SCOPE OF WORK

TO INSTALL A RESIDENTIAL ROOFTOP SOLAR PHOTOVOLTAIC (PV) SYSTEM.
THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.
THE PV SYSTEM DOES NOT INCLUDE BATTERIES.

ELECTRICAL NOTES

1) ALL EQUIPMENT TO BE LISTED BY THE UL OR OTHER NRTL AND LABELED FOR ITS APPLICATION.
2) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600V AND 90°C WET ENVIRONMENT.
3) WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4) WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5) DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6) WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR THE ILSCO GBL-4DBT LAY-IN LUG.
10) THE POLARITY OF THE GROUNDED CONDUCTORS IS (positive/negative) OR THE DC SIDE OF THE PV SYSTEM IS UNGROUNDED AND SHALL COMPLY WITH NEC 690.35

NCDOI REQUIREMENTS

OPTION 2

WEIGHT OF PV SYSTEM ON ROOF:

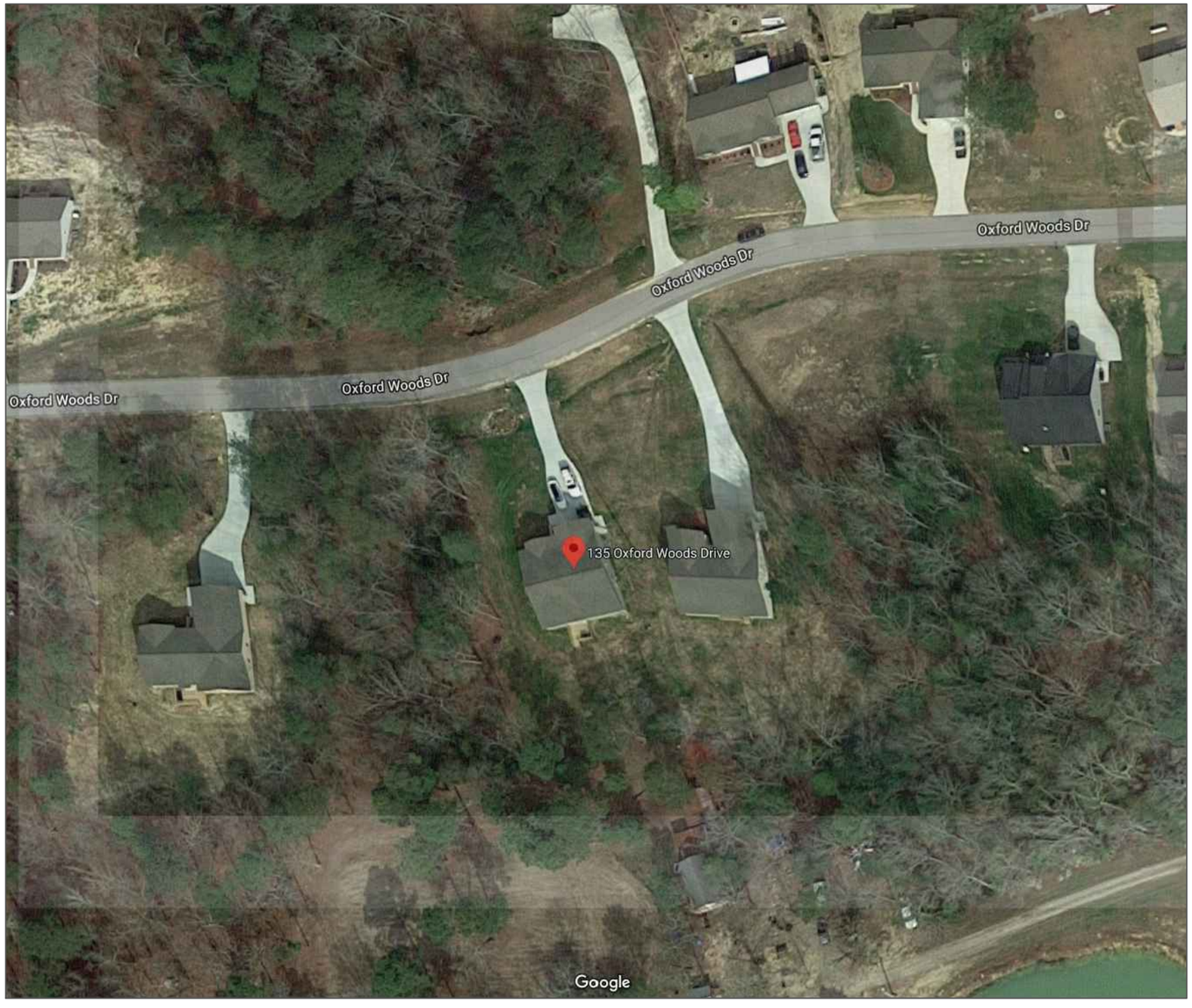
2.6773 PSF

EXISTING ROOF MATERIAL TYPE:

ASPHALT SHINGLES (SINGLE LAYER)

PROJECT LOCATION WIND ZONE:

115 MPH



VICINITY MAP

SHEET INDEX		GOVERNING CODES	DESIGN SPECIFICATIONS		SYSTEM SPECIFICATIONS	
COVER	GENERAL INFORMATION	NFPA 70 NATIONAL ELECTRICAL CODE 2017	CONSTRUCTION TYPE	SINGLE-FAMILY	SOLAR MODULES	(20) HANWHA Q.PEAK DUO BLK-G5 320 WATT MODULES
PV-1	SITE PLAN	2018 INTERNATIONAL BUILDING CODE	ZONING	RESIDENTIAL	POWER OPTIMIZERS	(20) SOLAREDGE P340
PV-2	ROOF LAYOUT AND MOUNTING DETAIL	2018 NORTH CAROLINA BUILDING CODE	GROUND SNOW LOAD	20 PSF	INVERTER(S)	(1) SOLAREDGE SE7600H-US
PV-3	ELECTRICAL SCHEMATIC	2018 NORTH CAROLINA RESIDENTIAL CODE	WIND EXPOSURE CATEGORY	CATEGORY B	SOLAR MOUNTS	QUICKMOUNT PV L-MOUNTS
PV-4	AMPACITY CALCULATIONS AND WIRE SIZING	UNDERWRITERS LABORATORIES (UL) STANDARDS	WIND SPEED	115 MPH	SOLAR RACKING SYSTEM	EVEREST CROSSRAIL X48
PV-5	LABELING SCHEDULE	OSHA 29 CFR 1910.269	UTILITY PROVIDER	DUKE PROGRESS	MONITORING	YES
CUTSHEETS	MANUFACTURER SPECIFICATION SHEETS	NORTH CAROLINA DEPARTMENT OF INSURANCE	AHJ	HARNETT COUNTY	POINT OF INTERCONNECT	40A/2P LOAD SIDE BREAKER IN MSP

