



Township Archives
Township of Brick, NJ
401 Chambers Bridge Rd, Brick, NJ 08723

***This File Contains Personal Identifiable
Information of Private Citizen(s).***

Certain information contained in this file is ***Exempt from Release*** under the Open Public Records Act (OPRA) (Public Law 2001, CHAPTER 404 (N.J.S.A. 47:1A-1 et seq.)) and Executive Orders issued by the Governor of New Jersey. The following information ***MUST*** be redacted prior to release:

- Social Security Numbers
- Drivers' License Numbers
- Unlisted Phone Numbers
- Credit Card Numbers
- Bank Account Numbers and Balances

For further information, consult with the Township Clerk, Township Archivist or Township Attorney prior to release.

A handwritten signature in black ink, appearing to read "Bryan J. Dickerson", is written over the printed name.

Bryan J. Dickerson, CA, CMR
Township Archivist

Issued: 8 January 2020

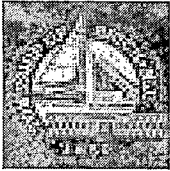


C-20-002929

Propose

:(office use only) ..

Propose



Brick Township
401 Chambersbridge Rd
Brick, NJ 08723

Date Issued 11/02/2020
Control Number C-20-002929
Permit Number 20-2464
Permit Issue Date 10/14/2020
Certificate Number 20-2464

Certificate
Construction Code Division
(Certificate of Approval)

Identification

Work Site Location: 619 IVANHOE ROAD Brick Township, NJ 08723 Block: 646.07 Lot: 60.06 Qual: _____
Owner in Fee: HOERMANN, WILLIAM & LORETTO, K
Owner Address: 619 IVANHOE RD BRICK NJ 08723
Telephone: [REDACTED]
Contractor WHITMAN CONSTRUCTION
Address 2511 LAKEWOOD ROAD PT. PLEASANT NJ 08742-
Telephone: (732) 295-0875 Fax: (732) 295-1529 Federal Emp. Number: 22-3558985
License Number or Builders Registration Number: _____

Home Warranty Number: _____ Type of Warranty Plan: ☐ State ☐ Private

Use Group: R-5 Construction Classification: _____

Maximum Live Load: 0 Maximum Occupancy Load: 0

Description of Work/Use: SOLAR PANELS - ...INSTALL 8.96 kw ROOF MOUNT PHOTOVOLTAIC SOLAR SYSTEM

Certificate Comments:

☐ **Certificate of Occupancy**

This serves notice that said building or structure has been constructed in accordance with the New Jersey Uniform Construction Code and is approved for occupancy.

☒ **Certificate of Approval**

This serves notice that the work completed has been constructed or installed in accordance with the New Jersey Uniform Construction Code and is approved. If the permit was issued for minor work, this certificate was based upon what was visible at the time of inspection.

☐ **Certificate of Continued Occupancy**

This serves notice that based on a general inspection of the visible parts of the building there are no imminent hazards and the building is approved for continued occupancy.

☐ **Temporary Certificate of Compliance**

The following conditions must be met no later than or the owner will be subject to fine or order to vacate:

This certificate has an expiration date of:

Conditions to be met:

☐ **Certificate of Clearance - Lead Abatement 5:17**

This serves notice that based on written certification, lead abatement was performed as per NJAC5:17 to the following extent.

☐ Total removal of lead-based paint hazards in scope of work

☐ Partial or limited time period (_____ years); see file

☐ **Certificate of Clearance - Asbestos Abatement**

This serves notice that based on written certification, asbestos abatement was performed to the following extent.

☐ Total removal of asbestos hazards in scope of work

☐ Partial or limited time period (_____ years); see file

☐ **Certificate of Compliance**

This serves notice that said potentially hazardous equipment has been installed and/or maintained in accordance with the New Jersey Uniform Construction Code and is approved for use until

☐ **Temporary Certificate of Occupancy**

The following conditions must be met no later than: or the owner will be subject to fine or order to vacate: This certificate has an expiration date of:

Conditions to be met:

Daniel A. Newman Jr.

-Construction Official

Date Printed: 11/02/2020

U.C.C. F260 (rev. 08/05)

Fee: \$0.00

Check Number: _____

Collected By: _____

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

- A. ☐ I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

- B. ☐ I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(f)1.ix:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

- C. ☐ I further certify that I will perform or supervise the following work:

C.1. ☐ Building C.2. ☐ Fire Protection

I further certify that I will perform the following work:

C.3. ☐ Electrical C.4. ☐ Plumbing

- D. ☐ I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals, including such certification as the construction official may require, have been given or will be given prior to permit issuance.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date _____

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals, including such certification as the construction official may require, have been given or will be given prior to permit issuance.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

(X) Check if contractor.

Agent Name Whitman Construction LLC

Address 2511 Lakewood Road

Point Pleasant NJ 08742

Telephone (732) 295-0875

Signature Stephen Perry

III. ☐ LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:23-2.15(b)4.

IV. ☐ HOME ELEVATION: Include Home Elevation Contractor Certification as per N.J.S.A. 52:27D-123.16.



ELECTRICAL SUBCODE TECHNICAL SECTION



A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 646.07 Lot 60.06 Qualification Code _____
Work Site Location 619 Ivanhoe Raod, Brick NJ, 08723

Owner in Fee: William Hoermann

Tel. _____ e-mail _____
Address 619 Ivanhoe Road Brick 08753

Contractor: Tyler Torre Tel. (732) 295-0875
Address 1206 Niihau Drive e-mail Sday@stevewhitman.com
Forked River, NJ 08731

Contractor License No. 1853400 Exp. Date 03/31/2021

Home Improvement Contractor Registration No. or Exemption Reason _____

Federal Emp. ID No. 223558685 FAX: (732) 295-1529

B. ELECTRICAL CHARACTERISTICS

Use Group Present _____ Proposed X
[] Pole/Pad # _____ [] Temporary [] Other _____
Building Occupied as _____ Utility Co. _____
Est. Cost of Elec. Work \$ 17,920

JOB SUMMARY (Office Use Only)		INSPECTIONS				Dates (Month/Day)	
PLAN REVIEW		Type	Failure	Failure	Approval	Initial	
[] No Plans Required		Rough					
[] Partial - Underslab Utilities Approved		Barrier-Free					
Date _____ Approved by: _____		Trench					
[X] Electric Plans Approved		Temp. Serv.					
Date <u>10-1-2020</u> Approved by: <u>MM</u>		Constr. Serv.					
Joint Plan Review Required		TCO					
[] Bldg. [] Plumb. [] Fire. [] Elev.		Other					
SUBCODE APPROVAL for PERMIT		Service					
Date <u>10-5-2020</u>		Final					
Approved by: <u>MM</u>		Barrier-Free					
SUBCODE APPROVAL for CERTIFICATE		Temp. Cut-in Card Date Issued					
[] CO [] CCO [] CA		Final Cut-in Card Date Issued					
Date <u>10-27-2020</u>		Annual Pool Inspection					
Approved by: <u>MM</u>		Date of Grounding and Bonding Certification					

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application and perform the work listed on this application.

Applicant sign/Contractor sign and seal here: Tyler Torre

Print name here: Tyler Torre

☒ Licensed Elec. Contractor [] Certifd. Landscape Irrigation Contr. [] Exempt Applicant

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK:			FEE (Office Use Only)
QTY.	SIZE	ITEMS	
		Lighting Fixtures	
		Receptacles	
		Switches	
		Detectors	
		Light Poles	
		Motors—Fract. HP	
		Emergency & Exit Lights	
		Communications Points	
		Alarm Devices/F.A.C. Panel	
<u>28</u>		<u>IQ7-60-2-US</u>	
<u>28</u>		TOTAL NUMBERS	\$
		Pool Permit/with UW Lights	
		Storable Pool/Spa/Hot Tub	
		KW Elec. Range/Receptacle	
		KW Oven/Surface Unit	
		KW Elec. Water Heater	
		KW Elec. Dryer/Receptacle	
		KW Dishwasher	
		HP Garbage Disposal	
		KW Central A/C Unit	
		HP/KW Space Heater/Air Handler	
		KW Baseboard Heat	
		HP Motors 1/+ HP	
<u>1</u>	<u>60</u>	KW Transformer/Generator	
		AMP Service	
		AMP Subpanels	
		AMP Motor Control Center	
		KW Elec. Sign/Outline Light	
<u>28</u>	<u>320</u>	<u>Trina Micro</u>	

1 8.96 KW PV

Administrative Surcharge \$ _____
Minimum Fee \$ _____
State Permit Surcharge Fee \$ _____
TOTAL FEE \$ _____

Date Received 10/14/20
Control # _____
Date Issued 20-2464
Permit # _____



Date Received
Control #

Date Issued
Permit #

A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 646.07 Lot 60.06 Qualification Code _____
Work Site Location 619 Ivanhoe Road, Brick NJ, 08723

Counselor: William Hoermann
T: [REDACTED] e-mail: [REDACTED]

Address	619 Ivanhoe Road	Brick	08723
---------	------------------	-------	-------

Contractor: Whitman Construction, LLC Tel. (732) 295-0875

Address 2511 Lakewood Road e-mail sday@stevewhitman.com

Point Pleasant NJ 08742

Contractor License No. or Builder Registration No. 13VH00613100 Exp. Date 03/31/2021

Home Improvement Contractor Registration No. or Exemption Reason

Federal Emp. ID No. **223558985** FAX: **(732) 295-1529**

JOB SUMMARY (Office Use Only)

PLAN REVIEW		Date	Initial	INSPECTIONS		Dates (Month/Day)	
☐	No Plans Required			Type:	Failure	Failure	Approval
☒	All	9/30/20	SR	Footing			
☐	Footings/Foundations			Footing Bonding			
☐	Structural/Framework			Foundation			
☐	Exterior			Slab			
☐	Interior			Frame			
Joint Plan Review Required:				Truss Sys./Bracing			
				Barrier-Free			
☐	Elec.	☐	Plumb.	☐	Fire	☐	Elevator
SUBCODE APPROVAL for PERMIT				Insulation			
Date:	09/30/20			Finishes -Base Layer			
Approved by:	KEL			Finishes -Final			
SUBCODE APPROVAL for CERTIFICATE				Energy			
☐	CO	☐	CCO	☒	CA		
Date:	10/26/20			Mechanical			
Approved by:	KEL			TCO			
				Other			
				Final		10/26/20	KEL
				Barrier-Free			

B. BUILDING CHARACTERISTICS

Use Group Present _____ Proposed _____ **Constr. Class** Present _____ Proposed X

Height of Structure _____ ft. State Approved _____ HUD _____

Area — Largest Floor _____ sq. ft. **Est. Cost of Bldg. Work:**

New Bldg. Area/All Floors _____ sq. ft.	1. New Bldg. \$ 4,480
---	-----------------------

Volume of New Structure _____ cu. ft.

Max. Live Load _____	3. Total (1+ 2) \$ <u>4,480</u>
----------------------	------------------------------------

Max. Occupancy Load _____ UCC E110 (rev. 11/09)

U.C.C. F110 (rev. 11/09)
Internet version

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Sign here: Stephen Venz

Print name here: **Stephen Day**

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Installation of 8.96 Kw roof mounted solar.

Structural letter attached
(28)

TYPE OF WORK:

- ☐ New Building
☐ Addition
☐ Rehabilitation
☐ Roofing
☐ Siding
☐ Fence _____ Height (exceeds 6")
☐ Sign _____ Sq. Ft.
☐ Pool
☐ Retaining Wall _____ Sq. Ft.
☐ Asbestos Abatement Subchapter 8
☐ Lead Haz. Abatement NJAC 5:17
☐ Radon Remediation
☐ Other _____
☐ Demolition

FEE (Office Use Only)

\$

Administrative Surcharge \$ 

Minimum Fee \$

State Permit Surcharge Fee \$

TOTAL FEE \$

Applicant: When submitting this form to your Local Construction Code Enforcement Office, please provide one original plus three photocopies.

