HISTORIC DISTRICT COMMISSION
APPLICATION FOR CERTIFICATE OF APPROPRIATENESS

APPLICATION NO._____

THIS SPACE FOR TOWN CLERK
THIS CERTIFIES THAT THIS APPLICATION AND EXHIBITS IN SUPPORT OF SUCH WERE RECEIVED AND MADE AVAILABLE FOR PUBLIC INSPECTION PRIOR TO THE PUBLIC HEARING.
REC'D May 28 2026 AT 10:51 AM
Jodi Noon ASST.
TOWN CLERK

Date: 5/27/2026

Application is hereby made for the issuance of a Certificate of Appropriateness under an "Ordinance Creating a Historic District and Historic District Commission for the Town of Durham" effective July 17, 1973, enacted pursuant to the enabling authority contained in Public Act No. 430 of the 1961 session of the Connecticut General Assembly, for proposed work as described in detail below and as set forth on accompanying exhibits.

(PLEASE PRINT)
Applicant Trinity Solar LLC Phone (203) 701-3724 Email permitting.ct@trinity-solar.com
Applicant's Address 7 McKee Place, Cheshire CT 06410
Address of Proposed Work 176 Main St, Durham CT 06422
Owner BRACKETT, WALTER A; GUARNACCIA, KIMBERLY L Phone (475) 414-0362 Email mysteriesgal@gmail.com
Agent or Contractor Bridgitte Harris, Agent Phone (203) 701-3724 Email permitting.ct@trinity-solar.com
Approximate Date of Original Structure 1729

Applicant should submit plans, maps, sketches, photos or other such exhibits as may aid the Commission in its evaluation of the application.

General Description of Proposed Work

Install roof mounted solar/PV system, 25 panels (10.25 kW DC). Sistering structural upgrades required (alt. knee wall or collar tie).

List of Materials to be Used

See included Material List

List of Attached Exhibits

Property card, plans, specifications (materials, labels, stickers, placards, equipment spec data sheets), engineer letter, Trinity Solar E1 & HIC license, homeowner authorization, certificate of insurance

Bridgitte Harris
SIGNATURE OF APPLICANT

IF YOU HAVE QUESTIONS CONCERNING THE APPLICATION PROCESS OR PROCEDURES, CONTACT

APPLICATION FOR CERTIFICATE OF APPROPRIATENESS

THIS SPACE FOR HISTORIC DISTRICT COMMISSION ONLY

Date of Legal Notice_____ Publication_____

☐ Date of Public Hearing_____

☐ Application approved as submitted

☐ Application approved as modified below

☐ Application rejected

Certificate of Appropriateness not required

COMMENTS

_____ _____

DATE OF CERTIFICATE EXPIRATION DATE

_____

HISTORIC DISTRICT COMMISSION CLERK

Application for Certificate of Appropriateness

Notice

No building or structure shall be erected, alerted, restored, moved or demolished within the Historic District until after an Application for a Certificate of Appropriateness as to exterior architectural features has been submitted to the Commission and approved by the Commission. "Exterior architectural features" shall include such portion of the exterior of a building or structure as is open to view from a public street, way or place. The style, material, size and location of outdoor advertising signs within the Historic District shall also be under the control of the Commission, but not the color of paint used on the exterior of any building or structure.

No area within the Historic District shall be used for industrial, commercial, business, home industry or occupation parking whether or not such area is zoned for such use, until after an Application for a Certificate of Appropriateness as to parking has been submitted to the Commission and approved by the Commission. This applies to enlargement or alteration of any such parking area.

A Certificate of Appropriateness can only be issued after a public hearing.

Upon review of the Application, the Commission may decide that a Certificate of Appropriateness is not required if, in the opinion of the Commission, the work will have an insignificant impact on the District.

Applications for a Certificate of Appropriateness need not be made for:

1. Maintenance or repair which does not involve a change of existing design, exterior materials or scale, or outward appearance.

2. Work required by a Town Official to eliminate an unsafe condition, provided that any permanent repairs shall meet the criteria of (1.) above.

3. Installation of temporary signs permitted by the Building Zone Ordinance in connection with the sale or lease of the premises.

4. Erection of any necessary building designed for the shelter of small animals, provided that such proposed accessory building is not prohibited by any other statute, regulation or ordinance, and that no maximum horizontal or dimension of any such proposed building shall exceed four feet.