CONTRACTOR

SUN DOLLAR ENERGY, LLC
4904 ELAINE AVENUE
RALEIGH, NC 27616
(919) 508-6907
NC ELE LICENSE #: 30043U
NC GC LICENSE #: 73462

PROJECT & CLIENT INFORMATION

ALVAREZ RESIDENCE
NEW SOLAR PV SYSTEM
SYSTEM SIZE: 6.4 KW DC
SYSTEM SIZE: 7.6 KW AC

HAROLD ALVAREZ
135 OXFORD WOODS DR
ANGIER, NC 27501
(919) 999-0066

ENGINEER OF RECORD

DRAWING BY

GBR

REVISIONS

DESCRIPTION	DATE	#	BY
RELEASED FOR PERMITTING	10/19/2020	1	GBR

SHEET SIZE

ANSI B
11" X 17"

DATE

10/19/2020

SHEET NAME

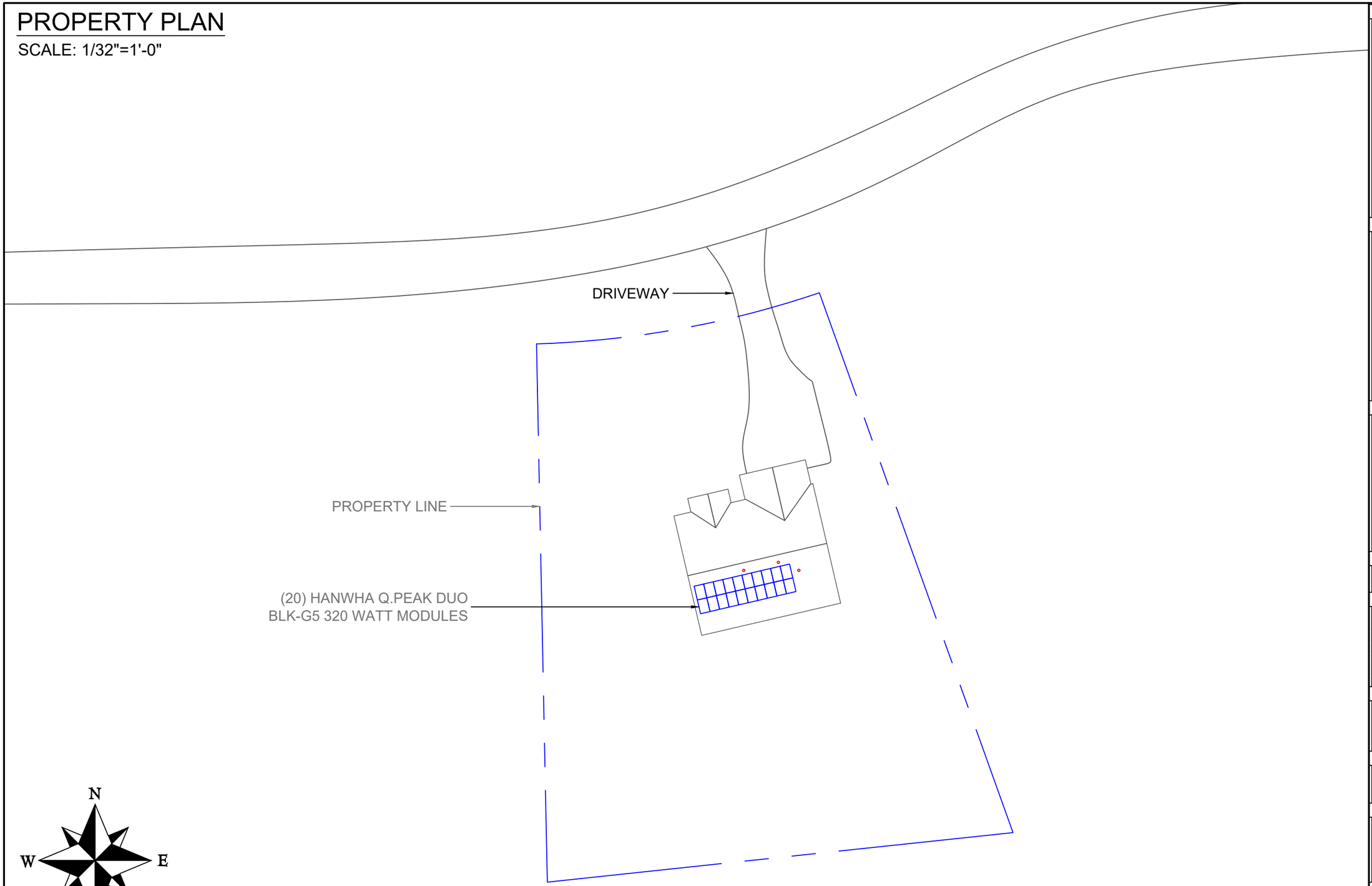
GENERAL INFORMATION

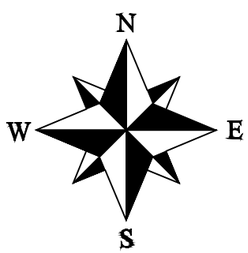
SHEET NUMBER

COVER

PROPERTY PLAN

SCALE: 1/32"=1'-0"





