



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert Sutton
Chairman

Date: June 16, 2023

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services

FROM: Michael Kyne
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #1029725: Fenestration alterations, roof and siding replacement, and other alterations

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved with three (3) conditions** at the June 14, 2023 HPC meeting.

- 1. The applicant shall submit an amended roof plan that show the location of the existing chimney stack and roof-top HVAC equipment.**
- 2. The applicant shall submit an amended drawing that confirms the location of proposed hardware on the south elevation (side) of the building near the existing utility meter.**
- 3. The applicant shall submit all specification sheets for the combiner box and AC disconnect.**

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: Rick Leonard (Margo Ricks/Solar Solutions – Agent)
Address: 7334 Carroll Avenue, Takoma Park

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 Michael Kyne at 301.563.3403 or Michael.Kyne@montgomeryplanning.org to schedule a follow-up site visit.





APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

FOR STAFF ONLY:
HAWP# _____
DATE ASSIGNED _____

APPLICANT:

Name: _____

E-mail: _____

Address: _____

City: _____ Zip: _____

Daytime Phone: _____

Tax Account No.: _____

AGENT/CONTACT (if applicable):

Name: _____

E-mail: _____

Address: _____

City: _____ Zip: _____

Daytime Phone: _____

Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property _____

Is the Property Located within an Historic District? Yes/District Name _____

No/Individual Site Name _____

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

REVIEWED
By Michael Kyne at 3:01 pm, Jun 16, 2023

Are there other Planning and/or Hearing Examiner Approvals/Revisions/Revisions/Revisions (Conditional Use, Variance, Record Plat, etc.)? If YES, include supplemental information.

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Montgomery County
Historic Preservation Commission

Building Number: _____

Street: _____

Town/City: _____

Nearest Cross Street: _____

Lot: _____

Block: _____

Subdivision: _____

TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:

New Construction

Deck/Porch

Shed/Garage/Accessory Structure

Addition

Fence

Solar

Demolition

Hardscape/Landscape

Tree removal/planting

Grading/Excavation

Roof

Window/Door

Other: _____

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Signature of owner or authorized agent

Date

HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFYING
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address

Owner's Agent's mailing address

Adjacent and confronting Property Owners mailing addresses

REVIEWED

By Michael Kyne at 3:01 pm, Jun 16, 2023

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Robert H. Potter

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

Description of Work Proposed: Please give an overview of the work to be undertaken:

REVIEWED

By Michael Kyne at 3:02 pm, Jun 16, 2023

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Historic Preservation Commission



Robert H. Nutter

Work Item 1: _____


Description of Current Condition:	Proposed Work:
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Work Item 2: _____

Description of Current Condition:	Proposed Work:
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Work Item 3: _____

Description of Current Condition:	Proposed Work:
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**HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS**

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/Parking Area	*	*		*	*	*	*
Grading/Excavation/Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/Door Changes	*	*	*	*	*		*
Masonry Repair/Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

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By Michael Kyne at 3:01 pm, Jun 16, 2023

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Index

- 00_Index
- A01_Overview
- A02_Line of Sight
- PV01_Mount Detail
- PV02_Mount Detail
- PV03_Hardware Specs
- E01_Electrical Diagram
- E02_Electrical Calculations
- E03_Electrical Labels

Scope of Work:

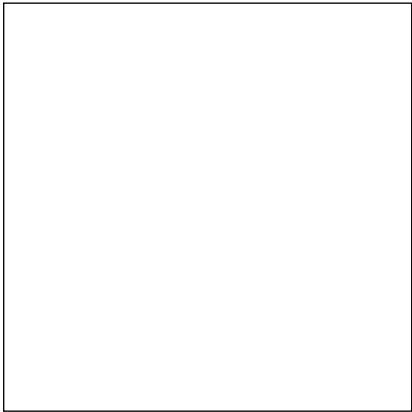
To install 8.10kW size of solar panels with a system height of 1.1 feet on roof of building.

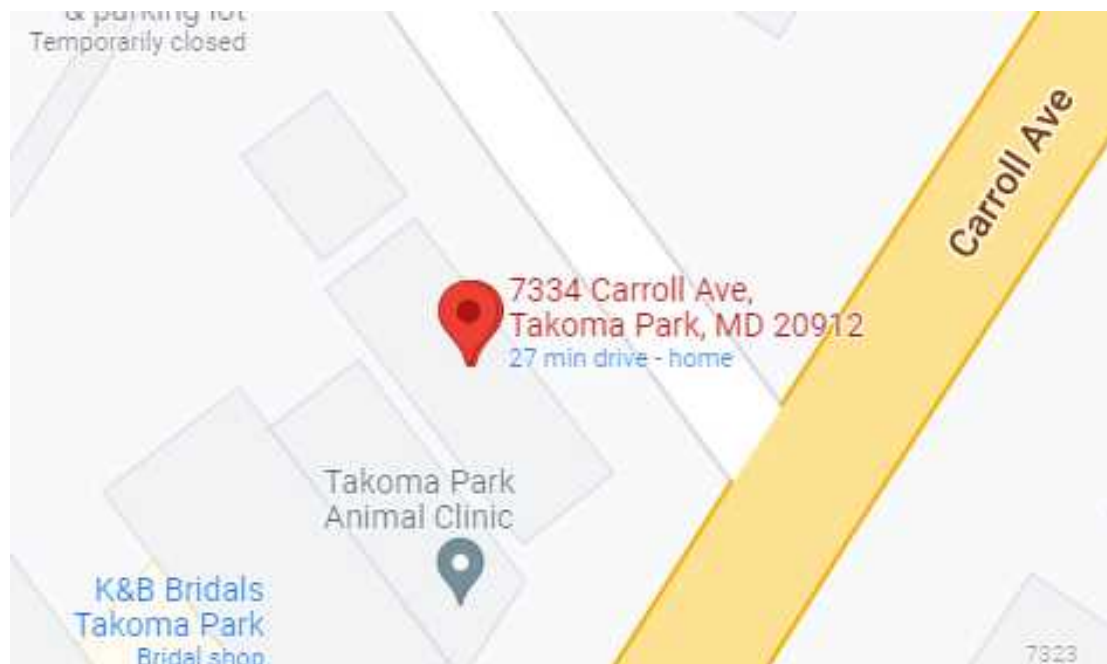
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Codes

