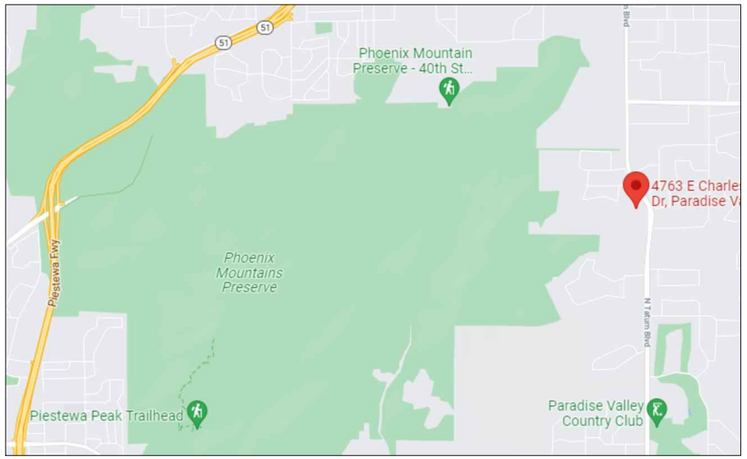
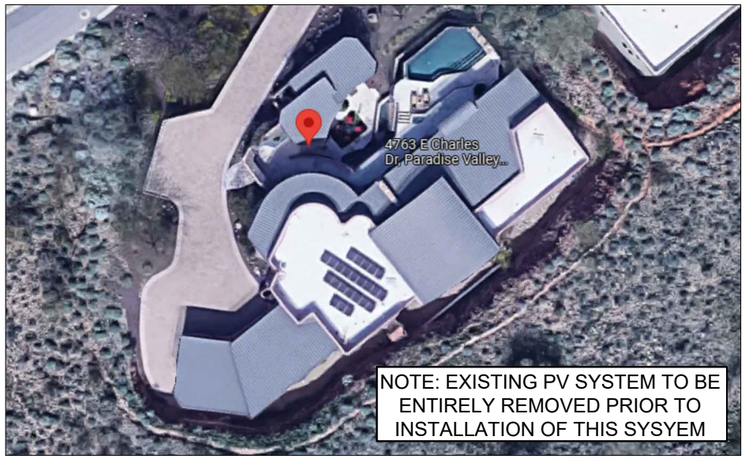
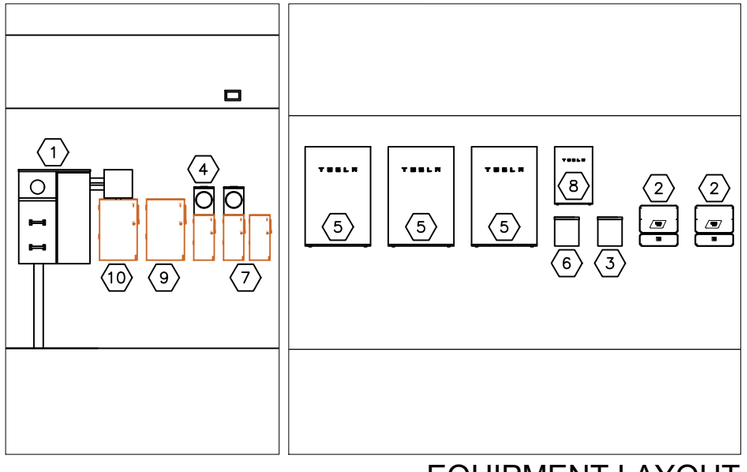


SITE LOCATION

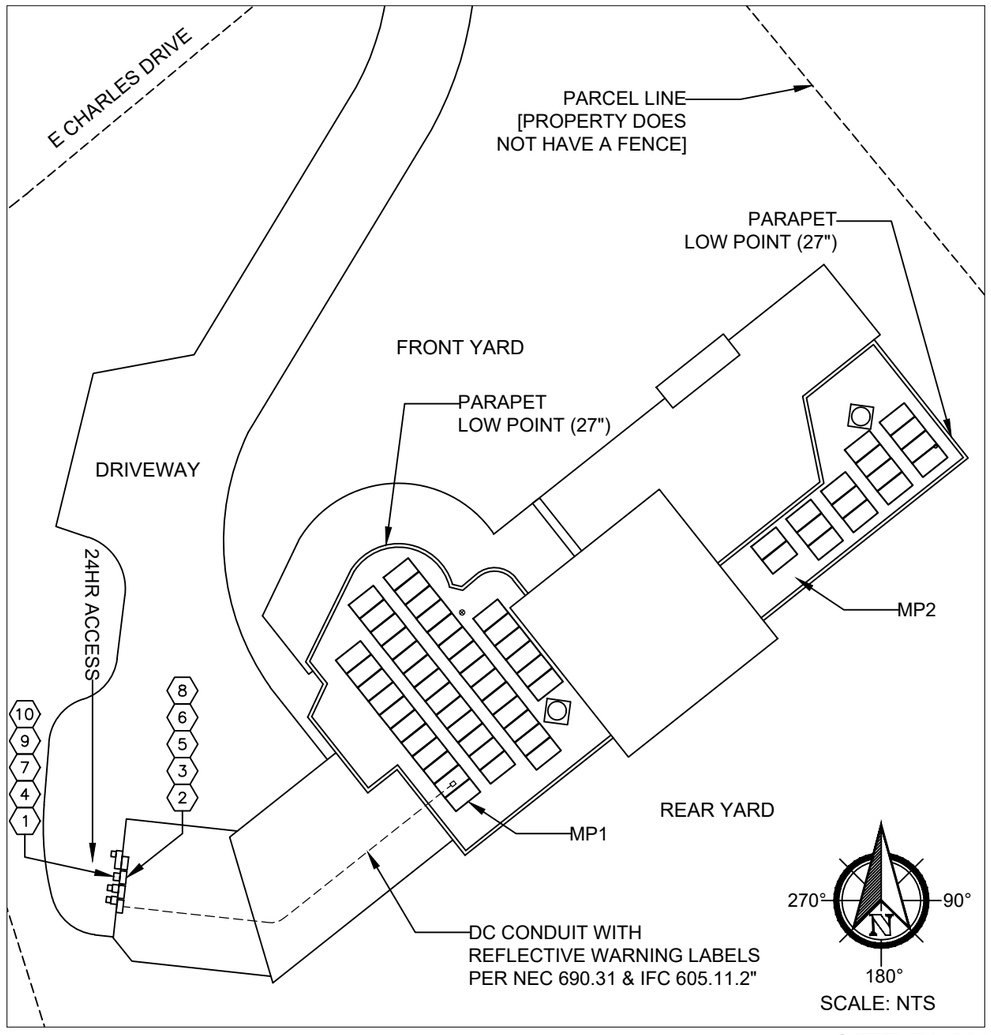


AERIAL VIEW

NOTE: EQUIPMENT LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE



EQUIPMENT LAYOUT



SITE PLAN

SCALE: NTS

MP1	PITCH: 10	AZIMUTH: 232
	MATERIAL: Foam	
	MOUNTING: Tilt Structure	
MP2	PITCH: 10	AZIMUTH: 232
	MATERIAL: Foam	
	MOUNTING: Tilt Structure	

Project Manager:
Misty Wales

Sales Person:
Peter Klaass

ROOF LEGEND

- GAS VENT
- T-TOP VENT
- DORMER VENT

PARCEL INFO

PARCEL #: 168-68-029
SQUARE FOOTAGE: 4,966
CONST. YEAR: 2005

EQUIPMENT SUMMARY

60	Silfab Solar SIL-360-NX
60	SolarEdge P400 Optimizer
01	SolarEdge 11400H-US
01	SolarEdge 7600H-US
03	Tesla Powerwall 2
01	Tesla Gateway 2
02	Eaton 125A Combiner Panel
02	Milbank 100A Meter Base
03	Eaton 100A Disconnect (Non-Fused)
01	Eaton 200A Disconnect (Non-Fused)
01	Eaton 200A Disconnect (Fused)

NOTE:

1. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
2. WORKSPACE IN FRONT OF THE AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS & NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM & SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.
3. REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER & GAS.