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SITE PLAN

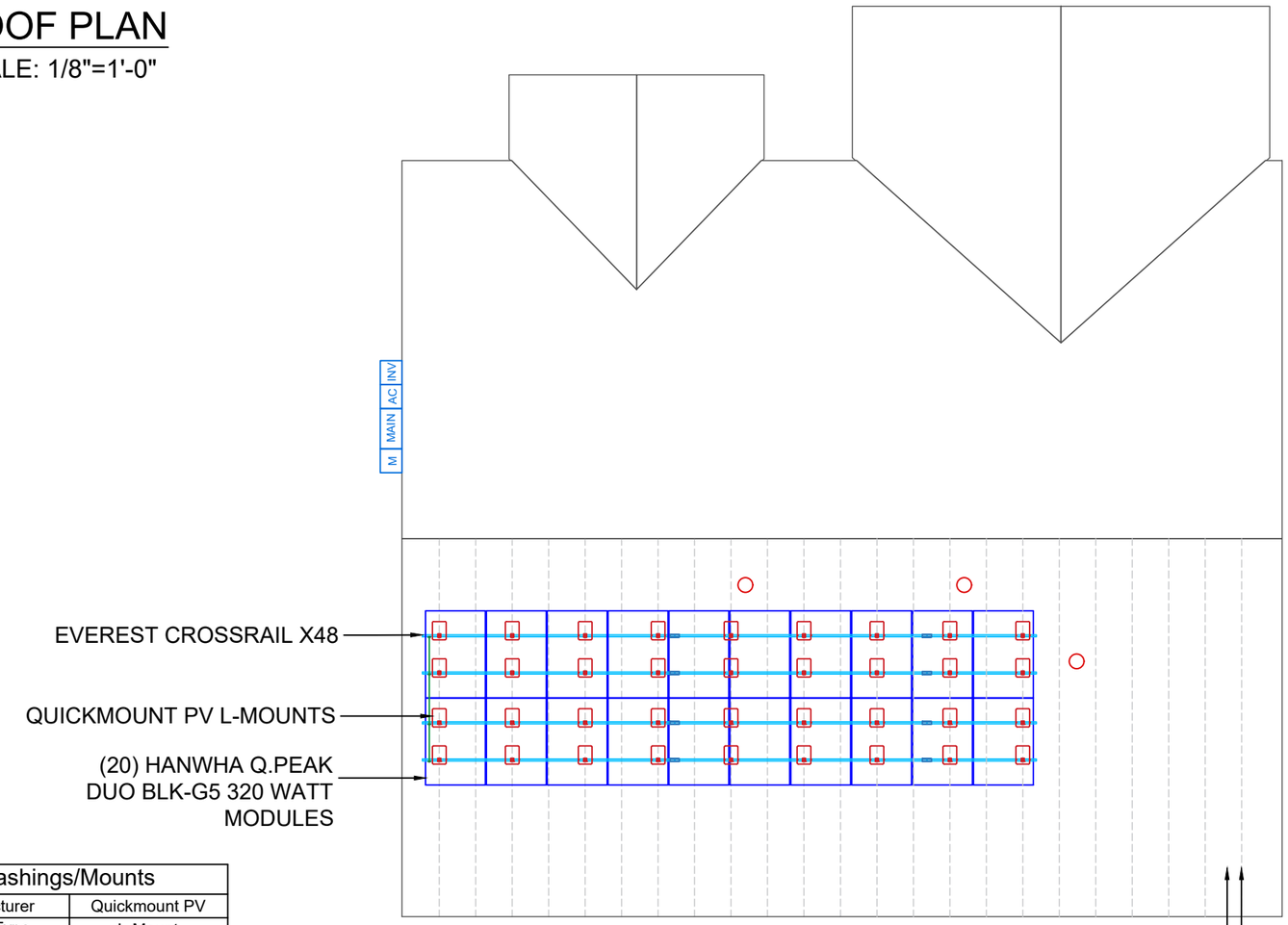
SHEET NUMBER

PV-1

ROOF PLAN

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

ROOF 1 PITCH: 30°

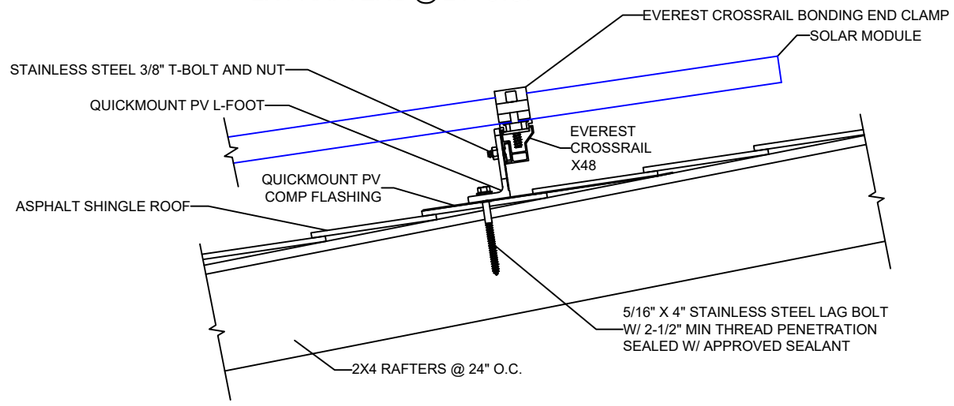


Flashings/Mounts	
Manufacturer	Quickmount PV
Mount Type	L-Mount
Flashing Material	Aluminum
Flashing Size	9" x 12" x .04"
Fastener Type	Lag Screw
Fastener Material	18-8 Stainless Steel
Fastener Size	5/16" x 4"
L-Foot Material	Aluminum
Sealing Washer	EPDM Bonded SS
Sealing Washer Size	5/16" ID x 3/4" OD
Weight	0.7565 Lbs.
Structural	IBC Compliant
UL Listing	UL 2703

Racking	
Manufacturer	Everest Solar
Model Number	Crossrail 48-X
Length	166"
Width	1.54"
Height	1.89"
Weight	0.56 Lbs./Ft
Material	Aluminum
Structural	IBC Compliant
UL Listing	UL 2703

LEGEND

M UTILITY METER	DC DC DISCONNECT	PV METER	RAILS
MSP MAIN SERVICE PANEL	JB JUNCTION BOX	EXTERIOR CONDUIT	GROUNDING
INV INVERTER	SUB SUBPANEL	G GAS METER	RAIL SPLICE
AC AC DISCONNECT	LC LOAD CENTER	FLASHINGS	



SOLAR MOUNTING DETAIL

LOAD CALCULATIONS

NUMBER OF MODULES	20	
MODULE WEIGHT	41.23	LBS
MODULE SQ FT	18.138	SQ FT
TOTAL MODULE WEIGHT	824.6	LBS
TOTAL MODULE SQ FT	362.76	SQ FT
NUMBER OF PORTRAIT	20	
NUMBER OF LANDSCAPE	0	
NUMBER OF OPTIMIZERS	20	
WEIGHT PER OPTIMIZER	1.5	LBS
TOTAL OPTIMIZER WEIGHT	30	LBS
TOTAL LENGTH OF RAIL	134	LF
RAIL WEIGHT PER FOOT	0.56	LBS
TOTAL RAIL WEIGHT	75.04	LBS
NUMBER OF FLANGES	36	
WEIGHT PER FLANGE	0.7565	LBS
WEIGHT PER SYSTEM	27.234	LBS
NUMBER OF MID CLAMPS	36	
MID CLAMP WEIGHT	0.21	LBS
WEIGHT PER SYSTEM	7.56	LBS
NUMBER OF END CLAMPS	8	
END CLAMP WEIGHT	0.32	LBS
WEIGHT PER SYSTEM	6	LBS
NUMBER OF SPLICES	8	
WEIGHT PER SPLICE	0.1	LBS
WEIGHT PER SYSTEM	0.8	LBS
TOTAL ARRAY WEIGHT	971.234	LBS
POINT LOAD	26.97872	LBS/FT
TOTAL ARRAY AREA	362.76	SQ FT
ARRAY DEAD LOAD	**2.6773**	**PSF**

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ROOF LAYOUT & DETAIL DRAWINGS

SHEET NUMBER

PV-2

Solar PV Module Data	
Manufacturer	Hanwha
Model Number	Q.Peak DUO BLK-G5
Max Power (Pmax)	320
Max Power Voltage (Vmp)	33.8
Max Power Current (Imp)	9.47
Open Circuit Voltage (Voc)	40.56
Short Circuit Current (Isc)	9.94
Max Series Fuse (OCPD)	20
Max System Voltage	1000
UL Listing	UL1703
Protection Rating	IP67

