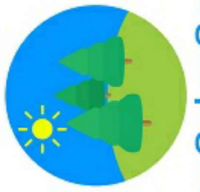


THE ANTHONY CAMPBELL RESIDENCE

201 KUYPER DRIVE, UPPER NYACK, NY 10960

10.000 kW (AC) AND 10.880 kW (DC) PHOTOVOLTAIC SYSTEM



Integrity Solar Solutions
"Ethical and Reliable Solar Installations"

COVER SHEET

THE ANTHONY CAMPBELL RESIDENCE
201 KUYPER DRIVE,
UPPER NYACK, NY 10960
FLOT B-1

INTEGRITY SOLAR LIC#18092-40
12-44 RIVER ROAD
SUITE 1065, FAIR LAWN, NJ, 07410
201-566-0487
PAUL@INTEGRITYSOLARSOLUTIONS.COM

SIGNED: _____ DATE: _____

05.22.2022

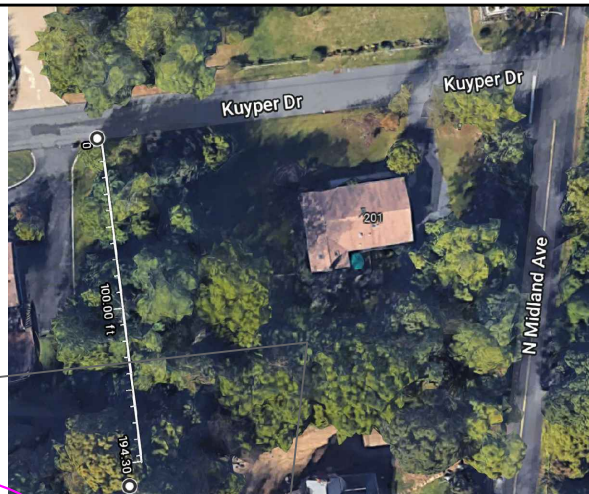
DRAWN BY: BPM
APN: 392001A0600050
0020280000000
LOT: 0.85 Acres
DWELLING: 2,204 Sq.Ft

C-1

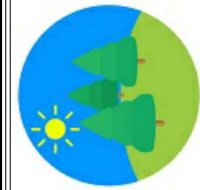
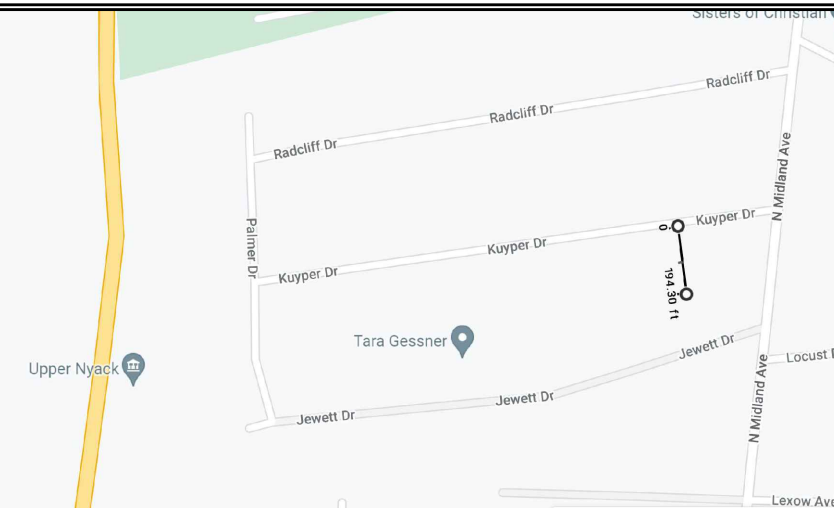
MODULE DIM: 68.5" X 40.55"
 MODULE WEIGHT: 43.87 lbs
 STRUCTURE TYPE: SFR
 NUMBER OF STORIES: 01
 ROOF FRAMING: 2"X 8" RAFTERS @ 16"O.C
 NUMBER OF ROOFS UTILIZED: 01

INVERTER: SOLAREEDGE HD-WAVE SE10000H-US (32 MODULES)
 (02) STRING OF 16 MODULES WITH (16) POWER OPTIMIZERS

UTILITY METER #701025445



VICINITY MAP



Integrity Solar Solutions
 "Ethical and Reliable Solar Installations"

SCOPE OF WORK

THIS PROJECT CONSISTS OF THE INSTALLATION OF (32) PHOTOVOLTAIC MODULES WITH (32) POWER OPTIMIZERS AND (1) UTILITY INTERACTIVE INVERTER. PV MODULES WILL BE MOUNTED TO AN EXISTING ASPHALT SHINGLE ROOFTOP USING ROOF TECH RT-MINI ATTACHMENTS WITH IRONRIDGE L-FOOT AND IRONRIDGE XR100 RAILS.

THE ATTACHMENT SYSTEM IS SPECIFICALLY DESIGNED TO WITHSTAND 130MPH WIND LOADS AND SEISMIC LOADS, 30PSF SNOW LOADS ON EXISTING ROOFTOPS. REFER TO CODE COMPLIANT INSTALLATION MANUAL FOR DETAILED INFORMATION AND WATER PROOFING SPECIFICATIONS.

SHEET INDEX

SHEET NO.	INDEX NO.	DESCRIPTION:
01	C-1	COVER SHEET
02	T-1	TITLE SHEET
03	M-1	PHOTOVOLTAIC EQUIPMENT PLAN
04	E-1	SINGLE LINE DIAGRAM
05	D-1	PHOTOVOLTAIC MODULE DATA SHEET
06	D-2	INVERTER DATA SHEET
07	D-3	OPTIMIZER DATA SHEET
08	D-4	ATTACHMENT DATA SHEET
09	D-5	ATTACHMENT DATA SHEET
10	D-6	RAILING DATA SHEET
11	L-1	WARNING PLACARDS

PROJECT JURISDICTION

PREPARED FOR:
 CITY OF COUNTY: VILLAGE OF UPPER NYACK
 ADDRESS: 328 N BROADWAY,
 CITY, STATE, ZIP: UPPER NYACK, NY 10960
 PH: (845) 358-0084

CODE COMPLIANCE

ALL WORK SHALL CONFORM TO ALL PERTINENT CODES, REGULATIONS, LAWS, AND ORDINANCES AS REQUIRED BY STATE OF NEW YORK

2020 RESIDENTIAL CODE OF NEW YORK STATE
 2020 BUILDING CODE OF NEW YORK STATE
 2020 PLUMBING CODE OF NEW YORK STATE
 2020 MECHANICAL CODE OF NEW YORK STATE
 2020 FUEL GAS CODE OF NEW YORK STATE
 2020 FIRE CODE OF NEW YORK STATE
 2020 PROPERTY MAINTENANCE CODE OF NEW YORK STATE
 2020 EXISTING BUILDING CODE OF NEW YORK STATE
 2017 NATIONAL ELECTRICAL CODE

PV SYSTEM SPECIFICATIONS

HANWHA Q-CELLS 340W Q.PEAK DUO BLK-G6 340	32	SOLAREEDGE SE10000H-US (240V)	01	ROOF TECH RT-MINI IRONRIDGE XR100 RAILS	19'	170'	10.880kW
		S440 POWER OPTIMIZERS	32				
MODULE	QTY.	INVERTER	QTY.	RACKING	TILT	AZIMUTH	DC POWER RATING (STC)