SCOPE OF WORK

TO INSTALL A PHOTOVOLTAIC (PV) SYSTEM AT THE
Johnloz, Gregory Residence
LOCATED AT
4763 East Charles Drive
Paradise Valley , AZ 85253

THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.

SHEET INDEX

GOVERNING CODES

LOCAL JURISDICTION - Paradise Valley
UTILITY - APS
2014 NATIONAL ELECTRICAL CODE
2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL RESIDENTIAL CODE
2015 INTERNATIONAL FIRE CODE
CITY AMENDMENTS

SITE PLAN NOTES

1. (EXISTING) ELECTRICAL SERVICE ENTRANCE 400A SPLIT MAIN SERVICE PANEL WITH TWO 200A MCB and UTILITY REVENUE METER
2. (NEW) INVERTER WITH INTEGRATED DC DISCONNECT
3. (NEW) INVERTER AC COMBINER PANEL
4. (NEW) PV PRODUCTION METER (1of2) PV METER DISCONNECT
5. (NEW) TESLA POWERWALL 2 ENERGY STORAGE SYSTEM
6. (NEW) BATTERY AC COMBINER PANEL
7. (NEW) ESS PRODUCTION METER (2of2) ESS METER DISCONNECT (1of2 & 2of2)
8. (NEW) TESLA GATEWAY 2 AUTOMATIC ISOLATION SWITCH
9. (NEW) UTILITY AC DISCONNECT SWITCH
10. (NEW) FUSED AC DISCONNECT SWITCH

SHEET: PV1

DATE: 8/11/2022

Revision: 0

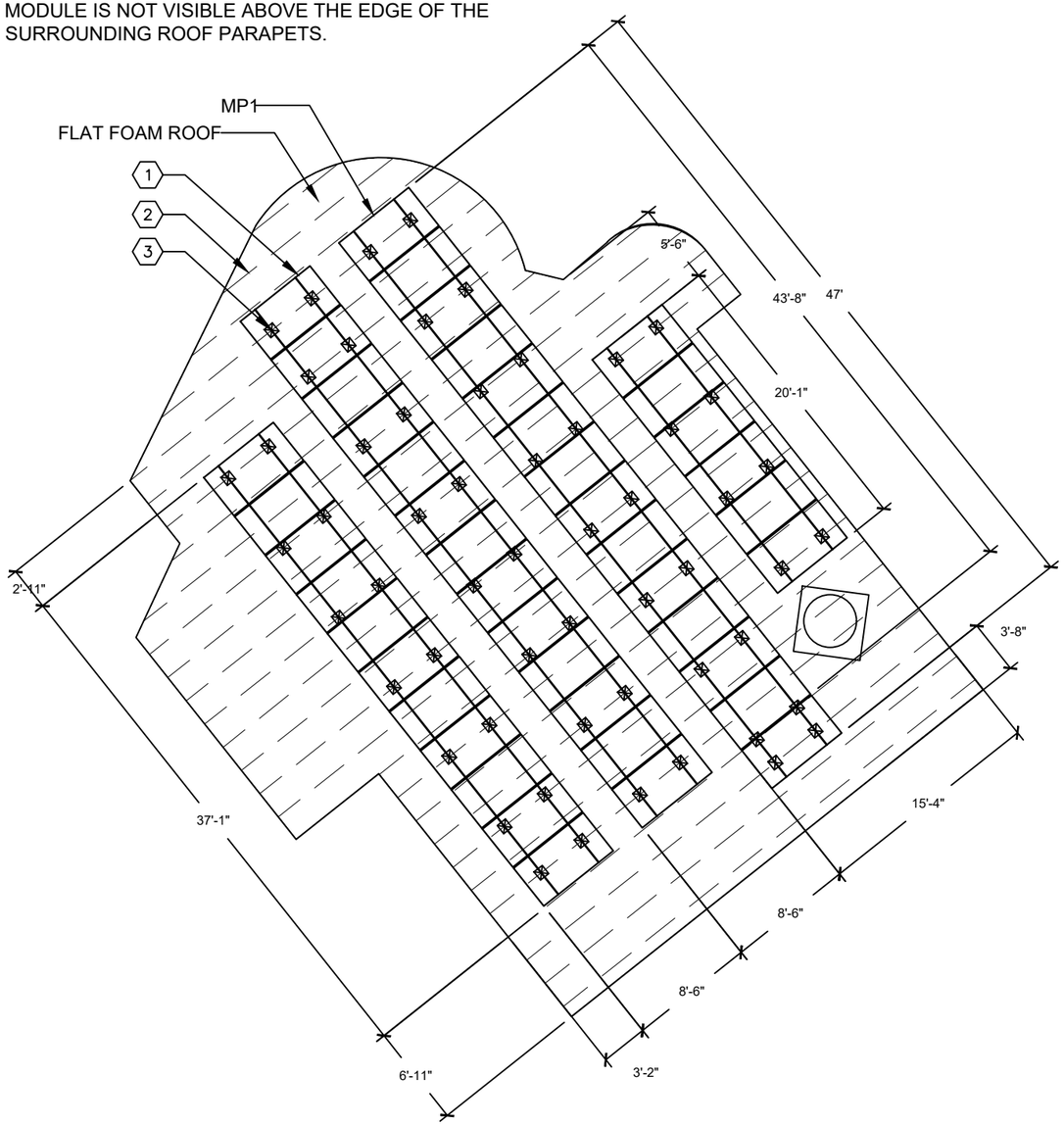
Designer: Evan Jerpbak

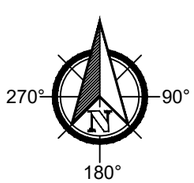
TITLE: SITE PLAN
19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com

ROOF PLAN

NOTE: PARAPET HEIGHT MAY VARY. MODULES TO HAVE TILT REDUCED AS NEEDED SUCH THAT THE TOP EDGE OF THE MODULE IS NOT VISIBLE ABOVE THE EDGE OF THE SURROUNDING ROOF PARAPETS.





SCALE: NTS

NOTE: EXPOSED PV ROOFTOP CONDUCTORS THAT ARE NOT LOCATED UNDER THE ARRAY MODULES, SHALL BE INSTALLED IN A LISTED RACEWAY, AND SHALL INCLUDE LISTED JUNCTION BOXES AT BOTH ENDS OF THE RACEWAY TO TRANSITION FROM EXPOSED CONDUCTORS TO THE LISTED RACEWAYS. NEC ARTICLE 690.31(A) AND (B) EXCEPTION

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

MP1	PITCH: 10	AZIMUTH: 232
	MATERIAL: Foam	
	MOUNTING: Tilt Structure	

ROOF LEGEND

- GAS VENT
- T-TOP VENT
- DORMER VENT

ROOF PLAN NOTES:

1. (NEW) PHOTOVOLTAIC PANEL ARRAY TILTED TO ROOF WITH 10DEG TILT
2. 2" x 4" TRUSS @ 24" O.C.
3. RACKING INFORMATION
   - EVEREST MOUNTING RAIL
   - UNIRAC STANDOFF – 4"
   - EVEREST CROSSRAIL 48
   - TRUSS SPACING = 24" O.C.
   - PENETRATION POINTS = 4' SPACING
   - MOUNTING DETAIL

EQUIPMENT APPEARANCE DATA

Item	LRV	Color
Everest Clamps	<10%	Black
Everest Crossrail	<10%	Black
Everest Tilt Connector	<10%	Black
Barrel Standoff	35%	Dark Silver*
L-Foot	35%	Dark Silver*
PV Module Frame	<10%	Black
Disconnects	50%	Grey
Meter Base	50%	Grey
Roof Coating	85%	Eggshell