Trinity SOLAR

May 19, 2026
Trinity Solar No. 2026-04-1560655

Durham, CT
Town of Durham Attn. Building Dept. 30 Townhouse Road
Durham, CT 06422

RE: Kim Guarnaccia
176 main street
Durham, CT 06422

To the Building Official:

This evaluation assesses the capacity of the existing roof framing to support the additional loads from the proposed photovoltaic (PV) system. Trinity Solar, LLC has confirmed the structure is permitted by the local jurisdiction and has provided all relevant documentation. As of the evaluation date, no deficiencies in the structure have been reported. Based on the provided documentation and lack of reported concerns, the existing structure is evaluated as being in good condition and capable of supporting the existing loads. If new information or evidence indicates structural deficiencies, this office must be notified immediately, and installation must cease until the concerns are addressed. This evaluation is strictly limited to structural elements directly supporting the PV system and excludes unrelated components. All spans listed below are horizontal projections.

1. Existing Roof Framing:
- True roof framing at R1A: 4x5 at 38"o.c.; existing rafter span = 22'-0", max unsupported span = 4'-8"
- True roof framing at R1B: 4x5 at 38"o.c.; existing rafter span = 22'-0", max unsupported span = 6'-8"
- True roof framing at R1C: 4x5 at 38"o.c.; existing rafter span = 22'-0", max unsupported span = 6'-2"
- True roof framing at R1D: 4x5 at 38"o.c.; existing rafter span = 22'-0", max unsupported span = 6'-4"

2. Roof Loading:
- 3.00psf - PV array load (PV panels, mounting rails, and hardware)
- 5.01psf - Existing roof dead load (1.50psf - 4x5 at 38"o.c. roof rafters, 3.51psf - roof covering)
- 30psf - Ground snow load - per ASCE Hazard Tool; 20psf - Roof live load
- Exposure Category B, 120mph basic wind speed

3. Existing Roof Modification:
- R1A, R1B, R1C, and R1D - No modification required. The existing roof framing is deemed adequate to support the existing loads and the anticipated loads of the proposed PV system as described.

4. Attachments:
- The maximum allowable spacing of the ECOFASTEN - SMART FOOT* attachments cannot exceed more than 38" / 38" (EXPOSED / NON-EXPOSED) for R1A, R1B, R1C and R1D. Attachments to be fastened using min. quantity (2) Structural Screws (#14 for rail, #12 for rail-less), min. 3" long, with 2.5" min. penetration depth into the structural member is required - this is adequate to resist all stated demand loads above. Install attachments, rails, and panels per manufacturer requirements. In multi-row PV layouts, there shall be a minimum of two mounting brackets per rafter/truss chord. Stagger attachments to distribute load. If fewer than (2) fasteners penetrate the rafter, treat the attachment as deck-mounted, secure with (6) fasteners to the deck, and backtrack one rafter span to maintain the maximum allowable spacing of rafter attachments before continuing layout.
~ECOFASTEN - SMART FOOT - *ATTACHMENT TO BE SECURED TO RAFTERS ≥ 2x4. ONLY INSTALL ATTACHMENT ON ASPHALT SHINGLE ROOFS OF SLOPES ≥ 2:12 (9.46°) WITH ≥ 7/16" DECK.
- CONTRACTOR TO INFORM THIS OFFICE IF ANY ITEM ABOVE DIFFERS FROM SITE CONDITIONS.

The proposed installation, described above, is in general conformance with the manufacturers' specifications and complies with all applicable laws, codes, and ordinances as specified by applicable codes, including the 2021 IRC, 2022 CT State Building Code and ASCE 7-16.

Only the portions of the roof directly involved in the PV installation are evaluated. Trinity Solar is not responsible for pre-existing construction defects in other areas of the structure. IF, AT ANY TIME DURING INSTALLATION, THE ROOF FRAMING MEMBERS OR ROOF COVERING APPEAR UNSTABLE OR EXHIBIT NON-UNIFORM DEFLECTION, THE CONTRACTOR SHALL NOTIFY THIS OFFICE IMMEDIATELY AND AWAIT FURTHER GUIDANCE BEFORE PROCEEDING.