TITLE SHEET

THE ANTHONY CAMPBELL RESIDENCE
 201 KUYPER DRIVE,
 UPPER NYACK, NY 10960
 FLOT B-1

INTEGRITY SOLAR LIC#18092-40
 12-44 RIVER ROAD
 SUITE 1065, FAIR LAWN, NJ, 07410
 201-566-0487
 PAUL@INTEGRITYSOLARSOLUTIONS.COM

SIGNED: _____ DATE: _____

05.22.2022

DRAWN BY: BPM
 APN: 392001A0600050_0020280000000
 LOT: 0.85 Acres
 DWELLING: 2,204 Sq.Ft

T-1

KUYPER DRIVE

PL

ROOF ACCESS 36"x36"
 GROUND ACCESS PAD (NOT
 IN FRONT OF WINDOW, DOOR,
 OR ANY OPENING)

(N) JUNCTION BOX ON ROOF

DRIVEWAY

(1) 3/4" EMT
 CONDUIT ON
 ROOF/UNDER EAVE
 /IN ATTIC

(N) SOLAREEDGE
 HD-WAVE
 SE10000H-US INVERTER
 (OUTSIDE)

(N) VISIBLE, LOCKABLE AND
 LABELED 60A FUSED AC
 DISCONNECT WITH 60A FUSES
 NEMA-3R, 240V
 (OUTSIDE WITHIN 10FT OF
 UTILITY METER)

(E) UTILITY METER
 #701025445
 (OUTSIDE)

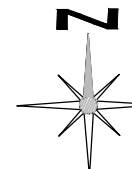
(E) 200A MAIN
 SERVICE PANEL
 (INSIDE)

FIRE CLEARANCE PER 2020 IFC

(N) PV ARRAY
 ON ROOF

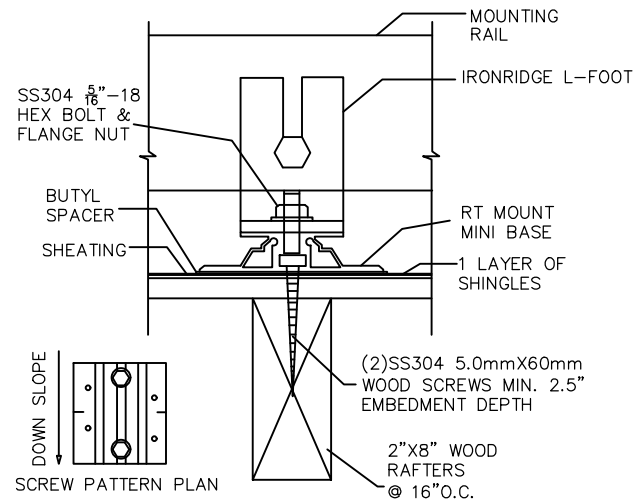
(N) PV MODULES WITH
 POWER OPTIMIZERS
 ATTACHED

N MIDLAND AVENUE

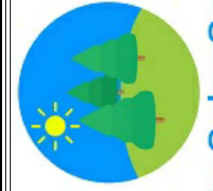
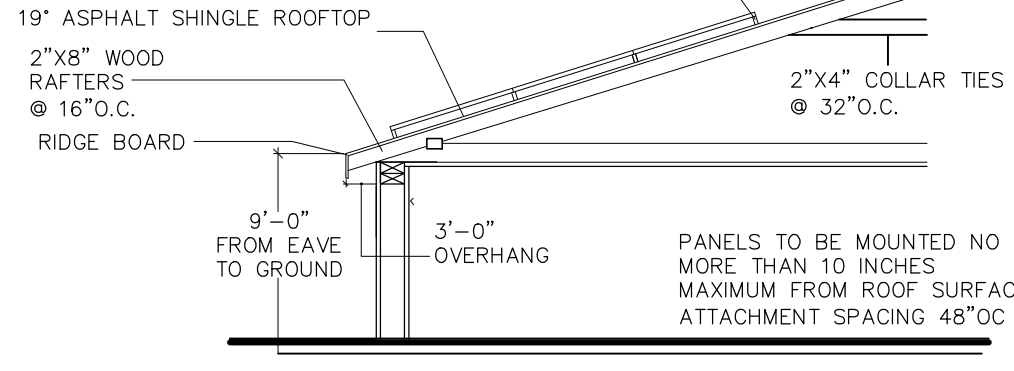


PHOTOVOLTAIC INSTALLATION PLAN

SCALE: 1"=30'



PV ATTACHED W/ROOF TECH RT-MINI ATTACHMENTS W/ IRONRIDGE L-FOOT AND IRONRIDGE XR100 RAIL SYSTEM. REFER TO DATA SHEETS FOR WIND AND VERTICAL FORCE DESIGN CHARACTERISTICS



