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

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

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- 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.

Bryan J. Dickerson, CA, CMR
Township Archivist

Issued: 8 January 2020

BLOCK 38234 LOT 17 QUALIFICATION CODE _____ ADDRESS (SITE) _____ PERMIT NO. 23-0050

CONSTRUCTION PERMIT APPLICATION

NEW JERSEY UNIFORM CONSTRUCTION CODE

Applicant Completes: Sections I, II, III (optional), IV, VI, and VII

C-22-00424

I. IDENTIFICATION

1. Proposed Work Site at: 108 Courtshire Dr Brick, NJ 08723
2. Name of Owner in Fee: Carmelo Salpietro
   Tel. [redacted] e-mail [redacted]
   Address Same as Above (street / municipality / zip code)
3. Ownership in Fee: Public _____ Private _____ (MAX)
4. Principal Contractor: Big Wave Roofing and Solar LLC Tel. 855-424-4928
   Address 47 Poplar Ave, West Long Branch, NJ 07764 e-mail applications@bigwavenj.com
   License No. OR, if new home, Builder Reg. No. 13VH10935800 Exp. Date 3/31/2023
   Home Improvement Contractor Registration No. or Exemption Reason _____
   Federal Emp. ID No. 85-1323658 FAX: None
5. Architect or Engineer _____ Contact _____
   Address _____ e-mail _____
   Tel. _____ FAX: _____
6. Responsible Person in Charge once Work has Begun Robert Springman
   Tel. 908-380-4170 FAX: _____

V. FEE SUMMARY (for office use only)

		Update	Update
1. Building	$		
2. Electrical			
3. Plumbing			
4. Fire Protection			
5. Elevator Devices			
6. Subtotal			
7. Less 20% for State Plan Review	$		
8. Subtotal	$		
9. State Permit Surcharge Fee			
10. Subtotal	$		
11. Cert. of Occupancy			
12. Other			
13. TOTAL	$ 590		

VI. BUILDING/SITE CHARACTERISTICS (office use only)

1. Number of Stories _____
2. Height of Structure _____ ft.
3. Area — Largest Floor _____ sq. ft.
4. New Building Area _____ sq. ft.
5. Volume of New Structure _____ cu. ft.
6. Max. Live Load _____
7. Max. Occupancy Load _____
8. If Industrialized Building: State Approved ____ HUD ____
9. Total Land Area Disturbed _____ sq. ft.
10. Flood Hazard Zone _____
11. Base Flood Elevation _____ ft.
12. Wetlands yes ____ no ____

IIa. PROPOSED WORK

☐ Minor Work ☐ New Building ☐ Addition ☐ Demolition
☐ Repair ☐ Alteration ☐ Renovation ☐ Reconstruction
☐ Asbestos Abat. -Subch. 8 ☐ Lead Hazard Abatement ☐ Radon Remediation ☐ Annual Permit

Solar Panels

IIb. SUBCODES (Check all that apply)

FOR OFFICE USE ONLY (Optional)

	Est. Cost	Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Resubmission Dates Rejection	Re-viewer
☒ Building	4190		11/23		1/4/23				
☒ Electrical	19282				12-21-22				
☐ Plumbing									
☒ Fire Protection	10.00								
☐ Elevator									
TOTAL COST	$23,482	$0							

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL *(primary use)*
1. State Specific Use: _____
2. Use Group, Proposed: Select Group
3. Change in Use Group, Indicate Present: Select Group
4. No. of dwelling units: *Total Units* *Income-restricted*
   Gained, Sale ____ ____
   Gained, Rental ____ ____
   Lost, Sale ____ ____
   Lost, Rental ____ ____

B. NON-RESIDENTIAL *(primary use)*
1. State Specific Use: _____
2. Use Group, Proposed: Select Group
3. Change in Use Group, Indicate Presen Select Group

C. MIXED USE -List secondary use(s): _____

D. Construct. Classification: Present _____ Proposed _____

III. PLAN REVIEW (optional)

DO YOU WANT:
1. ☐ Partial Releases
2. ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

1. ☐ Elevators/Escalators/Lifts/Dumbwaiters/Moving Walks
2. ☐ High Pressure Boilers
3. ☐ Pressure Vessels
4. ☐ Refrigeration Systems
5. ☐ Cross-Connections/Backflow Preventers
6. ☐ Hazardous Uses/Places of Assembly
7. ☐ Sprinklers/Standpipes
8. ☐ Smoke Control Systems in Open Wells
9. ☐ Underground Storage Tanks
10. ☐ Swimming Pools, Spas and Hot Tubs
11. ☐ LPGas Tanks
12. ☐ Fire Alarm

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 pemit 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 Robert Springman

Address 47 Poplar Ave
West Long Branch, NJ 07764

Telephone 855-424-4928

Signature

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.

Brick Township
401 Chambersbridge Rd
Brick, NJ 08723

Date Issued	3/21/2023
Control Number	C-22-004211
Permit Number	23-0050
Permit Issue Date	1/6/2023
Certificate Number	23-0050

Certificate

Construction Code Division

(Certificate of Approval)

Identification

Work Site Location: 108 COURTSHIRE DRIVE Brick Township, NJ Block: 382.34 Lot: 17 Qual:

Owner in Fee: SALPIETRO, CARMELO & SHARON R

Owner Address: 108 COURTSHIRE DR BRICK NJ 08723

Telephone: [redacted]

Contractor BIG WAVE ROOFING AND SOLAR LLC

Address 47 POPLAR WAY W LONG BRANCH NJ 07764

Telephone: (855) 424-4928 Fax: Federal Emp. Number: 851323658

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 6.39 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:

David J. Newman Jr

Construction Official

Fee: $0.00
Check Number:
Collected By:

Date Printed: 3/21/2023 U.C.C. F260 (rev. 08/05)

FIRE PROTECTION SUBCODE
TECHNICAL SECTION

Date Received Control # 1/6/23

Date Issued Permit # 23-0050

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

Block 382.34 Lot 17 Qualification Code _____

Work Site Location 108 COURTSHIRE DR, BRICK, NJ, 08723

Owner in Fee: CARMELO SALPIETRO

Tel. [redacted] e-mail [redacted]

Address Same as Above

Contractor: Big Wave Roofing and Solar LLC (street / municipality) Tel. 855-424-4928 (zip code)

Address 47 Poplar Ave, West Long Branch, NJ 07764 e-mail applications@bigwavenj.com

Fire Protection Equipment, NJ Div of Fire Safety Permit No. _____

Fire Protection Equipment, NJ Div of Fire Safety Installer No. _____

Fire Alarm Contractor No. _____ Exp. Date _____

Home Improvement Contractor Registration No. or Exemption Reason 13VH10935800

Federal Emp. ID No. 85-1323658 FAX: None

B. FIRE PROTECTION CHARACTERISTICS

Use Group: Present _____ Proposed _____

Constr. Class: Present _____ Proposed _____

Heating System: [ ] New OR [ ] Modification to Existing OR [ ] Conversion OR [ ] Replacement

Fuel Type: [ ] Gas [ ] Oil [ ] Electric [ ] Solar [ ] Other _____

Location: _____

Fuel Storage Tank:
Fuel Type: [ ] Flammable OR [ ] Combustible
Capacity _____

Fire Alarm System: [ ] New OR [ ] Existing
Location of Panel: _____

Fire Suppression/Standpipe System:
[ ] New OR [ ] Existing
Location of Main Control Valve: _____

Total Cost of Fire Protection Work $ 10.00

JOB SUMMARY (Office Use Only)

PLAN REVIEW:
[ ] No Plans Required
[ ] Partial - Understab Utilities Approved
Date _____ Approved by _____
[ ] Fire Protection Plans Approved
Date 2/13/22 Approved by [illegible]
Joint Plan Review Required:
[ ] Bldg. [ ] Elec. [ ] Plumb. [ ] Elev.
SUBCODE APPROVAL for PERMIT
Date 2/13/22
Approved by [illegible]
SUBCODE APPROVAL for CERTIFICATE
[ ] CO [ ] CCO [ ] LCA
Date 3/21/22
Approved by [illegible]

INSPECTIONS Type:	Dates (Month/Day) Failure	Failure	Approval	Initial
Alarm System				
Suppression Sys.				
Standpipe				
Fire Pump				
Pre-Eng. System				
Mechanical				
Smoke Control				
TCO				
Flam/Combust Tanks				
Fireplace Venting				
Final			2/16/22	[illegible]
Other				

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.

Applicant/Contractor sign here: [signature]

Print name here: Robert Springman

[X] Certified Contractor [ ] Exempt Applicant

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK:

Water Supply Source Fire Pathways on Rooftop

Method of Alarm/Suppression System Supervision _____

	NUMBER	FEE (Office Use Only) $
Flammable/Combustible Tanks		
Alarm Systems		
[ ] System		
[ ] 110v Interconnected		
[ ] CO Detectors/110v		
Alarm Devices (i.e., smoke, heat, pulls, water/flow)		
Supervisory Devices (i.e., tampers, low/high air)		
Signaling Devices (i.e., horn/strobes, bells)		
Other Devices		
TOTAL	0	
Suppression Systems		
Fire Pump ____ GPM Type ____		
Dry Pipe/Alarm Valves		
Pre-action Valves		
Sprinkler Heads (Dry and Wet)		
Standpipes		
Pre-engineered Systems		
Wet Chemical		
Dry Chemical		
CO_2 Suppression		
Foam Suppression		
FM200 Suppression		
Other		
Other Systems		
Kitchen Hood Exhaust System		
Smoke Control System		
Fuel-Fired Appliances [ ] Gas [ ] Oil [ ] Solid		
Fireplace Venting/Metal Chimney		
Other		

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

ELECTRICAL SUBCODE
TECHNICAL SECTION

NEW JERSEY UNIFORM CONSTRUCTION CODE

Date Received 1/6/23
Control #
Date Issued
Permit # 23-0050

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

Block 382.34 Lot 17 Qualification Code

Work Site Location 108 COURTSHIRE DR, BRICK, NJ, 08723

Owner in Fee: CARMELO SALPIETRO

Tel. [redacted] e-mail [redacted]

Address Same as Above
street municipality zip code

Contractor: Neil Bolton Electrical Contractor Tel. 732-577-6912

Address 49 West George St e-mail applications@bigwavenj.com
Freehold, NJ 07728

Contractor License No. 34EI00959000 Exp. Date 3/31/24

Home Improvement Contractor Registration No. or Exemption Reason

Federal Emp. ID No. 223070236 FAX:

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: Neil Bolton

Print name here: Neil Bolton

[X] Licensed Electrical Contractor [ ] Exempt Applicant

B. ELECTRICAL CHARACTERISTICS

Use Group Present Proposed

[ ] Pole/Pad # [ ] Temporary [ ] Other

Building Occupied as Utility Co.

Est. Cost of Elec. Work $ 19,282.00

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK:
Installation of Inverters and Solar Panels

QTY.	SIZE	ITEMS	FEE (Office Use Only)
		Lighting Fixtures	
		Receptacles	
		Switches	
		Detectors	
		Light Poles	
		Motors—Fract. HP	
		Emergency & Exit Lights	
		Communications Points	
		Alarm Devices/F.A.C. Panel	
18		.298 MicroInverter	
		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	
		KW Transformer/Generator	
		AMP Service	
1	60	AMP ~~Subpanels~~ DISCONNECT	
		AMP Motor Control Center	
		KW Elec. Sign/Outline Light	
	6.39	KW PV Solar System	

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

JOB SUMMARY (Office Use Only)

PLAN REVIEW

[ ] No Plans Required

[ ] Partial Understab Utilities Approved

Date: Approved by:

[X] Electric Plans Approved

Date 12-21-22 Approved by:

Joint Plan Review Required:

[ ] Bldg. [ ] Plumb. [ ] Fire. [ ] Elev.

SUBCODE APPROVAL for PERMIT

Date: 12-21-22

Approved by:

SUBCODE APPROVAL for CERTIFICATE

[ ] CO [ ] CCO [ ] CA

Date: 2-10-23

Approved by:

INSPECTIONS Type:	Dates (Month/Day) Failure	Failure	Approval	Initial
Rough				
Barrier-Free				
Trench				
Temp. Serv.				
Constr. Serv.				
TCO				
Other				
Service				
Final			2-10-23	
Barrier-Free				
Temp. Cut-in-Card Date Issued				
Final Cut-in-Card Date Issued				
Annual Pool Inspection				
Date of Grounding and Bonding Certification				

U.C.C. F120 (rev. 01/21)
Internet version

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

BUILDING SUBCODE
TECHNICAL SECTION

Date Received
Control # 1/6/23

Date Issued
Permit # 23-0056

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

Block 382.34 Lot 17 Qualification Code

Work Site Location 108 COURTSHIRE DR, BRICK, NJ, 08723

Owner in Fee: CARMELO SALPIETRO

Tel. [redacted] e-mail [redacted]

Address Same as above
street municipality zip code

Contractor: Big Wave Roofing and Solar LLC Tel. 855-424-4928

Address 47 Poplar Ave e-mail applications@bigwavenj.com
West Long Branch, NJ 07764

Contractor License No. or Builder Registration No. 13VH10935800 Exp. Date 3/31/23

Home Improvement Contractor Registration No. or Exemption Reason

Federal Emp. ID No. 85-1323658 FAX:

JOB SUMMARY (Office Use Only)

PLAN REVIEW	Date	Initial
[ ] No Plans Required		
[ ] All 1/26/23		
[ ] Footings/Foundations		
[ ] Structural/Framework		
[ ] Exterior		
[ ] Interior		

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator

SUBCODE APPROVAL for PERMIT
Date: 01/04/23
Approved by: ICEK

SUBCODE APPROVAL for CERTIFICATE
[ ] CO [ ] CCO [✓] CA
Date: 02/10/23
Approved by: ICEK

INSPECTIONS Type:	Failure	Dates (Month/Day) Failure	Approval	Initial
Footing				
Footing Bonding				
Foundation				
Slab				
Frame				
Truss Sys./Bracing				
Barrier Free				
Insulation				
Finishes -Base Layer				
Finishes -Final				
Energy				
Mechanical				
TCO				
Other				
Final				
Barrier Free				

B. BUILDING CHARACTERISTICS

Use Group Present _____ Proposed _____

No. of Stories _____

Height of Structure _____ ft.

Area — Largest Floor _____ sq. ft.

New Bldg. Area/All Floors _____ sq. ft.

Volume of New Structure _____ cu. ft.