RECEIVING CLERK _____
DATE REC'D _____

ZONING PERMIT APPLICATION

PERMIT # ZP 20-0160
DATE ISSUED 10/14/20

BLOCK: 646.07 LOT: 60.06 QUALIFIER: _____ SITE ADDRESS: 619 Ivanhoe Road Brick, NJ 08723

IDENTIFICATION:

1. NAME OF OWNER IN FEE: William Hoermann
COMPLETE ADDRESS: 619 Ivanhoe Road Brick, NJ 08742
PHONE: [REDACTED] EMAIL: [REDACTED]
2. NAME OF APPLICANT: Whitman Construction
APPLICANT ADDRESS: 2511 Lakewood Road, Point Pleasant, NJ 08742
PHONE # (732) 295-0825 EMAIL: sday@stevewhitman.com
3. RESPONSIBLE PERSON FOR WORK: Whitman Construction
PHONE # (732) 295-0825 FAX # (732) 295-1529
4. SIGNATURE OF APPLICANT: Stephen Day

FOR OFFICE USE ONLY

FEE SUMMARY:

APPLICATION FEE: \$ 75-
OTHER: \$ _____
TOTAL: \$ 75-

REQUIRED BY APPLICANT

RESIDENTIAL: ☒
COMMERCIAL: _____
EXISTING USE: SR
PROPOSED USE: SR

BOARD APPROVAL: _____ PB _____ ZB _____
RESOLUTION #: _____
APPROVAL DATE: _____

PROJECT DESCRIPTION: (PLEASE CHECK APPLICABLE WORK & DESCRIBE)

*NEW BUILDING: _____ *ADDITION _____ *ALTERATION ☒ *PORCH _____ *DECK _____

POOL: ABOVE GROUND _____ IN GROUND _____ FENCE: HEIGHT _____ TYPE _____

HEIGHT: _____ (*APPLICABLE)

OTHER: _____

DESCRIPTION: Roof mounted solar

ZONING REVIEW:

DATE REVIEWED: 9-21-20 DATE DENIED: _____ DATE APPROVED: 9-21-20 INTLS: C

(SEE BACK PAGE)



Brick Township
401 Chambers Bridge Rd.
Brick, NJ 08723
(732) 262-1041

Date Issued: 10/14/20
Application Number: ZA-20-01165
Application Date: 9/15/2020
Project Number: _____
Permit Number: 2P20-01160
Fee: \$75.00

Zoning Permit

Worksite **619 IVANHOE ROAD**
Location: **Brick Township, NJ 08723**

Owner: **HOERMANN, WILLIAM & LORETTO, K**
Address: **619 IVANHOE RD**
BRICK, NJ 08723

Applicant: **HOERMANN, WILLIAM & LORETTO, K**
Address: **619 IVANHOE RD**
BRICK, NJ 08723

Block: 646.07 Lot: 60.06 Qualifier: _____ Zone: R-7.5

This Certifies that an application for the issuance of a Zoning Permit has been examined.

Present Use: Single-Family Residential

☐ Non Conforming Use

☐ Non Conforming Structure

Proposed Use: Single-Family Residential

Work Description:

Solar Energy System - 28- 320W Trina Solar, 8.960kW Unirac micro-inverters, mounted on the roof of the house.

Additional Zoning permit is required for additional work.

Application Approved Date: 9/21/2020

Upon review it was determined that the Zoning Permit:

- ☒ Permitted by Ordinance
☐ Permitted by Variance approved on: _____
☐ Approved with Conditions
☐ Valid Nonconforming Use/Structure is established by
☐ Zoning Board of Adjustment ☐ Zoning Officer

Christopher J. Romano, Zoning Officer

9/21/2020
Date

DOUGLAS G. PENOYER, PE

P.O. Box 393, Woodstown, NJ 08098

Phone: (609) 743-7160

www.centurionconstructionservices.com

July 10, 2020

RE: Hoermann Residence
619 Ivanhoe Road
Brick, NJ 08723

To Whom It May Concern:

1. 28 - Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules
2. Unirac SolarMount mounting system for Solar Panels

The 2018 International Building Code, New Jersey Edition, Section 1609, Wind Loads
The 2018 International Residential Code, New Jersey Edition, Section R301.2.1, Wind Design Criteria

In reviewing the above solar array with respect to the referenced codes, the Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules with the Unirac SolarMount mounting system meets the requirements of the 2018 International Building Code, New Jersey Edition, Section 1609, "Wind Loads", and the requirements of the 2018 International Residential Code, New Jersey Edition, Section R301.2.1, "Wind Design Criteria", for the array size and wind speed provided by Whitman Construction, LLC.

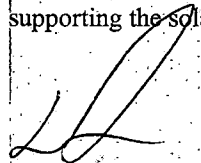
The Unirac submittal states that the uplift strength for their mounting system when installed as directed is at least 50 pounds per square foot. Both of the above referenced codes refer to ASCE 7-05/7-10, "Minimum Design Loads for Buildings and Other Structures", to determine wind loads. Analysis pursuant to ASCE 7-10, Chapter 28, "Wind Loads on Buildings", for roof angles 30° to 45°, for a given wind speed of 130 mph the worst case uplift value is substantially less than 50 pounds per square foot. Therefore the Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules with the Unirac SolarMount mounting system meets the New Jersey IBC and IRC requirements.

The residence's roof was inspected for condition and distance between roof rafters. The roof was found to be in acceptable condition.

The distance between the 2" x 8" roof rafters within the residence was found to be 16 inches center-to-center. The manufacturer's recommendation is that the center-to-center distance between the mounting points for the solar panels for the Unirac SolarMount mounting system must be less than or equal to 48". Therefore, the above referenced array meets the minimum requirements for the Unirac SolarMount mounting system.

The system is to be installed pursuant to manufacturer's recommendations with (1) SS lag bolts 5/16" Diameter x 3-1/2" length pursuant to the attached detail.

This added dead load and wind load certification applies specifically to the above referenced solar array design. Additionally, it has been determined that the added 2.6 pound per square foot weight load on the roof from the solar array will not exceed the NJ standard roof loadings, including a maximum of 30 PSF live load from snow, and it has been therefore determined that the existing roof system is capable of supporting the solar array.



Douglas G. Penoyer, PE

NJ PE #39512

9-21-20 Sdc
CHRIS ROMANO, ZONING OFFICER

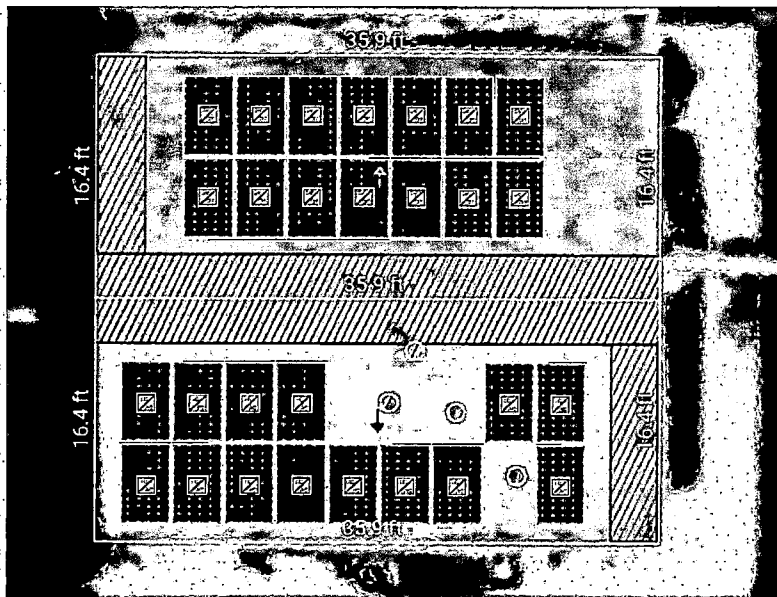
SOLAR ENERGY PROJECT AT THE HOERMANN RESIDENCE

CUSTOMER ADDRESS	619 Ivanhoe Road
	Brick, NJ 08723
REVISION NUMBER	Hoermann, William - Rev. 0.dwg
SYSTEM SIZE (KW)	8,960
TOTAL NUMBER OF PANELS	28

TABLE OF CONTENTS

Sheet	Title
T1	COVER SHEET
A1	ROOF ARRAY LAYOUT
S1	MODULE ATTACHMENT DETAIL AND LOADS
E1	ELECTRICAL DIAGRAM
E2	ELECTRICAL GROUNDING DETAIL
E3	ELECTRICAL LABELING
R1	SOLAR PANEL ELECTRICAL DATASHEET
R2	INVERTER ELECTRICAL DATASHEET
B1	CREW'S ASBUILT

REV	DATE	DESCRIPTION	EPC Contractor	Whitman Construction, LLC - Steve Whitman Solar, LLC	Electrical Contractor:	Electrical Engineer:	SCALE NTS	Project #5917	PROJECT NAME & ADDRESS	ISSUING TYPE	SHEET
				2511 Lakewood Road Point Pleasant, NJ 08742 License # 13VH00613100	Westlund Electric, LLC 122 Cedarwood Drive Irving, NJ 08723	Douglas G. Penoyer, PE P.O. Box 393 Woodstown, NJ 08098 NJ License # GE03512 - PA License # PE045506 MD License # 20993 - DE License #12293	SCALE NTS PA	Project #5917	HOERMANN: RESIDENCE 819 MANHOE ROAD BRICK, NJ 08723	COVER PAGE	(T1)
0	7/10/20	ISSUED FOR PERMIT SET					DATE July 10, 2020			DRW. NAME & FIRM Hoermann, William - Raw O.dwg	

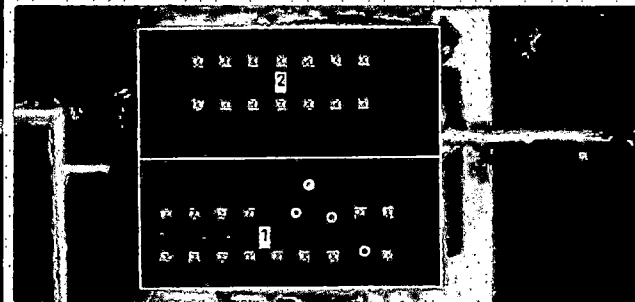


Address
619 Ivanhoe Rd
Brick Township, NJ
08723, USA

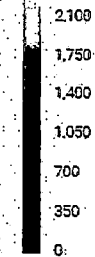
Coordinates
(40.044477, -74.112916)

Date
10 July 2020

Annual Irradiance

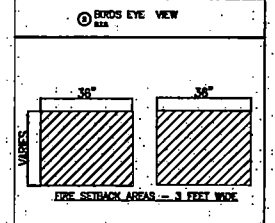
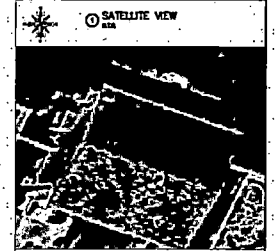
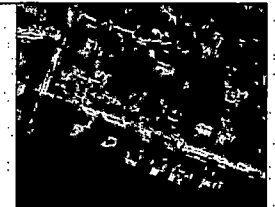


kWh/m²/year
2,450 or more



Summary

Array	Panel Count	Azimuth (deg.)	Pitch (deg.)	Annual TOF (%)	Annual Solar Access (%)	Annual TSPF (%)
1	13	199	20	97	79	76
2	14	19	20	68	97	66



APPLICABLE CODES & STANDARDS

IRC 2018 - BUILDING
NEPA 70 - FIRE
NEC 2017 - ELECTRICAL
IMC 2009 - MECHANICAL
ISC 2018 - WIND & SNOW LOADS
ASCE - 7-10 & 7-16

CUSTOMER APPROVAL

PRINT NAME

SIGNATURE

3 ARRAY LAYOUT VIEW
N.T.S.

REV	DATE	DESCRIPTION
1	7/10/20	ISSUED FOR PERMIT SET

WHITMAN CONSTRUCTION, LLC - STEVE WHITMAN SOLAR, LLC
2511 Lakewood Road
Point Pleasant, NJ 08742
License # 13VH00613100

Electrical Contractor:
Westland Electric, LLC
122 Cedarwood Drive
Brick, NJ 08723

Structural Engineer:
Douglas G. Penoyer, PE
P.O. Box 393
Woodcliff, NJ 08098
NJ License # GE39512 - PA License # PE045589E
MD License # 25963 - DE License # 12363

ISSUED NTS: Permit #5917
ISSUED BY: PA
DATE: July 10, 2020

PROPERTY NAME & ADDRESS
HOERMANN RESIDENCE
619 IVANHOE ROAD
BRICK, NJ 08723

DESIGNED BY
Hoermann, William - Rev 0.0mg

ARRAY LAYOUT

REVISIONS
A1

DWELLING INFORMATION

SINGLE FAMILY RESIDENTIAL ROOF INFORMATION

TYPE:

Asphalt Shingles

ROOF STRUCTURE:

2"x8" roof rafters

O.C. Spacing: 16"

DESIGN REQUIREMENT

Meets or exceeds 125mph wind zones

RACKING INFORMATION

MANUFACTURE & MODEL NUMBER:

Unirac SolarMount

SOLAR PANEL INFORMATION

MANUFACTURE

Triva 320 WATT, TSM-320 DDO5H.05 (10)

NUMBER OF PANELS:

28

SOLAR PANEL DEAD WEIGHT CALCULATION

1. A TYPICAL SOLAR PANEL CONSISTS OF FOUR (4) SOLAR MODULES AND ONE ROOF MOUNTING SYSTEM. THE MOUNTING SYSTEM HAS SIX (6) POINTS OF CONTACT WITH THE ROOF.