NFPA 70
NEC 2017
IRC 2018
CC 2018





1 Site Plan
A01



2 Street View of Building
A01

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4700 14th ST. NW
Washington, DC 20011

Project # 5124
Rick Leonard
7334 Carroll Ave,
Takoma Park, MD 20912

Overview

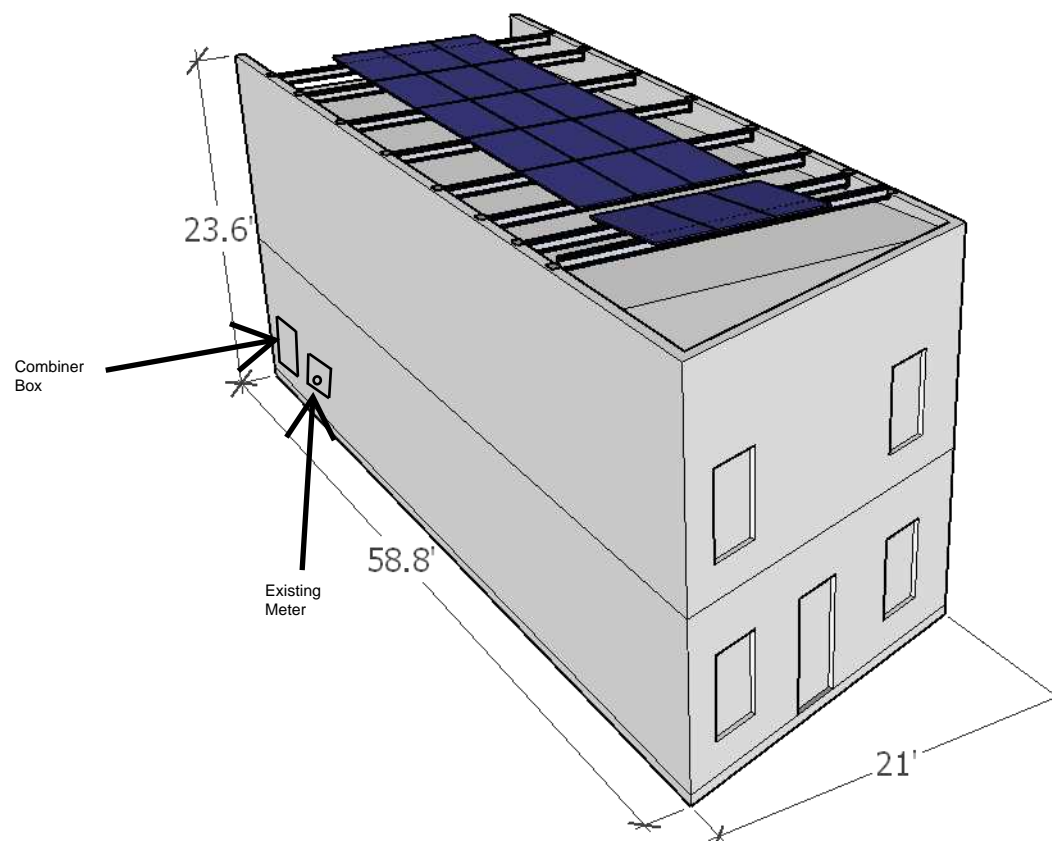
Issue Date
12.19.2022

Revisions:

System Size:
8.10 kW

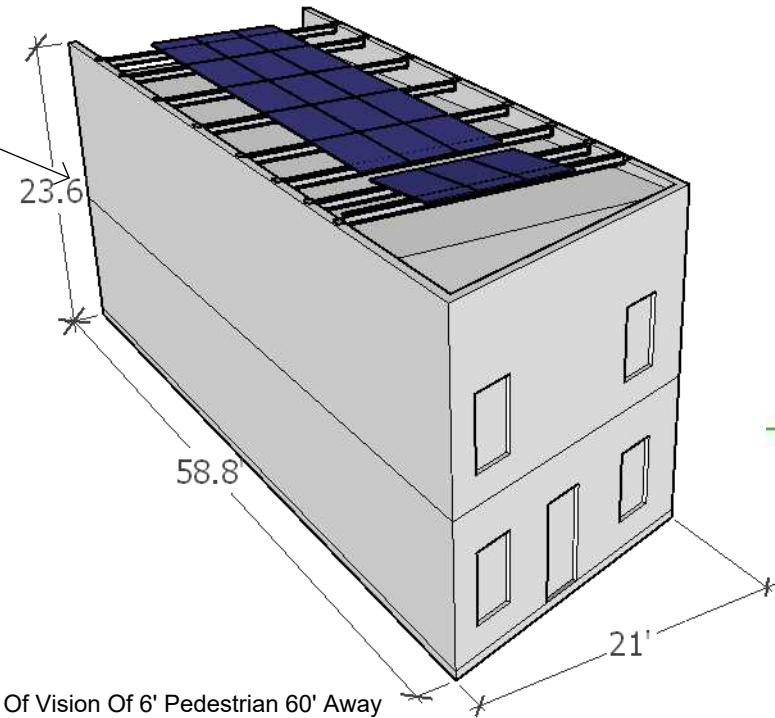


Conduit ran down back wall and painted to Match color of building.