Max. Live Load _____

Max. Occupancy Load _____

Constr. Class Present _____ Proposed _____

If Industrialized Building:
State Approved _____ HUD _____

Est. Cost of Bldg. Work:

1. New Bldg. $ _____
2. Rehabilitation $ _____
3. Total (1+ 2) $ 4190 0

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: _____

Print name here: Robert Springman

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Installation of Solar Racking and Flashings

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
- [X] Other Racking
- [ ] Demolition

FEE (Office Use Only)
$

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

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

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

CONSTRUCTION PERMIT

Date Issued 1-23
Control # C-22-004211
Permit # 23-0050

IDENTIFICATION Block 382.34 Lot: 17 Qualifier
Work Site Location: 108 COURTSHIRE DRIVE Brick Township, NJ

Owner in Fee SALPIETRO, CARMELO & SHARON R
108 COURTSHIRE DR BRICK NJ 08723

Telephone: [redacted]

Contractor BIG WAVE ROOFING AND SOLAR LLC
Address 47 POPLAR WAY W LONG BRANCH NJ 07764
Telephone: (855) 424-4928
Lic. No or Bldrs. Reg. No. 13VH10935800
Federal Employee. No. 851323658

Is hereby granted permission to perform the following work:

- [x] BUILDING
- [ ] PLUMBING
- [ ] LEAD HAZARD ABATEMENT
- [x] ELECTRICAL
- [x] FIRE PROTECTION
- [ ] DEMOLITION
- [ ] ELEVATOR DEVICES
- [ ] ASBESTOS ABATEMENT (Subchapter 8 only)
- [ ] OTHER

DESCRIPTION OF WORK:
SOLAR PANELS ...INSTALL 6.39 kw ROOF MOUNT PHOTOVOLTAIC SOLAR SYSTEM

PAYMENTS (Office Use Only)

Building	$210
Electrical	$175
Plumbing	$0
Fire Protection	$85
Elevator Devices	$0
Other	$0.00
DCA Training Fee	$45
CO Fee	
Other	$0
Total	$515
Check No.	
Cash	$0
Credit	$0
Collected By	

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 $23,482

Construction Official Date 1/6/23

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

1 WHITE - INSPECTOR 2 CANARY - OFFICE 3 PINK - TAX ASSESSOR 4 GOLD - APPLICANT

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.

- [x] 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:

- [x] 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".

- [x] 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 SUBCODE
TECHNICAL SECTION

Date Received
Control # 1/6/23

Date Issued
Permit # 23-0050

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

Block 382.34 Lot 17 Qualification Code

Work Site Location 108 COURTSHIRE DR, BRICK, NJ, 08723

Owner in Fee: CARMELO SALPIETRO

Tel. [redacted] mail [redacted]

Address Same as above

Contractor: Big Wave Roofing and Solar LLC (street / municipality) Tel. 855-424-4928 (zip code)

Address 47 Poplar Ave e-mail applications@bigwavenj.com
West Long Branch, NJ 07764

Contractor License No. or Builder Registration No. 13VH10935800 Exp. Date 3/31/23

Home Improvement Contractor Registration No. or Exemption Reason

Federal Emp. ID No. 85-1323658 FAX:

JOB SUMMARY (Office Use Only)

PLAN REVIEW	Date	Initial
[ ] No Plans Required		
[ ] All 1/4/23		
[ ] Footings/Foundations		
[ ] Structural/Framework		
[ ] Exterior		
[ ] Interior		

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator

SUBCODE APPROVAL for PERMIT
Date 01/04/23
Approved by: KEK

SUBCODE APPROVAL for CERTIFICATE
[ ] CO [ ] CCO [ ] CA
Date:
Approved by:

INSPECTIONS Type	Dates (Month/Day) Failure	Failure	Approval	Initial
Footing				
Footing Bonding				
Foundation				
Slab				
Frame				
Truss Sys./Bracing				
Barrier Free				
Insulation				
Finishes -Base Layer				
Finishes -Final				
Energy				
Mechanical				
TCO				
Other				
Final				
Barrier Free				

B. BUILDING CHARACTERISTICS

Use Group Present _____ Proposed _____

No. of Stories

Height of Structure _____ ft.

Area — Largest Floor _____ sq. ft.

New Bldg. Area/All Floors _____ sq. ft.

Volume of New Structure _____ cu. ft.

Max. Live Load

Max. Occupancy Load

Constr. Class Present _____ Proposed _____

If Industrialized Building:
State Approved _____ HUD _____

Est. Cost of Bldg. Work:
1. New Bldg. $
2. Rehabilitation $
3. Total (1+ 2) $ 4190 0

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:

Print name here: Robert Springman

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Installation of Solar Racking and Flashings

no structural upgrades
spans 48" o/c max

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
- [X] Other Racking
- [ ] Demolition

FEE (Office Use Only)
$

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

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

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 # 2P-23-00027
DATE ISSUED 1/6/23

BLOCK: 382.34 LOT: 17 QUALIFIER: _____ SITE ADDRESS: 108 Courtshire Dr. Brick, NJ 08723

IDENTIFICATION:

1. NAME OF OWNER IN FEE: Carmelo Salpietro
   COMPLETE ADDRESS: 108 Courtshire Dr. Brick, NJ 08723

   PHONE [redacted] EMAIL: [redacted]

2. NAME OF APPLICANT: Robert Springman
   APPLICANT ADDRESS: 47 poplar ave. Wobong Branch 07764.

   PHONE # 855-424-4928 EMAIL: applications@bigwavenj.com

3. RESPONSIBLE PERSON FOR WORK: Robert Springman
   PHONE# 855-424-4928 FAX# _____

4. SIGNATURE OF APPLICANT: Robert Springman

FOR OFFICE USE ONLY

FEE SUMMARY:

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

REQUIRED BY APPLICANT

RESIDENTIAL: ✓
COMMERCIAL: _____
EXISTING USE: SFR
PROPOSED USE: SFR

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 _____ MATERIAL _____

HEIGHT: _____ (*IF APPLICABLE)

OTHER Solar

DESCRIPTION: Roof Mounted solar system

ZONING REVIEW:
DATE REVIEWED: [illegible] DATE DENIED: _____ DATE APPROVED: [illegible] INTLS: [illegible]

(SEE BACK PAGE)

TOWNSHIP OF BRICK ZONING CHECKLIST

1) **Four (4) copies of plot plan containing:**

- All existing and proposed structures
- All dimensions of the lot and structures
- All setbacks from the structures to the property lines
- All adjacent streets and waterways
- If applicable, include a copy of the Zoning Board of Adjustment Resolution, the date that the map was signed, and/or the date that the subdivision map was filed with the Ocean County Clerk, along with the file map and number.

2) **Two copies of the plans with dimensions and heights noted:**

- Floor plans and elevations
- Signed site plans
- Property map
- Survey map

Choose which is applicable for submission

3) **Plot plans and building plans must match for complete review**

NOTE: NO PARTIAL, TAPED, FAXED, REDUCED OR ENLARGED COPIES CAN BE ACCEPTED

OFFICE USE ONLY

ZONING REVIEW:

DATE REVIEWED: _____ DATE DENIED: _____ DATE APPROVED: _____ INTLS: _____

DATE:	COMMENTS:	INITIALS:

245 Attachment 5

Township of Brick

SCHEDULE OF AREA, YARD AND BUILDING REQUIREMENTS
Township of Brick
Ocean County, New Jersey

[Amended 6-26-1979 by Ord. No. 354-2B-79; 4-22-1980 by Ord. No. 354-2H-80; 10-14-1980 by Ord. No. 354-2N-80; 9-23-1980 by Ord. No. 354-1B-80; 8-25-83 by Ord. No. 354-2SS-83; 11-5-1984 by Ord. No. 354-2-AAA-84; 11-5-1984 by Ord. No. 354-2CCC-84; 6-24-1986 by Ord. No. 354-2WWW-86; 9-13-1988 by Ord. No. 354-2TTTT-88; 9-27-1988 by Ord. No. 354-2XXXX-88; 9-12-2000 by Ord. No. 354-2EE-00; 5-9-2000 by Ord. No. 354-2Z-00; 3-26-2002 by Ord. No. 354-2C-02; 11-26-2002 by Ord. No. 354-2L-02; 3-25-2003 by Ord. No. 354-2D-03; 6-13-2006 by Ord. No. 19-06]

Zone	Minimum Lot Size						Minimum Required Yard Depth						Maximum Lot Coverage by Building	Maximum Building Height				Minimum Floor/ Building Area (square feet) 2 stories/1 story	Maximum Allowable Impervious Coverage
	Interior Lots			Corner Lots			Principal Building				Accessory Building								
	Area (square feet)	Width (feet)	Depth (feet)	Area (square feet)	Width (feet)	Depth (feet)	Front Yard (feet)	Side Yard, Each (feet)	Both Sides Combined (feet)	Rear Yard (feet)	Side Yard (feet)	Rear Yard[3] (feet)		Stories	Eaves (feet)	Feet	Ridge (feet)		
R-R	40,000	150	150	40,000	150	150	50	25		50	25	25	25%	–	25			–	
RR-2	See § 245-90.																		
RR-3	See § 245-103.																		
R-20	20,000	100	125	25,000	100	125	40	15	–	40	10	10	25%	–	26	35	38.5	–	
R-15	15,000	100	115	17,250	100	115	35	12	–	35	10	10	25%	–	26	35	38.5	–	
R-10	10,000	90	100	10,500	100	100	30	6	20	20	5	5	30%	–	26	35	38.5	–	
R-7.5	7,500	75	90	9,000	75	90	25	6	15	15	5	5	30%	–	26	35	38.5	–	
R-5	5,000	50	75	6,000	50	75	20	5	12	15	5	5	35%	–	26	35	38.5	–	
O-P	15,000	100	150	15,000	100	150	50	10	–	50	20	50	35%[2]	2	–	35	38.5	1,500	70%
B-1	10,000	100	90	12,500	100	125	30	10	–	20	10	20	30%[2]	2	–	35	38.5	1,000	60%
B-2	20,000	125	125	20,000	125	125	50	10	–	50	10	50	30%[2]	2	–	35	38.5	2,000	65%
B-3	2 acres	200	200	2 acres	200	200	75	30	–	50	20	50	25%[2]	–	–	35	38.5	2,000	65%
B-4	5 acres	300	300	–	–	–	100	50(150[1])	–	100(150[1])	20	50	25%	3	–	35	38.5	30,000	70%
M-1	5 acres	300	300	5 acres	300	300	100	50	–	150	75	150	30%[2]	–	–	35	38.5	5,000	65%
R-M	25 acres	350	200	–	–	–	50	50	–	30	30	30	20%	–	26	35	38.5	–	65%
O-P-T	40,000	150	150	40,000	150	150	50	20	–	50	20	50	25%[2]	2	–	35	38.5	2,000	50%
H-S	See § 245-261.													–	–	–	–		70%

26'

NOTES:
1. If adjacent to residential zone or use.
2. The maximum lot coverage shall refer only to that percentage of an affected lot which is suitable for building.
3. For rear yard setback requirements for accessory buildings on waterfront property, see § 245-10D.

FOR REFERENCE ONLY

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

Date Issued: 1/6/23
Application Number: ZA-22-01676
Application Date: 12/5/2022
Project Number:
Permit Number: ZP-23-00027
Fee: $75.00

Zoning Permit

Worksite Location: **108 COURTSHIRE DRIVE**
Brick Township, NJ 08724

Owner: **SALPIETRO, CARMELO & SHARON R**
Address: **108 COURTSHIRE DR**
BRICK, NJ 08723

Applicant: **BIG WAVE ROOFING AND SOLAR LLC**
Address: **47 POPLAR WAY**
W LONG BRANCH, NJ 07764

Block: **382.34** Lot: **17** Qualifier: Zone: **R-R-2**

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 - 18- 355W Longi Solar, 6.39kW micro- inverters, mounted on the roof of the house.

Additional Zoning Permit is required for additional work.

Application Approved Date: 12/7/2022

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

12/7/2022
Date

ENGINEERING PERMIT APPLICATION

RECEIVING CLERK _____

PERMIT # _____

BLOCK 382.34 **LOT** 17 **ADDRESS** 108 Courtshire Dr. Brick, NJ 08723

IDENTIFICATION:

1. WORK SITE ADDRESS 108 Courtshire Dr. Brick, NJ, 08723
2. APPLICANT Robert Springman
3. NAME OF OWNER IN FEE Carmelo Salpietro
   ADDRESS 108 Courtshire Dr. Brick, NJ 08723
   PHONE [redacted] EMAIL [redacted]
4. PRINCIPAL CONTRACTOR Big wave roofing and solar LLC.
   ADDRESS 47. poplar ave. W. Long branch NJ 07764
   PHONE 855-424-4928 EMAIL applications@bigwavenj.com
5. ARCHITECT OR ENGINEER Vector structural Engineering, LLC.
   ADDRESS 651 W. Galena park blvd. Draper, UT 84020
   PHONE 801-990-1775 EMAIL rhone.saintlouis@vectorse.com
6. RESPONSIBLE PERSON FOR WORK Robert Springman
   ADDRESS 47 poplar ave, W. Long Branch NJ 07764
   PHONE 855-424-4928 EMAIL applications@bigwavenj.com

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 _____

PROJECT DESCRIPTION:

☐ GRADING/CLEARING ☐ ROAD OPENING ☐ SOIL REMOVAL / FILL

☐ RETAINING WALL ☐ POOL ☐ BULKHEAD / DOCK ☐ DWELLING

☐ TREE REMOVAL ☐ COMMERCIAL SITE MAINTENANCE

☒ DESCRIPTION Roof Mounted solar system

ENGINEERING REVIEW:

DATE RECEIVED _____ DATE REJECTED _____ DATE APPROVED _____ INITIALS _____

Township of Brick

SOLAR PANEL CHECKLIST

REVISED 10/05/21

1. Construction Jacket signed & completed – Front and inside the jacket filled out completely.	Yes ✓	No ___
2. Zoning Application completely filled out all sections.	Yes ✓	No ___
3. Engineering Application completely filled out all sections.	Yes ✓	No ___
4. **Four true size** surveys, to scale indicating proposed work or 4 copies of an aerial view with location of panels on the roof	Yes ✓	No ___
5. Building Subcode Tech completed	Yes ✓	No ___
6. Electrical Subcode Tech completed- provide disconnects, service changes, # of micro inverters or size of inverter and the size of the system. Tech and detail signed & sealed by licensed electrician	Yes ✓	No ___
7. Fire Subcode Tech completed- indicate pathway on plans	Yes ✓	No___
8. Copy of Home Improvement Contractor Registration	Yes ✓	No ___
9. Two sets of detailed plans showing actual conditions of each installation signed and sealed by a licensed design professional. Also, 2 sets of loads from an Engineer (signed & sealed)	Yes ✓	No ___

- Cutting down trees, an Engineering grading/clearing permit may be required prior to the removal of the trees.

PLEASE NOTE: THIS IS A GUIDE ONLY. IT IS NOT A SUBSITUTE FOR A KNOWLEDGE OF THE STATE AND LOCAL REGULATIONS. THE UNIQUE NATURE OF SOME CONSTRUCTION PROJECTS CAN REQUIRE ADDITIONAL INFORMATION OR APPROVALS.

