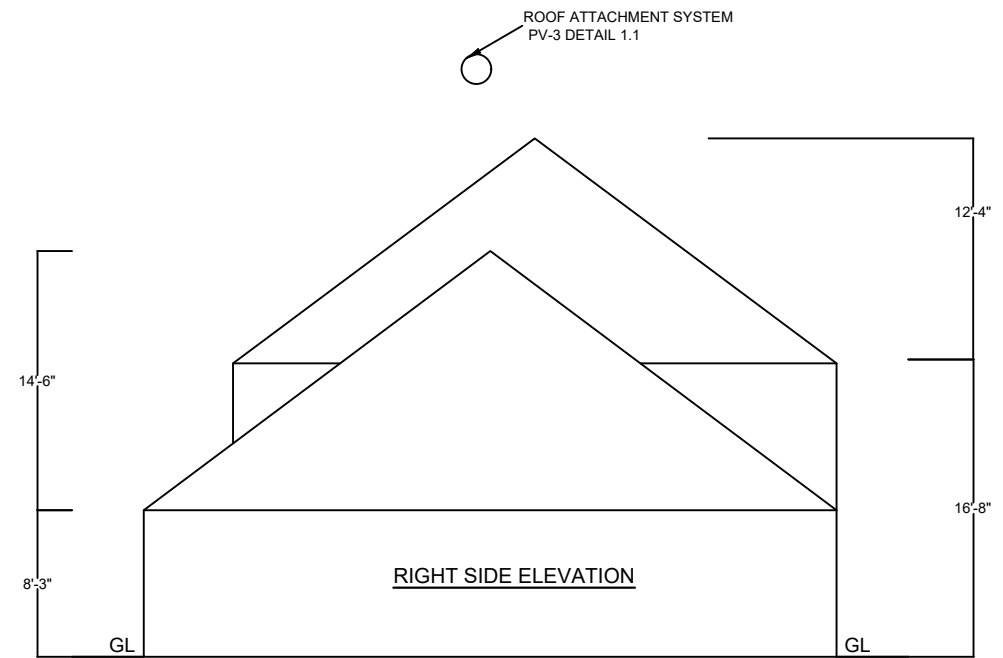
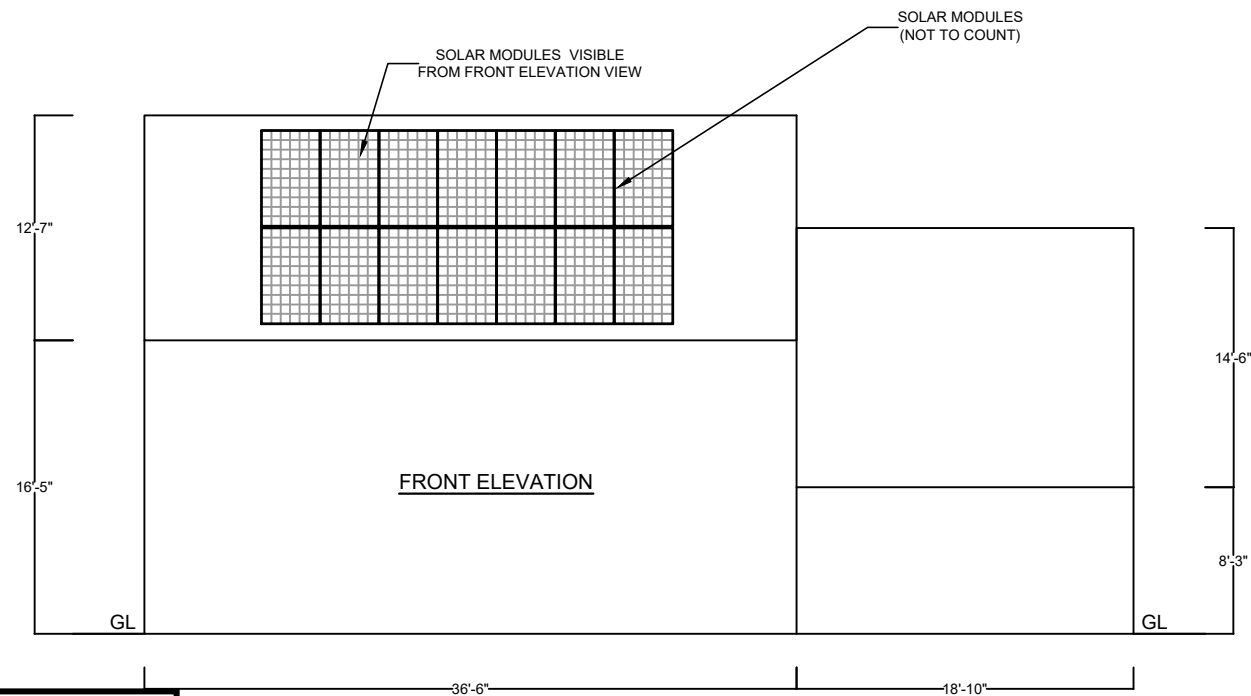


APPROVED
 Montgomery County
 Historic Preservation Commission

[Signature]

