



March 3, 2022

PlugPV LLC
875 Broadway
Albany, NY, 12207

Subject: Structural Certification for Installation of Solar Panels
Job Number: 22-02395
Client: Yankee Custom Builders - 005719
Address: 31 Matthiessen Park N, Irvington, NY 10533

Attn.: To Whom It May Concern

The scope of work is limited to performing a structural evaluation of loading at the address above. After review, the EOR certifies that the alteration to the existing structure by installation of the PV system meets the requirements of the applicable codes and criteria shown below:

Design Criteria:

- Applicable Codes = 2020 Residential Code of NYS, ASCE 7-16, and NDS-18
- Ground Snow Load = 20 psf; Roof Snow Load = 20 psf ARRAY 1/2/3
- Basic Wind Speed = 114 mph Exposure Category C
- Existing Roof Dead Load: ARRAY 1/2/3 = 10 psf
- Existing Roof Live Load: 20 psf

The existing structure is adequate to support the PV alteration per 2018 IEBC §402.3 & 402.4.

PV System Assembly

The PV module assembly including all structural supporting components have been reviewed to be in accordance with the manufacturers specifications and meets or exceeds all requirements set forth by the referenced codes above.

Installation Requirements

The PV system shall be mounted flush to the existing roof surface. The contractor shall notify the EOR of any signs of damage to the roof framing prior to commencing the installation. The EOR shall then determine if the existing roof is adequate to support the applied loads. The electrical engineering and system waterproofing shall be addressed by others.

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

Sincerely,

Paul Zacher S.E.



03/03/2022

APPLICATION FOR BUILDING PERMIT

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

Application Number:	823	Date:	10/13/2022
Job Location:	31 MATTHIESSEN PARK	Parcel ID:	2.40-10-11
Property Owner:	Dawn Fitzpatrick	Property Class:	1 FAMILY RES
Occupancy:	One/ Two Family	Zoning:	
Common Name:			

Applicant	Contractor
Luis Esquina	Luis Esquina
PlugPV, LLC	PlugPV, LLC
875 Broadway Albany NY 12207	875 Broadway Albany NY 12207
5189485316	5189485316

Description of Work

Type of Work:	Solar Panels	Applicant is:	Contractor
Work Requested by:	The Owner	In association with:	
Cost of Work (Est.):	87040.00	Property Class:	1 FAMILY RES

Description of Work

Installation of 20.8 kW DC code compliant roof mounted solar and installation of 12 Tesla Power walls.

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: 31 MATTHIESSEN PARK

Parcel Id: 2.40-10-11

AFFIDAVIT OF APPLICANT

I **Luis Esquina** being duly sworn, depose and says: That s/he does business as: **PlugPV, LLC** with offices at: **875 Broadway Albany NY 12207** and that s/he is:


- ☐ The owner of the property described herein.
- ☒ The Agent / Contractor of the New York Corporation PlugPV, LLC with offices at: 875 Broadway Albany, NY 12207 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 13th day of October of 2022


Notary Public / Commission of Deeds




Applicant's Signature

OWNER'S AUTHORIZATION

I **Dawn Fitzpatrick** as the owner of the subject premises and have authorized the contractor named above to perform the work under the subject application.

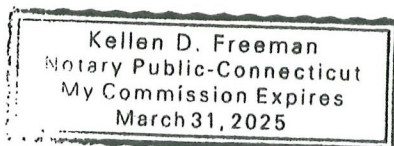
Owner phone number 914-715-4779 Owner email address dawnfitz@me.com

- ☐ **Dawn Fitzpatrick** 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 28 day of October of 2022


Notary Public / Commission of Deeds


Applicant's Signature



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 licensed 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 contracting 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

* Permit fee \$17 per thousand dollars (\$1000) of estimated cost of construction, or fraction thereof

85

• Inspection Fees (as applicable)

- | | |
|--|--|
| • Insulation: \$50 | • Footing: \$50 |
| • Solid Fuel: \$50 | • Preparation for concrete slabs and walls: \$50 |
| • Foundation and footing drain: \$50 | • Framing: \$50 |
| • Energy Code Compliance: \$50 | • Building systems, including underground and rough-in: \$50 |
| • Sediment and erosion control: \$50 | • Fire resistant construction and penetrations: \$50 |
| • Footing: \$50 | • Final Inspection for C.O.: \$50 |
| • Preparation for concrete slabs and walls: \$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 to applying 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.)



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

05/16/2022

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 Hughes Insurance Agency, Inc. 328 Bay Road PO BOX 4630 Queensbury NY 12804	CONTACT NAME: Linda Abodeely PHONE (A/C, No, Ext): (518) 793-3131 FAX (A/C, No): (518) 793-3121 E-MAIL ADDRESS: Linda@Hughesinsurance.com																					
INSURED PLUGPV LLC 875 Broadway Albany NY 12207	<table><tr><th colspan="2">INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr><tr><td>INSURER A:</td><td>Southwest Marine & General Insurance Company</td><td>12294</td></tr><tr><td>INSURER B:</td><td>Michigan Millers Mutual Ins Co</td><td>14508</td></tr><tr><td>INSURER C:</td><td></td><td></td></tr><tr><td>INSURER D:</td><td></td><td></td></tr><tr><td>INSURER E:</td><td></td><td></td></tr><tr><td>INSURER F:</td><td></td><td></td></tr></table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A:	Southwest Marine & General Insurance Company	12294	INSURER B:	Michigan Millers Mutual Ins Co	14508	INSURER C:			INSURER D:			INSURER E:			INSURER F:		
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INSURER E:																						
INSURER F:																						

COVERAGES **CERTIFICATE NUMBER:** 21-22 - 22-23 Master **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	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			PK202100016943	03/15/2022	03/15/2023	<table><tr><td>EACH OCCURRENCE</td><td>\$ 1,000,000</td></tr><tr><td>DAMAGE TO RENTED PREMISES (Ea occurrence)</td><td>\$ 100,000</td></tr><tr><td>MED EXP (Any one person)</td><td>\$ 5,000</td></tr><tr><td>PERSONAL & ADV INJURY</td><td>\$ 1,000,000</td></tr><tr><td>GENERAL AGGREGATE</td><td>\$ 2,000,000</td></tr><tr><td>PRODUCTS - COMP/OP AGG</td><td>\$ 2,000,000</td></tr><tr><td></td><td>\$</td></tr></table>	EACH OCCURRENCE	\$ 1,000,000	DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000	MED EXP (Any one person)	\$ 5,000	PERSONAL & ADV INJURY	\$ 1,000,000	GENERAL AGGREGATE	\$ 2,000,000	PRODUCTS - COMP/OP AGG	\$ 2,000,000		\$
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	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input type="checkbox"/> N/A		N/A				<table><tr><td>PER STATUTE</td><td>OTH-ER</td></tr><tr><td>E.L. EACH ACCIDENT</td><td>\$</td></tr><tr><td>E.L. DISEASE - EA EMPLOYEE</td><td>\$</td></tr><tr><td>E.L. DISEASE - POLICY LIMIT</td><td>\$</td></tr></table>	PER STATUTE	OTH-ER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$						
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E.L. EACH ACCIDENT	\$																				
E.L. DISEASE - EA EMPLOYEE	\$																				
E.L. DISEASE - POLICY LIMIT	\$																				
A	Leased Rented Equipment			PK202100016943	03/15/2022	03/15/2023	Limit / 2,500 deductible 100,000														

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

Subject to all policy terms, limitations and conditions:
Certificate Holder is Additional Insured when required by written contract, agreement or permit.

CERTIFICATE HOLDER

Village of Irvington
Building Department
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
Linda M. Abodeely A.C.U.

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CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

***** 820674758
LOVELL SAFETY MGMT CO., LLC
110 WILLIAM STREET 12TH FLR
NEW YORK NY 10038



SCAN TO VALIDATE
AND SUBSCRIBE

POLICYHOLDER PLUGPV LLC 875 BROADWAY ALBANY NY 12207		CERTIFICATE HOLDER VILLAGE OF IRVINGTON BUILDING DEPARTMENT 85 MAIN STREET IRVINGTON NY 10533	
POLICY NUMBER Z2412 597-3	CERTIFICATE NUMBER 903740	POLICY PERIOD 04/01/2022 TO 04/01/2023	DATE 5/31/2022

THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 2412 597-3, COVERING THE ENTIRE OBLIGATION OF THIS POLICYHOLDER FOR WORKERS' COMPENSATION UNDER THE NEW YORK WORKERS' COMPENSATION LAW WITH RESPECT TO ALL OPERATIONS IN THE STATE OF NEW YORK, EXCEPT AS INDICATED BELOW.

IF YOU WISH TO RECEIVE NOTIFICATIONS REGARDING SAID POLICY, INCLUDING ANY NOTIFICATION OF CANCELLATIONS, OR TO VALIDATE THIS CERTIFICATE, VISIT OUR WEBSITE AT [HTTPS://WWW.NYSIF.COM/CERT/CERTVAL.ASP](https://www.nysif.com/cert/certval.asp). THE NEW YORK STATE INSURANCE FUND IS NOT LIABLE IN THE EVENT OF FAILURE TO GIVE SUCH NOTIFICATIONS.

THIS POLICY DOES NOT COVER THE SOLE PROPRIETOR, PARTNERS AND/OR MEMBERS OF A LIMITED LIABILITY COMPANY.

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS NOR INSURANCE COVERAGE UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICY.

NEW YORK STATE INSURANCE FUND



DIRECTOR, INSURANCE FUND UNDERWRITING

VALIDATION NUMBER: 726127353

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD

CERTIFICATE OF INSURANCE COVERAGE UNDER THE NYS DISABILITY BENEFITS LAW

PART 1. To be completed by Disability Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name and Address of Insured (Use street address only)

PLUGPV LLC
875 Broadway
Albany, NY 12207

1b. Business Telephone Number of Insured
(518)948-5316

1c. NYS Unemployment Insurance Employer Registration
Number of Insured

1d. Federal Employer Identification Number of Insured or
Social Security Number
820674758

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

Village of Irvington
Building Department
85 Main Street
Irvington NY 10533

3a. Name of Insurance Carrier

Standard Security Life Ins. Co. of NY

3b. Policy Number of entity listed in box "1a":
R89233-000

3c. Policy effective period:

3/28/2022 to 3/28/2023

4. Policy covers:

- a. ☒ All of the employer's employees eligible under the New York Disability Benefits Law
b. ☐ Only the following class or classes of the 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 Benefits insurance coverage as described above.

Date Signed May 31, 2022

By

(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

518-793-3131

President

Telephone Number

Title

IMPORTANT: If box "4a" is 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" is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the Disability Benefits Law. It must be mailed for completion to the Workers' Compensation Board, DB Plans Acceptance Unit, 20 Park Street, Albany, New York 12207.

PART 2. To be completed by NYS Workers' Compensation Board (Only if box "4b" of Part 1 has 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 Benefits Law with respect to all of his/her employees.

Date Signed _____

By

(Signature of NYS Workers' Compensation Board Employee)

Telephone Number _____

Title _____

Please Note: Only insurance carriers licensed to write NYS disability 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 (5-06)

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 benefits under the New York State Disability Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in box "2". ***This Certificate is valid for the earlier of one year after this form is approved by the insurance carrier or its licensed agent, or the policy expiration date listed in box "3c".***

Please Note: Upon the cancellation of the disability 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 NYS Disability Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability Benefits Law.

DISABILITY 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 notwithstanding 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 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 for all employees has been secured as provided by this article.

George Latimer
Westchester County Executive



James Maisano
Director, Consumer Protection

Department of Consumer Protection Home Improvement License

PLUGPV, LLC
875 BROADWAY
ALBANY, NY-12207

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-30112-H17



Date of Expiration
11/21/2023

VILLAGE OF IRVINGTON

BUILDING DEPARTMENT

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: Luis Esquina

Applicants Address: 875 Broadway
Albany, NY, 12207

Applicants Phone # 347-574-3779

Applicants Email LEsquina@PlugPV.com

DocuSigned by:

Luis Esquina

Date: 11/8/2022

Applicant Name: Luis Esquina Signature: _____ Date: _____ 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: Nicholas Clingerman / PlugPV, LLC

Contractors Address: 875 Broadway
Albany, NY, 12207

Contractors Phone # 518-948-5316

Contractors Email nclingerman@plugpv.com

DocuSigned by:

Nick Clingerman

Date: 11/8/2022

General Contractor Name: Nicholas Clingerman Signature: _____ Date: _____ By signing this affidavit I attest to being the general contractor of record for this application and will be responsible for oversight 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: Michael Weigold

Electrical Contractors Address: 101 Mill St.
Greenwich CT 06830

Electrical Contractors Phone # (914) 584-8059

Electrical Contractors Email mike@weigoldelectric.com

DocuSigned by:

Michael Weigold

Date: 11/8/2022

Electrical Contractor Name: Michael Weigold Signature: _____ Date: _____ By signing this affidavit I attest to being the electrical contractor of record for this application and will be responsible for oversight 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*

VILLAGE OF IRVINGTON
BUILDING DEPARTMENT
85 MAIN STREET
IRVINGTON, NEW YORK 10533
TEL: (914) 591-8335 • FAX: (914) 591-5870
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 }
County of Westchester } ss.:

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 31 Matthiessen Park N, 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: Yankee Custom Builders, Inc. 10-07-2022 (rev date)
_Planset_R1_Stamped (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 _____
(Architect) (Engineer)



Sworn to before me this
8 day of November, 2022.

