GENERAL NOTES

AERIAL VIEW

1. INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEM SHALL BE IN ACCORDANCE WITH NEC ARTICLE 690, AND ALL OTHER APPLICABLE NEC CODES WHERE NOTED OR EXISTING.

2. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL COMPLY WITH NEC ARTICLE 110. 3. ALL WIRES, INCLUDING THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE IN ACCORDANCE WITH NEC ARTICLE 250

4. THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE; THIS SYSTEM IS UTILITY INTERACTIVE PER UL 1741 AND DOES NOT INCLUDE STORAGE BATTERIES OR OTHER ALTERNATIVE STORAGE SOURCES.

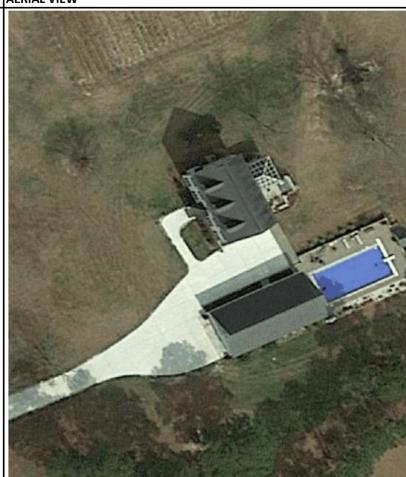
5. ALL DC WIRES SHALL BE SIZED ACCORDING TO [NEC 690.8]

6. DC CONDUCTORS SHALL BE WITHIN PROTECTED RACEWAYS IN ACCORDANCE WITH [NEC 690.31]

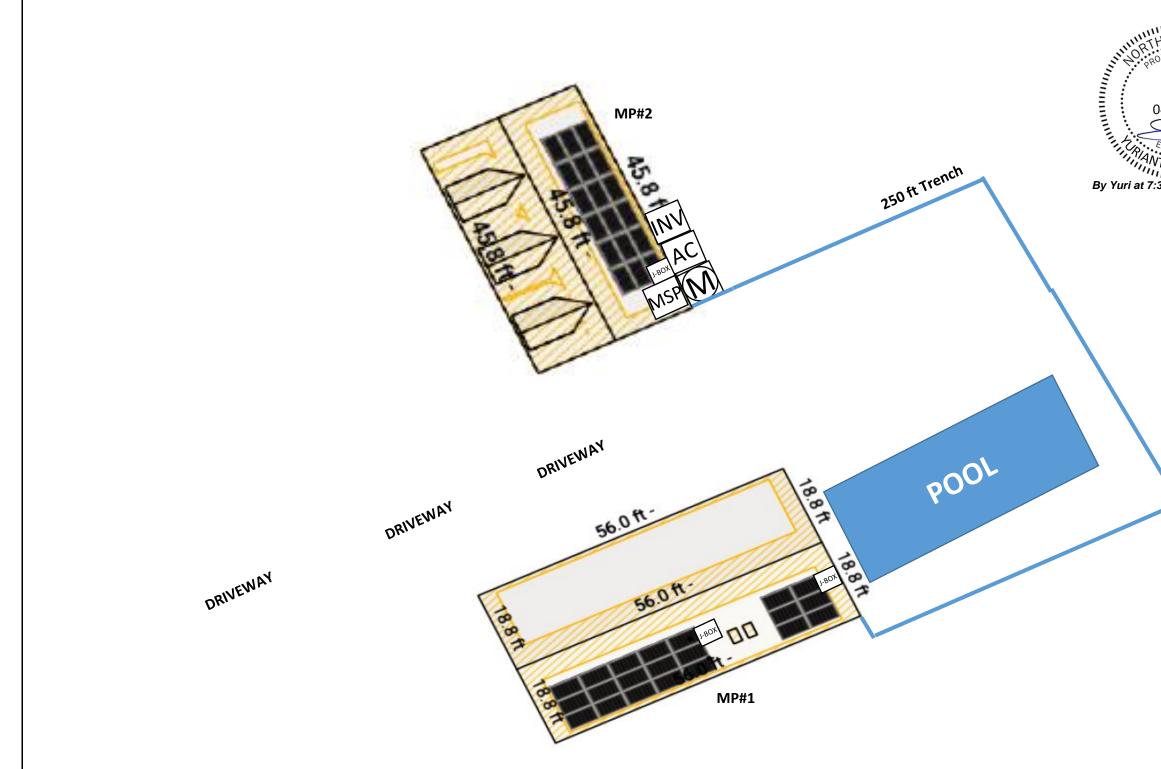
7. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL JURISDICTIONAL BUILDING CODE.