Integrity Solar Solutions
Ethical and Reliable Solar Installations

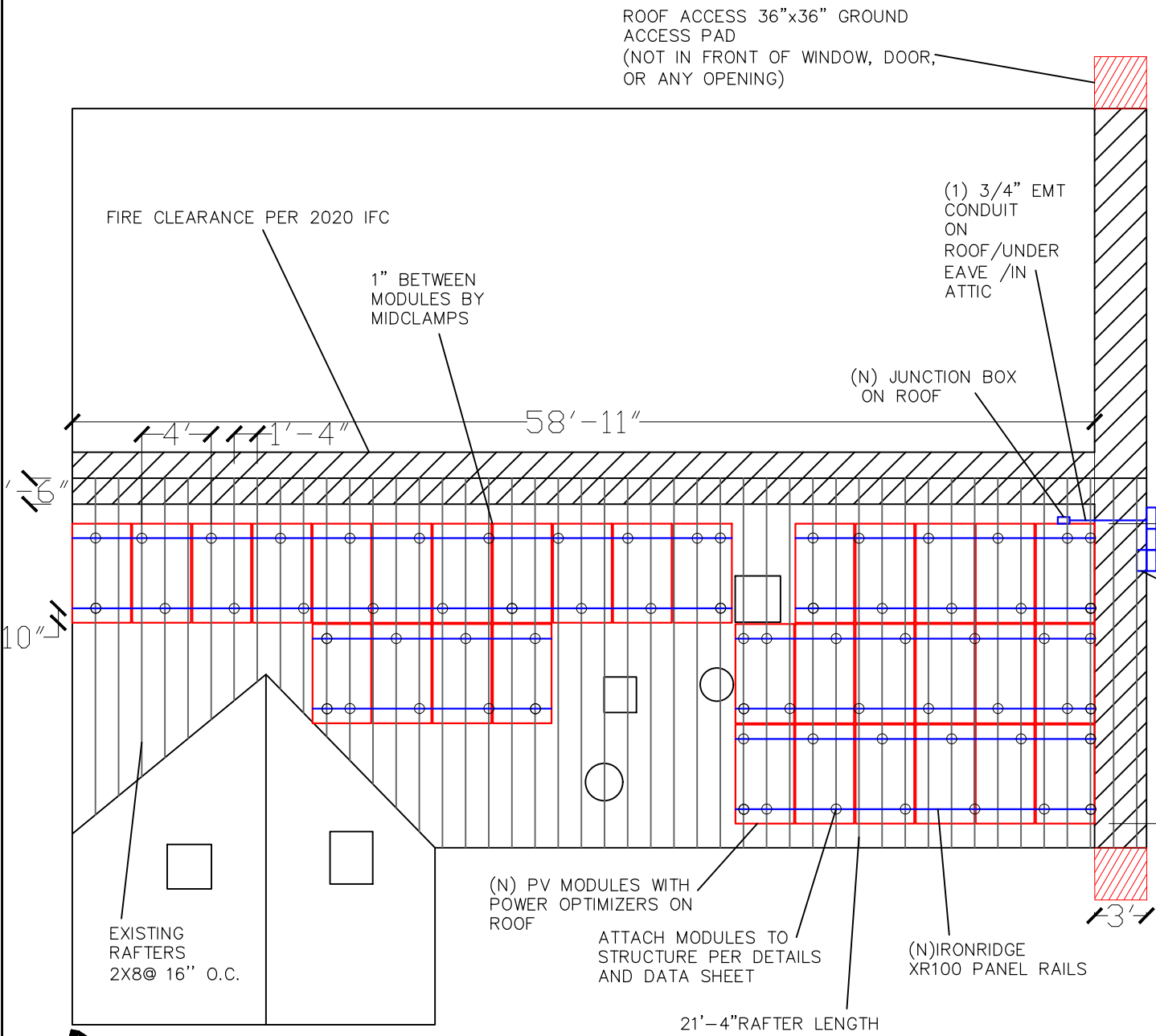
CONNECTION DETAIL

N.T.S.

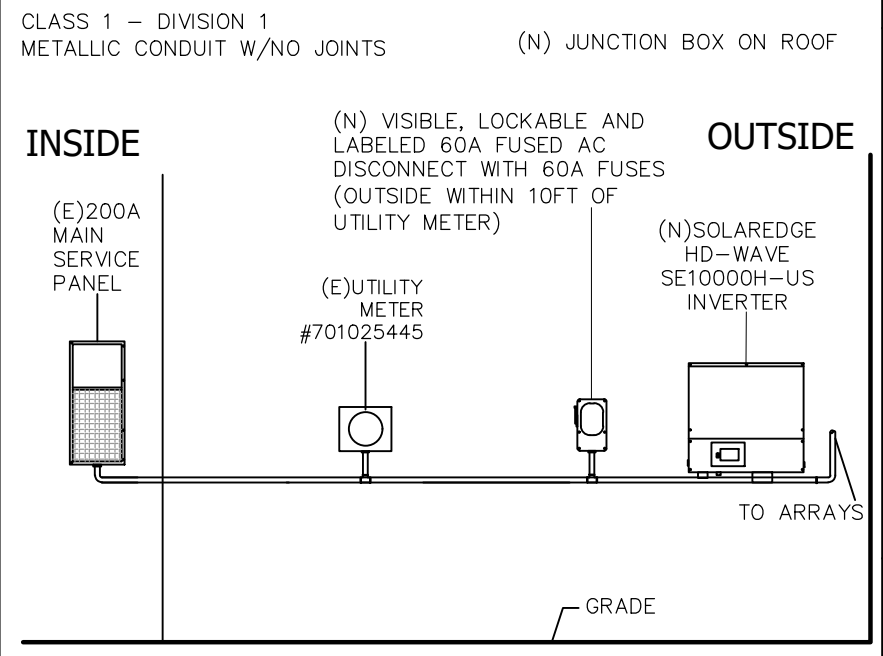
SECTION PLAN

N.T.S.

AERIAL VIEW



ROOF LOAD CALCULATION
 ROOF: 32 PANELS
 PV AREA SINGLE MODULE: 19.28 SQ. FT.
 PV AREA TOTAL: 616.96 SQ. FT.
 PV PANEL WEIGHT = 43.87 lbs
 MOUNTING HARDWARE WEIGHT=10 lbs/panel
 ENTIRE WEIGHT ON ROOF:
 (43.87 lbs, panels)x(32)+
 (1.5 lb optimizers)x(32)+
 (10 lbs, structure)x(32)+
 [1,403.84+48+320]=1,771.84 lbs
 1,771.84 lbs/616.96 sq.ft.=2.87 lbs/sqft
 UTILITY METER #701025445



MAIN SERVICE ELEVATION

- GENERAL NOTES:**
1. CONDUIT RUNS ARE DIAGRAMMATIC, SUBJECT TO FIELD CONDITIONS AND INSTALLATION CONTRACTOR'S FINAL LOCATIONS THAT MEET NEC REQUIREMENTS.
 2. ALL EQUIPMENT INSTALLED SHALL BE IN ACCORDANCE WITH ALL LOCAL BUILDING AND ELECTRICAL CODES.
 3. THE INSTALLATION CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND UNDERSTANDING THE SECTION OF THE INVERTERS OPERATION AND MAINTENANCE MANUAL THAT PERTAINS TO THE SAFETY AND PROPER INSTALLATION.
 4. THE SYSTEM SHALL NOT BE INTERCONNECTED UNTIL APPROVAL FROM LOCAL JURISDICTION AND THE UTILITY IS OBTAINED.
 5. ALL CONDUCTORS TO BE COPPER UNLESS SPECIFIED OTHERWISE.
 6. THE SOLAR PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.
 7. LIQUID TIGHT FLEXIBLE CONDUIT SHALL BE SUNLIGHT RESISTANT.
 8. THIS IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES



PV EQUIPMENT PLAN
 THE ANTHONY CAMPBELL RESIDENCE
 201 KUYPER DRIVE,
 UPPER NYACK, NY 10960
 FLOT B-1

INTEGRITY SOLAR LIC#18092-40
 12-44 RIVER ROAD
 SUITE 1065, FAIR LAWN, NJ, 07410
 201-566-0487
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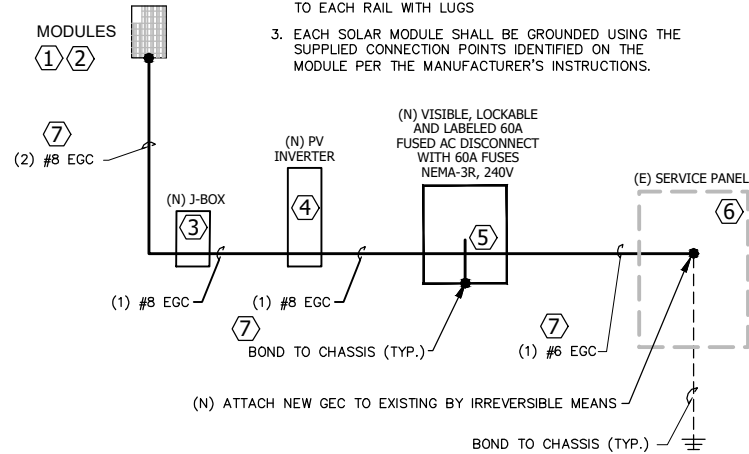
05.22.2022
 DRAWN BY: BPM
 APN: 392001A0600050
 00202800000000
 LOT: 0.85 Acres
 DWELLING: 2,204 Sq.Ft

M-1

PV ARRAY

GENERAL NOTES:

- IF SERVICE PANELS DO NOT HAVE EXISTING GROUNDING ELECTRODE, IT IS THE CONTRACTORS RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
- #8 BARE COPPER GROUND TO BE ATTACHED TO EACH MODULE DIRECTLY VIA GROUND LUGS AND ATTACHED TO EACH RAIL WITH LUGS
- EACH SOLAR MODULE SHALL BE GROUNDED USING THE SUPPLIED CONNECTION POINTS IDENTIFIED ON THE MODULE PER THE MANUFACTURER'S INSTRUCTIONS.