Notary Public

SEE ATTACHED

7022 1670 0000 8978 0542

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Sent To *Jessica Keras*
Street and Apt. No., or PO Box No. *28 Matthessen Park, Irvington*
City, State, ZIP+4® *NY 10533*

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Sent To *Nora Capital LLC 50%*
Street and Apt. No., or PO Box No. *N Broadway, Irvington, NY*
City, State, ZIP+4® *NY 10533*

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Sent To *Robert LLC*
Street and Apt. No., or PO Box No. *11 Matthessen Park, Irvington*
City, State, ZIP+4® *NY 10533*

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Total Postage and Fees \$

Sent To *Robert B. Hentert*
Street and Apt. No., or PO Box No. *39 Matthessen Park*
City, State, ZIP+4® *Irvington NY 10533*

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Sent To *Nora Capital LLC*
Street and Apt. No., or PO Box No. *33 N Broadway, Irvington*
City, State, ZIP+4® *NY 10533*

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Total Postage and Fees \$

Sent To *Cotton H. Rodgin*
Street and Apt. No., or PO Box No. *29 Matthessen Park, Irvington*
City, State, ZIP+4® *NY 10533*

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Sent To *The Todd 3031 Family Trvs*
Street and Apt. No., or PO Box No. *35 Matthessen Park, Irvington*
City, State, ZIP+4® *NY 10533*

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NOTICE OF APPLICATION AND HEARING
Board of Architectural Review
Clerk's Office
Village of Irvington
Westchester County, New York

CERTIFIED MAIL

Date of Mailing 11/8/2022

NOTICE:

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Date of Meeting: 11/28/2022
Time of Meeting: Meeting starts at 8pm
Location of Meeting: Trustees Meeting Room
85 Main St. Irvington, NY 10533

Applicant Name	<u>Luis Esquina / PlugPV, LLC</u>	Owners Name	<u>Dawn Fitzpatrick</u>
Applicant Mailing Address	<u>875 Broadway</u>	Owner Mailing Address	<u>31 Matthiessen Park</u>
	<u>Albany, NY, 12207</u>		<u>Irvington, NY, 10553</u>
Applicant Phone Number	<u>518-948-5316</u>	Owners Phone Number	<u>914-715-4779</u>
Applicant Email Address	<u>LEsquina@PlugPV.com</u>	Owners Email Address	<u>DawnFitz@me.com</u>

Address of Proposed Solar Panels:
Street Address 31 Matthiessen Park, Irvington,
New York, 10553

To Adjacent Neighbors of: NORA CAPITAL LLC 50%
N BROADWAY, IRVINGTON, NY 10533

Please take notice that the applicant named above is requesting the Board of Architectural Review of the Village of Irvington to grant a permit for the installation of **Solar Energy Equipment** to the address listed above.

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To Adjacent Neighbors of: JESSICA KEARNS
28 MATTHIESSEN PARK, IRVINGTON, NY 10533

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To Adjacent Neighbors of: NORA CAPITAL LLC
33 N BROADWAY, IRVINGTON, NY 10533

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Westchester County, New York

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Address of Proposed Solar Panels:
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New York, 10553

To Adjacent Neighbors of: NORA CAPITAL LLC 50%
N BROADWAY, IRVINGTON, NY 10533

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Applicant Mailing Address 875 Broadway
Albany, NY, 12207
Applicant Phone Number 518-948-5316
Applicant Email Address LEsquina@PlugPV.com

Owners Name Dawn Fitzpatrick
Owner Mailing Address 31 Matthiessen Park
Irvington, NY, 10553
Owners Phone Number 914-715-4779
Owners Email Address DawnFitz@me.com

Address of Proposed Solar Panels:
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To Adjacent Neighbors of: METROPOLITAN TRANSPORTATI
HUDSON LINE - IRV, IRVINGTON, NY 10533

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To Adjacent Neighbors of: JESSICA KEARNS
28 MATTHIESSEN PARK, IRVINGTON, NY 10533

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To Adjacent Neighbors of: ROBERT BITTENCOURT
39 MATTHIESSEN PARK, IRVINGTON, NY 10533

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For any application for a building permit for solar energy equipment, written notice of the application and the date, time and place of the meeting at which it will be considered must be given to all adjacent property owners not less than 10 days prior to the meeting date. Notice shall be by a method of mail or a delivery service company providing proof of mailing or delivery or by personal service of such notice on the property owners, evidenced by their signature as acknowledgment of receipt of such notice on a form supplied or similar to one supplied by the Village Clerk. Proof of service of the notice shall be filed prior to or at the meeting at which the application is considered.
("Adjacent property" refers to any neighbor that shares a property line with the subject property as well as neighbors across any street from the subject property.)*

NOTICE OF APPLICATION AND HEARING

Board of Architectural Review

Clerk's Office

Village of Irvington

Westchester County, New York

CERTIFIED MAIL

Date of Mailing 11/8/2022

NOTICE:

Pursuant to 9-12 of the code of the Village of Irvington notice to adjacent neighbors (as defined below) is required 10 days prior a meeting where an application for Solar Panels to the Village of Irvington Architectural Board is asking to be heard.

Date of Meeting: 11/28/2022
Time of Meeting: Meeting starts at 8pm
Location of Meeting: Trustees Meeting Room
85 Main St. Irvington, NY 10533

Applicant Name	<u>Luis Esquina / PlugPV, LLC</u>	Owners Name	<u>Dawn Fitzpatrick</u>
Applicant Mailing Address	<u>875 Broadway</u>	Owner Mailing Address	<u>31 Matthiessen Park</u>
	<u>Albany, NY, 12207</u>		<u>Irvington, NY, 10553</u>
Applicant Phone Number	<u>518-948-5316</u>	Owners Phone Number	<u>914-715-4779</u>
Applicant Email Address	<u>LEsquina@PlugPV.com</u>	Owners Email Address	<u>DawnFitz@me.com</u>

Address of Proposed Solar Panels:

Street Address 31 Matthiessen Park, Irvington,
New York, 10553

To Adjacent Neighbors of: ROBAR LLC
11 MATTHIESSEN PARK, IRVINGTON, NY 10533

Please take notice that the applicant named above is requesting the Board of Architectural Review of the Village of Irvington to grant a permit for the installation of **Solar Energy Equipment** to the address listed above.

Plans of the proposed work are available in the office of the Irvington Building Department for public inspection during regular business hours 5 days prior to the scheduled meeting.

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Applicant Email Address	<u>LEsquina@PlugPV.com</u>	Owners Email Address	<u>DawnFitz@me.com</u>

Address of Proposed Solar Panels:

Street Address 31 Matthiessen Park, Irvington,
New York, 10553

To Adjacent Neighbors of: NORA CAPITAL LLC
33 N BROADWAY, IRVINGTON, NY 10533

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Board of Architectural Review

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Village of Irvington

Westchester County, New York

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Owners Email Address DawnFitz@me.com

Address of Proposed Solar Panels:
Street Address 31 Matthiessen Park, Irvington,
New York, 10553

To Adjacent Neighbors of: THE TODD 3031 FAMILY TRUS
35 MATTHIESSEN PARK, IRVINGTON, NY 10533

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powered by

Q.ANTUM DUO Z

Q.PEAK DUO BLK ML-G10+ 385-405

ENDURING HIGH
PERFORMANCE



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 behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

High-tech aluminum 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 warranty².

¹ APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)

² See data sheet on rear for further information.



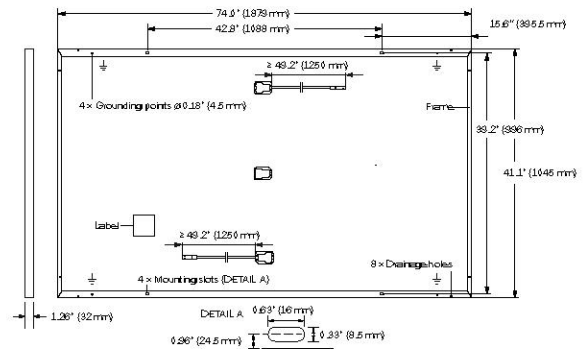
THE IDEAL SOLUTION FOR:



Rooftop arrays on
residential buildings

MECHANICAL SPECIFICATION

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q-ANTUM solar half cells
Junction Box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4, IP68



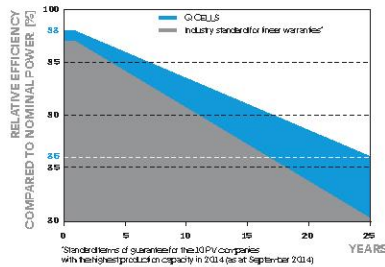
ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)						
Minimum	Power at MPP ¹	P _{MPP} [W]	385	390	395	400
	Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14
	Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.30
	Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77
	Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13
	Efficiency ¹	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²						
Minimum	Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1
	Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97
	Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72
	Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51
	Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25

¹Measurement 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 • *800 W/m², NMOT, spectrum AM 1.5

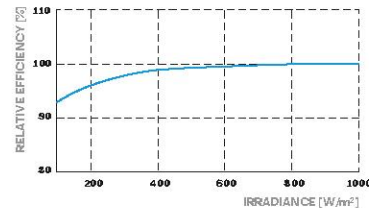
Q CELLS PERFORMANCE WARRANTY

PERFORMANCE AT LOW IRRADIANCE



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.



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 [°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ³	[lbs/ft²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)		

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant,
Quality Controlled PV - TÜV Rheinland,
IEC 61215:2016, IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells),
QCPV Certification ongoing.



PACKAGING INFORMATION

Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules

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 America Inc.

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

TRANSITIONING TO UL 61730-1 AND UL 61730-2 FROM UL 1703

BACKGROUND

Solar panel certification for the U.S. market has transitioned from UL 1703 to UL 61730-1 and UL 61730-2. UL 61730-1 encompasses the construction evaluation of the solar module, such as the individual component evaluation utilized in construction/assembly, and design assessment, such as clearance and creepage distances. UL 61730-2 entails testing requirements for solar panels such as humidity freeze tests and how to conduct such tests. The new UL standards (UL 61730-1 and -2) harmonize with existing international standards (IEC 61730-1 and -2). The harmonization helps solar panel manufacturing companies operate in a global en-

vironment under a single certification program. Since IEC 61730 standards have been developed for the international market, this may not necessarily address specific local requirements such as for the U.S. market. However, modifications made to address the U.S. market's safety requirements have been incorporated and are called national deviations. When comparing the UL 61730 certification program against the UL 1703 certification program, UL 61730 involves more testing requirements such as more fire types alongside other key differences as tabulated below:

KEY DIFFERENCES BETWEEN UL 1703 AND UL 61730-1 AND UL 61730-2

STANDARD REQUIREMENTS	UL 1703	UL 61730-1 & UL 61730-2
Construction and Testing	One document, UL 1703, refers to construction evaluation of the product and its testing	Two documents -UL 61730-1 refers to construction evaluation of the product and UL 61730-2 refers to its testing
Number of Test Sequences	4	8
Design Load	30 psf or 1436 Pa	50.12 psf or 2400 Pa
Fire Type	Up to Type 15	Up to Type 33
California Energy Commission	Will not accept UL 1703 certification for new products starting January 1, 2020	Accepted starting January 1, 2020
NEC 2020	Referenced	Referenced

QUESTION AND ANSWER

Do I need UL 1703 or UL 61730 certification? Will both or one of the two suffice?

Certification to only one standard is required (UL 1703 or UL 61730) but will depend on the timeframe. Products with UL1703 obtained before January 2020 can continue to be used in the U.S., but new products certified after January 2020 need to have UL 61730 for CEC listing. QCELLS solar panels are UL 1703 and UL 61730 certified since the standard was adopted by the CEC.

Which standard is better?

Overall, UL 61730 is a better standard for modules since the requirements and test cycles are more stringent in UL 61730 compared to UL 1703. It is more beneficial for the market and addresses challenges such as new construction types for fire ratings that were not addressed before in UL 1703.

Are these new standards adopted or referenced in the 2020 National Electric Code?

UL 61730-1/-2 is referenced in Appendix A of the latest NEC 2020 edition. This is also helpful to point out to building inspectors if they have questions about UL 61730 certification.

Whom should we reach out to in case building officials have any questions?

Please reach out to Q CELLS at pti@us.q-cells.com; an engineer from Q CELLS will assist you with your needs.



Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505

POWER OPTIMIZER



PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

/ Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P405 (for high-voltage modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT									
Rated Input DC Power ⁽¹⁾	320	350	370	400	405		485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	60	125 ⁽²⁾		83 ⁽²⁾	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8-60	12.5 - 105		12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	11.02	11	10.1	11.75	11		14	Adc
Maximum DC Input Current	13.75			12.5	14.65	12.5		17.5	Adc
Maximum Efficiency	99.5								%
Weighted Efficiency	98.8							98.6	%
Overtoltage Category	II								
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)									
Maximum Output Current	15								Adc
Maximum Output Voltage	60					85			Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)									
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc
STANDARD COMPLIANCE									
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3								
Safety	IEC62109-1 (class II safety), UL1741								
Material	UL94 V-0, UV Resistant								
RoHS	Yes								
INSTALLATION SPECIFICATIONS									
Maximum Allowed System Voltage	1000								Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters								
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9		129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	655 / 1.5	845 / 1.9		1064 / 2.3	gr / lb
Input Connector	MC4 ⁽³⁾					Single or dual MC4 ⁽³⁾⁽⁴⁾		MC4 ⁽⁵⁾	
Input Wire Length	0.16 / 0.52				0.16 or 0.9 / 0.52 or 2.95 ⁽⁶⁾	0.16 / 0.52			m / ft
Output Wire Type / Connector	Double Insulated / MC4								
Output Wire Length	0.9 / 2.95		1.2 / 3.9						m / ft
Operating Temperature Range ⁽⁶⁾	-40 to +85 / -40 to +185								°C / °F
Protection Rating	IP68 / NEMA6P								
Relative Humidity	0 - 100								%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed

(2) NEC 2017 requires max input voltage be not more than 80V

(3) For other connector types please contact SolarEdge

(4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals

(5) Longer inputs wire length are available for use. For 0.9m input wire length order P401-xxxLxxx

(6) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter ⁽⁷⁾⁽⁸⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401	8	10	18	
	P405, P485, P505	6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 ⁽⁹⁾	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽¹⁰⁾	12750 ⁽¹¹⁾	W
Parallel Strings of Different Lengths or Orientations	Yes				

(7) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf

(8) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string

(9) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

(10) For 208V grid: it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W

(11) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

/ Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

(1) For other regional settings please contact SolarEdge support

(2) A higher current source may be used, the inverter will limit its input current to the values stated

/ Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

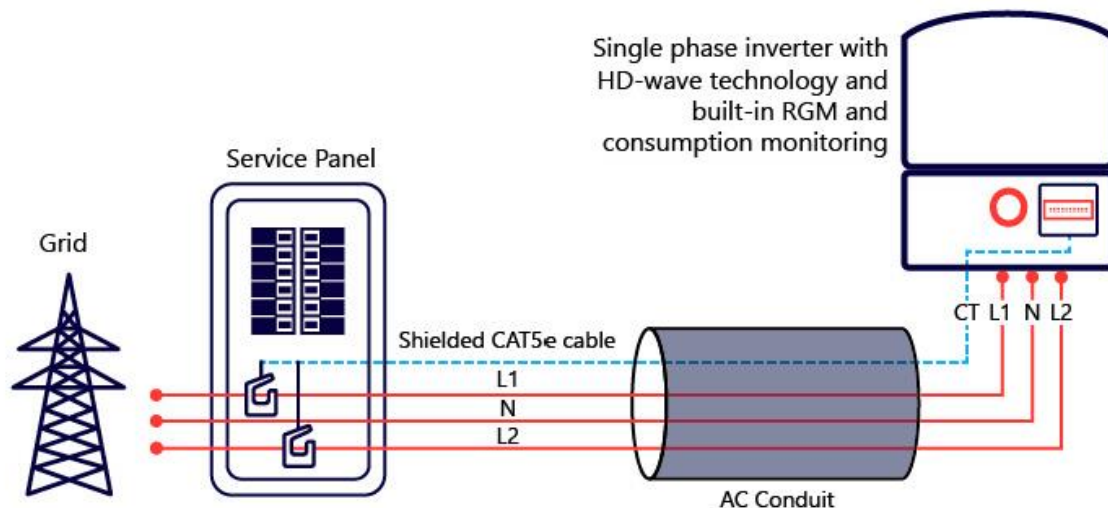
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽¹⁾						
Consumption metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards	IEEE1547, Rule 21, Rule14 (H1)						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				1" Maximum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG				1" Maximum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25				< 50		dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾						°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

(3) Inverter with Revenue Grade Meter P/N: SExxxH-US000BNG4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxH-US000BN4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.

(4) Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.



PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh
Usable Energy	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/- 1.0 adjustable
Power Factor Range (full-rated power)	+/- 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency ^{1,3}	90%
Warranty	10 years

¹Values provided for 25°C (77°F), 3.3 kW charge/discharge power.

²In Backup mode, grid charge power is limited to 3.3 kW.

³AC to battery to AC, at beginning of life.

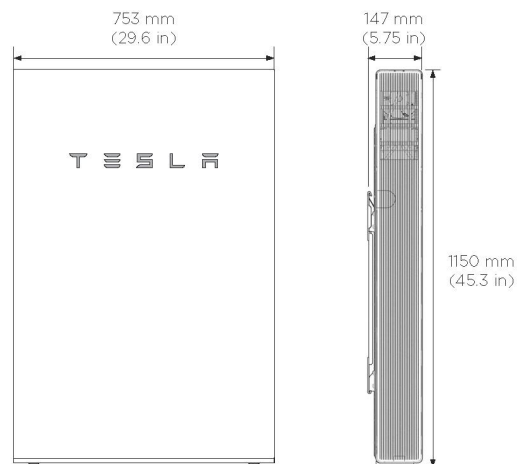
COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEEE 1547, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions ¹	1150 mm x 755 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)
Weight ¹	114 kg (251.3 lbs)
Mounting options	Floor or wall mount

¹Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.

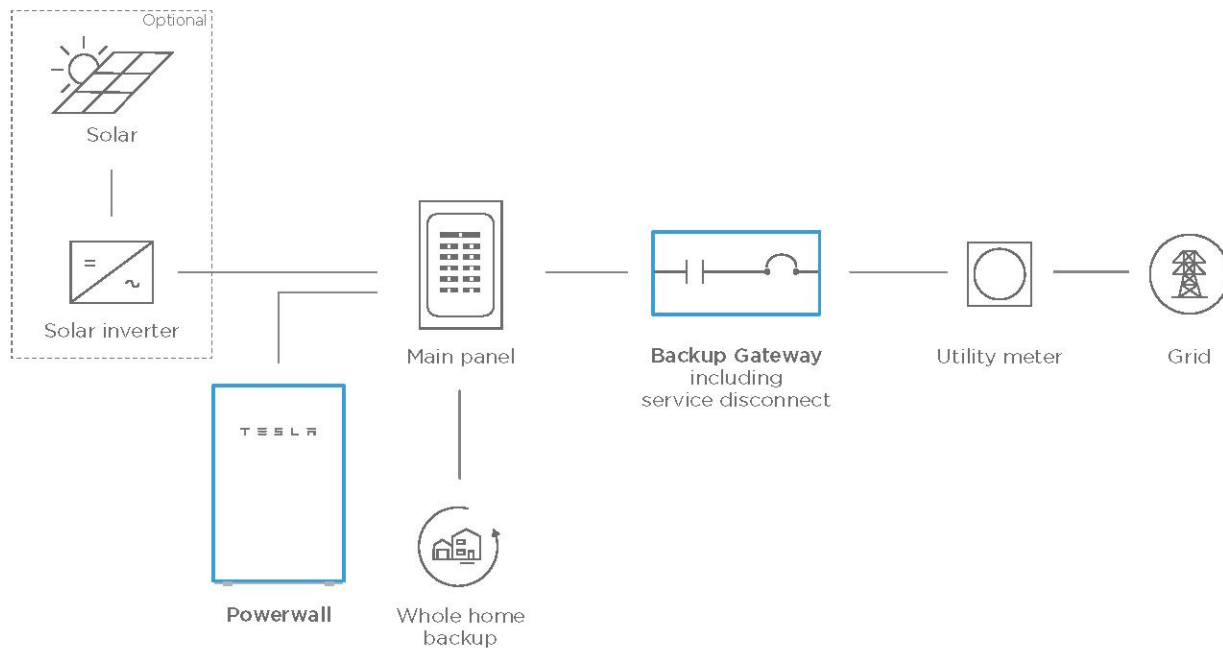


ENVIRONMENTAL SPECIFICATIONS

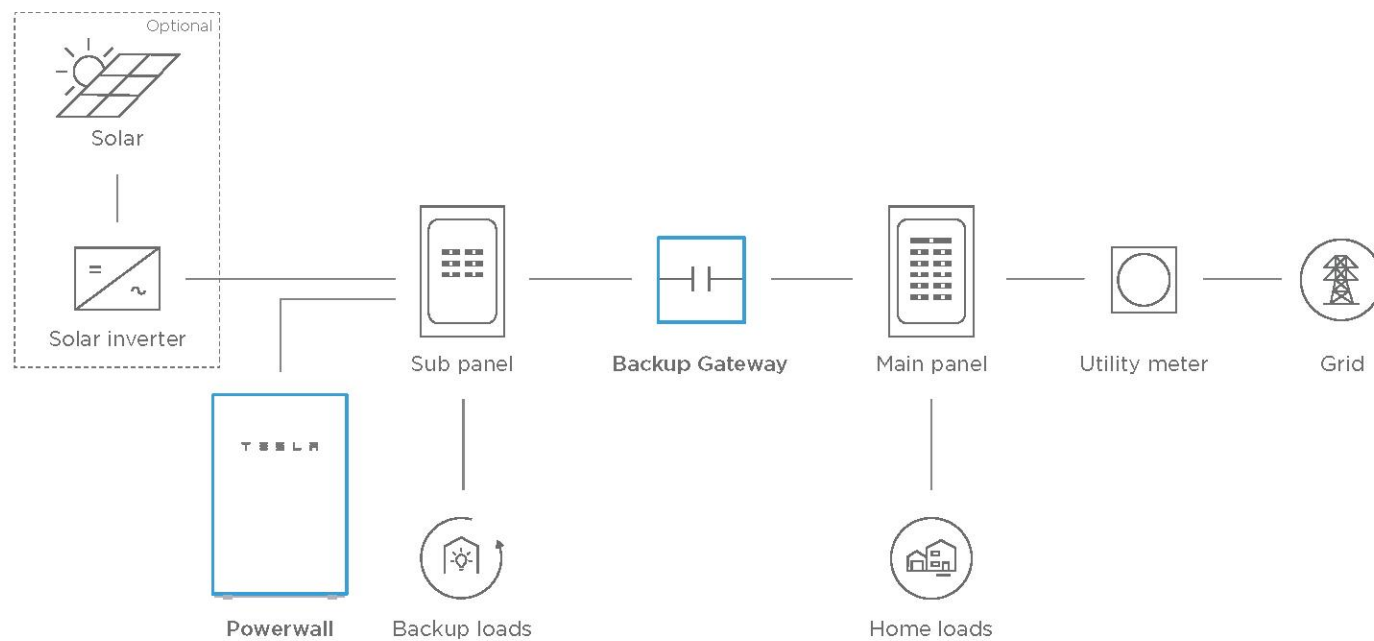
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

TYPICAL SYSTEM LAYOUTS

WHOLE HOME BACKUP



PARTIAL HOME BACKUP



POWERWALL

Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.



PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA ¹
Overcurrent Protection Device	100-200A; Service Entrance Rated ¹
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/- 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G) ²
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, and backup
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 years

¹ When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.

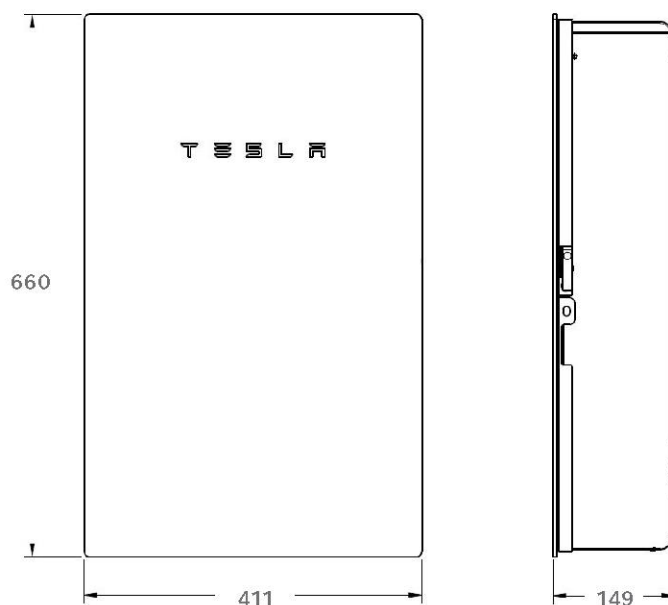
² The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



ENVIRONMENTAL SPECIFICATIONS

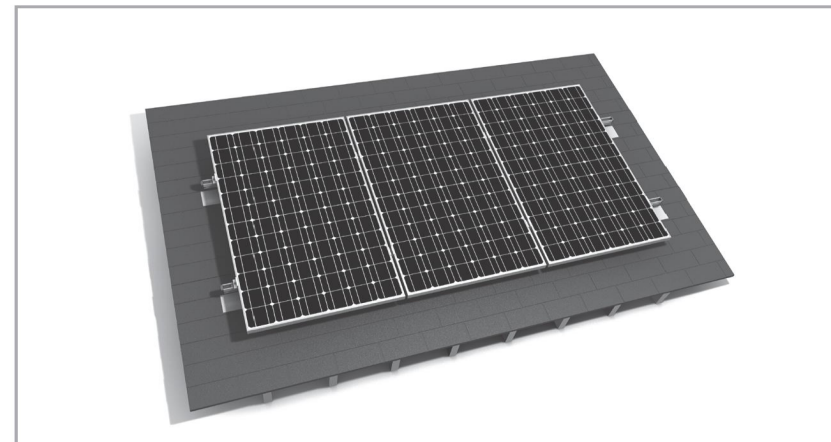
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R