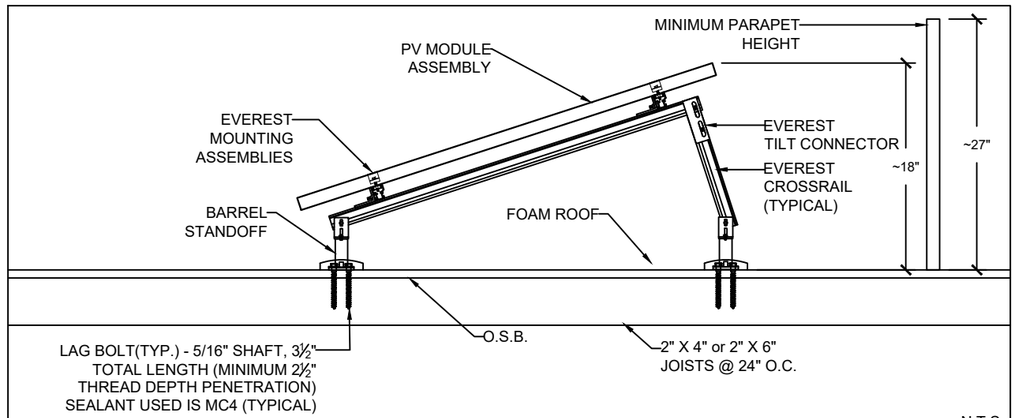
*Note: Components will be Dark Anodized or painted with a compliant finish (LRA 35% or less)

ROOF 1 CALCULATIONS:

DESIGN PER ASCE 7-10 2.4.1 & IBC 2015
SOLAR MODULE WEIGHT = 41.9 LBS.
EXPOSURE CATEGORY = B
BASIC WIND SPEED = 115 MPH

STRUCTURAL NOTES:
1) TOTAL ASSEMBLY WEIGHT: 2089.7 LBS
2) TOTAL AREA COVERED BY MODULES: 793.8 FT2
3) DEAD LOAD = 2089.7 / 793.8 = 2.6 LBS/FT2
4) POINT LOAD CALCULATIONS [# OF POINTS (54)] - 38.7 lb/point
5) TOTAL DESIGN LOAD (DOWNFORCE) = 12.9 psf
6) TOTAL DESIGN LOAD (UPFORCE) = -25.4 psf

RAILS TO BE BONDED TO GROUND (EGC) - 690.4 (C)
RAIL SPLICES TO BE ELECTRICALLY BONDED
FLASHING REQUIRED FOR STANDOFF PENETRATIONS
FOLLOW MODULE INSTRUCTION ON FRAME MOUNTING POINT



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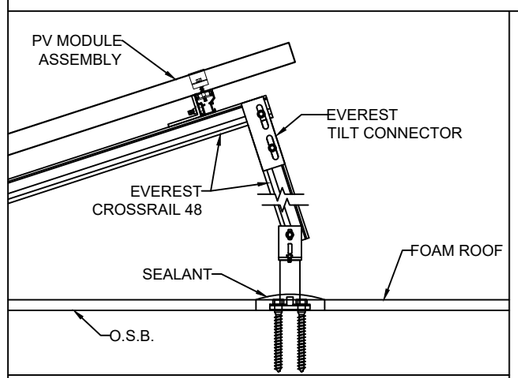
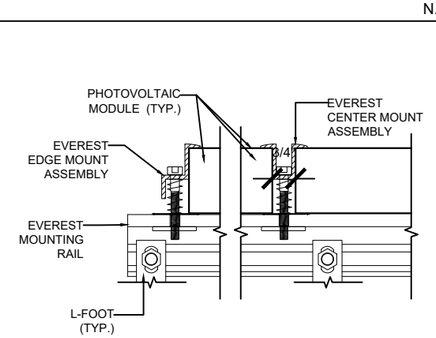




SCALE
N.T.S

SHEET: PV2

DATE: 12/16/2022

Revision: 0

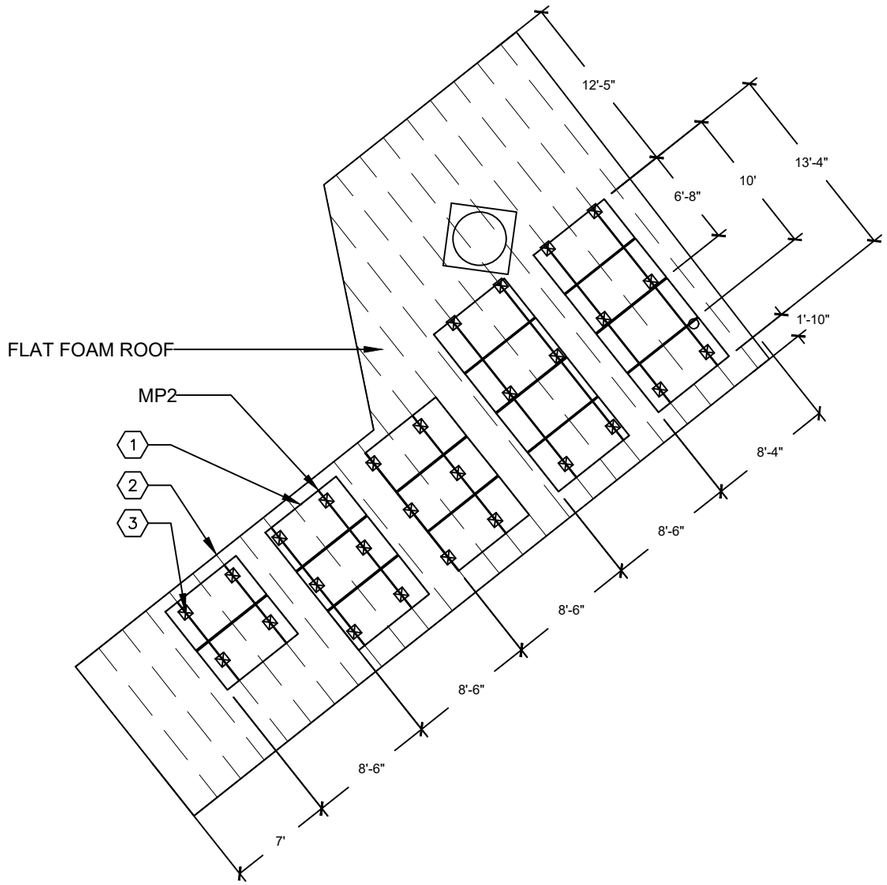
Designer: Evan Jerpbak

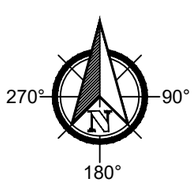
TITLE: ROOF PLAN 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com

ROOF PLAN

NOTE: PARAPET HEIGHT MAY VARY. MODULES TO HAVE TILT REDUCED AS NEEDED SUCH THAT THE TOP EDGE OF THE MODULE IS NOT VISIBLE ABOVE THE EDGE OF THE SURROUNDING ROOF PARAPETS.





SCALE: NTS

NOTE: EXPOSED PV ROOFTOP CONDUCTORS THAT ARE NOT LOCATED UNDER THE ARRAY MODULES, SHALL BE INSTALLED IN A LISTED RACEWAY, AND SHALL INCLUDE LISTED JUNCTION BOXES AT BOTH ENDS OF THE RACEWAY TO TRANSITION FROM EXPOSED CONDUCTORS TO THE LISTED RACEWAYS. NEC ARTICLE 690.31(A) AND (B) EXCEPTION

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

MP2	PITCH: 10 AZIMUTH: 232 MATERIAL: Foam MOUNTING: Tilt Structure

ROOF LEGEND

- GAS VENT
- T-TOP VENT
- DORMER VENT

ROOF PLAN NOTES:

1. (NEW) PHOTOVOLTAIC PANEL ARRAY TILTED TO ROOF WITH 10DEG TILT
2. 2" x 4" TRUSS @ 24" O.C.
3. RACKING INFORMATION
   - EVEREST MOUNTING RAIL
   - UNIRAC STANDOFF – 4"
   - EVEREST CROSSRAIL 48
   - TRUSS SPACING = 24" O.C.
   - PENETRATION POINTS = 4' SPACING
   - MOUNTING DETAIL