GROUNDING DETAIL

PV ARRAY INFORMATION

VALUE	DESCRIPTION
Module Wattage	340
Number of Modules	32
Module (VOC)	40.66V
Module (VMP)	33.94V
Module (ISC)	10.52A
Module (IMP)	10.02A
Max Voc of Inverter	480V
84°	Average high temperature °F
-16°	Record low temperature °F
Modules per Branch	16
Number of Branches	2
Branch VOC	650.56V
Branch VMP	543.04V
Branch ISC	21.04A
OVERALL SYSTEM AMPRE	42A

PV SYSTEM VALUES

GENERAL NOTES

- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- ALL CONDUCTORS TO BE COPPER UNLESS NOTED OTHERWISE.
- INTERMODULE WIRING-DURASHEATH LOW-VOLTAGE POWER, UNSHIELDED, EPR, HYP, VOLTS: 600VDC, U.L. TYPE RHH/RHW-2/USE-2 CONDUCTOR SIZE (AWG/KEMIL) 10, RATED AT 90° WET OR DRY WITH MULTI-CONTACT LOCKABLE CONNECTORS
- ANY DC WIRING RUNS IN THE INTERIOR OF THE HOME SHALL BE RUN IN A METAL CONDUIT OR RACEWAY AND CLEARLY MARKED "CAUTION DC-CIRCUIT" EVERY 5 FEET PER CODE REQUIREMENTS.
- ALL SOLAR MODULES, EQUIPMENT, AND METALLIC COMPONENTS ARE TO BE BONDED.
- IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE, IT IS THE PV CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
- IF THE EXISTING GROUNDING ELECTRODE SYSTEM CAN NOT BE VERIFIED OR IS ONLY METALLIC WATER PIPING, IT IS THE CONTRACTORS RESPONSIBILITY TO INSTALL A NEW SUPPLEMENTAL GROUNDING ELECTRODE.
- LISTING AGENCY NAMES AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B)
- PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRICAL SHOCK HAZARD-DO NOT TOUCH TERMINALS - terminals ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
- LABEL "PHOTOVOLTAIC UTILITY INTERACTIVE INVERTER" AND "WARNING POTENTIAL ARC FLASH HAZARD CAN CAUSE: SHOCK, BURN, OR DEATH."
- LABEL "PV SYSTEM UTILITY DISCONNECT SWITCH" SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE BLADE AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22
- LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.10 AND "BREAKERS ARE BACKFED" PER NEC 690.64(B)(5)
- ALL MODULES WILL BE GROUNDED IN ACCORDANCE WITH CODE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- LABEL "CAUTION" SOLAR CIRCUIT SHALL BE ON ALL EXPOSED CONDUIT, ENCLOSURES, CABLE ASSEMBLIES, JUNCTION BOXES AND ALL AC CONDUIT ON MICRO-INVERTER SYSTEMS.
- SEE DERATING PLACARD AND "LOAD CALCS TO BE FIELD VERIFIED BY INSPECTOR AT FIRST INSPECTION"
- PV CONNECTION IN PANEL BOARD SHALL BE POSITIONED AT THE OPPOSITE (LOAD) END FROM THE INPUT FEEDER LOCATION OR MAIN CIRCUIT LOCATION.

MODULES TO INVERTERS

TOTAL PV SYSTEM RATING = (MODULE WATTS) X (# OF MODULES IN ARRAY)
 MAX PV SYSTEM VOLTAGE = (VOC VOLTS) X (# OF MODULES) X CEC FACTOR
 MAX CIRCUIT CURRENT = CEC FACTOR X (TOTAL SYSTEM WATT/ TOTAL SYSTEM VOLT)

STRING:

(340 Wdc X 16 MODULES) = 5,440 Wdc
 (40.66 Vdc X 16 MODULES) = 650.56 Vdc -->"VOLTAGE LIMITED BY SOLAREEDGE POWER OPTIMIZER, COMPLIES"
 5,440 Wdc/650.56 Vdc x 1.25= 10.45A x 2 strings = 20.90A less than 45A , system complies

SYSTEM:

10,000 Wac
 240 Vac
 1.25 X 42 Aac output= 52.5 Aac
 32 MODULES X 340 Wdc = 10,880 Wdc LESS THAN 15,500Wdc SYSTEM COMPLIES

msp buss rated 200A X 120% =240A
 The Sum:
 mcb 200A+pv 60A= 260A
 System do not complies with the 120% rule, the sum exceeds 120%.
 Line Side Tap required.

WIRE CHART

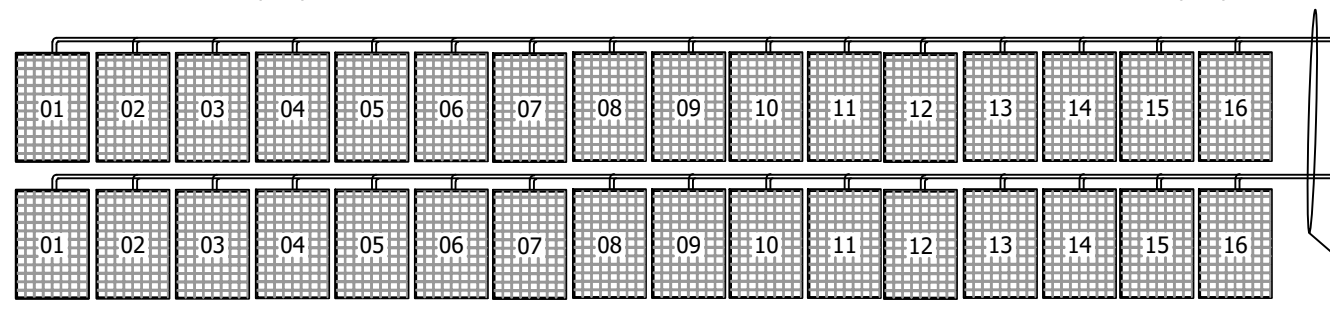
NEC 310.15(B)(3)(A)

ACTUAL

#10AWG @90C = 40A x temp deration of 80% for 4 conductors = 32A > 10.45A, system complies
 #6AWG @90C = 75A x temp deration of 80% for 4 conductors = 60A > 52.5A, system complies

PV ARRAY WITH POWER OPTIMIZERS

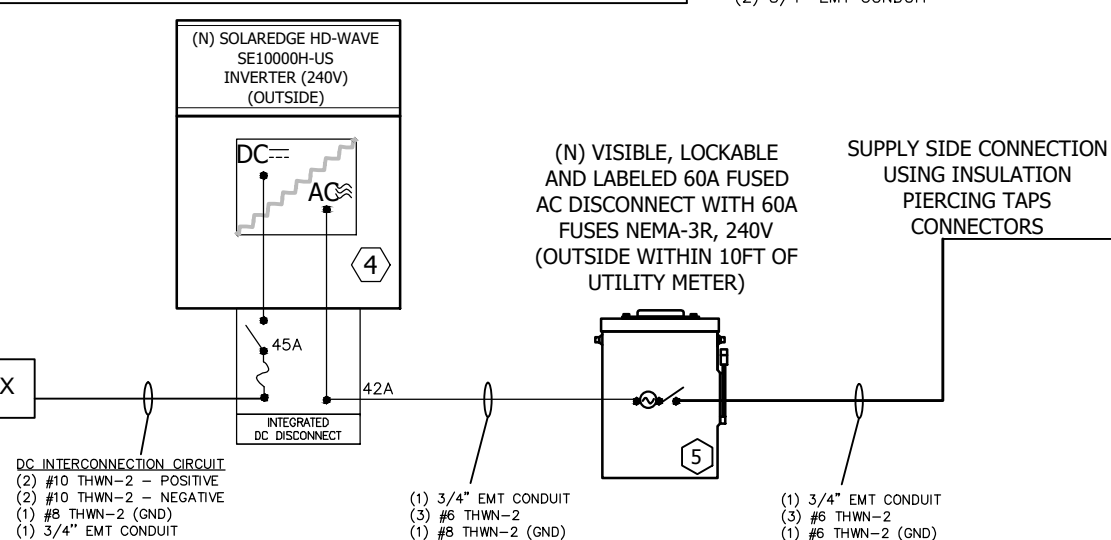
02 STRINGS OF (16) HANWHA Q.PEAK DUO BLK-G6 340W MODULES WITH (16) S440 SE POWER OPTIMIZERS



- (2) #10 USE-2 - POSITIVE
- (2) #10 USE-2 - NEGATIVE
- (2) #8 THWN-2 (GND)
- (2) 3/4" EMT CONDUIT

1 SINGLE LINE WIRING DIAGRAM

SCALE: N.T.S.



