APPLICATION FOR BUILDING PERMIT

The Village of Irvington | 85 Main St | Irvington NY 10533

Application Number:	970	Date:	12/08/2022
Job Location:	24 S BUCKHOUT ST	Parcel ID:	2.80-29-2
Property Owner:	ROOS, JENNIE P. & ROOS, ROY	Property Class:	THREE FAMILY RES
Occupancy:	One/ Two Family	Zoning:	
Common Name:			

Applicant	**Contractor**
Katherine Weisburg	Katherine Weisburg
Momentum Solar	Momentum Solar
45 Fairchild AvenuePlainview NY 11803	45 Fairchild Avenue Plainview NY 11803
631-536-4100	631-536-4100

Description of Work

Type of Work:	Solar Panels	Applicant is:	Contractor
Work Requested by:	The Owner	In association with:	
Cost of Work (Est.):	45000.00	Property Class:	THREE FAMILY RES

Description of Work

INSTALLATION OF SOLAR PANELS; ROOFTOP, RAILLESS, GRID TIED, 25 MODULES, 9.125 KW

Please Note: Completing the application does not constitute a permit to commence construction. To obtain your permit follow the instructions on the instruction page provided on page 3.

Job Location: 24 S BUCKHOUT ST Parcel Id: 2.80-29-2

AFFIDAVIT OF APPLICANT

I **Katherine Weisburg** being duly sworn, depose and says: That s/he does business as: **Momentum Solar** with offices at: **45 Fairchild Avenue Plainview NY 11803** and that s/he is:

- ☐ The owner of the property described herein.
- ☐ The _____ of the New York Corporation _____ with offices at: _____ duly authorized by resolution of the Board of Directors, and that said corporation is duly authorized by the owner to make this application.
- ☐ A general partner of _____ with offices _____ and that said Partnership is duly authorized by the Owner to make this application.
- ☐ The Lessee of the premises, duly authorized by the owner to make this application.
- ☐ The Architect of Engineer duly authorized by the owner to make this application.
- ☑ The contractor authorized by the owner to make this application.

That the information contained in this application and on the accompanying drawings is true to the best of his knowledge and belief. The undersigned hereby agrees to comply with all the requirements of the New York State Uniform Fire Prevention and Building Code, the Village of Irvington Building Code, Zoning Ordinance and all other laws pertaining to same, in the construction applied for, whether or not shown on plans or specify in this application.

Sworn to before me this 8th day of December of 2022

/ HH60912

Notary Public / Commission of Deeds

Applicant's Signature
Roy E Roos

OWNER'S AUTHORIZATION

I **ROOS, JENNIE P. & ROOS, ROY** as the owner of the subject premises and have authorized the contractor named above to perform the work under the subject application.

Owner phone number 9145234547 Owner email address reroos1964@gmail.com

☐ Roy Roos R E Roos I hereby acknowledge that it is my responsibility as the **property owner** to ensure that if the permit (if issued) receives a Final Certificate of Approval from the Building Department and further that if a Final Certificate of Approval is not obtained upon completion of the construction, a property violation may be placed on the property for which this permit is being requested.

Sworn to before me this 8th day of December of 2022

/ HH60912

Notary Public / Commission of Deeds

Applicant's Signature

JOSE CARABALLO
Notary Public - State of Florida
Commission # HH60912
Expires on November 5, 2024

Notarized online using audio-video communication

INSTRUCTIONS

REQUIREMENTS FOR OBTAINING A PERMIT:

The following items must be submitted in order to obtain a Building Permit:

1. One (1) Building Permit application signed by the owner or a notarized Agent Letter.
2. One (1) property survey (signed and sealed), reflecting existing conditions.
3. Two (2) sets of construction drawings and specifications, including existing and proposed conditions, state design criteria, structural and architectural details, plans, and cross sections, mechanical, electrical, and plumbing drawings (signed and sealed by a likened professional).
4. One USB with all plans (with Licensed Professionals certification/stamp) and specifications in PDF (file size must be less than 25MB).
5. Copy of approved site plan from the Irvington Planning Board when applicable (required on all increases of FAR, footprint, coverage, driveways and increases of cubic content under a roof).
6. Approval by the Architectural Review Board (ARB) when applicable. An additional five (5) sets of construction drawings and specifications (please see ARB requirements (available on the village web site www.irvingtonny.gov) prior to submission).
7. Visit the Village of Irvington website www.irvingtonny.gov for additional check list for solar panels, generators, underground propane tanks, signs and awnings(found in forms and documents in the Building & Planning General Information folder).
8. Village Zoning Code is available on the Village website: www.irvingtonny.gov.
9. Provide evidence that the application meets the NYS Energy code as described by www.dos.state.ny.us/code/energycode/overview.htm

Contractor Requirements in order to obtain a Building Permit:

10. Contractor's Certificate of Liability listing the Village of Irvington as the Certificate Holder with no disclaimer in the description other than certificate holder is named additional insured (any additional comments will not be accepted).
11. Contractor's Workers Compensation C-105 form (or equivalent) listing the Village of Irvington as Certificate Holder.
12. Copy of Contractor's Westchester County Home Improvement License.
13. All information above uploaded into permit application with the contractor's contact information, including mailing address, phone number, and email address.
14. Contractor's signature on Affidavit of Contractor (required prior to issuance of the permit).

Please Note:

-State Law requires that the contractor submits a copy of Workman's Compensation as required by the New York State Disability Insurance naming the Department of Buildings, Village of Irvington as certificate holder and showing coverage for general contacting and the locations covered by such insurance. If structure is to be demolished a copy of Liability Insurance must also be submitted.

- Please be advised under State and Municipal Laws, the Workman's Compensation and Disability benefits insurance must be submitted on separate state approved forms. The "Acord Form" is no longer acceptable as proof of Workman's Compensation coverage. Further information or questions may be answered by calling the NYS Bureau of Compliance at (518) 486-6307 or by visiting their website or by contacting your insurance provider.

FEES ASSOCIATED WITH BUILDING PERMIT APPLICATION(All fees must be paid at time of application):

Fee schedule

Building Permit (Non-Refundable)

* Application fee $85 ___85___
* Permit fee $17 per thousand dollars ($1000) of estimated cost of construction, or fraction thereof _____

• Inspection Fees (as applicable)

- Insulation: $50
- Solid Fuel: $50
- Foundation and footing drain: $50
- Energy Code Compliance: $50
- Sediment and erosion control: $50
- Footing: $50
- Preparation for concrete slabs and walls: $50
- Footing: $50
- Preparation for concrete slabs and walls: $50
- Framing: $50
- Building systems, including underground and rough-in: $50
- Fire resistant construction and penetrations: $50
- Final Inspection for C.O.: $50
- State and local laws (per re-inspection): $50

Total Inspections _____

* Certificate of Occupancy Fees: One dollar ($1.00) per thousand dollars of estimated cost. Minimum Fee $25.00
* Permit Revisions or Amendment: $50.00 (plus $17 per thousand ($1000), of the estimated cost of construction and any additional inspections fees). _____

* Re-inspection fee for work not ready at time of inspection or not in compliance: $50 _____
* Applications for Undocumented Work/ Legalizing: Applications to legalize work done prior toapplying for and receiving a building permit shall pay double all applicable fees and inspections, including the cost of construction based on the cost of all proposed work being legalized at the time of application. Minimum fee $500.00. _____

(To be collected at time of submission of application)Total _____

(Note: pursuant to 224-54A all permits are valid for one (1) year from date on permit
Any permit that expires will be subject to additional fees.)

VILLAGE OF IRVINGTON
BUILDING DEPARTMENT
85 MAIN STREET
IRVINGTON, NEW YORK 10533
TEL: (914) 591-8335 • FAX: (914) 591-5870

PHOTOVOLTAIC (PV SOLAR) RESIDENTIAL SYSTEMS PERMIT APPLICATION CHECK LIST

Revised June 7, 2017

It is suggested that all applicants applying for a permit read and understand the manufacture installation instructions prior to applying for a building permit and attached ARB guide lines and Village code for Solar Energy Equipment.

REQUIREMENTS TO APPLY FOR A PHOTOVOLTAIC (PV SOLAR) SYSTEM PERMIT

- ✓ 1) Apply on line at www.irvingtonny.gov for a mechanical permit, under building permits and along with your application, submit to the building department the following;
- ✓ 2) Owners phone number and email address entered in the online permit application
- ✓ 3) Evidence of Workers Compensation Insurance (on a C-105 or equivalent)
- ✓ 4) Evidence of Liability Insurance naming the Village of Irvington additional insured
- ✓ 5) A copy of the contractors Westchester County Department of Consumer Protection License
- ___ 6) Pursuant to 9-12-A. provide evidence of notice to adjacent properties owners not less than 10 days prior to the meeting (see attached code section for more details)
- ✓ 7) Submit permit fee: (all fees must be paid at time of submission)
  - ✓ $85 application fee
  - ___ $200 for systems up to 5 kilowatts
  - ✓ $450 for systems above 5 kilowatts and less than 10 kilowatts
  - ___ $700 for systems above 10 kilowatts and less than 20 kilowatts
  - ___ $700 plus $250 per additional 10 kilowatts above 20 for systems above 20 kilowatts
  - ___ $75 Certificate of Completion inspection and fee
- ✓ 8) An affidavit from a NYS licensed professional detailing and certifying that the existing structure meets or exceeds the minimum load requirement's as per TABLE R301.2(1) for wind and load before and after installation of the proposed equipment or the proposed upgrades to the existing structure to accomplish the aforesaid.
- ✓ 9) Drawings (signed and sealed by a NYS licensed professional) of the roof plan showing the following criteria;
  - a. ___ Showing all proposed PV panels on all proposed roof surfaces.
  - b. ___ Showing all equipment on all elevations including
  - c. ___ Show / list all roof connectors and flashing details
  - d. ___ Show compliance with section R902.4 (fire classification in accordance with UL1703 and 3' from any lot line)
  - e. ___ Show compliance with sections R324.3.1 through R324.7.2.5 and NFPA 70 (installation)
  - f. ___ Show compliance with section R324.7 (access and pathways) (see attachment)
  - g. ___ Show compliance with section R324.7.2.1-6. (roof access points) (see attachment)
  - h. ___ Show compliance with section R324.7.3 (ground access areas) (see attachment)
  - i. ___ Show compliance with section R324.7.4 (single ridge roofs *when applicable*) (see attachment)
  - j. ___ Show compliance with section R324.7.5 (hip roofs *when applicable*) (see attachment)
  - k. ___ Show compliance with section R324.7.6 (roof with valleys *when applicable*) (see attachment)
  - l. ___ Show compliance with section R324.7.7 (allowance for smoke ventilation operations) (see attachment)
  - m. ___ Show a Fire Department AC disconnect, located outside by the Utility meter on all systems.
- ✓ 10) Provide a drawing or manufactures cut sheets of array mounting hardware and interconnection diagram and specifications.
- ✓ 11) Provide a drawing or manufactures cut sheets of the unit mount and roof penetration's flashing system.
- ✓ 12) 3 wire diagram showing all proposed equipment as governed by the National Electrical Code (NEC)
- ✓ 13) Provide a diagram showing all proposed labels and labeling locations including; Solar AC Disconnect, Inverter Output, Connection Warning, Duel Power Source Warning, Solar AC Combiner Panel, Solar PV Circuits Only, Solar Production meter. (see attachment)
- ✓ 14) Provide snow guards on panels were snow has the potential of sliding of the panel into a neighbor's property
- ✓ 15) Pictures of dwelling showing photo shopped arrays on the structure.
- ✓ 16) Provide a drawing or photo shop picture of all proposed equipment on all effected elevations (including FD emergency disconnect switch)
- ✓ 17) A Fire Department AC disconnect, located outside by the Utility meter on all systems.

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85 MAIN STREET
IRVINGTON, NEW YORK 10533
TEL: (914) 591-8335 • FAX: (914) 591-5870

/ 18) Separate Electrical Permit application by a Westchester County Department of Licensing, licensed Electrician with required insurances and the appropriate fee (must be filed by the licensed contractor, see village application for further details).
✓ 19) Submit signed check list with submission and appropriate building permit fee.
✓ 20) Applicant has provided seven copies of the entire submittal for Architectural Review Board approval.

Applicant Affidavit:
Applicants Name: Cameron Christensen
Applicants Address: 45 Fairchild Avenue
Plainview NY 11803
Applicants Phone # 516-218-5824
Applicants Email permits LI@momentumsolar.com

Applicant Name: Cameron Christensen **Signature:** _____ **Date:** 12/14/2022 **By signing this affidavit I attest to have read the attached Solar Energy Equipment Code and the Solar Equipment Guidelines manufactures installation instructions and that all information asked for above has been submitted and that the submitted information is correct.**

General Contractor Affidavit:
Contractors Name: Cameron Christensen - Momentum Solar
Contractors Address: 45 Fairchild Avenue
Plainview NY 11803
Contractors Phone # 516-218-5824
Contractors Email permits LI@momentumsolar.com

General Contractor Name: Cameron Christensen **Signature:** _____ **Date:** 12/14/2022 **By signing this affidavit I attest to being the general contractor of record for this application and will be responsible for oversite and direct supervision of same, and will maintain a valid Westchester County Department of Consumer Protection License, a valid for Workers Compensation Policy and a General Liability Policy listing the Village of Irvington as Certificate Holder and additional insured with no conditions until such time I apply for and receive a Certificate of Completion.**

Electrical Contractor Affidavit:
Electrical Contractors Name: Jeffrey Marinello
Electrical Contractors Address: 45 Fairchild Avenue
Plainview NY 11803
Electrical Contractors Phone # 516-218-5824
Electrical Contractors Email permits LI@momentumsolar.com

Electrical Contractor Name: Jeffrey Marinello **Signature:** _____ **Date:** 12/14/2022 **By signing this affidavit I attest to being the electrical contractor of record for this application and will be responsible for oversite and direct supervision of same, and will maintain a valid Westchester County Electrical License, a valid for Workers Compensation Policy and a General Liability Policy listing the Village of Irvington as Certificate Holder and additional insured with no conditions until such time I apply for and receive a Certificate of Completion.**

Note: Applications for all exterior elevation changes including photovoltaic solar systems are required to apply for, make a presentation in front of, and receive approval from the Village of Irvington Architectural Review Board (ARB) prior to issuance of a building permit. The ARB meetings are the second and fourth Mondays of the month, with a deadline for submissions one week prior to the meetings (see village web site for confirmation of meetings). Seven sets of copies of the entire application are required to be submitted at the deadline with appropriate fee at the time of submission.

Note: The following list above is given to assist in the application process. It is not intended to be a replacement for the Building or Zoning Code, County or State Regulations, or Consolidate Edison Requirements. Unique and Special projects may require additional information.

Hours of Construction: Monday-Friday 7AM-7PM; Saturday 9AM-5PM; Sunday and holiday's construction is prohibited
Only completed applications will be accepted with attached insurance certificates and County license

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85 MAIN STREET
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Web Site: www.Irvingtonny.gov

LICENSED PROFESSIONAL AFFIDAVIT for RESIDENTIAL SOLAR SYSTEMS

TO BE SUBMITTED AS PART OF THE PERMIT APPLICATION

AFFIDAVIT OF ARCHITECT OR ENGINEER

State of New York } ss.:
County of Westchester }

I the undersigned, under penalty of perjury, do hereby affirm:

1. I am an the (architect)(engineer) duly licensed in the State of New York

2. I am the NYS licensed design professional named in the Application for which a Building Permit for a residential solar system located at 29 South Bicknell Street Irvington, New York 10533.

3. I have inspected the existing building and structure and find that the existing structure with the proposed solar panel installation and connections to the existing roof meet the minimum criteria set forth in;
   Applicable Codes: 2015 Residential Code of New York State
   Design Roof Load: 30 psf live load, 115 psf dead load, 45 psf total load
   Design Wind Load: 120 mph, 35psf
   OR have proposed additional measures to insure compliance with above.

4. I have reviewed the following submitted drawings and/or manufacture specifications as part of the submission
   List applicable plans with revision dates: _____(rev date)_____
   _____(rev date)_____
   _____(rev date)_____
   _____(rev date)_____
   _____(rev date)_____
   _____(rev date)_____

5. The plans, drawings and specifications which the Building Permit is requested and listed above, as submitted (a)-were prepared by me or under my supervision, and (b)-to the best of my knowledge comply with the requirements of the Residential Building Code of New York State as adopted by the Village of Irvington, applicable design loads and all other applicable laws, rules and regulations governing building construction.

Signature _____
Mina Maker
(Architect) (Engineer)

Sworn to before me this
14th day of Dec, 2022

_____
Notary Public

AARON HO
NOTARY PUBLIC-STATE OF NEW YORK
No. 01HO6423581
Qualified in Queens County
My Commission Expires 10-18-2025

Westchester County Electrical Licensing Board
Westchester County Consumer Protection

Master Electrician License 2022

Jeffrey M Marinello
D.O.B: 4/2/1972
Company:
Pro Custom Solar, LLC/Momentum Solar
3096 Hamilton Blvd
South Plainview, NJ 07080

License No. 1842
Expires on:12/31/2022

Peter Borducci

George Latimer
Westchester County Executive

Westchester gov.com

James Maisano
Director, Consumer Protection

Department of Consumer Protection
Home Improvement License

PRO CUSTOM SOLAR LLC

MOMENTUM SOLAR

45 FAIRCHILD AVENUE

PLAINVIEW,NY-11803

This license is issued in accordance with Article XVI of the Westchester County Consumer Protection Code and is valid only upon presence of the official department seal. Proof of citizenship or immigration status is not required for issuance of this license.
NOT FOR FEDERAL PURPOSES

License Number

WC-29454-H17

Department of Consumer Protection
Westchester County-NY

Date of Expiration

03/17/2023

LITHO IN U.S.A.

NEW YORK STATE | **Workers' Compensation Board**

CERTIFICATE OF INSURANCE COVERAGE
NYS DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

PART 1. To be completed by NYS Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name & Address of Insured (use street address only)

Momentum Solar
45 Fairchild Ave Suite B
Plainview, NY 11803

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)*

1b. Business Telephone Number of Insured

732-902-6224

1c. Federal Employer Identification Number of Insured or Social Security Number

27-1242539

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)

Village of Irvington
85 Main street
Irvington, NY 10533

3a. Name of Insurance Carrier

Metropolitan Life Insurance Company

3b. Policy Number of Entity Listed in Box 1a

234439

3c. Policy Effective Period:

October 1, 2022 to September 30, 2023

4. Policy provides the following benefits:

- [X] A. Both disability and Paid Family Leave benefits.
- [ ] B. Disability benefits only.
- [ ] C. Paid Family Leave benefits only.

5. Policy covers:

- [X] A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.
- [ ] B. Only the following class or classes of employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS disability and/or Paid Family Leave benefits insurance coverage as described above.

Date Signed: **September 21, 2022** By: Suzy Davis

(Signature of insurance carrier's authorized representative or NYS licensed insurance agent of that named insurance carrier)

Telephone Number: SPU_Group_Contracts@metlife.com Name and Title: **Suzy Davis, State Plan Consultant**

IMPORTANT: If Boxes 4A and 5A are checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.

If Box 4B, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be emailed to PAU@wcb.ny.gov or it can be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by NYS Workers' Compensation Board (Only if Box 4B, 4C or 5B have been checked)

State of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability and Paid Family Leave Benefits Law (Article 9 of the Workers' Compensation Law) with respect to all of their employees.

Date Signed: _____ By: _____

(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number: _____ Name and Title: _____

Please Note: *Only insurance carriers licensed to write NYS disability and Paid Family Leave benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1.* ***Insurance brokers are NOT authorized to issue this form.***

DB-120.1 (12-21)

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in Box 3 on this form is certifying that it is insuring the business referenced in Box 1a for disability and/or Paid Family Leave benefits under the NYS Disability and Paid Family Leave Benefits Law. The insurance carrier or its licensed agent will send this Certificate of Insurance (Certificate) to the entity listed as the certificate holder in Box 2.

