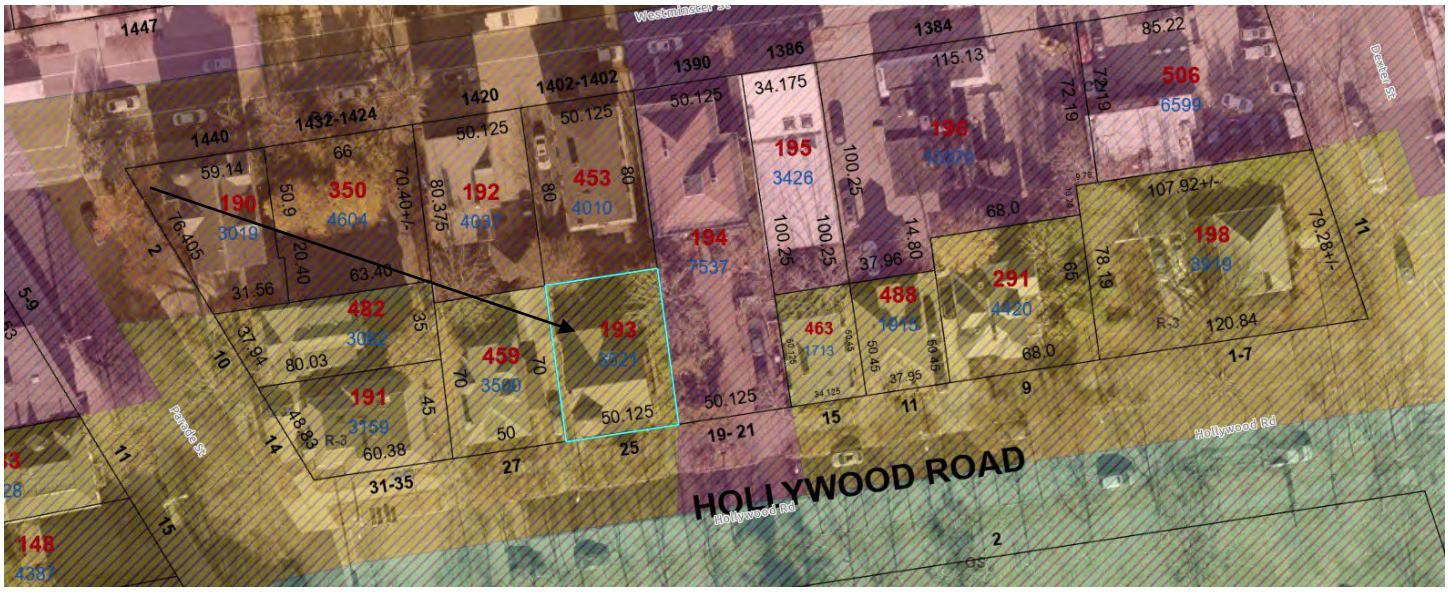
PROJECT REVIEW

1. **CASE 26.062, 25 HOLLYWOOD ROAD, Albert T. Mansfield House 1903-04 (ARMORY)**
   2½-story; gambrel; fieldstone and shingle house; with corner turret, dormers, entrance under porch. Mansfield was an insurance adjuster. This street was known as Waterloo Street when the house was built.
   CONTRIBUTING



Arrow indicates 25 Hollywood Road.

Arrow indicates project location, looking north.

Applicant: Michael Livingstone, Trinity Solar, 20 Patterson Brook Road, Wareham, MA 02576
Owners: Christina Stang & Leeann Bishop, 25 Hollywood Road, Providence, RI 02909

Proposal: The scope of work proposed consists of Minor Alterations and includes:

- The applicant is requesting the installation of 34 solar panels (13 to the front slope; 21 to the rear slope).

Issues: The following issues are relevant to this application:

- In February, the applicant applied for solar panels (26.021); this application initially included panels on the front slope; staff advised the applicant that panels on the front slope would be inappropriate for this location and not conform to the solar guidelines, given the prominence and visibility of the house across from Dexter Parade and the property's architectural value; asked if a viable array could be designed that had no panels on the front slope? The applicant was able to design a viable array (21 panels) with no panels on the front slope and that application was approved administratively, now being in conformance with the Commission's guidelines for solar panels; solar permit application was applied for and issued (SOL-26-7);
- Staff was contacted by the applicant who informed staff that the owner was requesting to have panels on the front. Staff explained that this array would not be in conformance with the guidelines and staff could not approve, nor recommend approval, for the same reasons previously discussed. Staff advised applicant if owner wanted to request this, a new application is to be filed, and the matter would be referred to the Commission for review;
- The modifications as proposed are not in accordance with Minor Alterations: Solar Energy Systems Guidelines, Section 2, in the following manner: Panel layout shall be sympathetic or appropriate to design and scale of building. Rectangular configurations are preferred, with ample setback from edge of roof, dormers, chimneys, etc. (2.A); Panels shall be compatible in color to existing roofing insofar as possible (2.D); Installation of panels shall be as inconspicuous as possible when viewed from public right-of-way (2.E);
- Plans and photos have been submitted.

Recommendations: The staff recommends the PHDC make the following findings of fact:

a) 25 Hollywood Road is a structure of historical and architectural significance that contributes to the significance of the Armory local historic district, having been recognized as a contributing structure to the Broadway/Armory National Register Historic District;
b) The application for Minor Alterations is considered complete; and,
c) The work as proposed is not in accord with PHDC Standard 8 as follows: the proposed alterations are not in conformance with Minor Alterations: Solar Energy Systems Guidelines, Section 2.A, 2.D and 2.E as described, and are architecturally and historically incompatible with the property and district having an inappropriate size, scale and form that will have an adverse effect on the property or district.

Staff recommends a motion be made stating that: The application for 25 Hollywood Road, a structure of historical and architectural significance to the Armory local historic district, recognized as a contributing structure to the Broadway/Armory National Register Historic District is considered complete. The Commission cites Standard 8 in denying the application, as the work as proposed is not in accord with PHDC Standard 8 as follows: the proposed alterations are not in conformance with Minor Alterations: Solar Energy Systems Guidelines, Section 2.A (Panel layout shall be sympathetic or appropriate to design and scale of building. Rectangular configurations are preferred, with ample setback from edge of roof, dormers, chimneys, etc.), 2.D (Panels shall be compatible in color to existing roofing insofar as possible) and 2.E (Installation of panels shall be as inconspicuous as possible when viewed from public right-of-way), and are architecturally and historically incompatible with the property and district having an inappropriate size, scale and form that will have an adverse effect on the property or district.

INSTALLATION OF NEW ROOF MOUNTED PV SOLAR SYSTEM

25 HOLLYWOOD ROAD
PROVIDENCE, RI 02909

VICINITY MAP
SCALE: NTS

GENERAL NOTES

1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THE DRAWING PACKAGE AND INFORMATION RECEIVED FROM TRINITY.
2. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTION CONTAINED IN THE COMPLETE MANUAL.
3. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL DRAWINGS, COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION. THE INSTALLATION CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSE BEARING SYSTEM COMPONENTS.
4. ONCE THE PHOTOVOLTAIC MODULES ARE MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE ON SITE.
5. FOR SAFETY, IT IS RECOMMENDED THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED IN FIRST AID AND CPR.
6. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRICAL CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN.
7. ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE "UL" LISTED. ALL EQUIPMENT WILL BE NEMA 3R OUTDOOR RATED UNLESS INDOORS.

GENERAL NOTES CONTINUED

8. THE DC VOLTAGE FROM THE PANELS IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THE PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT.
9. ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 690 & 705.
10. PRIOR TO THE INSTALLATION OF THIS PHOTOVOLTAIC SYSTEM, THE INSTALLATION CONTRACTOR SHALL ATTEND A PRE-INSTALLTION MEETING FOR THE REVIEW OF THE INSTALLATION PROCEDURES, SCHEDULES, SAFETY AND COORDINATION.
11. PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
12. FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTERS REFER TO THE ISOLATION PROCEDURES IN THE OPERATION MANUAL.
13. THE LOCATION OF PROPOSED ELECTRIC AND TELEPHONE UTILITIES ARE SUBJECT TO FINAL APPROVAL OF THE APPROPRIATE UTILITY COMPANIES AND OWNERS.
14. ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH:
    A) CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS AND REQUIREMENTS

GENERAL NOTES CONTINUED

14. B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
15. THIS SET OF PLANS HAVE BEEN PREPARED FOR THE PURPOSE OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. ONCE APPROVED, THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL SYSTEM COMPONENTS AS DESCRIBED IN THE DRAWING PACKAGE.
16. ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES.