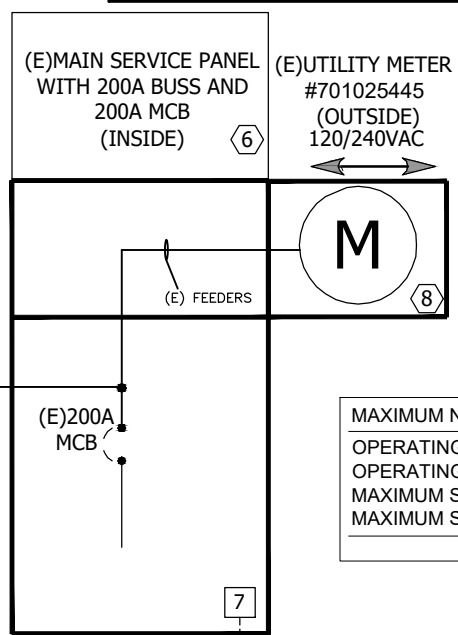
- DC INTERCONNECTION CIRCUIT
- (2) #10 THWN-2 - POSITIVE
- (2) #10 THWN-2 - NEGATIVE
- (1) #8 THWN-2 (GND)
- (1) 3/4" EMT CONDUIT

- (1) 3/4" EMT CONDUIT
- (3) #6 THWN-2
- (1) #8 THWN-2 (GND)

- (1) 3/4" EMT CONDUIT
- (3) #6 THWN-2
- (1) #6 THWN-2 (GND)

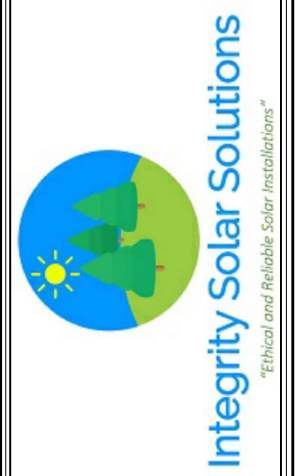
PV SYSTEM BOM

ITEM:	DESCRIPTION:	QTY.
1	PHOTOVOLTAIC MODULES: HANWHA Q-CELLS MODEL:Q.PEAK DUO BLK-G6 340	32
2	POWER OPTIMIZERS, S440, SOLAREEDGE	32
3	JUNCTION BOX NEMA 3R	1
4	INVERTER: SOLAREEDGE HD-WAVE SE10000H-US (240V),	1
5	VISIBLE, LOCKABLE AND LABELED 60A FUSED AC DISCONNECT WITH 60A FUSES NEMA-3R, 240V	1
6	200A MAIN SERVICE PANEL WITH 200A BUSS AND 200A MCB	1
7	SYSTEM GROUND	1
8	BI-DIRECTIONAL METER TO BE INSTALLED BY UTILITY COMPANY	1
9	RESERVED	0



Size AGW or MCM	85°-90° C TEMP (185° F)	
	AMPERES	
14	25	
12	30	
10	40	
8	55	
6	75	
4	95	
2	125	
1	145	
1/0	190	
2/0	215	
3/0	250	

MAXIMUM NUMBER OF MODULE IN STRING:	16
OPERATING CURRENT:	42A
OPERATING VOLTAGE:	400V
MAXIMUM SYSTEM VOLTAGE:	480V
MAXIMUM SHORT-CIRCUIT CURRENT:	52.5A



PV SINGLE LINE

THE ANTHONY CAMPBELL RESIDENCE
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 FLOT B-1

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SIGNED: _____ DATE: _____

05.22.2022
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 00202800000000
 LOT: 0.85 Acres
 DWELLING: 2,204 Sq.Ft

E-1



Q.PEAK DUO BLK-G6 330-345

ENDURING HIGH PERFORMANCE



THE IDEAL SOLUTION FOR:



Rooftop arrays on residential buildings

Engineered in Germany



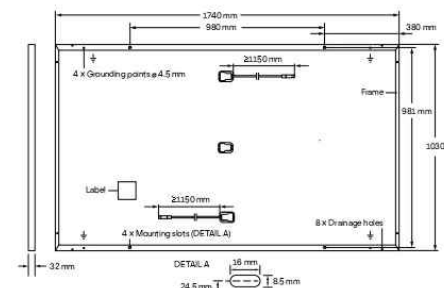
- Q.ANTUM TECHNOLOGY: LOW LEVELISED COST OF ELECTRICITY**
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5%.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behaviour.
- ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**
Inclusive 12-year product warranty and 25-year linear performance warranty².
- STATE OF THE ART MODULE TECHNOLOGY**
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

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



Format	1740 mm × 1030 mm × 32 mm (including frame)
Weight	19.9 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 1150 mm, (-) ≥ 1150 mm
Connector	Stäubli MC4, Hanwha Q CELLS HQC4; IP68

MECHANICAL SPECIFICATION

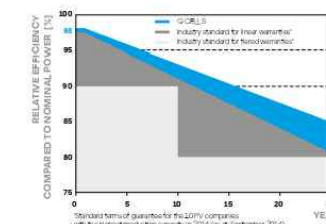


ELECTRICAL CHARACTERISTICS

POWER CLASS		330	335	340	345	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC* (POWER TOLERANCE +5 W / -0 W)						
Minimum	Power at MPP ¹	P _{MPP} [W]	330	335	340	345
	Short Circuit Current ²	I _{SC} [A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage ²	V _{OC} [V]	40.15	40.41	40.66	40.92
	Current at MPP	I _{MPP} [A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V _{MPP} [V]	33.29	33.62	33.94	34.25
	Efficiency ²	η [%]	≥ 18.4	≥ 18.7	≥ 19.0	≥ 19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ³						
Minimum	Power at MPP	P _{MPP} [W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I _{SC} [A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V _{OC} [V]	37.86	38.10	38.34	38.59
	Current at MPP	I _{MPP} [A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V _{MPP} [V]	31.66	31.97	32.27	32.57

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

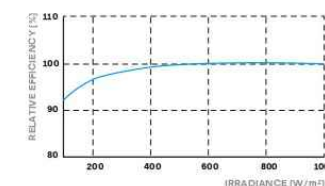
Q CELLS PERFORMANCE WARRANTY



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 organisation 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]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.36	Nominal Module Operating Temperature	NMOT [°C]	43 ± 3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V _{SYS} [V]	1000	PV module classification	Class II
Maximum Reverse Current	I _R [A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 2
Max. Design Load, Push / Pull	[Pa]	3600 / 2667	Permitted Module Temperature on Continuous Duty	-40 °C - +85 °C
Max. Test Load, Push / Pull	[Pa]	5400 / 4000		

QUALIFICATIONS AND CERTIFICATES

VDE Quality Tested, IEC 61215:2016; IEC 61730:2016. This data sheet complies with DIN EN 50380.