CA-20

T AN
ECTRICIAN'S
PLUMBER'S
ENSE

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

BIG WAVE ROOFING & SOLAR LLC
Robert Springman
47 Poplar Ave
West Long Branch NJ 07764

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

New Jersey Office of the Attorney General
Division of Consumer Affairs
THIS IS TO CERTIFY THAT THE
Home Improvement Contractors
HAS REGISTERED
BIG WAVE ROOFING & SOLAR LLC
Home Improvement Contractor

NOT AN ELECTRICIAN'S OR PLUMBER'S LICENSE
02/06/2022 TO 03/31/2023
VALID
SIGNATURE
13VH10935800
License/Registration/Certificate #
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

02/06/2022 TO 03/31/2023
VALID

13VH10935800
LICENSE/REGISTRATION/CERTIFICATION #

Signature of Licensee/Registrant/Certificate Holder

ACTING DIRECTOR

PLEASE DETACH HERE

BIG WAVE ROOFING & SOLAR LLC EXPIRATION DATE 2023
YOUR LICENSE/REGISTRATION/CERTIFICATE NUMBER IS 13VH 10935800 . 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.

NEWLIC (Rev. 08/03/2021)

VSE Project Number: U4580.0266.221

November 2, 2022

Big Wave Roofing & Solar
ATTENTION: Robert Springman
75 Forest St
West Long Branch, NJ 07764

REFERENCE: Carmelo Salpietro Residence: 108 Courtshire Drive, Brick Township, NJ 08723
Solar Array Installation

To Whom It May Concern:

We have reviewed the existing structure at the above referenced site. The purpose of our review was to determine the adequacy of the existing structure to support the proposed installation of solar panels on the roof as shown on the panel layout plan.

Based upon our review, we conclude that the existing structure is adequate to support the proposed solar panel installation.

Design Parameters

Code: International Residential Code, 2018 New Jersey Edition
Risk Category: II
Design wind speed, Vult: 122 mph (3-sec gust)
Wind exposure category: C
Ground snow load, Pg: 20 psf

Existing Roof Structure

Roof structure: 2x6 rafters @ 16" o.c. w/ knee walls
Roofing material: composite shingles
Roof slope: 10°

Connection to Roof

Mounting connection: (1) 5/16" lag screw w/ min. 2.5" threaded embedment into framing at max. 48" o.c. at panel seams
This installation uses a rail-less system. Panel Orientation: Portrait
Maximum panel dimension: 69.9x41.4 in
Connections shall be staggered so as not to overload any existing structural member

Conclusions

Based upon our review, we conclude that the existing structure is adequate to support the proposed solar panel installation. See attached calculations.

The solar array will be flush-mounted (no more than 10" above the roof surface) and parallel to the roof surface. Thus, we conclude that any additional wind loading on the structure related to the addition of the proposed solar array is negligible. The attached calculations verify the capacity of the connections of the solar array to the existing roof against wind (uplift), the governing load case. Increases in lateral forces less than 10% are considered acceptable. Thus the existing lateral force resisting system is permitted to remain unaltered.

VSE Project Number: U4580.0266.221
Carmelo Salpietro Residence
11/2/2022

Limitations

Installation of the solar panels must be performed in accordance with manufacturer recommendations. All work performed must be in accordance with accepted industry-wide methods and applicable safety standards. The contractor must notify Vector Structural Engineering, LLC should any damage, deterioration or discrepancies between the as-built condition of the structure and the condition described in this letter be found. The use of solar panel support span tables provided by others is allowed only where the building type, site conditions, site-specific design parameters, and solar panel configuration match the description of the span tables. The design of the solar panels, solar racking (mounts, rails, etc.) and electrical engineering is the responsibility of others. Waterproofing around the roof penetrations is the responsibility of others. Vector Structural Engineering assumes no responsibility for improper installation of the solar array. Vector Structural Engineering shall be notified of any changes from the approved layout prior to installation.

VECTOR STRUCTURAL ENGINEERING, LLC
NJ Firm License: COA - 24 GA 28120600

11/02/2022

Jacob Proctor, P.E.
NJ License: 24GE05571900 - Expires: 04/30/2024
Project Engineer

Enclosures

JSP/djo

VECTOR ENGINEERS

JOB NO.: U4580.0266.221
SUBJECT: WIND PRESSURE

PROJECT: Carmelo Salpietro Residence

Components and Cladding Wind Calculations

Label: Solar Panel Array

Note: Calculations per ASCE 7-10

SITE-SPECIFIC WIND PARAMETERS:

Basic Wind Speed [mph]:	122
Exposure Category:	C
Risk Category:	II

Notes:

ADDITIONAL INPUT & CALCULATIONS:

Height of Roof, h [ft]:	15	(Approximate)	Hip?
Comp/Cladding Location:	Gable/Hip Roofs 7° < θ ≤ 27°		No
Enclosure Classification:	Enclosed Buildings		
Zone 1 GC_p:	0.9	Figure 30.4-2B (enter negative pressure coefficients)	
Zone 2 GC_p:	1.7		
Zone 3 GC_p:	2.6		
α:	9.5	Table 26.9-1	
z_g [ft]:	900	Table 26.9-1	
K_h:	0.85	Table 30.3-1	
K_{zt}:	1	Equation 26.8-1	
K_d:	0.85	Table 26.6-1	
Velocity Pressure, q_h [psf]:	27.5	Equation 30.3-1	
GC_{pi}:	0	Table 26.11-1	

PRESSURES:

$$p = q_h\left[(GC_p) - (GC_{pi})\right]$$ Equation 30.9-1

Zone 1, p [psf]:	23.8	psf (1.0 W, Interior Zones, beyond 'a' from roof edge)
Zone 2, p [psf]:	45.8	psf (1.0 W, End Zones, within 'a' from roof edge)
Zone 3, p [psf]:	70.4	psf (1.0 W, Corner Zones, within 'a' from roof corner)
		(a= 3 ft)

VECTOR ENGINEERS

JOB NO.: U4580.0266.221
SUBJECT: CONNECTION

PROJECT: Carmelo Salpietro Residence

Calculate Uplift Forces on Connection

	Pressure (0.6 Dead -0.6 Wind) (psf)	Max Trib. Width[1] (ft)	Max Trib. Area[2] (ft^2)	Max Uplift Force (lbs)
Zone 1	12.5	4.0	23.3	290
Zone 2	25.7	4.0	11.7	300
Zone 3	40.4	4.0	11.7	471

Calculate Connection Capacity

Lag Screw Size [in]:	5/16	
C_d:	1.6	NDS Table 2.3.2
Embedment[3] [in]:	2.5	
Grade:	SPF (G = 0.42)	
Nominal Capacity [lbs/in]:	205	NDS Table 12.2A
Number of Screws:	1	
Prying Coefficient:	1.4	
Total Capacity [lbs]:	586	

Determine Result

Maximum Demand [lbs]:	471
Lag Screw Capacity [lbs]:	586

Result: **Capacity > Demand, Connection is adequate.**

Notes

1. 'Max Trib. Width' is the width along the panel seams tributary to the connection.
2. 'Max Trib Area' is the product of the 'Max. Trib Width' and the panel width/height perpendicular to the direction of the connection spacing. Tributary area on connections at array edges are reduced by 50% as they
3. Embedment is measured from the top of the framing member to the beginning of the tapered tip of the lag screw. Embedment in sheathing or other material is not effective. The length of the tapered tip is not part of the embedment length.

VECTOR ENGINEERS

JOB NO.: U4580.0266.221
SUBJECT: GRAVITY LOADS

PROJECT: Carmelo Salpietro Residence

GRAVITY LOADS

Roof Pitch: 2.1 :12

ROOF DEAD LOAD (D)	Design material weight [psf]	Increase due to pitch	Material weight [psf]
Composite Shingles	2.0	1.02	2.0
1/2" Plywood	1.0	1.02	1.0
Framing	3.0		3.0
Insulation	0.0		0.0
1/2" Gypsum Clg.	0.0	1.02	0.0
M, E & Misc	2.0		2.0
Total Existing Roof DL	8.0		
PV Array DL	3.0	1.02	3

ROOF LIVE LOAD (Lr)

Existing Design Roof Live Load [psf]	20	ASCE 7-10 Table 4.3-1
Roof Live Load With PV Array [psf]	0	2018 IRC, Section R324.4.1.1

SNOW LOAD (S):	Existing	w/ Solar Array	
Roof Slope [x:12]:	2.1	2.1	
Roof Slope [°]:	10	10	
Ground Snow Load, p_g [psf]:	20	20	ASCE 7-16, Section 7.2
Terrain Category:	C	C	ASCE 7-16, Table 7.3-1
Exposure of Roof:	Fully Exposed	Fully Exposed	ASCE 7-16, Table 7.3-1
Exposure Factor, C_e:	0.9	0.9	ASCE 7-16, Table 7.3-1
Thermal Factor, C_t:	1.1	1.1	ASCE 7-16, Table 7.3-2
Risk Category:	II	II	ASCE 7-16, Table 1.5-1
Importance Factor, I_s:	1.0	1.0	ASCE 7-16, Table 1.5-2
Flat Roof Snow Load, p_f [psf]:	14	14	ASCE 7-16, Equation 7.3-1
Minimum Roof Snow Load, p_m [psf]:	20	20	ASCE 7-16, Section 7.3.4
Unobstructed Slippery Surface?	No	No	ASCE 7-16, Section 7.4
Slope Factor Figure:	Figure 7-2b	Figure 7-2b	ASCE 7-16, Section 7.4
Roof Slope Factor, C_s:	1.00	1.00	ASCE 7-16, Figure 7.4-1
Sloped Roof Snow Load, p_s [psf]:	14	14	ASCE 7-16, Equation 7.4-1
Design Snow Load, S [psf]:	20	20	

VECTOR ENGINEERS

JOB NO.: U4580.0266.221

PROJECT: Carmelo Salpietro Residence

SUBJECT: BEAMS

DESIGN LOADS:

Load Types:	Snow	Live	Dead
Roof	20	20	8
Solar			3.0

CRITERIA (L/)	D_{TL}	D_{LL}	D_{DL}
$A_{(BLANK)}$	120	180	

Abbrev	GRADES			F_{bxx} (psi)	F_{vxx} (psi)	E_{xx} (psi)	g (lb/ft^3)
DFL#1	DFL#1			1,000	180	1,700,000	32
DFL#2	DFL#2			900	180	1,600,000	32
DF1 (5X)	DFL#1 5X5 & LARGER			1,350	170	1,600,000	32
SPF#2	SPF#2			875	135	1,400,000	26 2
SP#2	SP#2			1,100	175	1,400,000	34 3
24F-V4	24F-V4			2,400	240	1,800,000	32
24F-V8	24F-V8			2,400	240	1,800,000	40
LVL (1 9)	LVL (1 9X106E)			2,600	285	1,900,000	40
LVL (2 0)	LVL (2 0X106E)			2,200	285	2,000,000	42
LSL	LSL (1.3X106E)			1,700	400	1,300,000	42
STL36	GRADE 36 STEEL			21,600	14,400	29,000,000	490
STL46	GRADE 46 STEEL			27,700	16,500	29,000,000	490
STL50	GRADE 50 STEEL			30,000	20,000	29,000,000	490

Label	Length 'L' (ft)	Roof Trib (ft)	Floor Trib (ft)	Wall Trib (ft)	Add'l Live Load (plf)	Add'l Solar Load (plf)	Point Load From	React (A,B)	Dist 'a' (ft)	Point Live Load 'P_{LL}' (lb)	Point Dead Load 'P_{DL}' (lb)	# PLIES	Grade	Size	"BM/HDR"	D CRITERIA	C_r	C_D	$C_{F,V}$	R_a (lb)	R_b (lb)	M_{max} (ft-lb)	M_{allow} (ft-lb)	V_{max} (lb)	V_{allow} (lb)	D_{TL} (in)	$D_{TLallow}$ (in)	D_{LL} (in)	$D_{LLallow}$ (in)	1 5DL GLB Camb	Check
Rafter	13.0	1.33				4 1						(1)	SPF#2	2x6			1 15	1.15	1.30	269	269	876	948	250	854	0.915	1.300	0 589	0 867		0.92 M
Purlin	1.333	10.5				31.99						(1)	SPF#2	2X4			1.00	1.15	1.50	218	218	73	165	122	543	0.017	0.133	0.011	0 089	STD	0.44 M

SITE NOTES

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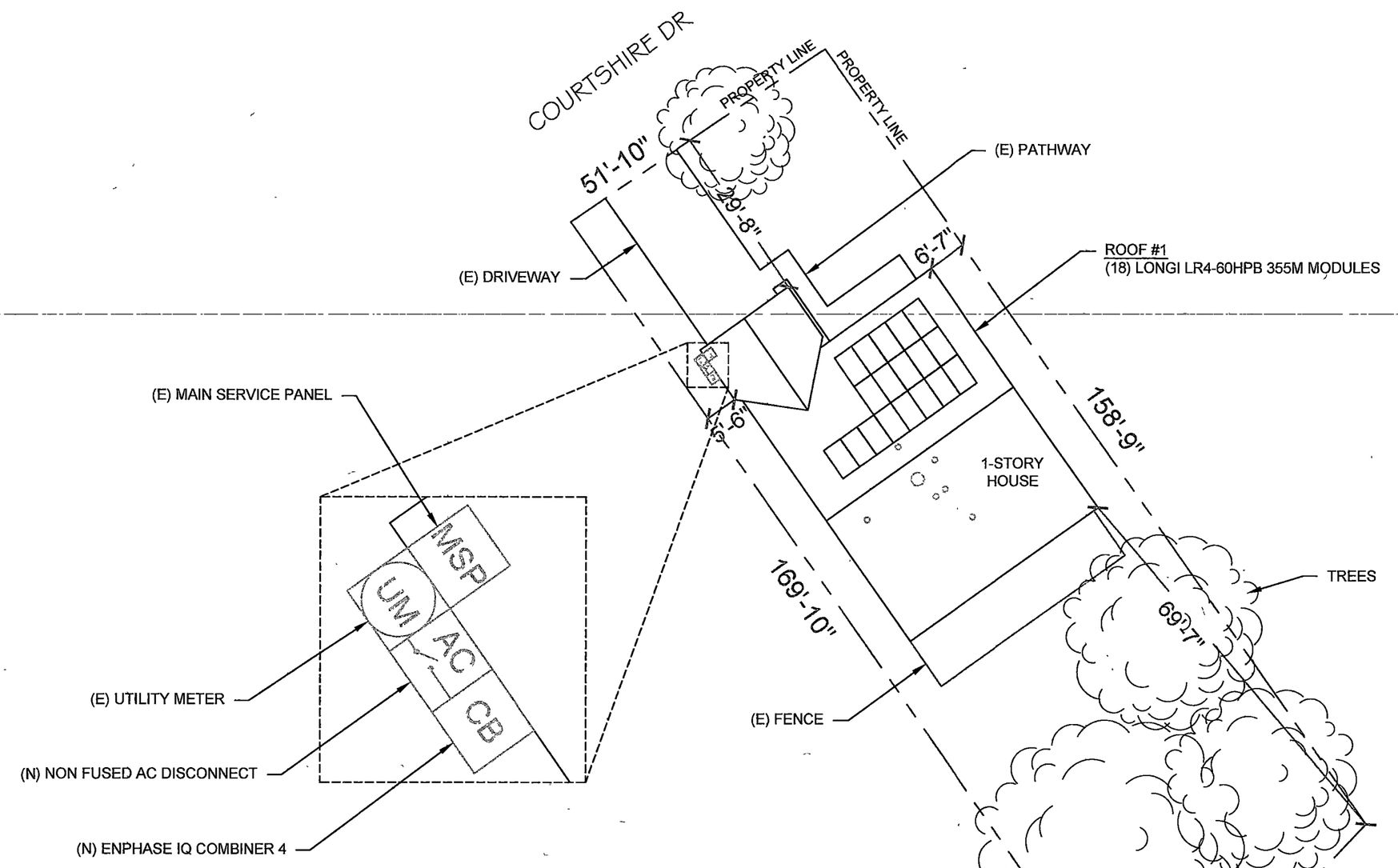
- PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION [NEC 110.26]