Power Optimizer Data	
Manufacturer	SolarEdge
Model Number	P340
Rated DC Input Power	340
Max Input Voltage	48
Max Input Current	13.75
Max Short Circuit Current	11
Max Output Voltage	60
Max Output Current	15
UL Listing	UL1741
Protection Rating	IP68/NEMA6P

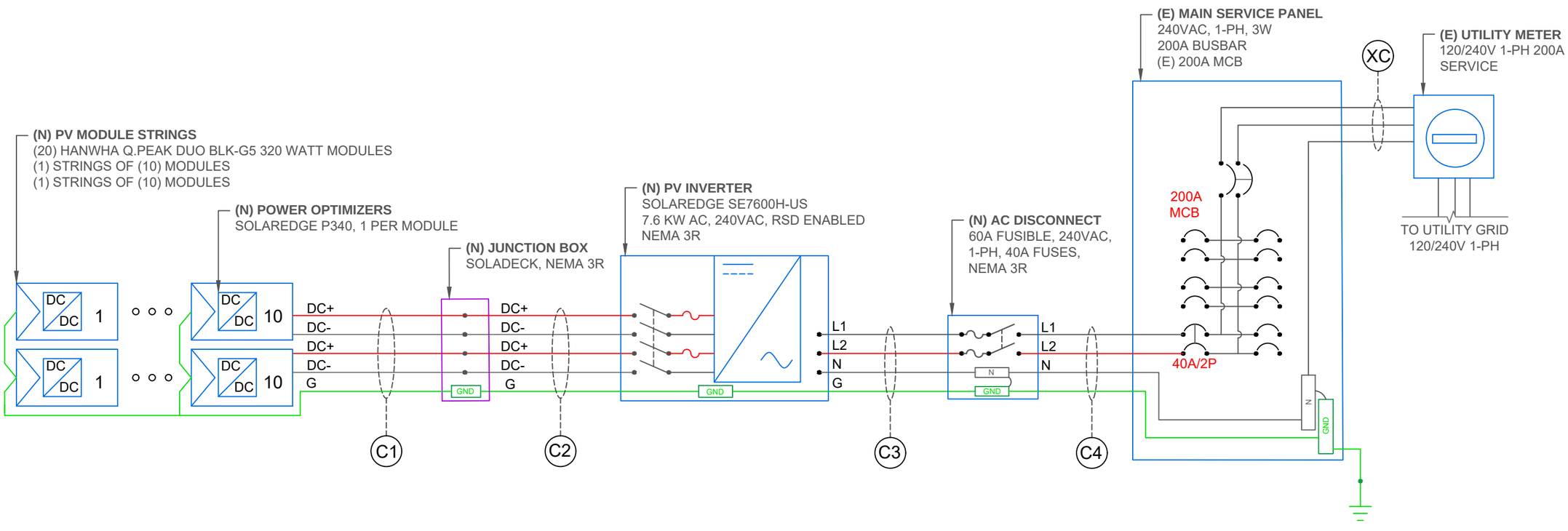
Junction Box Data	
Manufacturer	Soladeck
Model Number	0799-5B
Voltage Rating	600
Amperage Rating	120
UL Listing	UL 50
Enclosure Rating	NEMA 3R

Temperature Data	
Average High Temp	93.2˚ F
Record Low Temp	10.4˚ F

Inverter Data	
Manufacturer	SolarEdge
Model Number	SE7600H-US
Max DC Input Voltage	480
Nominal DC Input Voltage	400
Max DC Input Current	20
Max DC Short Circuit Current	45
Max DC Input Power	11800
Max AC Output Power	7600
Nominal AC Output Voltage	240
Max AC Output Current	32
Strings Per Inverter	1 - 2
UL Listing	UL1741
Enclosure Rating	NEMA 4X

AC Disconnect Data	
Manufacturer	GE
Model Number	TG3222R
Voltage Rating	240
Amperage Rating	60
Phase	Single
Switch Syle	Fusible
Fuse Rating	40
UL Listing	UL 98
Enclosure Rating	NEMA 3R

Main Service Panel Data	
Manufacturer	Eaton
Model Type	Load Center
Model Number	N/A
Voltage Rating	120/240
Busbar Amp Rating	200
Main Breaker/Main Lug	Main Breaker
Breaker Amp Rating	200
Phase	Single
UL Listing	UL 67
Enclosure Rating	NEMA 1



WIRE SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION TYP.	QTY.	SIZE	MATERIAL	INSULATION TYP.	QTY.	SIZE	MATERIAL	LOCATION	
C1	4	10 AWG	COPPER	PV WIRE	1	8 AWG	BARE COPPER	N/A	-	-	-	FREE AIR	
C2	4	10 AWG	COPPER	THHN/THWN-2	1	10 AWG	COPPER	THHN/THWN-2	1	3/4"	LFMC/EMT	EXTERIOR/INTERIOR	
C3	3	8 AWG	COPPER	THHN/THWN-2	1	10 AWG	COPPER	THHN/THWN-2	1	3/4"	LFNC/EMT	EXTERIOR	
C4	3	8 AWG	COPPER	THHN/THWN-2	1	10 AWG	COPPER	THHN/THWN-2	1	3/4"	LFNC/EMT	EXTERIOR	
XC	-	-	-	-	-	-	-	-	-	-	-	-	

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SHEET NAME

ELECTRICAL SCHEMATIC

SHEET NUMBER

PV-3

Ampacity Calculations

Wiring Location: Module to Power Optimizer (Direct Current)
Wiring Location: Inverter to Service Entrance (Alternating Current)
All calculations show minimum sizing for ampacity
Actual wire sizing may be larger for voltage drop or other factors
All calculations are according to the 2017 National Electric Code

Modules: Hanwha Q-Peak DUO BLK-G5 320
Inverter: SolarEdge SE7600H-US

Initial Input Values						
Isc (Short Circuit Current)	9.94					
Number of circuits	9.94	x	1	=	9.94	
Maximum Circuit Current (NEC 690.8 (A)(1+2)	9.94	x	156%	=	15.5064	
Minimum Overcurrent Device	20	A	Series Fuse Rating by Manufacturer			
	Size AWG #					
Chosen Conductor Type (THHN, RHW-2, or USE-2)	10					
Conductor Derating						
NEC 690.31 © ref (NEC 310.16)						
Conductor 90°C Ampacity		40				
Conduit Fill Derating	4-6	40	x	0.8	=	32
Temperature Derating (°F)	132-140	32	x	0.71	=	22.72
Ampacity vs Overcurrent Device						
Conductor Ampacity Check		22.72		15.5064		OK
Conductor to Overcurrent Check		22.72		20		OK

Input Data Into Yellow Fields
Green Field must say OK

Use this calculation for over current protection and wire sizing for stringers coming from Solar Panels.
Isc comes from manufacturer

Ampacity Calculations

Wiring Location: Inverter to Service Entrance (Alternating Current)
All calculations show minimum sizing for ampacity
Actual wire sizing may be larger for voltage drop or other factors
All calculations are according to the 2017 National Electric Code