Regards,
Ayracon Almaraz, PE
Structural Engineer - Trinity Solar

License No. 37304

Trinity SOLAR

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, Kim Guarnaccia,
(print name)
am the owner of the property located at address:

176 main street Durham CT.
(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: Eversource (Formerly CL&P)
Electric Utility Account No.: 51284588043
Electric Meter No.: 891831262
Name on Electric Utility Account: Kim Guarnaccia

Kim Guarnaccia (May 2, 2026 12:52:22 EDT)
Customer Signature
Kim Guarnaccia
Print Name
May 2, 2026
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.

INSTALLATION OF NEW
ROOF MOUNTED PV SOLAR SYSTEM
176 MAIN STREET
DURHAM, CT 06422

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

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
P1	ISSUED TO TOWNSHIP FOR PERMIT	5/7/2026

Project Title:

GUARNACCIA, KIM

TRINITY ACCT #: 2026-04-1560655

Project Address:

176 MAIN STREET
DURHAM, CT 06422
41.4755, -72.6808

Drawing Title:

PROPOSED PV SOLAR SYSTEM

Drawing Information

DRAWING DATE:	5/7/2026
DRAWN BY:	RF
REVISED BY:	

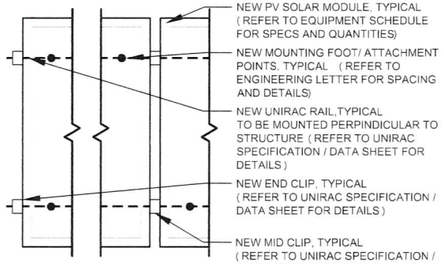
System Information:

DC SYSTEM SIZE:	10.25kW
AC SYSTEM SIZE:	7.6kW
MODULE COUNT:	25
MODULES USED:	HANWHA 410
MODULE SPEC #:	Q.PEAK DUO BLK ML-G10.C+ 410
UTILITY COMPANY:	EVERSOURCE
UTILITY ACCT #:	51284588043
UTILITY METER #:	891831262
DEAL TYPE:	LIGHTREACH

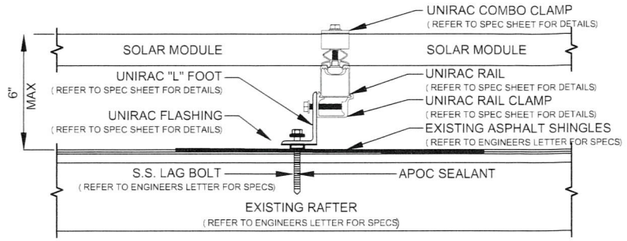
Rev. No.	Sheet
P1	PV - 1

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

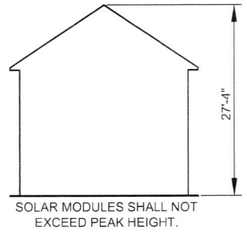
NOTES : *REFER TO MODULE SPECS FOR MODULE DIMENSIONS
*DEPICTED MODULES MAY BE PORTRAIT OR LANDSCAPE



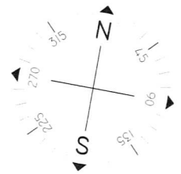
ATTACHMENT & CLIP DETAIL
SCALE: NOT TO SCALE