CROSSRAIL SYSTEM

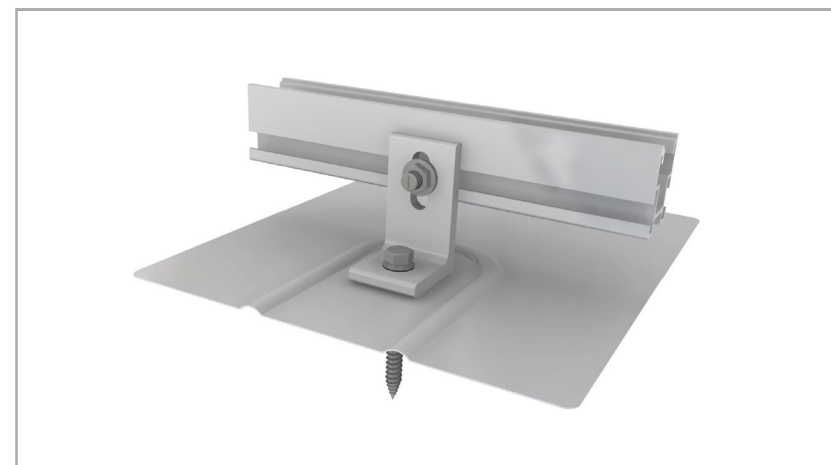
- High quality, German engineered system optimized for residential installation
- Everest M K2 mounting hardware simplifies module installation – fast, easy, and secure
- Easily integrates with third party roof attachment products, such as QuickMountPV
- L-foot provides adjustability and compatibility with common roof interfaces (Comp, Tile & Metal)
- No shingle cutting, won't void roof manufacturer's warranty
- 100% code-compliant, structural validation for all solar states
- Three rail sizes available to suit all structural conditions
- All components also available in dark
- Fast installation, minimal component count result in low total installed cost
- Simple to design using code compliant Everest Online Design Tool

Technical data

Applicable Roof Types	Composition shingle, tile, flat tile
Flexibility	Modular construction, suitable for any system size, height adjustable
PV modules	For all common module types
Module orientation	Portrait and landscape
Material	High corrosion resistance, stainless steel and high grade aluminum
Roof attachment	Screw connection into rafter
Structural validity	IBC compliant, stamped engineering letters available for all solar states
Warranty	12 years
System components	CrossRail 48, 48-S or 80, L-Foot, Mid and End Clamp Sets, Universal Mid and End Clamps, third-party roof attachment products such as QuickMountPV



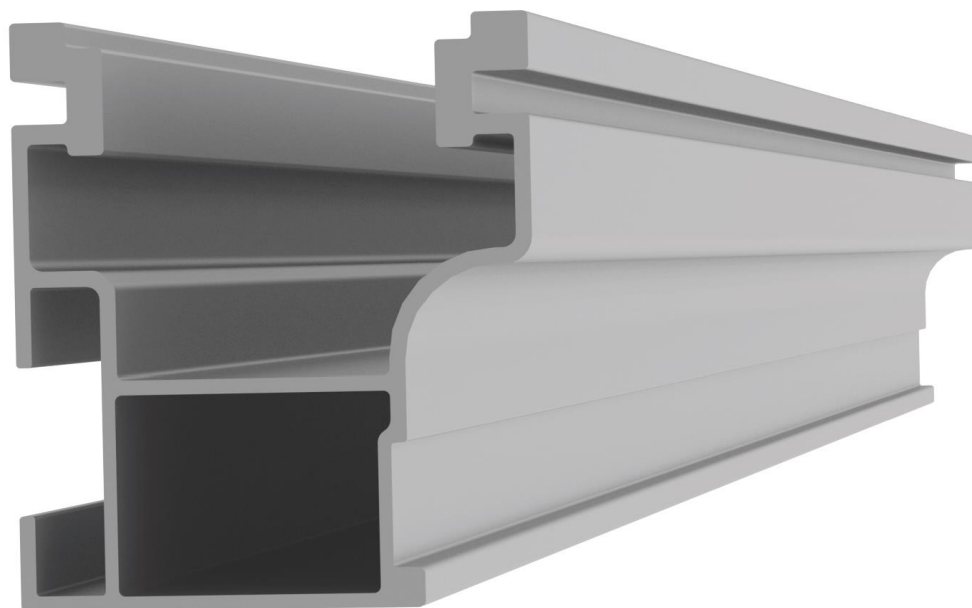
CrossRail for Pitched Roofs



CrossRail with EverFlash



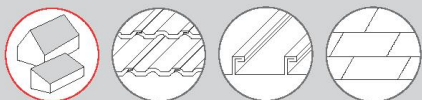
Bonding Mid and End Clamps



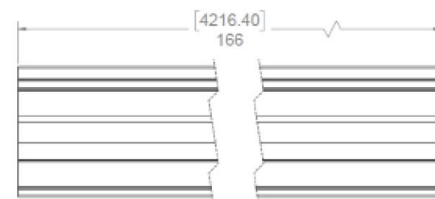
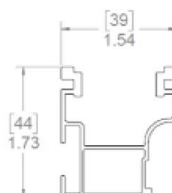
NEW PRODUCT

CrossRail 44-X

- ▶ Optimized rail profile
- ▶ One rail for all markets
- ▶ Built-in wire management
- ▶ Maintains same structural integrity as 48-X
- ▶ Tested up to 200 mph winds
- ▶ Tested up to 100 PSF snow loads

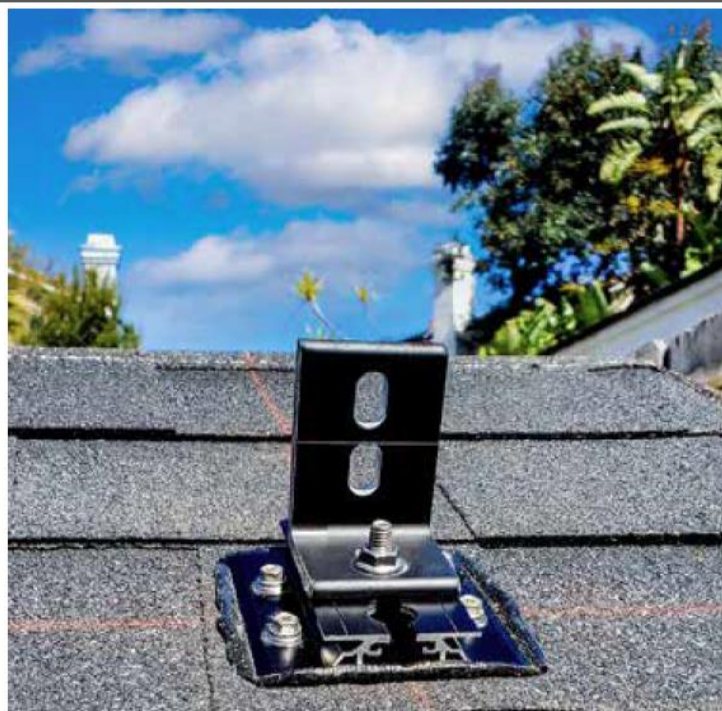


Part Number	Description
4000019	CrossRail 44-X 166", Mill
4000020	CrossRail 44-X 166", Dark
4000021	CrossRail 44-X 180", Mill
4000022	CrossRail 44-X 180", Dark
4000051	RailConn Set, CR 44-X, Mill
4000052	RailConn Set, CR 44-X, Dark
4000067	End Cap, Black, CR 44-X



RT-MINI II

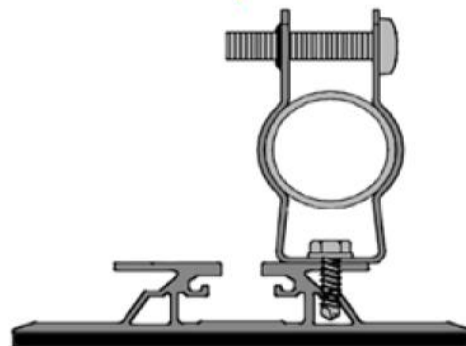
A Self-flashing PV Mount Featuring Roof Tech's AlphaSeal™ Technology



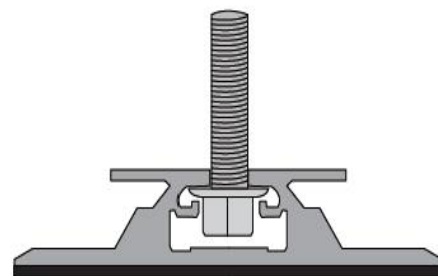
RT-MINI II is suitable for all systems with any L-Foot

- ✓ No Caulking or Pre-Drilling Required
- ✓ Universal Attachment to Any Slope
- ✓ Metal, EPDM, TPO, SBS, & Asphalt Roofs
- ✓ Wide Range of Applications & Ultimate Flexibility on the Roof
- ✓ No Need to Bend Rails
1 5/8 North & South Adjustment

Conduit Strap Installation



RT Serrated Hex Flange Bolt/Nut:
5/16-18 x 1"



Installation Manual

ICC ESR 3575



Roof Tech
The Standard for Waterproof Flexible Flashing Since 1994

www.roof-tech.us Page 38 info@roof-tech.us



RT-MINI II

Flexible Flashing Certified by the International Code Council (ICC)

Components

RT2-00-MINIBK2

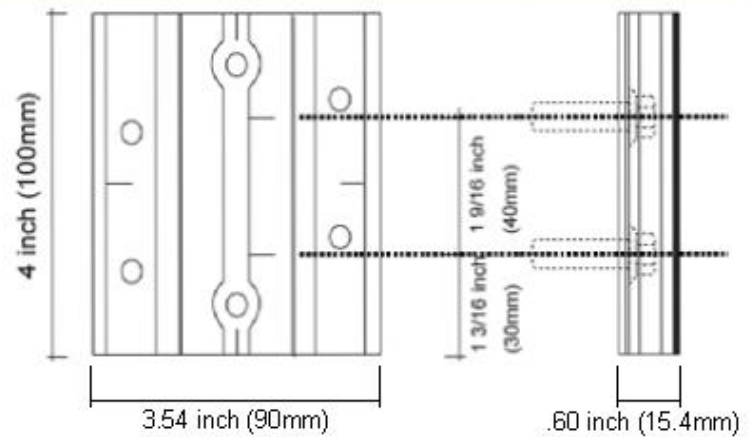


MINI II base : 20 ea.
Screw : 40 ea.
Extra RT-Butyl : 4 ea.

Optional Items:

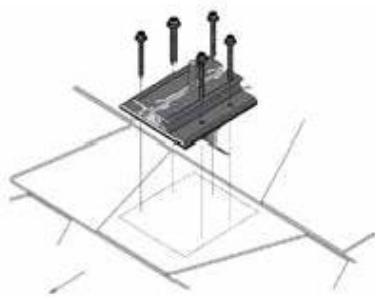
5 x 60mm Mounting Screw (RT2-04-SD5-60) : 100 ea./Bag
5/16 X 25MM Flange Bolt & Nut (RT2-04-FBN25) : 100 ea./Bag
RT-Butyl (RT2-04-MNBUTYL) : 10 ea./Box

Dimensions in (mm)



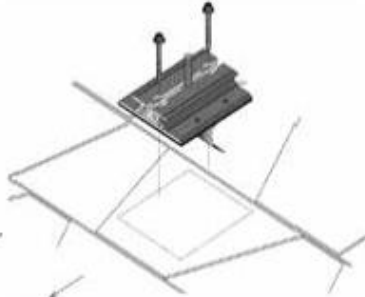
Deck Installation

OSB & PLY

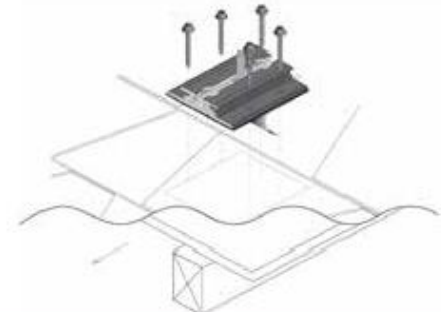


Rafter Installation

Hybrid Mounting



Offset Rafter Installation



Roof Tech Inc. AlphaSeal™ Technology has been used on over one million residential PV systems since 1994. It is the first PV mounting system with Flexible Flashing certified by the ICC, engineered to withstand wind speeds up to 180 mph and ground snow up to 90 psf.