REVIEWED
 By Dan.Bruechert at 10:08 am, Sep 08, 2021

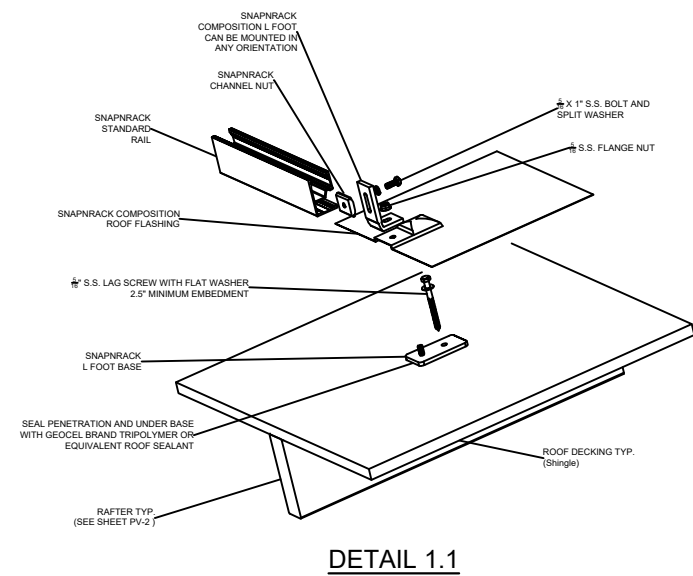
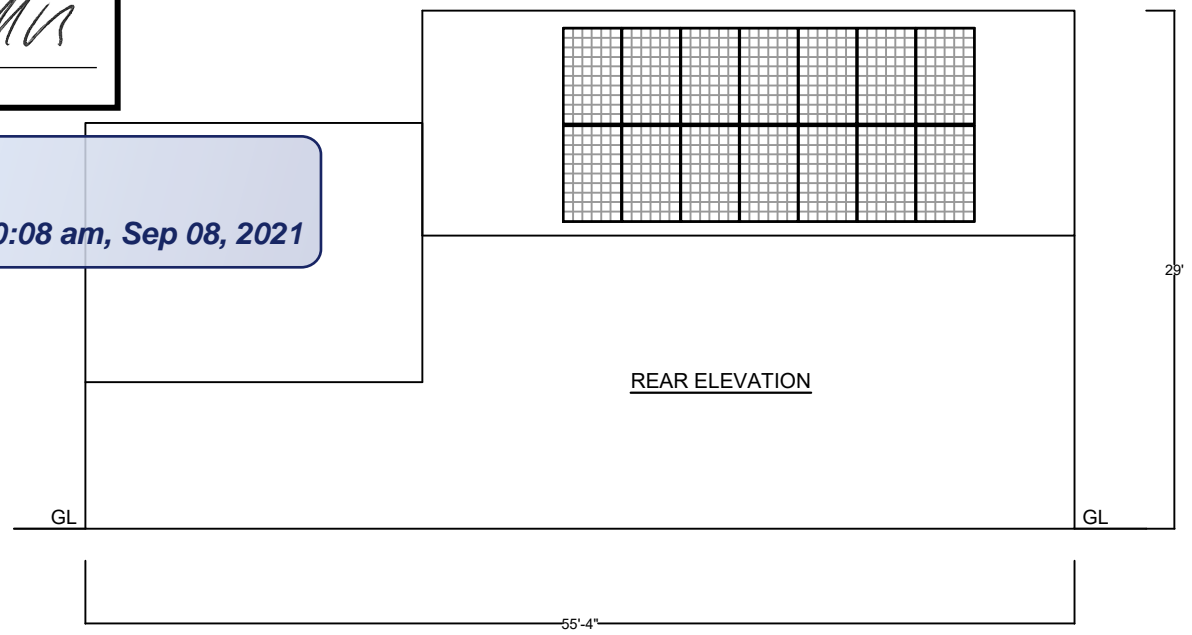
	GREENBRILLIANCE, LLC 46090 LAKE CENTER PLZ, SUITE 109 STERLING, VA 20165 www.greenbrilliance.com	<p><u>DISCLAIMER</u> THIS DRAWING IS THE PROPERTY OF GREENBRILLIANCE, LLC. THIS INFORMATION IS CONFIDENTIAL AND IS TO BE USED ONLY IN CONNECTION WITH WORK DESCRIBED BY GREENBRILLIANCE, LLC. NO PART IS TO BE DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION FROM GREENBRILLIANCE, LLC.</p>	<p><u>PREPARED BY</u> BEN CARTER</p>	<p><u>REVISION</u></p>	<p><u>PROJECT NAME</u> BRYAN MOFFETT 1 NORTH ST, BROOKEVILLE, MD 20833</p>	<p><u>SHEET NUMBER</u> G001</p>	INDEX
			<p><u>DATE</u> 07/25/2021</p>			<p><u>SCALE</u> NTS</p>	



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 Montgomery County
 Historic Preservation Commission