	APPLICABLE CODES	:					DESCRIPT	FION OF DESIGN:		
GAF ENERGY	2017 NORTH CARO 2018 NORTH CARO 2018 NORTH CARO 2018 NORTH CARO	LINA BUILDING CO LINA FIRE CODE	DDE				INSTALLA	TION OF GRID TIED, UTILITY ENT: DC SYSTEM SIZE: AC SYSTEM SIZE:	14.04 KW	PHOTOVOLTAIC SYSTE (39) PV Modu (1) Inverter:
ADDRESS:			CONTRACTOR:				EQUIPME	ENT:		
Ruth Frame			GAF Energy LLC (NC)				14.04	KW (DC)	11.4	KW (AC)
1296 Young Rd			973.628.3411	125 Mitchell Blvd, S	Suite D		(39)	Solaria PowerXT 360R-PD) (1)	SolarEdge SE11400H
Angier	NC	27501	U.33879	San Rafael	CA	94903				

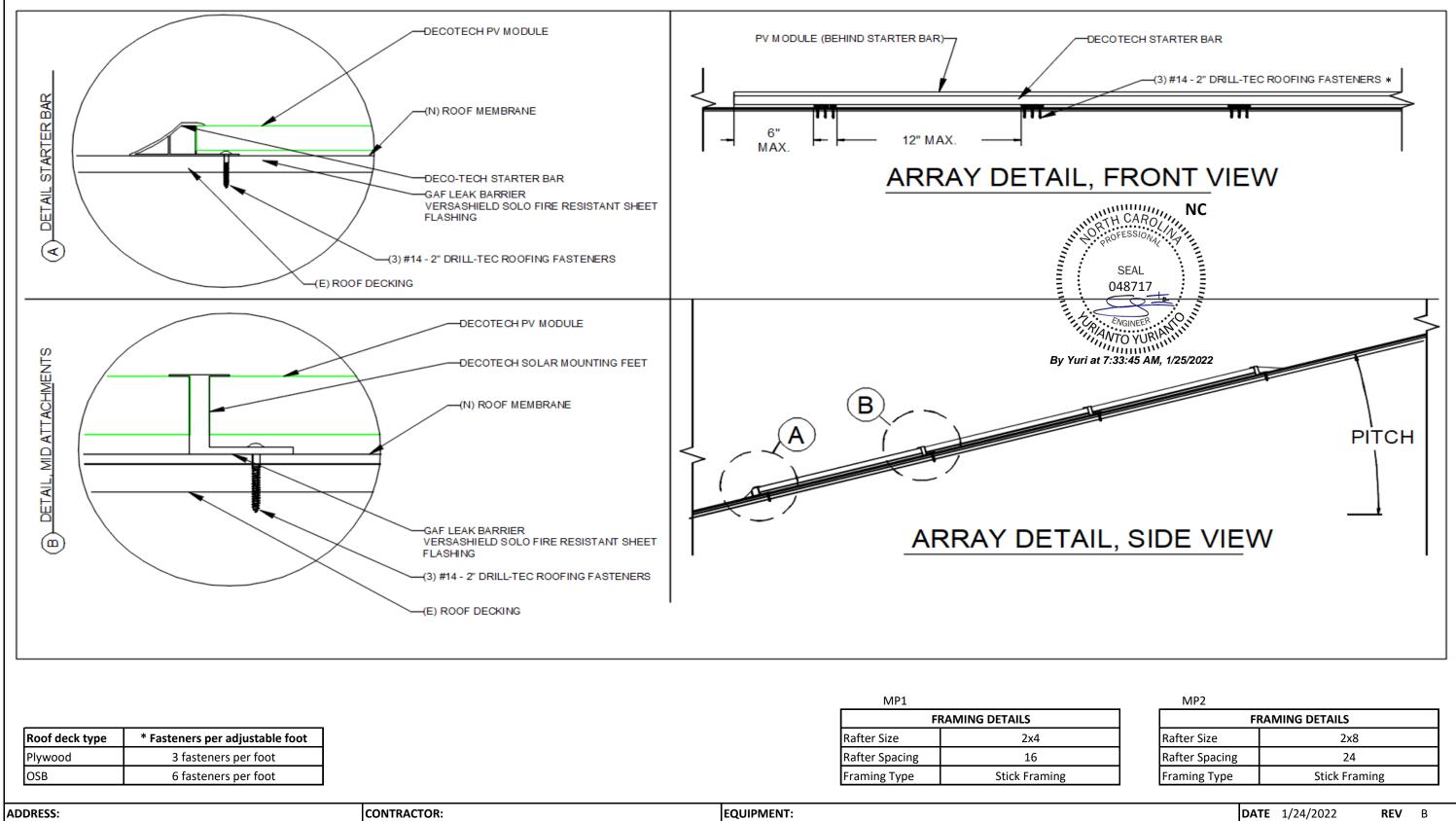


	SHEET	INDEX
Carlo alla	PV1	Cover Page
	PV1 PV2	Cover Page
The second second		Site Plan
	PV3	Mounting Detail
	PV4	Electrical Diagram
	PV5	Labels
	PV6	Placard
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	0	1/31/2022 Harnett
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	Cutsh	eets
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ules: Solaria PowerXT 3	60R-PD	1
: SE11400H-US		
	DATE	1/24/2022 REV B
	PV1	
H-US (240V)	COVER	R PAGE
	BY:	CBennett