Engineered to ASTM D 1761

(Standard Test Methods for Mechanical Fasteners in Wood)

ICC ESR-3575

ASTM2140 Testing

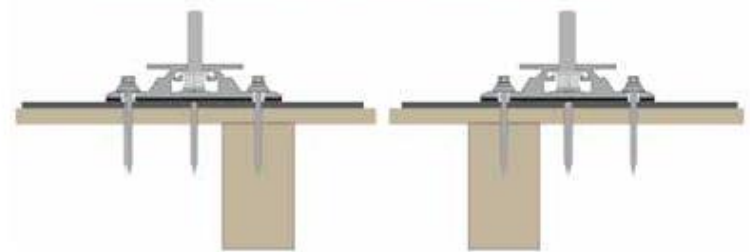
P.E. Letters



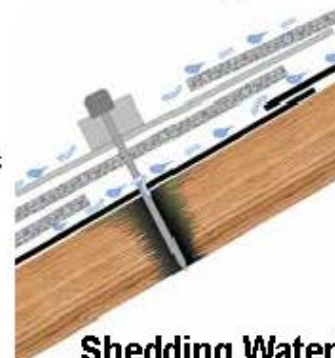
Support & Downloads



Offset Rafter Attachment Options

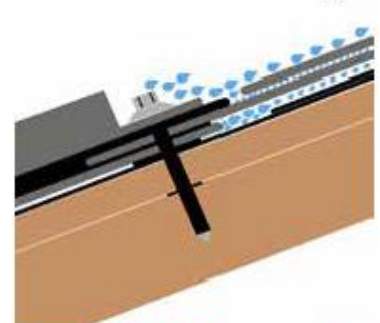


Metal Flashing Retrofit



Shedding Water?

Flexible Flashing



100% Waterproof

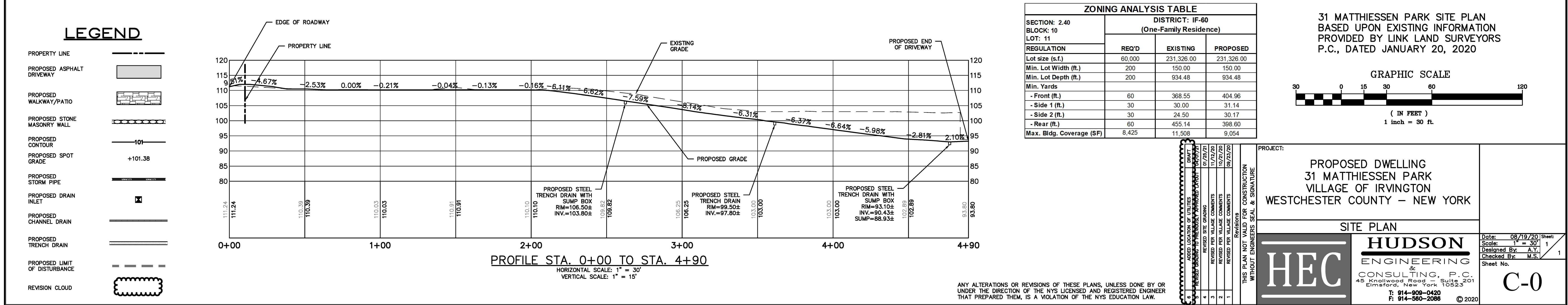
Roof Tech Inc.

www.roof-tech.us

info@roof-tech.us

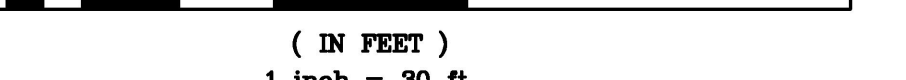
10620 Trenea Street, Suite 230, San Diego, CA 92131

858.935.6064



31 MATTHIESSEN PARK SITE PLAN
BASED UPON EXISTING INFORMATION
PROVIDED BY LINK LAND SURVEYORS
P.C., DATED JANUARY 20, 2020

GRAPHIC SCALE



(IN FEET)
1 inch = 30 ft.

ANY ALTERATIONS OR REVISIONS OF THESE PLANS, UNLESS DONE BY OR UNDER THE DIRECTION OF THE NYS LICENSED AND REGISTERED ENGINEER THAT PREPARED THEM, IS A VIOLATION OF THE NYS EDUCATION LAW.

PHOTOVOLTAIC SYSTEM

SYSTEM SIZE:

NAMEPLATE:20.8 KW DC / 20 KW AC

EQUIPMENT:

PV MODULES:(52) HANWHA QPEAK DUO BLK ML-G10+ (400W)

PV OPTIMIZER(S):(52) S440 SOLAREEDGE POWER OPTIMIZER

INVERTER(S):(2) SOLAREEDGE SE10000H-US INVERTER

AC COMPONENT(S):(2) 60A UNFUSED AC DISCONNECT

(12) TESLA POWERWALL

(2) TESLA GATEWAY-2

(2) AUTOMATIC TRANSFER SWITCH

TYPE OF INTERCONNECTION:BACKFEED BREAKER IN THE MSP

SCOPE OF WORK:

INSTALLATION OF A CODE COMPLIANT, UTILITY INTERACTIVE PHOTOVOLTAIC ELECTRIC SYSTEM.

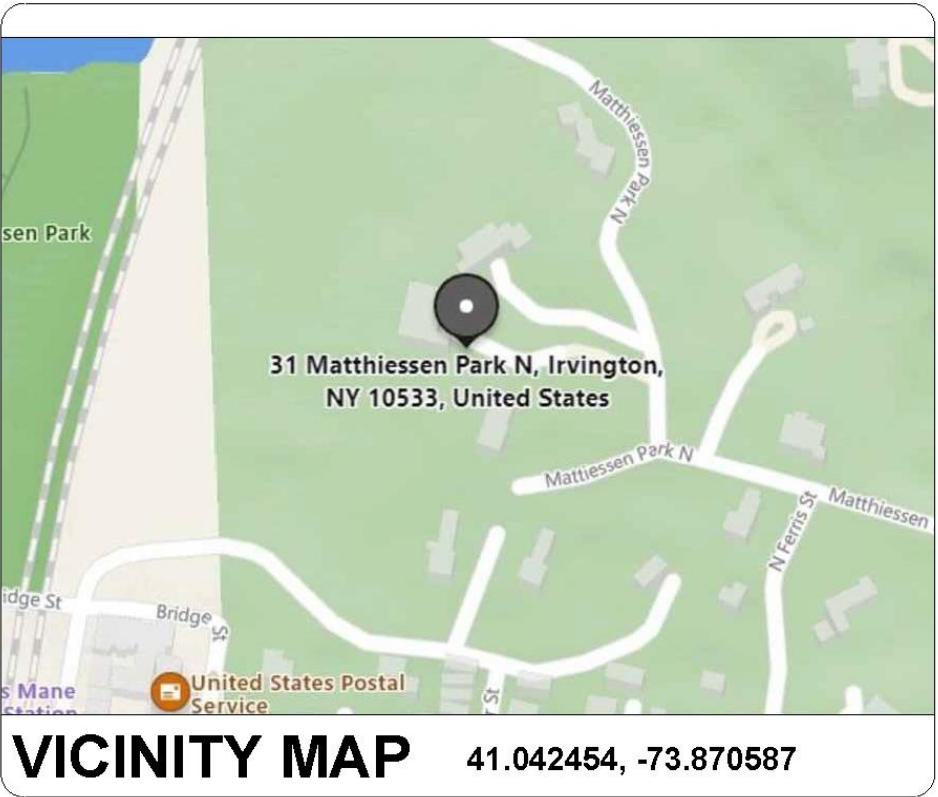
- 2017 NATIONAL ELECTRIC CODE
- 2020 FIRE CODE OF NYS
- 2020 RESIDENTIAL CODE OF NYS
- 2020 BUILDING CODE OF NYS
- APPLICABLE CODE PER LOCAL AUTHORITY HAVING JURISDICTION

APPLICABLE CODES

PV1	COVER PAGE
PV2	SITE PLAN
PV3-3.1	MOUNTING PLAN
PV4	MOUNTING DETAILS
PV5,5.1,5.2 & 5.3	ELECTRICAL DIAGRAMS
PV6	MARKING & LABELS
*ATTACHMENTS	
	MANUFACTURER'S SPECIFICATIONS



INDEX



YANKEE CUSTOM BUILDERS, INC.: 31 MATTHIESSEN PARK N, IRVINGTON, NY 10533, USA

GENERAL NOTES:

- DRAWINGS ARE DIAGRAMMATIC ONLY. THE LOCATION AND ROUTING OF RACEWAYS SHALL BE DETERMINED BY THE CONTRACTOR UNLESS OTHERWISE NOTED OR STANDARDIZED.
- ALL EQUATIONS ACCOUNT FOR WORST CASE CONDITIONS.
- IF A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, OVER-CURRENT PROTECTION, GROUNDING SYSTEMS, ETC. (ALL EQUIPMENT AND MATERIALS) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIALS AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS IN THE SPECIFICATIONS OR NOTED ON THE PLANS TO ENSURE COMPLETE COMPLIANCE WITH ALL CODES AND TO ENSURE THE LONGEVITY AND SAFETY OF THE OPERABLE SYSTEM.
- ALL OUTDOOR EQUIPMENT SHALL BE MIN. NEMA 3R RATED.
- METAL CONDUIT AND ENCLOSURES SHALL BE USED WHERE PV SOURCE OR OUTPUT CIRCUITS ARE RUN INSIDE A BUILDING.
- MODULES SHALL NOT BE PLACED OVER ANY PLUMBING VENTS AND AT LEAST 6" ABOVE FLUSH VENTS.
- THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ANY AND ALL REQUIREMENTS GIVEN BY UTILITY COMPANIES.
- FOR ADDITIONAL EQUIPMENT SPECIFICATIONS, SEE PROVIDED CUT SHEETS.
- ALL LABELS AND MARKINGS SHALL BE ATTACHED ACCORDING TO REQUIREMENTS BY NEC AND THE LOCAL AHJ. THE AHJ MAY HAVE SPECIAL LABEL REQUIREMENTS BEYOND THE SCOPE OF THIS DOCUMENT. THIS MAY ENCOMPASS LANGUAGE INCLUDING, BUT NOT LIMITED TO, THAT FOUND IN NEC ARTICLES 690.5 (C), 690.14 (C)(2), 690.17, 690.53, 690.35(F), 690.54, 690.64(B)(7) and 705.10.
- ALL NEC REFERENCES SHALL BE DIRECTLY INTERCHANGEABLE WITH CEC REFERENCES.

STRUCTURAL NOTES:

- MOUNTS ARE DIAGRAMMATIC AND EXACT LOCATION MAY CHANGE, BUT SHALL BE ACCURATELY SPACED.
- MOUNTS SHALL BE STAGGERED WHEN NECESSARY TO EVENLY DISTRIBUTE LOAD AMONGST RAFTERS.
- DO NOT SPLICE RAILS IN MIDDLE 50% OF SPAN BETWEEN TWO MOUNTS.

ELECTRICAL NOTES:

- ALL EQUIPMENT IS LISTED FOR USE.
- MAXIMUM VOLTAGE DOES NOT EXCEED 600VDC.
- ANY EQUIPMENT OR ELECTRICAL MATERIALS USED FOR THIS INSTALLATION SHALL BE NEW AND LISTED BY A RECOGNIZED ELECTRICAL TESTING LABORATORY.
- AN INVERTER IN AN INTERACTIVE SOLAR PV SYSTEM SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THAT SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED.
- ALL PV ARRAYS SHALL BE EQUIPPED WITH DC GROUND FAULT PROTECTION.
- ANY AC COMPONENT SHALL MEET OR EXCEED THE AVAILABLE FAULT CURRENT CALCULATED AT THAT COMPONENT.
- ALL MODULES AND ANY RELATED ROOF MOUNTED METALLIC EQUIPMENT SHALL BE PROPERLY GROUNDED.
- DC EQUIPMENT SHALL BE 600VDC RATED MINIMUM.
- MARKINGS SHALL BE PROVIDED TO INDICATE THAT ALL CONTACTS OF THE DISCONNECT EQUIPMENT MIGHT BE ENERGIZED.
- CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT WEATHERPROOF PULL BOXES OR JUNCTION BOXES/COMBINER BOXES PER APPROPRIATE JURISDICTIONAL REQUIREMENTS.
- FOR ANY UNGROUNDED PV SYSTEM, A LABEL READING: "WARNING - ELECTRICAL SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED." SHALL BE PLACED AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE.
- INVERTER(S) SHALL CONTAIN A GROUND FAULT DETECTION AND INTERRUPTION DEVICE.
- ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS.
- THE POINT OF CONNECTION COMPLIES WITH APPLICABLE CEC/NEC.
- BACKFED SOLAR BREAKER(S) SHALL BE INSTALLED AT THE OPPOSITE END OF THE CIRCUIT OR FURTHEST AWAY FROM THE MAIN BREAKER.
- ALL WIRE, VOLTAGES, AMPERAGES AND EQUIPMENT IS SIZED ACCORDING TO TEMPERATURE DERATING AND LOCATION.
- ONLY COPPER (CU) CONDUCTORS SHALL BE USED. CONDUCTORS SHALL BE STRANDED OR SOLID WITH PROPERLY RATED CONNECTORS.
- DISCONNECT SHALL BE WIRED SO NO BLADES ARE ENERGIZED.
- ALL MODULES SHALL BE GROUNDED AS PER MANUFACTURER SPECIFICATIONS.
- ALL EQUIPMENT SHALL BE GROUNDED, INCLUDING BONDING JUMPERS WHERE NECESSARY ACROSS RAIL SPLICE PLATES TO BOND INDIVIDUAL PIECES OF RAIL.