2. PANEL WEIGHT CALCULATION:

SOLAR MODULE WEIGHT = 42.1 LBS

MOUNTING SYSTEM WEIGHT = 15 LBS

TOTAL PANEL WEIGHT = (4 X 42.1) + 15 = 183.4 LBS

3. POINT LOAD CALCULATION:

POINT LOAD = TOTAL PANEL WEIGHT

NUMBER OF POINTS OF SUPPORT

= 183.4 LBS

6 SUPPORTS = 30.6 LBS

4. DISTRIBUTED LOAD CALCULATION:

SOLAR MODULE AREA = 58.98" X 64.96" = 17.58 FT²

TOTAL SOLAR MODULE AREA = 4 X 17.58 = 70.33 FT²

INTER-MODULE SPACING = 1.0"

TOTAL SPACING AREA = 3 X 1.0" X 64.96" = 1.33 FT²

(3 SPACES BETWEEN 4 MODULES)

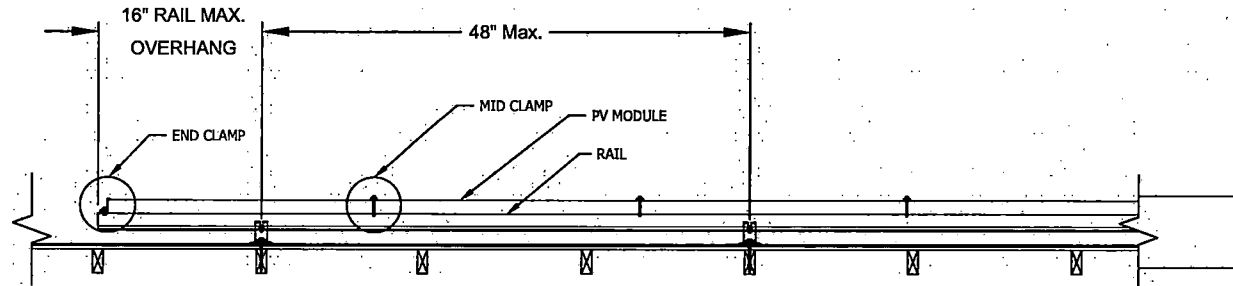
DISTRIBUTED LOAD = TOTAL PANEL WEIGHT

TOTAL PANEL AREA

= 183.4 LBS

70.33 FT²

SOLAR PANEL DEAD WEIGHT = 2.6 LBS/FT²



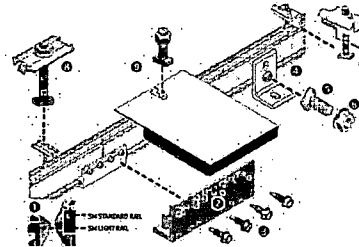
B CROSS SECTION

NTS



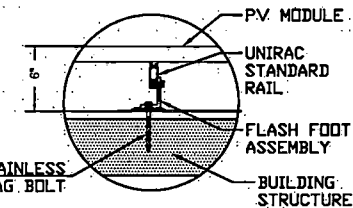
STANDARD SYSTEM COMPONENTS

INSTALLATION GUIDE PAGE



Weldments and Torques	Material	Quantity
1/2" Flathead Bolt	316L	70
1/2" Flathead Nut	316L	70
1/2" Flathead Washer	316L	10
Bolts are not designed for use with standard concrete "POWER" deck.		

Anti-Solar
Standard components can be used in a variety of applications. The system is designed to be installed on a variety of roof types. The system is designed to be installed on a variety of roof types. The system is designed to be installed on a variety of roof types.



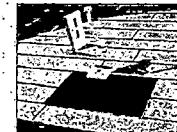
5/16" X 3-1/2" STAINLESS
STEEL LAG BOLT

A FLASHING AND RAIL DETAIL

NTS



FLAT FLASHING INSTALLATION: Insert the Flat Flashing so the top part is under the next row of shingles and the hole lines up with the pilot hole.



INSTALL LAG BOLTS & L-FOOT: Insert the lag bolt through the L-Foot in the order shown in the illustration. Verify proper orientation before tightening lag bolts.

REV	DATE	DESCRIPTION
1	7/10/20	ISSUED FOR PERMIT SET

BY: Whitman Construction, LLC - Steve Whitman Solar, LLC
2511 Lakewood Road
Point Pleasant, NJ 08742
License # 13VH00613100

Whitman Construction, LLC
122 Cedarwood Drive
Brick, NJ 08723

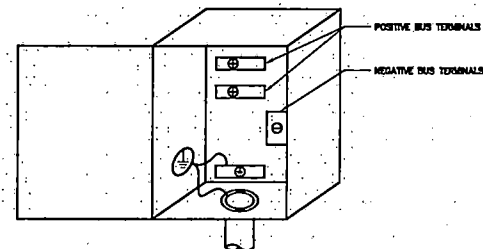
Reviewed By: Douglas G. Penoyer, PE
P.O. Box 305
Woodstown, NJ 08098
NJ License # GE39012 - PA License # PE2465956
MD License # 25063 - DE License # 12063

RECEIVED NTS Project #5917
DATE: PA
DATE: July 10, 2020

PROPERTY NAME & ADDRESS
HOERMANN RESIDENCE
610 HANCOCK ROAD
BRICK, NJ 08723

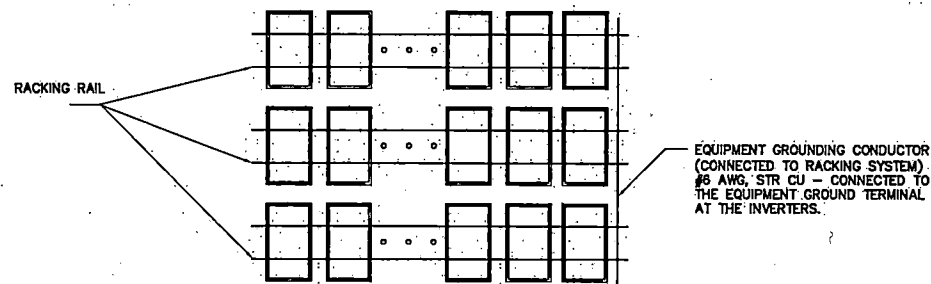
DESIGNED BY
STRUCTURAL & RACKING
DATE: 6/28/20 BY: Hoermann, William - Rev 0.01

SHOWN:
(S1)

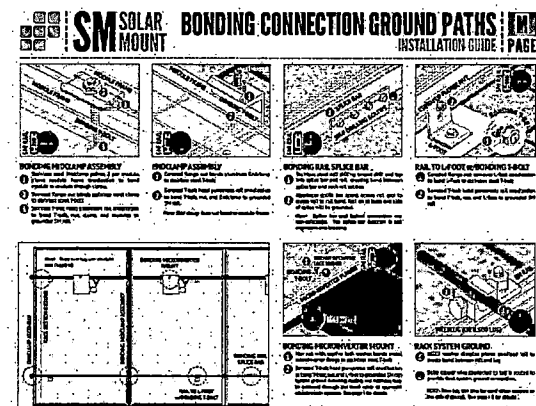


- 2 TYPICAL EQUIPMENT GROUNDING DETAIL
N.T.S.

① OVERALL GROUNDING DETAIL
N.T.S.



3. ARRAY GROUNDING SCHEME



④ UNIRAC MANUFACTURE GROUNDING DETAIL
N.T.S.

[illegible]

IDENTIFICATION PLACARD PER NEC
230.2(E) TO BE PLACED ON CUSTOMER METER
REFER TO DRAWING FOR OPERATING CURRENT

IDENTIFICATION OF MULTIPLE SERVICE DISCONNECTS

A SECOND POWER SOURCE IS PRESENT IN
THIS EQUIPMENT: PV SYSTEM DISCONNECT
LOCATED IN XXXXXXXXX

INTERACTIVE SOLAR PV SYSTEM RATINGS	
MAX. OPERATING CURRENT	XX AMPs
OPERATING VOLTAGE	240VAC

IDENTIFICATION PLACARD TO BE PLACED ON
SOLAR SUBPANEL

**THIS PANEL IS ONLY FOR
COMBINING SOLAR INVERTER
OUTPUTS. DO NOT ADD LOADS**

IDENTIFICATION PLACARD TO BE PLACED
UTILITY METER

**SOLAR AC DISCONNECT LOCATED
AT XXXXXXXXXXXXXXXX**

IDENTIFICATION PLACARD PER NEC
230.2(E) TO BE PLACED ON CUSTOMER
EXISTING PANEL BOX
REFER TO DRAWING FOR OPERATING CURRENT

THIS PANEL HAS SECONDARY
POWER SOURCE FROM
PHOTOVOLTAIC SYSTEM. OPEN
SOLAR PV DISCONNECT PRIOR TO
SERVICING PANEL.

INTERACTIVE SOLAR PV SYSTEM RATINGS	
MAX. OPERATING CURRENT	XX AMPs
OPERATING VOLTAGE	240VAC

IDENTIFICATION PLACARD TO BE PLACED ON
THE SOLAR TAP BOX

SOLAR AC TAP BOX

IDENTIFICATION PLACARD TO BE PLACED ON DC
DISCONNECT PER NEC 690.54

PHOTOVOLTAIC AC DISCONNECT

AC OUTPUT CURRENT	XX AMP
NOMINAL OPERATING AC VOLTAGE	XXVAC

TO BE PLACE ON BACKFEED BREAKER AND PANEL PER
690.64; 705.12 (B)(3)(b); 705.12 (B)(3)(c)

WARNING:
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

WARNING
EQUIPMENT IS BACKFED
RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN
SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED
IMPACT OF BURBAR

IDENTIFICATION PLACARD TO BE PLACED ON
THE SYSTEMS DISCONNECTS PER 690.12;
690.13 (A) AND 690.13 (B); 690.15

PHOTOVOLTAIC DC DISCONNECT

PHOTOVOLTAIC AC DISCONNECT

CONDUIT LABEL 1 PER 10FT. PER NEC 690.31 (G3-4)

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

IDENTIFICATION PLACARD TO BE PLACED
UTILITY METER PER NEC 690.12

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

DC STRING COMBINER WARNING
LABEL, PLACE ON INVERTER PER 690.13 &
690.53

PHOTOVOLTAIC DC COMBINER BOX

WARNING:
ELECTRIC SHOCK HAZARD.
TERMINALS ON BOTH THE LINE
AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION.
DISCONNECT AND GROUND BEFORE WORKING

	INPUT
MAXIMUM VOLTAGE	XXX VDC
MAXIMUM CIRCUIT CURRENT	1 AMP

EACH INTEGRATED
DC COMBINER BOX
SHALL BE
INDIVIDUALLY
DESIGNATED

• PROVIDED PER
DRAWINGS

① LABELS
N.T.S.