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



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



ARRAY SCHEDULE

ROOF 1
MODULES: 25
PITCH: 31
ORIENTATION: 259

ROOF 2
MODULES: 0
PITCH: 0°
ORIENTATION: 169°

ROOF 3
MODULES: 0
PITCH: 31°
ORIENTATION: 79°

ROOF 4
MODULES: 0
PITCH: 23°
ORIENTATION: 259°

ROOF 5
MODULES: 0
PITCH: 23°
ORIENTATION: 79°

ROOF 6
MODULES: 0
PITCH: 71°
ORIENTATION: 79°

ROOF 7
MODULES: 0
PITCH: 71°
ORIENTATION: 79°

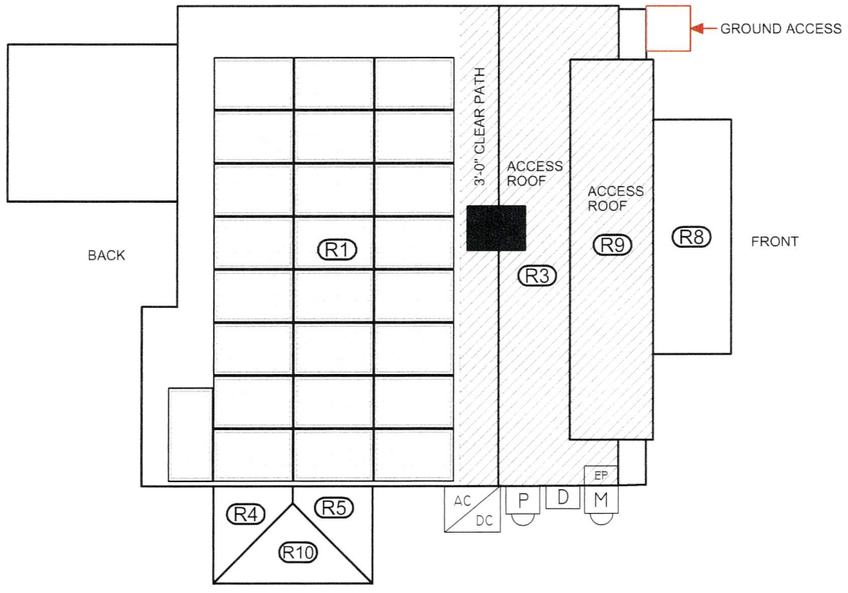
ROOF 8
MODULES: 0
PITCH: 14°
ORIENTATION: 79°

ROOF 9
MODULES: 0
PITCH: 16°
ORIENTATION: 79°

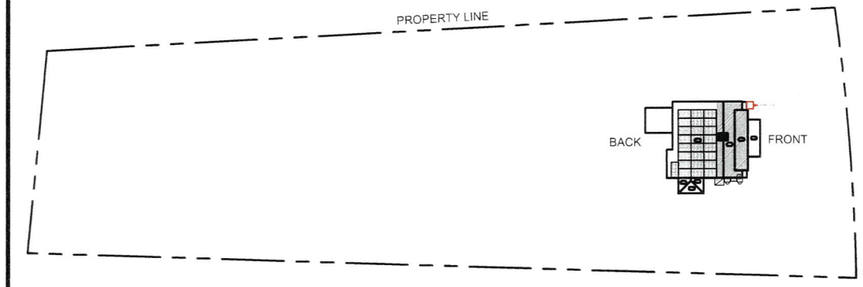
ROOF 10
MODULES: 0
PITCH: 23°
ORIENTATION: 169°

ROOF 11
MODULES: 0
PITCH: 24°
ORIENTATION: 84°

ROOF 12
MODULES: 0
PITCH: 24°
ORIENTATION: 264°



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 #
25	HANWHA 410 (Q.PEAK DUO BLK ML-G10.C+ 410)
1	SE7600H-US (SKU USE11400H-USSKBEZ8)
25	U650 SE OPTIMIZERS
13	UNIRAC 171RLM1-US NXT UMOUNT RAIL - 171" MILL (US)
6	UNIRAC RLSPLCM2-US NXT UMOUNT RAIL SPLICE (US)

Issued / Revisions

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TRINITY ACCT #: 2026-04-1560655

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REVISED BY:	

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UTILITY ACCT #:	51284588043
UTILITY METER #:	891831262
DEAL TYPE:	LIGHTREACH

Rev. No. P1

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 2020

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)(3)(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 = 4 CCC: 0.80
(40*.96)0.80 = 30.72A