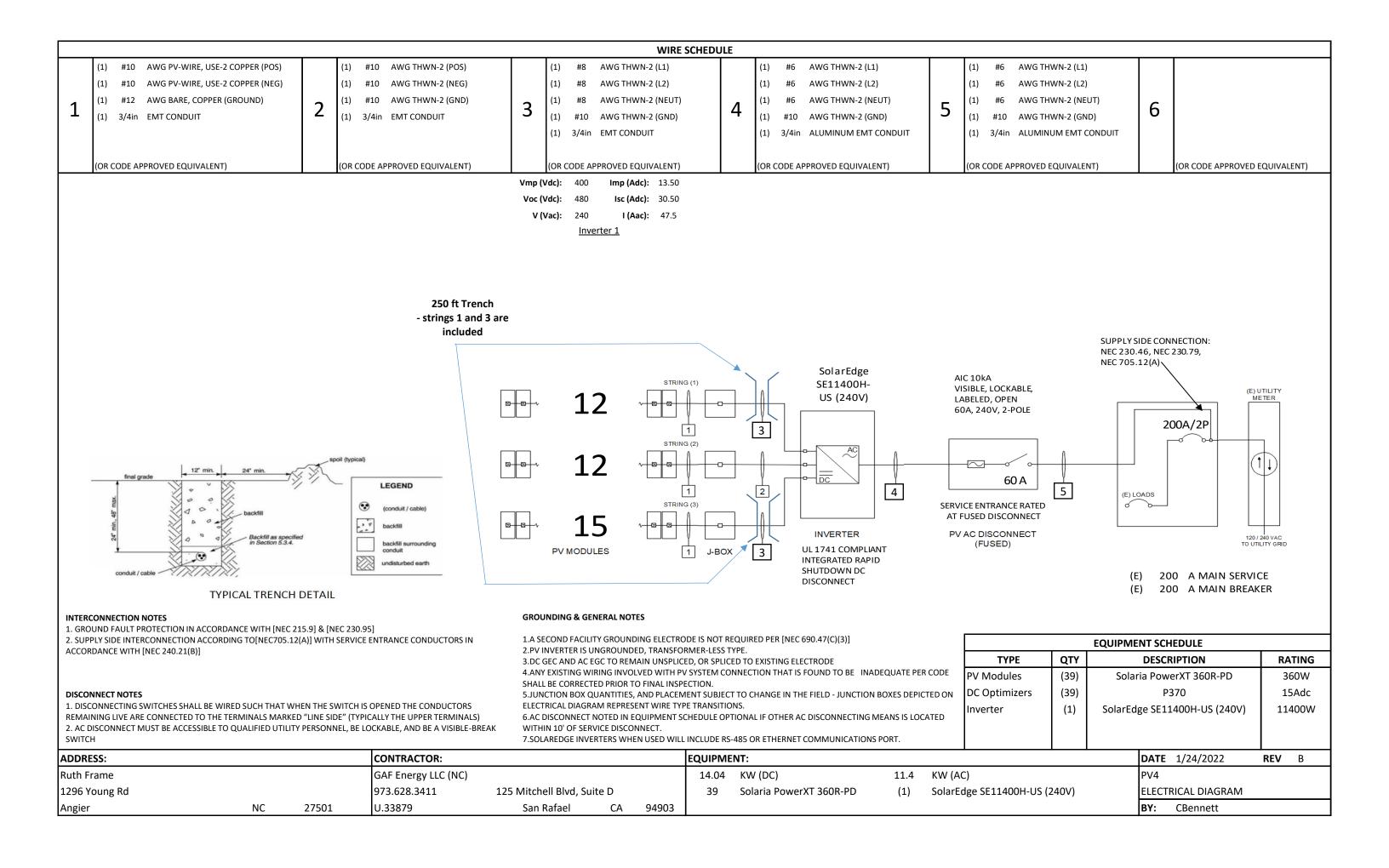


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Ruth Frame			GAF Energy LLC (NC)				14.04	KW (DC)	11.4	KW (AC)
1296 Young Rd			973.628.3411	125 Mitchell Blvd, Su	ite D		39	Solaria PowerXT 360R-PD	(1)	SolarEdge SE11400H-U
Angier	NC	27501	U.33879	San Rafael	CA	94903				

	MP#1	Pitch:	8.5	/12
CARO		Azimuth:	154	٥
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		Azimuth:	65	0
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	FC	UIPMENT LE	GEND)
	M	UTILITY MET	ER	
	MSP	MAIN SERVIO	CE PA	NEL
7	LC	LOAD CENTE	R	
	AC	AC DISCONN	IECT	
	PV	METER SOCH UTILITY PV N		
	INV	INVERTER		
	J-BOX	JUNCTION B	ОХ	
	ВАТ	BATTERY(IES)	
		FIRE ACCESS (3' TYP.)	PATH	WAY
	DATE 1/2	24/2022	REV	В
	PV2			
JS (240V)	SITE PLAN			
	BY: CB	ennett		