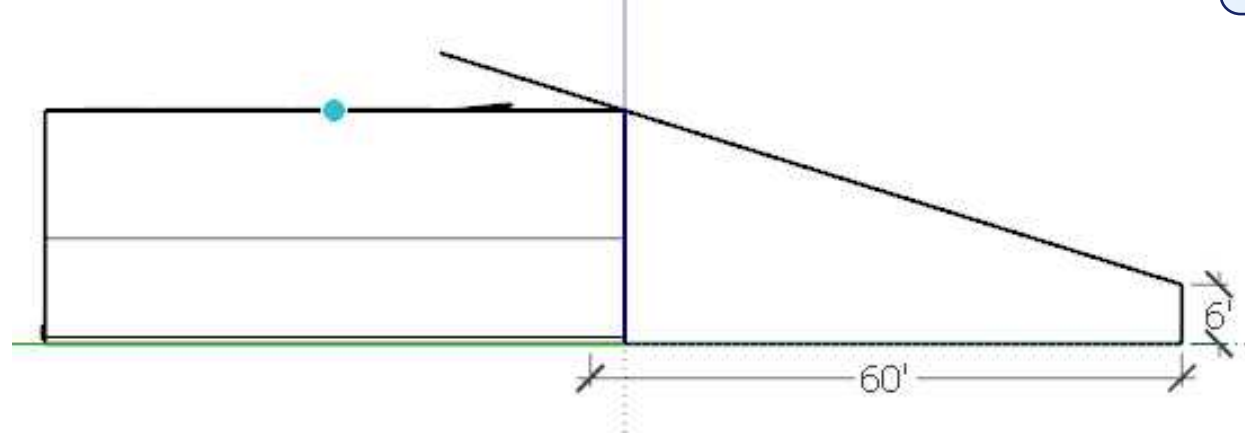


3 Proposed PV Design
A01

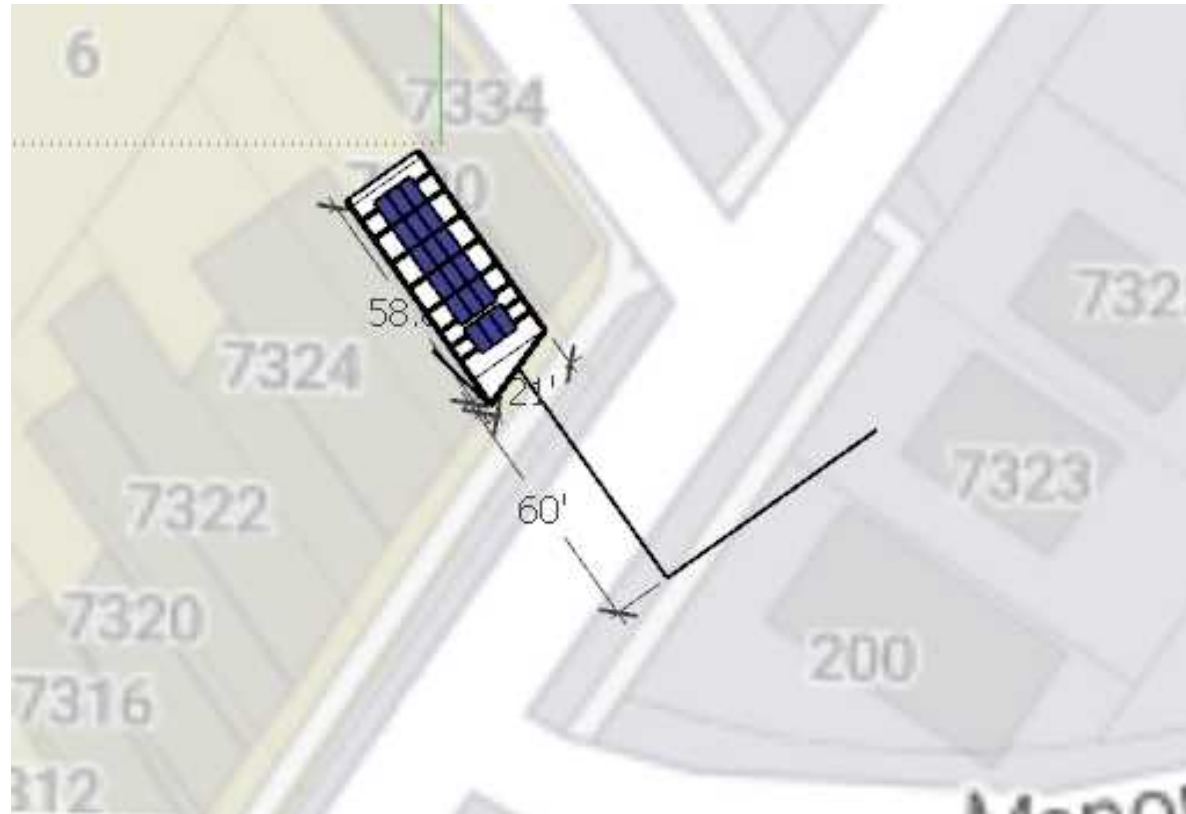
All electrical equipment will be placed on the back of the house and will not be visible from the facade