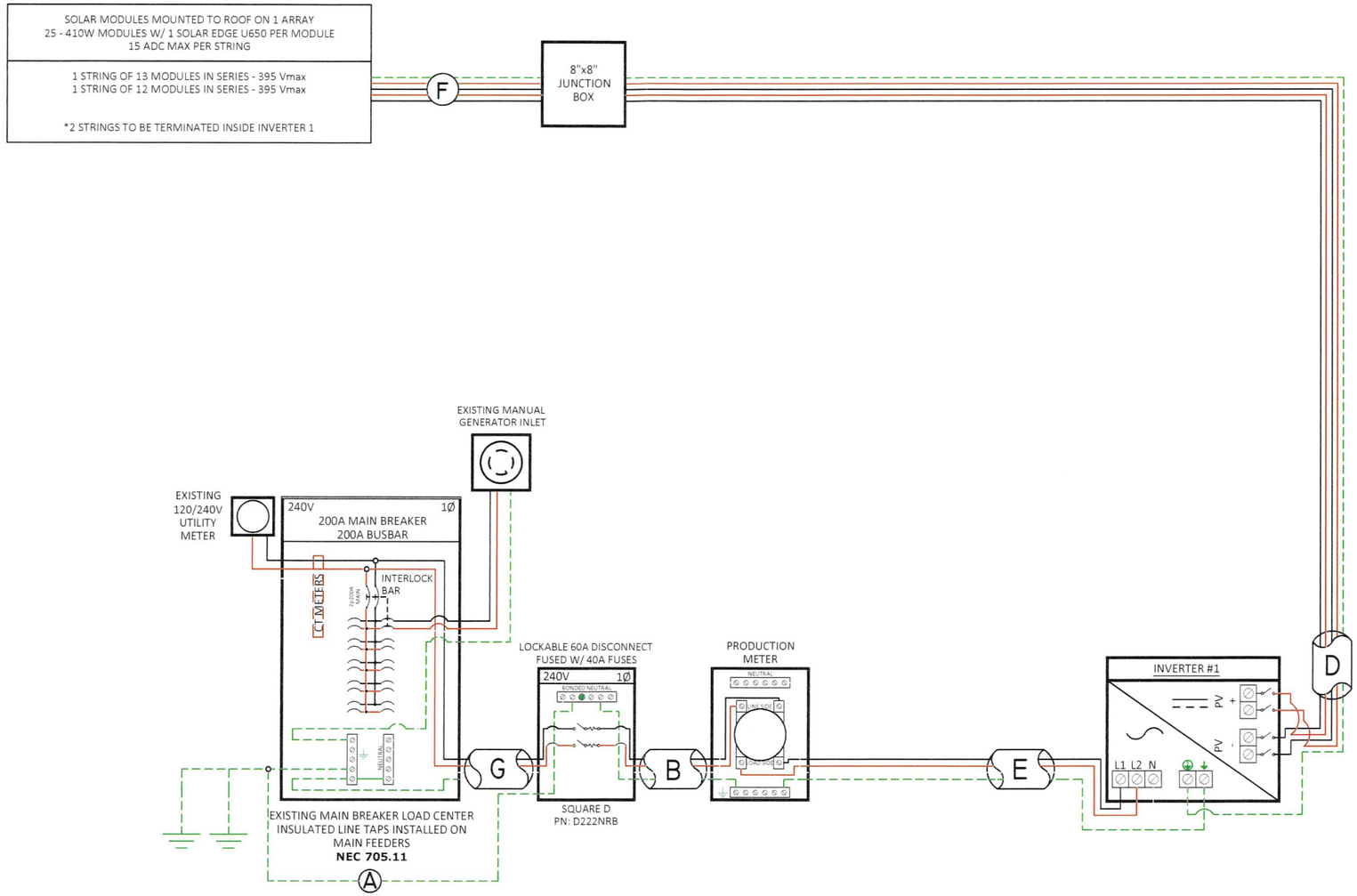
30.72A ≥ 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY
32.00A*1.25 = 40.00A

AWG #8, DERATED AMPACITY
AMBIENT TEMP: 30°C, TEMP DERATING: 1.0
RACEWAY DERATING ≤ 3 CCC: N/A
55A*1.0 = 55A

55A ≥ 40.00A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION
TOTAL INVERTER CURRENT: 32.00A
32.00A*1.25 = 40.00A
--> 40A OVERCURRENT PROTECTION IS VALID



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 - SE7600H-US			
DC		AC	
Imp	25.95	Pout	7600
Vmp	395	Imax	32
Voc	480	OCPDmin	40
Isc	30	Vnom	240

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

A	#6 THWN-2 TO GEC
B	1" CONDUIT W/ 2-#8 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
C	1" CONDUIT W/ 4-#10 THWN-2, 1-#10 THWN-2 GROUND
D	1" CONDUIT W/ 4-#10 THWN-2, 1-#10 THWN-2 GROUND
E	3/4" CONDUIT W/ 2-#8 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	1" CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2

Engineer / License Holder:

Issued / Revisions

NO.	DESCRIPTION	DATE
P1	ISSUED TO TOWNSHIP FOR PERMIT	5/7/2026

Project Title:

GUARNACCIA, KIM

TRINITY ACCT #: 2026-04-1560655

Project Address:

176 MAIN STREET
DURHAM, CT 06422
41.4755, -72.6808

Drawing Title:

PROPOSED PV SOLAR SYSTEM

Drawing Information

DRAWING DATE:	5/7/2026
DRAWN BY:	RF
REVISED BY:	

System Information:

DC SYSTEM SIZE:	10.25kW
AC SYSTEM SIZE:	7.6kW
MODULE COUNT:	25
MODULES USED:	HANWHA 410
MODULE SPEC #:	Q.PEAK DUO BLK ML-G10.C+ 410
UTILITY COMPANY:	EVERSOURCE
UTILITY ACCT #:	51284588043
UTILITY METER #:	891831262
DEAL TYPE:	LIGHTREACH

Rev. No.: P1

Sheet: PV - 3

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

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www.Trinity-Solar.com

INSTALLATION OF NEW
ROOF MOUNTED PV SOLAR SYSTEM

GUARNACCIA, KIM
176 MAIN STREET
DURHAM, CT 06422
41.4755, -72.6808

APPENDIX

CONTENTS

NOTES:
1.) COMPLIES WITH NEC 2020
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

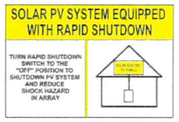
To be located on all DC junction boxes and every 10' on DC conduit

NEC 690.31(D)(2)

DC Junction Box

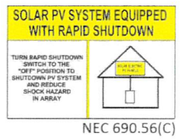
Soladeck

DC Conduit



NEC 690.56(C)

Service Disconnect



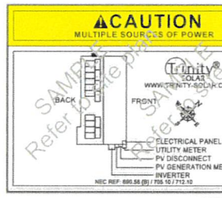
NEC 690.56(C)

If System is Backfed Breaker

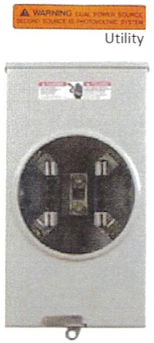
NEC 705.12(B)(3)(2)

NEC 690.54

Main Service Panel



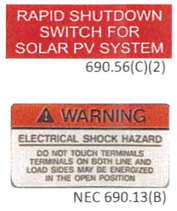
NEC 705.10



Utility Meter Socket

NEC 690.13(B)

Solar Meter Socket



690.56(C)(2)

NEC 690.13(B)

NEC 690.54

Photovoltaic AC Disconnect

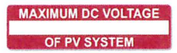
NEC 690.54

Load Center (To Combine Inverters)

690.56(C)(2)

NEC 690.13(B)

NEC 690.4(B)

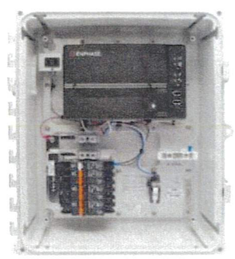


NEC 690.53

Inverter(s)

DC Disconnect

NEC 690.13(B)

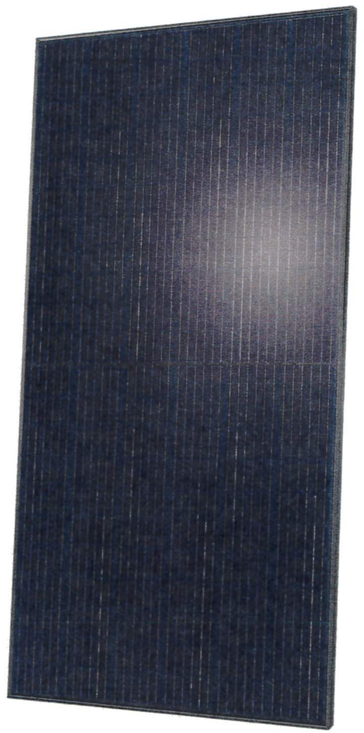


Enphase Envoy Box

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

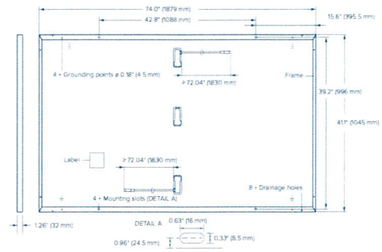
***DCA Module Option:**

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

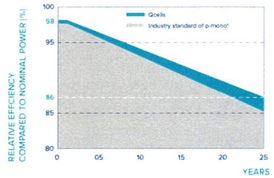


■ Electrical Characteristics

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
	Short Circuit Current[1]	I_{SC} [A]	11.10	11.14	11.17	11.20	11.23
	Open Circuit Voltage[1]	V_{OC} [V]	45.27	45.30	45.34	45.37	45.41
	Current at MPP	I_{MPP} [A]	10.71	10.77	10.83	10.89	10.95
	Voltage at MPP	V_{MPP} [V]	36.88	37.13	37.39	37.64	37.89
	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
	Short Circuit Current	I_{SC} [A]	8.95	8.97	9.00	9.03	9.05
	Open Circuit Voltage	V_{OC} [V]	42.69	42.72	42.76	42.79	42.83
	Current at MPP	I_{MPP} [A]	8.46	8.51	8.57	8.62	8.68
	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