PACKAGING INFORMATION

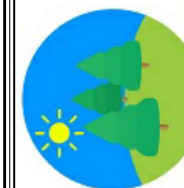
Horizontal packaging	1780 mm	1080 mm	1208 mm	673.8 kg	28 pallets	26 pallets	32 modules
Vertical packaging	1815 mm	1150 mm	1220 mm	683 kg	28 pallets	24 pallets	32 modules

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. Q CELLS supplies solar modules in two different stacking methods, depending on the location of manufacture (modules are packed horizontally or vertically). You can find more detailed information in the document "Packaging and Transport Information", available from Q CELLS.

Hanwha Q CELLS GmbH

Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.q-cells.com

Engineered in Germany



Integrity Solar Solutions
"Ethical and Reliable Solar Installations"

MODULE DATA SHEET

THE ANTHONY CAMPBELL RESIDENCE
201 KUYPER DRIVE,
UPPER NYACK, NY 10960
FLOT B-1

INTEGRITY SOLAR LIC#18092-40
12-44 RIVER ROAD
SUITE 1065, FAIR LAWN, NJ, 07410
201-566-0487
PAUL@INTEGRITYSOLARSOLUTIONS.COM

SIGNED: _____ DATE: _____

05.22.2022

DRAWN BY: BPM
APN: 392001A0600050
0020280000000
LOT: 0.85 Acres
DWELLING: 2,204 Sq.Ft

D-1

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



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- 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)

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

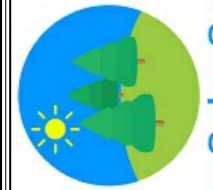
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
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	
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	600ka Sensitivity								
Maximum Inverter Efficiency	99	99.2						%	
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%	
Nighttime Power Consumption	< 2.5							W	
ADDITIONAL FEATURES									
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)								
Revenue Grade Data, ANSI C12.20	Optional ⁽³⁾								
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect								
STANDARD COMPLIANCE									
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07								
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)								
Emissions	FCC Part 15 Class B								
INSTALLATION SPECIFICATIONS									
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				1" Maximum /14-4 AWG				
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG				1" Maximum / 1-3 strings / 14-6 AWG				
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185				in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6				lb / kg	
Noise	< 25				<50				dBA
Cooling	Natural Convection								
Operating Temperature Range	-13 to +140 / -25 to +60 ⁽⁴⁾ (-40°F / -40°C option) ⁽⁵⁾							°F / °C	
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

⁽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
⁽³⁾ Revenue grade inverter P/N: SExxxxH-US000NNC2
⁽⁴⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>
⁽⁵⁾ -40 version P/N: SExxxxH-US000NNU4

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RoHS



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D-2

Power Optimizer

S440, S500



POWER OPTIMIZER

PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

solaredge.com



Power Optimizer

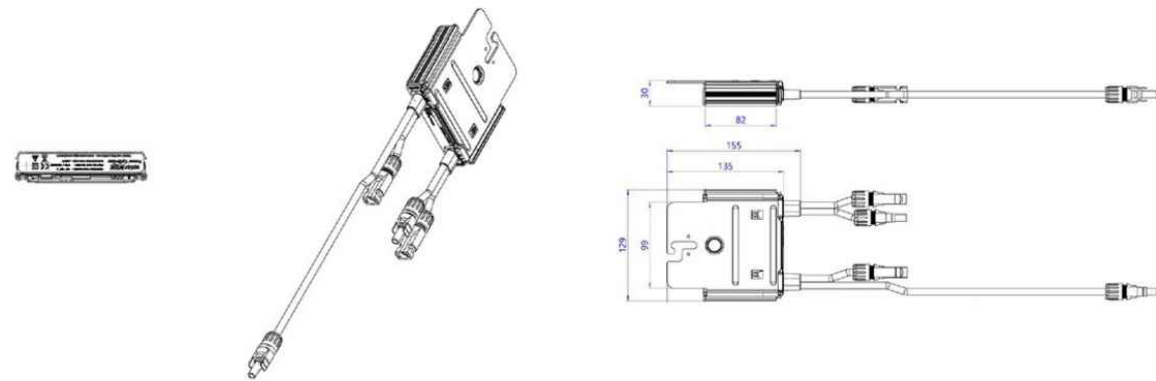
S440, S500

	S440	S500	UNIT
INPUT			
Rated Input DC Power ⁽¹⁾	440	500	W
Absolute Maximum Input Voltage (Voc)		60	Vdc
MPPT Operating Range		8 - 60	Vdc
Maximum Short-Circuit Current (Isc) of Connected PV Module		14.5	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.6	%
Overvoltage Category		II	
OUTPUT DURING OPERATION			
Maximum Output Current		15	Adc
Maximum Output Voltage		60	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer		1	Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 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 153 x 30	mm
Weight (including cables)		655 / 1.5	gr / lb
Input Connector		MC4 ⁽²⁾	
Input Wire Length		0.1	m
Output Connector		MC4	
Output Wire Length		(+) 2.3, (-) 0.10	m
Operating Temperature Range ⁽³⁾		-40 to +85	°C
Protection Rating		IP68 / NEMA6P	
Relative Humidity		0 - 100	%

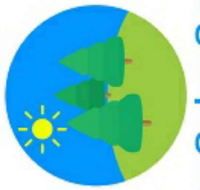
(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
 (2) For other connector types please contact SolarEdge.
 (3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Using a SolarEdge Inverter	Single Phase HD-Wave	Single Phase	Three Phase	Three Phase for 277/480V grid
Minimum String Length (Power Optimizers)	S440, S500	8	16	18
Maximum String Length (Power Optimizers)		25		50
Maximum Nominal Power per String ⁽⁴⁾		5700	5250	11250 ⁽⁶⁾
Parallel Strings of Different Lengths or Orientations			Yes	12750 ⁽⁶⁾

(4) If the inverters rated AC power is maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>
 (5) For the 230/400V grid: It is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W
 (6) For the 277/480V grid: It is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W
 (7) It is not allowed to mix S-series and P-series power optimizers in new installations



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OPTIMIZER DATA SHEET

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 0020280000000
 LOT: 0.85 Acres
 DWELLING: 2,204 Sq.Ft

D-3

RT-MINI

Self-flashing base for asphalt & metal roof-top PV mounting systems

RT-MINI is suitable for mounting any rail system with a conventional L-Foot.