NOTES

- NOTES
1. ALL LABELING SHALL COMPLY WITH REQUIREMENTS OF NEC 800 AND UL.
 2. TEXT SIZE SHALL BE CONFIRMED BY THE CONTRACTOR BUT IN NO CASE TEXT SHALL BE SMALLER THAN 3/8" HIGH.
 3. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING & DATA LISTED ON ALL SIGNS AND PLACARDS.

[illegible]

REV	DATE	DESCRIPTION	WFO Contractor: Whitman Construction, LLC - Steve Whitman Solar, LLC 2511 Lakewood Road Point Pleasant, NJ 08742 License # 13VH00613100	Standard Contractor: Westlund Electric, LLC 122 Cedarwood Drive Rock, NJ 08723	Standard Engineer: Douglas G. Penoyer, PE P.O. Box 993 Woodstown, NJ 08099 NJ License # GE29012 - PA License # PED456686 MD License # 25953 - DE License # 12385	ASCR NTS Project #5917 ASCR ID: PA ASCR: July 10, 2020	PROJECT NAME & ADDRESS: HOERMANN RESIDENCE 619 HANCOCK ROAD ROCKY, NJ 08723	ASCR NTS PANEL DATA SHEET PANEL NAME & REV: Hoermann, William - Rev 0.0/0	REV (R1)
0	7/10/20	ISSUED FOR PERMIT SET							



ENGINEERING PERMIT APPLICATION

RECEIVING CLERK: _____

PERMIT #: _____

BLOCK: 646.07 LOT: 60.06 ADDRESS: 619 Ivanhoe Road, Brick NJ 08723**IDENTIFICATION:**

1. WORK SITE ADDRESS: 619 Ivanhoe Road
2. NAME OF OWNER IN FEE: William Hoermann
ADDRESS: 619 Ivanhoe Road PHONE: [REDACTED]
Brick, NJ 08723 FAX #: ()
3. PRINCIPAL CONTRACTOR: Whitman Construction
ADDRESS: 2511 Lukewood Road PHONE #: (732) 295-0875
Point Pleasant, NJ 08742 FAX #: (732) 295-1529
4. ARCHITECT OR ENGINEER: _____
ADDRESS: _____ PHONE: # ()
5. RESPONSIBLE PERSON FOR WORK: Whitman Construction
ADDRESS: 2511 Lukewood Road, Point Pleasant, NJ 08742
PHONE #: (732) 295 0875 FAX #: (732) 295 1529 E-MAIL: sdwy@stewwhitman.com

PROJECT DESCRIPTION: ☐ GRADING/CLEARING ☐ ROAD OPENING☐ SOIL REMOVAL/FILL ☐ RETAINING WALL ☐ POOL☐ BULKHEAD/DOCK ☐ DWELLING ☐ TREE REMOVAL _____☒ OTHER Roof mounted solar

LENGTH: _____ WIDTH: _____ HEIGHT: _____

FEE SUMMARY:

APPLICATION FEE: \$ _____

REVIEW FEE: \$ _____

INSPECTION FEE: \$ _____

OTHER _____: \$ _____

BOND(S): \$ _____

TOTAL: \$ _____

SPECIAL CONDITIONS:

OCEAN COUNTY SOILS: _____

DRAINAGE EASEMENTS: _____

UTILITY EASEMENTS: _____

CONSERVATION EASEMENTS: _____

FEMA REQUIREMENTS: _____

D.E.P. PERMITS: _____

BOARD APPROVAL: ☐ PB ☐ ZB

APPLICATION NUMBER: _____

APPROVED DATE: _____

ENGINEERING REVIEW:

DATE RECEIVED: _____ DATE REJECTED: _____ DATE APPROVED: _____ INITIALS: _____

DOUGLAS G. PENOYER, PE

P.O. Box 393, Woodstown, NJ 08098

Phone: (609) 743-7160

www.centurionconstructionservices.com

July 10, 2020

RE: Hoermann Residence
619 Ivanhoe Road
Brick, NJ 08723

To Whom It May Concern:

1. 28 - Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules
2. Unirac SolarMount mounting system for Solar Panels

The 2018 International Building Code, New Jersey Edition, Section 1609, Wind Loads

The 2018 International Residential Code, New Jersey Edition, Section R301.2.1, Wind Design Criteria

In reviewing the above solar array with respect to the referenced codes, the Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules with the Unirac SolarMount mounting system meets the requirements of the 2018 International Building Code, New Jersey Edition, Section 1609, "Wind Loads", and the requirements of the 2018 International Residential Code, New Jersey Edition, Section R301.2.1, "Wind Design Criteria", for the array size and wind speed provided by Whitman Construction, LLC.

The Unirac submittal states that the uplift strength for their mounting system when installed as directed is at least 50 pounds per square foot. Both of the above referenced codes refer to ASCE 7-05/7-10, "Minimum Design Loads for Buildings and Other Structures", to determine wind loads. Analysis pursuant to ASCE 7-10, Chapter 28, "Wind Loads on Buildings", for roof angles 30° to 45°, for a given wind speed of 130 mph the worst case uplift value is substantially less than 50 pounds per square foot. Therefore the Trina 320 Watt TSM-320 DD05H.05 (II) PV Modules with the Unirac SolarMount mounting system meets the New Jersey IBC and IRC requirements.

The residence's roof was inspected for condition and distance between roof rafters. ~~The roof was found to be in acceptable condition.~~

The distance between the 2" x 8" roof rafters within the residence was found to be 16 inches center-to-center. The manufacturer's recommendation is that the center-to-center distance between the mounting points for the solar panels for the Unirac SolarMount mounting system must be less than or equal to 48". Therefore, the above referenced array meets the minimum requirements for the Unirac SolarMount mounting system.

The system is to be installed pursuant to manufacturer's recommendations with (1) SS lag bolts 5/16" Diameter x 3-1/2" length pursuant to the attached detail.

This added dead load and wind load certification applies specifically to the above referenced solar array design. Additionally, it has been determined that the added 2.6 pound per square foot weight load on the roof from the solar array will not exceed the NJ standard roof loadings, including a maximum of 30 PSF live load from snow, and it has been therefore determined that the existing roof system is capable of supporting the solar array.

FILE COPY

Douglas G. Penoyer, PE
NJ BE #39512

NOT AN
ELECTRICIAN'S
OR PLUMBER'S
LICENSE

BACKGROUND AND MULTIPLE SECURITY FEATURES. PLEASE VERIFY AUTHENTICITY.

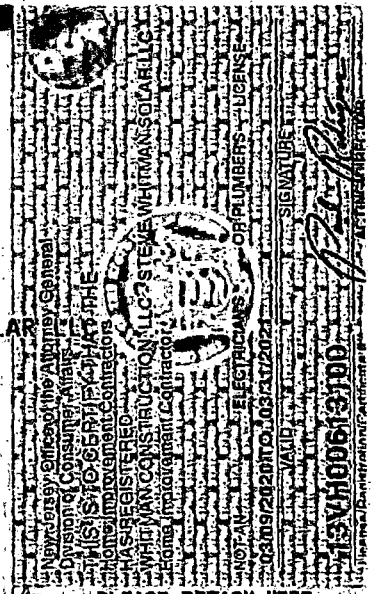
State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Home Improvement Contractors

HAS REGISTERED

WHITMAN CONSTRUCTION, LLC - STEVE WHITMAN SOLAR
Stephen F. Whitman
2511 Lakewood Road
Point Pleasant Beach NJ 08742

FOR PRACTICE IN NEW JERSEY AS A(N): Home Improvement Contractor



03/09/2020 TO 03/31/2021
VALID

13VH00613100
LICENSE/REGISTRATION/CERTIFICATION #

Signature of Licensee/Registrant/Certificate Holder

Paul Rodriguez
ACTING DIRECTOR

PLEASE DETACH HERE
IF YOUR LICENSE/REGISTRATION/
CERTIFICATE ID CARD IS LOST
PLEASE NOTIFY:
Home Improvement Contractors
P.O. Box 45016
Newark, NJ 07101

PLEASE DETACH HERE

WHITMAN CONSTRUCTION, LLC - STEVE WHITMAN SOLAR LLC EXPIRATION DATE 2021
YOUR LICENSE/REGISTRATION/CERTIFICATE NUMBER IS 13VH 00613100 PLEASE USE IT IN ALL
CORRESPONDENCE TO THE DIVISION OF CONSUMER AFFAIRS. USE THIS SECTION TO REPORT ADDRESS
CHANGES. YOU ARE REQUIRED TO REPORT ANY ADDRESS CHANGES IMMEDIATELY TO THE ADDRESS NOTED
BELOW.

Home Improvement Contractors
P.O. Box 45016
Newark, NJ 07101

PRINT YOUR NEW ADDRESS OF RECORD BELOW.
YOUR ADDRESS OF RECORD IS THE ADDRESS THAT WILL PRINT ON
YOUR LICENSE/REGISTRATION/CERTIFICATE AND IT MAY BE MADE
AVAILABLE TO THE PUBLIC.

HOME ☐
BUSINESS ☐

TELEPHONE
INCLUDE AREA CODE

PRINT YOUR NEW MAILING ADDRESS BELOW.
YOUR MAILING ADDRESS IS THE ADDRESS THAT WILL BE USED BY
THE DIVISION OF CONSUMER AFFAIRS TO SEND YOU ALL
CORRESPONDENCE.

HOME ☐
BUSINESS ☐

TELEPHONE
INCLUDE AREA CODE

If the law governing your profession requires the current license/registration/certificate to be displayed, it should be
within reasonable proximity of your original license/registration/certificate at your principal office or place of business.

THIS DOCUMENT IS PRINTED ON WATERMARKED PAPER, WITH A MULTI-COLORED
BACKGROUND AND MULTIPLE SECURITY FEATURES. PLEASE VERIFY AUTHENTICITY.

State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Board of Examiners of Electrical Contractors

HAS LICENSED

T TORRE ELECTRIC LLC
TYLER J TORRE
1206 Niihau Drive
Forked River NJ 08731

FOR PRACTICE IN NEW JERSEY AS A(N): **Electrical Business Permit**

12/20/2019 TO 03/31/2021
VALID


Signature of Licensee/Registrant/Certificate Holder

34EB01853400
LICENSE/REGISTRATION/CERTIFICATION #


ACTING DIRECTOR



PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

New Jersey Office of the Attorney General

Division of Consumer Affairs
Board of Examiners of Electrical Contractors
124 Halsey Street, 6th Floor, Newark NJ
07102

December 20, 2019



GURBIR S. GREWAL
Attorney General

PAUL R. RODRIGUEZ
Acting Director

Mailing Address:
P.O. Box 45006
Newark, NJ 07101
(973) 504-6410

TO WHOM IT MAY CONCERN

This is to inform you that TYLER J TORRE is a newly-licensed electrical contractor who has not yet been supplied with a pressure seal by the vendor for:

T TORRE ELECTRIC LLC
1206 Niihau Drive
Forked River NJ 08731

Business Permit No. 34EB01853400

Please accept this letter as an interim device pending the furnishing of this pressure seal..

This letter will be rendered invalid **300 days** after the date of its issuance.