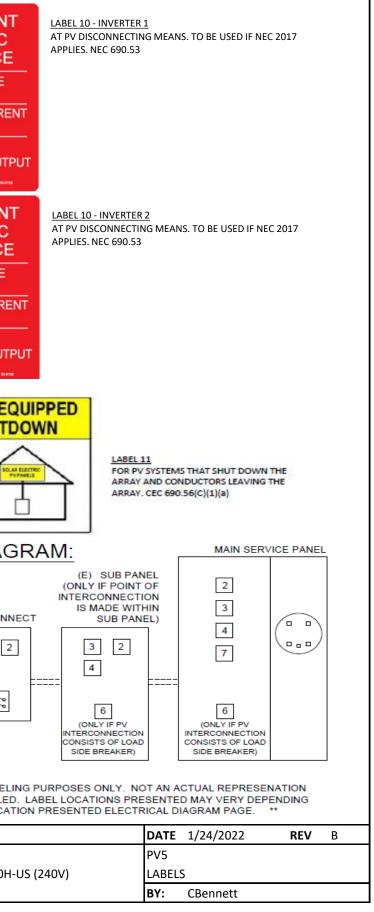


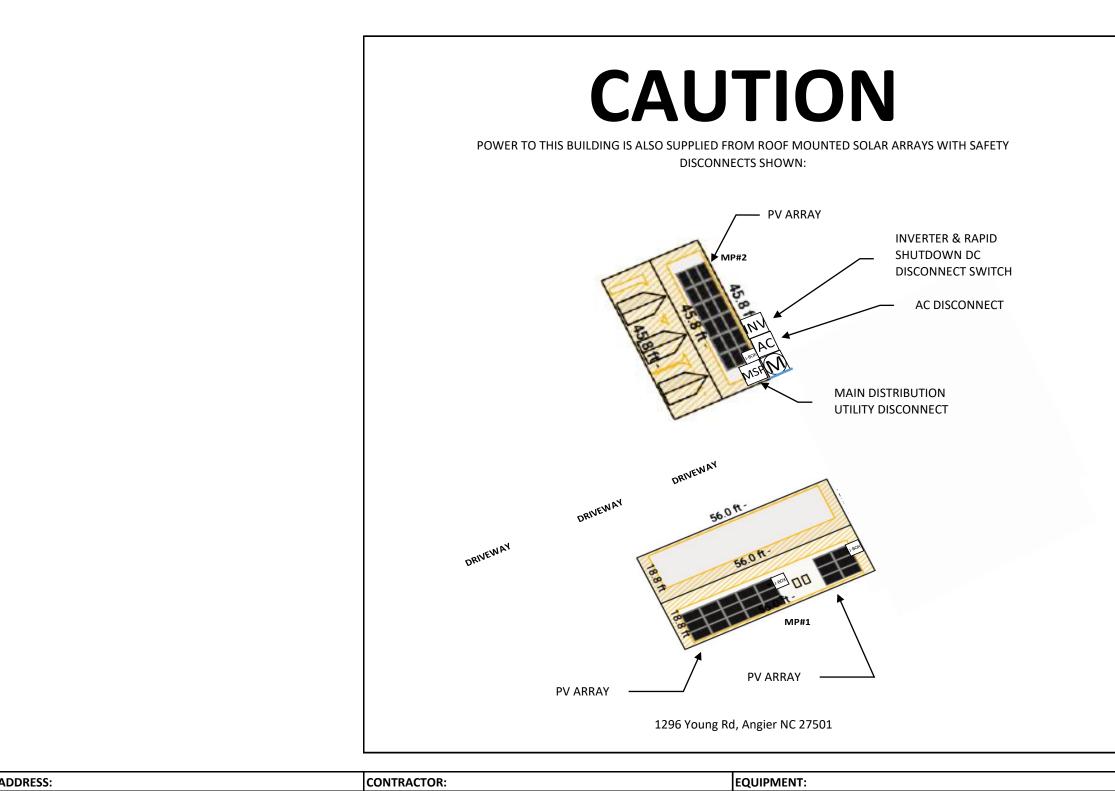
ADDRESS:			CONTRACTOR:				EQUIPME	NT:			DATE 1/24/2022	REV	В
Ruth Frame			GAF Energy LLC (NC)				14.04	KW (DC)	11.4	KW (AC)	PV3		
1296 Young Rd			973.628.3411	125 Mitchell Blvd, Sui	ite D		39	Solaria PowerXT 360R-PD	(1)	SolarEdge SE11400H-US (240V)	MOUNTING DETAIL		
Angier	NC	27501	U.33879	San Rafael	CA	94903					BY: CBennett		