EQUIPMENT APPEARANCE DATA

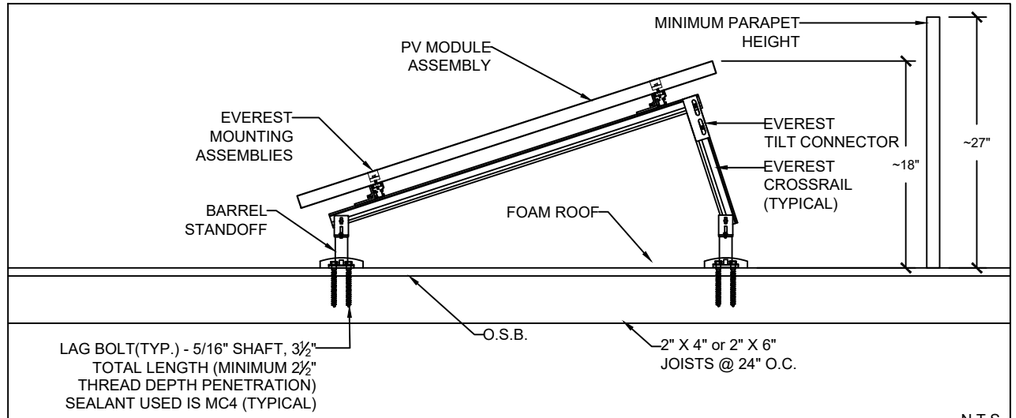
Item	LRV	Color
Everest Clamps	<10%	Black
Everest Crossrail	<10%	Black
Everest Tilt Connector	<10%	Black
Barrel Standoff	35%	Dark Silver*
L-Foot	35%	Dark Silver*
PV Module Frame	<10%	Black
Disconnects	50%	Grey
Meter Base	50%	Grey
Roof Coating	85%	Eggshell

*Note: Components will be Dark Anodized or painted with a compliant finish (LRA 35% or less)

ROOF 2 CALCULATIONS:

DESIGN PER ASCE 7-10 2.4.1 & IBC 2015
SOLAR MODULE WEIGHT = 41.9 LBS.
EXPOSURE CATEGORY = B
BASIC WIND SPEED = 115 MPH
STRUCTURAL NOTES:
1) TOTAL ASSEMBLY WEIGHT: 826.1 LBS
2) TOTAL AREA COVERED BY MODULES: 313.8 FT2
3) DEAD LOAD = 826.1 / 313.8 = 2.6 LBS/FT2
4) POINT LOAD CALCULATIONS [# OF POINTS (30)] - 27.5 lb/point
5) TOTAL DESIGN LOAD (DOWNFORCE) = 14.1 psf
6) TOTAL DESIGN LOAD (UPFORCE) = -28.5 psf

RAILS TO BE BONDED TO GROUND (EGC) - 690.4 (C)
RAIL SPLICES TO BE ELECTRICALLY BONDED
FLASHING REQUIRED FOR STANDOFF PENETRATIONS
FOLLOW MODULE INSTRUCTION ON FRAME MOUNTING POINT



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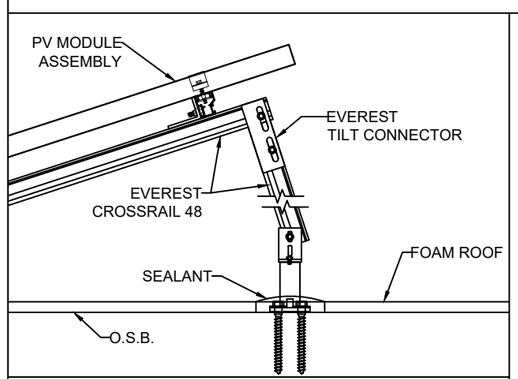

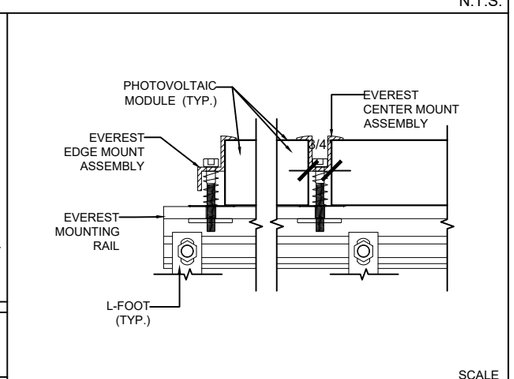

SCALE
N.T.S

SHEET: PV2

DATE: 12/16/2022

Revision: 0

Designer: Evan Jerpbak

TITLE: ROOF PLAN 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com

(SEE ARRAY PAGE)
PV MODULE = 360 WATTS
33 MODULES = 11880 WATTS
3 STRINGS OF 11 PV MODULES

ROOF TOP CONDUIT MIN. INSTALL 7/8" FROM ROOF SURFACE

(SEE ARRAY PAGE)
PV MODULE = 360 WATTS
27 MODULES = 9720 WATTS
1 STRING OF 16 PV MODULES
1 STRING OF 11 PV MODULES

ROOF TOP CONDUIT MIN. INSTALL 7/8" FROM ROOF SURFACE

INVERTER 1
DC / AC / AFCI / GFDI
UNGROUNDED SYSTEM

INVERTER 2
DC / AC / AFCI / GFDI
UNGROUNDED SYSTEM

PV1
PV2

(NEW) DEDICATED PV SYSTEM COMBINER PANEL 125A
[EATON - BR48L125RP - 125A]
240VAC, NEMA 3R, 1PH, 10K AIC
60A/2P
40A/2P

(NEW) PV SYSTEM PRODUCTION METER (METER 1of2)
[MILBANK - U5929-XL-INS]
100A, 600VAC, 600V, 10 SCCR
FORM 2S, NEMA 3, RING TYPE
MONODIRECTIONAL

(NEW) PV SYSTEM METER DISCONNECT SWITCH
[EATON DG223URB - 100A]
2-POLE, NON-FUSED, 240 VAC
10K AIC, NEMA 3R LOCKABLE
VISIBLE OPEN BLADES

75° RATED TERMINALS

PV3

200A RATED
INTERNAL BUSSING

(NEW) DEDICATED PV SYSTEM COMBINER PANEL 125A
[EATON - BR48L125RP - 125A]
240VAC, NEMA 3R, 1PH, 10K AIC
100A/2P
80A/2P

BATTERY 1
BATTERY BANK / DC / AC / AFCI / GFDI

BATTERY 2

BATTERY 3

BAT1

(NEW) STORAGE SYSTEM COMBINER PANEL 125A
[EATON - BR816L125RP - 125A]
240VAC, NEMA 3R, 1PH, 10K AIC
30A/2P
30A/2P
30A/2P

(NEW) ESS METER DISCONNECT SWITCH (SWITCH 2of2)
[EATON DG223URB - 100A]
2-POLE, NON-FUSED, 240 VAC
10K AIC, NEMA 3R LOCKABLE
OPEN VISIBLE BLADES

(NEW) ESS PRODUCTION METER (METER 2of2)
[MILBANK - U5929-XL-INS]
100A, 600VAC, 600V, 10 SCCR
FORM 2S, NEMA 3, RING TYPE
BIDIRECTIONAL

(NEW) ESS METER DISCONNECT SWITCH (SWITCH 1of2)
[EATON DG223URB - 100A]
2-POLE, NON-FUSED, 240 VAC
10K AIC, NEMA 3R LOCKABLE
OPEN VISIBLE BLADES

75° RATED TERMINALS

BAT2

200A/2P

(EXISTING) 200A RATED
PROTECTED LOADS PANEL
240VAC, NEMA 3R, 1PH

(EXISTING) ELECTRICAL SERVICE
ENTRANCE 400A SPLIT MAIN SERVICE
PANEL WITH TWO 200A MCB
120/240V, 1Ø, 400 AMP BUS

200A/2P
200A/2P

UTILITY GRID
120/240V, 1Ø
SINGLE PHASE

(NEW) PV AC DISCONNECT
[EATON DG224NRK - 200A]
2-POLE, FUSED, 240 VAC
100K AIC, NEMA 3R LOCKABLE
200A, 240VAC FUSES (RK5-TYPE)

(NEW) UTILITY AC DISCONNECT SWITCH
[EATON DH364URK - 200A]
3-POLE, NON FUSED, 600 VAC
10K AIC, NEMA 3R LOCKABLE

SYS1

75° RATED TERMINALS

NEUTRAL IS USED EXCLUSIVELY FOR PHASE AND VOLTAGE DETECTION PER NEC 705.95 (B)