Sincerely,

Philameana L. Tucker
Executive Director

PLT:gkb





CONSTRUCTION PERMIT

Date Issued 10/14/20
Control # C-20-002929
Permit # 20-2464

IDENTIFICATION Block: 646.07 Lot: 60.06 Qualifier _____
Work Site Location: 619 IVANHOE ROAD Brick Township, NJ 08723 Contractor WHITMAN CONSTRUCTION
Address 2511 LAKEWOOD ROAD PT. PLEASANT NJ 08742-
Owner in Fee HOERMANN, WILLIAM & LORETTO, K
619 IVANHOE RD. BRICK NJ 08723 Telephone: (732) 295-0875
Telephone: _____ Lic. No. or Bldrs. Reg. No. 13VH00613100
Federal Employee No. 22-3558985

Is hereby granted permission to perform the following work:

- ☒ BUILDING ☐ PLUMBING ☐ LEAD HAZARD ABATEMENT
☒ ELECTRICAL ☐ FIRE PROTECTION ☐ DEMOLITION
☐ ELEVATOR DEVICES ☐ ASBESTOS ABATEMENT (Subchapter 8 only) ☐ OTHER

DESCRIPTION OF WORK:

SOLAR PANELS...INSTALL 8.96 kw ROOF MOUNT PHOTOVOLTAIC SOLAR SYSTEM

Note: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.
Estimated Cost of Work \$22,400

Construction Official [Signature] Date 10/13/20

U.C.C. F170
equiv (rev 1/04)

1 WHITE - INSPECTOR

2 CANARY - OFFICE

3 PINK - TAX ASSESSOR

4 GOLD - APPLICANT

PAYMENTS (Office Use Only)

Building	\$224
Electrical	\$250
Plumbing	\$0
Fire Protection	\$0
Elevator Devices	\$0
Other	\$0.00
DCA Training Fee	\$43
CO Fee	
Other	\$0
Total	\$517
Check No.	<u>13369</u>
Cash	\$0
Credit	\$0
Collected By	<u>CW</u>

REQUIRED INSPECTIONS

Construction work must be inspected in accordance with the State Uniform Construction Code Regulations N.J.A.C. 5:23-2.18. This agency will carry out such periodic inspections during the progress of work as are necessary to insure that the work installed conforms with the requirements of the Uniform Construction Code.

The owner or other responsible person in charge of work must notify this agency when work is ready for any required inspections specified below. Requests for inspections must be made at least 24 hours prior to the time the inspection is desired. Inspections will be performed within three business days of the time for which they are requested. The work must not proceed in a manner which will preclude the inspection until it has been made and approval granted.

☒ Required inspections for all subcodes for one- and two-family dwellings are as follows:

1. The bottom of footing trenches before placement of footings, except that in cases of pile foundations, inspections shall be made in accordance with the requirements of the building subcode.
2. Foundations and all walls up to grade level prior to back filling.
3. All structural framing, connections, wall and roof sheathing and insulation; electrical rough wiring, panel and service installation; rough plumbing. The framing inspection shall take place after the rough electrical and plumbing inspections and after the installation of the heating, ventilation and /or air conditioning duct system. The insulation inspection shall be performed after all other subcode rough inspections and prior to the installation of any interior finish material.
4. Installation of all finished materials, sealings of exterior joints, plumbing piping, trim and fixtures; electrical wiring, devices and fixtures; mechanical systems equipment.

Additional required inspections for all subcodes of construction, for other than one- and two-family dwellings, are fire suppression systems, heat producing devices and Barrier Free subcode accessibility, if applicable.

☐ Required special inspections. The applicant by accepting the permit will be deemed to have consented to these requirements:

☒ A final inspection is required for each applicable subcode area before a final Certificate of Occupancy or Approval may be issued. The final inspections include the installation of all interior and exterior finish materials, sealing of exterior joints, mechanical system and other required equipment; electrical wiring, devices and fixtures; plumbing pipes, trim and fixtures; tests required by any provision of the adopted subcodes, Barrier Free accessibility, if applicable; and verification of compliance with NJAC 5:23-3.5, "Posting structures".

☒ A complete copy of released plans must be kept on the job site.

If you do not understand any of this information, please ask.

BUILDING \$224.00
ELECTRICAL \$250.00
PLUMBING \$0.00
FIRE PROTECTION \$0.00
ELEVATOR DEVICES \$0.00
OTHER \$0.00
TOTAL \$517.00

IDENTIFICATION PLACARD PER NEC
230.2(E) TO BE PLACED ON CUSTOMER METER
REFER TO DRAWING FOR OPERATING CURRENT

IDENTIFICATION OF MULTIPLE SERVICE DISCONNECTS

INTERACTIVE SOLAR PV SYSTEM RATINGS

MAX. OPERATING CURRENT	XX AMPs
OPERATING VOLTAGE	240VAC

**THIS PANEL IS ONLY FOR
COMBINING SOLAR INVERTER
OUTPUTS. DO NOT ADD LOADS**

**SOLAR AC DISCONNECT LOCATED
AT XXXXXXXXXXXXXXXX**

**THIS PANEL HAS SECONDARY
POWER SOURCE FROM
PHOTOVOLTAIC SYSTEM. OPEN
SOLAR PV DISCONNECT PRIOR TO
SERVICING PANEL.**

INTERACTIVE SOLAR PV SYSTEM RATINGS

MAX. OPERATING CURRENT	XX AMPs
OPERATING VOLTAGE	240VAC

SOLAR AC TAP BOX

PHOTOVOLTAIC AC DISCONNECT

AC OUTPUT CURRENT	XX AMPS
NOMINAL OPERATING AC VOLTAGE	XX0VAC

WARNING:
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

WARNING
EQUIPMENT IS BACKED
RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN
SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED
CAPACITY OF BUSBAR

PHOTOVOLTAIC DC DISCONNECT

PHOTOVOLTAIC AC DISCONNECT

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

PHOTOVOLTAIC DC COMBINER BOX

WARNING
ELECTRO SHOCK HAZARD.
TERMINALS ON BOTH THE LINE
AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION.
PHOTOVOLTAIC POWER SOURCE RATINGS

	INFUN
MAXIMUM VOLTAGE	XXX VDC
MAXIMUM CROUCH CURRENT	1 AMP

PROVIDED PER
DRAWINGS

NOTES

1. ALL LABELING SHALL COMPLY WITH REQUIREMENTS OF NEC 600 AND UL.
2. TEXT SIZE SHALL BE CONFIRMED BY THE CONTRACTOR BUT IN NO CASE TEXT SHALL BE SMALLER THAN 3/8" HIGH.
3. ELECTRICAL CONTRACTOR SHALL VERIFY WORDING & DATA LISTED ON ALL SIGNS AND PLACARDS.

REV	DATE	DESCRIPTION	INFO Contractor	Whitman Construction, LLC - Steve Whitman Solar, LLC	Electrical Contractor	Whitman Construction, LLC	Electrical Engineer	Douglas G. Parosky, PE P.O. Box 200 Woodstown, NJ 08098 NJ License # CE30512 - PA License # PED045682 MD License # 25963 - DE License # 912393	SEAL NTS	Project #5917	Project Name & Address	HOERMANN RESIDENCE 518 MANHOLE ROAD BROCK, NJ 08723	SEAL TITLE	NEC LABELING	SEAL	E3
0	7/10/20	ISSUED FOR PERMIT SET		121 Lakewood Road Point Pleasant, NJ 08742 License # 13VH00613100	Whitman Electric, LLC 122 Cedarwood Drive Bridgman, NJ 08723				PA							

Trinasolar

FRAME COLOR: Black

-
- 10 Year Product Warranty • 25 Year Linear Power Warranty**
- % Power Output
- Years
- Additional value from Tosha Solar's better warranty
- Toshiba Solar Panel
- SunPower Solar Panel

WARRANTY	PACKAGING CONFIGURATION
10 year Product Workmanship Warranty	Modules per box: 30 pieces
25 year Linear Power Warranty	Modules per 40' container: 780 pieces

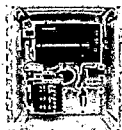
(Please refer to product warranty for details)

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
© 2019 Trina Solar Limited. All rights reserved. Specifications included in this datasheet are subject to change without notice.
Version number: TSM_D005497_EN_2019_A www.trinasolar.com

① SOLAR MODULE DATASHEET
N.T.S.

REV	DATE	DESCRIPTION	SFC Contractor	Whitman Construction, LLC - Steve Whitman Solar, LLC 2511 Lakewood Road Point Pleasant, NJ 08742 License # 13VH00613100	Mechanical Contractors: Westland Electric, LLC P.O. Box 953 122 Cedarwood Drive Brick, NJ 08723	Mechanical Engineer: Douglas G. Penoyer, PE P.E. Lic# 353 Woodstown, NJ 08098 NJ License # GC35912 - PA License # PD40568 MD License # 25565 - DE License #12365	ASCR NTS Project #5917 ISSUED BY PA. Date July 10, 2020	PERMIT NAME & ADDRESS HOERMANN RESIDENCE 610 HARKOE ROAD BRICK, NJ 08723	MECHANICAL DATA SHEET JULY 2020 & REV Hoermann, William - Rev 0.dwg	REMARKS (R1)
U	7/10/20	ISSUED FOR PERMIT SET								

The Engine IQ Combiner™ with Engine IQ Engine™ directional interconnection equipment into a single receiver and providing DV installations by providing a constant, pre-wired solution for residential customers.



- Includes 10 years of administrative and clinical
- Double sub-marking supports the 10, 100, 1000, 10,000

Simple

- Three pre-installed 30 A/240 CAC
- Pre-installed 30 A/240 CAC
- Pre-installed 30 A/240 CAC

Reliable

- Double 10/100 certified 10/100
- Double 10/100 certified 10/100



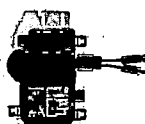
UL LISTED



The high-powered smart grid-ready *EPRIphase II 7.6 Mw™* and *EPRIphase II 7.4 Mw™* dramatically simplify the installation process while achieving the highest system efficiency.

Part of the *EPRIphase II* systems, the *IG 7* and *IG 7.4* Microturbines integrate with the *EPRIphase II Greys™*, *EPRIphase II Batters™*, and the *EPRIphase II Energy™* monitoring and analysis software.

IG Series Microturbines exceed the reliability standards set forth by previous generations and generate more than a million hours of power on standby, enabling *EPRI* to provide an industry-leading warranty of up to 25 years.



- **Easy to treat:**
 - Lightweight instrument
 - Flexible Endotracheal with single lumen, lighter than other designs
 - Built in vocal airway compromise (PICO 1000 & 2000)
- **Procedures and Availability**
 - Approved for high-pressure 60-90% and 75-90% ventilation
 - More than a million types of breathing
 - Class II (single lumen) structure
 - 6L, 8L, 10L



To learn more about Empire offerings, visit empire.com



INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US	IQ7PLUS-72-2-US / IQ7PLUS-72-B-US
Commonly used module ratings	235 W, 350 V ^a	235 W, 400 V ^a
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
Max/Min start voltage	22 V / 46 V	22 V / 60 V
Max DC short circuit current (module I _{sc})	15 A	19 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 20 kV branch circuit	
OUTPUT DATA (AC)	IQ7 Microinverter	IQ7+ Microinverter
Peak output power	250 VA	295 VA
Maximum continuous output power	240 VA	290 VA
Nominal (UL1741 voltage) ^b	240 V ^c	240 V ^c
	217-264 V	211-254 V
Maximum continuous output current	1.0 A (240 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 I _{sc} (limit over 9 cycles)	5.8 Arms	5.8 Arms
Maximum units per 20 A (UL1741 branch circuit) ^d	16 (240 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	6240 V	6240 V
Peak efficiency	97.6%	97.5%
CEC weighted efficiency	97.0%	97.0%

MECHANICAL DATA

Ambient temperature range	-40°C to +65°C
Relative humidity range	4% to 100% (no condensing)
Operating temperature (T _{OP})	0°C to +55°C (with additional 6 DCC-5 adaptive)
Storage temperature (T _{ST})	-20°C to +70°C
Connector type (T _{OP})	64-8-BUS-IEC / 107/115-22-BUS
Adapters	Forwards P2V (MCA Interimtablets), Adapters for modules with MCA or UTX connector: P2V to MCA order ECA-320-325 P2V to UTX order ECA-320-326
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket) (+8 mm / 0.31 in)
Weight	
Cooling	Natural convection - No fans
Approved for wet locations	Yes
Pollution degree	PO3
Environmental category / UV exposure rating	Class II Single-Insulated, corrosion resistant polymeric enclosure NEMA Type 6-2 Outdoor

FEATURES

Communication Monitoring	Power Line Communication (PLC) Engeltron Management and XingHeng monitoring options. Both options require installation of an SnodeX IQ Emu.
Disconnecting means	The AC and DC Disconnects have been evaluated and approved by UL for use as the load break disconnect required by NEC 690.
Compliance	AC Rule 21 (UL 1741-S4) UL 62709-1 UL 1741/IEEE 1547, FCO Part 15 Class B, ICES-0005 Class B NAN-334-022-0, 1071-01 This product is UL listed as PV Rigid Shunt Down Equipment and conforms with NEC-2014 and NEC-2017 section 690 and C22.2 2018 Rule 64-218 (DC Disconnect of PV systems), for AC and DC Disconnects, when installed according to Manufacturer's instructions.