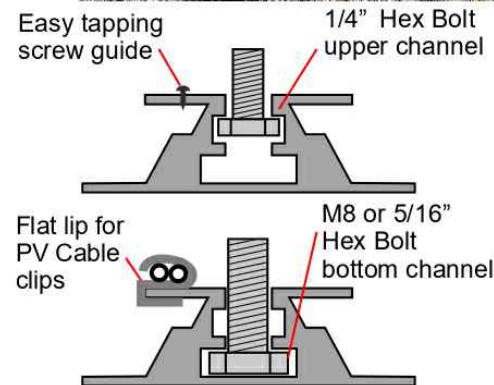
Dual bolt design: M8 or 5/16" for L-Foot & 1/4" for EMC



ICC ESR 3575

Call Now for more details

858-935-6064



RT-MINI

Flexible Flashing certified by the International Code Council (ICC)

Engineered to ASTM D 1761 (Standard Test Methods for Mechanical Fasteners in Wood)

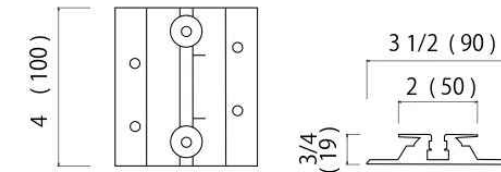
Components

RT2-00-MINIBK
PAT : PENDING

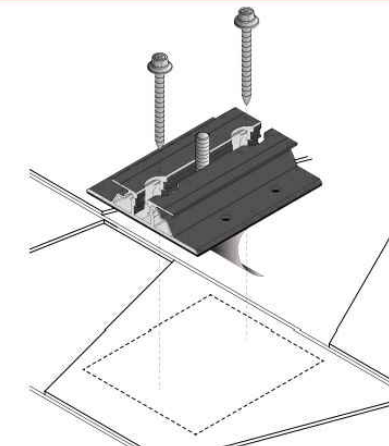


MINI base : 20 ea.
Screw : 40 ea.
Extra RT-Butyl : 10 ea.

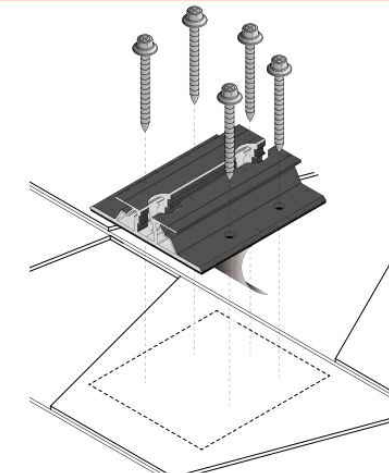
Dimensions in (mm)



Rafter installation

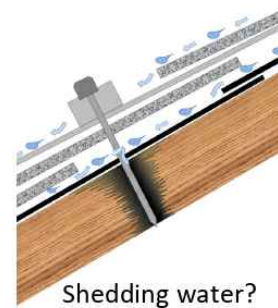


Deck installation

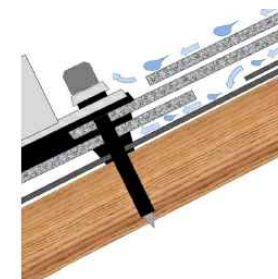


RT-Butyl is Roof Tech's flexible flashing used in 550,000 residential PV systems for the last 20 years. It is the first PV mounting system with Flexible Flashing certified by the ICC.

Metal Flashing Retrofit



Flexible Flashing



Shedding water?

100% Waterproof

ICC ESR-3575

ASTM2140 testing UV testing (7500 hrs.)

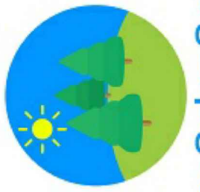


P.E. Stamped Letters available at www.roof-tech.us/support



Smarter PV mounting solutions from top of roof to bottom line®
www.roof-tech.us info@roof-tech.us

Roof Tech Inc.
www.roof-tech.us info@roof-tech.us
10620 Trenea Street, Suite 230, San Diego, CA 92131
858.935.6064



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ATTACHMENT DATA SHEET

THE ANTHONY CAMPBELL RESIDENCE
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FLOT B-1

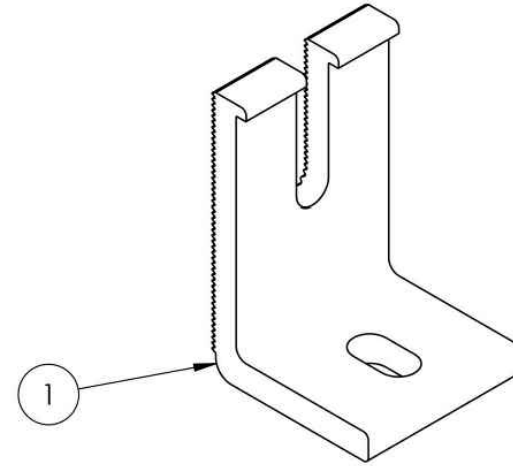
INTEGRITY SOLAR LIC#18092-40
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SUITE 1065, FAIR LAWN, NJ, 07410
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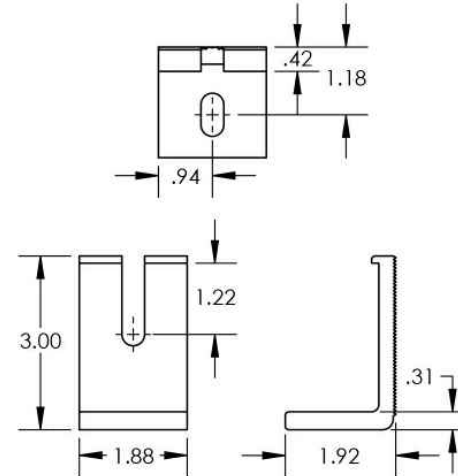
D-4



Item Number	Component
1	FOOT, EXTRUDED L - SLOTTED

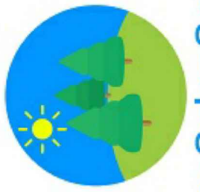
Part Number	Description
LFT-03-M1	SLOTTED L-FOOT, MILL
LFT-03-B1	SLOTTED L-FOOT, BLACK

1) Foot, Extruded L - Slotted



Property	Value
Material	Aluminum
Finish	Mill / Black

v1.10



ATTACHMENT DATA SHEET

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D-5



Built for solar's toughest roofs.

IronRidge builds the strongest roof mounting system in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.



Strength Tested

All components evaluated for superior structural performance.



PE Certified

Pre-stamped engineering letters available in most states.



Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.



Design Software

Online tool generates a complete bill of materials in minutes.



Integrated Grounding

UL 2703 system eliminates separate module grounding components.



20 Year Warranty

Twice the protection offered by competitors.

XR Rails

XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear & black anod. finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear & black anod. finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

Internal Splices



All rails use internal splices for seamless connections.

- Self-tapping screws
- Varying versions for rails
- Grounding Straps offered

Attachments

FlashFoot



Anchor, flash, and mount with all-in-one attachments.

- Ships with all hardware
- IBC & IRC compliant
- Certified with XR Rails

Slotted L-Feet



Drop-in design for rapid rail attachment.

- High-friction serrated face
- Heavy-duty profile shape
- Clear & black anod. finish

Standoffs



Raise flush or tilted systems to various heights.

- Works with vent flashing
- Ships pre-assembled
- 4" and 7" Lengths

Tilt Legs



Tilt assembly to desired angle, up to 45 degrees.

- Attaches directly to rail
- Ships with all hardware
- Fixed and adjustable

Clamps & Grounding

End Clamps



Slide in clamps and secure modules at ends of rails.

- Mill finish & black anod.
- Sizes from 1.22" to 2.3"
- Optional Under Clamps

Grounding Mid Clamps



Attach and ground modules in the middle of the rail.

- Parallel bonding T-bolt
- Reusable up to 10 times
- Mill & black stainless

T-Bolt Grounding Lugs



Ground system using the rail's top slot.

- Easy top-slot mounting
- Eliminates pre-drilling
- Swivels in any direction

Accessories



Provide a finished and organized look for rails.