ABBREVIATIONS

AMP	AMPERE
AC	ALTERNATING CURRENT
AL	ALUMINUM
AF	AMP. FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AWG	AMERICAN WIRE GAUGE
C	CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS SPECIFIED)
CB	COMBINER BOX
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL SYSTEM INSTALLER
EMT	ELECTRICAL METALLIC TUBING
FS	FUSIBLE SWITCH
FU	FUSE
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
HZ	FREQUENCY (CYCLES PER SECOND)

ABBREVIATIONS CONTINUED

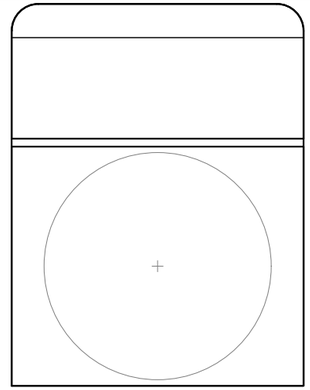
JB	JUNCTION BOX
kCMIL	THOUSAND CIRCULAR MILS
kVA	KILO-VOLT AMPERE
kW	KILO-WATT
kWH	KILO-WATT HOUR
L	LINE
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
MTD	MOUNTED
MTG	MOUNTING
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NO #	NUMBER
NTS	NOT TO SCALE
OCP	OVER CURRENT PROTECTION
P	POLE
PB	PULL BOX
PH ∅	PHASE
PVC	POLY-VINYL CHLORIDE CONDUIT
PWR	POWER
QTY	QUANTITY
RGS	RIGID GALVANIZED STEEL
SN	SOLID NEUTRAL
JSWBD	SWITCHBOARD
TYP	TYPICAL
U.O.I.	UNLESS OTHERWISE INDICATED
WP	WEATHERPROOF
XFMR	TRANSFORMER
+72	MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR GRADE

SHEET INDEX

PV-1	COVER SHEET W/ SITE INFO & NOTES
PV-2	ROOF PLAN W/ MODULE LOCATIONS
PV-3	ELECTRICAL 3 LINE DIAGRAM
AP	APPENDIX

GENERAL NOTES

IF ISSUED DRAWING IS MARKED WITH A REVISION CHARACTER OTHER THAN "A", PLEASE BE ADVISED THAT FINAL EQUIPMENT AND/OR SYSTEM CHARACTERISTICS ARE SUBJECT TO CHANGE DUE TO AVAILABILITY OF EQUIPMENT.



Issued / Revisions

NO.	DESCRIPTION	DATE
R3	ARRAY SCHEDULE	4/20/2026
R2	SYSTEM SIZE INCREASE	4/3/2026
R1	SYSTEM SIZE DECREASE	2/4/2026
P1	ISSUED TO TOWNSHIP FOR PERMIT	1/15/2026

Project Title:

STANG, CHRISTINA-

TRINITY ACCT #: 2025-12-1463666

Project Address:

25 HOLLYWOOD ROAD
PROVIDENCE, RI 02909
41.8160, -71.4324

Drawing Title:

PROPOSED PV SOLAR SYSTEM

Drawing Information

DRAWING DATE:	1/15/2026
DRAWN BY:	BL
REVISED BY:	MR

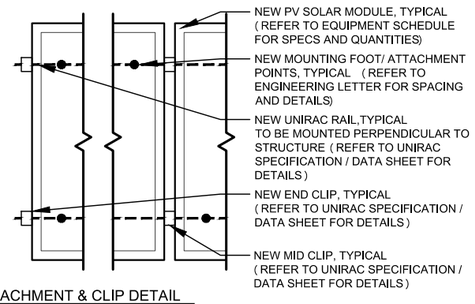
System Information:

DC SYSTEM SIZE:	13.94kW
AC SYSTEM SIZE:	11.4kW
MODULE COUNT:	34
MODULES USED:	HANWHA 410
MODULE SPEC #:	Q.PEAK DUO BLK ML-G10.C+ 410
UTILITY COMPANY:	RHODE ISLAND ENERGY
UTILITY ACCT #:	89290-97029
UTILITY METER #:	25173871
DEAL TYPE:	LIGHTREACH

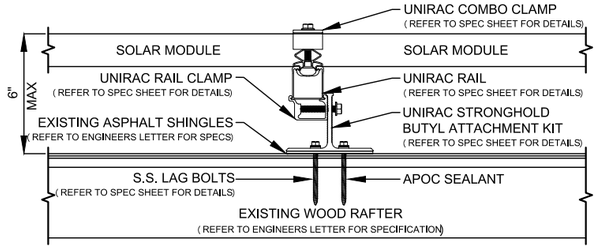
Rev. No.	Sheet
R3	PV - 1

Trinity® SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

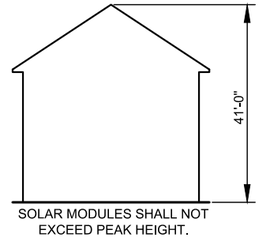
NOTES : *REFER TO MODULE SPECS FOR MODULE DIMENSIONS
*DEPICTED MODULES MAY BE PORTRAIT OR LANDSCAPE



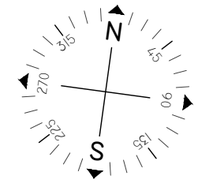
ATTACHMENT & CLIP DETAIL
SCALE: NOT TO SCALE