1 PLOT PLAN

PV-1 SCALE: 1"=20'-0"

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BIG WAVE ROOFING AND SOLAR
47 POPLAR AVENUE,
WEST LONG BRANCH, NJ 07764
(908) 380-4170
LICENSE NO#. 13VH10935800

REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
PLOT PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

23-0050

SITE NOTES

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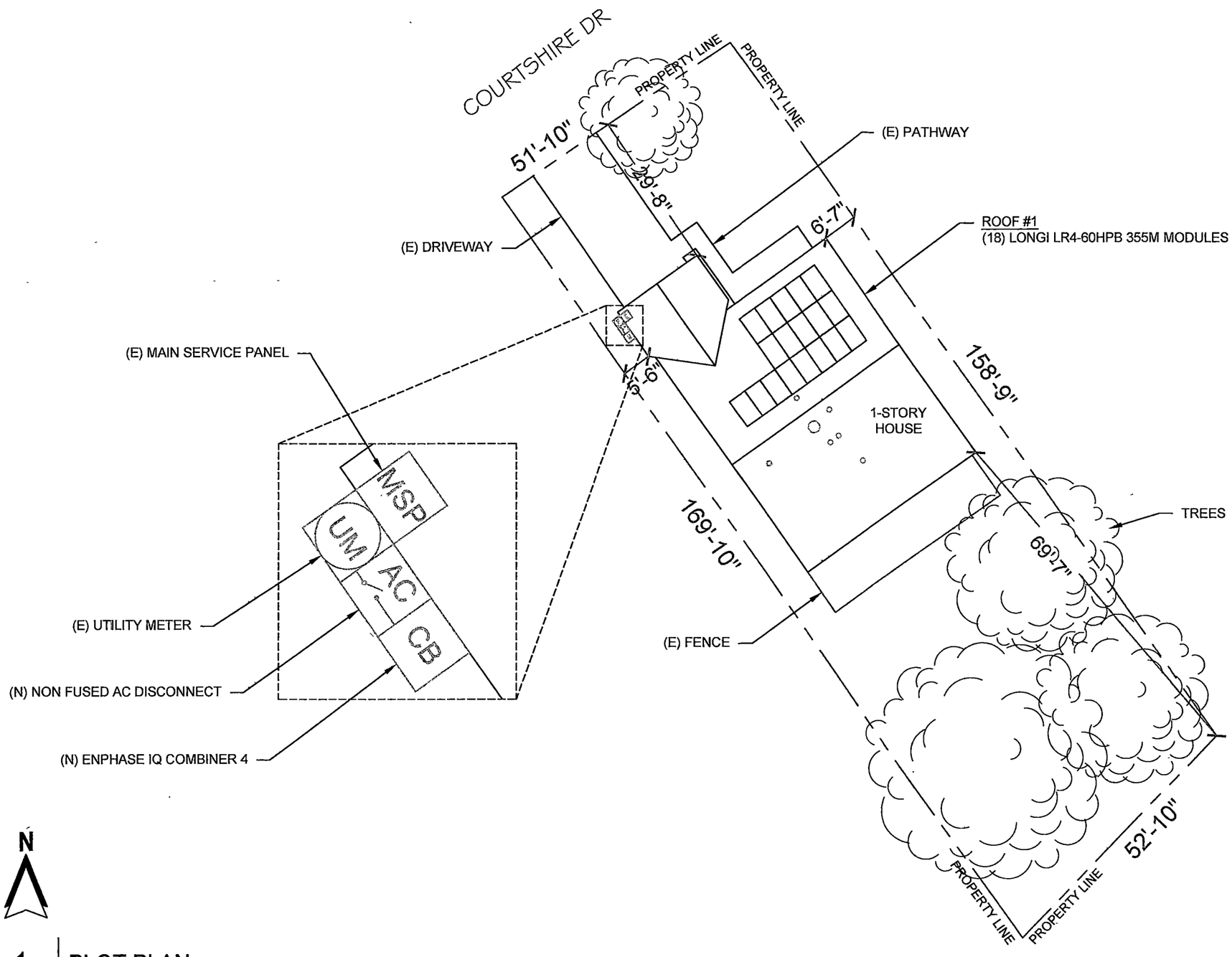

1 PLOT PLAN

PV-1 SCALE: 1"=20'-0"

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REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO
RESIDENCE
GRID TIED SYSTEM(6390W DC)

108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
PLOT PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

SITE NOTES

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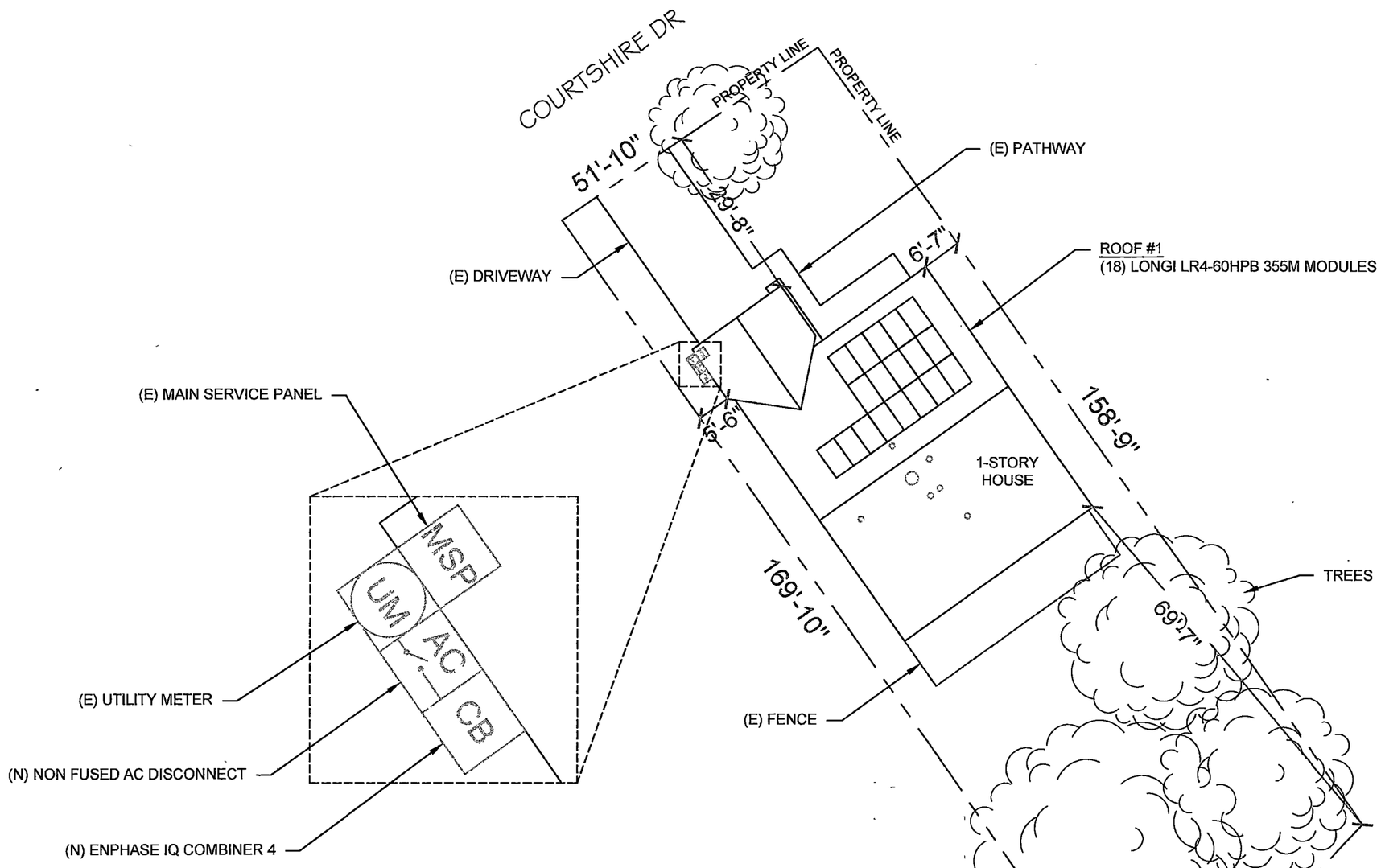

1 PLOT PLAN

PV-1 SCALE. 1"=20'-0"

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REVISIONS

DESCRIPTION	DATE	REV

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RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
PLOT PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

SCOPE OF WORK:
TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 108 COURTSHIRE DR, BRICK, NJ 08723.
THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.
THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES

EQUIPMENT SUMMARY
18 LONGI LR4-60HPB-355M MODULES
18 ENPHASE IQ8PLUS-72-2-US (240V) MICROINVERTERS

GOVERNING CODES
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL BUILDING CODE
2018 NEW JERSEY STATE BUILDING CODE

SYSTEM RATING
6.39 KWDC
5.36 KWAC

Jacob S. Proctor, P.E.
NJ License No. - 24 GE 05571900
Firm License: COA - 24 GA 28120600
VSE Project Number: U4580.0266.221

11/11/2022

SHEET INDEX

PV-0	COVER PAGE
PV-1	PLOT PLAN
PV-2	SITE PLAN & MODULES
PV-2A	STRING LAYOUT & BOM
PV-3	ATTACHMENT DETAIL
PV-4	ELECTRICAL LINE DIAGRAM & CALCS.
PV-4A	SPECIFICATIONS & NOTES
PV-5	SIGNAGE
PV-6+	EQUIPMENT SPECIFICATIONS

GENERAL NOTES:
- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR INSTALLATION OF ANY EQUIPMENT AT SITE.
- CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE ARCHITECT.
- CONTRACTOR SHALL OBTAIN BULDING PERMIT. NO WORK TO START UNLESS BUILDING PERMIT IS PROPERLY DISPLAYED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE NJ BUILDING CODE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES.
- IT IS ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING. THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH.
- ALL EXPOSED PLUMBING, HVAC, ELECTRICAL DUCTWORK, PIPING AND CONDUITS ARE TO BE PAINTED BY GENERAL CONTRACTOR.
- THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS, CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.
- CONTRACTORS SHALL OBTAIN FIRE CERTIF. UPON COMPLETION OF WORK.

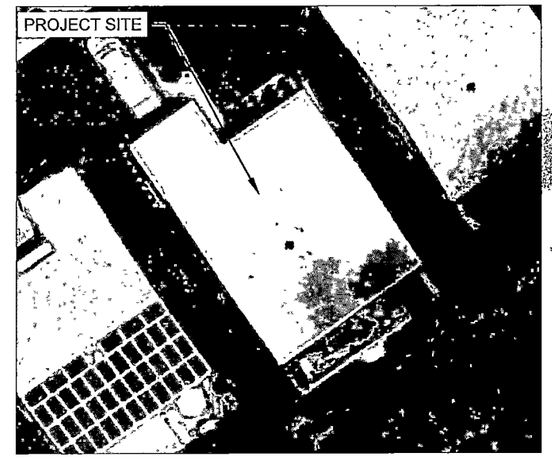
WIRING AND CONDUIT NOTES:
- ALL CONDUIT SIZES AND TYPES, SHALL BE LISTED FOR ITS PURPOSE AND APPROVED FOR THE SITE APPLICATIONS
- ALL PV CABLES AND HOMERUN WIRES BE #10AWG *USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR, OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED
- ALL CONDUCTORS AND OCPD SIZES AND TYPES SPECIFIED ACCORDING TO [NEC 690.8 (A)(1) & (B)(1)], [NEC 240] [NEC 690.7] FOR MULTIPLE CONDUCTORS
- ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO [NEC TABLE 310.15 (B)(2)(C)] BLACK ONLY**
- EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES
- PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 600V PER NEC 2008 OR 1000V PER NEC 2011
- 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS
- ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION
- VOLTAGE DROP LIMITED TO 2% FOR DC CIRCUITS AND 1% FOR AC CIRCUITS
- AC CONDUCTORS >4AWG COLOR CODED OR MARKED: PHASE A OR L1- BLACK, PHASE B OR L2- RED, PHASE C OR L3- BLUE, NEUTRAL- WHITE/GRAY

Vector Structural Engineering has reviewed the existing structure with loading from the solar array and screw connections to the existing framing. The design of the racking system, racking connections, and all other structural is by others. Mechanical, architectural, and all other nonstructural aspects of the design are by others. Electrical is by others, unless stamped by Dean Levorsen

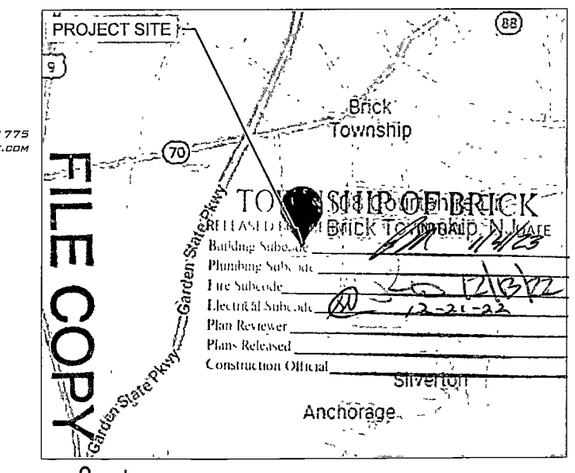
VECTOR ENGINEERS
651 W. GALENA PARK BLVD STE 101 DRAPER, UTAH 84020
PHONE (801) 990-1775 WWW.VECTORSE.COM

ELECTRICAL NOTES:
- THE EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE INSTALLED ONLY BY QUALIFIED PEOPLE. A QUALIFIED PERSON IS ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECIEVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED. (NEC 690.4(E) AND 705.6)
- LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION. FOR A LINE SIDE TAP CONNECTION, UTILITY NEEDS TO BE NOTIFIED WELL IN ADVANCE TO COORDINATE BUILDING ELECTRICAL SHUT OFF.
- NEW CONDUIT ROUTING SHOWN IS ESSENTIALLY SCHEMATIC. SUBCONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
- ARRAY WIRING SHOULD NOT BE READILY ACCESSIBLE EXCEPT TO QUALIFIED PERSONNEL.
- ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE WATERTIGHT AND APPROVED FOR USE IN WET LOCATIONS. (NEC 314.15A).
- WIRING METHODS FOR PV SYSTEM CONDUCTORS AREN'T PERMITTED WITHIN 10 IN. OF THE ROOF DECKING OR SHEATHING EXCEPT WHERE LOCATED DIRECTLY BELOW THE ROOF SURFACE THAT'S COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT WIRING
- BACK-FEED BREAKER MUST BE AT THE OPPOSITE END OF BUS BAR FROM THE MAIN BREAKER OR MAIN LUG SUPPLYING CURRENT FROM THE UTILITIES.
- ALL CONDUCTORS AND WIRE TIES EXPOSED TO SUNLIGHT ARE LISTED AS UV RESISTANT.
- CONTRACTOR SHALL FOLLOW ALL ELECTRICAL EQUIPMENT LABELING REQUIREMENTS IN NEC 690 AND IFC 2015
- MEASURE THE LINE-TO-LINE AND LINE-TO-NEUTRAL VOLTAGE OF ALL SERVICE ENTRANCE CONDUCTORS PROIR TO INSTALLING ANY SOLAR EQUIPMENT. THE VOLTAGES FOR THE 240VAC RATED.