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is cancelled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from coverage indicated on this Certificate. (These notices may be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in Box 3c, whichever is earlier.

This Certificate is issued as a matter of information only and confers no rights upon the certificate holder. This Certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This Certificate may be used as evidence of a NYS disability and/or Paid Family Leave Benefits contract of insurance only while the underlying policy is in effect.

Please Note: Upon the cancellation of the disability and/or Paid Family Leave benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Insurance Coverage for NYS disability and/or Paid Family Leave Benefits or other authorized proof that the business is complying with the mandatory coverage requirements of the NYS Disability and Paid Family Leave Benefits Law.

NYS DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

§220. Subd. 8

(a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and not withstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand and twenty-one, the payment of family leave benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand eighteen, the payment of family leave benefits for all employees has been secured as provided by this article.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/15/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Lisa MacDonald AAI CISR	
Brown & Brown Metro, LLC 2000 Midlantic Dr, Suite 440 Mt Laurel NJ 08054	PHONE (A/C, No, Ext): (732) 504-2001	FAX (A/C, No): (732) 504-2011
	E-MAIL ADDRESS: Lisa.MacDonald@bbrown.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Pro Custom Solar LLC 45 Fairchild Ave , Suite B Plainview NY 11803	INSURER A : Colony Insurance Company	39993
	INSURER B : Zurich American Insurance Company	16535
	INSURER C : Evanston Insurance Company	35378
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 22-23 NY w/ updated CAU **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR [X] Pollution $1,000,000 (claims made) [X] Professional $1M (claims made) GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER: Per Proj Agg Cap $5M			PACES4257993	04/21/2022	04/21/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Deductible	$ 1,000,000 $ 250,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 50,000
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			BAP 1873088-03	07/21/2022	04/21/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 2,000,000 $ $ $
C	[ ] UMBRELLA LIAB [X] OCCUR [X] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $			MKLV4EFX103881	04/21/2022	04/21/2023	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A					PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $
C	Excess Limits Clarification			MKLV4EFX103881	04/21/2022	04/21/2023	CGL $5M xs $1M Auto $4M xs $2M	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Village of Irvington
85 Main Street
Irvington NY 10533

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

EBA

Additional Named Insureds

Other Named Insureds
Momentum Solar Energy Services LLC
Momentum Home Services Holdings Company LLC
Momentum Roofing and Solar LLC
Momentum Solar LLC

XX. WHO IS AN INSURED

Applicable to Coverage Part 1 and Part 2:

Each of the following is an insured under Coverage Part 1 and Part 2:

1. If you are designated in the Declarations as:

a. An individual, you and your spouse are insureds, but only with respect to the conduct of a business of which you are the sole owner.

b. A partnership or joint venture, you are an insured. Your members, your partners, and their spouses are also insureds, but only with respect to the conduct of your business.

c. A limited liability company, you are an insured. Your members are also insureds, but only with respect to the conduct of your business. Your managers are insureds, but only with respect to their duties as your managers.

d. An organization other than a partnership, joint venture or limited liability company, you are an insured. Your **executive officers** and directors are insureds, but only with respect to their duties as your officers or directors. Your stockholders are also insureds, but only with respect to their liability as stockholders.

e. A trust, you are an insured. Your trustees are also insureds, but only with respect to their duties as trustees.

2. With respect to all coverages other than Coverage 1F (Employee Benefits Administration Liability), each of the following is also an insured:

a. Your **volunteer workers**, but only while performing duties related to the conduct of your business, or your **employees,** other than either your **executive officers** (if you are an organization other than a partnership, joint venture or limited liability company) or your managers (if you are a limited liability company), but only for acts within the scope of their employment by you or while performing duties related to the conduct of your business. However, none of these **employees** or **volunteer workers** is an insured for:

(1) **Bodily injury** or **personal and advertising injury**:
(a) To you, to your partners or members (if you are a partnership or joint venture), or to your members (if you are a limited liability company);

(b) For which there is any obligation to share damages with or repay someone else who must pay damages because of the injury described in subparagraph (1) (a) above; or

(c) Arising out of the providing or failure to provide professional health care services except incidental health care services provided by any physician, dentist, nurse, emergency medical technician or paramedic who is employed by you to provide such services and provided you are not engaged in the business of providing such services.

(2) **Property damage** or **environmental damage** to property:
(a) Owned, occupied or used by; or

(b) Rented to, in the care, custody or control of, or over which physical control is being exercised for any purpose by you, any of your **employees**, **volunteer workers**, any partner or member (if you are a partnership or joint venture), or any member (if you are a limited liability company).

b. Any person (other than your **employee** or **volunteer worker**), or any organization while acting as your real estate manager.

c. Any person or organization having proper temporary custody of your property if you die, but only:

(1) With respect to liability arising out of the maintenance or use of that property; and

(2) Until your legal representative has been appointed.

d. Your legal representative if you die, but only with respect to duties as such. That representative will have all your rights and duties under this Policy.

3. Any subsidiary, associated, affiliated or allied company or corporation, including subsidiaries thereof, of which you have more than 50% ownership interest as of the **inception date** is a Named Insured; however, such entities shall cease to be a Named Insured if you cease to maintain more than a 50% ownership interest.

4. Any organization you newly acquire or form, other than a partnership, joint venture or limited liability company, and over which you maintain ownership or majority interest, will qualify as a Named Insured if there is no other similar insurance available to that organization. However:

a. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the **policy period**, whichever is earlier;

b. Coverage under this Policy does not apply to any **bodily injury**, **property damage**, **environmental damage** or **pollution condition** that took place, or an offense or **wrongful act** committed, before you acquired or formed the organization.

5. Any person or organization with whom you agree to include as an insured pursuant to a written contract, written agreement or permit is an insured, but: (i) only with respect to **bodily injury**, **property damage**, **personal and advertising injury**, **environmental damage** or **clean-up costs** caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf and arising out of your operations, **your work**, equipment or premises leased, rented or owned by you, or **your products** which are distributed or sold in the regular course of a vendor's business; (ii) only for the lesser of the applicable limits of liability set forth in section XXI. LIMITS OF LIABILITY AND DEDUCTIBLE or the minimum limits of liability required by such written contract; (iii) the insurance afforded only applies to the extent permitted by law; (iv) the insurance afforded will not be broader than that which you are required by the contract or agreement to provide for such insured. However:

a. A vendor is not an insured as respects **bodily injury, property damage, environmental damage** or **clean-up costs** arising out of:

(1) Damages the vendor is obligated to pay by reason of the assumption of liability in a contract or agreement except for any damages that the vendor would have been obligated to pay in the absence of the contract or agreement;

(2) Any express warranty unauthorized by you;

(3) Any physical or chemical change in the product made intentionally by the vendor;

(4) Repackaging, except when unpacked solely for the purpose of inspection, demonstration, testing, or the substitution of parts under instructions from you, and then repackaged in the original container;

(5) Any failure to make inspections, adjustments, tests or servicing as the vendor has agreed to make or normally undertakes to make in the usual course of business, in connection with the distribution or sale of the products;

(6) Demonstration, installation, servicing or repair operations, except such operations performed at the vendor's location in connection with the sale of the product;

(7) Products which, after distribution or sale by you, have been labeled or relabeled or used as a container, part or ingredient of any other thing or substance by or for the vendor; or

(8) The sole negligence of the vendor for its own acts or omissions or those of its **employees** or anyone else acting on its behalf. However, this subparagraph does not apply to:

(a) the exceptions contained in subparagraphs (4) or (6) above; or

(b) such inspections, adjustments, tests or servicing as the vendor has agreed to make or normally undertakes to make in the usual course of business, in connection with the distribution or sale of the products.

6. A manager or lessor of premises, a lessor of leased equipment, or a mortgagee, assignee, or receiver is not an insured as respects **bodily injury, property damage, environmental damage, personal and advertising injury** or **clean-up costs**:

a. Arising out of any **occurrence,** offense, **pollution condition**, or **wrongful act** that takes place after the equipment lease expires or you cease to be a tenant; or

b. Arising out of structural alterations, new construction or demolition operations performed by or on behalf of the manager or lesser of premises, or mortgagee, assignee, or receiver.

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF
NYS WORKERS' COMPENSATION INSURANCE COVERAGE

1a. Legal Name Address of Insured (use street address only) CoAdvantage Resources 51, Inc. Labor Contractor, for leased workers to: Momentum Solar, LLC 45 Fairchild Ave Ste B Plainview, NY 11803 Work Location of Insured (Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)	1b. Business Telephone Number of Insured (866) 854-5423 1c. NYS Unemployment Insurance Employer Registration Number of insured 1d. Federal Employer Identification Number of Insured or Social Security Number 27-1242539
2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) Village of Irvington 85 Main ST Irvington, NY 10533	3a. Name of Insurance Carrier American Zurich Insurance Company 3b. Policy Number of Entity Listed in Box "1a" WC 97-10-937-00 3c. Policy effective period 7/21/2022 to 4/1/2023 3d. The Proprietor, Partners, or Executive Officers are included. (Only check box if all partners/officers inclued) X all excluded or certain partners/officers excluded.

This certifies that the insurance carrier indicated above in box "3 insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. (To use this form, New York (NY) must be listed under Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy). The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The insurance carrier must notify the above certificate holder and the Workers Compensation Board within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate. (These notices may be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box 3c, whichever is earlier.

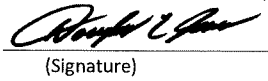
This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Workers' Compensation contract of insurance only while the underlying policy is in effect.

Please Note: Upon cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, licese or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier refernced above and that the named insured has the coverage as depicted on this form.

Approved by: Douglas Jones
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by:  11/15/2022
(Signature) (Date)

Title: Vice President

Telephone number of authorized representative or licensed agent of insurance carrier: (480)951-4177

Please Note: Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are NOT authorized to issue it.

Mina Makar

Engineer-PE

Pro Custom Solar LLC
3096B Hamilton Blvd
South Plainfield, NJ 07080

732-902-6224

November 20, 2022

Re: Proposed Photovoltaic Solar Panel Installation
Roy Roos
24 S BUCKHOUT ST
IRVINGTON, NY 10533

Dear Plan Reviewer:

Certification: I have reviewed the engineering testing reports for the racking and attachments to be used on this project and I certify that the products are capable of supporting the code required loads and are suitable for this installation when installed in strict compliance with the manufacturers printed instructions.

Regarding the solar panel array installation on the above referenced project please note that an inspection was performed by a representative of the Architect/Engineer of Record, and analysis of the existing structure was conducted. There is adequate structural capacity for the installation of the array with the following recommendations:

1. The array will be installed on the existing roof. The roof framing is constructed of 2"x6" wood rafters @22" o.c. spanning 9'4" with 1/2" plywood sheathing. The new array (See Site map by contractor) will add 2.63 Lb. / Sf. overall to the roof. The existing structure is sufficient to support the new loads associated with the additional weight & wind resistance. No additional structural support is required for the roof structure.

2. The attachment system shall be secured to the roof and shall be in strict compliance with manufacturers printed instructions. The attachment system shall be UL 1703 approved tested. Provide 6 mil. vapor barrier between dissimilar metals. Provide water tight gasket and sealant at all penetrations. Attachments shall follow panel rows as specified by the system manufacturer's installation manual. The panel angle shall match the roof slope. Reference summary table below:

Roof Type:	Shingle	Fastener Max Spacing (in.)		
Attachment System:	"Ecofasten Solar" "Rock-IT" ®	Wind Zone 1	Wind Zone 2	Wind Zone 3
Fastener Info:	min. 5/16" x 4" long stainless-steel lags with a min. embedment of 3" into the rafters	48	32	32

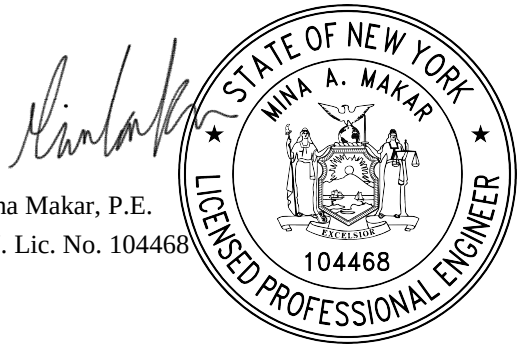
3. Solar Modules shall be UL-1703 rated. Refer to manufacturers specifications sheets.

4. Positive drainage of the system shall be so as not to void the existing roof warranty.

5. All aspects of the installation shall comply with the 2020 Residential Code of New York State, ASCE-7-16, 2017 National Electric Code, All Local Governing County and Municipal Ordinances adopted by reference or enacted by law.

6. Please refer to the attached structural calculations.

If you have any questions relating to this matter, please contact me at your earliest convenience. Thank you.



Mina Makar, P.E.
NY. Lic. No. 104468

Mina Makar

Engineer-PE

Pro Custom Solar LLC
3096B Hamilton Blvd
South Plainfield, NJ 07080

732-902-6224

November 20, 2022

Gravity Load Calculation Criteria

Structural Design Loads per ASCE 7-16

Dead Loads = 10 psf + 2.6 psf (new solar panels) = 12.6 psf
Roof Live Load = 20 psf
Ground Snow Load/Live Load = 30 psf

Wind Load Calculation Criteria

Wind Loads per ASCE 7-16, Ch. 30.4
Design wind pressure determined by Eq. 29.4-7:

Zone 1 = -24.6 psf	Roof Slope = 10 degrees	Roof Mean Height = 15 ft
Zone 2 = -32 psf	Basic Wind Speed = 115 mph	
Zone 3 = -36.9 psf	Exposure = B	

Per section 2.4.1, ASD combo = D + 0.6W:
Zone 1 = 2.6 psf + 0.6(-24.6 psf) = -12.2 psf
Zone 2 = 2.6 psf + 0.6(-32 psf) = -16.6 psf
Zone 3 = 2.6 psf + 0.6(-36.9 psf) = -19.5 psf

Check Attachment to Wood Rafter

Use 5/16 dia. Lag screw w/ 3" embedment into 2 in. wide roof rafter

Lag Screw Spacing:	Lag Screw Tributary Area:
Zone 1 = 48" o.c. max	Zone 1 = (48" o.c. max)^2 / 144 = 16 SF
Zone 2 = 32" o.c. max	Zone 2 = (32" o.c. max)^2 / 144 = 7.11 SF
Zone 3 = 32" o.c. max	Zone 3 = (32" o.c. max)^2 / 144 = 7.11 SF

Lag Screw Forces:		
Zone 1 = 12.2 psf x 16 SF = 195 lb	< W', OK	W = 266lb/in (Table 12.2A, 2015 NDS)
Zone 2 = 16.6 psf x 7.11 SF = 118 lb	< W', OK	Cd = 1.6 (Table 2.3.2, 2015 NDS)
Zone 3 = 19.5 psf x 7.11 SF = 139 lb	< W', OK	Ct = 1 (Table 2.3.3, 2015 NDS)
		W' = W x embed x Cd x Ct
		W' = 266 lb/in x 3 in. x1.6 x 1 = 1276.8 lb

PLAN KEY	
PV-1	COVER PAGE
PV-1(2)	COVER PAGE CONT.
PV-2	PANEL LAYOUT
PV-3	ELECTRICAL
PV-4	EQUIPMENT LABELS

SYSTEM INFORMATION	
MODULE	HANWHA Q.PEAK DUO BLK-G10+ 365
INVERTER	ENPHASE IQ8PLUS-72-2-US
RACKING	ECOFASTEN ROCK-IT
SYSTEM SIZE (DC)	3.285 KW
LOCATION	41.0387613,-73.8722976

GENERAL NOTES:

THIS PV SYSTEM HAS BEEN DESIGNED TO MEET THE MINIMUM DESIGN STANDARDS FOR BUILDING AND OTHER STRUCTURES OF THE ASCE 7-16, 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE, NEC 2017 AND ALL LOCAL CODES & ORDINANCES.

AN 18" WIDE (FREE OF SOLAR EQUIPMENT) SHALL BE PROVIDED ON BOTH SIDES OF THE ROOF. NOT FEWER THAN TWO PATHWAYS, ON SEPARATE ROOF PLANES FROM LOWEST ROOF EDGE TO RIDGE AND NOT LESS THAN 36 INCHES (914 MM) WIDE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, A PATHWAY NOT LESS THAN 36 INCHES WIDE (914 MM) SHALL BE PROVIDED FROM THE LOWEST ROOF EDGE TO RIDGE ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.

ROOF SHALL HAVE NO MORE THAN TWO LAYERS OF COVERING IN ADDITION TO THE SOLAR EQUIPMENT.

INSTALLATION OF SOLAR EQUIPMENT SHALL BE FLUSH MOUNTED, PARALLEL TO AND NO MORE THAN 6-INCHES ABOVE THE SURFACE OF THE ROOF.

WEIGHT OF THE INSTALLED SYSTEM SHALL NOT EXCEED MORE THAN 5-PSF FOR PHOTOVOLTAIC AND NO MORE THAN 6-PSF FOR RESIDENTIAL SOLAR HOT WATER SYSTEMS.

ANY PLUMBING VENTS ARE NOT TO BE CUT OR COVERED FOR SOLAR EQUIPMENT INSTALLATION. ANY RELOCATION OR MODIFICATION OF THE VENT REQUIRES A PLUMBING PERMIT AND INSPECTION.

INVERTER PLACEMENT:

SYSTEM UTILIZES "ENPHASE" MICRO-INVERTERS WITH RAPID SHUTDOWN CONTROL LOCATED ON THE BACK SIDE OF EACH MODULE.

BUILDING REVIEW NOTE:

TOWN BUILDING PLANS EXAMINER HAS RECEIVED THE ENCLOSED DOCUMENT FOR MINIMUM ACCEPTABLE PLAN SUBMITTAL REQUIREMENTS OF THE TOWN AS SPECIFIED IN THE BUILDING AND/OR RESIDENTIAL CODE OF THE STATE OF NEW YORK. THISREVIEW DOES NOT GUARANTEE COMPLIANCE OF THAT CODE. THAT RESPONSIBILITY IS GUARANTEED UNDER THE SEAL AND SIGNATURE OF THE NEW YORK LICENSED DESIGN PROFESSIONAL OF RECORD. THAT SEAL AND SIGNATURE HAS BEEN INTERPRETED AS AN ATTESTATION THAT, TO THE BEST OF THE LICENSEE'S BELIEF AND INFORMATION, THE WORK IN DOCUMENT IS:

1. ACCURATE
2. CONFORMS WITH GOVERNING CODES APPLICABLE AT THE TIME OF THE SUBMISSION.
3. CONFORMS WITH REASONABLE STANDARDS OF PRACTICE AND WITH VIEW TO THE SAFEGUARDING OF LIFE, HEALTH, PROPERTY AND PUBLIC WELFARE IS THE RESPONSIBILITY OF THE LICENSEE.

THE RESPONSIBLE LICENSED DESIGN PROFESSIONAL SHALL PROVIDE A SIGNED AND SEALED LETTER CERTIFYING THE INSTALLATION WAS INSPECTED AND CONFORMS TO THE PLANS AND REQUIREMENTS OF THE 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE. THIS INSPECTION AND CERTIFICATION LETTER SHALL BE PERFORMED AFTER INSTALLATIONS ARE COMPLETED AND SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

THE UL CERTIFICATE OF ELECTRICAL INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

BILL OF MATERIALS	
MODULES	9
INVERTERS	9
CLAMP ASSEMBLY	28
COUPLING ASSEMBLY	15
BONDING CLIP	7
ENPHASE COMBINER BOX	1
20A OCPD	1
SOLAR AC DISCONNECT	1
125A LINE TAPS	2

momentum SOLAR

PRO CUSTOM SOLAR LLC D.B.A. MOMENTUM SOLAR
3096 HAMILTON BLVD. BUILDING B, S.PLAINFIELD, NJ
(732) 902-6224, MOMENTUMSOLAR.COM

PROFESSIONAL ENGINEERING

MINA A. MAKAR, P.E. NY LICENSE # 104468 (732)-902-6224
3096B HAMILTON BLVDSOUTH PLAINFIELD, NJ 07080
ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL, TO ALTER AN ITEM IN ANY WAY.