1. No enforced DC/AC ratio. See the compatibility calculator at <https://lenohare.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.

To learn more about Enphase offerings, visit enphase.com

© 2018 Enphase Energy. All rights reserved. All trademarks or brands used are the property of Enphase Energy, Inc.
2018-11-19



MODEL NUMBER	
1Q Combiner X-IQ-AMI-240-B	1Q Combiner with Enphase IQ Energy™ For integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional consumption monitoring (+/- 2.5%).
ACCESSORIES (order separately)	
Enphase Mobile Connect™ CELLMODEM-03 (4G+/12 year data plan) CELLMODEM-01 (3G+/5 year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area).
Consumption Monitoring CT CT200-SPLIT	Split core current transformers enable whole home consumption metering (+/- 2.5%).
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
Solar branch circuit breakers	Three 2-pole 20 A/240 VAC DIN rail mounted breakers
Maximum system voltage	240 VAC
Rated output current	48 A
Rated input current, each input	16 A (11.2 lbs)
Maximum fuse/breaker rating (output)	60 A
Production Metering CT	200 A solid core pre-installed and wired to IQ Energy
MECHANICAL DATA	
Dimensions (WxHxD)	38.0 x 38.7 x 20.3 cm (15.0" x 15.3" x 8.0")
Weight	5.1 kg (11.2 lbs)
Ambient temperature range	-40°C to +146°C (-40° to 135°F)
Cooling	Vented, natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL certified, NEMA type 3R, polycarbonate construction
Wire size	14 to 6 AWG copper conductors for branch inputs. 14 to 6 AWG copper conductors for combined output. Follow local code requirements for conductor sizing. To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Ethernet	802.3, Cat5E (or Cat 6) UTP Ethernet cable - not included
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) - not included

COMPLIANCE

Compliance, Combiner UL 1741
Compliance, IQ Envy UL 916
CAN/CSA C22.2 No. 61010-1
47 CFR, Part 15, Class B, ICES 003
IEC/EN 61010-1:2010,
-EN50065-1, EN61000-4-5, EN51000-6-1, EN61000-6-2
Metric: ANSI C12.20 accuracy class 0,5

1. *How many people did you see at the scene?*

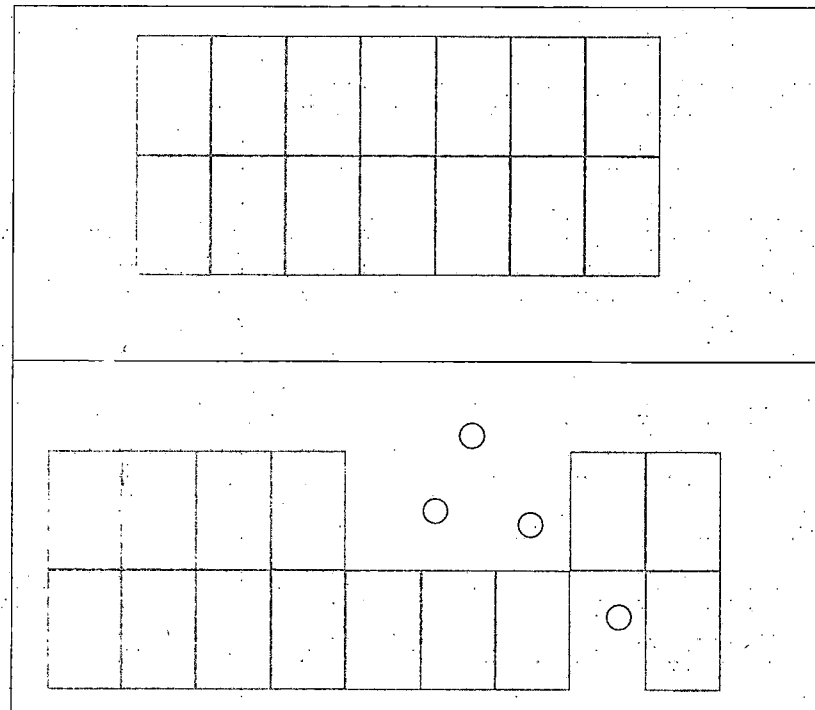
To learn more about Enphase offerings, visit enphase.com

© 2017 Enphase Energy. All rights reserved. All trademarks or brands in this document are registered by their respective owner.
2017-08-17



① INVERTER DATASHEET
N.T.S.

REV	DATE	DESCRIPTION	WPC Customer	Whitman Construction, LLC - Steve Whitman Solar, LLC 2511 Lakewood Road Point Pleasant, NJ 08742 License # 13VH00613100	Whitman Customer Wertland Electric LLC P.O. Box 355 132 Cedarwood Drive Brick, NJ 08723	Standard Engineer Douglas G. Penoyer, PE P.O. Box 355 Woodstown, NJ 08066 NJ License # GE33612 - PA License # PED405686 MD License # 25963 - DE License #12363	WPC NTS Project #5917 Project Name - PA HOERMANN RESIDENCE 618 IVANHOE ROAD BRICK, NJ 08723 DATE July 10, 2020	WPC NTS INV. DATA SHEET WPC Name & City HOERMANN, William - Ray Oeding	WPC (R2)
0	7/10/20	ISSUED FOR PERMIT SET							



REV	DATE	DESCRIPTION	IFC Contractor	Electrical Contractor	Structural Engineer	SCALE	NTS	Project #	PROJECT NAME & ADDRESS	DESIGNED BY	SEAL
			Whitman Construction, LLC - Steve Whitman Solar, LLC	Westland Electric, LLC	Douglas G. Paroyner, PE			5917	HOERMANN RESIDENCE	AS-BUILT STRING CONFIGURATION	
			2511 Lakewood Road	122 Cedarwood Drive	P.O. Box 303				619 NAWHE ROAD		
			Point Pleasant, NJ 08742	Brick, NJ 08723	Woodstown, NJ 08098				BRICK, NJ 08723		
			License # 13VH00613100		NJ License # 0239513 - PA License # PEO45568E						
					MD License # 20363 - DC License #12383						
U	7/10/20	ISSUED FOR PERMIT SET				DATE	July 10, 2020			DESIGNED & REV	
										Hoermann, Wilcom - Rev 0.dwg	

(B1)

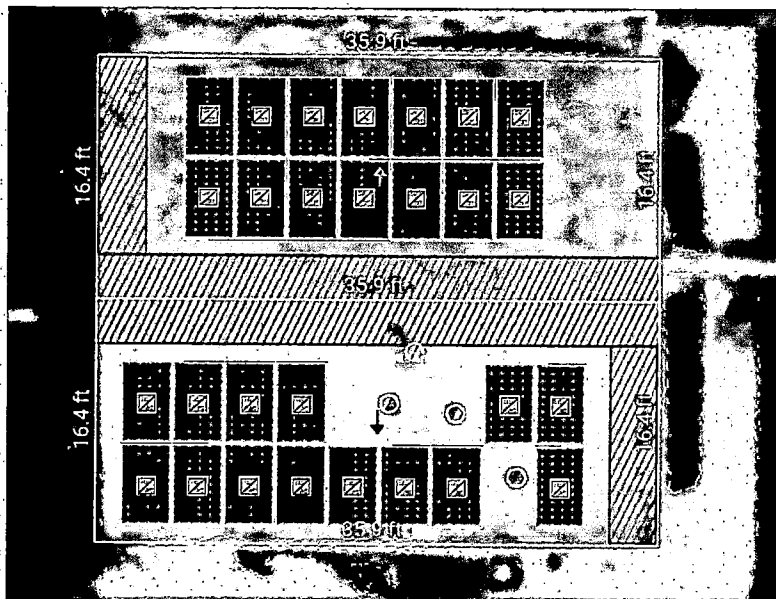
SOLAR ENERGY PROJECT AT THE HOERMANN RESIDENCE

CUSTOMER ADDRESS	619 Ivanhoe Road
	Brick, NJ 08723
REVISION NUMBER	Hoermann, William - Rev 0.dwg
SYSTEM SIZE (KW)	8.960
TOTAL NUMBER OF PANELS	28

TABLE OF CONTENTS

Sheet	Title
T1	COVER SHEET
A1	ROOF ARRAY LAYOUT
S1	MODULE ATTACHMENT DETAIL AND LOADS
E1	ELECTRICAL DIAGRAM
E2	ELECTRICAL GROUNDING DETAIL
E3	ELECTRICAL LABELING
R1	SOLAR PANEL ELECTRICAL DATASHEET
R2	INVERTER ELECTRICAL DATASHEET
B1	CREW'S ASBUILT

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor	Electrical Engineer	SEAL NTS	Project #5917	PROJECT NAME & ADDRESS	ISSUED FOR	SHEET
			Whitman Construction, LLC - Steve Whitman Solar, LLC	Westland Electric, LLC	Christopher G. Parryer, PE	PA		HOERMANN RESIDENCE		
			2511 Lakewood Road	122 Cedarwood Drive	P.O. Box 363			619 IVANHOE ROAD		
			Point Pleasant, NJ 08742	Brick, NJ 08723	Woodstown, NJ 08098			BRICK, NJ 08723		
			License # 13VH00613100		NJ License # 0635612 - PA License # PE045566					
					MD License # 25968 - DE License # 12383					
0	7/10/20	ISSUED FOR PERMIT SET					July 10, 2020		COVER PAGE	(T1)
									Hoermann, William - Rev 0.dwg	

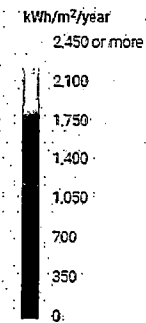
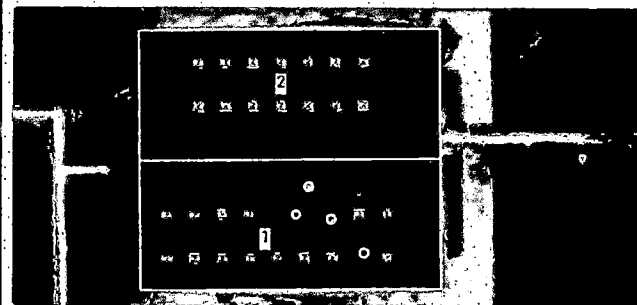


Address
619 Ivanhoe Rd
Blick Township, NJ
08723, USA

Coordinates
(40.044477, -74.112916)

Date
10 July 2020

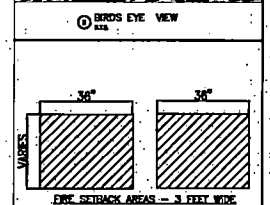
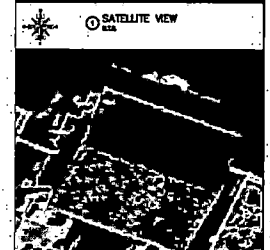
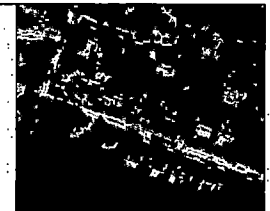
Annual Irradiance