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

SOLAREDGE OPTIMIZERS FUNCTION AS DISCONNECTING CONDUCTORS TO DE-ENERGIZE PV SOURCE CIRCUITS IN COMPLIENCE WITH NEC SECTION 690.12 (RAPID SHUTDOWN)

FAULT CALCULATIONS

F1
AVAILABLE = 9,803 AIC
D = 3' F = 1.244
M = .446 Isc = 22,000 AIC
#3/0 AWG CU CONDUCTORS
*PASS-THRU CURRENT LIMITED BY FUSES

CALCULATIONS IN ACCORDANCE WITH NEC 110.9 & 110.10

MODULE INFO
Module: Silfab Solar SIL-360-NX
Pmax: 360 W
Voc: 45.4 VDC
Vmp: 37.11 VDC
Imp: 9.7 Amp
Isc: 10.2 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 1 INFO
SolarEdge SE11,400H-US
Max PV Power: 15390 Watt
DC Max Voltage: 500 VDC
AC Nom Power: 11400 Watt
AC Max Output Current: 47.5 Amp
AC OCPD Required = 59.375 Amp
OCPD = 60 Amp

INVERTER 2 INFO
SolarEdge SE7600H-US
Max PV Power: 11800 Watt
DC Max Voltage: 480 VDC
AC Nom Power: 7600 Watt
AC Max Output Current: 32 Amp
AC OCPD Required = 40 Amp
OCPD = 40 Amp

INVERTER 1 - ARRAY 1-3
SYSTEM LABEL 690.53 - [ARRAY 1]
RATED MAX. POWER-POINT CURRENT (Imp): 9.90 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 500 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String

INVERTER 2 - ARRAY 1
SYSTEM LABEL 690.53 - [ARRAY 1]
RATED MAX. POWER-POINT CURRENT (Imp): 14.40 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 480 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String

INVERTER 2 - ARRAY 2
SYSTEM LABEL 690.53 - [ARRAY 1]
RATED MAX. POWER-POINT CURRENT (Imp): 9.90 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 500 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String

APS LABELS
1. UTILITY AC DISCONNECT SWITCH
2. PV SYSTEM PRODUCTION METER (METER 1of2)
3. PV SYSTEM METER DISCONNECT SWITCH
4. ESS METER DISCONNECT SWITCH 1of2
5. ESS METER DISCONNECT SWITCH 2of2
6. ESS PRODUCTION METER (METER 2of2)

NOTE: SEE LABEL PAGE FOR DIMENSIONS

CONDUCTOR AND CONDUIT SCHEDULE

	L1/2	N	G	CONDUCTOR	CONDUIT	
PV1	#6	#8	#8	THWN-2 CU	3/4"	EMT
PV2	#8	#8	#8	THWN-2 CU	3/4"	EMT
PV3	#2	#8	#8	THWN-2 CU	1"	EMT
BAT1	#10	#10	#10	THWN-2 CU	3/4"	EMT
BAT2	#4	#8	#8	THWN-2 CU	1"	EMT
SYS1	#3/0	#3/0	#3/0	THWN-2 CU	2"	EMT

SHEET: E1

DATE: 2/18/2022

Revision: 0

Designer: Evan Jerpbak

TITLE: 3-LINE 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley, AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 699-3429
www.sunvalleysolar.com

LABEL REQUIREMENTS

1. -LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAX SYSTEM VOLTAGE AND SHORT CIRCUIT CURRENT PER NEC 690.53.
2. -LABEL WARNING SIGN PER NEC 690.35 READING "WARNING - ELECTRIC SHOCK HAZARD - THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED"
3. -
4. -SWITCH COVER TO BE LOCKABLE. SWITCH TO BE VISIBLE BLADE AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
5. -LABEL WARNING SIGN PER NEC 690.17 READING "WARNING - ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS. TERMINAL ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION".
6. -LABEL WARNING SIGN PER NEC 705.12(D)(7) READING "WARNING INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCORRECT PROTECTION DEVICE". LOCATE AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION
7. -LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.10, AND "BREAKERS ARE BACKFED" PER NEC 705.12 (D)(5). LABELED WITH THE MAX AC OUTPUT OPERATION CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
8. -LABEL COMBINER PANEL "DEDICATED PHOTOVOLATIC SYSTEM COMBINER PANEL" AND "LOADS NOT TO BE ADDED TO THIS PANEL"
9. -LABEL "BREAKER HAS BEEN DE-RATED PER NEC 705.12 (D)(2)"

SYSTEM REQUIREMENTS

1. -EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 690 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION
2. -LISTING AGENCY NAME AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B).
3. -METALLIC CONDUIT SHALL BE USED WITHIN BUILDINGS PER NEC 690.31(E). EMT BONDED PER NEC 110.3(B).
4. -GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER AND NEC 690.47
5. -BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

NEUTRAL IS USED EXCLUSIVELY FOR PHASE AND VOLTAGE DETECTION PER NEC 705.95 (B)

TITLE: 3-LINE
19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Revision: 0
Designer: Evan Jerpbak

DATE: 2/18/2022

SHEET: E1

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www.sunvalleysolar.com

INVERTER 1

PV MODULE = 360 WATTS
33 MODULES = 11880 WATTS
3 STRINGS OF 11 PV MODULES

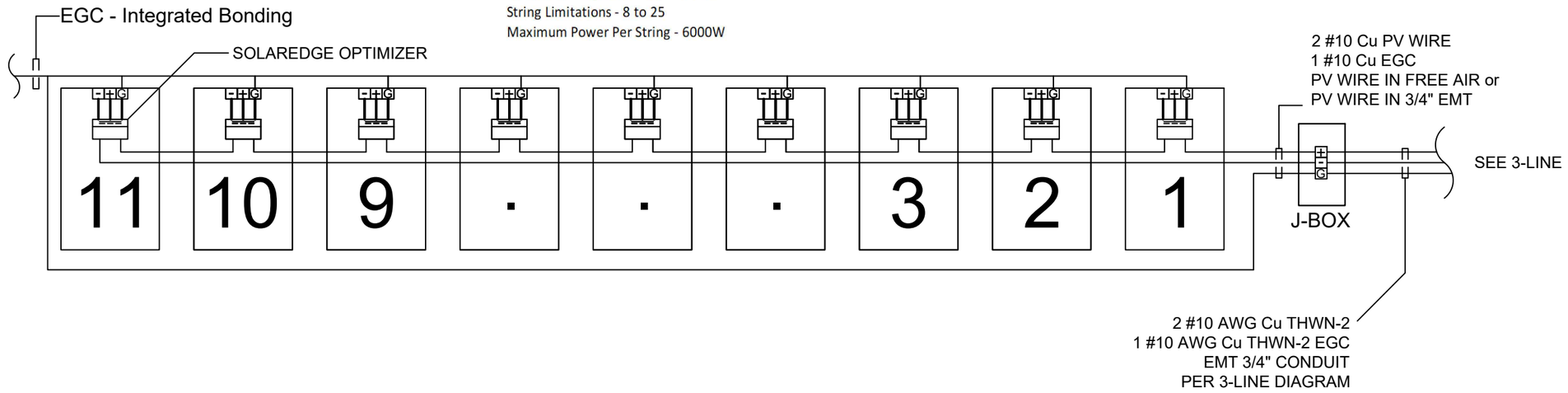
MODULE INFO
Module: Silfab Solar SIL-360-NX
Pmax: 360 W
Voc: 45.4 VDC
Vmp: 37.11 VDC
Imp: 9.7 Amp
Isc: 10.2 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 1 INFO
SolarEdge SE11,400H-US
Max PV Power: 15390 Watt
DC Max Voltage: 500 VDC
AC Nom Power: 11400 Watt
AC Max Output Current: 47.5 Amp
AC OCPD Required = 59.375 Amp
OCPD = 60 Amp

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

SolarEdge Optimizer P400
Rated DC Input Power - 400W
Maximum Input Voltage - 80 Vdc
MPPT Range - 8 to 80 Vdc
Maximum Input Current - 10.1 Adc
Maximum Output Current - 15 Adc
String Limitations - 8 to 25
Maximum Power Per String - 6000W