Ronald A. Carter

REVIEWED
 By Dan.Bruechert at 10:08 am, Sep 08, 2021



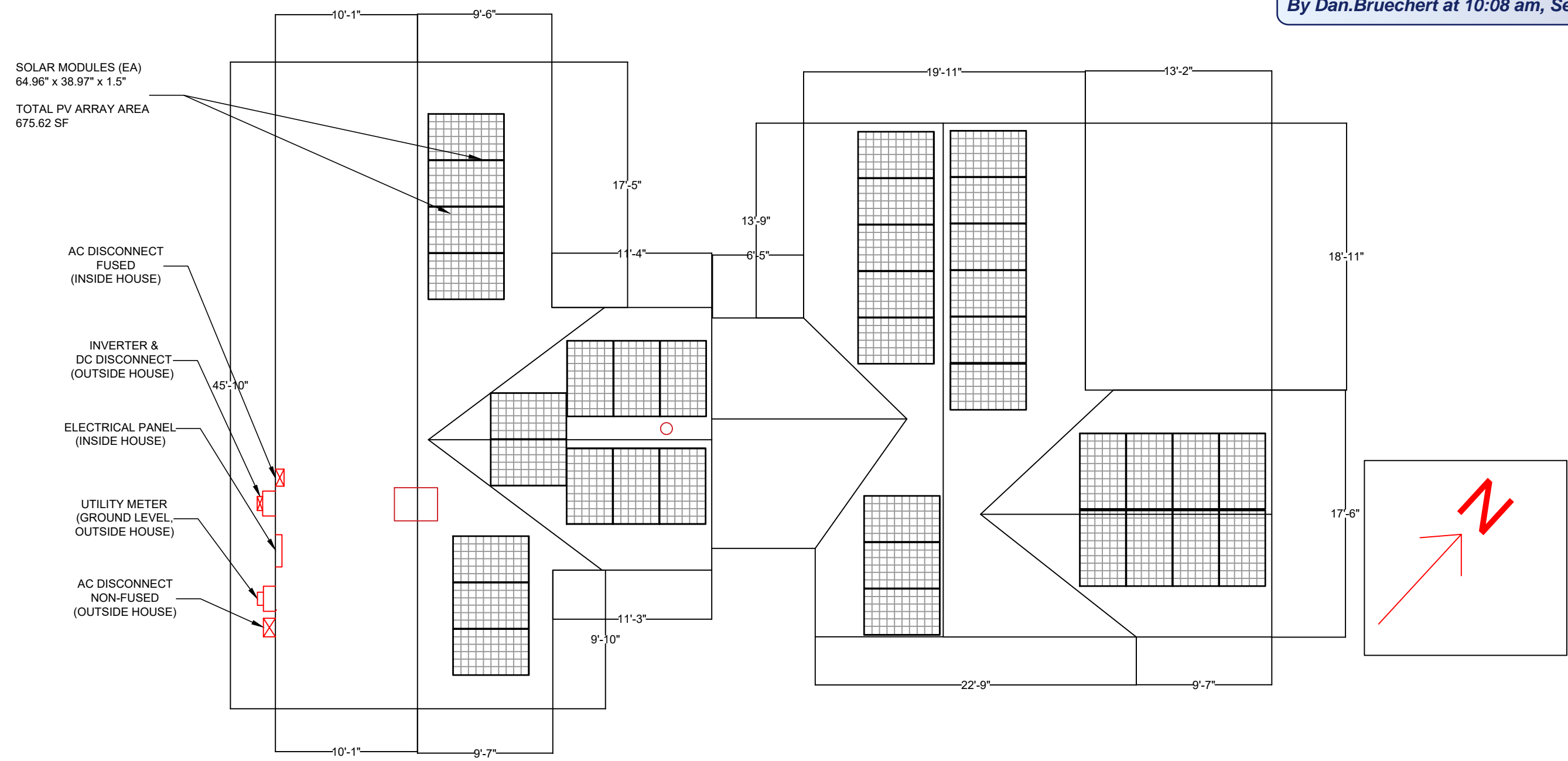
	GREENBRILLIANCE, LLC 46090 LAKE CENTER PLZ, SUITE 109 STERLING, VA 20165 www.greenbrilliance.com	DISCLAIMER THIS DRAWING IS THE PROPERTY OF GREENBRILLIANCE, LLC. THIS INFORMATION IS CONFIDENTIAL AND IS TO BE USED ONLY IN CONNECTION WITH WORK DESCRIBED BY GREENBRILLIANCE, LLC. NO PART IS TO BE DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION FROM GREENBRILLIANCE, LLC.	PREPARED BY BEN CARTER	REVISION	PROJECT NAME BRYAN MOFFETT 1 NORTH ST, BROOKVILLE, MD 20833	SHEET NUMBER S002	ELEVATION VIEW
			DATE 07/25/2021			SCALE 3/32" = 1'	