Modules: Hanwha Q-Peak DUO BLK-G5 320
Inverter: SolarEdge SE7600H-US

Initial Input Values						
Inverter Continuous AC Output Combined (Watts)	7600					
Minimum Operating Voltage	240					
		Watts		Volts		Amps
		7600	/	240	=	32
Inverter Continuous AC Amps		32				
Number of Inverters		32	x	1	=	32
Overcurrent Device Rating NEC 690.8 (B)(3)		32	x	125%	=	40
Minimum Overcurrent Device		40	Amps			
Circuit Breaker Size per NEC 240.6(A)		40	Amps			
		Size AWG #				
Chosen Conductor Type THHN,THWN,RHW-2 or USE-2		8				
Conductor Derating						
NEC 690.31© ref (NEC 310.16)						
Conductor 90°C Ampacity		55				
Conduit Fill Derating	1-3	55	x	1	=	55
Temperature Derating (°F)	96-104	55	x	0.91	=	50.05
Ampacity vs Overcurrent Device						
Conductor Ampacity Check		50.05		40		OK
Conductor to Overcurrent Check		50.05		40		OK

Input Data into Yellow Fields
Green Fields must say OK

Use this calculation for over current protection and wire sizing for inverter

CONTRACTOR

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AMPACITY CALCULATIONS

SHEET NUMBER

PV-4

PV LABELS

SIGNAGE REQUIREMENTS

> WARNING SIGNS OR LABELS SHALL COMPLY WITH NEC 110.21(B)
> MIN. 3/8" LETTER HEIGHT
> ALL CAPITAL LETTERS
> ARIAL OR SIMILAR FONT
> REFLECTIVE, WEATHER RESISTANT MATERIAL, UL 969

PHOTOVOLTAIC SYSTEM
DC DISCONNECT

OPERATING VOLTAGE: ____ VDC
OPERATING CURRENT: ____ AMPS
MAX SYSTEM VOLTAGE: ____ VDC
SHORT CIRCUIT CURRENT: ____ AMPS
CHARGE CONTROLLER MAX: ____ AMPS

NEC 690.53 — 1

APPLY TO:
INVERTER

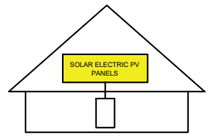
WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31(G)(3)(4) — 2

APPLY TO:
SOLAR DC CONDUIT

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



NEC 690.56(C)(1)(a) — 3

APPLY TO:
SOLAREDGE INVERTERS

⚠ WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13(B) — 4

APPLY TO:
DISCONNECTS
SOLAR LOAD CENTERS
COMBINER BOXES

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.5(C)(3) — 5

APPLY TO:
SMA AND SOLAREDGE INVERTERS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOLTAGE: ____ VDC
OPERATING CURRENT: ____ AMPS

NEC 690.54 — 6

APPLY TO:
AC DISCONNECT

⚠ WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

NEC 110.27(C) & OSHA 1910.145(f)(7) — 7

APPLY TO:
COMBINER BOXES
ENCLOSURES
BREAKER PANEL
MAIN SERVICE DISCONNECT

SOLAR PV BREAKER

BREAKER IS BACKFED
DO NOT RELOCATE

NEC 690.64(B)(7) & NEC 705.12(B)(2) — 8

APPLY TO:
PV SYSTEM BREAKER

⚠ WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12(D)(3) & NEC 690.64

APPLY TO:
MAIN SERVICE PANEL
METER — 9

DC JUNCTION BOX

⚠ WARNING

ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

PHOTOVOLTAIC POWER SOURCE

NEC 690.31(G)(2) — 10

APPLY TO:
DC JUNCTION BOXES

CONTRACTOR

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LABELING SCHEDULE

SHEET NUMBER

PV-5

powered by Q.ANTUM DUO

Q.PEAK DUO BLK-G5 300-320

Q.ANTUM SOLAR MODULE

The new Q.PEAK DUO BLK-G5 solar module from Q CELLS impresses with its outstanding visual appearance and particularly high performance on a small surface thanks to the innovative Q.ANTUM DUO Technology. Q.ANTUM's world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a six-busbar design, thus achieving outstanding performance under real conditions — both with low-intensity solar radiation as well as on hot, clear summer days.

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.3 %.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

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

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance guarantee[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2018

Q CELLS YIELD SECURITY
- ANTI PID TECHNOLOGY (APT)
- HOT-SPOT PROTECT (HSP)
- TRACEABLE QUALITY (TRA.Q™)
- ANTI LID TECHNOLOGY (ALT)

VDE Quality Tested
- high reliability
- low degradation
- frequent product surveillance

ID. 40032587

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (–1500 V, 168 h)
[2] See data sheet on rear for further information.

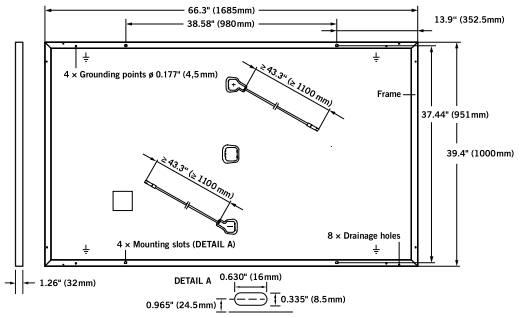
THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

Engineered in **Germany**

Q CELLS

MECHANICAL SPECIFICATION

Format	66.3 in × 39.4 in × 1.26 in (including frame) (1685 mm × 1000 mm × 32 mm)
Weight	41.2 lbs (18.7 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 × 20 monocrystalline Q.ANTUM solar half-cells
Junction box	2.76-3.35 in × 1.97-2.76 in × 0.51-0.83 in (70-85 mm × 50-70 mm × 13-21 mm), decentralized, IP67
Cable	4 mm² Solar cable; (+) ≥ 43.3 in (1100 mm), (–) ≥ 43.3 in (1100 mm)
Connector	Multi-Contact MC4, IP68

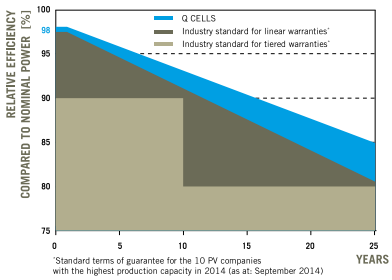


ELECTRICAL CHARACTERISTICS

POWER CLASS				300	305	310	315	320
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	300	305	310	315	320
	Short Circuit Current[1]	I_{SC}	[A]	9.72	9.78	9.83	9.89	9.94
	Open Circuit Voltage[1]	V_{OC}	[V]	39.48	39.75	40.02	40.29	40.56
	Current at MPP	I_{MPP}	[A]	9.25	9.31	9.36	9.41	9.47
	Voltage at MPP	V_{MPP}	[V]	32.43	32.78	33.12	33.46	33.80
	Efficiency[1]	η	[%]	≥ 17.8	≥ 18.1	≥ 18.4	≥ 18.7	≥ 19.0
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	224.1	227.8	231.6	235.3	239.1
	Short Circuit Current	I_{SC}	[A]	7.83	7.88	7.92	7.97	8.01
	Open Circuit Voltage	V_{OC}	[V]	37.15	37.40	37.66	37.91	38.17
	Current at MPP	I_{MPP}	[A]	7.28	7.32	7.37	7.41	7.45
	Voltage at MPP	V_{MPP}	[V]	30.78	31.11	31.44	31.76	32.08