Summary

Array	Panel Count	Azimuth (deg.)	Pitch (deg.)	Annual TOF (%)	Annual Solar Access (%)	Annual TSRF (%)
1	14	199	20	97	79	76
2	14	19	20	68	97	66

3 ARRAY LAYOUT VIEW
N.T.S.



APPLICABLE CODES & STANDARDS
IRC 2018 - BUILDING
NEPA 70 - FIRE
NEC 2017 - ELECTRICAL
IMC 2009 - MECHANICAL
IRC 2018 - WIND & SNOW LOADS
ASCE - 7-10 & 7-18

CUSTOMER APPROVAL

PRINT NAME

SIGNATURE

REV	DATE	DESCRIPTION
1	7/10/20	ISSUED FOR PERMIT SET

ERC Contractor

Whitman Construction, LLC - Steve Whitman Solar, LLC
2511 Lakewood Road
Point Pleasant, NJ 08742
License # 13VH00613100

Electrical Contractor

Westend Electric, LLC
122 Cedarwood Drive
Bridg, NJ 08723

Structural Engineer

Douglas G. Penoyer, PE
P.O. Box 380
Woodcliff, NJ 08098
NJ License # CE39512 - PA License # PE045562
MD License # 25963 - DE License # 12363

PERMIT NTS Project #5917

ISSUED BY - PA
DATE - July 10, 2020

PERMIT NTS Project #5917

HOERMANN RESIDENCE
619 NASHOE ROAD
BRICK, NJ 08723

PERMIT NTS Project #5917

Hoermann, William - Rev. 04/20

ARRAY LAYOUT

REMARKS

A1

DWELLING INFORMATION

SINGLE FAMILY RESIDENTIAL

ROOF INFORMATION

TYPE:

Asphalt Shingles

ROOF STRUCTURE:

2"x8" roof rafters

O.C. Spacing: 16"

DESIGN REQUIREMENT:

Meets or exceeds 125mph wind speed

RACKING INFORMATION

MANUFACTURE & MODEL NUMBER:

Unirac SolarMount

SOLAR PANEL INFORMATION

MANUFACTURE:

Trina 320 WATT, TSM-320 DD05H.05 (10)

NUMBER OF PANELS:

24

SOLAR PANEL DEAD WEIGHT CALCULATION

1. A TYPICAL SOLAR PANEL CONSISTS OF FOUR (4) SOLAR MODULES AND ONE ROOF MOUNTING SYSTEM. THE MOUNTING SYSTEM HAS SIX (6) POINTS OF CONTACT WITH THE ROOF.

2. PANEL WEIGHT CALCULATION:

SOLAR MODULE WEIGHT = 42.1 LBS.
MOUNTING SYSTEM WEIGHT = 15 LBS.
TOTAL PANEL WEIGHT = (4 X 42.1) + 15 = 183.4 LBS.

3. POINT LOAD CALCULATION:

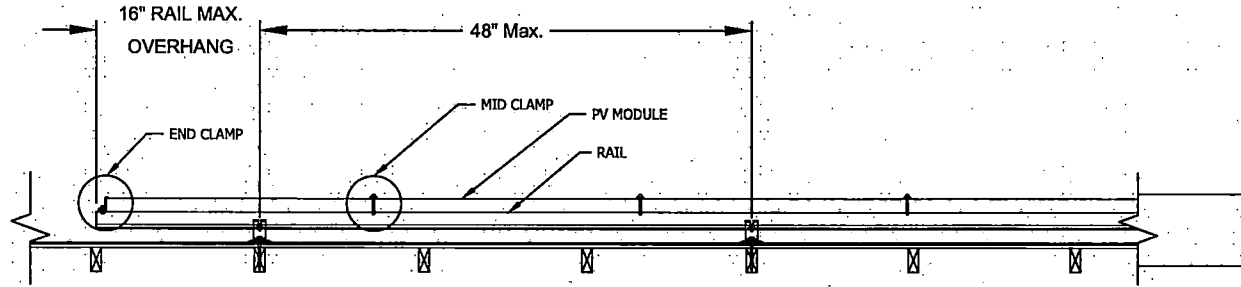
POINT LOAD = TOTAL PANEL WEIGHT / NUMBER OF POINTS OF SUPPORT
= 183.4 LBS. / 6 SUPPORTS = 30.6 LBS.

4. DISTRIBUTED LOAD CALCULATION:

SOLAR MODULE AREA = 38.99' X 64.96" = 17.59 FT²
TOTAL SOLAR MODULE AREA = 4 X 17.59 = 70.33 FT²
INTER-MODULE SPACING = 1.0"
TOTAL SPACING AREA = 3 X 1.0' X 64.96" = 1.35 FT²
(6 SPACES BETWEEN 4 MODULES)

DISTRIBUTED LOAD = TOTAL PANEL WEIGHT / TOTAL PANEL AREA
= 183.4 LBS. / 70.33 FT²

SOLAR PANEL DEAD WEIGHT = 2.6 LBS/FT²



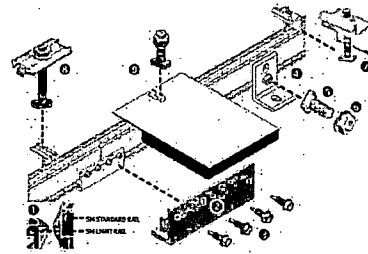
B CROSS SECTION

NTS



STANDARD SYSTEM COMPONENTS

INSTALLATION GUIDE PAGE



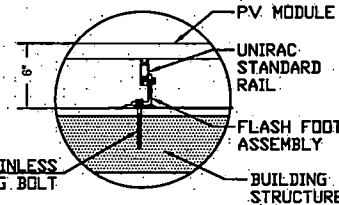
Wrenches and Torques	Wrench Size	Torque (ft-lb)
1/4" Hex Head Bolt	7/16"	75
3/8" Hex Head Bolt	9/16"	75
1/2" Hex Head Bolt	5/8"	10

Fasteners and hardware are either up or down unless noted. In any instance, refer to the Owner's Manual for the correct fastener and hardware. 1. Verify fastener and hardware are the correct size and type. 2. Verify fastener and hardware are the correct material. 3. Verify fastener and hardware are the correct finish. 4. Verify fastener and hardware are the correct length. 5. Verify fastener and hardware are the correct diameter. 6. Verify fastener and hardware are the correct thread. 7. Verify fastener and hardware are the correct head. 8. Verify fastener and hardware are the correct shape. 9. Verify fastener and hardware are the correct color. 10. Verify fastener and hardware are the correct brand. 11. Verify fastener and hardware are the correct model. 12. Verify fastener and hardware are the correct version. 13. Verify fastener and hardware are the correct date. 14. Verify fastener and hardware are the correct location. 15. Verify fastener and hardware are the correct quantity. 16. Verify fastener and hardware are the correct specification. 17. Verify fastener and hardware are the correct standard. 18. Verify fastener and hardware are the correct code. 19. Verify fastener and hardware are the correct label. 20. Verify fastener and hardware are the correct marking. 21. Verify fastener and hardware are the correct identification. 22. Verify fastener and hardware are the correct tracking. 23. Verify fastener and hardware are the correct history. 24. Verify fastener and hardware are the correct audit. 25. Verify fastener and hardware are the correct review. 26. Verify fastener and hardware are the correct approval. 27. Verify fastener and hardware are the correct sign-off. 28. Verify fastener and hardware are the correct release. 29. Verify fastener and hardware are the correct distribution. 30. Verify fastener and hardware are the correct delivery. 31. Verify fastener and hardware are the correct installation. 32. Verify fastener and hardware are the correct maintenance. 33. Verify fastener and hardware are the correct repair. 34. Verify fastener and hardware are the correct replacement. 35. Verify fastener and hardware are the correct disposal. 36. Verify fastener and hardware are the correct recycling. 37. Verify fastener and hardware are the correct reuse. 38. Verify fastener and hardware are the correct repurpose. 39. Verify fastener and hardware are the correct repack. 40. Verify fastener and hardware are the correct relabel. 41. Verify fastener and hardware are the correct reinspect. 42. Verify fastener and hardware are the correct retest. 43. Verify fastener and hardware are the correct revalidate. 44. Verify fastener and hardware are the correct reverify. 45. Verify fastener and hardware are the correct reconfirm. 46. Verify fastener and hardware are the correct recheck. 47. Verify fastener and hardware are the correct reexamine. 48. Verify fastener and hardware are the correct reevaluate. 49. Verify fastener and hardware are the correct reassess. 50. Verify fastener and hardware are the correct reanalyze. 51. Verify fastener and hardware are the correct reinterpret. 52. Verify fastener and hardware are the correct rejudge. 53. Verify fastener and hardware are the correct reexamine. 54. Verify fastener and hardware are the correct reevaluate. 55. Verify fastener and hardware are the correct reassess. 56. Verify fastener and hardware are the correct reanalyze. 57. Verify fastener and hardware are the correct reinterpret. 58. Verify fastener and hardware are the correct rejudge. 59. Verify fastener and hardware are the correct reexamine. 60. Verify fastener and hardware are the correct reevaluate. 61. Verify fastener and hardware are the correct reassess. 62. Verify fastener and hardware are the correct reanalyze. 63. Verify fastener and hardware are the correct reinterpret. 64. Verify fastener and hardware are the correct rejudge. 65. Verify fastener and hardware are the correct reexamine. 66. Verify fastener and hardware are the correct reevaluate. 67. Verify fastener and hardware are the correct reassess. 68. Verify fastener and hardware are the correct reanalyze. 69. Verify fastener and hardware are the correct reinterpret. 70. Verify fastener and hardware are the correct rejudge. 71. Verify fastener and hardware are the correct reexamine. 72. Verify fastener and hardware are the correct reevaluate. 73. Verify fastener and hardware are the correct reassess. 74. Verify fastener and hardware are the correct reanalyze. 75. Verify fastener and hardware are the correct reinterpret. 76. Verify fastener and hardware are the correct rejudge. 77. Verify fastener and hardware are the correct reexamine. 78. Verify fastener and hardware are the correct reevaluate. 79. Verify fastener and hardware are the correct reassess. 80. Verify fastener and hardware are the correct reanalyze. 81. Verify fastener and hardware are the correct reinterpret. 82. Verify fastener and hardware are the correct rejudge. 83. Verify fastener and hardware are the correct reexamine. 84. Verify fastener and hardware are the correct reevaluate. 85. Verify fastener and hardware are the correct reassess. 86. Verify fastener and hardware are the correct reanalyze. 87. Verify fastener and hardware are the correct reinterpret. 88. Verify fastener and hardware are the correct rejudge. 89. Verify fastener and hardware are the correct reexamine. 90. Verify fastener and hardware are the correct reevaluate. 91. Verify fastener and hardware are the correct reassess. 92. Verify fastener and hardware are the correct reanalyze. 93. Verify fastener and hardware are the correct reinterpret. 94. Verify fastener and hardware are the correct rejudge. 95. Verify fastener and hardware are the correct reexamine. 96. Verify fastener and hardware are the correct reevaluate. 97. Verify fastener and hardware are the correct reassess. 98. Verify fastener and hardware are the correct reanalyze. 99. Verify fastener and hardware are the correct reinterpret. 100. Verify fastener and hardware are the correct rejudge.

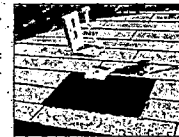
① RAIL: Supports PV modules. Use at least two per row of modules. Aluminum extrusion, available in mill, clear anodized, or dark anodized.
② END CLAMP: Non-structural upper rail, secures and electrically bonds rail sections into single length of rail. Forms either a rigid or thermal expansion joint. 4 inches long, pre-drilled (see page 13). Anodized aluminum extrusion available in clear or dark.
③ MID CLAMP: Non-structural upper rail, secures and electrically bonds rail sections into single length of rail. Forms either a rigid or thermal expansion joint. 4 inches long, pre-drilled (see page 13). Anodized aluminum extrusion available in clear or dark.
④ PV MODULE: See page 13 for details.
⑤ FLASHING: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑥ L-FOOT: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑦ L-FOOT: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑧ FLAT FLASHING: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑨ UNIRAC STANDARD RAIL: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑩ FLASH FOOT ASSEMBLY: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.
⑪ BUILDING STRUCTURE: Use to secure rails through roofing materials in building structure. Refer to flashing tables in U-Boat for details.