PV MODULE ATTACHMENT ON ASPHALT SHINGLED ROOF
SCALE: NOT TO SCALE



HEIGHT FROM GROUND LEVEL TO PEAK OF ROOF
SCALE: NOT TO SCALE



ARRAY SCHEDULE

ROOF 1
MODULES: 16
PITCH: 44
ORIENTATION: 352

ROOF 2
MODULES: 13
PITCH: 44
ORIENTATION: 172

ROOF 3
MODULES: 3
PITCH: 44
ORIENTATION: 262

ROOF 4
MODULES: 2
PITCH: 44
ORIENTATION: 82

ROOF 5
MODULES: 0
PITCH: 0°
ORIENTATION: 172°

ROOF 6
MODULES: 0
PITCH: 0°
ORIENTATION: 172°

ROOF 7
MODULES: 0
PITCH: 60°
ORIENTATION: 352°

ROOF 8
MODULES: 0
PITCH: 60°
ORIENTATION: 352°

ROOF 9
MODULES: 0
PITCH: 57°
ORIENTATION: 262°

ROOF 10
MODULES: 0
PITCH: 44°
ORIENTATION: 82°

ROOF 11
MODULES: 0
PITCH: 44°
ORIENTATION: 262°

ROOF 12
MODULES: 0
PITCH: 60°
ORIENTATION: 172°

ROOF 13
MODULES: 0
PITCH: 60°
ORIENTATION: 172°

ROOF 14
MODULES: 0
PITCH: 57°
ORIENTATION: 82°

ROOF 15
MODULES: 0
PITCH: 26°
ORIENTATION: 352°

ROOF 16
MODULES: 0
PITCH: 30°
ORIENTATION: 82°

ROOF 17
MODULES: 0
PITCH: 59°
ORIENTATION: 131°

ROOF 18
MODULES: 0
PITCH: 59°
ORIENTATION: 344°

ROOF 19
MODULES: 0
PITCH: 59°
ORIENTATION: 19°

ROOF 20
MODULES: 0
PITCH: 59°
ORIENTATION: 147°

ROOF 21
MODULES: 0
PITCH: 59°
ORIENTATION: 240°

ROOF 22
MODULES: 0
PITCH: 59°
ORIENTATION: 261°

ROOF 23
MODULES: 0
PITCH: 59°
ORIENTATION: 329°

ROOF 24
MODULES: 0
PITCH: 59°
ORIENTATION: 279°

ROOF 25
MODULES: 0
PITCH: 59°
ORIENTATION: 75°

ROOF 26
MODULES: 0
PITCH: 59°
ORIENTATION: 166°

ROOF 27
MODULES: 0
PITCH: 59°
ORIENTATION: 358°

ROOF 28
MODULES: 0
PITCH: 59°
ORIENTATION: 179°

ROOF 29
MODULES: 0
PITCH: 59°
ORIENTATION: 225°

ROOF 30
MODULES: 0
PITCH: 59°
ORIENTATION: 300°

ROOF 31
MODULES: 0
PITCH: 59°
ORIENTATION: 28°

ROOF 32
MODULES: 0
PITCH: 59°
ORIENTATION: 92°

ROOF 33
MODULES: 0
PITCH: 59°
ORIENTATION: 62°

ROOF 34
MODULES: 0
PITCH: 59°
ORIENTATION: 208°

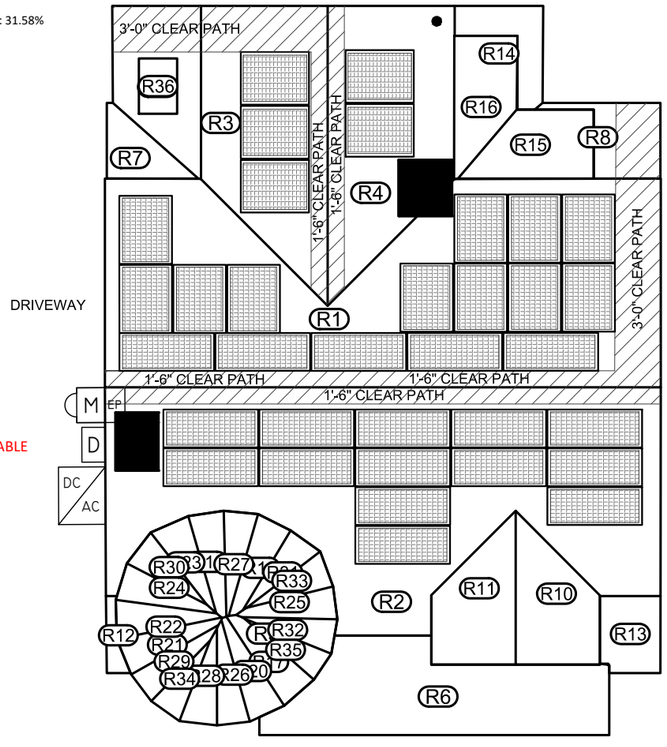
ROOF 35
MODULES: 0
PITCH: 59°
ORIENTATION: 116°

ROOF 36
MODULES: 0
PITCH: 30°
ORIENTATION: 262°

***NOTE: 2021 IRC R324.6.2
PLAN VIEW TOTAL ROOF AREA: 2362 FT²
PHOTOVOLTAIC ARRAY TOTAL AREA: 746 FT²
ARRAY PERCENTAGE OF PLAN VIEW TOTAL ROOF AREA: 31.58%

***NOTE: PV DISCONNECT 24/7 ACCESSIBLE AND LOCKABLE

BACK



FRONT

NOTES:
1.) ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2.) ARRAY BONDING TO COMPLY WITH MANUFACTURER SPECIFICATION.
3.) ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
4.) AN AC DISCONNECT SHALL BE GROUPED WITH INVERTER (S) NEC 690.13 (E) .
5.) ALL OUTDOOR EQUIPMENT SHALL BE RAIN TIGHT WITH MINIMUM NEMA 3R RATING.
6.) ROOFTOP SOLAR INSTALLATION ONLY PV ARRAY SHALL NOT EXTEND BEYOND THE EXISTING ROOF EDGE.

SYMBOL LEGEND

R1	INDICATES ROOF DESIGNATION . REFER TO ARRAY SCHEDULE FOR MORE INFORMATION	UD	INDICATES NEW UNFUSED PV DISCONNECT TO BE INSTALLED OUTSIDE (UTILITY ACCESSIBLE)	SP	INDICATES NEW PV ONLY SUBPANEL TO BE INSTALLED
M	INDICATES EXISTING METER LOCATION		INDICATES NEW PV SOLAR MODULE. RED MODULES INDICATE PANELS THAT USE MICRO INVERTERS. REFER TO EQUIPMENT SCHEDULE FOR SPECS.	DC	INDICATES NEW DC DISCONNECT
EP	INDICATES EXISTING ELECTRICAL PANEL LOCATION: INSIDE	P	INDICATES NEW PRODUCTION METER TO BE INSTALLED OUTSIDE.	SD	INDICATES EXISTING SERVICE DISCONNECT
D	INDICATES NEW FUSED PV DISCONNECT TO BE INSTALLED OUTSIDE (UTILITY ACCESSIBLE)	DC / AC	INDICATES NEW INVERTER TO BE INSTALLED OUTSIDE. REFER TO EQUIPMENT SCHEDULE FOR SPECS	TS	INDICATES EXISTING TRANSFER SWITCH

PLUMBING SCHEDULE

OTHER OBSTRUCTIONS

EQUIPMENT SCHEDULE

QTY	SPEC #
34	HANWHA 410 (Q.PEAK DUO BLK ML-G10.C+ 410)
1	USE11400H-USSKBEZ8-11.4
34	U650 SE OPTIMIZERS
29	UNIRAC 171RLM1-US NXT UMOUNT RAIL - 171" MILL (US)
14	UNIRAC RLSPLCM2-US NXT UMOUNT RAIL SPLICE (US)

Issued / Revisions

NO.	DESCRIPTION	DATE
R3	ARRAY SCHEDULE	4/20/2026
R2	SYSTEM SIZE INCREASE	4/3/2026
R1	SYSTEM SIZE DECREASE	2/4/2026
P1	ISSUED TO TOWNSHIP FOR PERMIT	1/15/2026

Project Title:
STANG, CHRISTINA-
TRINITY ACCT #: 2025-12-1463666

Project Address:
25 HOLLYWOOD ROAD
PROVIDENCE, RI 02909
41.8160, -71.4324

Drawing Title:
PROPOSED PV SOLAR SYSTEM

Drawing Information

DRAWING DATE:	1/15/2026
DRAWN BY:	BL
REVISED BY:	MR

System Information:

DC SYSTEM SIZE:	13.94kW
AC SYSTEM SIZE:	11.4kW
MODULE COUNT:	34
MODULES USED:	HANWHA 410
MODULE SPEC #:	Q.PEAK DUO BLK ML-G10.C+ 410
UTILITY COMPANY:	RHODE ISLAND ENERGY
UTILITY ACCT #:	89290-97029
UTILITY METER #:	25173871
DEAL TYPE:	LIGHTREACH

Rev. No. R3

Sheet PV - 2

Trinity SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

ARRAY CIRCUIT WIRING NOTES
1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND EXECUTING INSTALLATION IN ACCORDANCE WITH

NEC 2023

2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP = **-16°C**

3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP = **33°C**

4.) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES)

5.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH **NEC 690.12(A) THROUGH (D)**

6.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT PER **NEC 690.41 (A)(4)**

7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH:
POSITIVE CONDUCTORS = RED
NEGATIVE CONDUCTORS = BLACK
NEC 210.5(C)(2)

8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN ≤ 20 CURRENT CARYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN ≤ 9 CURRENT CARRYING CONDUCTORS.

9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED

10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS

11.) DISCONNECTS FED BY SUPPLY-SIDE SOURCE CONDUCTORS SHALL BE BONDED AND CONNECTED TO GROUNDING SYSTEM IN ACCORDANCE WITH **NEC 250.24**

12.)OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION **NEC 690.9(A)(3)(2)**

13.) WHERE TWO SOURCES FEED A BUSSBAR, ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY **NEC 705.12(B)(2)**

14.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS

15.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS
REQUIRED CONDUCTOR AMPACITY PER STRING
[**NEC 690.8(B)(1)**]: (15.00*1.25)1 = 18.75A

AWG #10, DERATED AMPACITY
AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96
RACEWAY DERATING = 6 CCC: 0.80
(40*.96)0.80 = 30.72A