ABEL 5 T DIRECT-CURRENT EXPOSED RACEWAYS, CABLE RAYS, COVERS AND ENCLOSURES OF JUNCTION DXES, AND OTHER WIRING METHODS; SPACED T MAXIMUM 10FT SECTION OR WHERE SPARATED BY ENCLOSURES, WALLS, PARTITIONS, EILINGS, OR FLOORS.NEC 690.31(G)(3&4) ONFIGURATIONS. ELECTRICIAN R CURRENT NEC AND LOCAL 2017 National Electric Code JTHORITY HAVING JURISDICTION. AND THE ENVIRONMENT VHITE ON RED BACKGROUND; .1] CONTRACTOR: GAF Energy LLC (NC	PHOTOVOLTAIC SYSTEM OPERATING VOLTAGE OPERATING CURRENT MAX SYSTEM VOLTAGE SHORT CIRCUIT CURRENT CHARGE CONTROLLER MAX CHARGE CONTROLLER MAX	AT PV DISCONNECTING MEANS. TO BE APPLIES. NEC 690.53	TION BOX	SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY USED TO COMBINER SUBPANEL - USED TO COMBINE OUTPUT CIRCUITS (2) (2) (4) (3) (4) (4) (5) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	
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NBFI 5		AT PV DISCONNECTING MEANS. TO BE	USED IF NEC 2014	AND REDUCE SHOCK HAZARD	Ť
			USED IF NEC 2014	SHUTDOWN PV SYSTEM	4
		LABEL 9 - INVERTER 2		SWITCH TO THE "OFF" POSITION TO	/
E LOCATIONS.NEC 705.12(D)(3	CHARGE CONTROLLER MAX AMPS			TURN RAPID SHUTDOWN	
IED FROM MULTIPLE SOURCES, EACHSERVICE MENT AND ALL ELECTRIC POWER PRODUCTION	SHORT CIRCUIT CURRENT 30.5 AMPS			WITH RAPI	
AINING OVERCURRENT DEVICES IN CIRCUTS YING POWER TO A BUSBAR OR CONDUCTOR	OPERATING CURRENT 13.5 AMPS MAX SYSTEM VOLTAGE 480 VDC			SOLAP DU CV	TEM
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<u>3</u> NT OF INTERCONNECTION, MARKED AT AC	MAIN SUPPLY OVERCURRENT	V IV IV-IV-I			
	THIS EQUIPMENT FED BY MULTIPLE SOURCES, TOTAL RATING OF ALL	CONTAINING 3 OR MORE POWER SOURCE		PHOTOV	OLTAI
	▲WARNING	(ONLY IF 3 OR MORE SUPPLY SOURCES TO		DIRECT C	URRE
E DISCONNECTING MEANS MAY BE ENERGIZED IN PEN POSITION.NEC 690.17(E), NEC 705.22					
2 V DISCONNECTING MEANS WHERE ALL TERMINALS	EQUIPPED WITH RAPID SHUTDOWN	EQUIPMENT.NEC 690.56(C)			
	PHOTOVOLTAIC SYSTEM	LABEL 7 SIGN LOCATED AT UTILITY SERVICE			
	DEVICE			480 V	DC
JCTORS MAY BE EXPOSED DURING SERVICE. NEC. (F)	DO NOT RELOCATE THIS OVERCURRENT	TO BUSBAR.NEC 705.12(D)(2)(3)(B)			
CH JUNCTION BOX, COMBINER BOX, DISCONNECT, EVICE WHERE ENERGIZED UNGROUNDED	INVERTER OUTPUT CONNECTION			PHOTOV	OLTAI
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ADDRESS:			CONTRACTOR:				EQUIPME	NT:		
Ruth Frame			GAF Energy LLC (NC)				14.04	KW (DC)	11.4	KW (AC)
1296 Young Rd			973.628.3411	125 Mitchell Blvd, Suit	e D:		39	Solaria PowerXT 360R-PD	(1)	SolarEdge SE11400H
Angier	NC	27501	U.33879	San Rafael	CA	94903				





ADDRESS:			CONTRACTOR:				EQUIPME	NT:			DATE 1/24/2022	REV B
Ruth Frame			GAF Energy LLC (NC)				14.04	KW (DC)	11.4	KW (AC)	PV6	
1296 Young Rd			973.628.3411	125 Mitchell Blvd, Suit	te D		39	Solaria PowerXT 360R-PD	(1)	SolarEdge SE11400H-US (240V)	PLACARD	
Angier	NC	27501	U.33879	San Rafael	CA	94903					BY: CBennett	

Single Phase Inverter with HD-Wave Technology

for North America

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



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 / Optional: Revenue grade data, ANSI C12.20 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
- Class 0.5 (0.5% accuracy)