TOWNSHIP OF BRICK
DATE
Building Subcode
Plumbing Subcode
Fire Subcode
Electrical Subcode
Plan Reviewer
Plans Released
Construction Official



1 PV-0 HOUSE PHOTO SCALE: NTS



2 PV-0 VICINITY MAP SCALE NTS

FILE COPY

TOWNSHIP OF BRICK
RELEASED FOR ISSUANCE
Building Subcode
Plumbing Subcode
Fire Subcode
Electrical Subcode
Plan Reviewer
Plans Released
Construction Official
DATE

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(908) 380-4170
LICENSE NO#: 13VH10935800

REVISIONS		
DESCRIPTION	DATE	REV

Sign Here with Seal
PROJECT NAME & ADDRESS
PROFESSIONAL ENGINEER

CARMELO SALPIETRO RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
COVER PAGE

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-0

SITE NOTES

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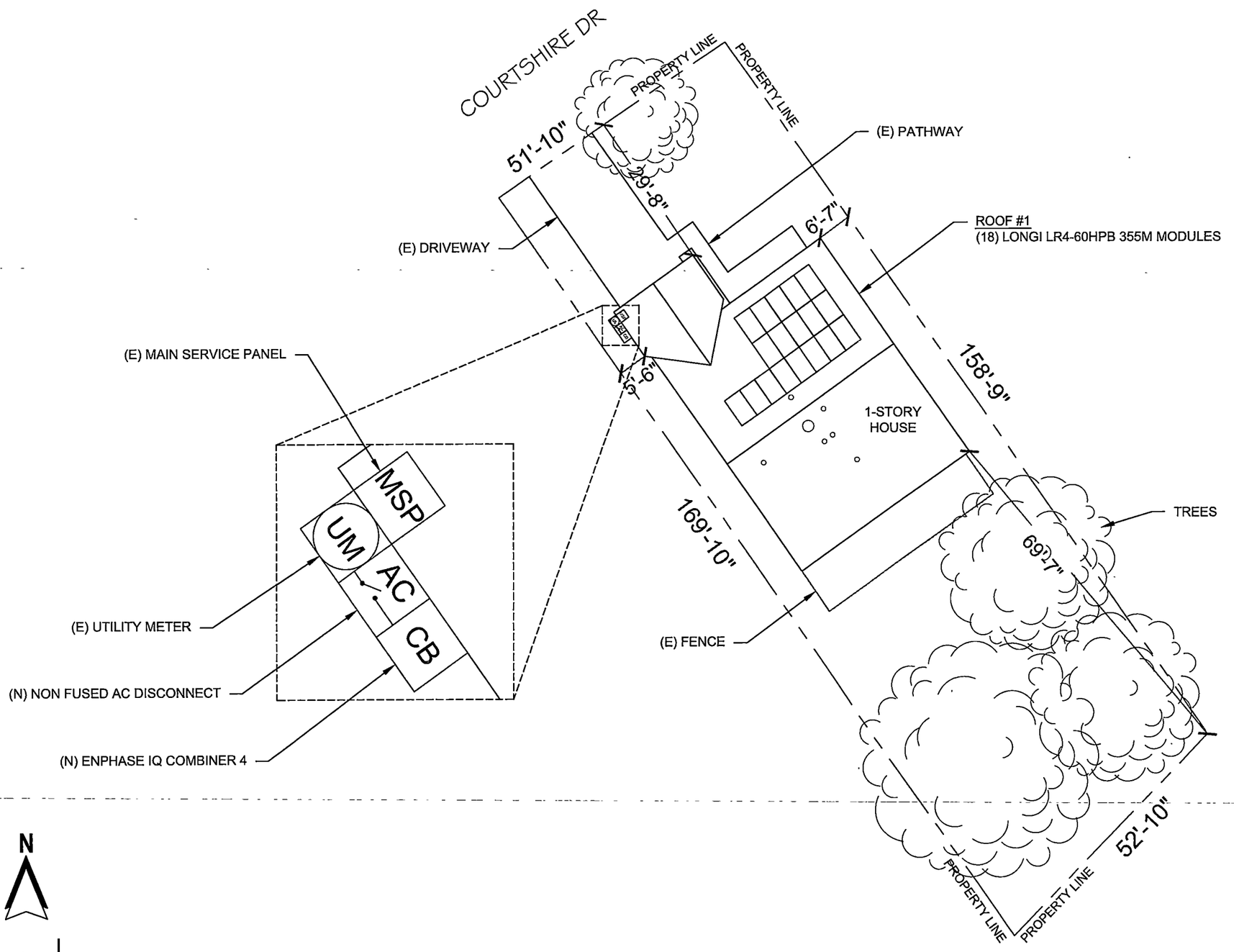

1 PLOT PLAN

PV-1

SCALE: 1"=20'-0"

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RESIDENCE
GRID TIED SYSTEM(6390W DC)

108 COURTSHIRE DR
BRICK, NJ 08723

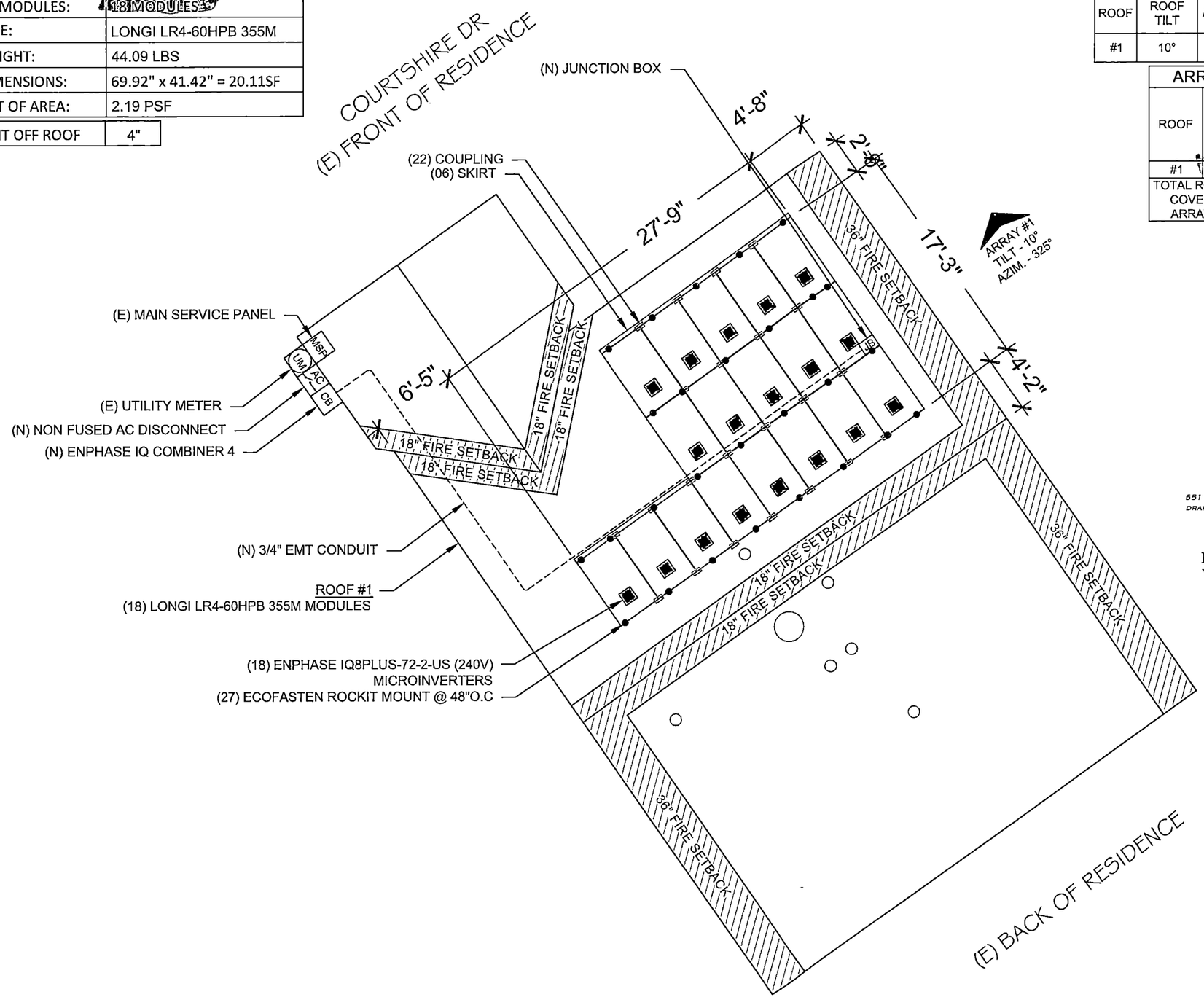
DATE: 11/01/2022

SHEET NAME
PLOT PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

MODULE TYPE, DIMENSIONS & WEIGHT	
NUMBER OF MODULES:	18 MODULES
MODULE TYPE:	LONGI LR4-60HPB 355M
MODULE WEIGHT:	44.09 LBS
MODULE DIMENSIONS:	69.92" x 41.42" = 20.11SF
UNIT WEIGHT OF AREA:	2.19 PSF
PANEL HEIGHT OFF ROOF	4"



ROOF DESCRIPTION					
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING	ROOF MATERIAL
#1	10°	325°	2"x6"	16"	COMP. SHINGLE

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (SQ. FT.)	ROOF AREA COVERED BY ARRAY (%)
#1	18	359	883.30	41
TOTAL ROOF AREA COVERED BY ARRAY AREA		359	2103.74	17

LEGEND

- JB (N) JUNCTION BOX
- UM (E) UTILITY METER
- MSP (E) MAIN SERVICE PANEL (MSP)
- AC (N) AC DISCONNECT
- CB (N) ENPHASE IQ COMBINER 4
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- CONDUIT

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WWW.VECTORSE.COM
Jacob S. Proctor, P.E.
NJ License No. - 24 GE 05571900
Firm License: COA - 24 GA 28120600
VSE Project Number: U4580.0266.221

11/11/2022

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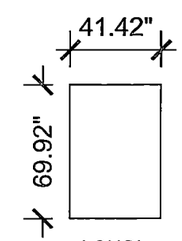

LONGI
LR4-60HPB 355M
MODULES

N

1 SITE PLAN & MODULES

PV-2 SCALE: 1/8" = 1'-0"

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RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

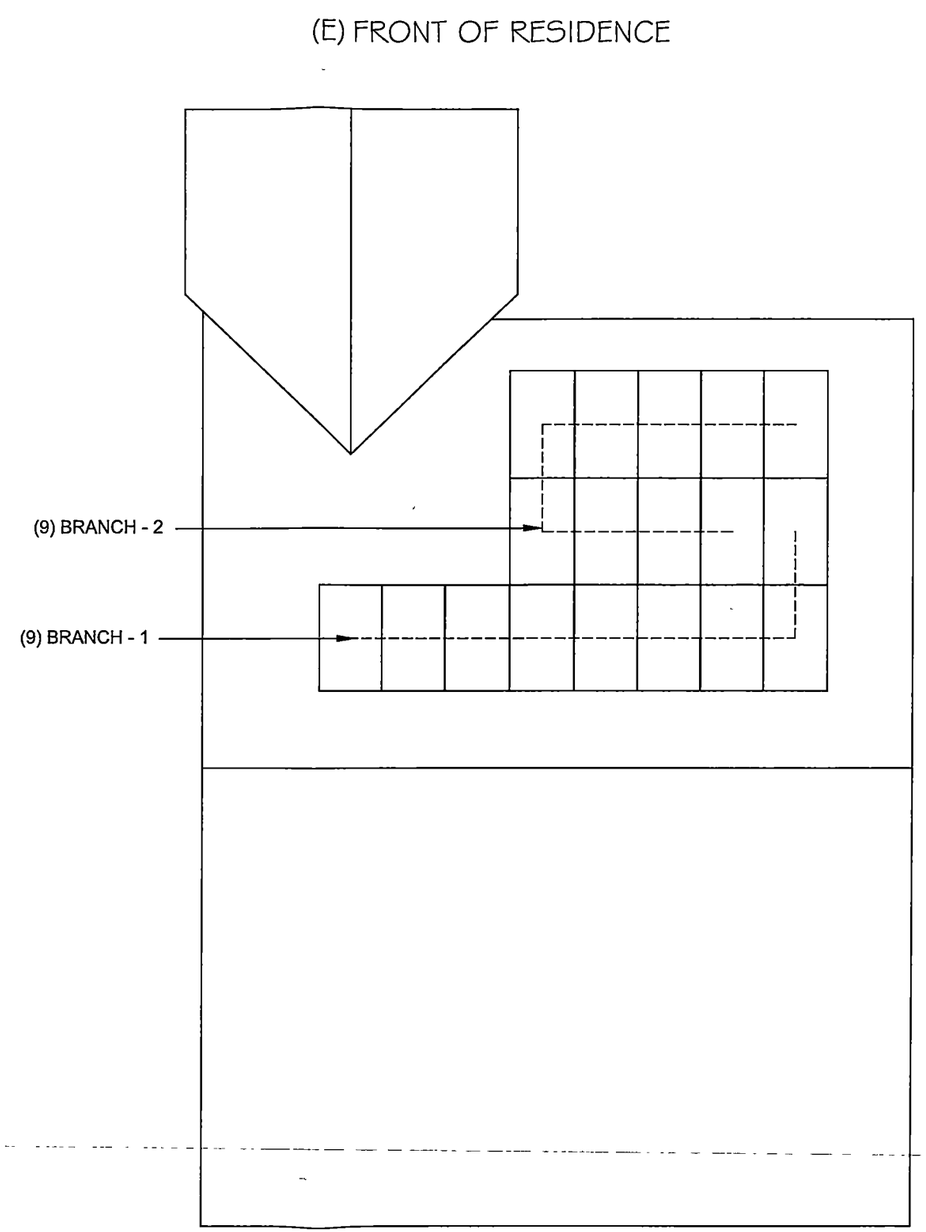
SHEET NAME
SITE PLAN & GROUND MOUNT

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	18	LONGI LR4-60HPB 355M
MICROINVERTER	18	ENPHASE IQ8PLUS-72-2-US (240V) MICRO INVERTERS
COMBINER BOX	1	ENPHASE IQ COMBINER 4 W/ IQ GATEWAY (X-IQ-AM1-240-4)
AC DISCONNECT	1	60A NON FUSED AC DISCONNECT, 240V, NEMA 3R, UL LISTED
JUNCTION BOX	1	JUNCTION BOX, NEMA 3R, UL LISTED
ENPHASE Q CABLE	20	ENPHASE Q CABLE 240V (PER CONNECTOR)
BRANCH TERMINATOR	2	BRANCH TERMINATOR
IQ WATER TIGHT CAP	2	IQ WATER TIGHT CAP
ATTACHMENT	27	ECOFASTEN ROCKIT MOUNT
ATTACHMENT	27	ROCKIT CLAMP
ATTACHMENT	27	ROCKIT COMP SLIDE WITH 4" LAG SCREW & 5/16" EPDM BONDED WASHER
ATTACHMENT	6	SKIRT
ATTACHMENT	22	COUPLING
GROUNDING LUG	4	GROUNDING LUG