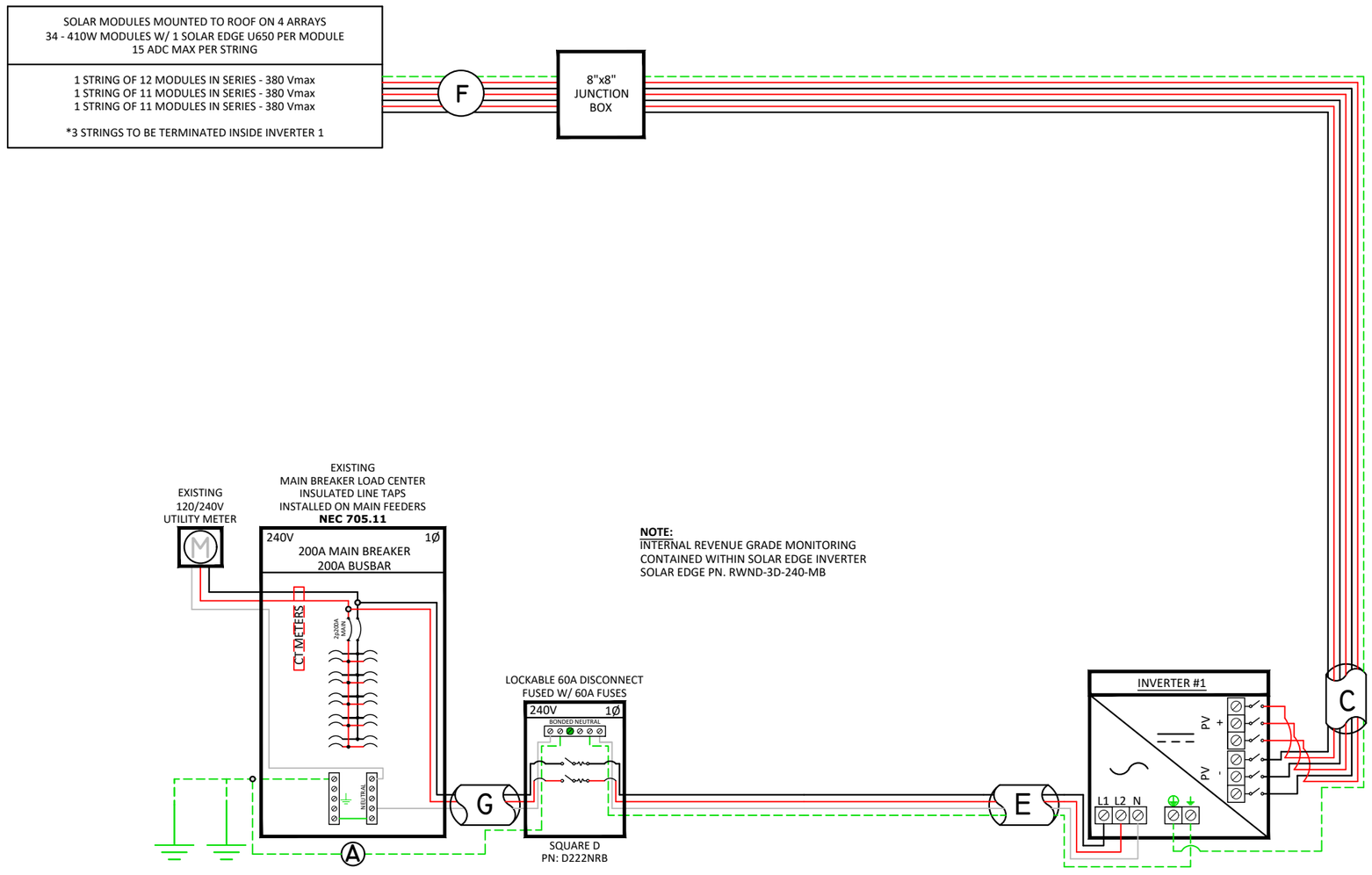
30.72A ≥ 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY
47.80A*1.25 = 59.75A

AWG #6, DERATED AMPACITY
AMBIENT TEMP: 30°C, TEMP DERATING: 1.0
RACEWAY DERATING ≤ 3 CCC: N/A
75A*1.0 = 75A

75A ≥ 59.75A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION
TOTAL INVERTER CURRENT: 47.80A
47.80A*1.25 = 59.75A
--> 60A OVERCURRENT PROTECTION IS VALID



NOTE:
INTERNAL REVENUE GRADE MONITORING CONTAINED WITHIN SOLAR EDGE INVERTER SOLAR EDGE PN. RWND-3D-240-MB

PV MODULE SPECIFICATIONS	
HANWHA 410 (Q.PEAK DUO BLK ML-G10.C+ 410)	
Imp	10.89
Vmp	37.64
Voc	45.37
Isc	11.2

INVERTER #1 - USE11400H-USSKBEZ8-11.4			
DC		AC	
Imp	36.68	Pout	11400
Vmp	380	Imax	47.8
Voc	480	OCPDmin	59.75
Isc	45	Vnom	240

ALL CONSTRUCTION WORK SHALL COMPLY WITH ESB 750 & ESB 756. INSTALLATIONS SHALL NOT INCLUDE ANY KIND OF TAPS, METER COLLARS OR ADAPTERS INSIDE METER SOCKETS, METER CABINETS OR ANYWHERE THERE ARE UN-METERED CONDUCTORS. ANY METERING AND DISCONNECTS SHALL BE GROUPED, POTENTIALLY LOCATED OUTSIDE AND 24/7 LOCKABLE AND ACCESSIBLE, IN ACCORDANCE WITH ESB 7.1.1. ANY JUNCTION BOX OR TROUGH FOR LINE SIDE TAP WILL NEED TO BE 24/7 LOCKABLE AND ACCESSIBLE. ALL EQUIPMENT & FINAL EQUIPMENT LOCATIONS WILL NEED TO BE APPROVED BY THE DER COMPANY PRIOR TO INSTALLATION.

NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

A	#6 THWN-2 TO GEC
B	3/4'' CONDUIT W/ 2-#6 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
C	3/4'' CONDUIT W/ 6-#10 THWN-2, 1-#10 THWN-2 GROUND
D	3/4'' CONDUIT W/ 6-#10 THWN-2, 1-#10 THWN-2 GROUND
E	3/4'' CONDUIT W/ 2-#6 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
F	#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY
G	3/4'' CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2

Engineer / License Holder:

Issued / Revisions

NO.	DESCRIPTION	DATE
R3	ARRAY SCHEDULE	4/20/2026
R2	SYSTEM SIZE INCREASE	4/3/2026
R1	SYSTEM SIZE DECREASE	2/4/2026
P1	ISSUED TO TOWNSHIP FOR PERMIT	1/15/2026

Project Title:
STANG, CHRISTINA-
TRINITY ACCT #: 2025-12-1463666

Project Address:
25 HOLLYWOOD ROAD
PROVIDENCE, RI 02909
41.8160, -71.4324

Drawing Title:
PROPOSED PV SOLAR SYSTEM

Drawing Information

DRAWING DATE:	1/15/2026
DRAWN BY:	BL
REVISED BY:	MR

System Information:

DC SYSTEM SIZE:	13.94kW
AC SYSTEM SIZE:	11.4kW
MODULE COUNT:	34
MODULES USED:	HANWHA 410
MODULE SPEC #:	Q.PEAK DUO BLK ML-G10.C+ 410
UTILITY COMPANY:	RHODE ISLAND ENERGY
UTILITY ACCT #:	89290-97029
UTILITY METER #:	25173871
DEAL TYPE:	LIGHTREACH

Rev. No. R3

Sheet PV - 3

Trinity SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com


NO
PARKING
ANY
TIME

NJ, Electrical Contractor business permit number 34EB00839200
NJ, HIC reg. # 13VH12957000
For other jurisdictions, please visit: http://www.trinity-solar.com/about-us/locations-and-licenses

HOMEOWNER AUTHORIZATION FORM

I, Christina Stang,
(print name)
am the owner of the property located at address:

25 Hollywood Road Providence RI.
(print address)

I hereby authorize Trinity Solar, LLC ("Trinity Solar") and its employees, agents, and subcontractors, to act as my Agent for the limited purpose of applying for and obtaining local building and other permits from the Authority Having Jurisdiction as required for the installation of a Photovoltaic System, Battery System, roofing or other Trinity Solar offerings located on my property, applying and obtaining permission and approval for interconnection with the electric utility company, and registration with any state and/or local incentive program(s).

This authorization includes the transfer/re-administering, and/or cancellation of any existing permits on file for the purpose of updating/applying with an alternate subcontractor.

Without limitation to the generality of the foregoing I specifically authorize Trinity Solar et al. to populate technical details, fill-in, edit, compile, attach drawings, plans, data sheets and other documentation to, date, submit, re-submit, revise, amend, and modify application, submission and certification documents ("Approvals Paperwork"), including those for which signature pages are included herewith for my signature, in furtherance of the related transaction, and I am providing any signatures to Approvals Paperwork for purposes of the foregoing. Trinity Solar will provide copies of Approvals Paperwork upon request by the homeowner. Should I cancel the project, for reasons within my control, after Trinity Solar has paid for any permitting fees, I shall reimburse Trinity Solar for all expenses incurred related hereto.

My authorizations memorialized herein shall remain in full force and effect until revoked. I acknowledge that these authorizations are not required to proceed with the transaction and are not a condition of the related agreement included herewith but are being given for my own convenience and benefit in order to expedite the approvals processes.

Electric Utility Company: Rhode Island Energy (formerly National Grid)
Electric Utility Account No.: 89290-97029
Electric Meter No.: 25173871
Name on Electric Utility Account: Christina Stang

Customer Signature

Christina Stang
Print Name

1/3/26
Date

Corporate Headquarters
2211 Allenwood Road
Wall, New Jersey 07719
www.Trinity-Solar.com

1-877-SUN-SAVES
Ph: 732-780-3779
Fax: 732-780-6671

FOR INFORMATION ABOUT CONTRACTORS AND THE CONTRACTORS' REGISTRATION ACT, CONTACT THE NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY, DIVISION OF CONSUMERS AFFAIRS AT 1-888-656-6225.