SYSTEM LABEL 690.53 - [ARRAY 1]
RATED MAX. POWER-POINT CURRENT (Imp): 9.90 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 500 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String



NOTES
1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 690 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRICAL UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION
2. EGC WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE EGC CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690.4(C)
3. FOLLOW MANUFACTURER'S SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
4. CONDUCTORS SHALL BE RATED AND LABELED
5. LISTING AGENCY NAME AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B)
6. METALLIC CONDUIT TO BE USED WITHIN BUILDINGS PER NEC 690.31(E). EMT BONDED PER NEC 250.97

SHEET: E2
DATE: 2/18/2022
Revision: 0
Designer: Evan Jerpbak
TITLE: ARRAY 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com

INVERTER 2

PV MODULE = 360 WATTS
27 MODULES = 9720 WATTS
1 STRING OF 16 PV MODULES
1 STRING OF 11 PV MODULES

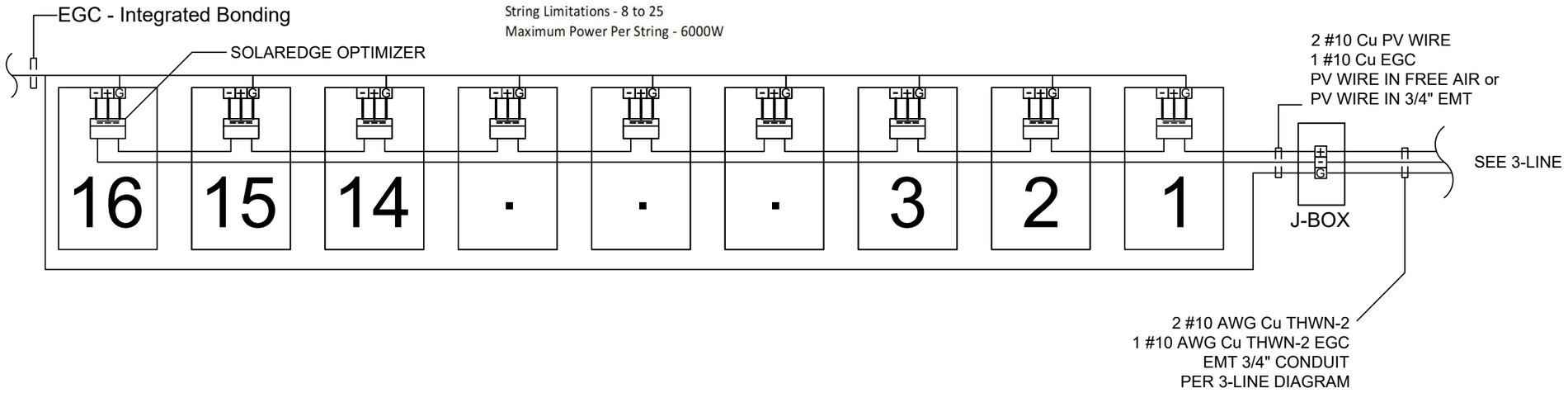
MODULE INFO
Module: Silfab Solar SIL-360-NX
Pmax: 360 W
Voc: 45.4 VDC
Vmp: 37.11 VDC
Imp: 9.7 Amp
Isc: 10.2 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 2 INFO
SolarEdge SE7600H-US
Max PV Power: 11800 Watt
DC Max Voltage: 480 VDC
AC Nom Power: 7600 Watt
AC Max Output Current: 32 Amp
AC OCPD Required = 40 Amp
OCPD = 40 Amp

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

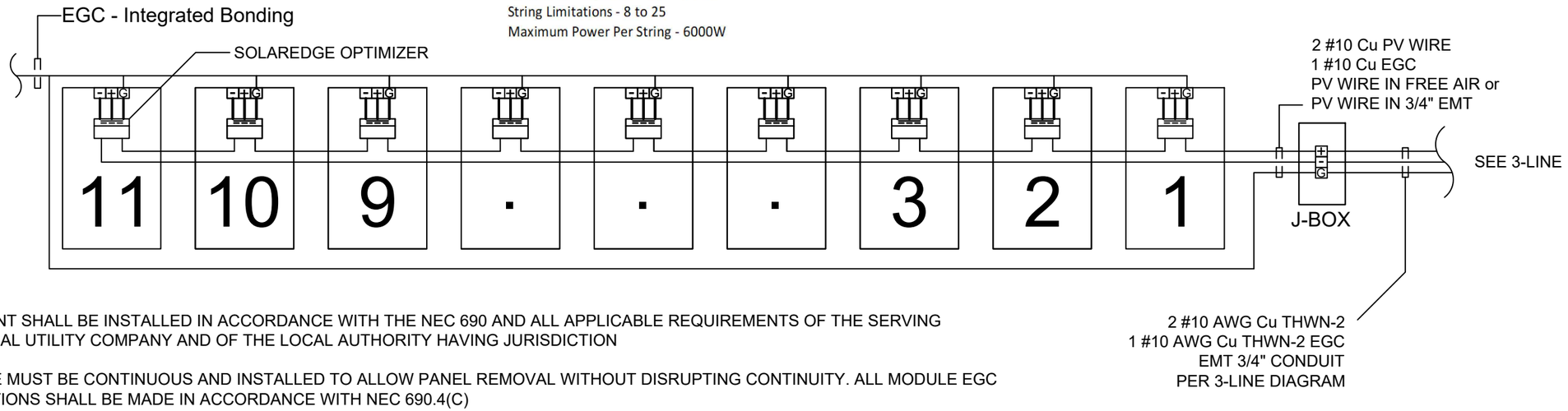
SolarEdge Optimizer P400
Rated DC Input Power - 400W
Maximum Input Voltage - 80 Vdc
MPPT Range - 8 to 80 Vdc
Maximum Input Current - 10.1 Adc
Maximum Output Current - 15 Adc
String Limitations - 8 to 25
Maximum Power Per String - 6000W

SYSTEM LABEL 690.53 - [ARRAY 1]
RATED MAX. POWER-POINT CURRENT (Imp): 14.40 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 480 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String



SolarEdge Optimizer P400
Rated DC Input Power - 400W
Maximum Input Voltage - 80 Vdc
MPPT Range - 8 to 80 Vdc
Maximum Input Current - 10.1 Adc
Maximum Output Current - 15 Adc
String Limitations - 8 to 25
Maximum Power Per String - 6000W

SYSTEM LABEL 690.53 - [ARRAY 2]
RATED MAX. POWER-POINT CURRENT (Imp): 9.90 Adc
RATED MAX. POWER-POINT VOLTAGE (Vmp): 400 Vdc
MAXIMUM SYSTEM VOLTAGE (Voc): 480 Vdc
MAXIMUM SYSTEM CURRENT (Isc): 15 Adc per String



NOTES

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2. EGC WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE EGC CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690.4(C)
3. FOLLOW MANUFACTURER'S SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
4. CONDUCTORS SHALL BE RATED AND LABELED
5. LISTING AGENCY NAME AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B)
6. METALLIC CONDUIT TO BE USED WITHIN BUILDINGS PER NEC 690.31(E). EMT BONDED PER NEC 250.97

SHEET: E2

DATE: 2/18/2022

Revision: 0

Designer: Evan Jerpbak

TITLE: ARRAY 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
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SYSTEM EQUIPMENT TAG LIST

REQ'D BY: NEC 690.5 (C)
APPLY TO: TRANSFORMERLESS INVERTERS / DC J-BOX / DC DISCONNECTS

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

REQ'D BY: NEC 690.54
APPLY TO: AC PANEL

PHOTOVOLATIC POWER SOURCE
BREAKERS ARE BACKFED
MAX AC CURRENT: 79.5 A
OPERATING VOLTAGE: 240 VAC

REQ'D BY:
APPLY TO: PV KWH METER

PHOTOVOLTAIC SYSTEM METER

REQ'D BY: NEC 690.14(C)(2)
APPLY TO: AC DISCONNECT

PHOTOVOLTAIC SYSTEM
AC UTILITY DISCONNECT SWITCH

REQ'D BY: NEC 690.17
APPLY TO: DISCONNECT, COMBINER PANELS

WARNING - ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS - TERMINALS ON BOTH THE LINE AND LOAD MAY BE ENERGIZED IN THE OFF POSITION

REQ'D BY:
APPLY TO: DEAD FRONT

PHOTOVOLTAIC
POWER SOURCE
BREAKERS ARE
BACKFEEDING

REQ'D BY: IFC 605.11.1.1 -605.11.1.4
NEC 690.31 (E)(3)

- LABEL WITH CAPITALIZED LETTERS MINIMUM HEIGHT 3/8 INCH WHITE LETTERS ON RED BACKGROUND
- LABEL MUST BE REFLECTIVE AND WEATHER RESISTANT
- LABEL PLACED ON INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CELINGS ASSEMBLIES, WALL OR BARRIERS.