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1 ROOF PLAN WITH STRING LAYOUT & BOM

PV-2A

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

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DATE: 11/01/2022

SHEET NAME
STRING LAYOUT & BOM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2A

DESIGN SPECIFICATION	
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE 7-16):	20 PSF
EXPOSURE CATEGORY:	C
WIND SPEED (ASCE 7-16):	122 MPH

GENERAL STRUCTURAL NOTES:

1. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE ROCK-IT SYSTEM BY ECOFASTEN. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS, AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.
2. UNLESS NOTED OTHERWISE, MOUNTING ANCHORS SHALL BE 5/16" LAG SCREWS WITH A MINIMUM OF 2-1/2" PENETRATION INTO ROOF FRAMING.

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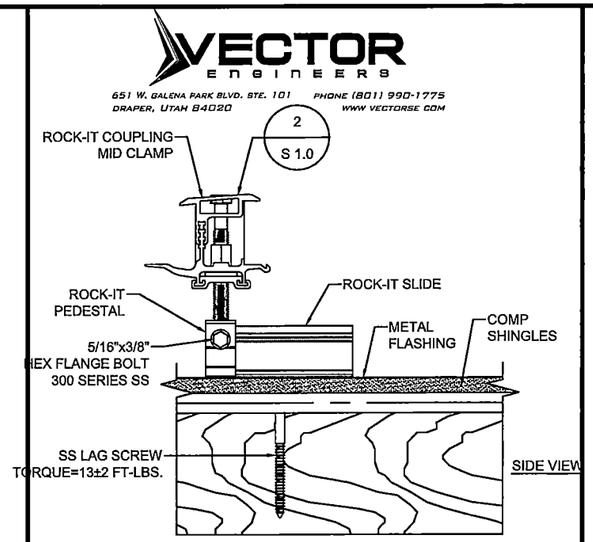

1 S 1.0 ROCK-IT MOUNT DETAIL
NOT TO SCALE

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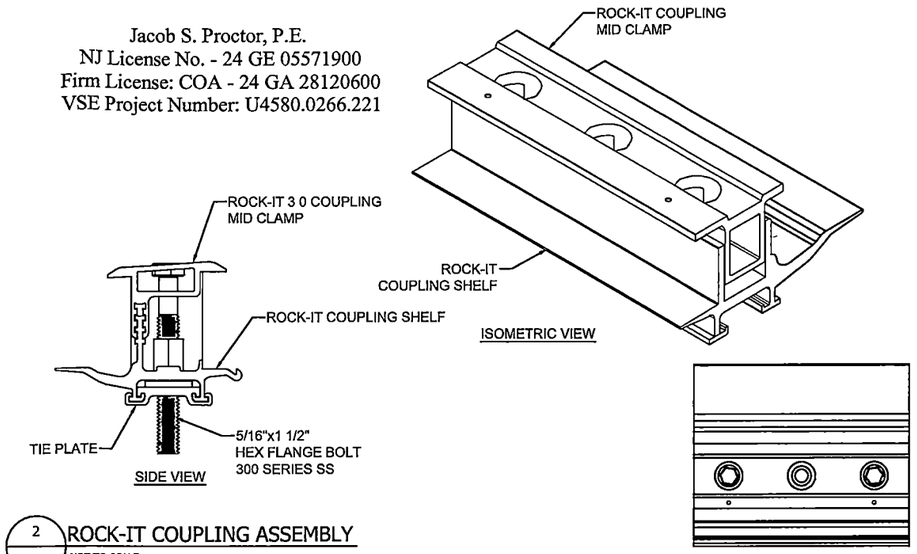
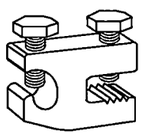
Firm License: COA - 24 GA 28120600
VSE Project Number: U4580.0266.221



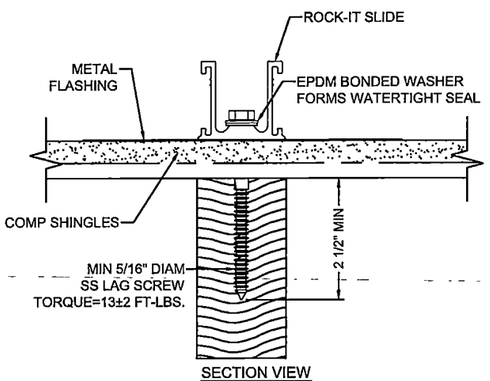
2 S 1.0 ROCK-IT COUPLING ASSEMBLY
NOT TO SCALE

11/11/2022

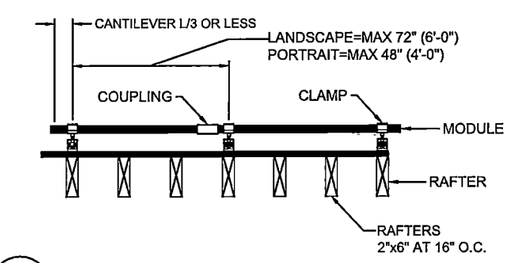


8 S 1.0 ILSCO SGB-4 GROUNDING LUGS
NOT TO SCALE

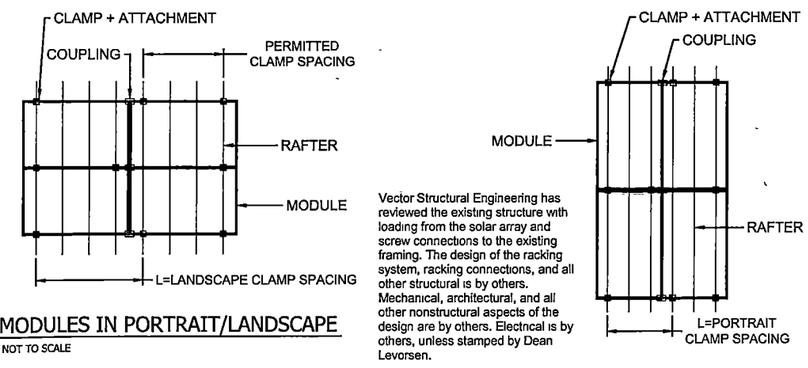
U.L. LISTING FOR ECOFASTEN. 2703
WEIGHT: 2 3 lb



3 S 1.0 SECTION VIEW
NOT TO SCALE

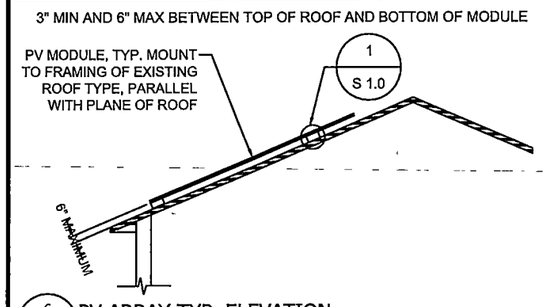


4 S 1.0 PV SYSTEM MOUNTING DETAIL
NOT TO SCALE

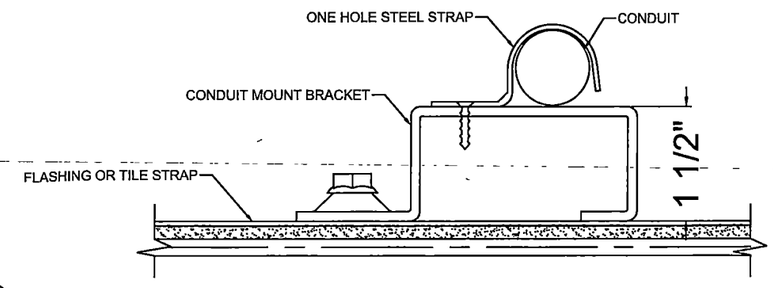


Vector Structural Engineering has reviewed the existing structure with loading from the solar array and screw connections to the existing framing. The design of the racking system, racking connections, and all other structural is by others. Mechanical, architectural, and all other nonstructural aspects of the design are by others. Electrical is by others, unless stamped by Dean Levorsen.

5 S 1.0 MODULES IN PORTRAIT/LANDSCAPE
NOT TO SCALE



6 S 1.0 PV ARRAY TYP. ELEVATION
NOT TO SCALE



7 S 1.0 CONDUIT MOUNTING DETAIL
NOT TO SCALE

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(908) 380-4170
LICENSE NO#: 13VH10935800

REVISIONS		
DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

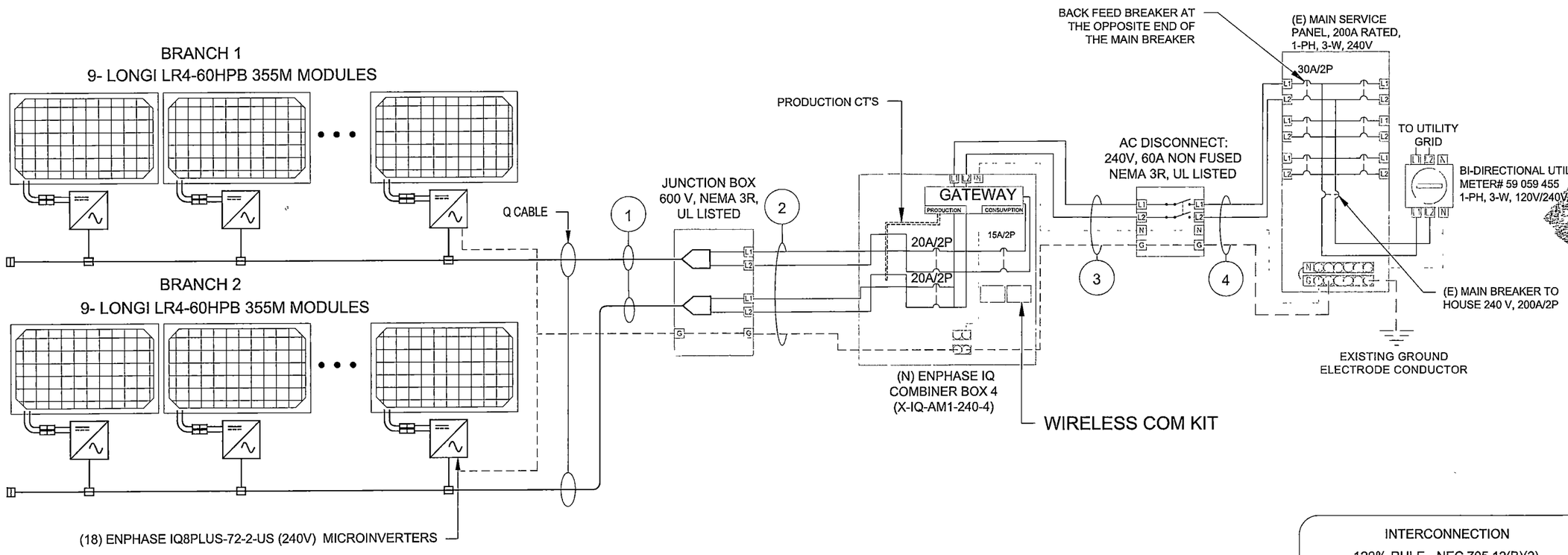
DATE: 11/01/2022

SHEET NAME
ATTACHMENT DETAILS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-3

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR			CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	CONDUIT FILL PERCENT	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOLTAGE DROP
1	2	STRING	JUNCTION BOX	12 AWG	Q CABLE	-	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.76	(54°C)	N/A	10.9A	13.6A	N/A	N/A	75°C	36FT	0.38%
2	1	JUNCTION BOX	IQ COMBINER BOX	10 AWG	THWN-2	COPPER	MIN 0.75" Dia EMT	2	4	19.09%	20A	8 AWG	THWN-2 COPPER	0.96	(32°C)	0.8	10.9A	13.6A	40A	30.7A	75°C	64FT	0.45%
3	1	IQ COMBINER BOX	NON FUSED AC DISCONNECT	6 AWG	THWN-2	COPPER	MIN 0.75" Dia EMT	1	3	36.53%	N/A	8 AWG	THWN-2 COPPER	0.96	(32°C)	1.0	21.7A	27.2A	75A	72.0A	75°C	5FT	0.04%
4	1	NON FUSED AC DISCONNECT	MSP	6 AWG	THWN-2	COPPER	MIN 0.75" Dia EMT	1	3	36.53%	30A	8 AWG	THWN-2 COPPER	0.96	(32°C)	1.0	21.7A	27.2A	75A	72.0A	75°C	5FT	0.04%



INTERCONNECTION
120% RULE - NEC 705.12(B)(2)
UTILITY FEED + SOLAR BACKFEED
200 A + 30A = 230A
BUSS RATING x 120%
200 A x 120% =240A

SERVICE INFO	
UTILITY PROVIDER:	JCPL
AHJ NAME:	BRICK
MAIN SERVICE VOLTAGE:	240V
MAIN SERVICE PANEL:	200A
MAIN CIRCUIT BREAKER RATING:	200A
MAIN SERVICE LOCATION:	NORTH-WEST
SERVICE FEED SOURCE:	UNDERGROUND

SYSTEM SUMMARY

	BRANCH #1	BRANCH #2
INVERTERS PER BRANCH	9	9
MAX AC CURRENT	10.8 A	13.6 A
MAX AC OUTPUT POWER	2682 W	2682W
ARRAY STC POWER	6390 W	
ARRAY PTC POWER	5968.8 W	
TOTAL MAX AC CURRENT	21.7 A	
DERATED AC POWER OUTPUT	5364 W	

1 ELECTRICAL LINE DIAGRAM
PV-4
SCALE: NTS

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REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO
RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
ELECTRICAL LINE & CALCS.