MATERIAL LIST

(FOR INTERNAL USE ONLY)

Trinity SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

JOB NAME: STANG, CHRISTINA-
ADDRESS: 25 Hollywood Road
Providence, RI 02909
41.8160, -71.4324

96.792 ESTIMATED PERSONNEL HOURS	4.03 DAYS	3.02 DAYS	2.02 DAYS
• 34 HANWHA 410's (13.94KW)	(CREW OF 3)	(CREW OF 4)	(CREW OF 6)
• 4 SEPARATE ARRAYS			
• 41' PEAK TO GROUND			
• 16 PORTRAIT & 18 LANDSCAPED			
• 1 INVERTER(S) INSTALLED OUTSIDE			
• NO TRENCH			

		ESTIMATED	SENT TO JOB	USED
□	HANWHA 410 (Q.PEAK DUO BLK ML-G10.C+ 410)	34	___	___
□	U650 SE OPTIMIZERS	34	___	___
□	USE11400H-USSKBEZ8-11.4	1	___	___
□	60A OUTDOOR FUSED DISCONNECT W/ (2) 60A FUSES	1	___	___
□	SOLADECK BOX(ES) & HAYCO CONNECTOR(S)	4	___	___
□	PV LEAD WIRE	150'	___	___
□	INSULATED BUG BITES (TAPS)	2	___	___
□	SOLAREDGE CONSUMPTION CTs (SECT-SPL-225-T-20)	2	___	___
□	UNIRAC 171RLM1-US NXT UMOUNT RAIL - 171” MILL (US)	29	___	___
□	UNIRAC RLSPLCM2-US NXT UMOUNT RAIL SPLICE (US)	14	___	___
□	UNIRAC CCLAMPD1 NXT UMOUNT COMBO CLAMP - DARK	92	___	___
□	GROUNDING LUG(S)	4	___	___
□	UNIRAC SHBUTYLD2 STRONGHOLD BUTYL ATT KIT #14S DARK	110	___	___
□	UNIRAC MLPEMNT MLPE MOUNT	34	___	___
□	UNIRAC ENDCAPD1 NXT UMOUNT RL & CLMP CAP KIT	48	___	___

Trinity SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

INSTALLATION OF NEW
ROOF MOUNTED PV SOLAR SYSTEM

STANG, CHRISTINA-
25 HOLLYWOOD ROAD
PROVIDENCE, RI 02909
41.8160, -71.4324

APPENDIX

CONTENTS

LABELS, STICKERS, AND PLACARDS
EQUIPMENT DATA SHEETS

NOTES:
1.) COMPLIES WITH NEC 2023
2.) REFER TO SHEET PV-3 FOR SITE SPECIFIC VALUES REQUIRED BY NEC 690
3.) STICKERS, LABELS, AND PLACKARDS SHALL BE OF SUFFICIENT DURRABILITY TO WITHSTAND THE ENVIROMENT INVOLVED

Trinity SOLAR
2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

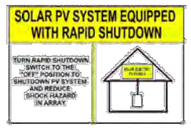
To be located on all DC junction boxes and every 10' on DC conduit

NEC 690.31(D)(2)

DC Junction Box

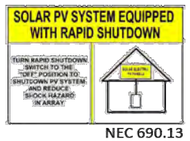
Soladeck

DC Conduit



NEC 690.13

Service Disconnect



NEC 690.13

If System is Backfed Breaker

NEC 705.12(B)(2)

NEC 690.4(B)

Main Service Panel

Utility

Utility Meter Socket

NEC 690.13(B)

Solar Meter Socket

690.56(D)(2)

NEC 690.13(B)

NEC 690.4(B)

Photovoltaic AC Disconnect

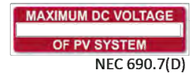
NEC 690.4(B)

Load Center (To Combine Inverters)

690.56(D)(2)

NEC 690.13(B)

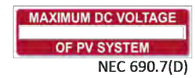
NEC 690.4(B)



NEC 690.7(D)

Inverter(s)

NEC 690.4(B)



NEC 690.7(D)

DC Disconnect

NEC 690.13(B)

Enphase Envoy Box

Q.PEAK DUO BLK ML-G10+ SERIES

395 - 415 Wp | 132 Cells
21.1 % Maximum Module Efficiency
Domestic Content Option Available

MODEL *Q.PEAK DUO BLK ML-G10+
Q.PEAK DUO BLK ML-G10.C+

Includes Domestic Content

This product contains U.S. manufactured components which can contribute to qualifying for the 10% domestic content bonus to applicable tax credits under the Inflation Reduction Act of 2022.[1]

Breaking the 21% efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.1%.

A reliable investment

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

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[3] and Hot-Spot Protect.

Extreme weather rating

High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

Far beyond the standard

Qcells' comprehensive quality program ensures high long-term yields and the reliability of your solar system.

[1] This statement should not be relied on as tax advice and is subject to change based on changes made to the Inflation Reduction Act and its implementing rules and regulations. Please consult a qualified tax professional for specific guidance.
[2] See data sheet on rear for further information.
[3] APT test conditions according to IEC/TS 62804-1:2015, method A (−1500 V, 96 h)

The ideal solution for:

Rooftop arrays on residential buildings

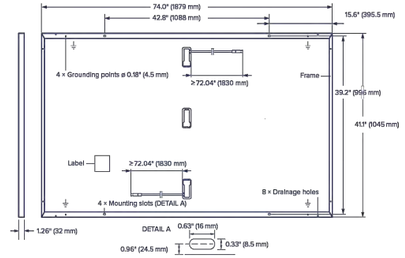
***DCA Module Option:**

DCA 17 module has material code 'MD06G100A-017' printed on the module power label.

Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥72.04 in (1830 mm), (−) ≥72.04 in (1830 mm)
Connector	Stäubli MC4; IP68

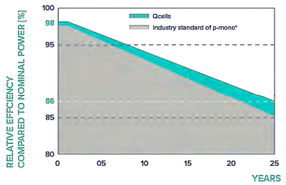


Electrical Characteristics

POWER CLASS				395	400	405	410	415
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W/−0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	395	400	405	410	415
Minimum	Short Circuit Current[1]	I_{SC}	[A]	11.10	11.14	11.17	11.20	11.23
Minimum	Open Circuit Voltage[1]	V_{OC}	[V]	45.27	45.30	45.34	45.37	45.41
Minimum	Current at MPP	I_{MPP}	[A]	10.71	10.77	10.83	10.89	10.95
Minimum	Voltage at MPP	V_{MPP}	[V]	36.88	37.13	37.39	37.64	37.89
Minimum	Efficiency[1]	η	[%]	≥20.1	≥20.4	≥20.6	≥20.9	≥21.1
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	296.3	300.1	303.8	307.6	311.3
Minimum	Short Circuit Current	I_{SC}	[A]	8.95	8.97	9.00	9.03	9.05
Minimum	Open Circuit Voltage	V_{OC}	[V]	42.69	42.72	42.76	42.79	42.83
Minimum	Current at MPP	I_{MPP}	[A]	8.46	8.51	8.57	8.62	8.68
Minimum	Voltage at MPP	V_{MPP}	[V]	35.03	35.25	35.46	35.68	35.89

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

Qcells PERFORMANCE WARRANTY

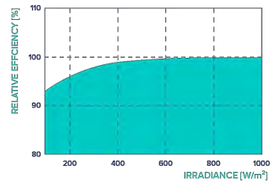


At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organization of your respective country.

*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



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

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3 °C)

Properties for System Design

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

[3] See Installation Manual

Qualifications and Certificates

UL61730-1 & UL61730-2, CE-compliant, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells),

www.tuv.com ID 1111220277

*Contact your Qcells Sales Representative for details regarding the module's eligibility to be Buy American Act (BAA) compliant.

Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS America Inc. 300 Spectrum Center Drive, Suite 500, Irvine, CA 92618, USA | TEL +1 (949) 748 5996 | EMAIL na.support@qcells.com | WEB www.qcells.com

SolarEdge Home Hub Inverter

USA Domestic Content Eligible
Single Phase, for North America

SE3800H-US / SE5700H-US / SE7600H-US / SE9600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	USE11400H-USSKBEZ8						
Model Number[1]	SE3800H-US	SE5700H-US	SE7600H-US	SE9600H-US	SE10000H-US	SE11400H-US	
OUTPUT – AC ON GRID							
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5760 @ 240V 5000 @ 208V	7600 @ 240V 6600 @208V	9600 @ 240V 8300 @ 208V	10,000 @ 240V 8700 @ 208V	11,400 @ 240V 10,000 @ 208V	W
AC Output Voltage (Nominal)	208 / 240						Vac
AC Output Voltage (Range)	183 – 264						Vac
AC Frequency Range (min - nom - max)	59.3 – 60 – 60.5[2]						Hz
Maximum Continuous Output Current	16	24	32	40	42	47.8	A
Maximum Fault Current / Duration	74 / 50						Aac / µs
GFDI Threshold	1						A
Total Harmonic Distortion (THD)	< 3						%
Power Factor	1, adjustable -0.85 to 0.85						
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
Charge Battery from AC (if allowed)	Yes						
Typical Nighttime Power Consumption	< 2.5						W
OUTPUT – AC STANDALONE (BACKUP)[3]							
Rated AC Power in Standalone Operation[4]	12,5000[5][6]						W
Maximum Continuous Output Current in Standalone Operation	52						A
Locked Rotor Amperage (LRA)[7]	Up to 106						A
AC L-L Output Voltage Range in Standalone Operation	211 – 264						Vac
AC L-N Output Voltage Range in Standalone Operation	105 – 132						Vac
AC Frequency Range in Standalone Operation (min - nom - max)	55 – 60 – 65						Hz
GFDI	1						A
THD	< 5						%
INPUT – DC (PV AND BATTERY)							
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380						Vdc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600kΩ Sensitivity						
Maximum Input Short Circuit Current	45						Adc
Maximum Inverter Efficiency	99.2						%
CEC Weighted Efficiency	98.5		99			99 @ 240V 98.5 @ 208V	%
2-Pole Disconnection	Yes						
DC CONNECTION – PV							
Maximum Input Power	7600 @ 240V 6600 @ 208V	11,520 @ 240V 10,000 @ 208V	15,200 @ 240V 13,200 @ 208V	19,200 @ 240V 16,600 @ 208V	20,000 @ 240V 17,400 @ 208V	22,800 @ 240V 20,000 @ 208V	W
Maximum Input Current	20 @ 240V 17 @ 208V	30 @ 240V 26 @ 208V	40 @ 240V 35 @ 208V	51 @ 240V 44 @ 208V	53 @ 240V 46 @ 208V	60 @ 240V 53 @ 208V	Adc
Number of Ports	3						
Maximum Current per Port	40						Adc

(1) These specifications apply to inverters with part number USE11400H-USSKBEZ8 and connection unit model number DCD-1PH-US-PxH-F-x.
(2) For other regional settings please refer to the SolarEdge Inverters, Power Control Options application note.
(3) Not designed for non-grid connected applications and requires AC for commissioning. Standalone (backup) functionality is only supported for the 240V grid.
(4) For models SE7600H-US and below, the Rated AC Power in Standalone Operation is configurable between 7,600W with a Maximum Continuous Output Current of 32A or 12,500W with a Maximum Continuous Output Current of 52A, from firmware version 4.23.xx.
(5) Operational only at ambient temperatures up to 86°F / 30°C. Above 86°F / 30°C, the Maximum Rated AC Power in Standalone Operation is 11,400W.
(6) Available only for single inverter installations. In multi-inverter installations, the Maximum Rated AC Power in Standalone Operation is 11,400W.
(7) For more information about LRA (Locked Rotor Amperage) values, see the SolarEdge Home Hub Inverter LRA application note.

SolarEdge Home Hub Inverter

USA Domestic Content Eligible
Single Phase, for North America

SE3800H-US / SE5700H-US / SE7600H-US / SE9600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	USE11400H-USSKBEZ8						
Model Number[1]	SE3800H-US	SE5700H-US	SE7600H-US	SE9600H-US	SE10000H-US	SE11400H-US	
DC CONNECTION – BATTERY							
Supported Battery Types	SolarEdge Home Battery 400V						
Number of Batteries per Inverter	Up to 3						
Maximum Continuous Power (Charge and Discharge)[8]	12,500						W
Number of Ports	2						
Maximum Current per Port	40						Adc
2-pole Disconnection	Up to the inverter's rated standalone power						
SMART ENERGY CAPABILITIES							
Consumption Metering	Built-in[9]						
Standalone & Battery Storage	With Backup Interface (purchased separately) for service up to 200A; up to 3 inverters						
EV Charging	Direct connection to the SolarEdge Home EV Charger[10]						
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, Cellular[11] (optional), Wi-Fi[12], SolarEdge Home Network[13] (optional)						
Revenue Grade Metering, ANSI C12.20	Built-in[9]						
Integrated AC, DC, and Communication Connection Unit	Yes						
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi Access Point for local connection						
DC Voltage Rapid Shutdown (PV and Battery)	Yes, NEC 690.12						
STANDARD COMPLIANCE							
Safety	UL 1741, UL 1741SA, UL 1741SB, UL 1699B, CSA 22.2#107.1, C22,2#330, C22.3#9, ANSI/CAN/UL 9540						
Grid Connection Standards	IEEE1547-2018 and IEEE-1547.1 Rule 21, Rule 14H						
Emissions	FCC Part 15 Class B						
Power Control System (PCS)	UL 1741 PCS[14]						
INSTALLATION SPECIFICATIONS							
AC Terminals	L1, L2, N terminal blocks, PE busbar for inverter connection L1, L2 terminal blocks, PE busbar for EV Charger AC connection						
DC Terminals	3 x terminal block pairs for PV input, 2 x terminal block pair for battery input						
AC Output and EV AC Output Conduit Size / AWG Range	1" maximum / 14 – 4 AWG						
DC Input (PV and Battery) Conduit Size / AWG Range	1" maximum / 14 – 6 AWG						
Dimensions with Connection Unit (H x W x D)	21.06 x 14.6 x 8.2 / 535 x 370 x 208						in / mm
Weight with Connection Unit	44.9 / 20.3						lb / kg
Noise	< 50						dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60[15]						°F / °C
Protection Rating	NEMA 4X						

(8) Discharge power is limited up to the inverter's rated AC power for on-grid applications, and up to 12.5 kW for standalone applications, as well as up to the installed batteries' rating.
(9) For consumption metering current transformers should be ordered separately: SECT-SPL-225A-T-20 or SEACT1250-400NA-20. Revenue grade metering is only for production metering.
(10) For more information about the SolarEdge Home EV Charger, refer to the SolarEdge Home EV Charger datasheet.
(11) Purchased separately. Information concerning the data plan terms & conditions is available in SolarEdge Communication Plan Terms and Conditions.
(12) External Wi-Fi antenna for wider range provided with the inverter's package. Refer to the Antenna for Wi-Fi and ZigBee Wireless Communications datasheet.
(13) SolarEdge Home Network Plugin ENET-HBNP-01 purchased separately. For more information, refer to the SolarEdge Home Network Plugin datasheet.
(14) Only part numbers USExxxxxH-USMNxx7x/USE11400H-USSKBEZ8 support the PCS meter.
(15) Full power up to at least 122°F / 50°C. For power derating information refer to the Temperature Derating for North America technical note.

© SolarEdge Technologies, Ltd. All rights reserved. SOLAREDGE, the SolarEdge logo, OPTIMIZED BY SOLAREDGE are trademarks or registered trademarks of SolarEdge Technologies, Inc.
All other trademarks mentioned herein are trademarks of their respective owners. Date: August 10, 2025 DS-000272-NAM. Subject to change without notice.

Power Optimizer

USA Domestic Content Eligible*

For North America

U650 / U650B

POWER OPTIMIZER

Made in the USA from imported parts

SolarEdge's USA-manufactured offering for PV power optimization at the module level

- Eligible for domestic content: SolarEdge USA-manufactured Power Optimizers*, when paired with certain SolarEdge inverters, are intended to be eligible for the enhanced federal income tax credit for domestic content
- Specifically designed to work with SolarEdge inverters
- Supports high open circuit voltage (Voc) modules with U650B
- U650B provides improved design flexibility of multifaceted, complex roofs, with extended output voltage that reduces yield factor losses
- Superior efficiency (99.5%)
- Mitigates diverse types of module mismatch loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Faster installations with simplified wire management and easy assembly using a single bolt
- Compatible with a wide range of modules, including high-powered and bifacial PV modules
- Advanced safety:
  - Patented Sense Connect technology, designed to automatically detect and prevent potential electric arcs at the connector level before an arc is created
  - Patented SafeDC™ – module-level voltage shutdown, for installer and firefighter safety
  - Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