CUSTOMER INFORMATION

ROY ROOS - MS113457

24 SOUTH BUCKHOUT STREET
IRVINGTON, NY 10533
9145234547

JURISTICTION: WESTCHESTER
UTILITY: CONED
UTILITY ACCT #:
UTILITY METER #:

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 3.285 KW
SYSTEM SIZE (AC): 2.61 KVA
9 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 365
(SAFE HARBOR MODULES: 0)
9 INVERTERS: ENPHASE IQ8PLUS-72-2-US

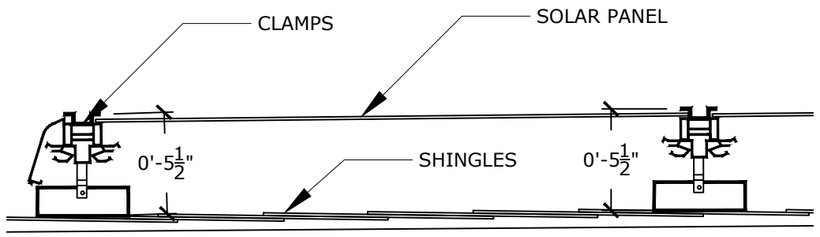
PROJECT INFORMATION

INITIAL	DATE: 11/18/2022	DESIGNER: WM
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

COVER PAGE

PV-1

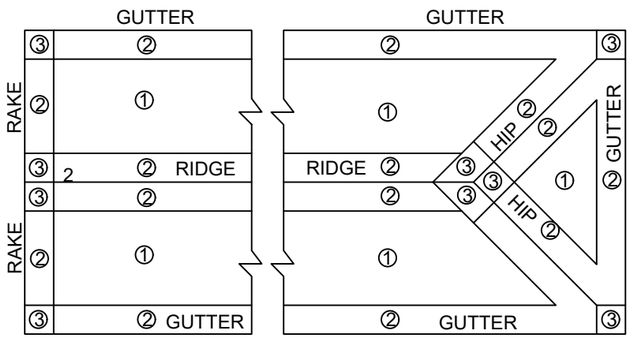
1. ALL WIND DESIGN CRITERIA ARE FOR LOW SLOPE ROOFS, GABLE AND HIP ROOFS CONSIDERED FROM AN ANGLE OF MIN. 9.5 ° ($\frac{2}{12}$) TO MAX. 45° ($\frac{12}{12}$) NOT TO EXCEED 30' MEAN ROOF HEIGHT ATTACHED WITH FASTENERS AS SPECIFIED BY THE MANUFACTURER.
2. SPAN TABLES ARE DERIVED FROM MECHANICAL LOAD TESTS PERFORMED BY THE MANUFACTURERS INDEPENDENT TESTING AGENCIES ON BEHALF OF THE MANUFACTURER.
3. ROOF SEALANTS SHALL CONFORM TO ASTMC920 AND ASTM 6511
4. ALL ATTACHMENTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.



CROSS SECTION OF ROOF SHOWING ATTACHMENT DETAILS

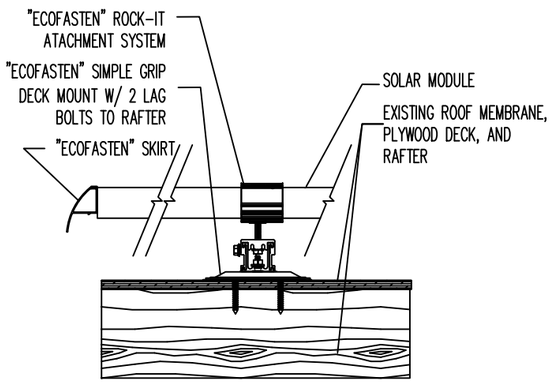
SCALE: 1-1/2" = 1"

ATTACHMENT SPACING EXCEED MANUFACTURERS SPECIFICATIONS FOR WIND LOADS AS PER ASCE 07-16. RISK CATEGORY II TOPOGRAPHIC EFFECTS B,C, & D AND ROOF WIND ZONES 1,2,& 3. ROOF ZONES 2 & 3 ARE WITHIN 48" OF ANY OUTER EDGE, HIP, RIDGE, OR GUTTER LINE FOR STRUCTURES 30'- 0" OR LESS MEAN ROOF HEIGHT.

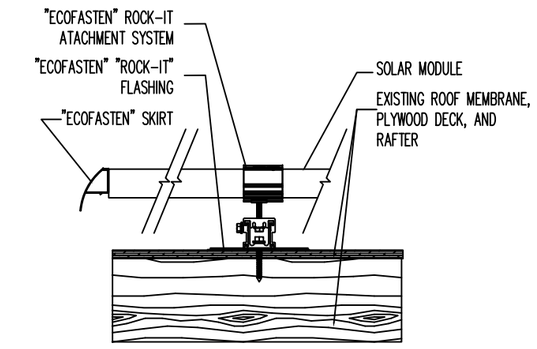


ROOF WIND ZONES AS PER IRC R301.2(7)
ROOF ZONES 2 & 3 ARE 48" FROM OUTTER ROOF EDGES, RIDGES, HIPS, RAKES, AND GUTTER EDGES FOR STRUCTURES BELOW 30'-0" MEAN ROOF HT.

TOTAL WEIGHT OF PV MODULES AND RAILS	376.65 LBS
TOTAL NUMBER OF ATTACHMENT POINTS	28
WEIGHT PER ATTACHMENT POINT	13.4517857142857 LBS
TOTAL SURFACE AREA OF PV MODULES	163.26 SQFT
DISTRIBUTED WEIGHT OF PV MODULE ON ROOF	2.31 LBS./SQFT

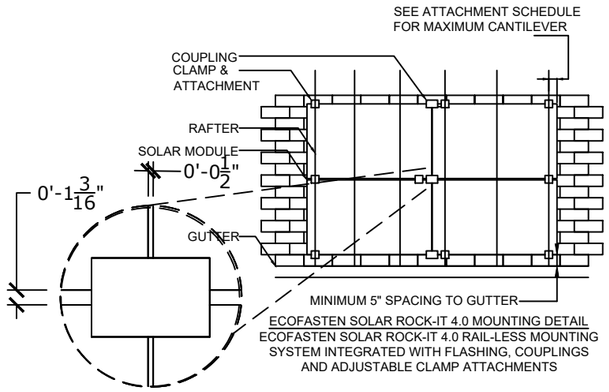


ALL COMPONENTS SHALL BE AS MANUFACTURED BY "ECOFASTEN SOLAR" AND INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED SPECIFICATIONS.

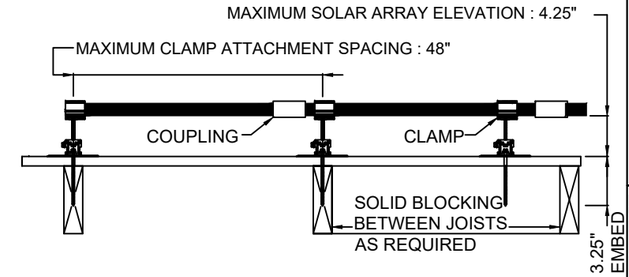


ALL COMPONENTS SHALL BE AS MANUFACTURED BY "ECOFASTEN SOLAR" AND INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED SPECIFICATIONS.

CLIMATIC & GEOGRAPHIC DESIGN CRITERIA TABLE R301.2(1)	
GROUND SNOW LOAD(LBS/SF)	30
SPEED (MPH)	120
TOPOGRAPHIC EFFECTS	B
SPECIAL WIND REGION	NO
WIND BORNE DEBRIS ZONE	2
SEISMIC DESIGN CATEGORY	C
CLIMATE ZONE	4A
WIND EXPOSURE CATEGORY	B



ECOFASTEN SOLAR ROCK-IT 4.0 MOUNTING DETAIL
ECOFASTEN SOLAR ROCK-IT 4.0 RAIL-LESS MOUNTING SYSTEM INTEGRATED WITH FLASHING, COUPLINGS AND ADJUSTABLE CLAMP ATTACHMENTS



STRUCTURAL STATEMENT:

THE EXISTING STRUCTURE IS ADEQUATE TO SUPPORT THE NEW LOADS IMPOSED BY THE PHOTOVOLTAIC MODULE SYSTEM INCLUDING UPLIFT & SHEAR.EXISTING RAFTER SIZES & DIMENSIONS CONFIRM TO 2020 NYS BUILDING CODE AND RESIDENTIAL CODE TABLE R802.5(1)-JOIST SPANS.

MOUNTING BRACKETS AND HARDWARE MEET OR EXCEED NEW YORK STATE CODE REQUIREMENTS FOR THE DESIGN CRITERIA OF THE TOWN.

HANWHA Q.PEAK DUO BLK-G10+ 365
365 WATT MODULE
67.6'' X 41.1'' X 1.26''
(SEE DATASHEET)

momentum SOLAR

PRO CUSTOM SOLAR LLC D.B.A. MOMENTUM SOLAR
3096 HAMILTON BLVD. BUILDING B, S.PLAINFIELD, NJ
(732) 902-6224, MOMENTUMSOLAR.COM

PROFESSIONAL ENGINEERING

STATE OF NEW YORK
MINA A. MAKAR
EXCELSIOR
104468
LICENSED PROFESSIONAL ENGINEER

MINA A. MAKAR, P.E. NY LICENSE # 104468 (732)-902-6224
3096B HAMILTON BLVDSOUTH PLAINFIELD, NJ 07080
ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL, TO ALTER AN ITEM IN ANY WAY.

CUSTOMER INFORMATION

ROY ROOS - MS113457

24 SOUTH BUCKHOUT STREET
IRVINGTON, NY 10533
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JURISTICTION: WESTCHESTER
UTILITY: CONED
UTILITY ACCT #:
UTILITY METER #:

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 3.285 KW
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9 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 365
(SAFE HARBOR MODULES: 0)
9 INVERTERS: ENPHASE IQ8PLUS-72-2-US

PROJECT INFORMATION

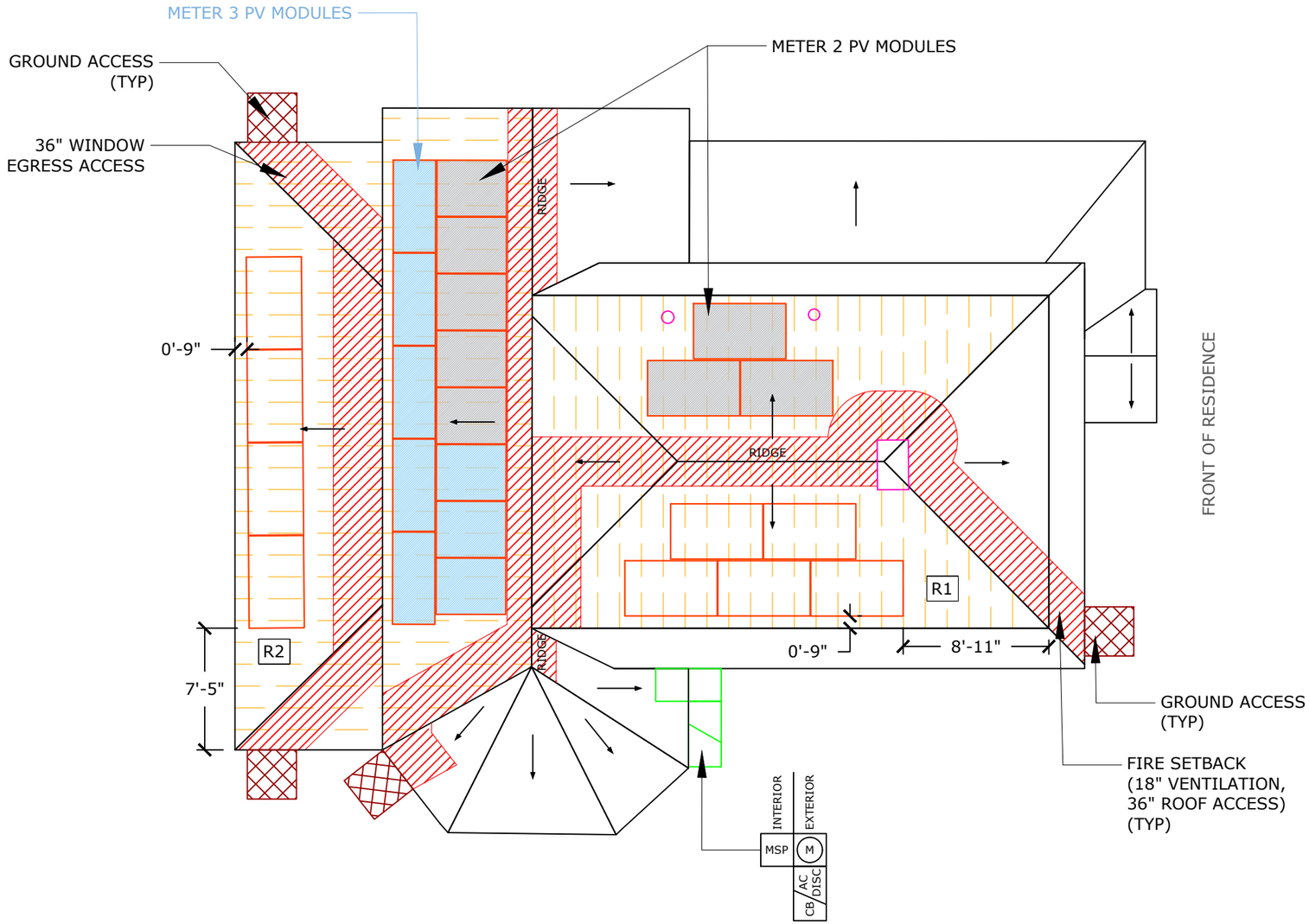
INITIAL	DATE: 11/18/2022	DESIGNER: WM
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

ATTACHMENT DETAIL

PV-1(2)

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

ROOF	MODULE COUNT	TILT	AZIMUTH	SHADING	LANDSCAPE MAX SPAN (ROOF AREA 1/2/3)	PORTRAIT MAX SPAN (ROOF AREA 1/2/3)
R1	5	10°	189°	96%	48 /32 /32	48 /32 /32
R2	4	11°	278°	76%	48 /32 /32	48 /32 /32



SYMBOL LEGEND

MSP	MAIN SERVICE PANEL		CHIMNEY
SP	SUB-PANEL		SKYLIGHT
M	UTILITY METER		VENT
CB / AC DISC	COMBINER BOX/AC DISCONNECT		PIPE VENT
UDC	UTILITY DISCONNECT		FAN
LC	LOAD CENTER		SATELLITE DISH
N3R	NEMA 3R BOX W/ ENVOY-S		FIRE SETBACKS
CB	COMBINER BOX		GROUND ACCESS
PF	PERFORMANCE METER		PITCH DIRECTION
	MODULE		

momentum SOLAR

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(732) 902-6224, MOMENTUMSOLAR.COM

PROFESSIONAL ENGINEERING

STATE OF NEW YORK · MINA A. MAKAR · EXCELSIOR · 104468 · LICENSED PROFESSIONAL ENGINEER

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ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL, TO ALTER AN ITEM IN ANY WAY.

CUSTOMER INFORMATION

ROY ROOS - MS113457
24 SOUTH BUCKHOUT STREET
IRVINGTON, NY 10533
9145234547

JURISTICTION: WESTCHESTER
UTILITY: CONED
UTILITY ACCT #:
UTILITY METER #:

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 3.285 KW
SYSTEM SIZE (AC): 2.61 KVA
9 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 365
(SAFE HARBOR MODULES: 0)
9 INVERTERS: ENPHASE IQ8PLUS-72-2-US

PROJECT INFORMATION

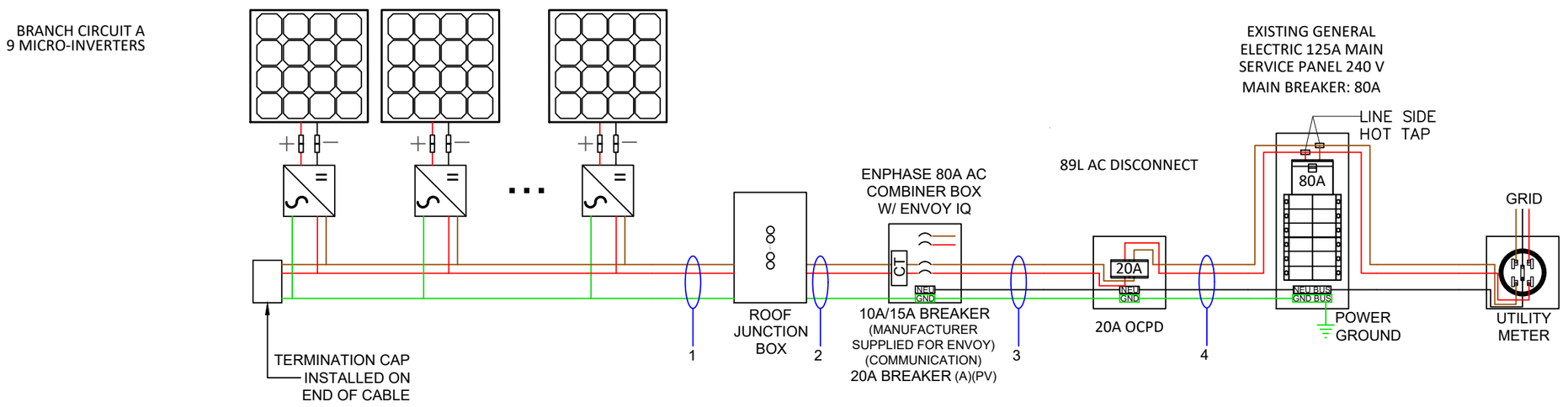
INITIAL	DATE: 11/18/2022	DESIGNER: WM
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

PANEL LAYOUT

PV-2

9 HANWHA Q.PEAK DUO BLK-G10+ 365 365W MODULES PAIRED WITH

9 ENPHASE IQ8PLUS-72-2-US MICRO-INVERTERS



ELECTRICAL NOTES:

1. ALL CALCULATIONS FOR VOC, VMAX, IMP AND ISC HAVE BEEN CALCULATED USING THE MANUFACTURED STRING CALCULATOR BASED ON ASHRAE 2% HIGH AND EXTREME MINIMUM TEMPERATURE COEFICIENTS.
2. THE ENTIRE ARRAY IS BONDED ACCORDING TO (NEC 690.46 - 250.120 PARAGRAPH C).
3. BRANCH CIRCUIT CALCULATION FOR WIRE TAG 1 DISPLAYS THE LARGEST BRANCH CIRCUIT IN SYSTEM. OTHER BRANCH CIRCUITS WILL HAVE LOWER DESIGN CURRENT THAN THE ONE SHOWN.
4. THIS SYSTEM COMPLIES WITH NEC 2017

89L LESS THAN 10FT TO THE MAIN BREAKER/METER.

5. ALL CONDUCTORS ARE SIZED BASED ON NEC 2017 ARTICLE 310
6. ALL EQUIPMENT INSTALLED IS RATED AT 75°C UNLESS NOTED
7. INVERTER NOC (NOMINAL OPEN CURRENT) OBTAINED FROM EQUIPMENT DATA SHEET
8. GROUNDING CONDUCTOR RUN WITH PHASE CONDUCTOR IN THE SAME CONDUIT.
9. SYSTEM IS CONSIDERED AN AC MODULE SYSTEM. NO DC CONDUCTORS ARE PRESENT IN CONDUIT, COMBINER, JUNCTION BOX, DISCONNECT. AND COMPILES WITH 690.6- NO DC. DISCONNECT AND ASSOCIATED DC CABLING ARE REQUIRED.