13.32 kW PHOTOVOLTAIC SYSTEM
SILFAB 360W SIL-360 NX
37 MODULES

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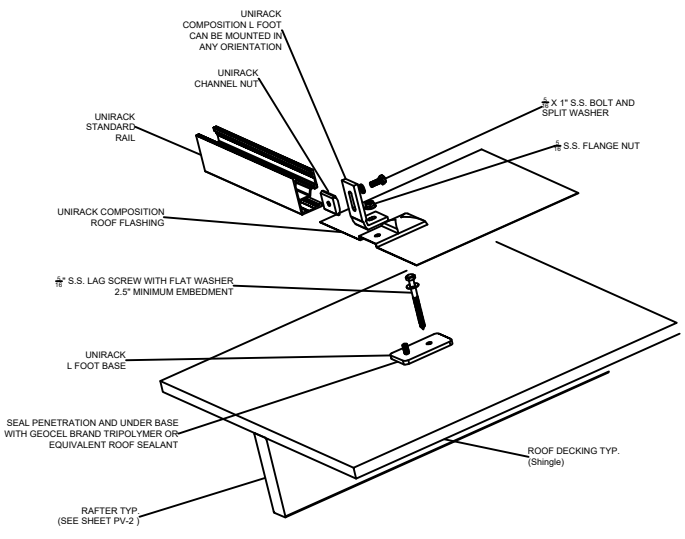
 <p>GREENBRILLIANCE, LLC 46090 LAKE CENTER PLZ, SUITE 109 STERLING, VA 20165 www.greenbrilliance.com</p>	<p align="center">DISCLAIMER</p> <p>THIS DRAWING IS THE PROPERTY OF GREENBRILLIANCE, LLC. THIS INFORMATION IS CONFIDENTIAL AND IS TO BE USED ONLY IN CONNECTION WITH WORK DESCRIBED BY GREENBRILLIANCE, LLC. NO PART IS TO BE DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION FROM GREENBRILLIANCE, LLC.</p>	<p>PREPARED BY BEN CARTER</p>	<p>REVISION</p>	<p>PROJECT NAME BRYAN MOFFETT 1 NORTH ST, BROOKEVILLE, MD 20833</p>	<p>SHEET NUMBER Z001</p>	<p>TOP VIEW</p>
		<p>DATE 07/25/2021</p>			<p>SCALE 3/32"=1'-0"</p>	

13.32 kW PHOTOVOLTAIC SYSTEM
SILFAB 360W SIL-360 NX
37 MODULES

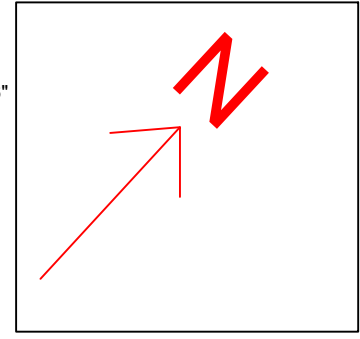
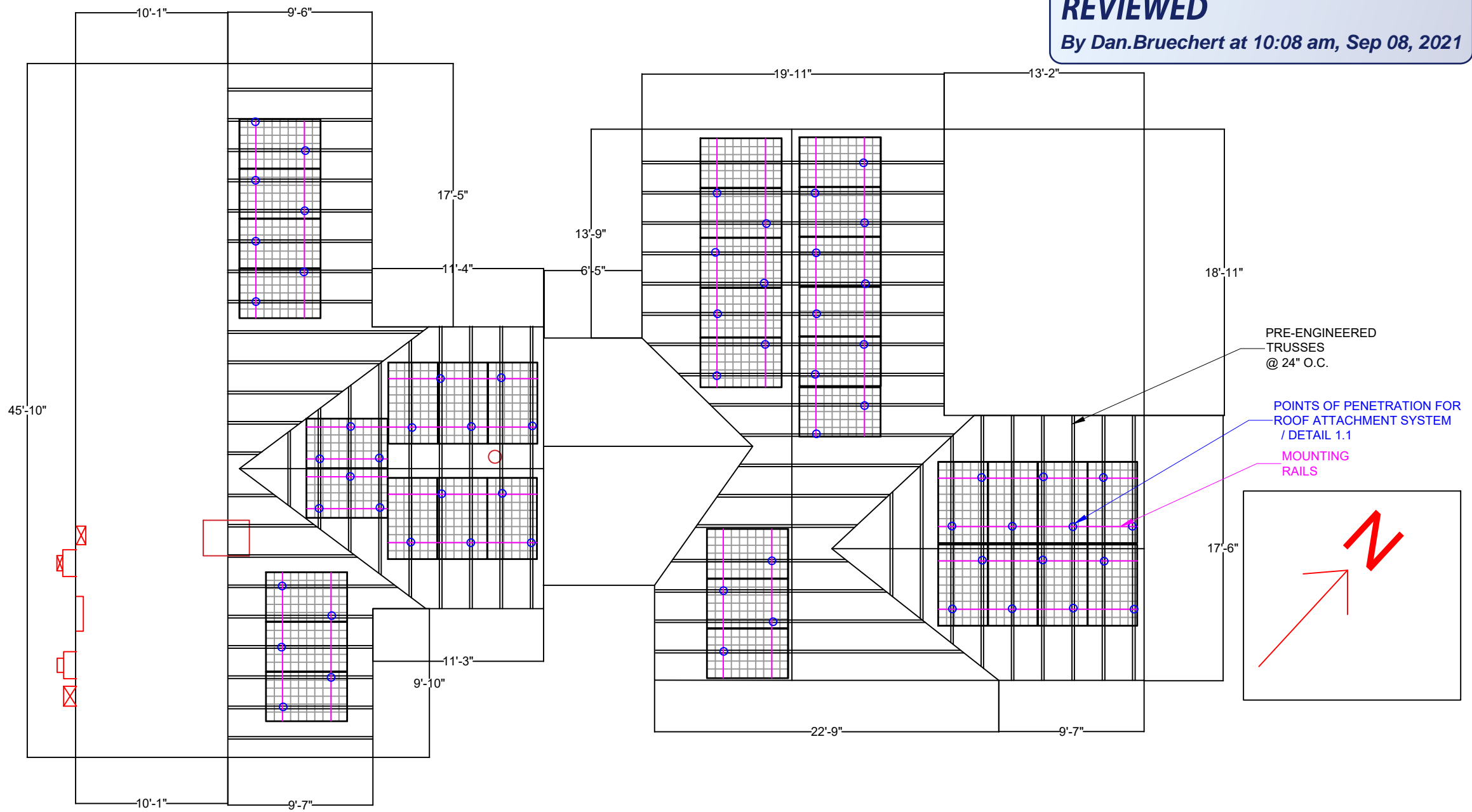
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ROOF ATTACHMENT SYSTEM / DETAIL 1.1
 HEIGHT OF PANEL FROM THE ROOF = 0.4 FT