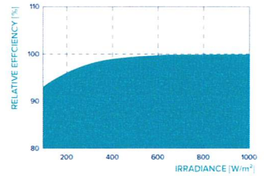


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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 11112202177

*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.

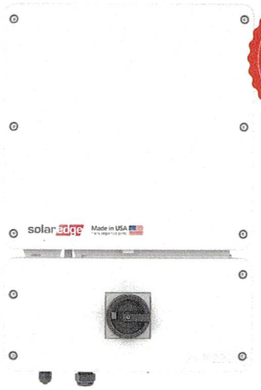
Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS America Inc. 300 Spectrum Center Drive, Suite 500, Irvine, CA 92618, USA | TEL +1 (949) 748 5996 | EMAIL na.support@qcells.com | WEB www.qcells.com

Specifications subject to technical changes © Qcells Q.PEAK_DUO_BLK_ML-G10+_series_DCA_395-415_DA_202503_Rev07_NA

SolarEdge Home Hub Inverter

For North America

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



HOME BACKUP

Made in the USA from imported parts

USA-manufactured residential inverter for storage and backup, with a single part number for all power classes

- Eligible for domestic content % towards the enhanced federal income tax credit*
- One part number for all power classes, streamlining every step:
  - Unified product configuration simplifies ordering, logistics, and inventory
  - Optimized system design, selection, and installation
- The ultimate home energy manager in charge of PV production, battery storage, backup operation during a power outage**, EV Charging, and smart energy devices
- Record-breaking 99% weighted efficiency with up to 200% DC oversizing
- Able to start high LRA HVAC systems during backup operation
- Integrates seamlessly with the complete SolarEdge Home Smart Energy Ecosystem, through the SolarEdge Home Network
- Module-level monitoring and visibility of battery status, PV production, and self-consumption data
- Integrated Wi-Fi antenna for enhanced communication reliability and simplicity
- Fast and easy installation – small and lightweight, with reduced commissioning time
- NEMA 4X-rated, for indoor and outdoor installations
- A scalable solution that supports future homeowner needs through easy connection to a growing ecosystem
- Advanced safety features with integrated arc fault protection and rapid shutdown for 690.11 and 690.12
- Complies with UL 9540 (Ed.3) requirements for integration with compatible battery systems and control equipment
- Advanced reliability with automotive-grade components
- Embedded revenue grade production data, ANSI C12.20 Class 0.5
- Install larger systems while avoiding main panel upgrades with the embedded Power Control System (PCS)

* For more information on domestic content eligibility, see the SolarEdge Domestic Content application note.
** Requires additional hardware and firmware version upgrade.

solaredge.com

solaredge

SolarEdge Home Hub Inverter

For North America

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

Applicable to inverters with Purchase SKU[1]	USE11400H-USSKBEZ8						
Model Number	**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]	12,500[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	395V @ 240Vac 380V @ 208Vac						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	99	99 @ 240V 98.6 @ 208V		98.7 @ 240V 98.6 @ 208V	99 @ 240V 98.6 @ 208V	99	%
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 17.5 @ 208V	30 @ 240V 26.5 @ 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) The Purchase SKUs are used for ordering purposes only. While the Purchase Number Variant encodes inverter attributes, 'SE11400H-US' should not be used to determine the installed inverter power model. Power Models are listed in the datasheet and can be verified on the inverter label, the SolarEdge Go installer application, the application commissioning report, or the SolarEdge Monitoring Portal.
(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.

CE ETL Intertek

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

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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

CONSTRUCTION PRODUCTS
BUCHANAN
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.