10. SYSTEM COMPLIES WITH 690.12 RAPID SHUTDOWN AND ASSOCIATED LABELING AS PER 690.56(C)(3). AC VOLTAGE AND SYSTEM OPERATING CURRENT SHALL BE PROVIDED AS PER 690.52.
11. CONDUCTORS IN CONDUIT ARE AC CONDUCTORS - BRANCH CIRCUITS AND NOT PV SOURCE CIRCUITS 690.6.
12. ALL GROUNDING SHALL COMPLY WITH 690.47(A) IN THAT THE AC MODULES SHALL COMPLY WITH 250.64.
13.NO TERMINALS WILL BE ENERGIZED IN THE OPEN POSITION IN THIS AC MODULE SYSTEM 690.6, 690.17.
14. WHERE APPLICABLE, INTERCONNECTION SHALL COMPLY WITH 705.12(A) OR 705.12(B) AS PERMITTED BY 230.82(6)

Wire Tag	Conduit	Wire Qty	Wire Gauge	Wire Type	Temp. Rating	Wire Ampacity (A)	Temp. Derate	Conduit Fill Derate	Derated Ampacity (A)	Inverter Qty	NOC (A)	NEC Correction	Design Current (A)	Ground Size	Ground Wire Type
1	OPEN AIR	2	12 AWG	Trunk Cable	90°C	30	0.96	1	28.80	9	1.21	1.25	13.61	12 AWG	Trunk Cable
2	3/4" PVC	2	10 AWG	THWN-2	90°C	40	0.96	1	38.40	9	1.21	1.25	13.61	08 AWG	THWN-2
3	3/4" PVC	3	10 AWG	THWN-2	75°C	35	0.96	1	33.60	9	1.21	1.25	13.61	08 AWG	THWN-2
4	3/4" PVC	3	06 AWG	THWN-2	75°C	65	0.96	1	62.40	9	1.21	1.25	13.61	08 AWG	THWN-2

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ELECTRICIAN

PRO CUSTOM SOLAR DBA MOMENTUM SOLAR
JEFFREY MARINELLO, (732) 902-6224
3096 HAMILTON BLVD. BUILDING B, SOUTH PLAINFIELD, NJ 07080

CUSTOMER INFORMATION

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(SAFE HARBOR MODULES: 0)
9 INVERTERS: ENPHASE IQ8PLUS-72-2-US

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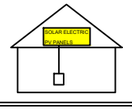
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

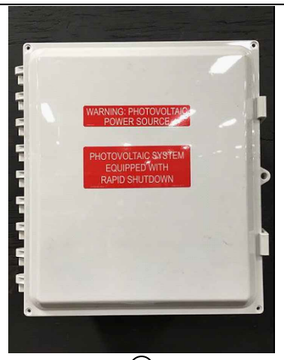
ELECTRICAL

PV-3

TAG	LABEL	QUANTITY	LOCATION	NOTE
Ⓐ	CAUTION: AC SOLAR VOLTAGE	12	AC CONDUITS	1 AT EVERY SEPARATION BY ENCLOSURES / WALLS / PARTITIONS / CEILINGS / FLOORS OR NO MORE THAN 10'
Ⓑ	! WARNING PHOTOVOLTAIC POWER SOURCE PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN	1	COMBINER BOX	1 AT ANY COMBINER BOX
Ⓒ	⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	1	JUNCTION BOX	1 AT ANY JUNCTION BOX
Ⓓ	PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT A NOMINAL OPERATING AC VOLTAGE 240 V ⚠ CAUTION POWER TO THIS SERVICE IS ALSO SUPPLIED FROM ON-SITE SOLAR GENERATION AC SYSTEM DISCONNECT ⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM	1	AC DISCONNECT	1 OF EACH AT FUSED AC DISCONNECT COMPLETE VOLTAGE AND CURRENT VALUES ON DISCONNECT LABEL
Ⓔ	PV METER	1	PV METER SOCKET	1 AT PV METER SOCKET AND ONE DIRECTORY PLACARD
Ⓕ	⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM REVENUE METER	1	UTILITY METER	1 AT UTILITY METER AND ONE DIRECTORY PLACARD
Ⓖ	SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY  ⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM	1	INTERCONNECTION POINT	1 OF EACH AT BUILDING INTERCONNECTION POINT AND ONE DIRECTORY PLACARD
	WARNING: INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE	1	BACKFEED PANEL	
Ⓗ	NOMINAL OPERATING AC VOLTAGE : 240V NOMINAL OPERATING AC FREQUENCY : 60HZ MAXIMUM AC POWER : 230VA MAXIMUM AC CURRENT : A MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION : 20A	1	AC CURRENT PV MODULES	

EXAMPLES

Ⓐ



Ⓑ

Ⓒ

Ⓓ

Ⓕ

Ⓖ BACKFEED

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UTILITY ACCT #:
UTILITY METER #:

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(SAFE HARBOR MODULES: 0)
9 INVERTERS: ENPHASE IQ8PLUS-72-2-US

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REV:	DATE:	DESIGNER:

EQUIPMENT LABELS

PV-4

PLAN KEY	
PV-1	COVER PAGE
PV-1(2)	COVER PAGE CONT.
PV-2	PANEL LAYOUT
PV-3	ELECTRICAL
PV-4	EQUIPMENT LABELS

SYSTEM INFORMATION	
MODULE	HANWHA Q.PEAK DUO BLK-G10+ 365
INVERTER	ENPHASE IQ8PLUS-72-2-US
RACKING	ECOFASTEN ROCK-IT
SYSTEM SIZE (DC)	2.92 KW
LOCATION	41.0387613,-73.8722976

GENERAL NOTES:

THIS PV SYSTEM HAS BEEN DESIGNED TO MEET THE MINIMUM DESIGN STANDARDS FOR BUILDING AND OTHER STRUCTURES OF THE ASCE 7-16, 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE, NEC 2017 AND ALL LOCAL CODES & ORDINANCES.

AN 18" WIDE (FREE OF SOLAR EQUIPMENT) SHALL BE PROVIDED ON BOTH SIDES OF THE ROOF. NOT FEWER THAN TWO PATHWAYS, ON SEPARATE ROOF PLANES FROM LOWEST ROOF EDGE TO RIDGE AND NOT LESS THAN 36 INCHES (914 MM) WIDE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, A PATHWAY NOT LESS THAN 36 INCHES WIDE (914 MM) SHALL BE PROVIDED FROM THE LOWEST ROOF EDGE TO RIDGE ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.

ROOF SHALL HAVE NO MORE THAN TWO LAYERS OF COVERING IN ADDITION TO THE SOLAR EQUIPMENT.

INSTALLATION OF SOLAR EQUIPMENT SHALL BE FLUSH MOUNTED, PARALLEL TO AND NO MORE THAN 6-INCHES ABOVE THE SURFACE OF THE ROOF.

WEIGHT OF THE INSTALLED SYSTEM SHALL NOT EXCEED MORE THAN 5-PSF FOR PHOTOVOLTAIC AND NO MORE THAN 6-PSF FOR RESIDENTIAL SOLAR HOT WATER SYSTEMS.

ANY PLUMBING VENTS ARE NOT TO BE CUT OR COVERED FOR SOLAR EQUIPMENT INSTALLATION. ANY RELOCATION OR MODIFICATION OF THE VENT REQUIRES A PLUMBING PERMIT AND INSPECTION.

INVERTER PLACEMENT:

SYSTEM UTILIZES "ENPHASE" MICRO-INVERTERS WITH RAPID SHUTDOWN CONTROL LOCATED ON THE BACK SIDE OF EACH MODULE.

BUILDING REVIEW NOTE:

TOWN BUILDING PLANS EXAMINER HAS RECEIVED THE ENCLOSED DOCUMENT FOR MINIMUM ACCEPTABLE PLAN SUBMITTAL REQUIREMENTS OF THE TOWN AS SPECIFIED IN THE BUILDING AND/OR RESIDENTIAL CODE OF THE STATE OF NEW YORK. THISREVIEW DOES NOT GUARANTEE COMPLIANCE OF THAT CODE. THAT RESPONSIBILITY IS GUARANTEED UNDER THE SEAL AND SIGNATURE OF THE NEW YORK LICENSED DESIGN PROFESSIONAL OF RECORD. THAT SEAL AND SIGNATURE HAS BEEN INTERPRETED AS AN ATTESTATION THAT, TO THE BEST OF THE LICENSEE'S BELIEF AND INFORMATION, THE WORK IN DOCUMENT IS:

1. ACCURATE
2. CONFORMS WITH GOVERNING CODES APPLICABLE AT THE TIME OF THE SUBMISSION.
3. CONFORMS WITH REASONABLE STANDARDS OF PRACTICE AND WITH VIEW TO THE SAFEGUARDING OF LIFE, HEALTH, PROPERTY AND PUBLIC WELFARE IS THE RESPONSIBILITY OF THE LICENSEE.

THE RESPONSIBLE LICENSED DESIGN PROFESSIONAL SHALL PROVIDE A SIGNED AND SEALED LETTER CERTIFYING THE INSTALLATION WAS INSPECTED AND CONFORMS TO THE PLANS AND REQUIREMENTS OF THE 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE. THIS INSPECTION AND CERTIFICATION LETTER SHALL BE PERFORMED AFTER INSTALLATIONS ARE COMPLETED AND SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

THE UL CERTIFICATE OF ELECTRICAL INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

BILL OF MATERIALS	
MODULES	8
INVERTERS	8
CLAMP ASSEMBLY	25
COUPLING ASSEMBLY	12
BONDING CLIP	2
ENPHASE COMBINER BOX	1
20A OCPD	1
SOLAR AC DISCONNECT	1
125A LINE TAPS	2

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(SAFE HARBOR MODULES: 0)
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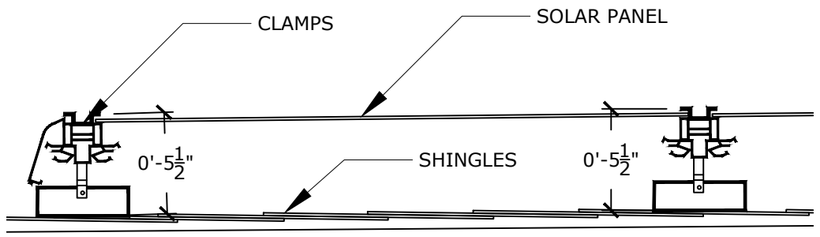
COVER PAGE

PV-1

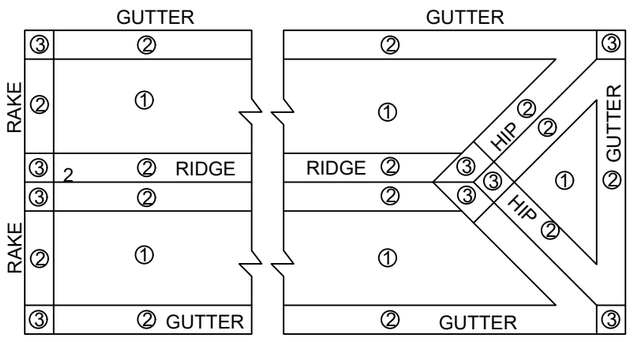
1. ALL WIND DESIGN CRITERIA ARE FOR LOW SLOPE ROOFS, GABLE AND HIP ROOFS CONSIDERED FROM AN ANGLE OF MIN. 9.5 ° ($\frac{2}{12}$) TO MAX. 45° ($\frac{12}{12}$) NOT TO EXCEED 30' MEAN ROOF HEIGHT ATTACHED WITH FASTENERS AS SPECIFIED BY THE MANUFACTURER.
2. SPAN TABLES ARE DERIVED FROM MECHANICAL LOAD TESTS PERFORMED BY THE MANUFACTURERS INDEPENDENT TESTING AGENCIES ON BEHALF OF THE MANUFACTURER.
3. ROOF SEALANTS SHALL CONFORM TO ASTMC920 AND ASTM 6511
4. ALL ATTACHMENTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.



CROSS SECTION OF ROOF SHOWING ATTACHMENT DETAILS

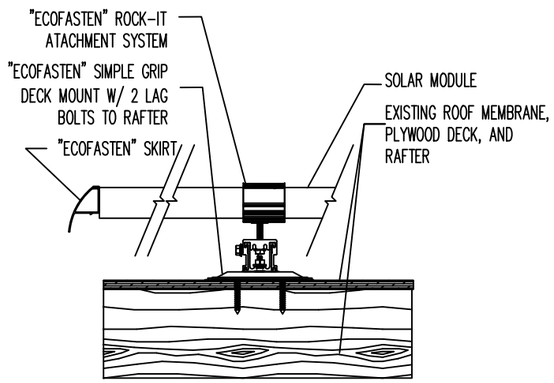
SCALE: 1-1/2" = 1"

ATTACHMENT SPACING EXCEED MANUFACTURERS SPECIFICATIONS FOR WIND LOADS AS PER ASCE 07-16. RISK CATEGORY II TOPOGRAPHIC EFFECTS B,C, & D AND ROOF WIND ZONES 1,2,& 3. ROOF ZONES 2 & 3 ARE WITHIN 48" OF ANY OUTER EDGE, HIP, RIDGE, OR GUTTER LINE FOR STRUCTURES 30'- 0" OR LESS MEAN ROOF HEIGHT.

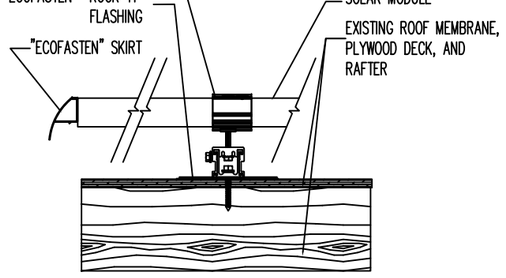


ROOF WIND ZONES AS PER IRC R301.2(7)
ROOF ZONES 2 & 3 ARE 48" FROM OUTTER ROOF EDGES, RIDGES, HIPS, RAKES, AND GUTTER EDGES FOR STRUCTURES BELOW 30'-0" MEAN ROOF HT.

TOTAL WEIGHT OF PV MODULES AND RAILS	334.8 LBS
TOTAL NUMBER OF ATTACHMENT POINTS	25
WEIGHT PER ATTACHMENT POINT	13.392 LBS
TOTAL SURFACE AREA OF PV MODULES	145.12 SQFT
DISTRIBUTED WEIGHT OF PV MODULE ON ROOF	2.31 LBS./SQFT



ALL COMPONENTS SHALL BE AS MANUFACTURED BY "ECOFASTEN SOLAR" AND INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED SPECIFICATIONS.



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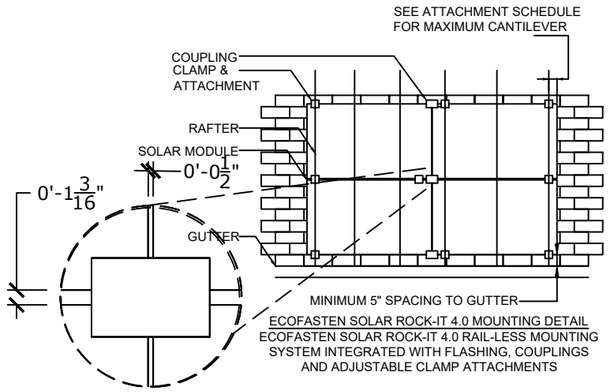
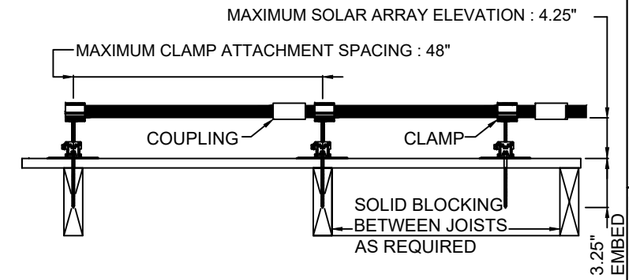
CLIMATIC & GEOGRAPHIC DESIGN CRITERIA TABLE R301.2(1)	
GROUND SNOW LOAD(LBS/SF)	30
SPEED (MPH)	120
TOPOGRAPHIC EFFECTS	B
SPECIAL WIND REGION	NO
WIND BORNE DEBRIS ZONE	2
SEISMIC DESIGN CATEGORY	C
CLIMATE ZONE	4A
WIND EXPOSURE CATEGORY	B



ECOFASTEN SOLAR ROCK-IT 4.0 MOUNTING DETAIL
ECOFASTEN SOLAR ROCK-IT 4.0 RAIL-LESS MOUNTING SYSTEM INTEGRATED WITH FLASHING, COUPLINGS AND ADJUSTABLE CLAMP ATTACHMENTS



STRUCTURAL STATEMENT:

THE EXISTING STRUCTURE IS ADEQUATE TO SUPPORT THE NEW LOADS IMPOSED BY THE PHOTOVOLTAIC MODULE SYSTEM INCLUDING UPLIFT & SHEAR.EXISTING RAFTER SIZES & DIMENSIONS CONFIRM TO 2020 NYS BUILDING CODE AND RESIDENTIAL CODE TABLE R802.5(1)-JOIST SPANS.

MOUNTING BRACKETS AND HARDWARE MEET OR EXCEED NEW YORK STATE CODE REQUIREMENTS FOR THE DESIGN CRITERIA OF THE TOWN.