A FLASHING AND RAIL DETAIL

NTS



FLAT FLASHING INSTALLATION: Insert the Flat Flashing so the top part is under the next row of shingles and the hole lines up with the pilot hole.



INSTALL LAG BOLTS & L-FOOT: Insert the lag bolt through the L-Foot in the order shown in the illustration. Verify proper orientation before tightening lag bolts.

REV	DATE	DESCRIPTION
1	7/10/20	ISSUED FOR PERMIT SET

BY: Whitman Construction, LLC - Steve Whitman Solar, LLC
2511 Lakewood Road
Point Pleasant, NJ 08742
License # 13VH00613100

BY: Whitman Construction
Whitman Electric, LLC
123 Cedarwood Drive
Brick, NJ 08723

BY: Whitman Construction
Douglas G. Parovoy, PE
P.O. Box 350
Woodstown, NJ 08098
NJ License # GE39612 - PA License # PED45688
MD License # 20963 - DE License # 12345

DATE: NTS
PROJECT: #5917
DATE: PA
DATE: July 10, 2020

PROJECT NAME & ADDRESS:
HOERMANN RESIDENCE
819 NAWHOE ROAD
BRICK, NJ 08723

DESIGNED BY:
STRUCTURAL & RACKING
FOR: NTS
FOR: PA
FOR: July 10, 2020

DATE: NTS
DATE: PA
DATE: July 10, 2020

DWELLING INFORMATION

SINGLE FAMILY RESIDENTIAL

ROOF INFORMATION

TYPE:

Asphalt Shingles

ROOF STRUCTURE:

2"x8" roof rafters

O.C. Spacing: 16"

DESIGN REQUIREMENT

Meets or exceeds 125mph wind zones

RACKING INFORMATION

MANUFACTURE & MODEL NUMBER:

Unirac-Solar Mount

SOLAR PANEL INFORMATION

MANUFACTURE:

Trina 320 WATT, TSM-320 DD05H.05 (II)

NUMBER OF PANELS:

28

SOLAR PANEL DEAD WEIGHT CALCULATION

1. A TYPICAL SOLAR PANEL CONSISTS OF FOUR (4) SOLAR MODULES AND ONE ROOF MOUNTING SYSTEM. THE MOUNTING SYSTEM HAS SIX (6) POINTS OF CONTACT WITH THE ROOF.

2. PANEL WEIGHT CALCULATION:

SOLAR MODULE WEIGHT = 42.1 LBS.

MOUNTING SYSTEM WEIGHT = 15 LBS.

TOTAL PANEL WEIGHT = (4 X 42.1) + 15 = 183.4 LBS.

3. POINT LOAD CALCULATION:

POINT LOAD = $\frac{\text{TOTAL PANEL WEIGHT}}{\text{NUMBER OF POINTS OF SUPPORT}}$

= $\frac{183.4 \text{ LBS.}}{6 \text{ SUPPORTS}}$ = 30.6 LBS.

4. DISTRIBUTED LOAD CALCULATION:

SOLAR MODULE AREA = 38.98" X 64.96" = 17.58 FT²

TOTAL SOLAR MODULE AREA = 4 X 17.58 = 70.33 FT²

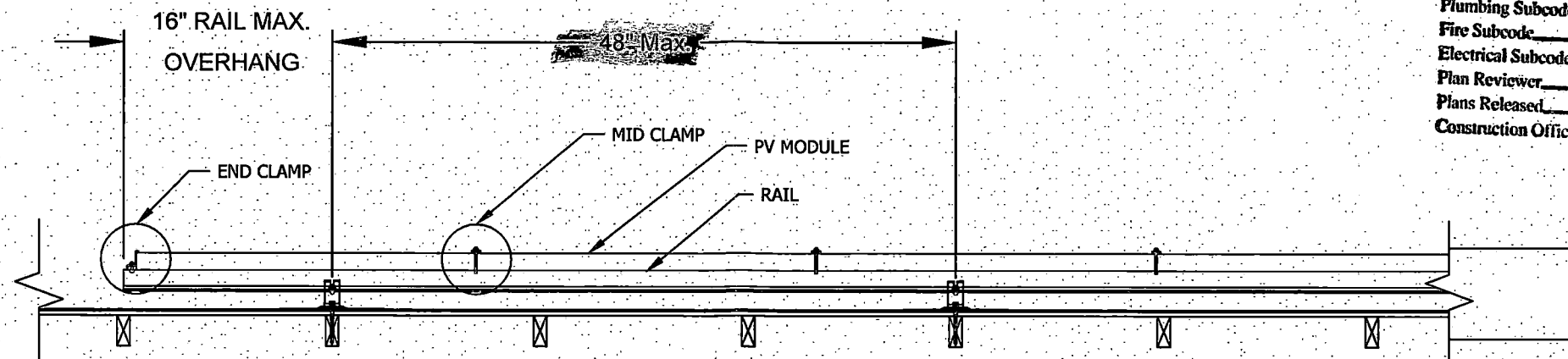
INTER-MODULE SPACING = 1.0"

TOTAL SPACING AREA = 3 X 1.0" X 64.96" = 1.35 FT²
(3 SPACES BETWEEN 4 MODULES)

DISTRIBUTED LOAD = $\frac{\text{TOTAL PANEL WEIGHT}}{\text{TOTAL PANEL AREA}}$

= $\frac{183.4 \text{ LBS.}}{70.33 \text{ FT}^2}$

SOLAR PANEL DEAD WEIGHT = 2.6 LBS/FT²



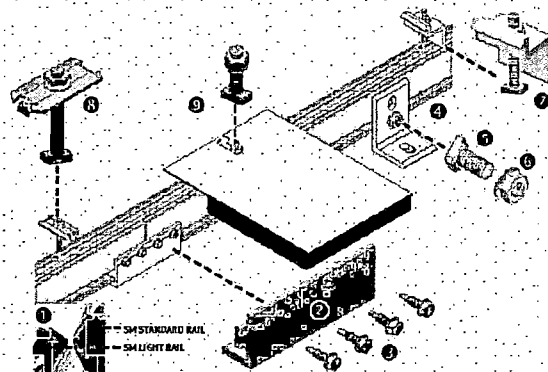
B CROSS SECTION

NTS



STANDARD SYSTEM COMPONENTS

INSTALLATION GUIDE PAGE



WRENCHES AND TORQUE	Wrench Size	Recommended Torque (ft-lbs)
3/4" Hex Key B-66	7/16"	10
3/8" Hex Key B-66	5/16"	50
#12 Hex Key B-66	5/16"	10

Anti-Seize
Stainless steel hardware can seize up, a process called galling. To significantly reduce its likelihood:
1. Apply preferred lubricant to bolts, preferably Anti-Seize commonly found on auto parts stores.
2. Shake hardware prior to installation, and
3. Avoid spinning stainless nuts onto bolts at high speed.

● **RAIL:** Supports PV modules. Use at least two per row of modules. Aluminum extrusion, available in mill, clear anodized, or dark anodized.

● **RAIL SPLICE:** Non-structural splice joins, aligns, and electrically bonds rail sections into single length of rail. Forms either a rigid or thermal expansion joint, 4 inches long, pre-drilled (see page F). Anodized aluminum extrusion available in clear or dark.

● **SELF-DRILLING SCREW:** (No. 12 x 14") - Use 4 per rigid splice or 2 per expansion joint. Stainless steel. Supplied with splice. In combination with rigid splice, provides rail to rail bond.

● **L-FOOT:** Use to secure rails through roofing material to building structure. Refer to loading tables or L-Builders for spacing.

● **L-FOOT T-BOLT:** (3/8" x 14") - Use one per L-foot to secure rail to L-foot. Stainless steel. Supplied with L-foot. In combination with flange nut, provides electrical bond between rail and L-foot.

● **SERRATED FLANGE NUT:** (3/8") - Use one per L-foot to secure and bond rail to L-foot. Stainless steel. Supplied with L-foot.

● **MODULE END CLAMP:** Provides bond from rail to end clamp. Pre-assembled aluminum clamp available in clear or dark finish. Supplied with washer, clamp and bolt upright for ease of assembly.

● **MODULE MID CLAMP:** Pre-assembled clamp provides module to module and module to rail bond. Stainless steel clamp and T-bolt. Available in clear or dark finish.

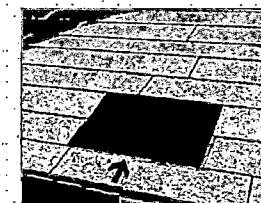
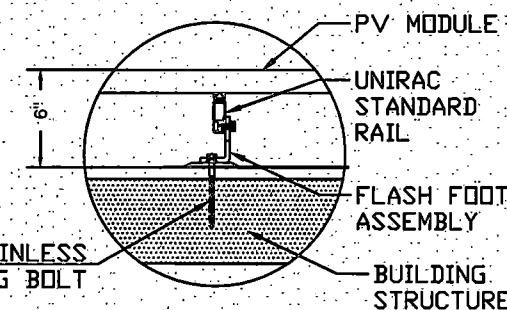
● **W/CONVERTER MOUNTING BOLT:** Pre-assembled bolt and nut attaches and bonds microinverter to rail. Washer at base keeps bolt upright for ease of assembly.

NOTE - POSITION INDICATOR: T-bolts have a slot in the hardware end corresponding to the direction of the T-Head.

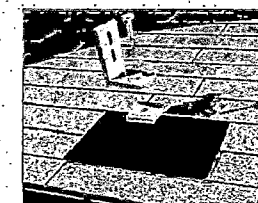
5/16" X 3-1/2" STAINLESS STEEL LAG BOLT

A FLASHING AND RAIL DETAIL

NTS



FLAT FLASHING INSTALLATION: Insert the Flat Flashing so the top part is under the next row of shingles and the hole lines up with the pilot hole.



INSTALL LAG BOLTS & L-FOOT: Insert the lag bolt through the L-Foot. In the order shown in the illustration. Verify proper orientation before tightening lag bolts.

FILE COPY

TOWNSHIP OF BRICK

RELEASED FOR PERMIT INITIAL DATE
Building Subcode _____
Plumbing Subcode _____
Fire Subcode _____
Electrical Subcode 10-1-2020
Plan Reviewer _____
Plans Released _____
Construction Official _____

Douglas G. Penoyer, P.E.
N.J. P.E. License # 24GE03961200

TOWNSHIP OF BRICK

RELEASED FOR PERMIT INITIAL DATE
Building Subcode _____
Plumbing Subcode _____
Fire Subcode _____
Electrical Subcode SEP 9.30.20
Plan Reviewer _____
Plans Released _____
Construction Official _____

REV	DATE	DESCRIPTION
0	7/10/20	ISSUED FOR PERMIT SET

ERC Contractor

Whitman Construction, LLC - Steve Whitman Solar, LLC
2511 Lakewood Road
Point Pleasant, NJ 08742
License # 13VH00613100

Electrical Contractor

Westlund Electric, LLC
122 Cedarwood Drive
Brick, NJ 08723

Structural Engineer

Douglas G. Penoyer, PE
P.O. Box 393
Woodstown, NJ 08098
NJ License # GE39512 - PA License # PE04566E
MD License # 25963 - DE License # 12363

SCALE NTS Project #5917

DRAWN BY PA
DATE July 10, 2020

PROPERTY NAME & ADDRESS

HOERMANN RESIDENCE
619 VANHOE ROAD
BRICK, NJ 08723

DRAWING TITLE

STRUCTURAL & RACKING

DWG. NAME & DATE
Hoermann, William - Rev 0.dwg

SHEET

S1