* Manufactured by SolarEdge with the intent to be eligible for inclusion under the elective safe harbor in calculating the Domestic Cost Percentage under the "Rooftop (MLPE)" category (under IRS Notice 2024-41). The PCBA, Electrical Parts, and Enclosure are domestically manufactured to meet the requirements of eligibility to be considered for the ITC domestic content bonus adder. SolarEdge does not provide tax and/or legal advice. You should consult with your own legal and/or tax advisor(s) regarding the eligibility of your project for the ITC or PTC, including the 10% domestic content bonus, to determine how the applicable rules apply to your particular project. The forward-looking statements in this datasheet are accurate as of the date herein and are subject to change. For more information, please contact your local SolarEdge sales representative

solaredge.com

solaredge

Power Optimizer

USA Domestic Content Eligible, for North America

U650 / U650B

	U650	U650B	Units
INPUT			
Rated Input DC Power(1)	650		W
Absolute Maximum Input Voltage (Voc)	60	100	Vdc
MPPT Operating Range	8 – 60	12.5 – 100	Vdc
Maximum Input Current (Maximum Isc of Connected PV Module)	15		Adc
Maximum Input Short Circuit Current(2)	18.75		Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)			
Maximum Output Current	15		Adc
Maximum Output Voltage	60	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1 ± 0.1		Vdc
STANDARD COMPLIANCE			
Photovoltaic Rapid Shutdown System	CSA C22.2#330, NEC 2014 – 2023		
EMC	FCC Part 15 Class B, IEC 61000-6-2, IEC 61000-6-3		
Safety	CSA C22.2#107.1, IEC 62109-1 (Class II safety), UL 1741		
Material	UL 94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 155 x 30 / 5.07 x 6.10 x 1.18	129 x 165 x 45 / 5.07 x 6.49 x 1.77	mm / in
Weight	720 / 1.6	790 / 1.74	gr / lb
Input Connector	MC4		
Input Wire Length	0.1 / 0.32		m / ft
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32		m / ft
Operating Temperature Range(3)	-40 to +85		°C
Protection Rating	IP68 / NEMA6P		
Relative Humidity	0 – 100		%

(1) The Rated Power of the module at STC will not exceed the power optimizer's Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
(2) The Maximum Input Short Circuit Current is adjusted for worst case conditions of ambient temperature, irradiance, bifacial gain, and so on, in accordance with NEC and CSA.
(3) Power derating is applied for ambient temperatures above +85°C / +185°F for U650 and for ambient temperatures above +75°C / 167°F for U650B. Refer to the Power Optimizers Temperature Derating technical note for details.

PV System Design Using a SolarEdge Inverter(4)		SolarEdge Home Wave / Hub Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	Units
Minimum String Length (Power Optimizers)	U650	8	10	18	
	U650B	6	8	14	
Maximum String Length (Power Optimizers)		25		50(5)	
Maximum Usable Power Delivered per String		5700	6000	12,750	W
Maximum Allowed Connected Power per String(6)(7)	Inverters with Rated AC Power ≤ 5700W	Per the inverter's maximum input DC power(8)	One string: 7200 Two strings or more: 7800	15,000	W
	Inverters with Rated AC Power of 6000W	5700			
	Inverters with Rated AC Power ≥ 7600W	6800, only when connected to at least two strings			
Parallel Strings of Different Lengths or Orientations		Yes			

(4) It is not allowed to mix U650 or U650B Power Optimizers with P-series Power Optimizers in new installations in the same string.
(5) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(6) For the 208V grid, the maximum is permitted only when the difference in connected power between strings is 1,000W or less.
(7) For the 240V or 277/480V grids, the maximum is permitted only when the difference in connected power between strings 2,000W or less.
(8) Refer to the Single String Design Guidelines application note for more details.

Intertek RoHS

BUCHANAN CONSTRUCTION PRODUCTS

B-TAP®

Listed 486B
Pressure Cable Connectors
File No. E-5238
Suitable for use on the line side of the service equipment.

INSULATION-PIERCING TAP CONNECTORS
CONECTORES DE DERIVACIÓN QUE PERFORAN EL AISLAMIENTO

Installation Instructions:

⚠ Warning

Improperly installed electrical wiring can be dangerous and cause electrical fires. The connector chosen must be sized to the wires being used. Consult local building code before doing any electrical work. For assistance, refer to an instructional book or consult a qualified electrician.

⚠ Warning

Contact with electricity can cause serious injury or death. Use on insulated cable only. [RHH, RHW(-2), THHN, THHW, THW, THWN, USE, XHHW(-2). Consult factory for other insulation types]. If the installation is to be made on an energized run, the tap conductor must be under no load and must not be grounded. Use electrically insulated gloves. De-energize the run cable if there are any questions of these conditions being met.

1. Determine the direction for the tap conductor to exit and discard one end cap. **See figure 1.**
2. Position the main (or feeder) side of the connector around the run cable and tighten the bolt finger tight. **See figure 2.** If required, loosen the bolt slightly to allow the connector to open completely. **DISASSEMBLY NOT RECOMMENDED**. The plastic "Turbo" spacer holds the connector open which eases installation and ensures proper connections.
3. Cut the end of the tap cable squarely. **DO NOT STRIP CABLE INSULATION.**
4. Insert the tap cable into the tap side of the connector until it is seated in the remaining end cap. **See figure 3.**
5. Continue tightening the torque regulating bolt with a standard box or socket wrench until the torque regulating piece breaks away. If the connector has two (2) assembly bolts, alternately tighten until the hexagonal torque devices break away. **See figures 4a & 4b.** Note that the plastic "turbo" spacer on the side will also break. To make the installation even easier and to relieve torque from the cables, a second wrench can be used on the hexagonal piece on the bottom of the connector.

   DO NOT use gripping type pliers, pipe, open ended or adjustable wrenches as these may damage the hexagonal torque regulating device. A torque wrench is not required.

   MAKE SURE ONLY THE TOP HEXAGONAL TORQUE DEVICE OF THE BOLT HEAD IS USED FOR ASSEMBLY. THE SECOND HEX PIECE [CLOSER TO THE BODY OF THE CONNECTOR] IS USED FOR DISASSEMBLY.

Note: The torque regulating bolt ensures the correct torque is applied to the conductors without using a torque wrench. Important information such as run and tap ranges, voltage ratings and material/temperature ratings is marked on the connector.

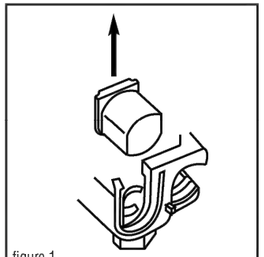


figure 1

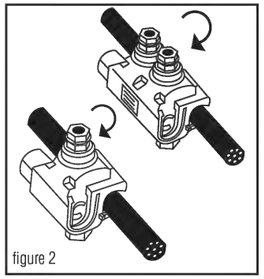


figure 2

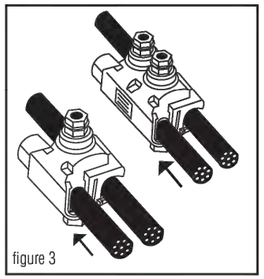
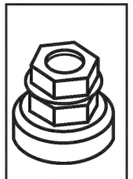
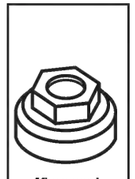


figure 3


Before Torque Applied
figure 4a


After correct Torque Reached, One Hex Piece Breaks-Away
figure 4b

Instalación Instrucciones:

⚠ Advertencia

Los cables eléctricos mal instalados pueden ser peligrosos y provocar incendios. El conector escogido debe ser de un tamaño adecuado para los cables que se utilicen. Consulte los códigos de construcción locales antes de efectuar trabajos eléctricos. Si necesita ayuda, consulte un libro de instrucciones o consulte con un electricista capacitado.

⚠ Advertencia

Use sólo en cable aislado. [RHH, RHW(-2), THHN, THHW, THW, THWN, USE, XHHW(-2). Consulte con la fábrica para obtener información sobre otros tipos de aislamiento]. Si se va a hacer la instalación sobre un cable con corriente el conductor derivado debe estar libre de carga y no debe estar aterado. Use guantes con aislamiento eléctrico. Quite le la corriente al cable del cual se hace la derivación si no se pueden cumplir estas condiciones. El contacto con electricidad puede producir lesiones graves o mortales.