PRE-ENGINEERED TRUSSES @ 24" O.C.
 POINTS OF PENETRATION FOR ROOF ATTACHMENT SYSTEM / DETAIL 1.1
 MOUNTING RAILS

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			DATE 07/25/2021			SCALE 3/32" = 1'	



SIL-360 NX



HIGH EFFICIENCY PREMIUM MONO-PERC PV MODULE



CHUBB*
* Chubb provides error and omission insurance to Silfab Solar Inc.

INDUSTRY LEADING WARRANTY

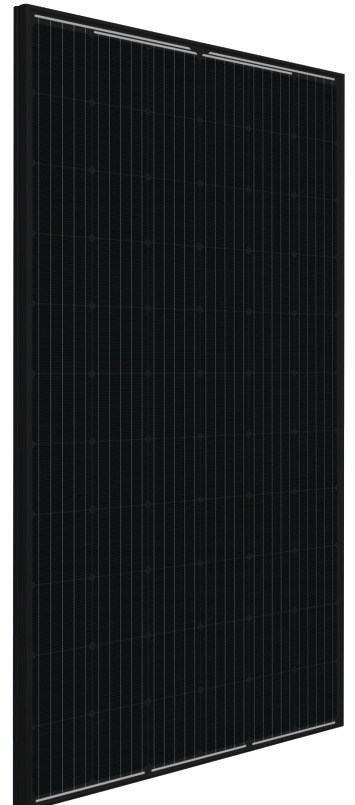
All our products include an industry leading 25-year product workmanship and 30-year performance warranty.

35+ YEARS OF SOLAR INNOVATION

Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners have the latest in solar innovation.

NORTH AMERICAN QUALITY

Silfab is the leading automated solar module manufacturer in North America. Utilizing premium quality materials and strict quality control management to deliver the highest efficiency, premium quality PV modules.



■ BAA / ARRA COMPLIANT

These panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all utilized Silfab panels in their solar installations.

■ LIGHT AND DURABLE

Engineered to accommodate high wind load conditions for test loads validated up to 5400Pa uplift. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

■ QUALITY MATTERS

Total automation ensures strict quality controls during the entire manufacturing process at our ISO certified facilities.

■ DOMESTIC

Our 500+ North American employees win the heart of our customers with service and product quality.

■ AESTHETIC

All black sleek design.

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By Dan.Bruechert at 10:08 am, Sep 08, 2021

selection. In accordance to IEC 62604-1.

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cal.

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Electrical Specifications		SIL-360 NX mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	360	268
Maximum power voltage (Vpmax)	V	37.11	34.67
Maximum power current (Ipmax)	A	9.70	7.74
Open circuit voltage (Voc)	V	45.40	42.65
Short circuit current (Isc)	A	10.20	8.20
Module efficiency	%	19.7	18.3
Maximum system voltage (VDC)	V		1000
Series fuse rating	A		20
Power Tolerance	Wp		0 to +10

Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
 • Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

Temperature Ratings		SIL-360 NX mono PERC	
Temperature Coefficient Isc		+0.064 %/°C	
Temperature Coefficient Voc		-0.28 %/°C	
Temperature Coefficient Pmax		-0.36 %/°C	
NOCT (± 2°C)		46 °C	
Operating temperature		-40/+85 °C	

Mechanical Properties and Components		SIL-360 NX mono PERC	
	Metric	Imperial	
Module weight	20±0.2 kg	44±0.4 lbs	
Dimensions (H x L x D)	1832 mm x 1000 mm x 38 mm	72.13 in x 39.4 in x 1.5 in	
Maximum surface load (wind/snow)*	4000 Pa rear load / 5400 Pa front load	83.5/112.8 lb/ft ²	
Hail impact resistance	Ø 25 mm at 83 km/h	Ø 1 in at 51.6 mph	
Cells	66 - Si mono-PERC - 5 busbar 158.75 x 158.75 mm	66 - Si mono-PERC - 5 busbar 62.25 x 62.25 in	
Glass	3.2 mm high transmittance, tempered, DSM anti-reflective coating	0.126 in high transmittance, tempered, DSM anti-reflective coating	
Cables and connectors (refer to installation manual)	1200 mm Ø 5.7 mm, MC4 from Staubli	47.2 in, Ø 0.22 (12AWG), MC4 from Staubli	
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet		
Frame	Anodized Aluminum (Black)		
Bypass diodes	3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)		
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP67 rated		

Warranties		SIL-360 NX mono PERC	
Module product workmanship warranty		25 years**	
Linear power performance guarantee		30 years	
		≥ 97.1% end 1 st year ≥ 91.6% end 12 th year ≥ 85.1% end 25 th year ≥ 82.6% end 30 th year	