NOTE: SYSTEM DESIGN IN ACCORDANCE WITH THE 2014 N.E.C.

REQ'D BY: NEC 705.12 (D)(2)
APPLY TO: ABOVE MAIN BREAKER

BREAKER HAS BEEN DE-RATED
PER NEC 705.12 (D)(2)

REQ'D BY: UTILITY & NEC 2014 - 705.10
APPLY TO:

WARNING
OTHER POWER SOURCE CONNECTED IS A PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH FOR THIS SOURCE IS LOCATED APPROX.

REQ'D BY:
APPLY TO: FRONT COMBINER PANEL

DEDICATED PHOTOVOLTAIC
SYSTEM COMBINER PANEL
LOADS NOT TO BE ADDED
TO THIS PANEL

REQ'D BY: SUN VALLEY SOLAR
APPLY TO: INVERTERS

QUALITY INSTALLATION BY:
SUN VALLEY SOLAR SOLUTIONS
3225 N Colorado St
Chandler, AZ 85225
PHONE: 1 888 5 SOLAR UP

REQ'D BY: NEC 2014 - 690.12
APPLY TO: RAPID SHUTDOWN DEVICE

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH
RAPID SHUTDOWN

RAPID SHUTDOWN
LOCATED AT

REQ'D BY: NEC 690.53
APPLY TO: DC DISCONNECT

INVERTER
1

PHOTOVOLTAIC ARRAY DC
DISCONNECT SWITCH
Voc: 500 VDC Isc: 15 Adc
Vop: 400 VDC Iop: 9.90 A
Max MPPT Voltage: 500 VDC
Max System Voltage: 500 VDC

MPPT 1-3
STRING 1-3

INVERTER
2

PHOTOVOLTAIC ARRAY DC
DISCONNECT SWITCH
Voc: 480 VDC Isc: 15 Adc
Vop: 400 VDC Iop: 14.40 A
Max MPPT Voltage: 480 VDC
Max System Voltage: 480 VDC

MPPT 1
STRING 1

PHOTOVOLTAIC ARRAY DC
DISCONNECT SWITCH
Voc: 480 VDC Isc: 15 Adc
Vop: 400 VDC Iop: 9.90 A
Max MPPT Voltage: 480 VDC
Max System Voltage: 480 VDC

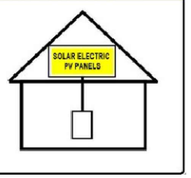
MPPT 2
STRING 2

WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE

WARNING:
PHOTOVOLTAIC
POWER SOURCE

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



SHEET: L1

DATE: 2/18/2022

Revision: 0

Designer: Evan Jerpbak

TITLE: LABELS - SAFETY
19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley, AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com

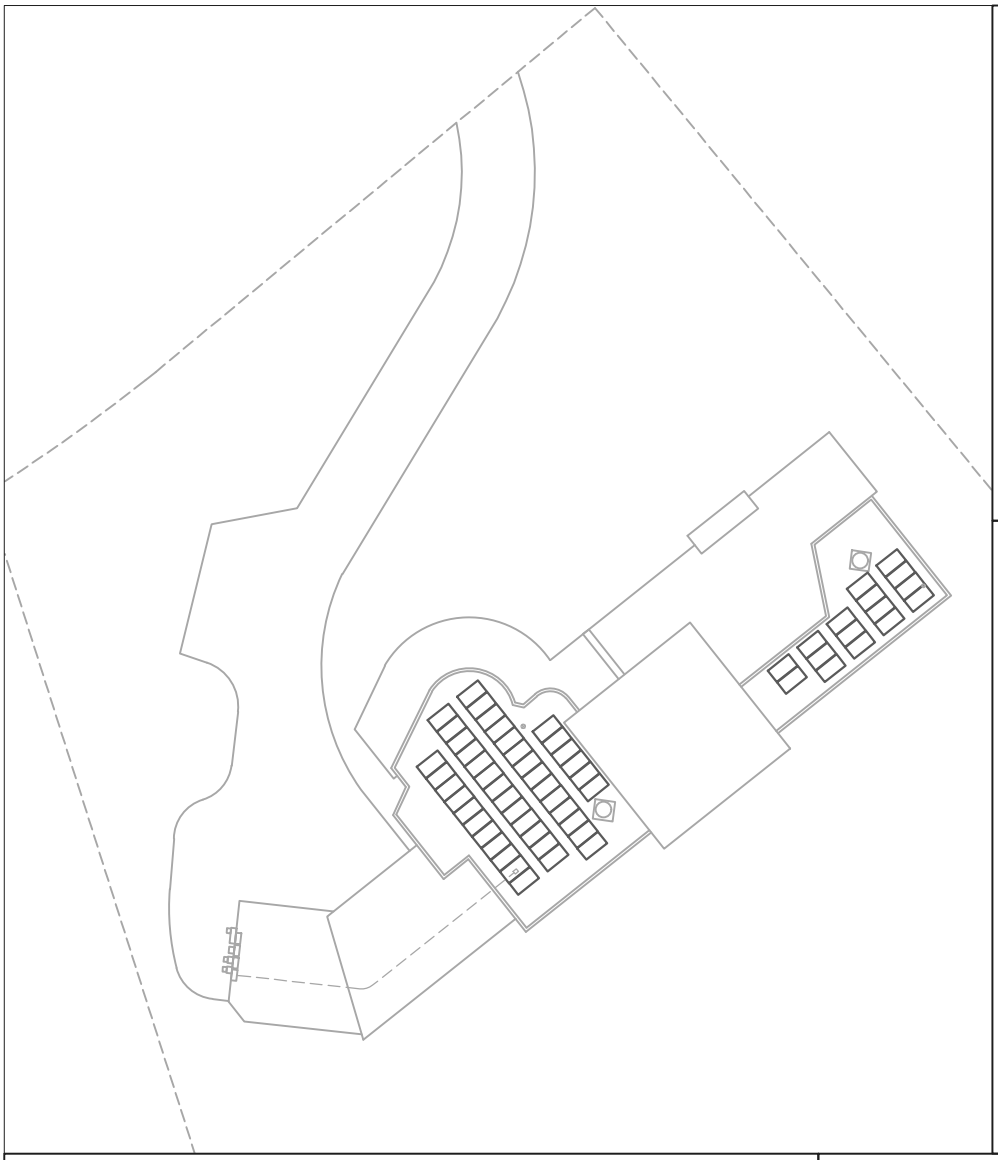
Notes:
-
-
-

Competent Person: _____

Crew Lead: _____

Emergency Center

N



REQUIRED PPE

- ☐ STEEL TOE BOOTS
- ☐ HARD HAT
- ☐ HARNESS/FALL PROTECTION
- ☐ SAFTEY GLASSES
- ☐ GLOVES
- ☐ HIGH VOLTAGE GLOVES

ELECTRICAL PPE CAT

- ☐ -0
- ☐ -1
- ☐ -2
- ☐ -3
- ☐ -4

SPECIALTY

Mark Up Key

- (P) Permanent Anchor
- (T) Temporary Anchor
- (D) Warning Line Delineator
- (G) Guard Rail Stanchon
- [IL] Installer Ladder
- [AL] Auditor Ladder
- [CB] Combiner Box
- [SO] Stubout
- ☒ SkyLight

No Ladder Access

- ☐ Restricted Area
- Conduit

Installer Signatures:

Print	Signature
1._____	_____
2._____	_____
3._____	_____
4._____	_____
5._____	_____
6._____	_____
7._____	_____
8._____	_____

OSHA SECTIONS PURSUANT TO JOB TASKS:

- ☐ PPE & Life Saving Equip-1926 Subpart E
- ☐ Lifelines & Lanyards-1926.104
- ☐ Tools-Hand and Power-1926-Subpart I
- ☐ Toxic Substances-1926 Subpart Z
- ☐ Steel Erection- 1926 Subpart R
- ☐ Ladders-1926 Subpart X
- ☐ Fall Protection-1926 Subpart M
- ☐ Electrical-1926 Subpart K
- ☐ Excavation-1926 Subpart P
- ☐ First Aid & Medical-1926.23

SHEET: L1

DATE: 2/18/2022

Revision: 0

Designer: Evan Jerpbak

TITLE: SAFETY PLAN 19.000 kW-AC
Johnloz, Gregory Residence 21,600 W-DC
4763 East Charles Drive, Paradise Valley , AZ 8525

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
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POWERWALL
Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.