GENERAL NOTES

CONTRACTORS LICENSE: 82-0674768

COVER PAGE

YANKEE CUSTOM BUILDERS, INC.

31 MATTHIESSEN PARK N, IRVINGTON, NY 10533, USA

SYSTEM

DC KW: 20.8

AC KW: 20

MODULES:52

CONTRACTOR

PLUGPV LLC

875 BROADWAY

ALBANY, NY 12207

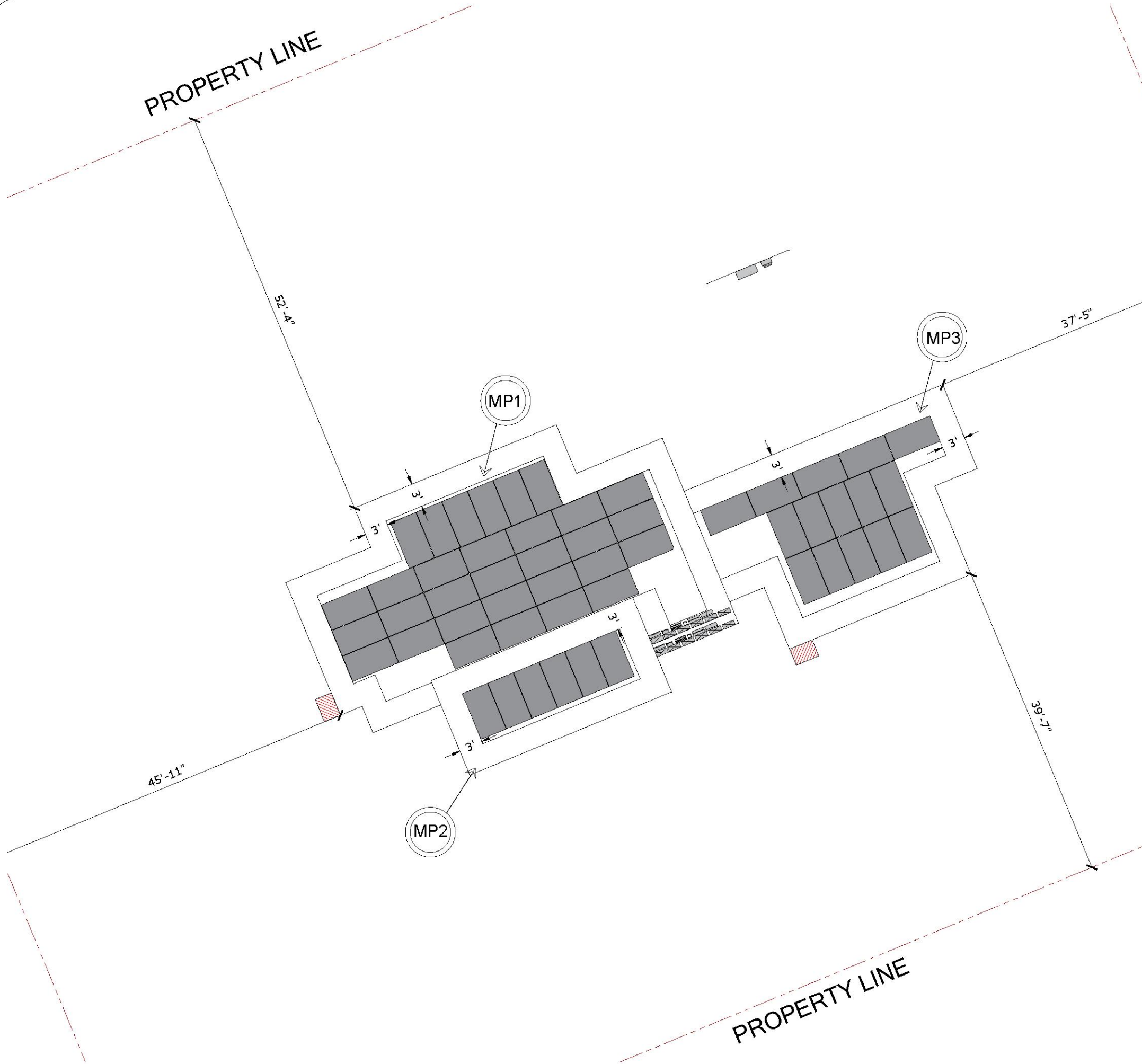
DATE

10/06/2022

DESIGNED BY:

OVN

PV1



ARRAY 1	ARRAY 2
TILT: 2° AZIMUTH: 158°	TILT: 2° AZIMUTH: 158°
ARRAY 3	
TILT: 2° AZIMUTH: 158°	

ARRAY SPECIFICATIONS

UTILITY METER

AC DISCONNECT FUSED

AUTOMATIC TRANSFER SWITCH

SUB SERVICE PANEL

TESLA POWERWALL

TESLA GATEWAY

INVERTER

LOAD CENTER

MAIN SERVICE PANEL

PROTECHED LOAD PANEL

18" VENTILATION SETBACK

3' WIDE FIRE ACCESS PATHWAY

3'x3' GROUND LADDER ACCESS POINT

LEGEND



CONTRACTORS LICENSE: 82-0674768

SITE PLAN
YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

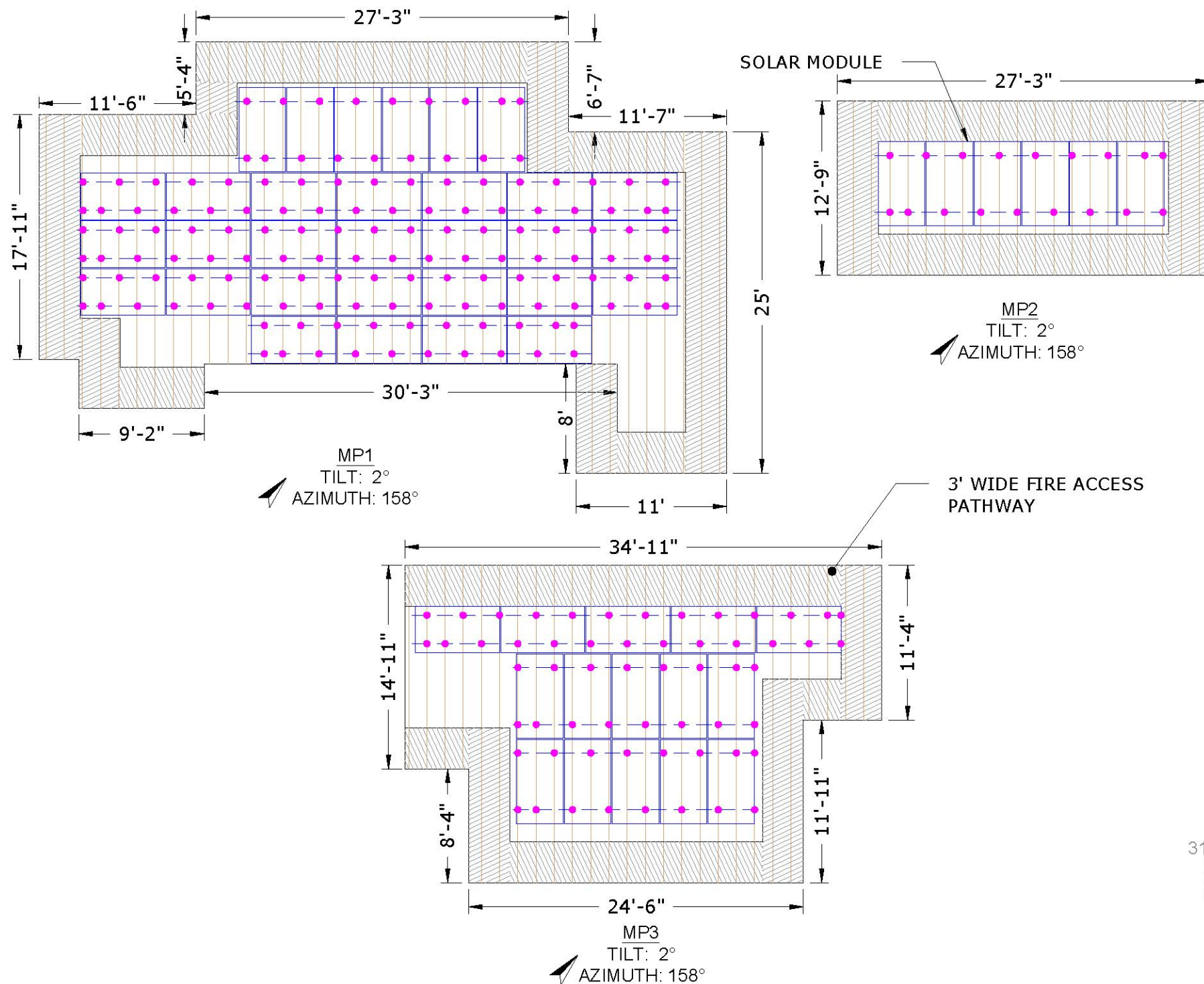
SYSTEM
DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR
PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE
10/06/2022

DESIGNED BY:
OVN

PV2



Design Criteria:
 Ground Snow: 30 psf
 Wind Speed: 114 mph
 Exposure Category: C

TYPE	DESCRIPTION	QUANTITY
MODULE	HANWHA QPEAK DUO BLK ML-G10+ (400W)	52
DC OPTIMIZER	S440 SOLAREEDGE POWER OPTIMIZER	52
INVERTER	SOLAREEDGE SE10000H-US INVERTER	2

TYPE	DESCRIPTION	QUANTITY
DISCONNECT	60A FUSED AC DISCONNECT	1

ROOF SPECIFICATION	
ROOF MATERIAL	ASPHALT SHINGLE
RAFTERS	2" X 6" @ 16" O.C.
ROOF CONDITION	GOOD



CONTRACTORS LICENSE: 82-0674768

MOUNTING PLAN

YANKEE CUSTOM BUILDERS, INC.
 31 MATTHIESSEN PARK N, IRVINGTON, NY 10533, USA

SYSTEM

DC KW: 20.8
 AC KW: 20
 MODULES: 52

CONTRACTOR

PLUGPV LLC
 875 BROADWAY
 ALBANY, NY 12207

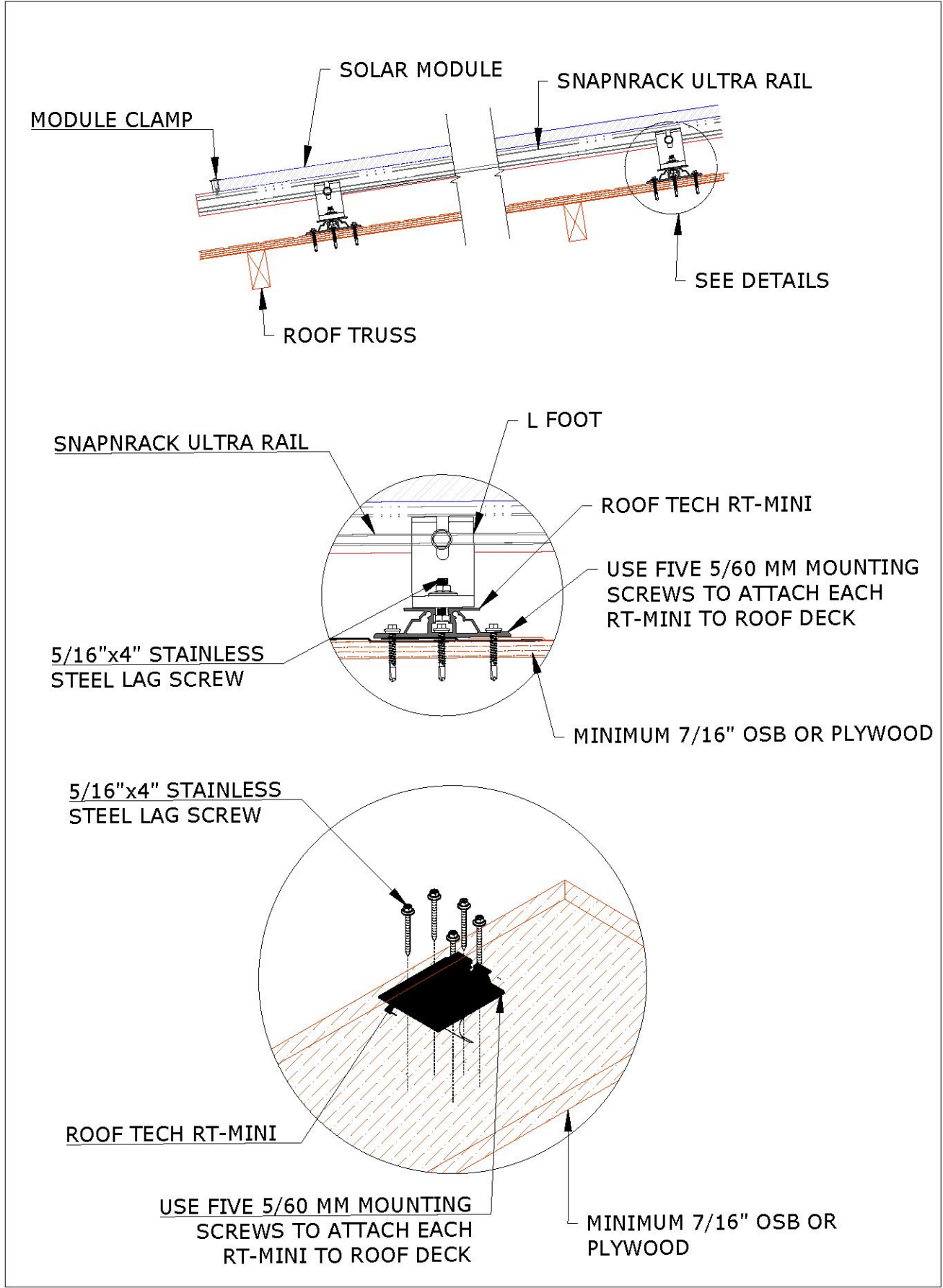
DATE

10/06/2022

DESIGNED BY:

OVN

PV3





CONTRACTORS LICENSE: 82-0674768

MOUNTING PLAN

YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM

DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR

PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE
10/06/2022

DESIGNED BY:
OVN

PV3.1

Technical Report for Everest Racking System

Feb 26, 2022



CrossRail Flush to Roof

Flush Mounting System for tilted roofs

Name

Yankee Custom Builders, Inc.