HANWHA Q.PEAK DUO BLK-G10+ 365
365 WATT MODULE
67.6'' X 41.1'' X 1.26''
(SEE DATASHEET)

momentum SOLAR

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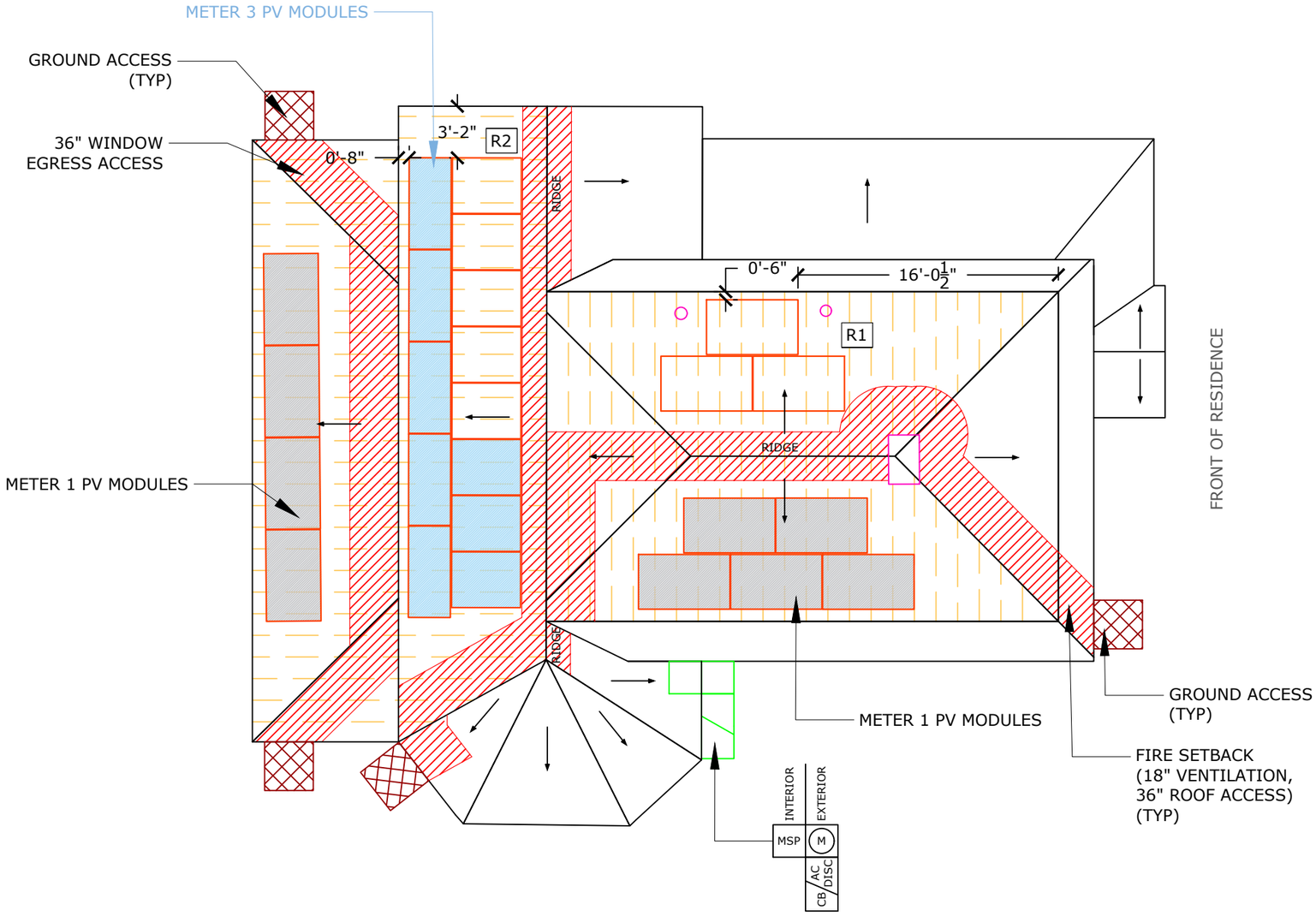
ATTACHMENT DETAIL

PV-1(2)

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

ROOF	MODULE COUNT	TILT	AZIMUTH	SHADING	LANDSCAPE MAX SPAN (ROOF AREA 1/2/3)	PORTRAIT MAX SPAN (ROOF AREA 1/2/3)
R1	3	10°	9°	96%	48 /32 /32	48 /32 /32
R2	5	41°	279°	93%	48 /32 /32	48 /32 /32



SYMBOL LEGEND

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SP	SUB-PANEL		SKYLIGHT
M	UTILITY METER		VENT
CB / AC DISC	COMBINER BOX/AC DISCONNECT		PIPE VENT
UDC	UTILITY DISCONNECT		FAN
LC	LOAD CENTER		SATELLITE DISH
N3R	NEMA 3R BOX W/ ENVOY-S		FIRE SETBACKS
CB	COMBINER BOX		GROUND ACCESS
PF	PERFORMANCE METER	→	PITCH DIRECTION
	MODULE		

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PRO CUSTOM SOLAR LLC D.B.A. MOMENTUM SOLAR
3096 HAMILTON BLVD. BUILDING B, S.PLAINFIELD, NJ
(732) 902-6224, MOMENTUMSOLAR.COM

PROFESSIONAL ENGINEERING

STATE OF NEW YORK · MINA A. MAKAR · EXCELSIOR · 104468 · LICENSED PROFESSIONAL ENGINEER

MINA A. MAKAR, P.E. NY LICENSE # 104468 (732)-902-6224
3096B HAMILTON BLVDSOUTH PLAINFIELD, NJ 07080
ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL, TO ALTER AN ITEM IN ANY WAY.

CUSTOMER INFORMATION

ROY ROOS - MS113461

24 SOUTH BUCKHOUT STREET
IRVINGTON, NY 10533
9145234547

JURISTICTION: WESTCHESTER
UTILITY: CONED
UTILITY ACCT #:
UTILITY METER #:

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 2.92 KW
SYSTEM SIZE (AC): 2.32 KVA
8 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 365
(SAFE HARBOR MODULES: 0)
8 INVERTERS: ENPHASE IQ8PLUS-72-2-US

PROJECT INFORMATION

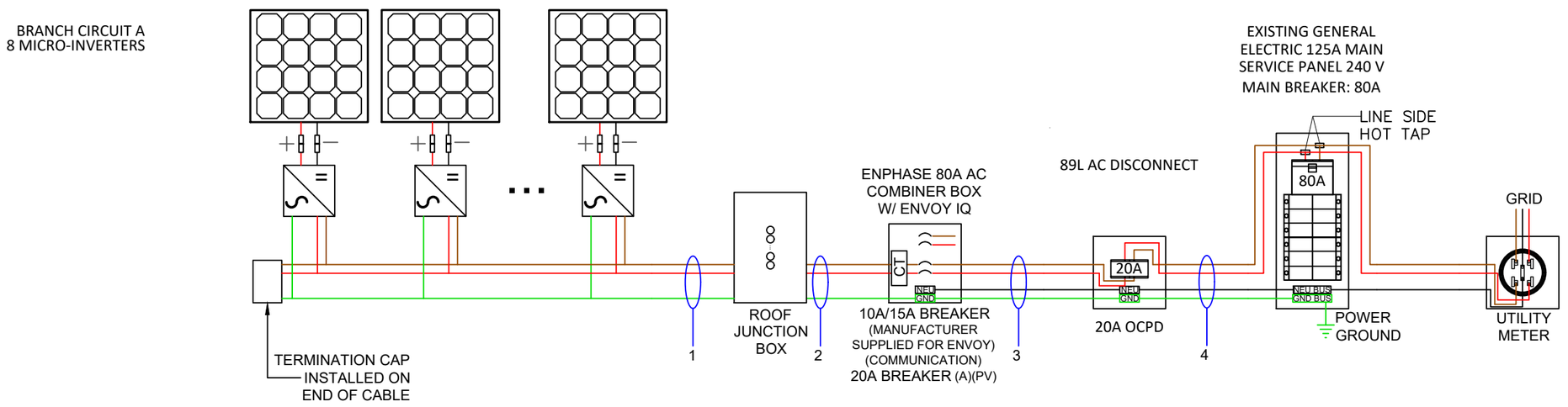
INITIAL	DATE: 11/18/2022	DESIGNER: WM
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

PANEL LAYOUT

PV-2

8 HANWHA Q.PEAK DUO BLK-G10+ 365 365W MODULES PAIRED WITH

8 ENPHASE IQ8PLUS-72-2-US MICRO-INVERTERS



ELECTRICAL NOTES:

1. ALL CALCULATIONS FOR VOC, VMAX, IMP AND ISC HAVE BEEN CALCULATED USING THE MANUFACTURED STRING CALCULATOR BASED ON ASHRAE 2% HIGH AND EXTREME MINIMUM TEMPERATURE COEFICIENTS.
2. THE ENTIRE ARRAY IS BONDED ACCORDING TO (NEC 690.46 - 250.120 PARAGRAPH C).
3. BRANCH CIRCUIT CALCULATION FOR WIRE TAG 1 DISPLAYS THE LARGEST BRANCH CIRCUIT IN SYSTEM. OTHER BRANCH CIRCUITS WILL HAVE LOWER DESIGN CURRENT THAN THE ONE SHOWN.
4. THIS SYSTEM COMPLIES WITH NEC 2017

89L LESS THAN 10FT TO THE MAIN BREAKER/METER.

5. ALL CONDUCTORS ARE SIZED BASED ON NEC 2017 ARTICLE 310
6. ALL EQUIPMENT INSTALLED IS RATED AT 75°C UNLESS NOTED
7. INVERTER NOC (NOMINAL OPEN CURRENT) OBTAINED FROM EQUIPMENT DATA SHEET
8. GROUNDING CONDUCTOR RUN WITH PHASE CONDUCTOR IN THE SAME CONDUIT.
9. SYSTEM IS CONSIDERED AN AC MODULE SYSTEM. NO DC CONDUCTORS ARE PRESENT IN CONDUIT, COMBINER, JUNCTION BOX, DISCONNECT. AND COMPILES WITH 690.6- NO DC. DISCONNECT AND ASSOCIATED DC CABLING ARE REQUIRED.

10. SYSTEM COMPLIES WITH 690.12 RAPID SHUTDOWN AND ASSOCIATED LABELING AS PER 690.56(C)(3). AC VOLTAGE AND SYSTEM OPERATING CURRENT SHALL BE PROVIDED AS PER 690.52.
11. CONDUCTORS IN CONDUIT ARE AC CONDUCTORS - BRANCH CIRCUITS AND NOT PV SOURCE CIRCUITS 690.6.
12. ALL GROUNDING SHALL COMPLY WITH 690.47(A) IN THAT THE AC MODULES SHALL COMPLY WITH 250.64.
13.NO TERMINALS WILL BE ENERGIZED IN THE OPEN POSITION IN THIS AC MODULE SYSTEM 690.6, 690.17.
14. WHERE APPLICABLE, INTERCONNECTION SHALL COMPLY WITH 705.12(A) OR 705.12(B) AS PERMITTED BY 230.82(6)

Wire Tag	Conduit	Wire Qty	Wire Gauge	Wire Type	Temp. Rating	Wire Ampacity (A)	Temp. Derate	Conduit Fill Derate	Derated Ampacity (A)	Inverter Qty	NOC (A)	NEC Correction	Design Current (A)	Ground Size	Ground Wire Type
1	OPEN AIR	2	12 AWG	Trunk Cable	90°C	30	0.96	1	28.80	8	1.21	1.25	12.10	12 AWG	Trunk Cable
2	3/4" PVC	2	10 AWG	THWN-2	90°C	40	0.96	1	38.40	8	1.21	1.25	12.10	08 AWG	THWN-2
3	3/4" PVC	3	10 AWG	THWN-2	75°C	35	0.96	1	33.60	8	1.21	1.25	12.10	08 AWG	THWN-2
4	3/4" PVC	3	06 AWG	THWN-2	75°C	65	0.96	1	62.40	8	1.21	1.25	12.10	08 AWG	THWN-2

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ELECTRICIAN

PRO CUSTOM SOLAR DBA MOMENTUM SOLAR
JEFFREY MARINELLO, (732) 902-6224
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CUSTOMER INFORMATION

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(SAFE HARBOR MODULES: 0)
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REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

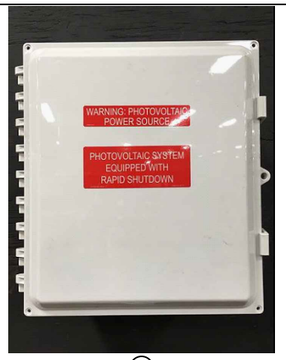
ELECTRICAL

PV-3

TAG	LABEL	QUANTITY	LOCATION	NOTE
Ⓐ	CAUTION: AC SOLAR VOLTAGE	12	AC CONDUITS	1 AT EVERY SEPARATION BY ENCLOSURES / WALLS / PARTITIONS / CEILINGS / FLOORS OR NO MORE THAN 10'
Ⓑ	! WARNING PHOTOVOLTAIC POWER SOURCE PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN	1	COMBINER BOX	1 AT ANY COMBINER BOX
Ⓒ	⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	1	JUNCTION BOX	1 AT ANY JUNCTION BOX
Ⓓ	PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT A NOMINAL OPERATING AC VOLTAGE 240 V ⚠ CAUTION POWER TO THIS SERVICE IS ALSO SUPPLIED FROM ON-SITE SOLAR GENERATION AC SYSTEM DISCONNECT ⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM	1	AC DISCONNECT	1 OF EACH AT FUSED AC DISCONNECT COMPLETE VOLTAGE AND CURRENT VALUES ON DISCONNECT LABEL
Ⓔ	PV METER	1	PV METER SOCKET	1 AT PV METER SOCKET AND ONE DIRECTORY PLACARD
Ⓕ	⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM REVENUE METER	1	UTILITY METER	1 AT UTILITY METER AND ONE DIRECTORY PLACARD
Ⓖ	SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY ⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM	1	INTERCONNECTION POINT	1 OF EACH AT BUILDING INTERCONNECTION POINT AND ONE DIRECTORY PLACARD
	WARNING: INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE	1	BACKFEED PANEL	
Ⓗ	NOMINAL OPERATING AC VOLTAGE : 240V NOMINAL OPERATING AC FREQUENCY : 60HZ MAXIMUM AC POWER : 230VA MAXIMUM AC CURRENT : A MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION : 20A	1	AC CURRENT PV MODULES	

EXAMPLES

Ⓐ



Ⓑ

Ⓒ

Ⓓ

Ⓕ

Ⓖ BACKFEED

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EQUIPMENT LABELS

PV-4

PLAN KEY	
PV-1	COVER PAGE
PV-1(2)	COVER PAGE CONT.
PV-2	PANEL LAYOUT
PV-3	ELECTRICAL
PV-4	EQUIPMENT LABELS

SYSTEM INFORMATION	
MODULE	HANWHA Q.PEAK DUO BLK-G10+ 365
INVERTER	ENPHASE IQ8PLUS-72-2-US
RACKING	ECOFASTEN ROCK-IT
SYSTEM SIZE (DC)	2.92 KW
LOCATION	41.0387613,-73.8722976

GENERAL NOTES:

THIS PV SYSTEM HAS BEEN DESIGNED TO MEET THE MINIMUM DESIGN STANDARDS FOR BUILDING AND OTHER STRUCTURES OF THE ASCE 7-16, 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE, NEC 2017 AND ALL LOCAL CODES & ORDINANCES.

AN 18" WIDE (FREE OF SOLAR EQUIPMENT) SHALL BE PROVIDED ON BOTH SIDES OF THE ROOF. NOT FEWER THAN TWO PATHWAYS, ON SEPARATE ROOF PLANES FROM LOWEST ROOF EDGE TO RIDGE AND NOT LESS THAN 36 INCHES (914 MM) WIDE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, A PATHWAY NOT LESS THAN 36 INCHES WIDE (914 MM) SHALL BE PROVIDED FROM THE LOWEST ROOF EDGE TO RIDGE ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.

ROOF SHALL HAVE NO MORE THAN TWO LAYERS OF COVERING IN ADDITION TO THE SOLAR EQUIPMENT.

INSTALLATION OF SOLAR EQUIPMENT SHALL BE FLUSH MOUNTED, PARALLEL TO AND NO MORE THAN 6-INCHES ABOVE THE SURFACE OF THE ROOF.

WEIGHT OF THE INSTALLED SYSTEM SHALL NOT EXCEED MORE THAN 5-PSF FOR PHOTOVOLTAIC AND NO MORE THAN 6-PSF FOR RESIDENTIAL SOLAR HOT WATER SYSTEMS.

ANY PLUMBING VENTS ARE NOT TO BE CUT OR COVERED FOR SOLAR EQUIPMENT INSTALLATION. ANY RELOCATION OR MODIFICATION OF THE VENT REQUIRES A PLUMBING PERMIT AND INSPECTION.

INVERTER PLACEMENT:

SYSTEM UTILIZES "ENPHASE" MICRO-INVERTERS WITH RAPID SHUTDOWN CONTROL LOCATED ON THE BACK SIDE OF EACH MODULE.

BUILDING REVIEW NOTE:

TOWN BUILDING PLANS EXAMINER HAS RECEIVED THE ENCLOSED DOCUMENT FOR MINIMUM ACCEPTABLE PLAN SUBMITTAL REQUIREMENTS OF THE TOWN AS SPECIFIED IN THE BUILDING AND/OR RESIDENTIAL CODE OF THE STATE OF NEW YORK. THISREVIEW DOES NOT GUARANTEE COMPLIANCE OF THAT CODE. THAT RESPONSIBILITY IS GUARANTEED UNDER THE SEAL AND SIGNATURE OF THE NEW YORK LICENSED DESIGN PROFESSIONAL OF RECORD. THAT SEAL AND SIGNATURE HAS BEEN INTERPRETED AS AN ATTESTATION THAT, TO THE BEST OF THE LICENSEE'S BELIEF AND INFORMATION, THE WORK IN DOCUMENT IS:

1. ACCURATE
2. CONFORMS WITH GOVERNING CODES APPLICABLE AT THE TIME OF THE SUBMISSION.
3. CONFORMS WITH REASONABLE STANDARDS OF PRACTICE AND WITH VIEW TO THE SAFEGUARDING OF LIFE, HEALTH, PROPERTY AND PUBLIC WELFARE IS THE RESPONSIBILITY OF THE LICENSEE.

THE RESPONSIBLE LICENSED DESIGN PROFESSIONAL SHALL PROVIDE A SIGNED AND SEALED LETTER CERTIFYING THE INSTALLATION WAS INSPECTED AND CONFORMS TO THE PLANS AND REQUIREMENTS OF THE 2020 NYS BUILDING CODE AND 2020 NYS RESIDENTIAL CODE. THIS INSPECTION AND CERTIFICATION LETTER SHALL BE PERFORMED AFTER INSTALLATIONS ARE COMPLETED AND SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

THE UL CERTIFICATE OF ELECTRICAL INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO SCHEDULING OF FINAL INSPECTION.

BILL OF MATERIALS	
MODULES	8
INVERTERS	8
CLAMP ASSEMBLY	25
COUPLING ASSEMBLY	10
BONDING CLIP	5
ENPHASE COMBINER BOX	1
20A OCPD	1
SOLAR AC DISCONNECT	1
125A LINE TAPS	2

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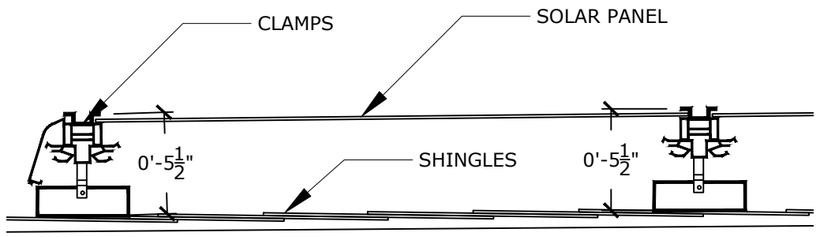
COVER PAGE

PV-1

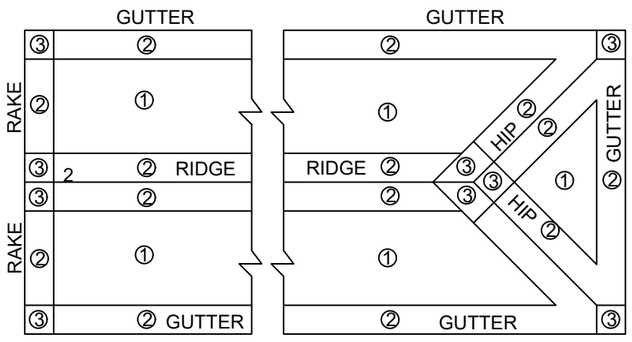
1. ALL WIND DESIGN CRITERIA ARE FOR LOW SLOPE ROOFS, GABLE AND HIP ROOFS CONSIDERED FROM AN ANGLE OF MIN. 9.5 ° ($\frac{2}{12}$) TO MAX. 45° ($\frac{12}{12}$) NOT TO EXCEED 30' MEAN ROOF HEIGHT ATTACHED WITH FASTENERS AS SPECIFIED BY THE MANUFACTURER.
2. SPAN TABLES ARE DERIVED FROM MECHANICAL LOAD TESTS PERFORMED BY THE MANUFACTURERS INDEPENDENT TESTING AGENCIES ON BEHALF OF THE MANUFACTURER.
3. ROOF SEALANTS SHALL CONFORM TO ASTMC920 AND ASTM 6511
4. ALL ATTACHMENTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.