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

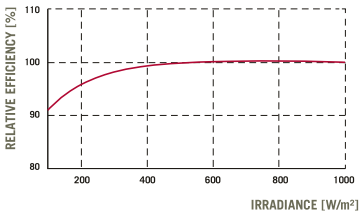
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year.
Thereafter max. 0.54 % degradation per year.
At least 93.1 % of nominal power up to 10 years.
At least 85 % of nominal power up to 25 years.

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

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]	–0.28
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.37	**Normal Operating Module Temperature**	NMOT	[°F]	109 ±5.4 (43 ±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	**Safety Class**	II
Maximum Series Fuse Rating	[A DC]	20	**Fire Rating**	C (IEC) / TYPE 1 (UL)
Max. Design Load, Push / Pull (UL)[2]	[lbs/ft²]	75 (3600 Pa) / 55 (2667 Pa)	**Permitted module temperature on continuous duty**	–40 °F up to +185 °F (–40 °C up to +85 °C)
Max. Test Load, Push / Pull (UL)[2]	[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)	[2] see installation manual	

QUALIFICATIONS AND CERTIFICATES

UL 1703; VDE Quality Tested; CE-compliant;
IEC 61215:2016; IEC 61730:2016, Application class A

C Certified US
UL 1703
(254141)

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	30
Number of Pallets per 40' High Cube Container	26
Pallet Dimensions (L × W × H)	69.3 in × 45.3 in × 46.9 in (1760 mm × 1150 mm × 1190 mm)
Pallet Weight	1415 lbs (642 kg)

NOTE: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

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INVERTERS

Single Phase Inverter with HD-Wave Technology

for North America

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

12-25 YEAR WARRANTY

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

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Single Phase Inverter with HD-Wave Technology for North America

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

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

[1] For other regional settings please contact SolarEdge support
[2] A higher current source may be used; the inverter will limit its input current to the values stated

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

POWER OPTIMIZER

PV power optimization at the module-level

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

solaredge

/ Power Optimizer
For North America
P320 / P340 / P370 / P400 / P405 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power[1]	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125[2]	83[2]	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.63		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)							
Maximum Output Current	15						Adc
Maximum Output Voltage	60				85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)							
Safety Output Voltage per Power Optimizer	1 ± 0.1						Vdc
STANDARD COMPLIANCE							
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3						
Safety	IEC62109-1 (class II safety), UL1741						
RoHS	Yes						
INSTALLATION SPECIFICATIONS							
Maximum Allowed System Voltage	1000						Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters						
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4[3]						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						˚C / ˚F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

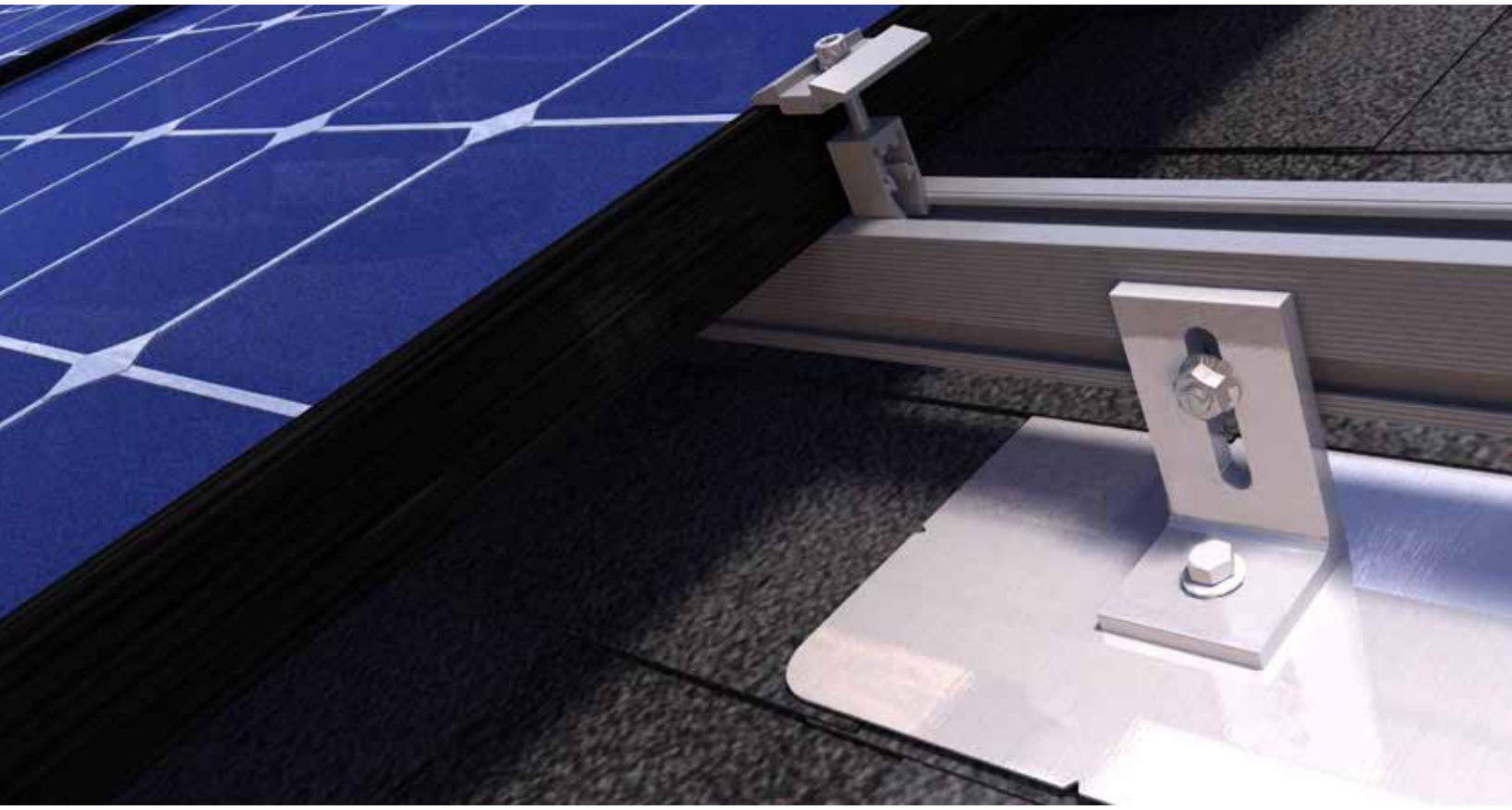
[1] Rated STC power of the module. Module of up to +5% power tolerance allowed
[2] NEC 2017 requires max input voltage be not more than 80V
[3] For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter[4][5]		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[6]	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000[7]	12750[8]	W
Parallel Strings of Different Lengths or Orientations		Yes				