Certifications		SIL-360 NX mono PERC	
Product		ULC ORD C1703, UL1703, CEC listed, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***, IEC 61730-1-2***, CSA C22.2#61730-1/-2, IEC 62716 Ammonia Corrosion; IEC61701:2011 Salt Mist Corrosion Certified, UL Fire Rating: Type 2 ISO9001:2015	
Factory		ISO9001:2015	

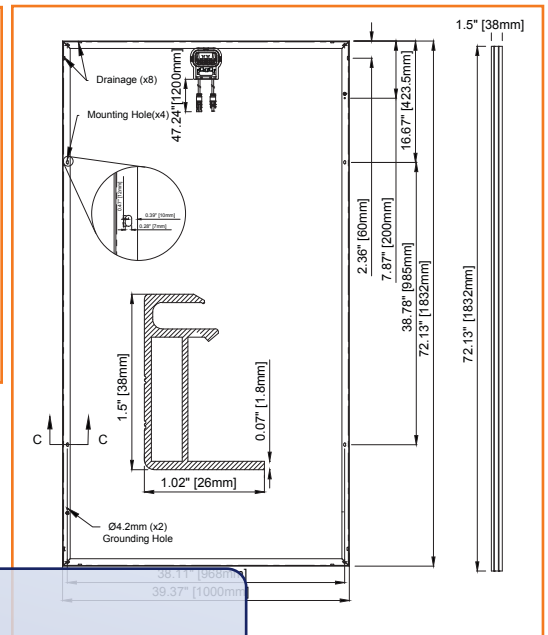
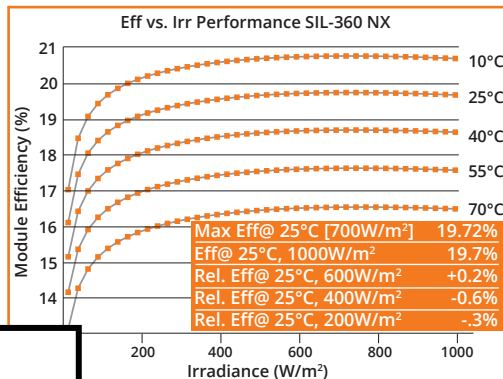
- Modules Per Pallet: 26
- Pallets Per Truck: 32
- Modules Per Truck: 832

*▲ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

**12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfabsolar.com.

***Certification in progress.

PAN files generated from 3rd party performance data are available for download at: www.silfabsolar.com/downloads.



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 Historic Preservation Commission

[Signature]

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 By Dan.Bruechert at 10:08 am, Sep 08, 2021

⚠ 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
 IF A GROUND FAULT IS INDICATED NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND 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

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

⚠ 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
 No user serviceable parts inside
 Contact authorized service provider for assistance

LABEL LOCATION:
 INVERTER, JUNCTION BOXES (ROOF), AC DISCONNECT
 (PER CODE: NEC690.13.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
 RATED AC OPERATING CURRENT [] AMPS
 AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: NEC690.54)

RATED MAXIMUM POWER-POINT CURRENT (I_{mp}) [] A
RATED MAXIMUM POWER-POINT VOLTAGE (V_{mp}) 240 V
MAXIMUM SYSTEM VOLTAGE (V_{OC}) 480 V
MAXIMUM CIRCUIT CURRENT (I_{sc}) 45.5 A

LABEL LOCATION:
 DC DISCONNECT, INVERTER
 (PER CODE: CEC690.53)

CAUTION: SOLAR CIRCUIT

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

⚠ WARNING DUAL POWER SOURCE
 SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC 705.12(D)(4))

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC690.15, 690.13(B))

WARNING
 INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

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

SOLAR DISCONNECT

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

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 Montgomery County
 Historic Preservation Commission



REVIEWED
 By Dan.Bruechert at 10:08 am, Sep 08, 2021

- ADHESIVE FASTENED SIGNS:**
- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
 - WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNINGS, AND MARKINGS SHOULD COMPLY WITH ANSI Z535.4 [NEC 110.21(B) FIELD MARKING].
 - ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]

Enphase IQ 7, IQ 7+, and IQ 7X Microinverters

REVIEWED

By Dan.Bruechert at 10:08 am, Sep 08, 2021

APPROVED

Montgomery County

Historic Preservation Commission



The high-powered smart grid-ready **Enphase IQ Series Micros™** achieve the highest system efficiency.

Part of the Enphase IQ System, the IQ 7, IQ 7+, and IQ 7X Micro integrate perfectly with the Enphase Envoy-S™, and the Enphase Enlighten™ monitoring and analysis software.

The IQ Series Micros extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling

Productive and Reliable

- Optimized for high powered 60-cell, 72-cell* and 96-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles

* The IQ 7+ Micro is required to support 72-cell modules, and the IQ 7X is required to support 96-cell modules.