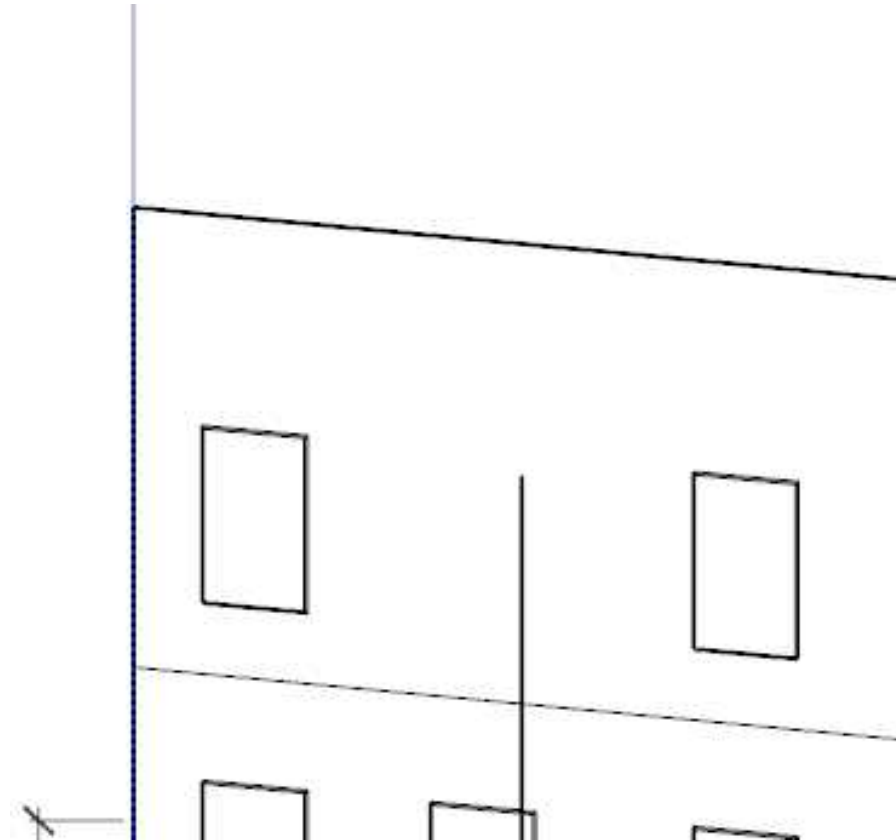
1 Line Of Vision Of 6' Pedestrian 60' Away
A02



Side view



View A



View B

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By Michael Kyne at 3:01 pm, Jun 16, 2023

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 20912

Line of Sight

Issue Date
 12.19.2022

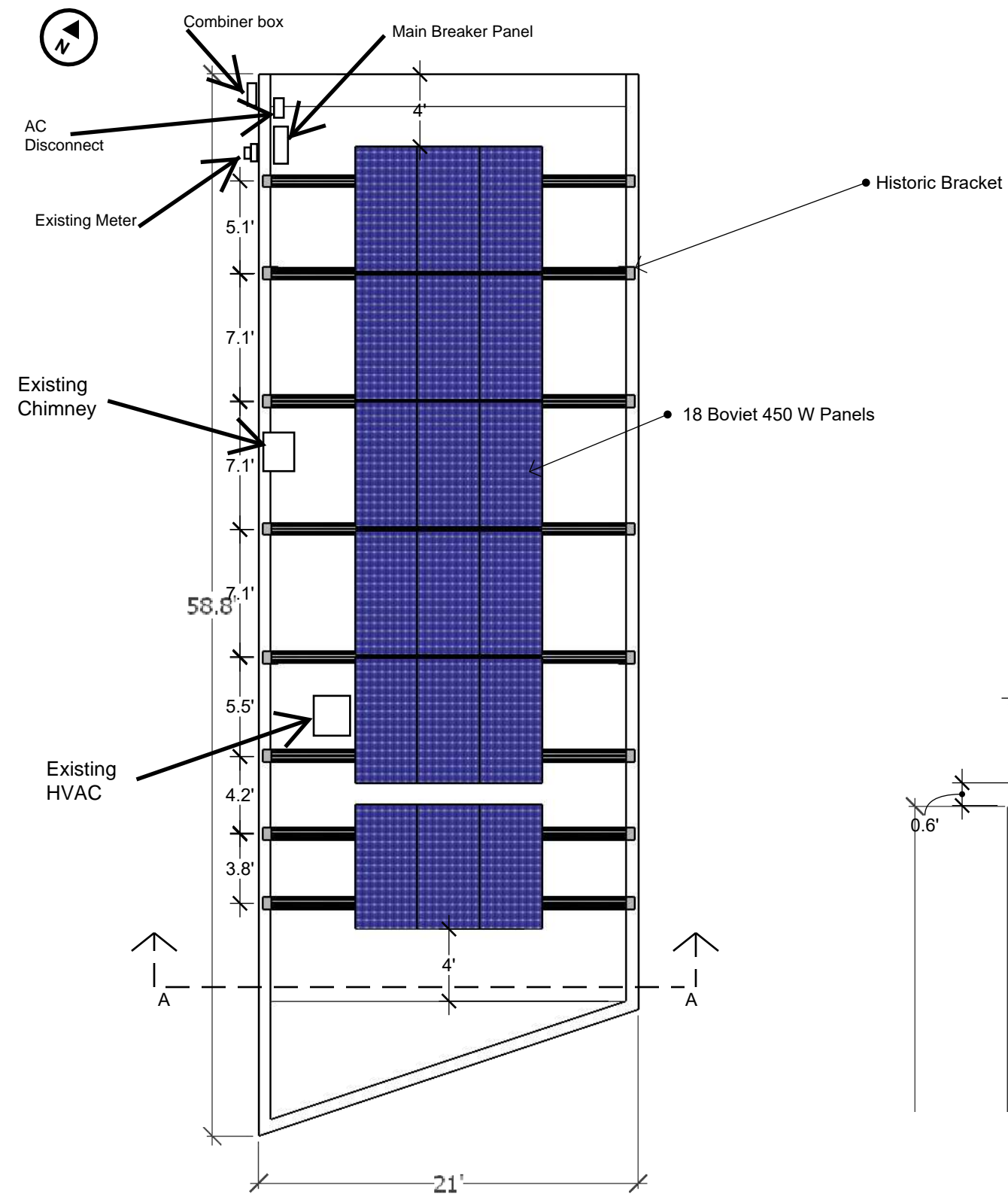
Revisions:

System Size:
 8.10 kW

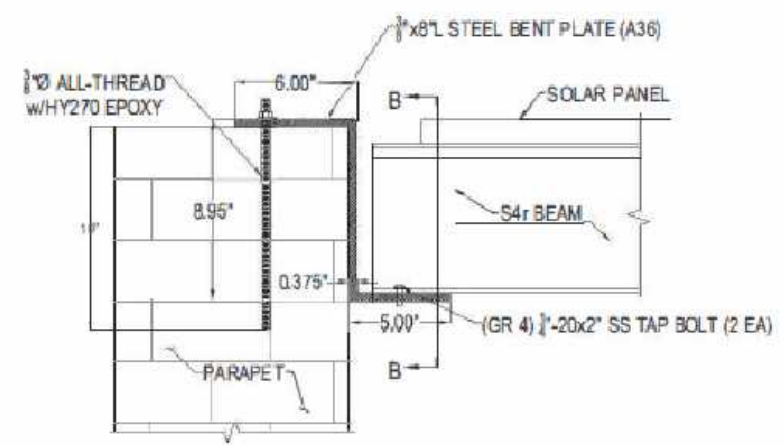


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1 Roof Plan
 PV01 Scale: 1/8" : 1' 2' 4' 6'



2 Mount Details
 PV01



3 Cross Section A-A
 PV01 Scale: 1/4" : 1' 2' 4' 6'

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Mount Detail

Issue Date
 12.19.2022

Revisions:

System Size:
 8.10 kW

pv

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**Mount
 Detail**

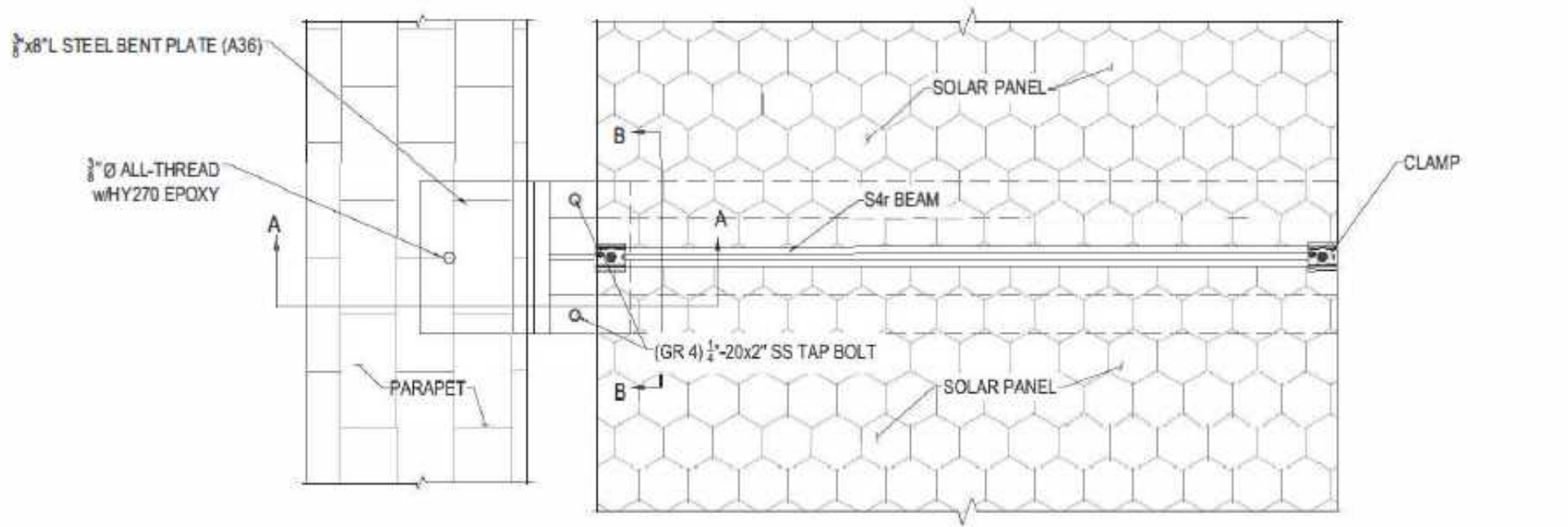
Issue Date
 12.19.2022

Revisions:

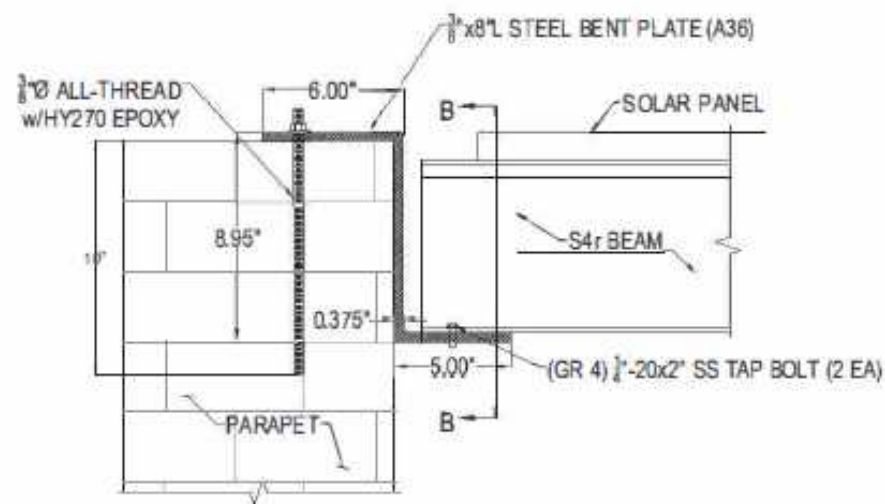
System Size:
 8.10 kW

pv

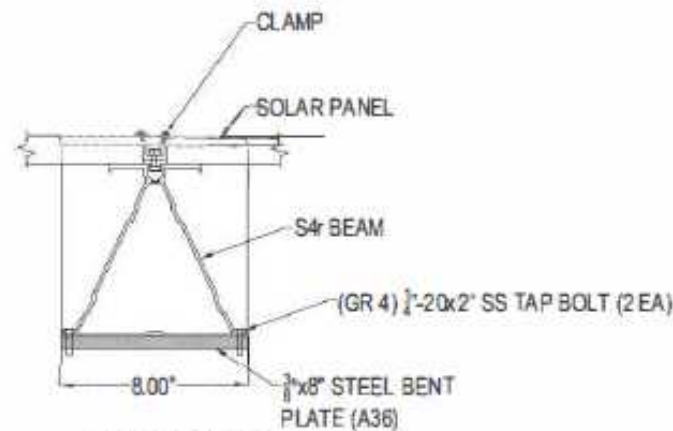
02



PLAN VIEW



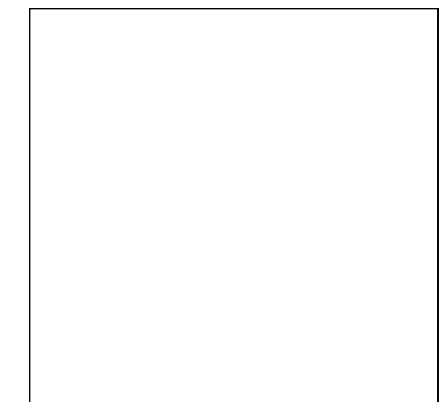
SECTION A-A



SECTION B-B

1 PARAPET CONNECTION DETAILS

Scale: 1 1/2" = 1'-0"





Boviet 450 W Bi

ELECTRICAL CHARACTERISTICS | STC

Maximum Power (Pmax)	440W	445W	450W
Maximum Power Current (Imp)	10.92A	10.99A	11.06A
Maximum Power Voltage (Vmp)	40.37V	40.57V	40.76V
Short Circuit Current (Isc)	11.48A	11.55A	11.60A
Open Circuit Voltage (Voc)	48.60V	48.80V	49.05V
Module Efficiency	19.7%	19.9%	20.2%
Power Tolerance	0~+5W	0~+5W	0~+5W

STC: AM1.5 Irradiance 1000W/m, 25° C

CERTIFICATES

UL 61730 | IEC 61215 | IEC 61730 | CEC Listed | CE
 ISO 9001 Quality Management System
 ISO 14001 Environmental Management System
 ISO 45001 Occupational Health and Safety Management System

*Please contact with Boviet Solar representatives for full list of certificates according to local requirements and product type

MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline PERC PV Cells 166mm Cell Half-cut 9 Busbar 144 (6x24) pcs in series
Solar Modules	Bifacial 84.06 x 41.19 x 1.38 inch. Weight: 68.34 lb.

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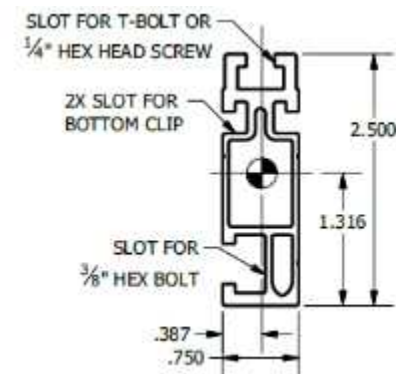
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IQ7+

INPUT DATA (DC)	IQ7PLUS-72-2-US / IQ7PLUS-72-B-US
Commonly used module pairings ¹	235 W - 440 W +
Module compatibility	60-cell and 72-cell PV modules
Maximum input DC voltage	60 V
Peak power tracking voltage	27 V - 45 V
Operating range	16 V - 60 V
Min/Max start voltage	22 V / 60 V
Max DC short circuit current (module Isc)	15 A
Overvoltage class DC port	II
DC port backfeed current	0 A
PV array configuration	all DC side protection required; 1 per branch circuit

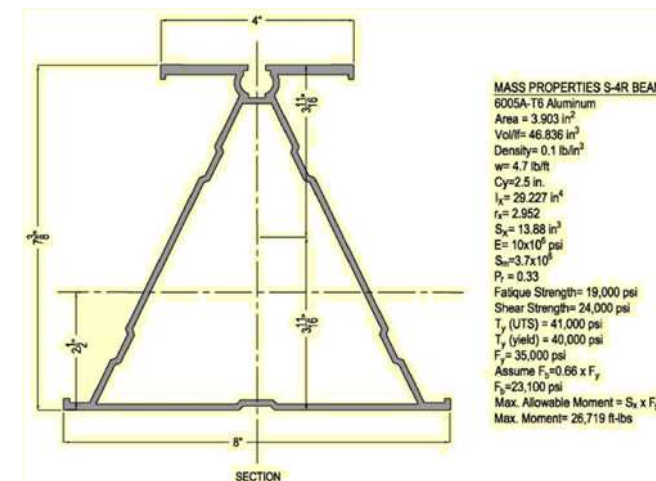
OUTPUT DATA (AC)	IQ 7+ Microinverter	
Peak output power	295 VA	
Maximum continuous output power	290 VA	
Nominal (L-L) voltage/range ²	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz	
Extended frequency range	47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms	
Maximum units per 20 A (L-L) branch circuit ³	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III	
AC port backfeed current	0 A	
Power factor setting	1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging	



The universal SolarMount rail system has three options which can be assembled into a wide variety of PV mounting structures to accommodate any job site. Unirac provides a technical support system complete with installation and codecompliance documentation.

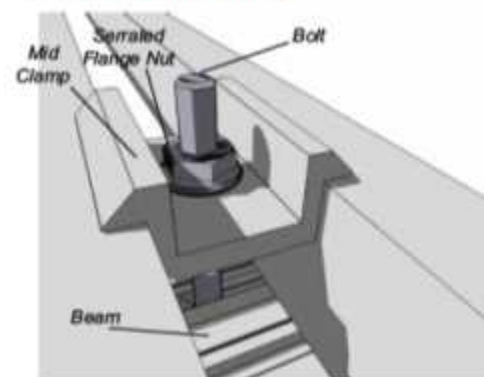


The S4 is manufactured from extruded aluminum to maximize spans while minimizing weight for improved handling. The S4 carrier has a side slot to enable the option of bottom mounting. Optimized features for large span length in Free Field systems.