Address

Irvington, 10533, NY

Contact Phone

Contact Email

malishrikant1998@gmail.com

Module Information

Name

HANWHA QPEAK DUO BLK-G6+(340W)

Description

Length

5' 8.5"

Width

3' 4.5"

Depth

0' 1.3"

Peak Power

340.00 Wp

Weight

43.90 lbs



Array Layout

	Rows	Columns	Length	Width	Orientation	Total Weight	Weight / Attachment	Distributed Weight
Area 1	1	7	5' 8.5"	24' 3.5"	Portrait	353.36 lbs	25.24 lbs	2.62 psf
Area 2	2	14	11' 6"	48' 4.5"	Portrait	1,392.31 lbs	26.78 lbs	2.58 psf
Area 3	2	7	11' 6"	24' 3.5"	Portrait	706.73 lbs	25.24 lbs	2.62 psf
Area 4	2	6	11' 6"	20' 10"	Portrait	616.17 lbs	25.67 lbs	2.67 psf
Total						3,068.57 lbs	26.00 lbs	2.62 psf

Estimated Bill of Materials

Model	Name	Calc. Qty.	Extra. Qty.	Total. Qty.
4000662	CrossRail 48-X 166", Mill Profile	34	0	34
4000433	CrossRail EndCap, Black, CR 48-X, 48-XL End Cap	28	0	28
4000583	CrossRail 3" Black Sleeve 48-X,48-XL Sleeve	28	0	28
4000622	Burndy WEEB Lug 10.3 Electrical Bonding	7	0	7
4000624	WEEB Lug 10.3 Hardware Only, CR, R^2 Electrical Bonding	7	0	7
4000430	CR EC Dark, 30-50mm, Shared RL 30-45mm End Clamp	28	0	28
4000382	HeyClip SunRunner Cable Clip SS, S6404 Wire Management Accessory	61	0	61
4000385	RailConn CR 48-X, 48-XL Struct Set, Mill Rail Connector Set	22	0	22
4000602	CR MC Dark, 30-47mm, Shared RL 30-42mm Middle Clamp	108	0	108
Model	Name	Calc. Qty.	Extra. Qty.	Total. Qty.

CONTRACTORS LICENSE: 82-0674758

MOUNTING DETAILS
YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM
DC KW: 20.8
AC KW: 20
MODULES:52

CONTRACTOR
PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

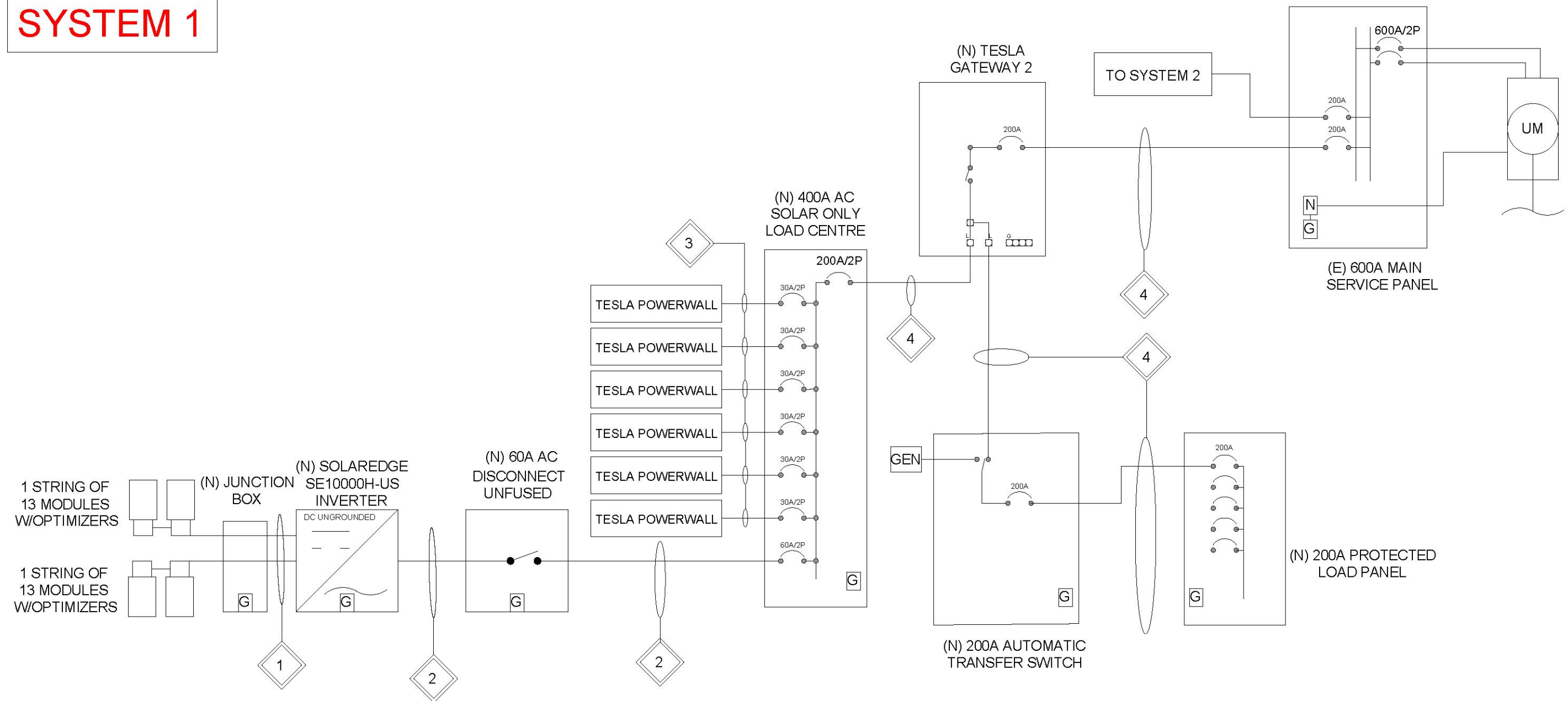
DATE
10/06/2022

DESIGNED BY:
OVN



PV4

SYSTEM 1



CONDUCTORS AND CONDUIT



(6) #10 PV WIRE
(1) #6 THHN GND
3/4" EMT



(3) #6 THHN
(1) #6 THHN GND
3/4" EMT



(3) #10 THHN
(1) #6 THHN GND
3/4" EMT
(4) #22 AWH THWN-2
CONTROL CABLES



(3) #4/0 THHN
(1) #4 THHN GND
2" EMT

MODULES

(52) HANWHA QPEAK DUO BLK-ML-G10+

WATTS STC: 400W
ISC: 11.14A
IMP: 10.77A
VOC: 45.30V
VMP: 37.13V

INVERTER(S)

SOLAREEDGE SE10000H-US
MAX AC OUTPUT: 42 A

INVERTER OCPD CALC : $(42) \times 1.25 = 52.5A$
MIN OCPD: 60A
WIRE AMPACITY: 65A @ 75° C TERMINAL
TEMPERATURE CORRECTION FACTOR:
 $31^{\circ}-35^{\circ}C = 0.96$
CORRECTED WIRE AMPACITY: 62.4A

OTHER EQUIPMENT

60A NON-FUSED AC DISCONNECT



ELECTRICAL DIAGRAMS

YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM

DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR

PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE

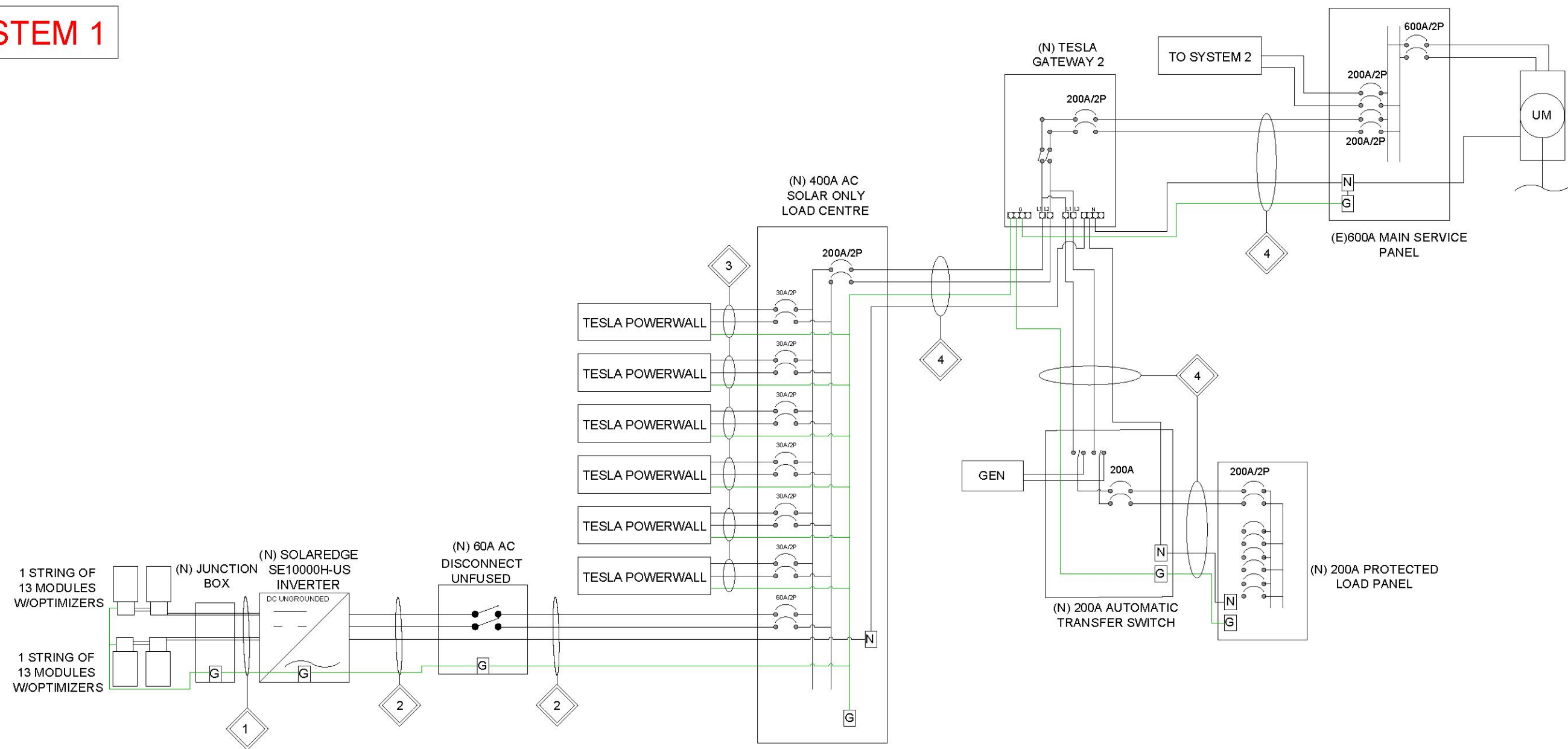
10/06/2022

DESIGNED BY:





OVN

PV5

SYSTEM 1



CONDUCTORS AND CONDUIT

- | | | | |
|--|---|---|--|
|  | (6) #10 PV WIRE
(1) #6 THHN GND
3/4" EMT |  | (3) #4/0 THHN
(1) #4 THHN GND
2" EMT |
|  | (3) #6 THHN
(1) #6 THHN GND
3/4" EMT | | |
|  | (3) #10 THHN
(1) #6 THHN GND
3/4" EMT
(4) #22 AWH THWN-2
CONTROL CABLES | | |

MODULES

(52) HANWHA QPEAK DUO BLK-ML-G10+

WATTS STC:	400W
ISC:	11.14A
IMP:	10.77A
VOC:	45.30V
VMP:	37.13V

INVERTER(S)