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	LONGI LR4-60HPB 355M
VMP	33.50V
IMP	10.60A
VOC	40.70V
ISC	11.10A
TEMP. COEFF. VOC	-0.286 %/°C
MODULE DIMENSION	69.92" (L) x 41.42" (W)
PANEL STC RATING	355.00W
PANEL PTC RATING	331.60W

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	ENPHASE IQ8PLUS-72-2-US (240V)
MAX DC SHORT CIRCUIT CURRENT	15 A
CONTINUOUS OUTPUT CURRENT	1.21A (240V)

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-14°C
AMBIENT TEMP (HIGH TEMP 2%)	32°C
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	54°C
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.286 %/°C

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20

Voltage rise in Q Cable from the Microinverters to the Junction Box

For branch circuit #1 of 9 IQ 8+ Micros, the voltage rise on the 240 VAC Q Cable is 0.38%

For branch circuit #2 of 9 IQ 8+ Micros, the voltage rise on the 240 VAC Q Cable is 0.38%

Voltage rise from the Junction Box to the IQ Combiner box

VRise = (amps/inverter × number of inverters) × (resistance in Ω/ft) × (2-way wire length in ft.)
= (1.21 amp ×9) × (0.00129 Ω/ft) × (64 ft × 2)
= 10.8 amps × 0.00129 Ω/ft × 128 ft
= 1.78 volts
%VRise = 1.78 volts ÷ 240 volts = 0.74%
The voltage rise from the Junction Box to the IQ Combiner Box is 0.74%

Voltage rise from the IQ Combiner box to the AC Disconnect

VRise = (amps/inverter × number of inverters) × (resistance in Ω/ft.) × (2-way wire length in ft.)
= (1.21 amp × 18) × (0.000491 Ω/ft) × (5 ft. × 2)
= 21.78 amps × 0.000491 Ω/ft × 10 ft.
= 0.11 volts
%VRise = 0.11 volts ÷ 240 volts = 0.04%
The voltage rise from the IQ Combiner Box to the AC Disconnect is 0.04%

Voltage rise from the AC Disconnect to Main Service Panel

VRise = (amps/inverter × number of inverters) × (resistance in Ω/ft.) × (2-way wire length in ft.)
= (1.21 amp × 18) × (0.000491 Ω/ft) × (5 ft. × 2)
= 21.78 amps × 0.000491 Ω/ft × 10 ft.
= 0.11volts
%VRise = 0.11 volts ÷ 240 volts =0.04%
The voltage rise from the AC Disconnect to the Main Service Panel is 0.04%

Total system voltage rise for all three wire sections

0.38% + 0.74% + 0.04% + 0.04% = 1.20%

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RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
SPECIFICATIONS & NOTES

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4A

1

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

LABEL LOCATION:
POINT OF INTERCONNECTION,
(PER CODE: NEC 690 16(B))

2

WARNING - Electric Shock Hazard
No user serviceable parts inside
Contact authorized service provider for assistance

LABEL LOCATION:
INVERTER, JUNCTION BOXES (ROOF),
(PER CODE: NEC690.13.G.3 & NEC 690.13.G.4)

3

⚠ WARNING: DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(B)(3-4) AND 690.59)

4

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
CONDUIT, COMBINER BOX
(PER CODE: NEC 690.31(2)

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

5

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT 21.7 AMPS
NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL LOCATION:
POINT OF INTERCONNECTION,
(PER CODE: NEC 690 54)

6

WARNING
INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(B)(3)(2))
[Not required if panelboard is rated not less than sum of ampere ratings of all overcurrent devices supplying it]

7

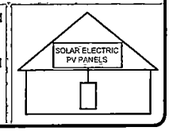
CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC690.15, 690.13(B))
INVERTER

8

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



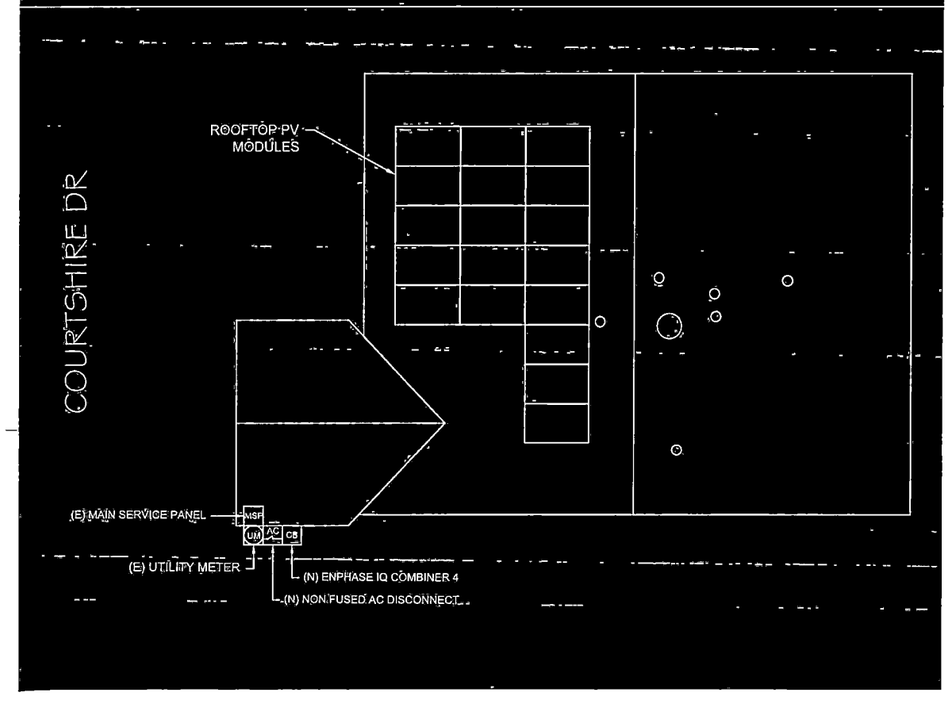
LABEL PER NEC 690.56(C)- PROVIDE AT AC DISCONNECT FOR RAPID SHUTDOWN COMPLIANT SYSTEM

9

CAUTION: SOLAR CIRCUIT

LABEL LOCATION:
MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUCTION BOXES. (PER CODE: IFC 605.11.1.4)

PV ELECTRICAL EQUIPMENT LAYOUT



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LICENSE NO#: 13VH10935800

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CARMELO SALPIETRO RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

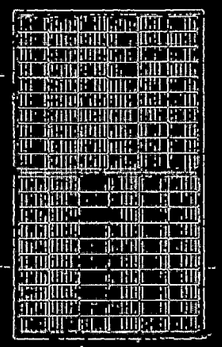
SHEET NAME

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

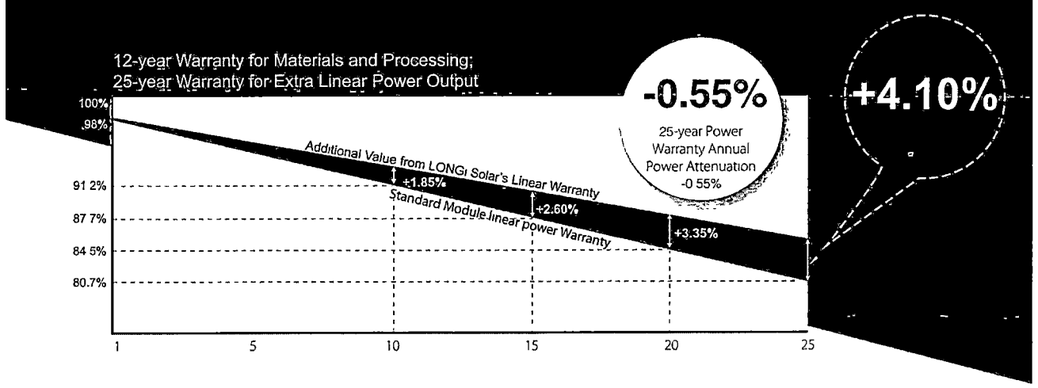
LR4-60HPB
345~365M

Hi-MO 4m (Black)



High Efficiency
Low LID Mono PERC with
Half-cut Technology

12-year Warranty for Materials and Processing;
25-year Warranty for Extra Linear Power Output



Complete System and Product Certifications

IEC 61215, IEC61730, UL1703

ISO 9001 2008 ISO Quality Management System

ISO 14001 2004 ISO Environment Management System

TS62941 Guideline for module design qualification and type approval

OHSAS 18001. 2007 Occupational Health and Safety

* Specifications subject to technical changes and tests LONGi Solar reserves the right of interpretation

Positive power tolerance (0 ~ +5W) guaranteed

High module conversion efficiency (up to 19.5%)

Slower power degradation enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Reduced resistive loss with lower operating current

Higher energy yield with lower operating temperature

Reduced hot spot risk with optimized electrical design and lower operating current

LONGi

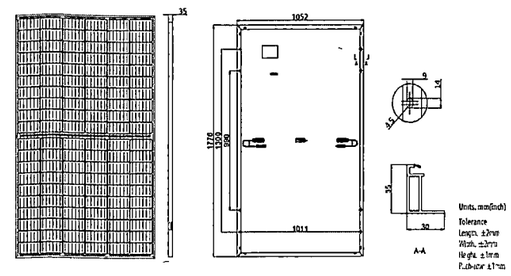
Room 801, Tower 3, Lujiazui Financial Plaza, No 826 Century Avenue, Pudong Shanghai, 200120, China
Tel. +86-21-80162606 E-mail module@longi-silicon.com Facebook www.facebook.com/LONGi Solar

Note. Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi Solar have the sole right to make such modification at anytime without further notice, Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

20190917

LR4-60HPB **345~365M**

Design (mm)



Mechanical Parameters

Cell Orientation: 120 (6×20)
Junction Box. IP68, three diodes
Output Cable. 4mm², 1200mm in length, length can be customized
Glass. Single glass
3.2mm coated tempered glass
Frame: Anodized aluminum alloy frame
Weight: 20kg
Dimension: 1776×1052×35mm
Packaging: 30pcs per pallet
180pcs per 20'GP
720pcs per 40'HC

Operating Parameters

Operational Temperature. -40°C ~ +85°C
Power Output Tolerance: 0~+5W
Voc and Isc Tolerance: ±3%
Maximum System Voltage: DC1000V (IEC/UL)
Maximum Series Fuse Rating: 20A
Nominal Operating Cell Temperature: 45±2°C
Safety Class. Class II
Fire Rating: UL type 1 or type 2

Electrical Characteristics

Test uncertainty for Pmax: ±3%

Model Number	LR4-60HPB-345M		LR4-60HPB-350M		LR4-60HPB-355M		LR4-60HPB-360M		LR4-60HPB-365M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	345	255.6	350	259.3	355	263.0	360	266.7	365	270.4
Open Circuit Voltage (Voc/V)	40.3	37.6	40.5	37.8	40.7	38.0	40.9	38.2	41.1	38.4
Short Circuit Current (Isc/A)	10.93	8.81	11.02	8.89	11.10	8.95	11.20	9.03	11.28	9.09
Voltage at Maximum Power (Vmp/V)	33.1	30.6	33.3	30.8	33.5	30.9	33.7	31.1	33.9	31.3
Current at Maximum Power (Imp/A)	10.43	8.36	10.52	8.44	10.60	8.50	10.69	8.57	10.77	8.64
Module Efficiency(%)	18.5		18.7		19.0		19.3		19.5	

STC (Standard Testing Conditions) Irradiance 1000W/m², Cell Temperature 25°C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/S

Temperature Ratings (STC)

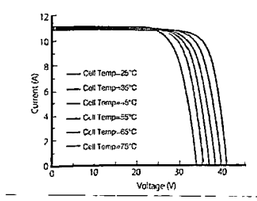
Temperature Coefficient of Isc	+0.057%/°C
Temperature Coefficient of Voc	-0.286%/°C
Temperature Coefficient of Pmax	-0.370%/°C

Mechanical Loading

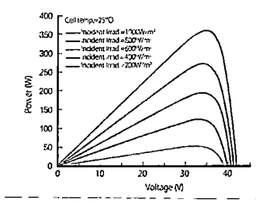
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

I-V Curve

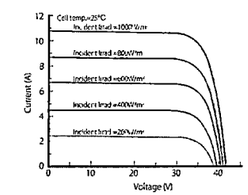
Current-Voltage Curve (LR4-60HPB-355M)



Power-Voltage Curve (LR4-60HPB-355M)



Current-Voltage Curve (LR4-60HPB-355M)



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Tel. +86-21-80162606 E-mail. module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

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GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

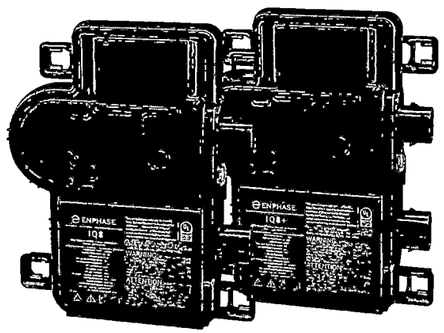
SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

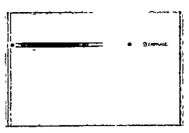
ENPHASE.

DATA SHEET



IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.

Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

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IQ8SP-DS-0002-01-EN-US-2021-10-19

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	W	235 – 350	235 – 440
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell and 72-cell/144 half-cell
MPPT voltage range	V	27 – 37	29 – 45
Operating range	V	25 – 48	25 – 58
Min/max start voltage	V	30 / 48	30 / 58
Max input DC voltage	V	50	60
Max DC current[2] [module Isc]	A	15	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		**IQ8-60-2-US**	**IQ8PLUS-72-2-US**
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range[3]	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
Max units per 20 A (L-L) branch circuit[4]		16	13
Total harmonic distortion		<5%	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.5	97.6
CEC weighted efficiency	%	97	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		MC4	
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Acoustic noise at 1 m		<60 dBA	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility (2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-DS-0002-01-EN-US-2021-10-19

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(908) 380-4170
LICENSE NO#: 13VH10935800

REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO
RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
EQUIPMENT SPECIFICATION

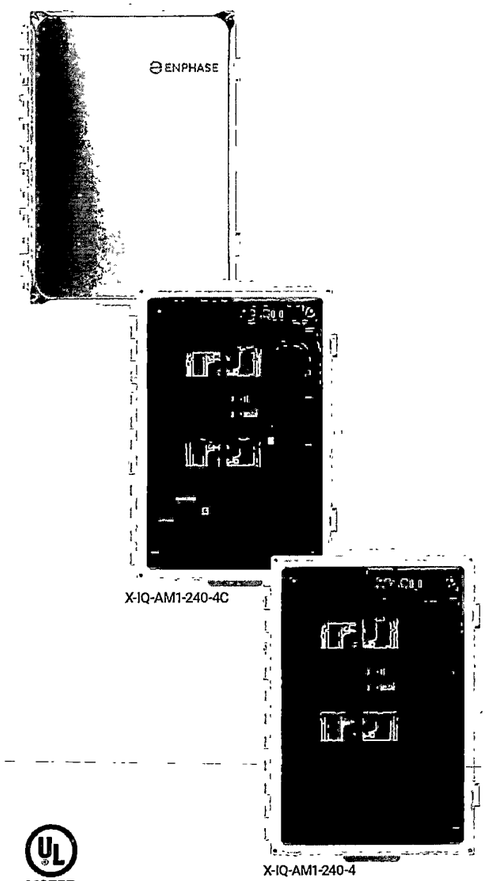
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

Data Sheet
Enphase Networking

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C



X-IQ-AM1-240-4C

X-IQ-AM1-240-4

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

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

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed

LISTED

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ENPHASE.