[4] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
[5] It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string
[6] A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
[7] For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W
[8] For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

CE RoHS

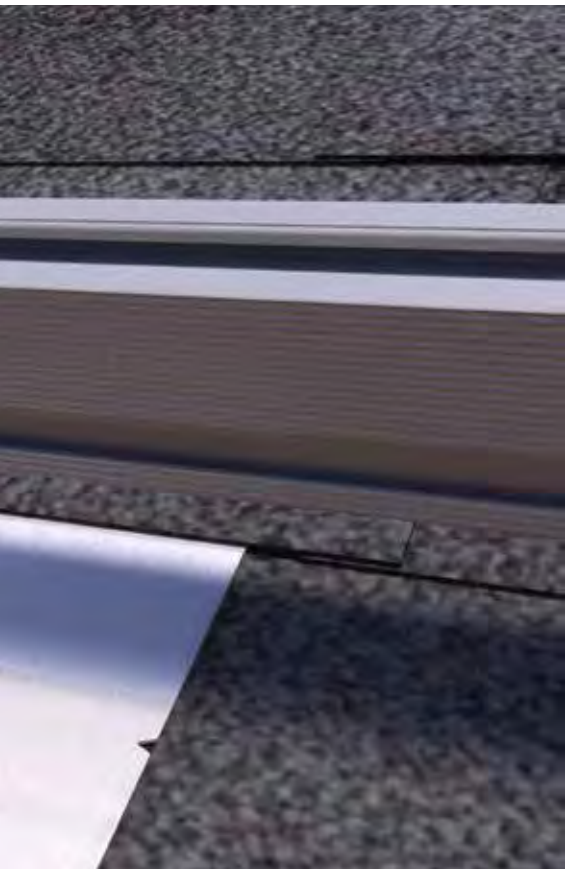
L-Mount® Series

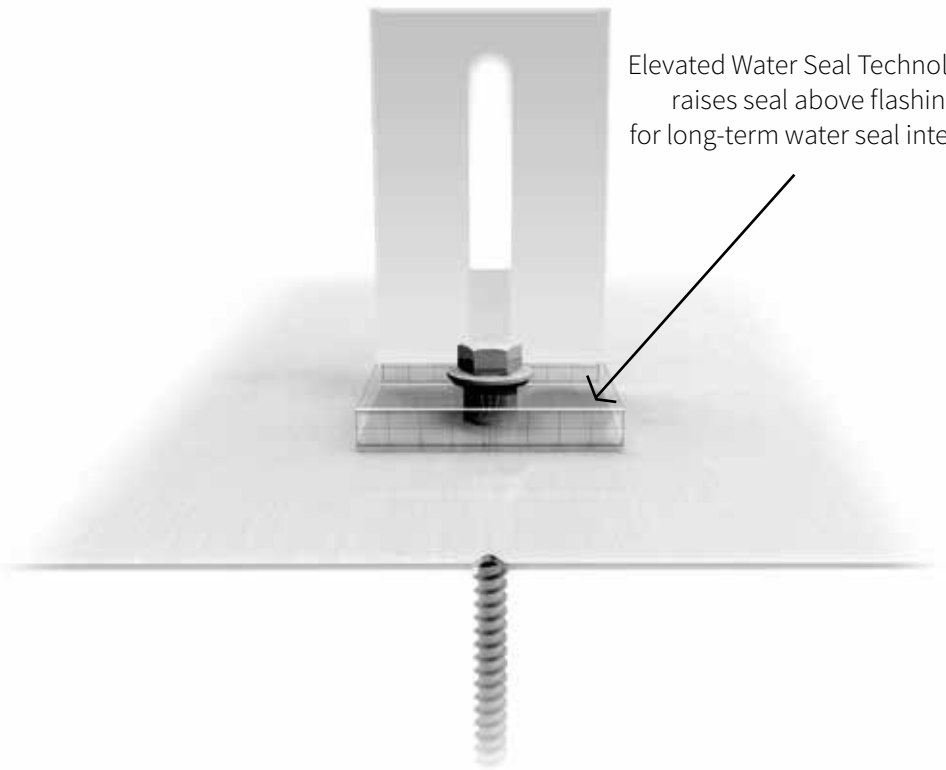


The L-Mount ® Series is designed for cost-effective, one-bolt installation onto existing composition/asphalt shingle roofs. Quick Mount PV engineered its patented Elevated Water Seal Technology® into an integrated L-foot and flashing for super-fast, single-lag bolt installation with unparalleled waterproofing. The L-Mount comes with a lag bolt or structural screw for attachment versatility and works with all leading racks. The L-Mount features a 9" x 12" aluminum flashing with alignment guides and rounded corners to easily slide under shingles and speed installation on the roof.

Features

- L-foot can be rotated 360 degree for optimal adjustability
- Works with all leading racks
- Available with lag bolt or structural screw
- QBlock® Elevated Water Seal Technology®
- Single bolt installation, no shingle cutting
- 9" x 12" aluminum flashing
- Meets or exceeds roofing industry best practices; 100% IBC compliant
- 18-8 stainless steel hardware included
- Alignment guides
- 25-year warranty