SOLAREDGE SE10000H-US
MAX AC OUTPUT: 42 A

INVERTER OCPD CALC : (42) X 1.25 = 52.5A
MIN OCPD: 60A
WIRE AMPACITY: 65A @75° C TERMINAL
TEMPERATURE CORRECTION FACTOR:
31°-35°C = 0.96
CORRECTED WIRE AMPACITY: 62.4A

OTHER EQUIPMENT

60A NON-FUSED AC DISCONNECT

Structural Only



ELECTRICAL DIAGRAMS

YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM

DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR

PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE _____

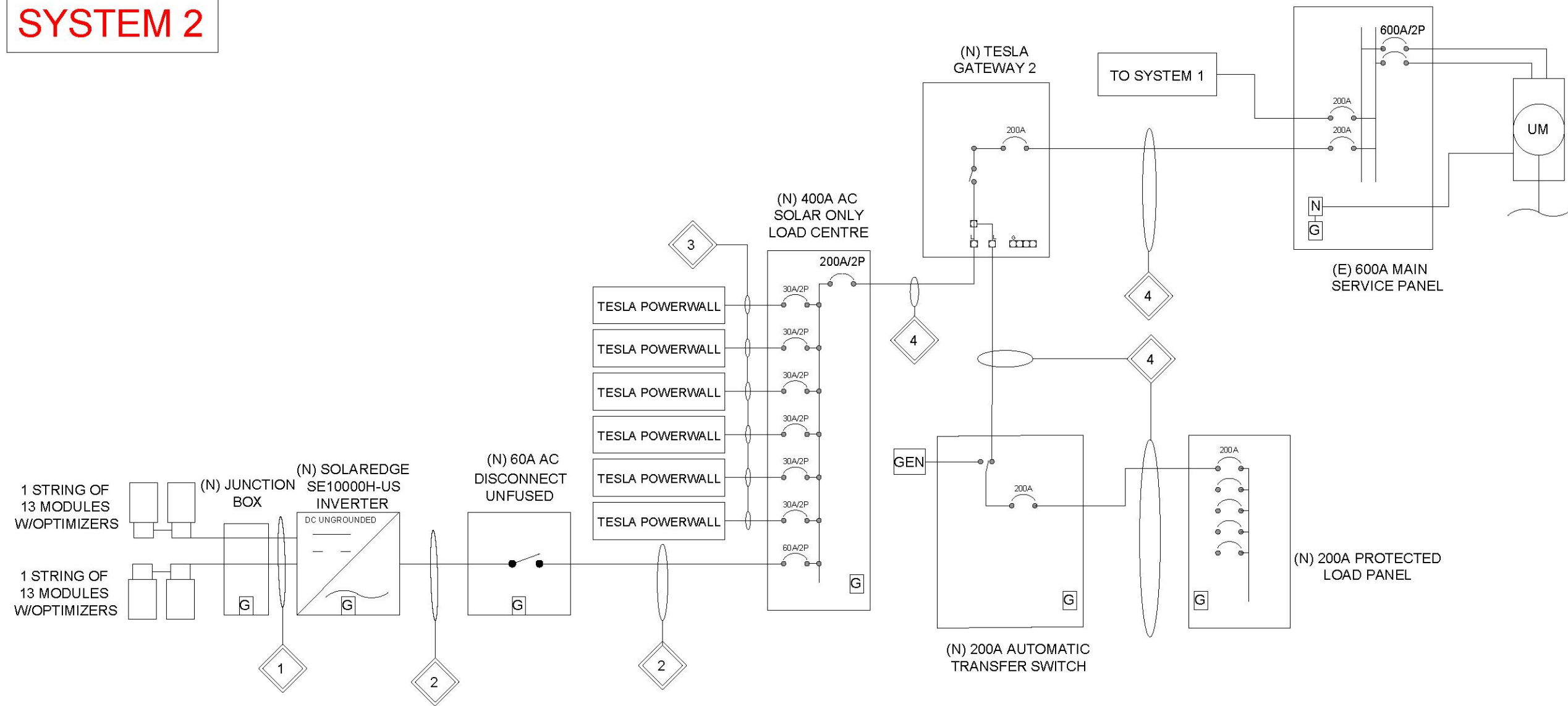
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DESIGNED BY:

OVN

PV5.1

SYSTEM 2



CONDUCTORS AND CONDUIT



(6) #10 PV WIRE
(1) #6 THHN GND
3/4" EMT



(3) #6 THHN
(1) #6 THHN GND
3/4" EMT



(3) #10 THHN
(1) #6 THHN GND
3/4" EMT
(4) #22 AWH THWN-2
CONTROL CABLES



(3) #4/0 THHN
(1) #4 THHN GND
2" EMT

MODULES

(52) HANWHA QPEAK DUO BLK-ML-G10+

WATTS STC: 400W
ISC: 11.14A
IMP: 10.77A
VOC: 45.30V
VMP: 37.13V

INVERTER(S)

SOLAREEDGE SE10000H-US
MAX AC OUTPUT: 42 A

INVERTER OCPD CALC : $(42) \times 1.25 = 52.5A$
MIN OCPD: 60A
WIRE AMPACITY: 65A @ 75° C TERMINAL
TEMPERATURE CORRECTION FACTOR:
31°-35°C = 0.96
CORRECTED WIRE AMPACITY: 62.4A

OTHER EQUIPMENT

60A NON-FUSED AC DISCONNECT

Structural Only



ELECTRICAL DIAGRAMS

YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM

DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR

PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE

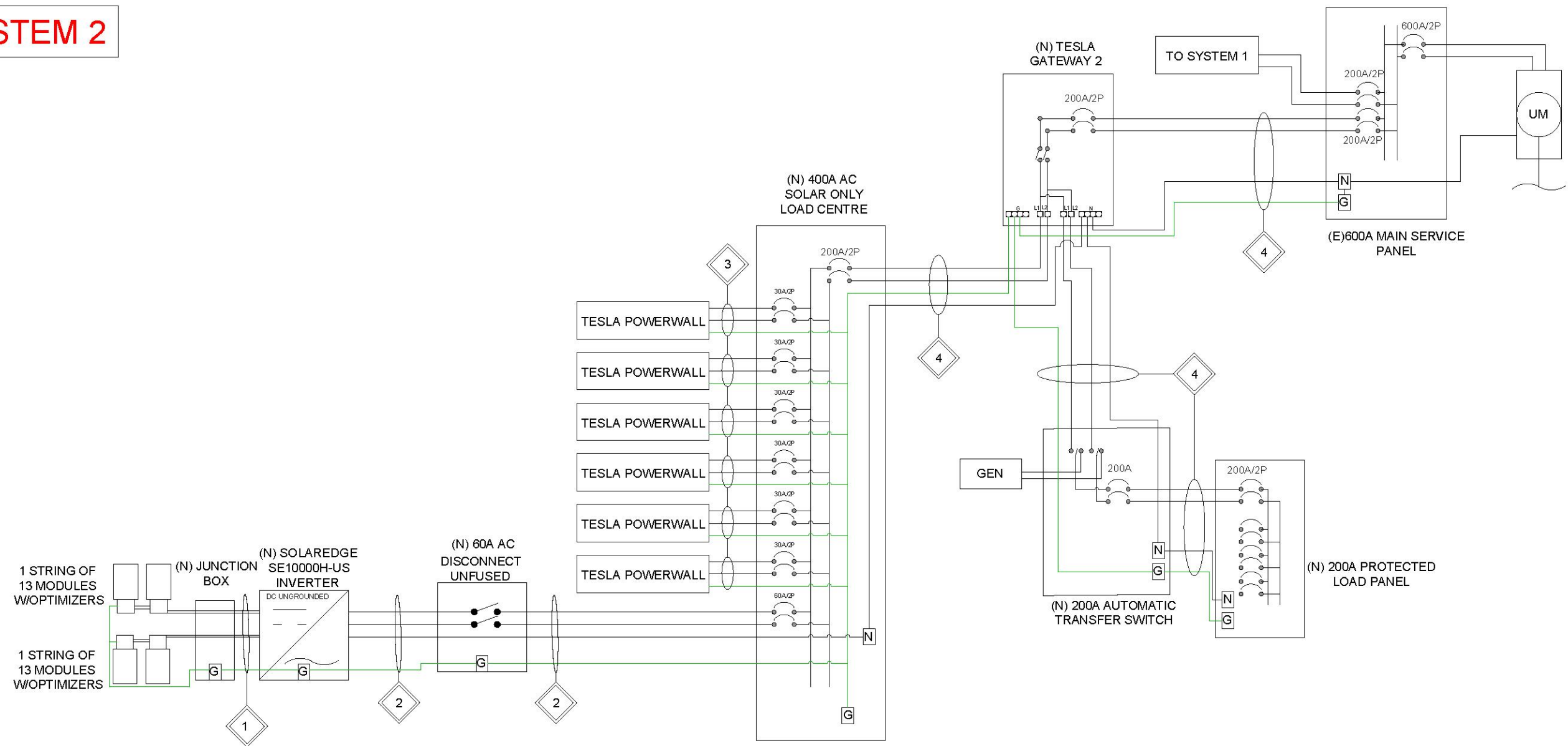
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DESIGNED BY:

OVN

PV5.2

SYSTEM 2



CONDUCTORS AND CONDUIT



(6) #10 PV WIRE
(1) #6 THHN GND
3/4" EMT



(3) #6 THHN
(1) #6 THHN GND
3/4" EMT



(3) #10 THHN
(1) #6 THHN GND
3/4" EMT
(4) #22 AWH THWN-2
CONTROL CABLES



(3) #4/0 THHN
(1) #4 THHN GND
2" EMT

MODULES

(52) HANWHA QPEAK DUO BLK-ML-G10+

WATTS STC: 400W
ISC: 11.14A
IMP: 10.77A
VOC: 45.30V
VMP: 37.13V

INVERTER(S)

SOLAREEDGE SE10000H-US
MAX AC OUTPUT: 42 A

INVERTER OCPD CALC : (42) X 1.25 = 52.5A
MIN OCPD: 60A
WIRE AMPACITY: 65A @ 75° C TERMINAL
TEMPERATURE CORRECTION FACTOR:
31°-35°C = 0.96
CORRECTED WIRE AMPACITY: 62.4A

OTHER EQUIPMENT

60A NON-FUSED AC DISCONNECT

Structural Only



ELECTRICAL DIAGRAMS

YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM

DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR

PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE

10/06/2022

DESIGNED BY:

OVN

PV5.3

INVERTER

NEC 690.17(4) GROUNDED SYSTEMS

WARNING

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

NEC 690.14(C)(2)

PHOTOVOLTAIC DC DISCONNECT

PHOTOVOLTAIC
SYSTEM EQUIPPED WITH
RAPID SHUTDOWN

NEC 690.53 # INVERTER 1

PHOTOVOLTAIC ARRAY
DC DISCONNECT
OPERATING CURRENT: 27 A
OPERATING VOLTAGE: 400 V
MAX. SYSTEM VOLTAGE: 480.0 V
SHORT-CIRCUIT CURRENT: 45.0 A

AC DISCONNECT

NEC 690.14(C)(2)

PHOTOVOLTAIC DISCONNECT
FOR UTILITY OPERATIONS

NEC 690.54

RATED AC OUTPUT CURRENT: 42 A
NOMINAL AC VOLTAGE: 240 V

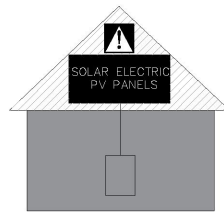
NEC 690.56

EMERGENCY RESPONDER
THIS SOLAR PV SYSTEM
EQUIPPED
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION ONLY
CONDUCTORS INSIDE
BUILDING OR OFF THE
ROOF WILL SHUT DOWN

Sections of the PV system that
are shut down when the rapid
shutdown switch is operated.

Sections of the PV system that
are not shut down when the rapid
shutdown switch is operated.



CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES & JUNCTION BOXES

NEC 690.31(E)(3) CONDUIT

Warning: Photovoltaic Power Source

NEC 690.35(F) UNGROUNDED SYSTEMS JUNCTION BOX

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

MAIN SERVICE PANEL

NEC 705.12(D)(4)), 690.56(B)

WARNING
POWER IS BEING SUPPLIED TO THIS
PANEL FROM THE UTILITY AND A
SOLAR PV SYSTEM.

NEC 705.12(D)(7)

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL TO BE INSTALLED DIRECTLY NEXT TO PV BACKFEED
BREAKER. IF INSTALLED ANYWHERE ELSE ON DEADFRONT
THEN A PERMANENT ARROW FROM LABEL POINTING TO
PV BACKFEED BREAKER REQUIRED.

NEC 690.54

RATED AC OUTPUT CURRENT: 42 A
NOMINAL AC VOLTAGE: 240 V

NEC 690.14(C)(2)

PHOTOVOLTAIC AC DISCONNECT

Structural Only



MARKING & LABELS
YANKEE CUSTOM BUILDERS, INC.
31 MATTHIESSEN PARK N, IRVINGTON,
NY 10533, USA

SYSTEM
DC KW: 20.8
AC KW: 20
MODULES: 52

CONTRACTOR
PLUGPV LLC
875 BROADWAY
ALBANY, NY 12207

DATE
10/06/2022

DESIGNED BY:
OVN



PV6