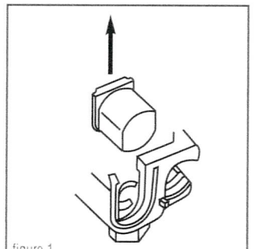


figure 1

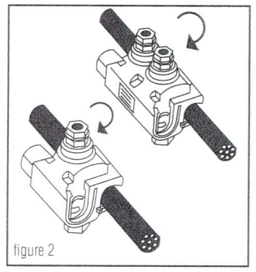


figure 2

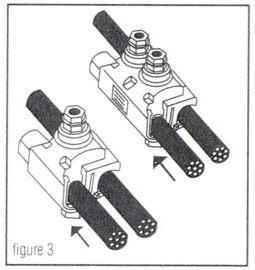
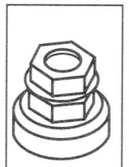
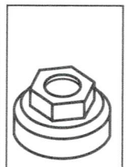


figure 3


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.

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- State-of-the-art internal splice is interference free and offers true structural integrity that can even be installed in a cantilever!

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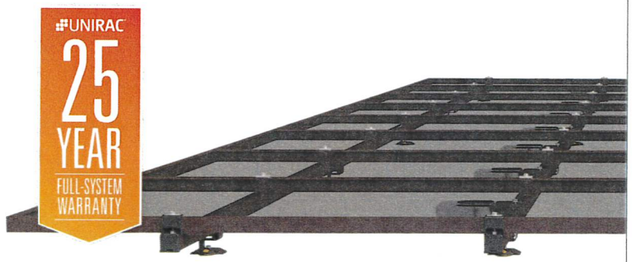
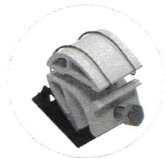
- With our click-in rail & clamps, you'll spend significantly less time on the roof, making installations quicker and hassle-free.

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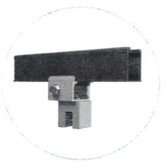
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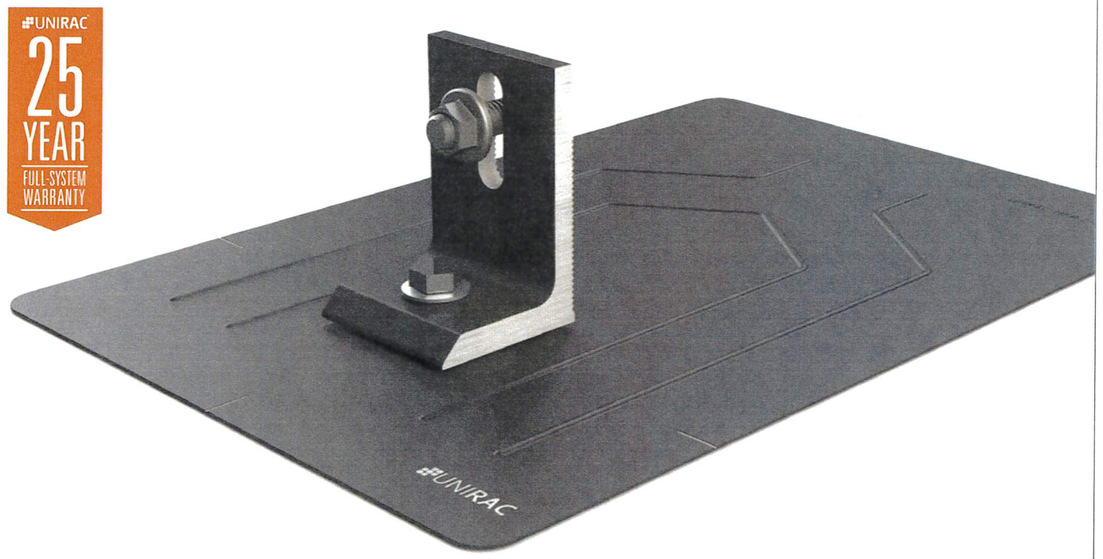

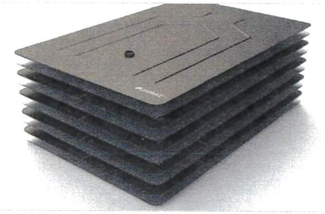
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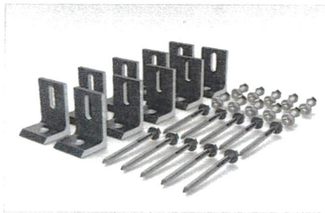
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