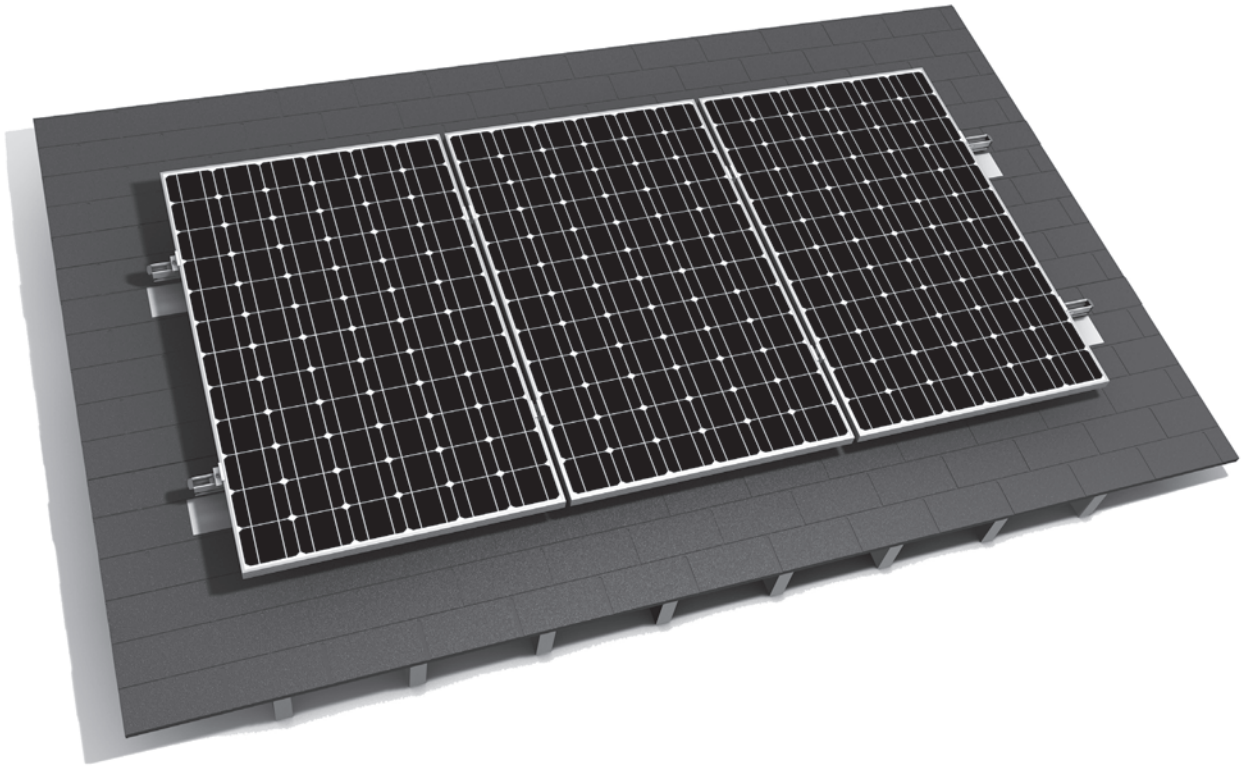


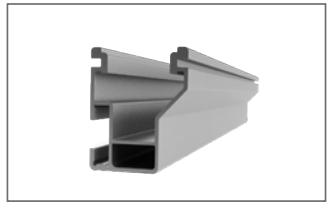
Single-Slot L-Mount with lag bolt

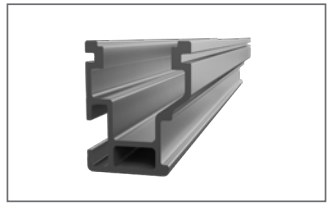
Single-Slot L-Mount

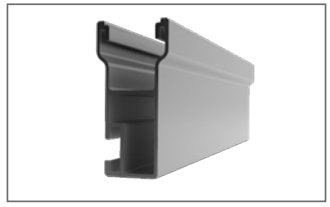
Available finishes:
aluminum mill (A); black (B)

Mounting systems for solar technology









EVEREST SOLAR SYSTEMS

RESIDENTIAL ROOF SOLUTIONS
CROSSRAIL SYSTEM

Everest Solar Systems, LLC
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Oceanside, CA 92056
Service-Hotline +1.760.301.5300
info@everest-solarsystems.com
www.everest-solarsystems.com

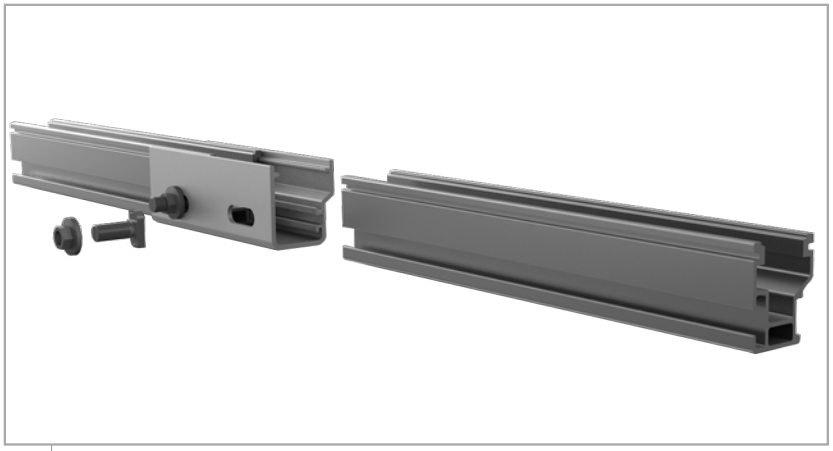
CROSSRAIL SYSTEM

LISTED

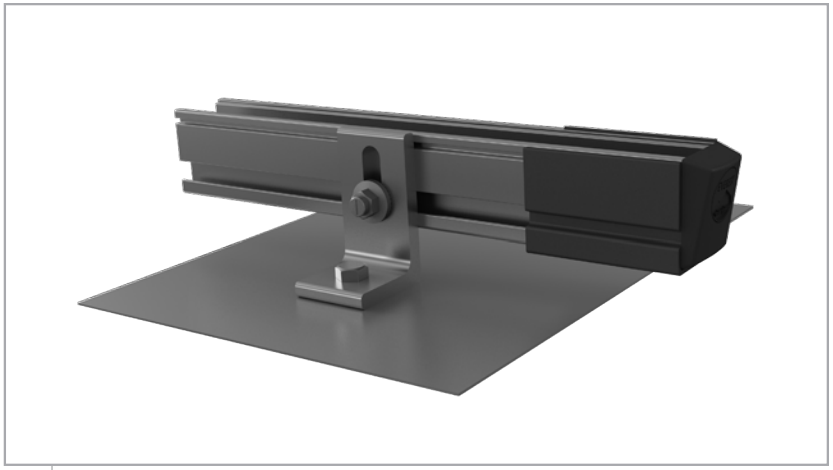
- High quality, German-engineered system optimized for residential installation
- MK3 mounting hardware simplifies module installation – fast, easy, and secure
- Easily integrates with third party roof attachment products
- L-foot provides adjustability and compatibility with common roof types
- 100% code-compliant, structural validation for all solar states
- Three rail sizes available to suit all structural conditions
- Most components also available in dark
- Fast installation with minimal component count result in low total installed cost
- Simple to design using code compliant Everest Online Design Tool
- Use two innovative components to turn this system into Shared Rail or Tilt Up

TECHNICAL DATA

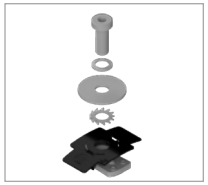
Applicable roof types	Composition shingle, tile, flat tile
Flexibility	Modular construction, suitable for any system size, height adjustable
PV modules	For all common module types
Module orientation	Portrait and landscape
Material	High corrosion resistance, stainless steel and high grade aluminum
Roof attachment	Screw connection into rafter
Structural validity	IBC compliant, stamped engineering letters available for all solar states
Warranty	20 years
System components	CrossRail 48-X/48-XL/80, L-Foot, Mid and End Clamp Sets



CrossRail Structural Splice



CrossRail with EverFlash, Rail Sleeve and End Cap



Bonding Mid Clamp | End Clamp | Micro, Optimizer & Accs Mounting Kit