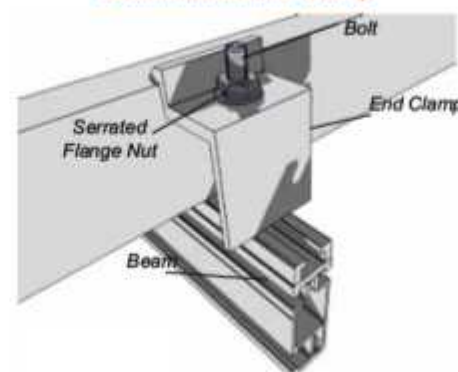
Product Certificate UL2703

SolarMount Mid Clamp



- Mid clamp material: One of the following extruded aluminum alloys: 6005-T5, 6105-T5, 6061-T6
- Ultimate tensile: 38ksi, Yield: 35 ksi
- Finish: Clear or Dark Anodized
- Mid clamp weight: 0.050 lbs (23g)
- Allowable and design loads are valid when components are assembled according to authorized UNIRAC documents
- Values represent the allowable and design load capacity of a single mid clamp assembly when used with a SolarMount series beam to retain a module in the direction indicated
- Assemble mid clamp with one Unirac 1/4"-20 T-bolt and one 1/4"-20 ASTM F594 serrated flange nut
- Use anti-seize and tighten to 10 ft-lbs of torque
- Resistance factors and safety factors are determined according to part 1 section 9 of the 2005 Aluminum Design Manual and third-party test results from an IAS accredited laboratory

SolarMount End Clamp



- End clamp material: One of the following extruded aluminum alloys: 6005-T5, 6105-T5, 6061-T6
- Ultimate tensile: 38ksi, Yield: 35 ksi
- Finish: Clear or Dark Anodized
- End clamp weight: varies based on height: ~0.058 lbs (26g)
- Allowable and design loads are valid when components are assembled according to authorized UNIRAC documents
- Values represent the allowable and design load capacity of a single end clamp assembly when used with a SolarMount series beam to retain a module in the direction indicated
- Assemble with one Unirac 1/4"-20 T-bolt and one 1/4"-20 ASTM F594 serrated flange nut
- Use anti-seize and tighten to 10 ft-lbs of torque
- Resistance factors and safety factors are determined according to part 1 section 9 of the 2005 Aluminum Design Manual and third-party test results from an IAS accredited laboratory
- Modules must be installed at least 1.5 in from either end of a beam

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Project # 5124
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 20912

Hardware Specifications

Issue Date
 12.19.2022

Revisions:

System Size:
 8.10 kW

NOTE: The IQ 8 Micro, IQ 8+ Micro and the IQ 8X Micro have integrated ground and double insulation. The inverter does not require a EGC, other EGC requirements remain unchanged. The DC circuit is isolated and insulated from ground and meets the requirements of NEC 690.35.

Notes:

Modules are clamped with mid/end clamps.
#6 bare copper Ground Wire in contact with all modules and rails/beams/trays

REVIEWED

By Michael Kyne at 3:01 pm, Jun 16, 2023

Mid and End Clamps with integrated Grounding

String 1

10 Boviet 450 W Panels (IQ7+)

#6 Bare Copper connected to all rails/beams with Lugs. Mid and end clamps with integrated ground

Enphase Q Cable (Portrait)
Two (2) #12 AWG Wire
L1-Black
L2-Red

Junction Box

1/2" Conduit
(4) #12 AWG Conductors
(2) #10 Insulated EGC

String 2

8 Boviet 450 W Panels (IQ7+)

#6 Bare Copper connected to all rails/beams with Lugs. Mid and end clamps with integrated ground

Enphase Q Cable (Portrait)
Two (2) #12 AWG Wire
L1-Black
L2-Red

1/2" Conduit
(2) #12 AWG Conductors

Label 1

Label 8 → To/From Meter & Grid

Enphase IQ Combiner
40A
1PH
240VAC

#10 AWG insulated Ground (Typical)

Label 10

Label 9

Label 5

40A AC Disconnect housed inside Combiner Box Rated @80A

Existing 200A 3PH 208VAC

Line Side

AC Disconnect is within 10' of Tap

40A OCPD AC Disconnect

Label 4

20A

20A

10A

40A

Enphase Envoy Monitoring Unit

Label 10 Label 9 Label 1 Label 8

Line Side Tap
Installation done inside line side of main service panel. Sufficient room for installation.

Label 7

Existing Ground

1/2" Conduit
(3) #6 AWG
#10 Insulated EGC

Load Side

Existing Ground

Line Side Tap via KUP-L-TAP® (IPC) IPC-4/0-6

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Electrical Diagram

Issue Date
12.19.2022

Revisions:

System Size:
8.10 kW



01

CODE REFERENCE:

ART 690.8 (A)

1. The maximum current shall be the sum of parallel module rated short - circuit currents multiplied by 125%.

3. The maximum current shall be the inverter continuous output current rating.

ART 690.8(B)(1)

1. CONDUCTION MUST HAVE 30 C AMPACITY > 125% OF CONTINUOUS CURRENT PER 690.8(A)
2. CONDUCTOR MUST HAVE (AFTER CORRECTIONS FOR CONDITIONS OF USE) GREATER THAN OR EQUAL TO CONTINUOUS CURRENT PER TABLE 310.15
3. EVALUATE CONDUCTOR TEMPERATURE AT TERMINATION PER ART 110.14(C). AMPACITY OF WIRE DERATED FOR CONDITIONS OF TERMINATION MUST BE > CONTINUOUS CURRENT X 1.25.