1. Determine la dirección en la que el conductor derivado saldrá y deseche la tapa terminal sobrante. **Vea la ilustración 1.**
2. Coloque el lado principal (o de alimentación) del conector alrededor del cual se hace la derivación y apriete firmemente el dedo del perno. **Vea la ilustración 2**. Si hace falta, afloje el perno ligeramente para permitir que el conector se abra completamente. **NO ES RECOMENDABLE DESARMAR EL CONECTOR.** El espaciador "Turbo" de plástico mantiene al conector abierto, lo cual facilita la instalación y asegura que las conexiones se hagan correctamente.
3. Corte el extremo del cable de derivación perpendicularmente a su eje. **NO PELE EL AISLAMIENTO DEL CABLE.**
4. Inserte el cable de derivación en el lado de derivación del conector hasta que tope contra la tapa terminal que queda. **Vea la ilustración 3.**
5. Continué apretando este perno que regula la torsión con una llave estándar o de cubo hasta que la pieza que regula la torsión se parta y se separe. Si el conector tiene dos (2) pernos de ensamblaje, apriételos alternativamente hasta que el dispositivo de regulación de torció se parta. **Vea la ilustración 4a y 4b**. Observe que el espaciador "turbo" de plástico en el costado también se fracturará. Para hacer esta instalación aún más fácil y para aliviar la torsión de los cables, se puede usar una segunda llave sobre la pieza hexagonal al fondo del conector.

   NO USE alicates de presión, llaves de turbo, llaves comunes o ajustables ya que éstas pueden dañar el dispositivo hexagonal que regula la torsión. No se requiere una llave de torsión.

   ASEGÚRESE QUE SE USE, PARA EL ENSAMBLADO, SÓLO EL DISPOSITIVO SUPERIOR DE REGULACIÓN DE TORSIÓN DE LA CABEZA DEL PERNO. LA SEGUNDA PIEZA HEXAGONAL (LA MÁS CERCANA AL CUERPO DEL CONECTOR) SE USA SÓLO PARA DESARMAR EL CONECTOR.

Nota: El perno regulador de torsión garantiza la aplicación de la torsión correcta a los conductores sin usar una llave de torsión. La información importante de longitud de cable pelado y de toma, las clasificaciones de materiales y temperatura está marcada en el conector.

B-TAP® INSULATION PIERCING TAP CONNECTORS TORQUE AND CURRENT RATINGS

(Solid and/or Stranded)

CATALOG#	MAIN	TAP	NOMINAL TORQUE	TAP CURRENT RATIING (IN AMPS)*
BTC2/0-14	2/0-4	10-14+	80 IN. LBS.	40
BTC1/0-10	1/0-8	2-10++	80 IN. LBS.	130
BTC4/0-10	4/0-3	2-10+++	125 IN. LBS.	130
BTC4/0-6	4/0-2	1/0-6	160 IN. LBS.	170
BTC4/0-2	4/0-2	4/0-2	160 IN. LBS.	260
BTC250-6	250-4	4/0-6	160 IN. LBS.	260
BTC250-4	250-1	3/0-4	160 IN. LBS.	225
BTC250-2	250-1/0	4/0-2	160 IN. LBS.	260
BTC350-1/0	350-1/0	350-1/0	330 IN. LBS.	350
BTC500-4	500-2/0	4/0-4	330 IN. LBS.	260
BTC500-1/0	500-4/0	350-1/0	330 IN. LBS.	350
BTC500-14	750-3/0	10-14 ++++	80 IN. LBS.	40
BTC750-250	750-250	500-250	330 IN. LBS.	430

+10-14 Cu SOLID/STRANDED; 10-12 Al SOLID/STRANDED
++2-10 Cu SOLID/STRANDED; 2-10 Al STRANDED
+++2-10 Cu SOLID/STRANDED; 2-8 Al STRANDED
++++10-14 Cu SOLID/STRANDED; 10-12 Al STRANDED

Full line is 600V dual-rated, 194°F(90°C)

* Based on NEC Table 310-16 1996 (Not more than 3 insulated conductors in a raceway at ambient temperature of 30° C) for the largest tap wire size.

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

⚠ **ADVERTENCIA:** Cáncer y Daño Reproductivo - www.P65Warnings.ca.gov.

One year limited warranty. See idealind.com for more information.

Garantía limitada de un año. Visite www.idealind.com para obtener detalles de la garantía.

BUCHANAN CONSTRUCTION PRODUCTS
1800 S. Prairie Drive
Sycamore, IL, U.S.A.
800-435-0705 • www.idealind.com

ND 9053-2
1839420

NXT UMOUNT

UNIRAC
BETTER SOLAR STARTS HERE

DESIGN & INTEGRATION

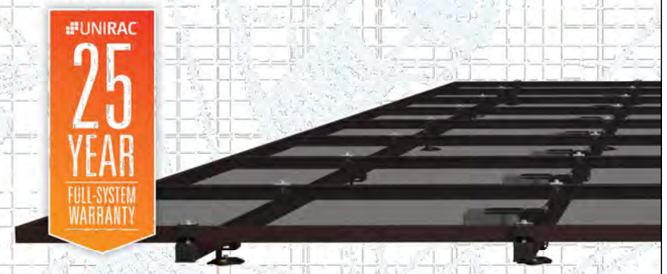
- Seamless, integrated wire management system elevates the install via the new open channel rail.
- State-of-the-art internal splice is interference free and offers true structural integrity that can even be installed in a cantilever!

VERSATILITY & AESTHETICS

- Unparalleled versatility supporting a vast array of roof attachments. Whether it's flashing or no flashing, the NXT UMOUNT™ system has got you covered!
- Refined finishing touches are visually sleek and functionally superior.

EFFICIENCY & EASE OF INSTALLATION

- Universal module clamps and combo lug / MLPE mounts result in fewer SKUs and maximum component value.
- Open-slot STRONGHOLD attachments deliver quick, reliable, waterproof installations via Flashloc or pre-applied butyl sealants.
- With our click-in rail & clamps, you'll spend significantly less time on the roof, making installations quicker and hassle-free.




NXT UMOUNT™ HIDDEN END CLAMP


NXT UMOUNT™ COMBO CLAMP
Available in Dark and Mill


STRONGHOLD™ RAIL CLAMP
Available in Dark and Mill


NXT UMOUNT™ RAIL
Available in Dark and Mill


NXT UMOUNT™ RAIL SPLICE


NXT UMOUNT™ MLPE & LUG CLAMP


STRONGHOLD™ ATTACHMENT KIT
Available in Dark and Mill


STRONGHOLD™ BUTYL ATTACHMENT KIT
Available in Dark and Mill


NXT UMOUNT™ METAL ROOF RAIL CLAMP

WHY NXT UMOUNT?

Introducing NXT UMOUNT™, a revolutionary product by Unirac that stands as the ultimate testament to over two decades of engineering experience. Its thoughtful design, backed by rigorous engineering, world-class support, and a reliable supply chain, encapsulates the best of DESIGN, SIMPLICITY, and VALUE. This innovative solar racking solution brings unparalleled versatility to solar installations, effectively representing the NXT level of solar mounting systems.

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024JUL17-V1

CONFORMS TO UL2703
ISO 9001:2015 14001:2015 CERTIFIED

STRONGHOLD | BUTYL

UNIRAC
BETTER SOLAR STARTS HERE

SIMPLIFIED FLASHLESS SOLUTION

- One-step Butyl application
- Minimize labor with one step installation using the pre-applied, peel and install, butyl design
- Reliable waterproofing without messy sealant
- Eliminate risk of roof damage. No more disturbing shingles

OPTIMIZED FOR NXT UMOUNT, UNIRAC'S OPEN CHANNEL RAIL SYSTEM

- Open slot design for ease of rail connectivity with included STRONGHOLD™ NXT UMOUNT™ rail clamp
- STRONGHOLD™ Butyl combined with the NXT UMOUNT™ system make installation and wire management a breeze
- UL Certified with NXT UMOUNT™

DUAL MOUNTING OPTIONS

- Pre-attached butyl pad: Simply peel, stick, and fasten with the two (2) included screws for rafter mount
- For direct-to-deck applications, simply install additional decking screws

ADDITIONAL BENEFITS

- Competitively priced with standard rafter attachments

STRONGHOLD™ BUTYL
Available in Dark and Mill

WHY STRONGHOLD™ BUTYL?

Unirac's STRONGHOLD™ Butyl is efficient, dependable, and optimized for UNIRAC's NXT UMOUNT™ system. The pre-applied butyl pad removes the need for additional flashing. Just peel the liner, place the attachment, and fasten it to the roof. In addition, the butyl, used throughout the roofing and solar industries for its reliability, conforms to the screws and roof for a robust, dependable seal with no extra work! Couple this with the NXT UMOUNT™ system, and you have a highly reliable, easy-to-install system with integrated wire management

KITTED WITH

- ONE (1) SOLARMOUNT Butyl direct-to-deck attachment with pre-applied butyl patch. (Extra patches for shimming available.)
- TWO (2) screws for rafter installation (Additional screws for direct-to-deck applications available.)
- ONE (1) NXT Rail Clamp

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024JAN01-V1

CONFORMS TO UL2703
ISO 9001:2015 14001:2015 CERTIFIED