Enphase IQ 7, IQ 7+, and IQ 7X Microinverters

INPUT DATA (DC)	IQ7-60-2-INT	IQ7PLUS-72-2-INT	IQ7X-96-2-INT
Commonly used module pairings	235 W - 350 W + ¹	235 W - 440 W + ^{1,2}	320 W - 460 W + ^{1,2}
Module compatibility	60-cell PV modules only	60-cell & 72-cell PV modules	96-cell PV modules only
Maximum input DC voltage	48 V	60 V	79.5 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V	53 V - 64 V
Operating range	16 V - 48 V	16 V - 60 V	25 V - 79.5 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V	33 V / 79.5 V
Max DC short circuit current (module I _{sc})	15 A	15 A	10 A
Overvoltage class DC port	II	II	II
DC port backfeed under single fault	0 A	0 A	0 A
PV array configuration	AC side protection requires max 20A per branch circuit.		
OUTPUT DATA (AC)	IQ 7 Microinverter	IQ 7+ Microinverter	IQ 7X Microinverter
Peak output power	250 VA	295 VA	320 VA
Maximum continuous output power	240 VA	290 VA	315 VA
Nominal (L-N) voltage/range ³	230 V / 184-276 V	230 V / 184-276 V	230 V / 184-276 V
Maximum continuous output current	1.04 A	1.26 A	1.37 A
Nominal frequency	50 Hz	50 Hz	50 Hz
Extended frequency range	45 - 55 Hz	45 - 55 Hz	45 - 55 Hz
Maximum units per 20 A (L-N) branch circuit ⁴	16 (230 VAC)	13 (230 VAC)	12 (230 VAC)
Overvoltage class AC port	III	III	III
AC port backfeed current	0 A	0 A	0 A
Power factor setting	1.0	1.0	1.0
Power factor (adjustable)	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging
EFFICIENCY	@230 V	@230 V	@230 V
EN 50530 (EU) weighted efficiency	96.5 %	96.5 %	96.5 %
MECHANICAL DATA			
Ambient temperature range	-40°C to +65°C	-40°C to +65°C	-40°C to +60°C
Relative humidity range	4% to 100% (condensing)		
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)		
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)		
Weight	1.08 kg		
Cooling	Natural convection - No fans		
Approved for wet locations	Yes		
Pollution degree	PD3		
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure		
Environmental category / UV exposure rating	Outdoor - IP67		
FEATURES			
Communication	Power Line Communication (PLC)		
Monitoring	Enlighten Manager and MyEnlighten monitoring options Compatible with Enphase Envoy-S		
Compliance (pending)	AS 4777.2, RCM, IEC/EN 61000-6-3, IEC/EN 62109-1, IEC/EN 62109-2		

1. No enforced DC/AC ratio in NZ. In Australia, CEC design guidelines state inverter continuous array peak power.
2. Maximum DC input limited to 350 W at 25°C as per AU/NZS 5033:2014 4.3.12(d).
3. Nominal voltage range can be extended beyond nominal if required by the utility.
4. Limits may vary. Refer to local requirements to define the number of microinverters per branch circuit.

APPROVED
Montgomery County
Historic Preservation Commission

Robert H. [Signature]

REVIEWED
 By Dan.Bruechert at 10:09 am, Sep 08, 2021

To learn more about Enphase offerings, visit enphase.com

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

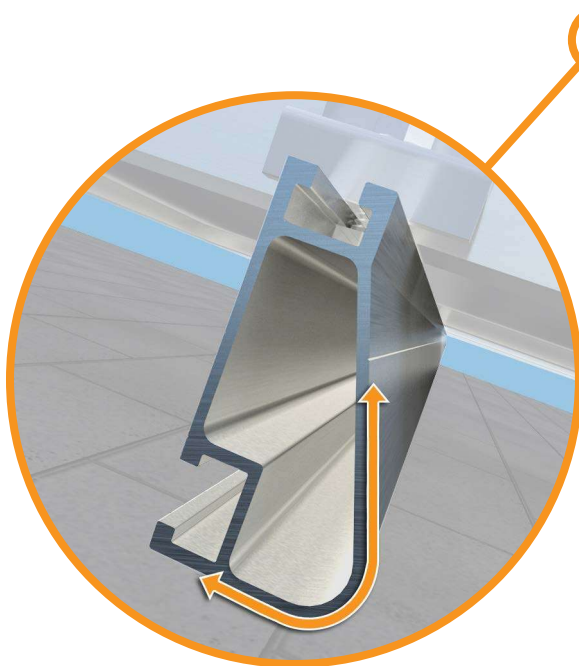
XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.

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Montgomery County
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REVIEWED

By Dan.Bruechert at 10:09 am, Sep 08, 2021



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs



XR Rails are compatible with FlashFoot and other pitched roof attachments.



IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

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REVIEWED

By Dan.Bruechert at 10:09 am, Sep 08, 2021

The Strongest Attachment in Solar

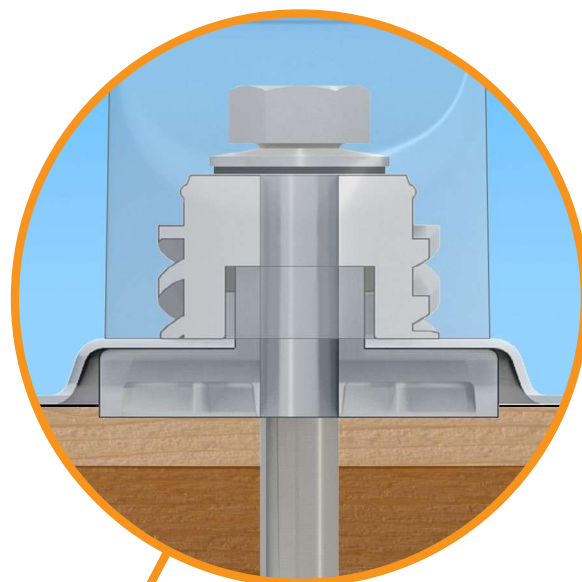
IronRidge FlashFoot2 raises the bar in solar roof protection. The unique water seal design is both elevated and encapsulated, delivering redundant layers of protection against water intrusion. In addition, the twist-on Cap perfectly aligns the rail attachment with the lag bolt to maximize mechanical strength.