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

	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 MinNomMax. (211 - 240 - 264)	~	~	~	~	~	~	~	Vac	
AC Output Voltage MinNomMax. (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	- 1	7750		-	15500	W	
Transformer-less, Ungrounded				Yes					
Maximum Input Voltage				480				Vdc	
Nominal DC Input Voltage		3	80			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			S	99.2			%	
CEC Weighted Efficiency			9	99			99 @ 240V 98.5 @ 208V	%	
Nighttime Power Consumption				< 2.5				W	
ADDITIONAL FEATURES									
Supported Communication Interfaces			RS485, Etherne	et, ZigBee (optional), (Cellular (optional)				
Revenue Grade Data, ANSI C12.20				Optional ⁽³⁾					
Rapid Shutdown - NEC 2014 and 2017 690.12			Automatic Rap	id Shutdown upon AC	C Grid Disconnect				
STANDARD COMPLIANCE									
Safety		UL1741	, UL1741 SA, UL1699B	, CSA C22.2, Canadia	n AFCI according to T.	I.L. M-07			
Grid Connection Standards			IEE	E1547, Rule 21, Rule 1-	4 (HI)				
Emissions				FCC Part 15 Class B					
INSTALLATION SPECIFICATIO	ONS								
AC Output Conduit Size / AWG Range		1	" Maximum / 14-6 AW	/G		1" Maximur	m /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								
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 Safe	ty Switch)				

For other regional settings please contact SolarEdge support
 A higher current source may be used; the inverter will limit its input current to the values stated
 Revenue grade inverter P/N: SExxxH-US000NNC2
 For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
 -40 version P/N: SExxxH-US000NNU4

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solaredge.com

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RoHS

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505



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
- I Next generation maintenance with modulelevel monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety



POWER OPTIMIZER

/ 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®	320	340	370	400	405	505	W		
Absolute Maximum Input Voltage (Voc at lowest temperature)	2	18	60	80	125(2)	87(2)	Vdc		
MPPT Operating Range	8 -	48	8 - 60	8 - 80	12.5 - 105	12.5 - 87	Vdc		
Maximum Short Circuit Current (lsc)		11		10).1	14	Adc		
Maximum DC Input Current		13.75		12	5	17.5	Adc		
Maximum Efficiency			99	9.5			%		
Weighted Efficiency			98.8			98.6	%		
Overvoltage Category			I	I					
OUTPUT DURING OPER	RATION (POWE	R OPTIMIZER C	ONNECTED TO	OPERATING SO	LAREDGE INVER	RTER)			
Maximum Output Current			1	5			Adc		
Maximum Output Voltage		e	i0		8	5	Vdc		
OUTPUT DURING STAN	IDBY (POWER (OPTIMIZER DISC	CONNECTED FR	OM SOLAREDG	E INVERTER OR	SOLAREDGE			
INVERTER OFF) Safety Output Voltage per									
Power Optimizer			1 ±	0.1			Vdc		
STANDARD COMPLIAN	CE								
EMC		FC	C Part15 Class B, IEC6	1000-6-2, IEC61000-6	-3				
Safety			IEC62109-1 (class	II safety), UL1741					
Material			UL94 V-0 , U	JV Resistant					
RoHS			Ye	es					
INSTALLATION SPECIFI	CATIONS								
Maximum Allowed System Voltage			10	00			Vdc		
Compatible inverters		All So	olarEdge Single Phase	and Three Phase inv	erters				
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			Single or c	lual MC4 ⁽³⁾					
Input Wire Length			0.16 /	0.52			m / ft		
Output Wire Type / Connector			Double Insu	ated / MC4					
Output Wire Length	0.9 / 2.95 1.2 / 3.9								
Operating Temperature Range		-40 - +85 / -40 - +185							
Protection Rating			IP68 / N	IEMA6P					
Relative Humidity			0 -	100			%		
 Rated power of the module at STC NEC 2017 requires max input voltage For other connector types please of 	je be not more than 80V		ver". Modules with up to	+5% power tolerance are	allowed				