DC CALCULATIONS

SYSTEM SIZE: 18X 450 W = 8.10kW

PV SOURCE CIRCUIT

PV MODULE ISC = 11.60 A

OF MODULES IN PARALLEL PER CIRCUIT = 1

MAX ISC = 1 X 11.60A X 1.25 = 14.5A

OCPD/Ampacity = 14.5A x 1.25 = 18A, 20A OCPD

SOURCE CIRCUIT WIRING

CONDUCTOR = COPPER #12 AWG THWN-2 90°C RATED

CORRECTION FACTORE FOR 60°C AMBIENT = 0.71

CORRECTED AMPACITY: 30 A X 0.71 X 0.8 = 17.0A > 14.5A

AC Current Calculations

Total Panels: 18 x 1.39A = 25.02

String 1: 10 x 1.39A = 13.9A

String 2: 8 x 1.39 = 11.12A

Combiner Box Home Run Current: 18 x 1.39A = 25.02A

OCPD Sizing: 40A

80% of OCPD = 40A x .8 = 32A > 25.02A

Wiring for Combiner Box: 1/2" Conduit #6 AWG & #10 Ground

Conductor for #6 AWG THWN-2 90 C Rated

Correction Factor for 45 C Ambient = 0.87

Corrected Ampacity: 40Ax0.87x0.8 = 27.84A > 25.02A

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20912

Electrical
Calculations

Issue Date
12.19.2022

Revisions:

System Size:
8.10 kW



Solar System Warning Labels Material
 Vinyl Material - Flexcon DPM FWS White Vinyl
 Reflective Material - Avery Dennison T-1500-A Engineering Grade Beaded Retroreflective Film
 Lamination - Flexcon DPM Clear Gloss Polyester Laminate

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Label 1		Location: (C)(CB) Per code: NEC 690.31.G.3	Label 6		Location: (AC)(POI) Per code: NEC 690.17.E
Label 2		Location: (DC)(INV) Per code: NEC 690.5 (C)	Label 7		Location: (POI) Per code: NEC 690.17.4
Label 3		Location: (DC)(CB) Per code: NEC 690.17 (4)	Label 8		Location: (POI) Per code: NEC 690.64.B.4
Label 4		Location: (AC)(POI) Per code: NEC 690.54	Label 9		Location: (D)(POI) Per code: NEC 690.64.B.4
Label 5		Location: (AC) Per Code: NEC 690.52	Label 10		Location: (POI) Per code: NEC 690.64.B.7


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Electrical Labels

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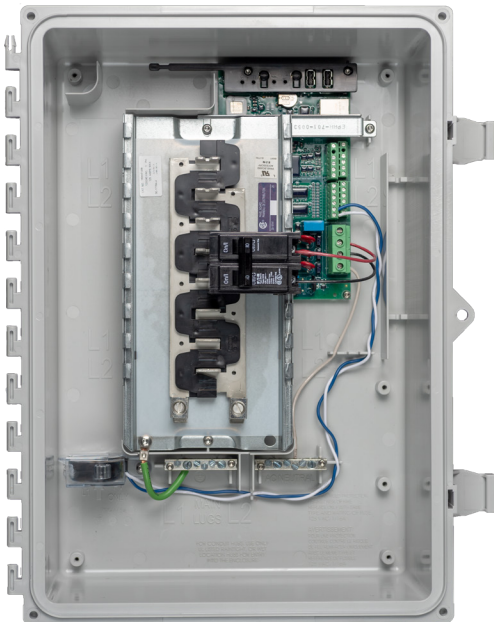


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By Michael Kyne at 3:01 pm, Jun 16, 2023

Enphase IQ Combiner 3

(X-IQ-AM1-240-3)



The **Enphase IQ Combiner 3™** with Enphase IQ Envoy™ consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring

Simple

- Reduced size from previous combiner
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year warranty
- UL listed



LISTED

To learn more about Enphase offerings, visit enphase.com

Enphase IQ Combiner 3

MODEL NUMBER

IQ Combiner 3 X-IQ-AM1-240-3	IQ Combiner 3 with Enphase IQ Envoy™ printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional* consumption monitoring (+/- 2.5%).
------------------------------	--

ACCESSORIES and REPLACEMENT PARTS (not included, order separately)

Enphase Mobile Connect™ CELLMODEM-03 (4G / 12-year data plan) CELLMODEM-01 (3G / 5-year data plan) CELLMODEM-M1 (4G based LTE-M / 5-year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.)
--	---

Consumption Monitoring* CT CT-200-SPLIT	Split core current transformers enable whole home consumption metering (+/- 2.5%).
--	--

Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
--	---

EPLC-01	Power line carrier (communication bridge pair), quantity 2
---------	--

XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)
---------------	---

XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3
---------------	---

ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed
Max. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy
Production Metering CT	200 A solid core pre-installed and wired to IQ

REVIEWED

By Michael Kyne at 3:01 pm, Jun 16, 2023

MECHANICAL DATA

Dimensions (WxHxD)	49.5 x 37.5 x 16.8 cm (19.5" x 14.75" x 6.63")
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate
Wire sizes	<ul style="list-style-type: none"> • 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)

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INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) or CELLMODEM-M1 (4G based LTE-M) (not included)

COMPLIANCE

Compliance, Combiner	UL 1741 CAN/CSA C22.2 No. 107.1 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

* Consumption monitoring is required for Enphase Storage Systems.

To learn more about Enphase offerings, visit enphase.com



Main

Product or component type	Enclosure
Range of product	QO
Enclosure type	Enclosure
Line Rated Current	100 A
Number of spaces	2
Short-circuit current	22 kA
Number of circuits	2
Number of tandem circuit breakers	0
Phase	1 phase

Complementary

NEMA degree of protection	NEMA 3R outdoor
Cover type	Surface cover
Device composition	Grounding bar (ordered separately)
Material	Tin plated copper busbar
Enclosure material	Welded galvanized steel
Surface finish	Baked enamel grey
Box number	10R
Product certifications	UL listed
Height	13.19 in (335 mm)
Width	6.93 in (176 mm)

Environment

Offer Sustainability

Not Green Premium product	Not Green Premium product
Will be Compliant on 3Q2014	Will be Compliant on 3Q2014 Will be Compliant on 3Q2014
Reference not containing SVHC above the threshold	Reference not containing SVHC above the threshold

Contractual warranty

Warranty period	18 months
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