Enphase IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12 20 +/- 0 5%) and consumption monitoring (+/- 2 5%) Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12 20 +/- 0 5%) and consumption monitoring (+/- 2 5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem 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) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat
ACCESSORIES AND REPLACEMENT PARTS	(not included, order separately)
Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37 5 x 49 5 x 16.8 cm (14.75" x 19 5" x 6 63") Height is 21 06" (53 5 cm) with mounting brackets.
Weight	7.5 kg (16 5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs 14 to 4 AWG copper conductors • 60 A breaker branch input. 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802 3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ Combiner	UL 1741, CAN/CSA C22 2 No 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12 20 accuracy class 0 5 (PV production) Consumption metering accuracy class 2 5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22 2 No 61010-1

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

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LICENSE NO#: 13VH10935800

REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

PROJECT NAME & ADDRESS

CARMELO SALPIETRO RESIDENCE
GRID TIED SYSTEM(6390W DC)
108 COURTSHIRE DR
BRICK, NJ 08723

DATE: 11/01/2022

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

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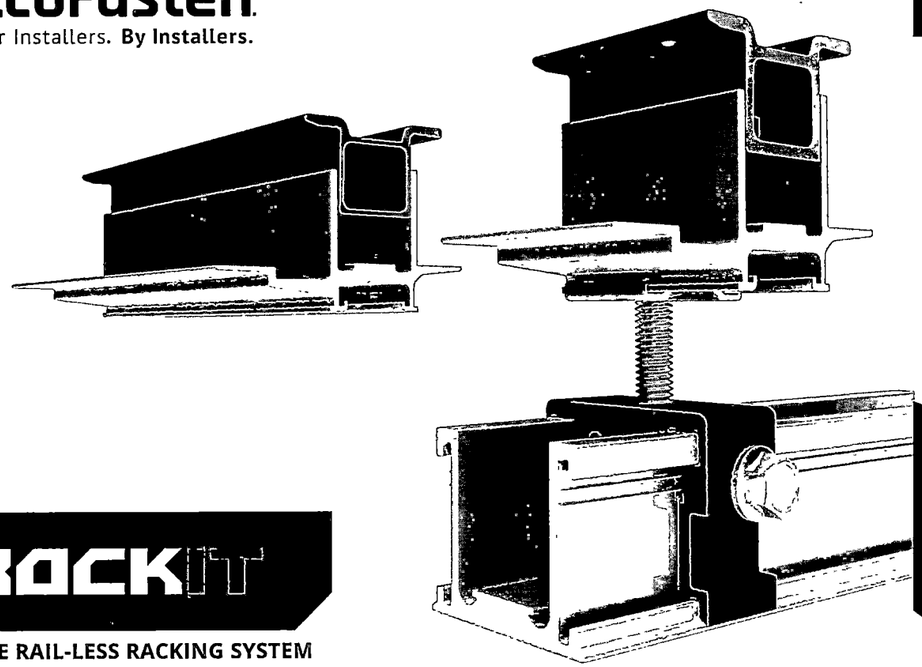
For Installers. By Installers.



ROCKIT

COMPLETE RAIL-LESS RACKING SYSTEM

The RockIt system is the industry's premier rail-less PV racking system for composition shingle, tile, and metal roofs. Designed in conjunction with the needs of installers, RockIt quickly & easily installs with a single tool. Featuring an easy-to-position alignment slide and a top-down leveling system, RockIt is logistically intelligent with no need to ship or transport long rails. Components are available in a black finish that complements both commercial and residential applications. Conforms to UL 2703.

FEATURES & BENEFITS

- Patented watertight technology
- Fully integrated bonding
- Top-down leveling system
- North-South adjustability
- Single tool install

STREAMLINED INSTALLATION WITH MINIMAL ROOF PENETRATIONS

ROOF TYPE — Composition Shingle, Tile, Metal

RACKING — Rail-Less

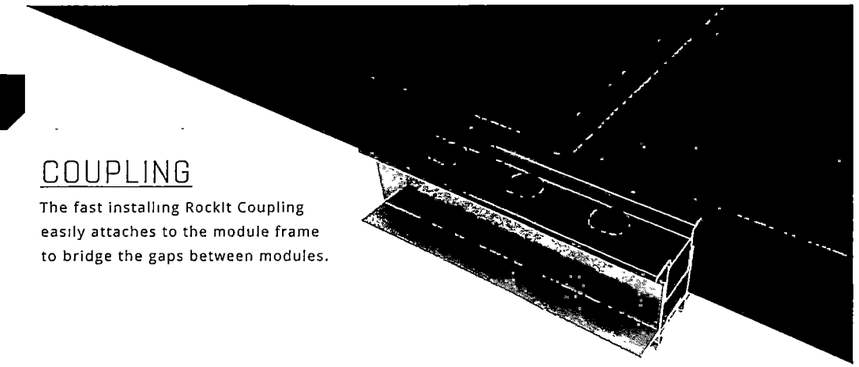
ATTACHMENT — Structural-Attach Direct-Attach

WATER TIGHT TECHNOLOGY

25 YEAR WARRANTY

ECOFASTENSOLAR.COM

ROCKIT

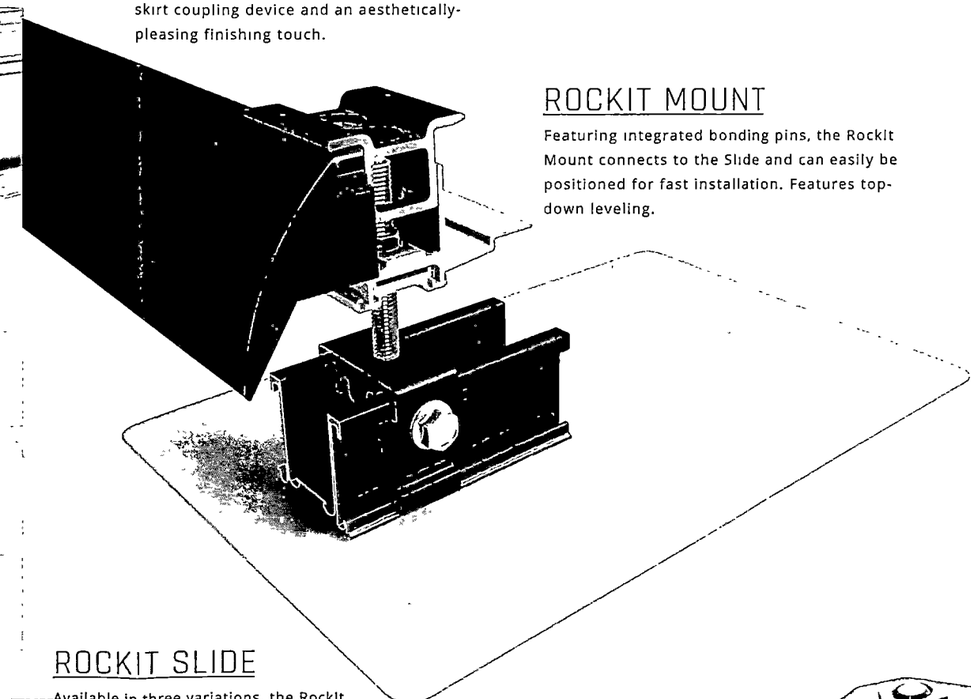


COUPLING

The fast installing RockIt Coupling easily attaches to the module frame to bridge the gaps between modules.

SKIRT

The sleek black Skirt installs first and acts as an alignment guide for the entire array. The Skirt End Cap does double duty as a skirt coupling device and an aesthetically-pleasing finishing touch.

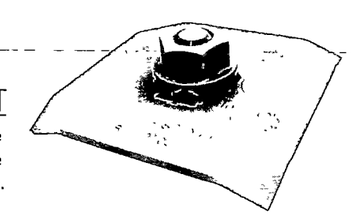


ROCKIT MOUNT

Featuring integrated bonding pins, the RockIt Mount connects to the Slide and can easily be positioned for fast installation. Features top-down leveling.

ROCKIT SLIDE

Available in three variations, the RockIt Slide allows installation on composition shingle, tile, and metal roofs.



FRAME MLPE MOUNT

Attaches and fully bonds MLPE's (Module Level Power Electronics) to the module frame with a single bolt clip.

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ANSI B
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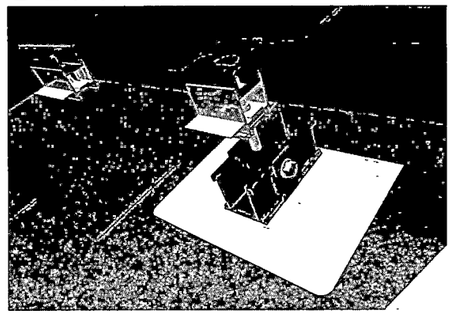
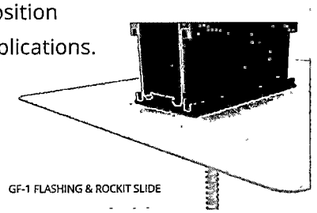
SHEET NUMBER
PV-9

COMPOSITION SHINGLE



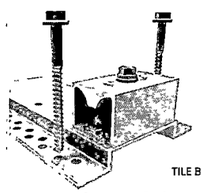
Combine the GF-1 Flashingwith the RockIt Slide for composition shingle roof applications.



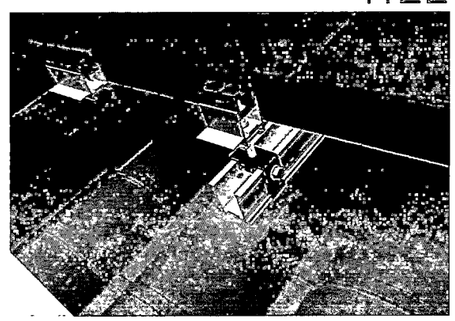
GF-1 FLASHING & ROCKIT SLIDE

TILE

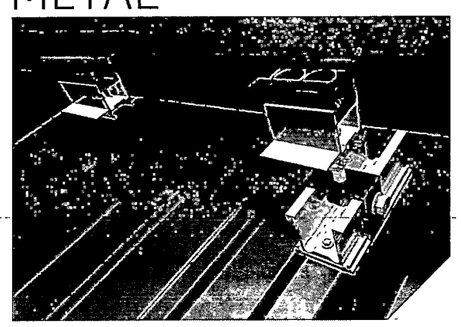
RockIt installs quickly onto Flat, S, and W tile profiles by combining the Tile Base with the Tile Slide (shown in image at right).



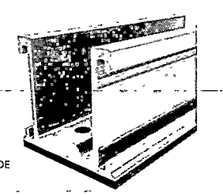
TILE BASE



METAL



The RockIt SteelDeck Slide makes it easy to install the RockIt System on corrugated metal roofs.



ROCKIT STEELDECK SLIDE

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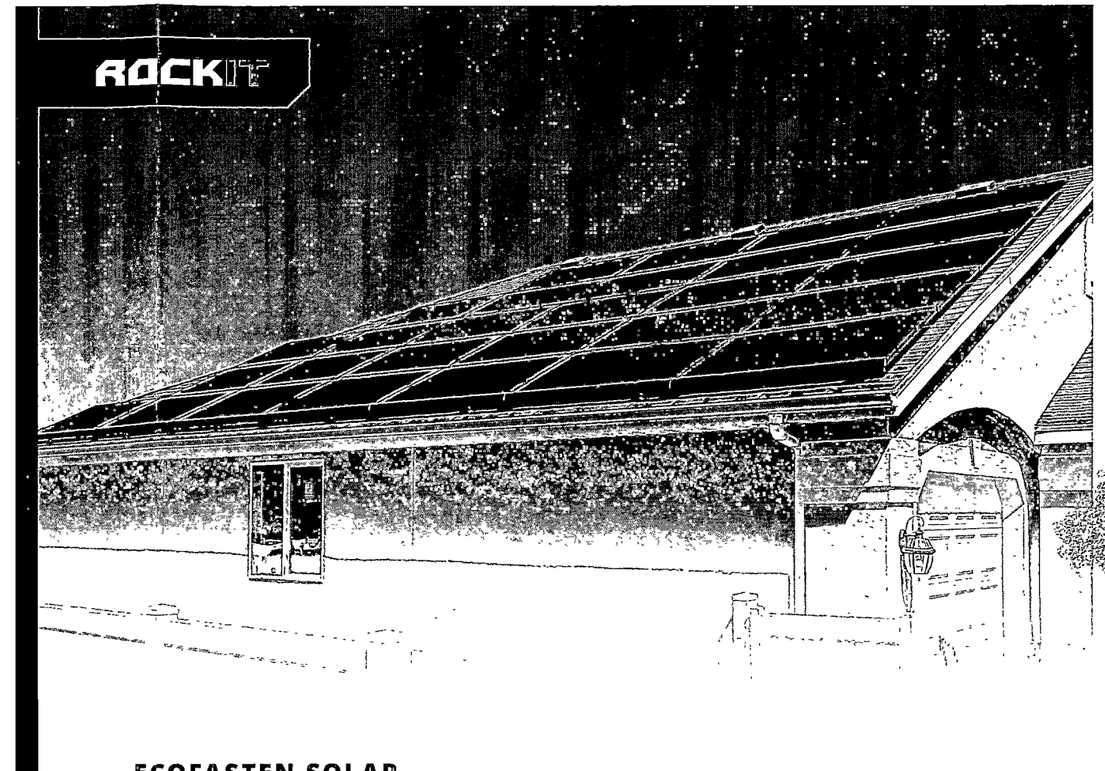
VERSION 1.3



ECOFASTEN SOLAR

EcoFasten has established a reputation for being one of the industry's leading innovators by providing expert solutions for mounting solar PV on any type of roof. Our broad portfolio of solutions stems from the needs of, and direct inputs by solar PV installers. We take pride in providing the right solution for every application. We educate our customers, so they purchase the best, most cost-effective solutions to fit their needs, and we complement that with on-site installation training to ensure 100% satisfaction. We are honest with ourselves, our customers, and our employees, fostering a culture of idea-sharing, innovation, and creativity.

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