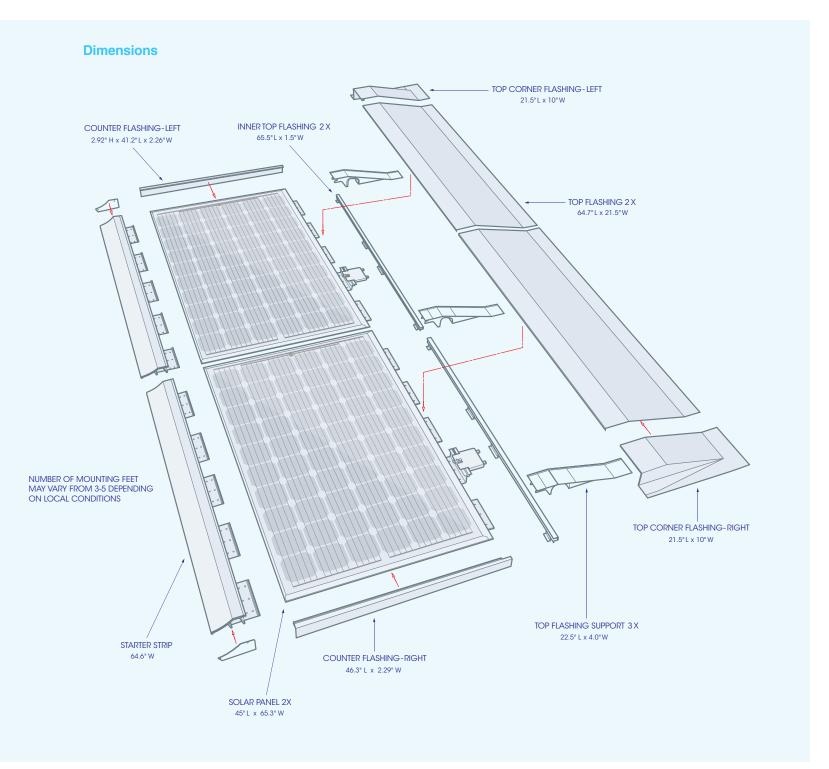
PV System D a SolarEdge	PV System Design Using a SolarEdge Inverter ⁽⁴⁾⁽⁵⁾		Sing l e phase	Three Phase 208V	Three Phase 480V	
Minimum String Length	P320, P340, P370, P400	8	1	10	18	
(Power Optimizers)	P405 / P505	6	;	13 (12 with SE3K)	14	
Maximum String Length (Power Optimizers)			5	25	50(6)	
Maximum Power per Strir	ng	5700 (6000 with SE7600-US - SE11400- US)	5250	6000(7)	12750 ⁽⁸⁾	W
Parallel Strings of Differen	it Lengths		١	/es		

 ⁴⁰ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
 ⁴⁰ It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string
 ⁴⁰ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
 ⁴⁰ 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
 ⁴⁰ For SE30KUS/SE53.3KUS/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 1,000W
 ⁴⁰ For SE30KUS/SE53.3KUS/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

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GAF

Solar Energy System



Design Considerations

- GAF Energy solar energy system must be installed in landscape orientation.
- Certified for direct attachment to roof deck. The roof deck must be a minimum of 15/32" thick plywood or 7/16" thick OSB.
- System is installed directly to the roof deck without engaging rafters.
- GAF Energy solar energy system is intended for use solely on roofs having a slope between 4:12 and 12:12.
- DC optimizers and AC inverters can be used. ٠
- Asphalt shingle installations only. •

Technical Specifications

Model Number	GAF Solar Energy System
PV Laminate	Solaria PowerXT
Maximum Power under STC* (Pmax)	360 Wp
Open Circuit Voltage under STC (Voc)	47.7 V
Maximum Power Point Voltage under STC (Vmpp)	39.5 V
Short Circuit Current under STC (Isc)	9.56 A
Maximum Power Point Current under STC (Impp)	9.13 A
Module Efficiency under STC (ηm)	19.9%
Temperature Correction Factor TC Voc	-0.29%/C



TECH DATA

Description

The sleek, low-profile design of the GAF Energy solar energy system delivers performance and curb appeal at an affordable price.

Product Installation

Refer to the Application Instructions for details on how to install the GAF Energy solar energy system.



Cells per module	60
Cell type	Monocrystalline
PV Connector Type	PV wire with MC4 compatible
PV Laminate Front	3.2 mm high transmittance, tempered, ar coating
PV Laminate Back	Multi-layer Polymer Backsheet
Frame	Black Powder Coated Aluminum
Weight	40.0 lb. (22.2 kg)
Operating Temperatures	-40 to +185°F (-40 to +85°C)
Design Loading	50 lb./ft² (244 kg/m²) Positive Design Load
Certifications	PowerXT-360-R-PD-L UL 1703
Fire Rating	UL 2703 Class A

*STC: Standard Test Conditions 1000W/m², 25°C, AM 1.5. For additional parameters and certifications, refer to the latest version of the GAF Energy solar system Application Instructions