CROSS SECTION OF ROOF SHOWING ATTACHMENT DETAILS

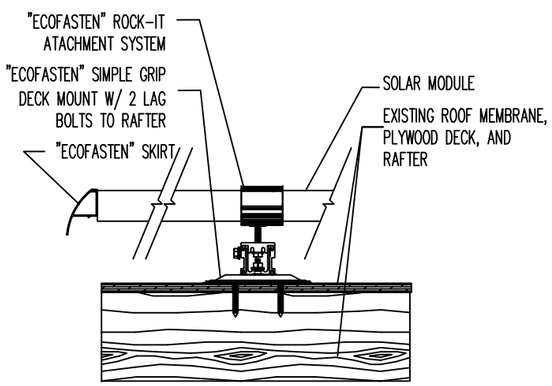
SCALE: 1-1/2" = 1"

ATTACHMENT SPACING EXCEED MANUFACTURERS SPECIFICATIONS FOR WIND LOADS AS PER ASCE 07-16. RISK CATEGORY II TOPOGRAPHIC EFFECTS B,C, & D AND ROOF WIND ZONES 1,2,& 3. ROOF ZONES 2 & 3 ARE WITHIN 48" OF ANY OUTER EDGE, HIP, RIDGE, OR GUTTER LINE FOR STRUCTURES 30'- 0" OR LESS MEAN ROOF HEIGHT.

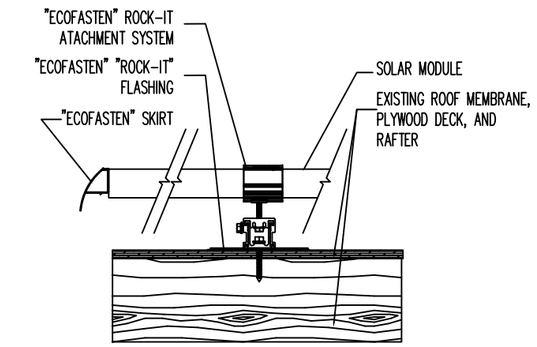


ROOF WIND ZONES AS PER IRC R301.2(7)
ROOF ZONES 2 & 3 ARE 48" FROM OUTTER ROOF EDGES, RIDGES, HIPS, RAKES, AND GUTTER EDGES FOR STRUCTURES BELOW 30'-0" MEAN ROOF HT.

TOTAL WEIGHT OF PV MODULES AND RAILS	334.8 LBS
TOTAL NUMBER OF ATTACHMENT POINTS	25
WEIGHT PER ATTACHMENT POINT	13.392 LBS
TOTAL SURFACE AREA OF PV MODULES	145.12 SQFT
DISTRIBUTED WEIGHT OF PV MODULE ON ROOF	2.31 LBS./SQFT



ALL COMPONENTS SHALL BE AS MANUFACTURED BY "ECOFASTEN SOLAR" AND INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED SPECIFICATIONS.



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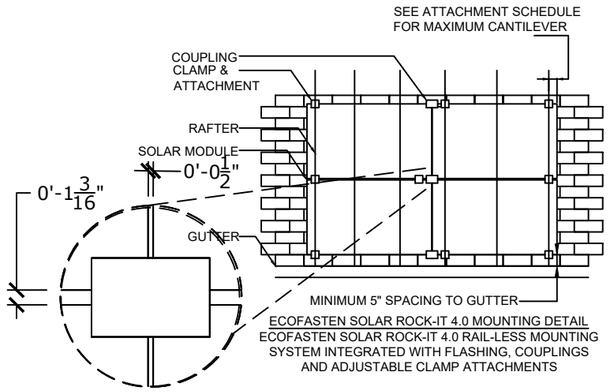
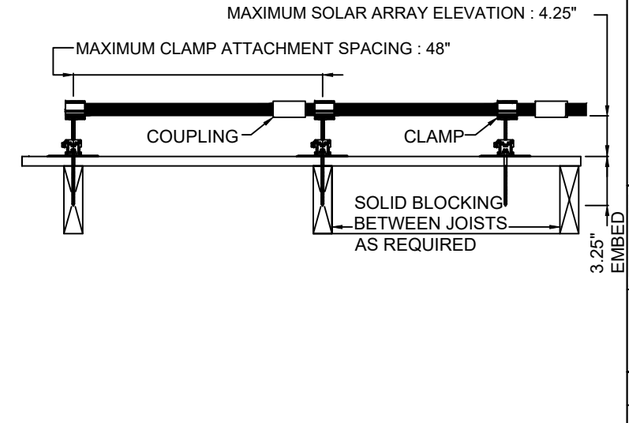
CLIMATIC & GEOGRAPHIC DESIGN CRITERIA TABLE R301.2(1)	
GROUND SNOW LOAD(LBS/SF)	30
SPEED (MPH)	120
TOPOGRAPHIC EFFECTS	B
SPECIAL WIND REGION	NO
WIND BORNE DEBRIS ZONE	2
SEISMIC DESIGN CATEGORY	C
CLIMATE ZONE	4A
WIND EXPOSURE CATEGORY	B



ECOFASTEN SOLAR ROCK-IT 4.0 MOUNTING DETAIL
ECOFASTEN SOLAR ROCK-IT 4.0 RAIL-LESS MOUNTING SYSTEM INTEGRATED WITH FLASHING, COUPLINGS AND ADJUSTABLE CLAMP ATTACHMENTS



STRUCTURAL STATEMENT:

THE EXISTING STRUCTURE IS ADEQUATE TO SUPPORT THE NEW LOADS IMPOSED BY THE PHOTOVOLTAIC MODULE SYSTEM INCLUDING UPLIFT & SHEAR.EXISTING RAFTER SIZES & DIMENSIONS CONFIRM TO 2020 NYS BUILDING CODE AND RESIDENTIAL CODE TABLE R802.5(1)-JOIST SPANS.

MOUNTING BRACKETS AND HARDWARE MEET OR EXCEED NEW YORK STATE CODE REQUIREMENTS FOR THE DESIGN CRITERIA OF THE TOWN.

HANWHA Q.PEAK DUO BLK-G10+ 365
365 WATT MODULE
67.6'' X 41.1'' X 1.26''
(SEE DATASHEET)

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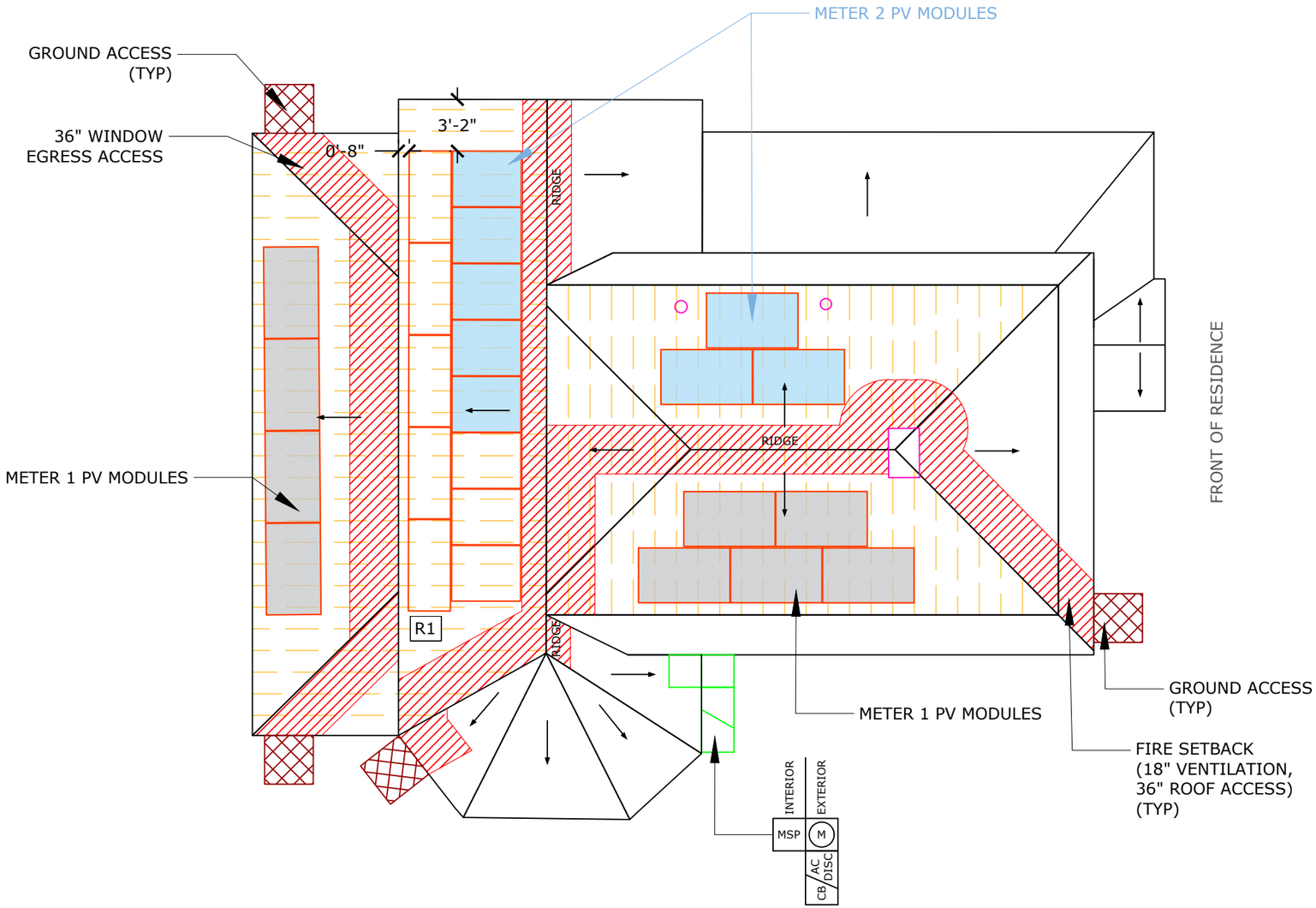
ATTACHMENT DETAIL

PV-1(2)

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

ROOF	MODULE COUNT	TILT	AZIMUTH	SHADING	LANDSCAPE MAX SPAN (ROOF AREA 1/2/3)	PORTRAIT MAX SPAN (ROOF AREA 1/2/3)
R1	8	41°	279°	94%	48 /32 /32	48 /32 /32



SYMBOL LEGEND

MSP	MAIN SERVICE PANEL		CHIMNEY
SP	SUB-PANEL		SKYLIGHT
M	UTILITY METER		VENT
CB / AC DISC	COMBINER BOX/AC DISCONNECT		PIPE VENT
UDC	UTILITY DISCONNECT		FAN
LC	LOAD CENTER		SATELLITE DISH
N3R	NEMA 3R BOX W/ ENVOY-S		FIRE SETBACKS
CB	COMBINER BOX		GROUND ACCESS
PF	PERFORMANCE METER	→	PITCH DIRECTION
	MODULE		

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ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL, TO ALTER AN ITEM IN ANY WAY.

CUSTOMER INFORMATION

ROY ROOS - MS113463

24 SOUTH BUCKHOUT STREET
IRVINGTON, NY 10533
9145234547

JURISTICTION: WESTCHESTER
UTILITY: CONED
UTILITY ACCT #:
UTILITY METER #:

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 2.92 KW
SYSTEM SIZE (AC): 2.32 KVA
8 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 365
(SAFE HARBOR MODULES: 0)
8 INVERTERS: ENPHASE IQ8PLUS-72-2-US

PROJECT INFORMATION

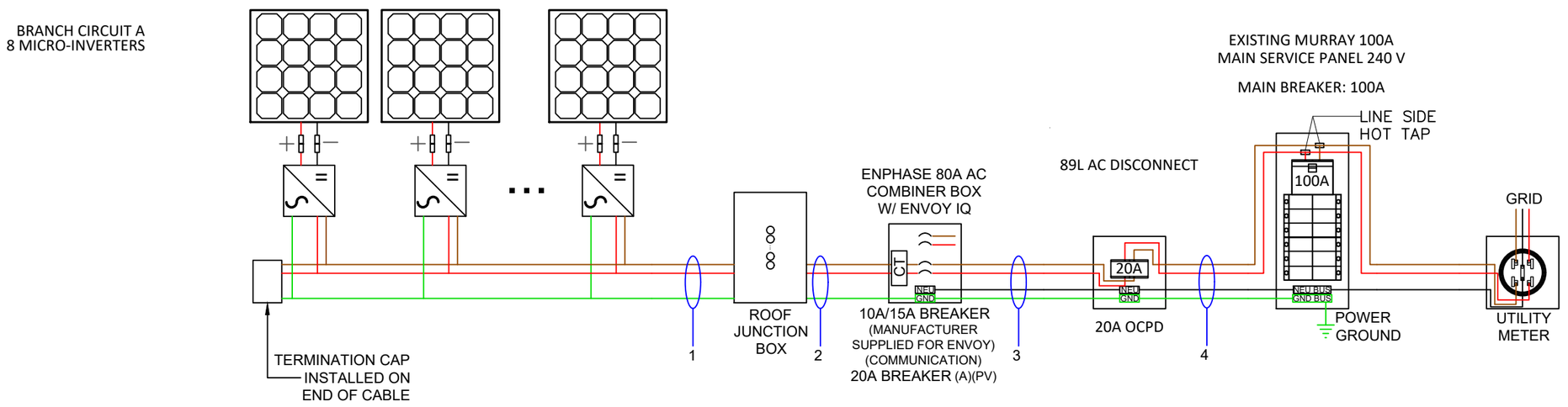
INITIAL	DATE: 11/18/2022	DESIGNER: WM
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

PANEL LAYOUT

PV-2

8 HANWHA Q.PEAK DUO BLK-G10+ 365 365W MODULES PAIRED WITH

8 ENPHASE IQ8PLUS-72-2-US MICRO-INVERTERS



ELECTRICAL NOTES:

1. ALL CALCULATIONS FOR VOC, VMAX, IMP AND ISC HAVE BEEN CALCULATED USING THE MANUFACTURED STRING CALCULATOR BASED ON ASHRAE 2% HIGH AND EXTREME MINIMUM TEMPERATURE COEFICIENTS.
2. THE ENTIRE ARRAY IS BONDED ACCORDING TO (NEC 690.46 - 250.120 PARAGRAPH C).
3. BRANCH CIRCUIT CALCULATION FOR WIRE TAG 1 DISPLAYS THE LARGEST BRANCH CIRCUIT IN SYSTEM. OTHER BRANCH CIRCUITS WILL HAVE LOWER DESIGN CURRENT THAN THE ONE SHOWN.
4. THIS SYSTEM COMPLIES WITH NEC 2017
89L LESS THAN 10FT TO THE MAIN BREAKER/METER.
5. ALL CONDUCTORS ARE SIZED BASED ON NEC 2017 ARTICLE 310
6. ALL EQUIPMENT INSTALLED IS RATED AT 75°C UNLESS NOTED
7. INVERTER NOC (NOMINAL OPEN CURRENT) OBTAINED FROM EQUIPMENT DATA SHEET
8. GROUNDING CONDUCTOR RUN WITH PHASE CONDUCTOR IN THE SAME CONDUIT.
9. SYSTEM IS CONSIDERED AN AC MODULE SYSTEM. NO DC CONDUCTORS ARE PRESENT IN CONDUIT, COMBINER, JUNCTION BOX, DISCONNECT. AND COMPILES WITH 690.6- NO DC. DISCONNECT AND ASSOCIATED DC CABLING ARE REQUIRED.
10. SYSTEM COMPLIES WITH 690.12 RAPID SHUTDOWN AND ASSOCIATED LABELING AS PER 690.56(C)(3). AC VOLTAGE AND SYSTEM OPERATING CURRENT SHALL BE PROVIDED AS PER 690.52.
11. CONDUCTORS IN CONDUIT ARE AC CONDUCTORS - BRANCH CIRCUITS AND NOT PV SOURCE CIRCUITS 690.6.
12. ALL GROUNDING SHALL COMPLY WITH 690.47(A) IN THAT THE AC MODULES SHALL COMPLY WITH 250.64.
13.NO TERMINALS WILL BE ENERGIZED IN THE OPEN POSITION IN THIS AC MODULE SYSTEM 690.6, 690.17.
14. WHERE APPLICABLE, INTERCONNECTION SHALL COMPLY WITH 705.12(A) OR 705.12(B) AS PERMITTED BY 230.82(6)

Wire Tag	Conduit	Wire Qty	Wire Gauge	Wire Type	Temp. Rating	Wire Ampacity (A)	Temp. Derate	Conduit Fill Derate	Derated Ampacity (A)	Inverter Qty	NOC (A)	NEC Correction	Design Current (A)	Ground Size	Ground Wire Type
1	OPEN AIR	2	12 AWG	Trunk Cable	90°C	30	0.96	1	28.80	8	1.21	1.25	12.10	12 AWG	Trunk Cable
2	3/4" PVC	2	10 AWG	THWN-2	90°C	40	0.96	1	38.40	8	1.21	1.25	12.10	08 AWG	THWN-2
3	3/4" PVC	3	10 AWG	THWN-2	75°C	35	0.96	1	33.60	8	1.21	1.25	12.10	08 AWG	THWN-2
4	3/4" PVC	3	06 AWG	THWN-2	75°C	65	0.96	1	62.40	8	1.21	1.25	12.10	08 AWG	THWN-2

momentum SOLAR

PRO CUSTOM SOLAR LLC D.B.A. MOMENTUM SOLAR
3096 HAMILTON BLVD. BUILDING B, S.PLAINFIELD, NJ
(732) 902-6224, MOMENTUMSOLAR.COM

PROFESSIONAL ENGINEERING

STATE OF NEW YORK · MINA A. MAKAR · EXCELSIOR · 104468 · LICENSED PROFESSIONAL ENGINEER

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ELECTRICIAN

PRO CUSTOM SOLAR DBA MOMENTUM SOLAR
JEFFREY MARINELLO, (732) 902-6224
3096 HAMILTON BLVD. BUILDING B, SOUTH PLAINFIELD, NJ 07080

CUSTOMER INFORMATION

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PROJECT INFORMATION

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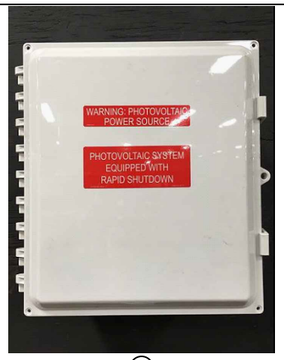
ELECTRICAL

PV-3

TAG	LABEL	QUANTITY	LOCATION	NOTE
Ⓐ	CAUTION: AC SOLAR VOLTAGE	12	AC CONDUITS	1 AT EVERY SEPARATION BY ENCLOSURES / WALLS / PARTITIONS / CEILINGS / FLOORS OR NO MORE THAN 10'
Ⓑ	! WARNING PHOTOVOLTAIC POWER SOURCE PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN	1	COMBINER BOX	1 AT ANY COMBINER BOX
Ⓒ	⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	1	JUNCTION BOX	1 AT ANY JUNCTION BOX
Ⓓ	PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT A NOMINAL OPERATING AC VOLTAGE 240 V ⚠ CAUTION POWER TO THIS SERVICE IS ALSO SUPPLIED FROM ON-SITE SOLAR GENERATION AC SYSTEM DISCONNECT ⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM	1	AC DISCONNECT	1 OF EACH AT FUSED AC DISCONNECT COMPLETE VOLTAGE AND CURRENT VALUES ON DISCONNECT LABEL
Ⓔ	PV METER	1	PV METER SOCKET	1 AT PV METER SOCKET AND ONE DIRECTORY PLACARD
Ⓕ	⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM REVENUE METER	1	UTILITY METER	1 AT UTILITY METER AND ONE DIRECTORY PLACARD
Ⓖ	SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY ⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM	1	INTERCONNECTION POINT	1 OF EACH AT BUILDING INTERCONNECTION POINT AND ONE DIRECTORY PLACARD
	WARNING: INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE	1	BACKFEED PANEL	
Ⓗ	NOMINAL OPERATING AC VOLTAGE : 240V NOMINAL OPERATING AC FREQUENCY : 60HZ MAXIMUM AC POWER : 230VA MAXIMUM AC CURRENT : A MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION : 20A	1	AC CURRENT PV MODULES	

EXAMPLES

Ⓐ



Ⓑ

Ⓒ

Ⓓ

Ⓕ

Ⓖ BACKFEED

momentum SOLAR

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EQUIPMENT LABELS

PV-4

ROCK-IT SYSTEM™

RAIL FREE SOLAR ROOF MOUNT

UTILIZES ECOFASTEN SOLAR'S PATENTED TECHNOLOGY

INTERTEK ETL LISTED US

EcoFasten Solar®

ROCK-IT SYSTEM

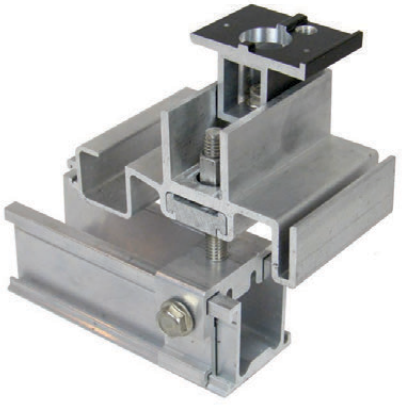
Designed with the installer in mind.