- Snap-in Wire Clips
- Perfected End Caps
- UV-protected polymer

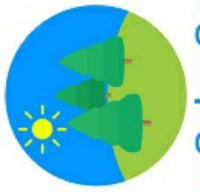
Free Resources



Design Assistant
Go from rough layout to fully engineered system. For free.
Go to IronRidge.com/m



NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to IronRidge.com/training



RAILING DATA SHEET

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D-6

JUNCTION BOX & CONDUIT RACEWAYS

NEC 690.31(E)(3) – CONDUIT / ALL JUNCTION BOXES

WARNING:
PHOTOVOLTAIC POWER SOURCE

NEC 690.35(F) – UNDERGROUND SYSTEM JUNCTION BOXES

WARNING:
ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNDERGROUND AND MAY BE
ENERGIZED.

DC DISCONNECTS

NEC 690.14(4) GROUNDED SYSTEMS

WARNING:
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE
ENERGIZED IN THE OPEN
POSITION.

NEC 690.35(F) UNGROUNDED SYSTEMS

WARNING:
ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNDERGROUND AND MAY BE
ENERGIZED.

NEC 690.14(C)(2)

**PHOTOVOLTAIC
DC DISCONNECT**

NEC 690.53

"GRID-TIED PHOTOVOLTAIC POWER SOURCE"
OPERATING CURRENT: 42A
OPERATING VOLTAGE: 400V
MAXIMUM SYSTEM VOLTAGE: 480V
MAXIMUM SYSTEM CURRENT: 52.5A
MAXIMUM INVERTER OUTPUT: 10,000W, 52.5A, 240VAC

INVERTER

NEC 690.5(C) – GROUNDED SYSTEMS

WARNING:
ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS
INDICATED, NORMALLY
GROUNDED CONDUCTORS MAY
BE UNDERGROUND AND
ENERGIZED

NEC 690.35(F) – UNGROUNDED SYSTEMS

WARNING:
ELECTRIC SHOCK HAZARD
DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNDERGROUND AND MAY BE
ENERGIZED

PRODUCTION METER

ONLY AT METER LOCATION

**PHOTOVOLTAIC
SYSTEM METER**

AC DISCONNECTS

NEC 690.14(C)(2)

**PHOTOVOLTAIC
AC DISCONNECT**

NEC 690.54

NOMINAL AC VOLTAGE 240V
RATED AC OUTPUT CURRENT 42A

ON A LINE SIDE TAP

WARNING: DUAL POWER SOURCE
SECOND SOURCE IS PV SYSTEM

PER CODE NEC 690.56(C)

**PHOTOVOLTAIC SYSTEM
EQUIPPED WITH RAPID
SHUTDOWN**

1 **WARNING PLACARDS**
SCALE: N.T.S.

MAIN SERVICE PANEL

NEAR PV BREAKER

WARNING:
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT PROTECTION
DEVICE

690.56(B) – ON PANEL COVER

WARNING: DUAL POWER SOURCE
POWER IS BEING SUPPLIED TO
THIS PANEL FROM THE UTILITY
AND A SOLAR PV SYSTEM.
THE SOLAR PV DISCONNECT IS
LOCATED:

NEC 690.14(C)(2) – NEAR PV BREAKER

**PHOTOVOLTAIC
AC DISCONNECT**

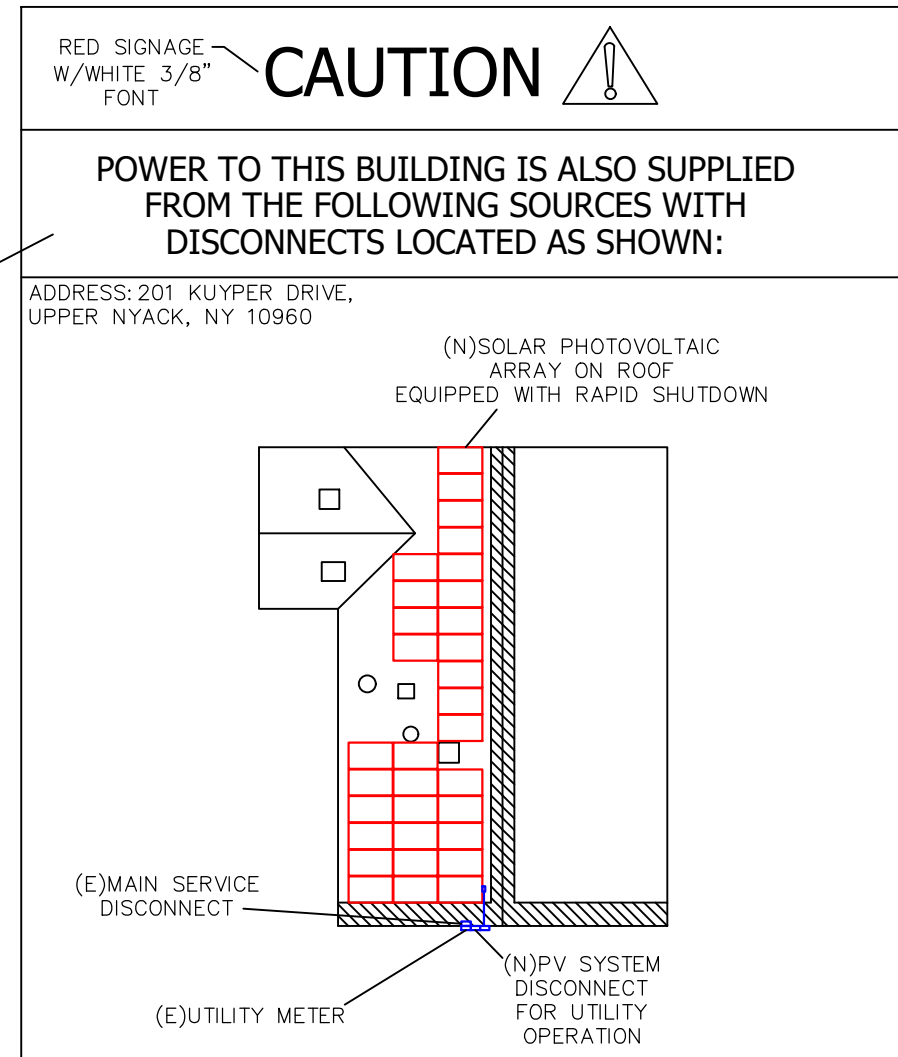
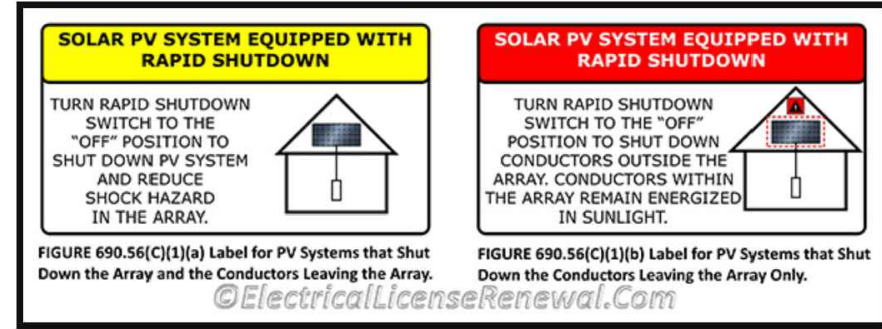
NEC 690.54 – ON PANEL COVER

NOMINAL AC VOLTAGE 240V
RATED AC OUTPUT CURRENT 42A

RED SIGNAGE
W/WHITE 1/4"
FONT

RED SIGNAGE
W/WHITE 1/8"
FONT TYP.

690.56(C) Buildings with Rapid Shutdown.



WARNING PLACARDS
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L-1