Twist-On Cap

FlashFoot2's unique Cap design encapsulates the lag bolt and locks into place with a simple twist. The Cap helps FlashFoot2 deliver superior structural strength, by aligning the rail and lag bolt in a concentric load path.

Single Socket Size

A custom-design lag bolt allows you to install FlashFoot2 with the same 7/16" socket size used on other Flush Mount System components.



Three-Tier Water Seal

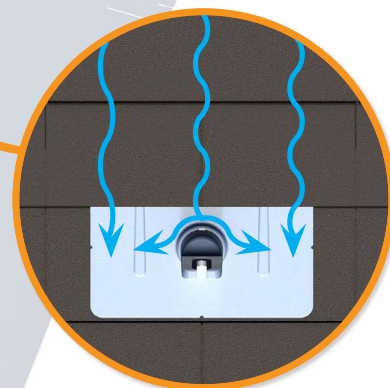
FlashFoot2's seal architecture utilizes three layers of protection. An elevated platform diverts water away, while a stack of rugged components raises the seal an entire inch. The seal is then fully-encapsulated by the Cap. FlashFoot2 is the first solar attachment to pass the TAS-100 Wind-Driven Rain Test.

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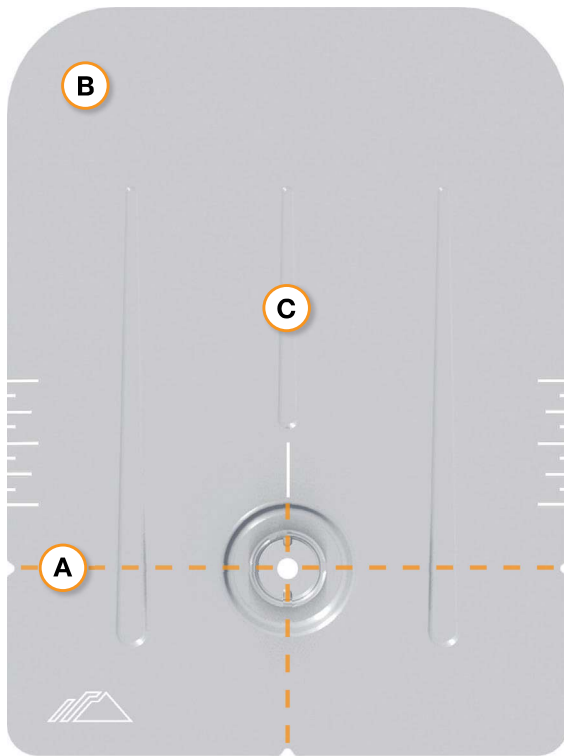
By Dan.Bruechert at 10:09 am, Sep 08, 2021



Water-Shedding Design

An elevated platform diverts water away from the water seal.

Installation Features



A Alignment Markers

Quickly align the flashing with chalk lines to find pilot holes.

B Rounded Corners

Makes it easier to handle and insert under the roof shingles.

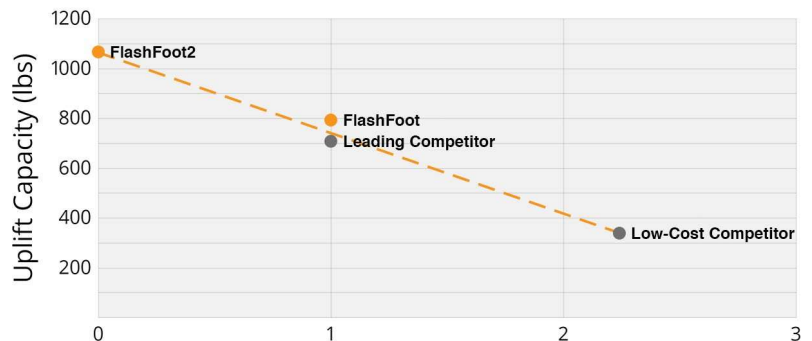
C Reinforcement Ribs

Help to stiffen the flashing and prevent any bending or crinkling during installation.

Benefits of Concentric Loading

Traditional solar attachments have a horizontal offset between the rail and lag bolt, which introduces leverage on the lag bolt and decreases uplift capacity.

FlashFoot2 is the only product to align the rail and lag bolt. This concentric loading design results in a stronger attachment for the system.



Testing & Certification

Structural Certification

Designed and Certified for Compliance with the International Building Code

Water Seal Ratings

Water Sealing Tested to UL 441 Section 27 "Rain Test" and TAS 100-95 "Wind Driven Rain Test" by Intertek. Ratings applicable for composition shingle roofs having a slope of 2:12 and 12:12.

UL 2703

Conforms to UL 2703 Mechanical and Bonding Requirements. See Flush Mount Install Manual for full ratings.



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