EcoFasten Solar specializes in solar roof attachments that are the easiest to install, most secure and cost-effective solutions for installers. EcoFasten offers a wide variety of standard products as well as custom solutions, for a one-stop source for all of your rooftop anchoring needs. Products are rigorously tested and approved above and beyond industry standards in-house and by third party agencies. EcoFasten's patented conical sealing system has been in service in the snow guard and solar industry for two decades.

Features

- Fastest, easiest to level system on the market
- ETL listed to UL SUB 2703
- Class A Fire rating with Type 1 modules
- Integrated electrical bonding
- SIMPLE- only 3 components
- Fixed wire management tray
- North-South adjustability of up to 4"
- Only one tool required (1/2" deep well socket)

System Components



ROCK-IT MOUNT

ROCK-IT COUPLING

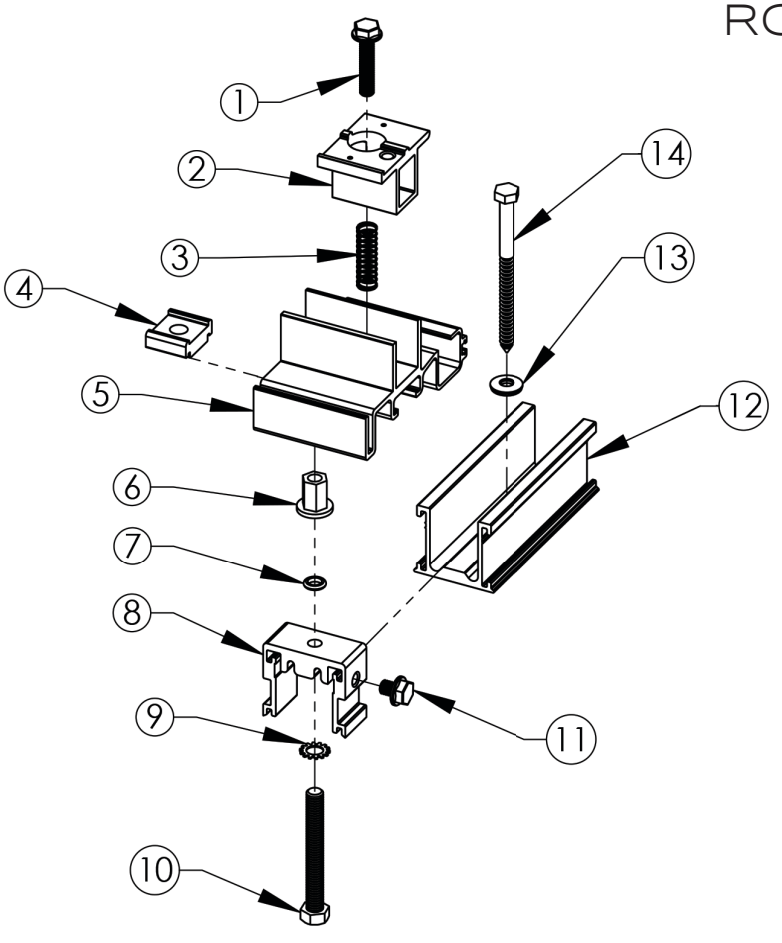
Array Skirt

EcoFasten Solar®

EcoFasten Solar products are protected by the following U.S. Patents:

8,151,522 B2 8,153,700 B2 8,181,398 B2
8,166,713 B2 8,146,299 B2 8,209,914 B2
8,245,454 B2 8,272,174 B2 8,225,557 B2

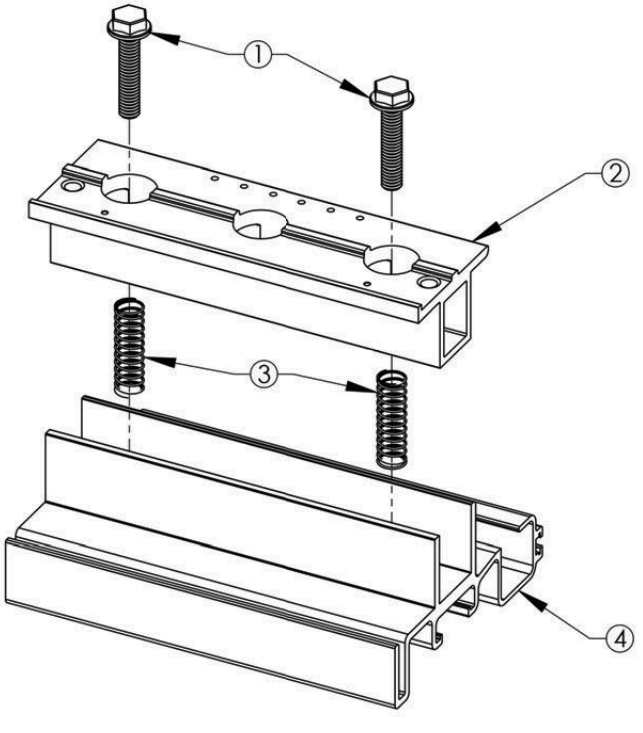
ROCK-IT MOUNT ASSEMBLY



NOTE: ITEMS 1-11 SHIP ASSEMBLED

1. 5/16″-18 x 1.5″ Hex Flange Bolt 300 Series SS
2. Rock-It Mid-Clamp 6005A-T5
3. Compression Spring 300 Series SS
4. Tie Plate 6005A-T5 AL
5. Rock-It Shelf 6005A-T5 AL
6. Flange Level Nut 300 Series SS
7. Packaging O-Ring (Remove Prior to Installation)
8. Rock-It Pedestal 6005A-T5 AL
9. 3/8″ ID Star Lock Washer 300 Series SS
10. 3/8″-16 Hex Tap Bolt 300 Series SS
11. 5/16″-18 x .375″ Hex Flange Bolt 300 Series SS
12. Rock-It-Slide 6005A-T5 AL
13. 5/16″ ID EPDM Bonded Washer 300 Series SS
14. 5/16″ x 4″ Hex Lag Screw or 5/16″-18 X 1.50″ Hex Bolt 300 Series SS

ROCK-IT COUPLING ASSEMBLY

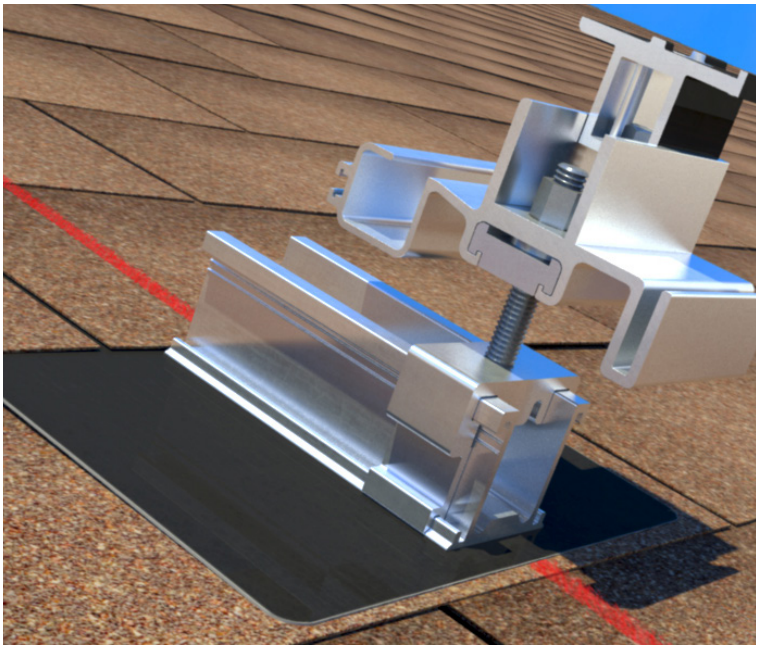


NOTE: ITEMS 1-4 SHIP ASSEMBLED

1. 5/16″-18 x 1.5″ Hex Flange Bolt 300 Series SS
2. Rock-It Coupling Mid Clamp 6005A-T5 AL
3. Compression Spring 300 Series SS
4. Rock-It Coupling Shelf 6005A-T5 AL

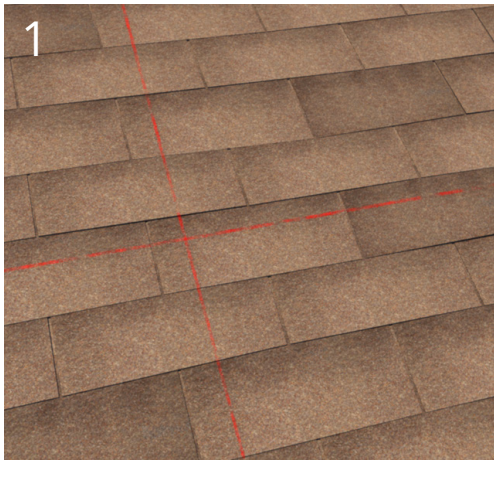
Array Layout

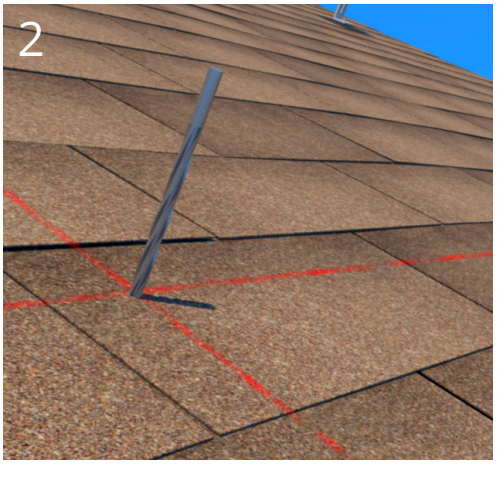
- Find the required structural attachment points. Mark these using a vertical (N-S) chalk line on the center of the rafters.
- Spacing may vary depending upon project specific structural requirements; i.e. high snow and wind load areas may require lesser bracket spacing in the E-W axis vs. the maximum spacing. Max spacing is 48" for portrait orientation and 72" for landscape orientation. Consult project layout diagram for project specific bracket spacing on the roof.
- Install Rock-It Mounts to predetermined mount spacing.
- The array skirt sections are the width of a typical 60 cell module – use the array skirt as a guide to lay out module placement.

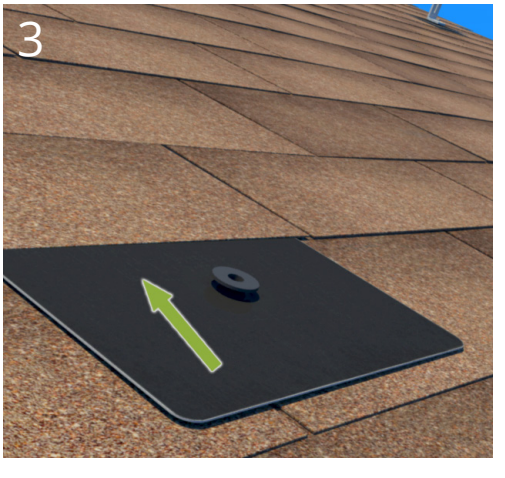


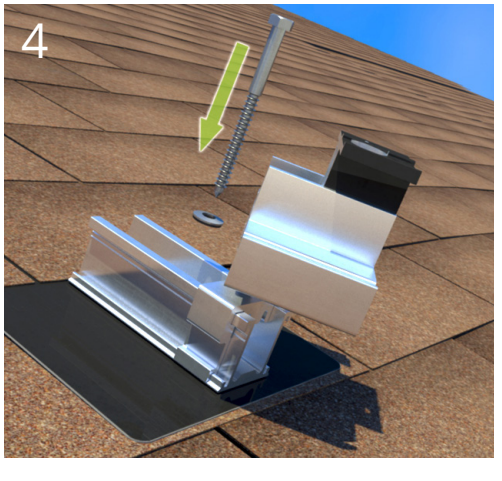
Note: The distance between the rows of mounts is calculated by the module dimension N-S plus 1 3/8" (35mm). Lag screw should be installed as close to center of exposed shingle as possible.

GreenFasten Flashing Install









1 Locate the rafters and snap horizontal and vertical lines to mark the installation position for each GreenFasten flashing.

2 Drill a pilot hole (1/4" diameter) for the lag bolt. Backfill with sealant. EcoFasten Solar recommends an EPDM mastic.

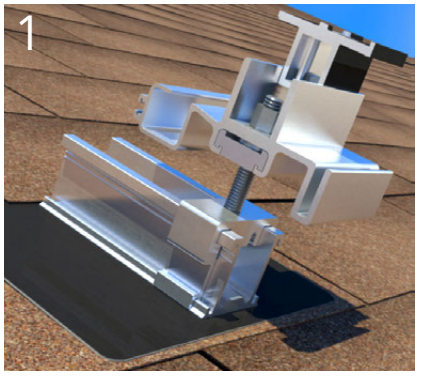
3 Insert the flashing so the top part is under the next row of shingles and pushed far enough up slope to prevent water infiltration through vertical joint in shingles. The leading edge of flashing must butt against upper row of nails to prevent turning when torqued.

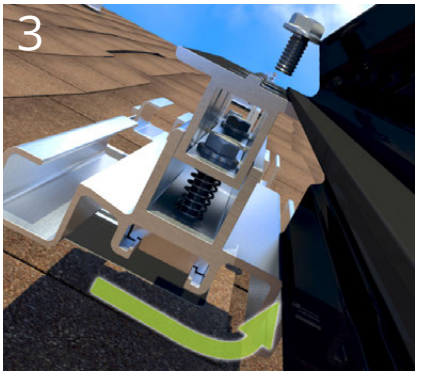
4 Line up pilot hole with GreenFasten flashing hole.

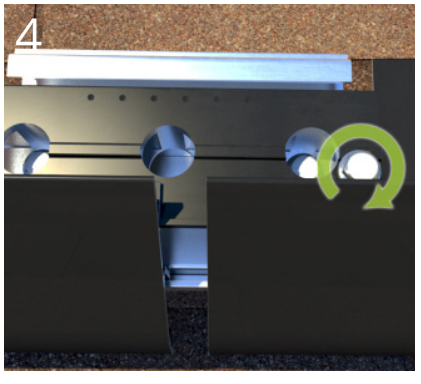
Insert the lag bolt through the EPDM bonded washer, the Rock-It slide, the gasketed hole in the flashing and into the rafter.

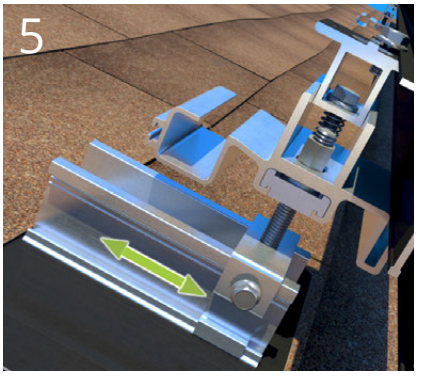
Torque: The range is between 100-140 torque inch-pounds depending on the type of wood and time of year. The visual indicator for proper torque is when the EPDM on the underside of the bonded washer begins to push out the sides as the washer compresses. If using an impact wrench to install the fasteners be careful not to over torque the fastener. You may need to stop and use a ratchet to finish the install.

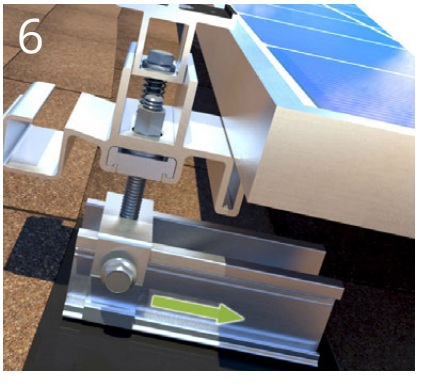
ROCK-IT SYSTEM INSTALL

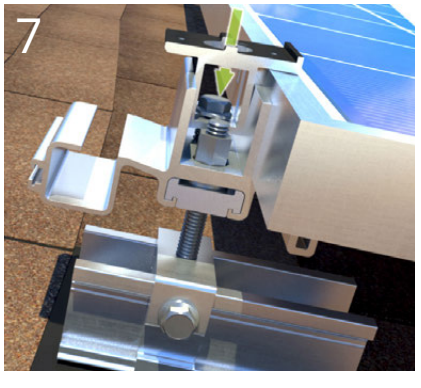


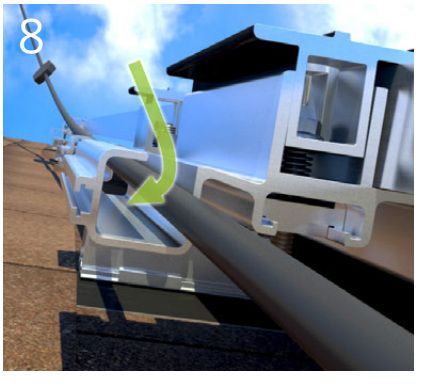


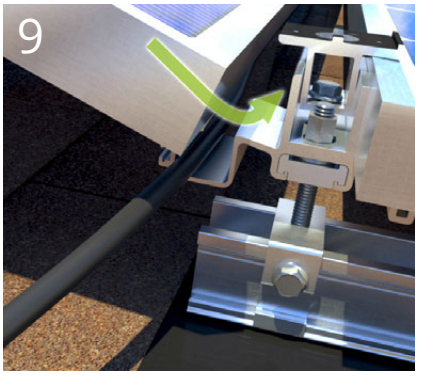


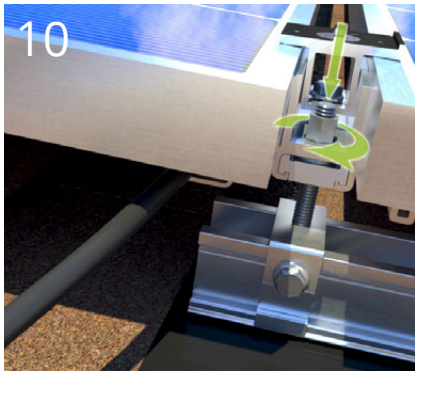












1 Install EcoFasten Solar Flashing with Rock-It Mounts
- Follow GreenFasten Install instructions for flashing and bracket install on composition shingle roofs.
- Optimum vertical distance between lag bolts is 1 3/8" plus module dimension.
- Set mounts on eave most row so that the Rock-It Pedestal is on the South end of Rock-It Slide. (ex. image 1)
- Set mounts on all upper rows so that the Rock-It Pedestal is on the North end of Rock-It Slide. (ex. image 6)

2 Install Array Skirt to Eave Mounts
- Install array skirt starting on west side of array and move east.

3-4 Attach Couplings to Array Skirt
- Tighten the west most array skirt bolt on coupling first.
- When tightening the east bolt the array skirt sections will be drawn together.

5 Align and Straighten First Row of the Rock-It System with Array Skirt
- Use North-South adjustment of the Rock-It pedestal to straighten array skirt.
- Tighten screw on side of Rock-It Pedestal to secure it to the Rock-It Slide.
- Adjust Flange Level Nut to level the system (optional – can be leveled during or after installation)

6-7 Install 1st Row of PV Modules
- Slide Rock-It Mounts that are upslope down to engage top of first module.
  Note: Make sure cable tray is facing upslope.
- Torque 1st and 2nd row of mid-clamps on Rock-It Mounts and Rock-It Couplings to 150 in-lbs.
  Note: Torque setting may vary according to module manufacturer.

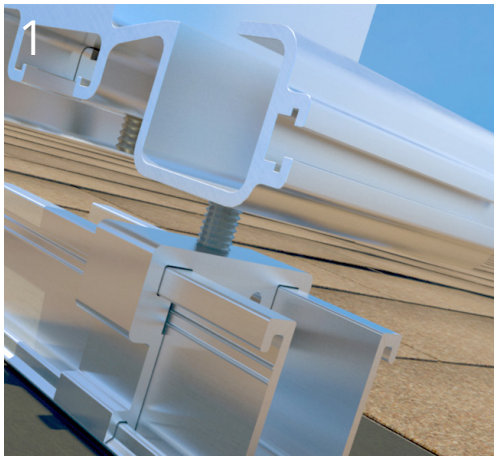
8-9 Install Balance of PV Modules
- Secure wire and electrical components in built in wire tray on Rock-It Mounts and Couplings.
- Install next row of panels and torque mid-clamps to secure modules.
- Repeat install for all remaining rows of modules.

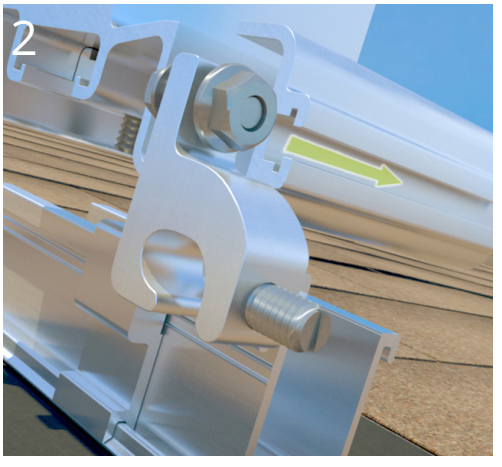
10 Level the Rock-It System
- When assembly is complete, level the entire system by adjusting Flange Level Nuts.

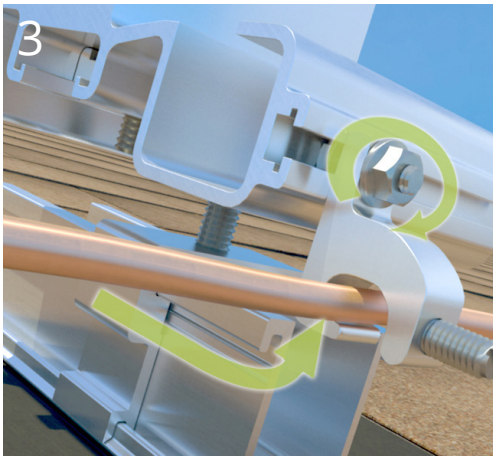
ROCK-IT SYSTEM

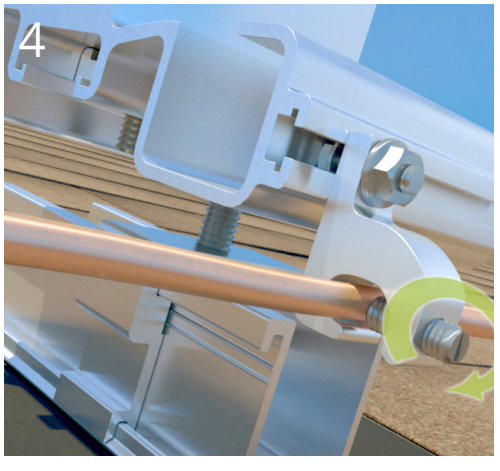
www.ecofastensolar.com info@ecofastensolar.com 877-859-3947

Grounding Lug Install









Necessary Components:

- Burndy CL50-1TN Ground Lug (UL Listing #KDER.E9999)
- 14 AWG - 4 AWG Copper Ground Wire
- 8-32 x 0.5" Serrated Flange Head Bolt (300 Series SS)
- 8-32 Serrated Flange Nut (300 Series SS)
- 11/32" and 1/4" wrenches or ratchets/sockets

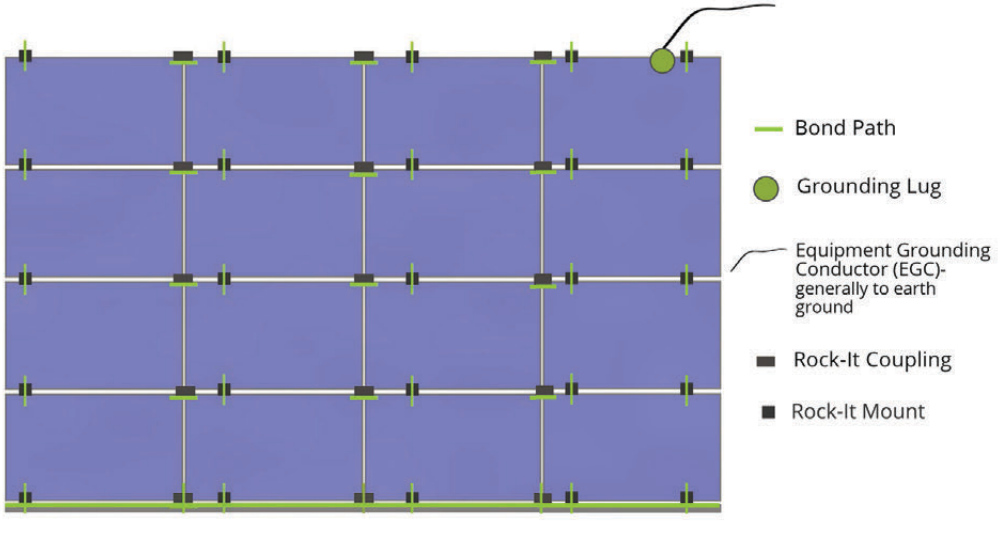
1 The Ground Lug is installed into the T slot on the Rock-It Mount.

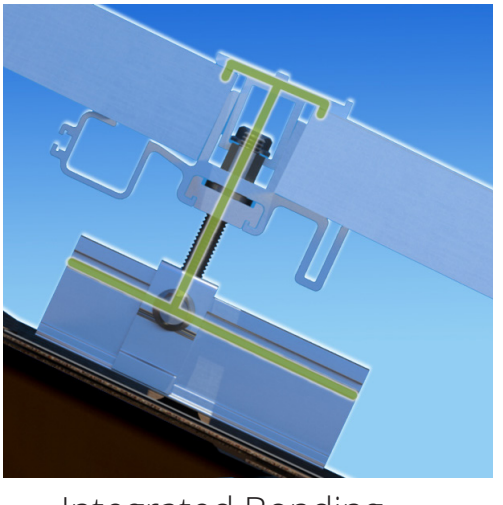
2 Slide the Flange Head Bolt on the Ground Lug into T slot on Rock-It Mount.

3 Tighten Flange Nut/Bolt.

4 Place wire in Ground Lug channel and tighten set screw to complete assembly.

Bonding Assembly and Bonding Path



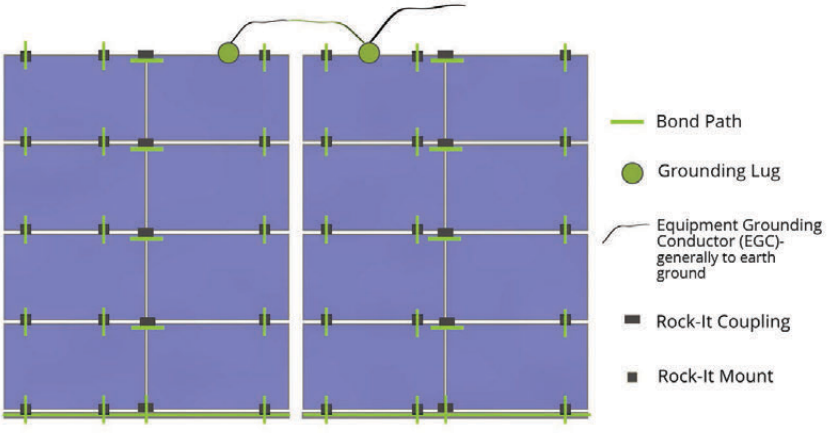


Integrated Bonding

Thermal Expansion and Bonding

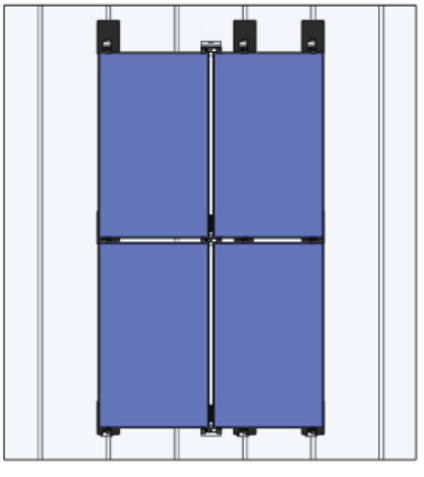
A thermal expansion gap is required per each continuous 100′ length of modules.

Omit a coupling and leave a 2″ gap in the array skirt and also between the modules at that point.



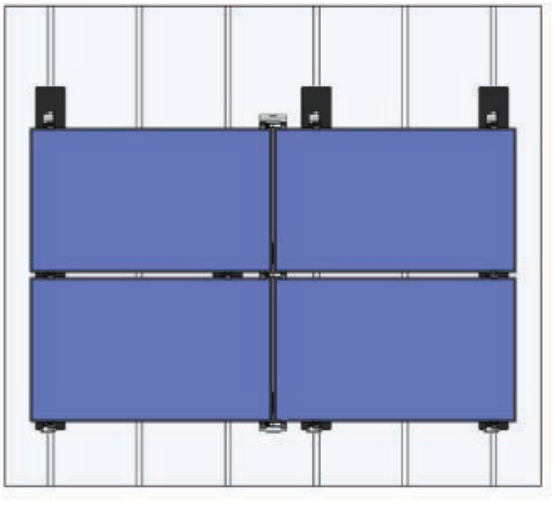
Bracket Spacing

Portrait Orientation



Maximum bracket spacing in portrait orientation is 48″ OC.

Landscape Orientation

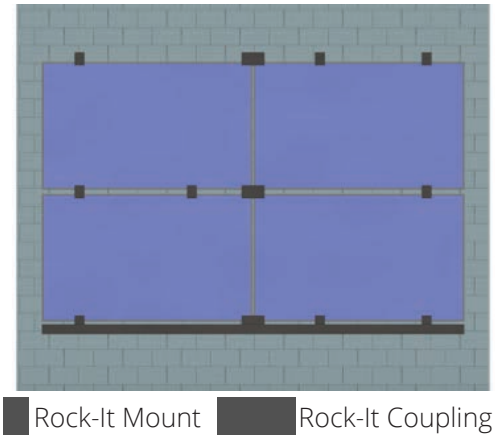


Maximum bracket spacing in landscape orientation is 72″ OC.

Spacing may vary depending upon project specific structural requirements; i.e. high snow and wind load areas may require lesser spacing E-W than the maximum.

Staggered Layout

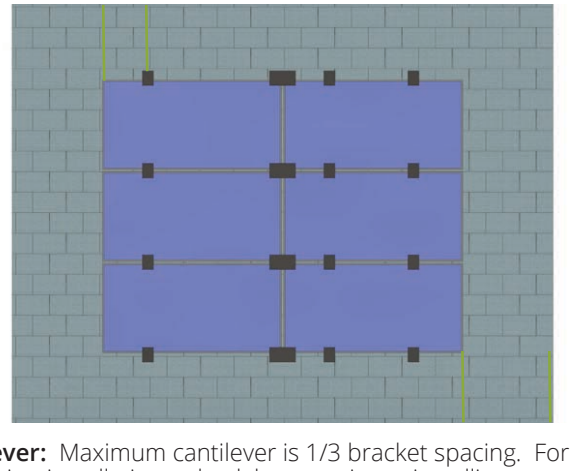
Staggered Mounting Points



Rock-It Mount Rock-It Coupling

The array layout instructions in this installation manual offer a general overview of layout. Periodically, due to a variety of factors (roof obstacles, shading, etc.) other layouts are required.

Cantilever and Offset



Cantilever: Maximum cantilever is 1/3 bracket spacing. For portrait orientation installations, check layout prior to installing.

Offset: Offset from all roof edges depends on wind speed, snow loads, local fire and building codes per location

ROCK-IT SYSTEM

- Fastest, easiest to level system on the market
- ETL listed to UL SUB 2703
- Class A Fire rating with Type 1 modules
- Integrated electrical bonding
- SIMPLE- only 3 components
- Fixed wire management tray
- North-South adjustability of up to 4″
- Only one tool required (1/2″ deep well socket)

Max No. of Panels	300 Modules per ground lug	**Materials**	300 Series Stainless, 6000 Series Aluminum
Max System Voltage	1000VDC	**Coating**	Black Andodization/Mill Finish
Class A Fire Rating	With UL1703 Type 1 Rated Modules	**Lug Specifications**	Burndy CL50-1TN Ground Lug (UL Listing #KDER E9999)
Leveling Range	3-4″	**Ground Wire Per above Lug spec.**	14 AWG- 4 AWG Copper Ground Wire
Rock-It Slide Range	4″	**Max Module Size**	64.96″(1650mm) x 39.05″(992mm) x 2″(50mm)
Min/Max Roof Slope	1/2:12/12:12	**Max Downforce/Uplift Rating**	45 PSF
Max Anchor Spacing	72″	**Rock-It Mount Load Rating**	547lbs with Single 5/16″ Lag 3.0 Safety Factor
Skirt Box QTY	6 units	**Slide Fastening Hole**	5/16″ diameter
Mount Box QTY	12 units	**Module Cantilever**	Lesser of 25% Width, or Module Installation Manual
Rock-It Slide Box QTY	50 units		
Coupling Box QTY	12 units	**Warranty**	10 Year Material and Workmanship

Codes: National Electric Code, ANSI/NFPA 70, NEC 250, NEC 690, IRC, IBC
Standards: UL 2703, UL 1703

EcoFasten Solar®

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25 YR Warranty Product & Performance

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2021

Q CELLS Yield Security

BREAKING THE 20 % EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9 %.

THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty[2].

[1] APT test conditions according to IEC / TS 62804-1:2015, method A (–1500 V, 96 h)
[2] See data sheet on rear for further information.

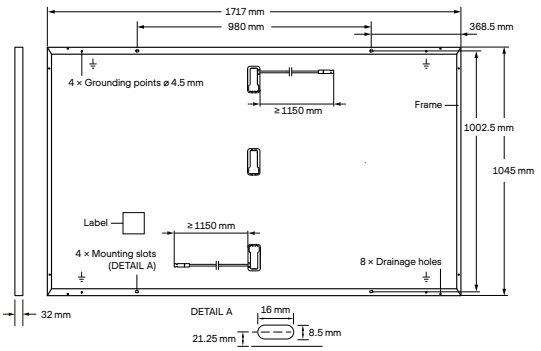
THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	1717 mm × 1045 mm × 32 mm (including frame)
Weight	19.9 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1150 mm, (–) ≥1150 mm
Connector	Stäubli MC4; IP68

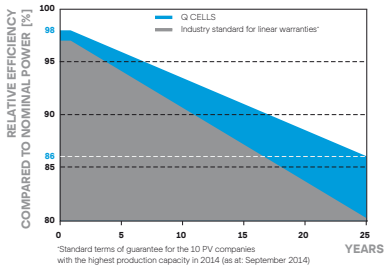


ELECTRICAL CHARACTERISTICS

POWER CLASS				350	355	360	365	370
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	350	355	360	365	370
	Short Circuit Current[1]	I_{SC}	[A]	10.97	11.00	11.04	11.07	11.10
	Open Circuit Voltage[1]	V_{OC}	[V]	41.11	41.14	41.18	41.21	41.24
	Current at MPP	I_{MPP}	[A]	10.37	10.43	10.49	10.56	10.62
	Voltage at MPP	V_{MPP}	[V]	33.76	34.03	34.31	34.58	34.84
	Efficiency[1]	η	[%]	≥19.5	≥19.8	≥20.1	≥20.3	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	262.6	266.3	270.1	273.8	277.6
	Short Circuit Current	I_{SC}	[A]	8.84	8.87	8.89	8.92	8.95
	Open Circuit Voltage	V_{OC}	[V]	38.77	38.80	38.83	38.86	38.90
	Current at MPP	I_{MPP}	[A]	8.14	8.20	8.26	8.31	8.37
	Voltage at MPP	V_{MPP}	[V]	32.24	32.48	32.71	32.94	33.17

[1]Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

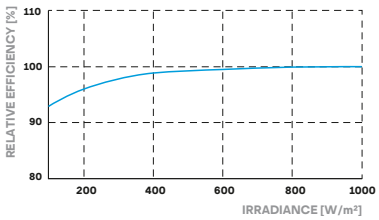
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	–0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	PV module classification	Class II
Maximum Reverse Current	I_R	[A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 2
Max. Design Load, Push / Pull		[Pa]	3600 / 2660	Permitted Module Temperature on Continuous Duty	–40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 4000		

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland;
IEC 61215:2016; IEC 61730:2016.
This data sheet complies
with DIN EN 50380.
QCPV Certification ongoing.

TÜVRheinland CERTIFIED
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ID 1111220277

CE

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS GmbH
Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | **TEL** +49 (0)3494 66 99-23444 | **FAX** +49 (0)3494 66 99-23000 | **EMAIL** sales@q-cells.com | **WEB** www.q-cells.com

Engineered in Germany

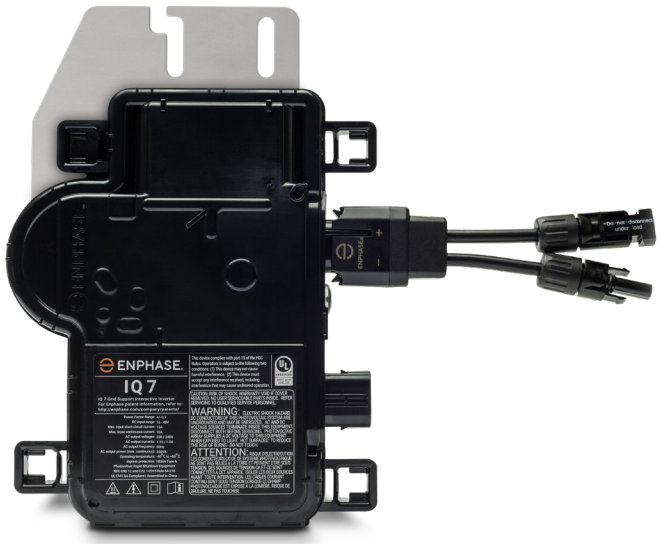
Q CELLS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters 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 of up to 25 years.



Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

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

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
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

UL CERTIFIED
SAFETY US-CA E341165

To learn more about Enphase offerings, visit **enphase.com**

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Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US		IQ7PLUS-72-2-US	
Commonly used module pairings[1]	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	**IQ 7 Microinverter**		**IQ 7+ Microinverter**	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	
EFFICIENCY	**@240 V**	**@208 V**	**@240 V**	**@208 V**
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	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 (2.38 lbs)			
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	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

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2019-3-26