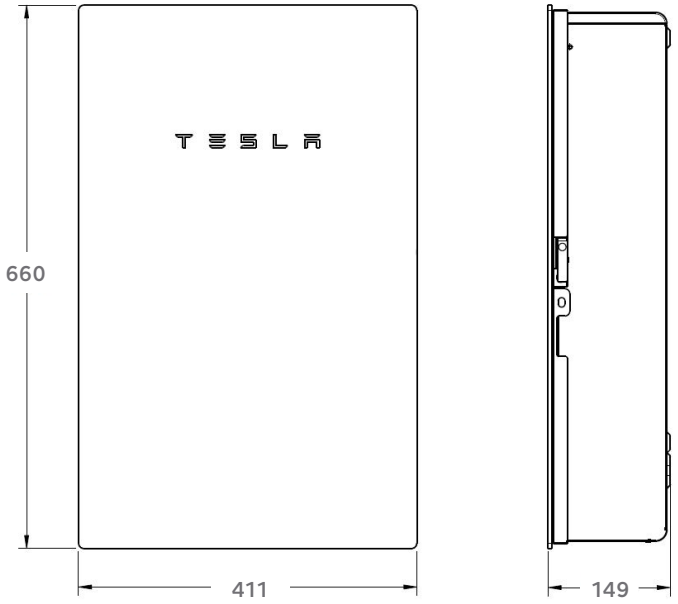
PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA[1]
Overcurrent Protection Device	100-200A; Service Entrance Rated[1]
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/– 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G)[2]
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, and backup
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 years

[1] When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.
[2] The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–20°C to 50°C (–4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R

POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.

PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh
Usable Energy	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10 s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10 s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/– 1.0 adjustable
Power Factor Range (full-rated power)	+/– 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency[1,3]	90%
Warranty	10 years

[1]Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
[2]In Backup mode, grid charge power is limited to 3.3 kW.
[3]AC to battery to AC, at beginning of life.

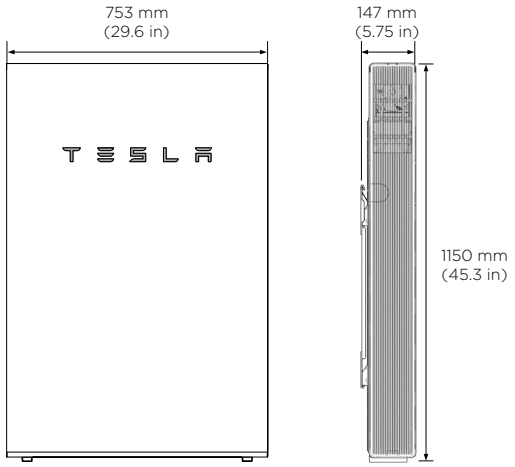
COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEEE 1547, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions[1]	1150 mm x 755 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)
Weight[1]	114 kg (251.3 lbs)
Mounting options	Floor or wall mount

[1]Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–20°C to 50°C (–4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	–20°C to 30°C (–4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

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
- 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)

/ 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	600kΩ 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

RoHS

SolarEdge Power Optimizer

Module Add-On For North America

P300 / P320 / P370 / P400 / P405

POWER OPTIMIZER

PV power optimization at the module-level

- 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
- Module-level voltage shutdown for installer and firefighter safety

SolarEdge Power Optimizer

Module Add-On for North America

P300 / P320 / P370 / P400 / P405

	P300 (for 60-cell modules)	P320 (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)	
INPUT						
Rated Input DC Power[1]	300	320	370	400	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	10	11		10.1		Adc
Maximum DC Input Current	12.5	13.75		12.63		Adc
Maximum Efficiency	99.5					%
Weighted Efficiency	98.8					%
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					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)	128 x 152 x 27.5 / 5 x 5.97 x 1.08			128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 50 / 5 x 5.97 x 1.96	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	845 / 1.9	gr / lb
Input Connector	MC4 Compatible		MC4 / Amphenol AH4	MC4 Compatible		
Output Wire Type / Connector	Double Insulated; MC4 Compatible		Double Insulated; MC4 / Amphenol AH4	Double Insulated; MC4 Compatible		
Output Wire Length	0.95 / 3.0		1.2 / 3.9			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.

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER[2][3]	SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8		10	18	
Maximum String Length (Power Optimizers)	25		25	50	
Maximum Power per String	5700 (6000 with SE7600H-US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes				

[2] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf.
[3] It is not allowed to mix P405 with P300/P370/P400/P600/P700 in one string.

Silfab SOLAR

SIL-360 NX

BAA ARRA | 25 YEAR PRODUCT WARRANTY | AUTOMATED MANUFACTURING | JUST-IN-TIME | DNV·GL TOP PERFORMER | TIER 1 BANKABLE $$$ | HIGH EFFICIENCY

HIGH EFFICIENCY PREMIUM MONO-PERC PV MODULE

CE | Intertek | Intertek | IEC | Fraunhofer ISE

CHUBB*

* Chubb provides error and omission insurance to Silfab Solar Inc.

INDUSTRY LEADING WARRANTY

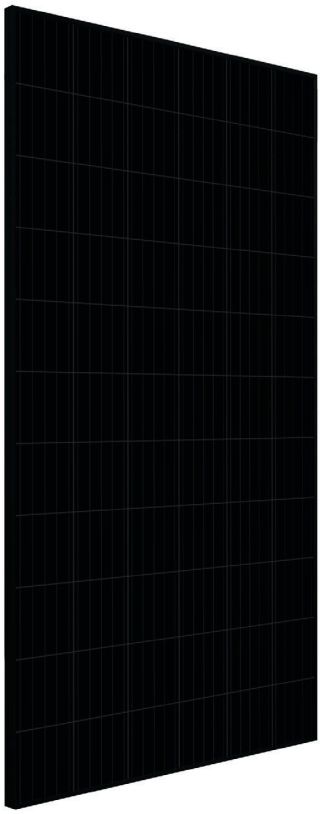
All our products include an industry leading 25-year product workmanship and 30-year performance warranty.

35+ YEARS OF SOLAR INNOVATION

Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners have the latest in solar innovation.

NORTH AMERICAN QUALITY

Silfab is the leading automated solar module manufacturer in North America. Utilizing premium quality materials and strict quality control management to deliver the highest efficiency, premium quality PV modules.



BAA / ARRA COMPLIANT

Silfab panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all utilized Silfab panels in their solar installations.

LIGHT AND DURABLE

Engineered to accommodate high wind load conditions for test loads validated up to 4000Pa uplift. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

QUALITY MATTERS

Total automation ensures strict quality controls during the entire manufacturing process at our ISO certified facilities.

DOMESTIC PRODUCTION

Silfab Solar manufactures PV modules in two automated locations within North America. Our 500+ North American team is ready to help our partners win the hearts and minds of customers, providing customer service and product delivery that is direct, efficient and local.

AESTHETICALLY PLEASING

All black sleek design, ideal for high-profile residential or commercial applications.

PID RESISTANT

PID Resistant due to advanced cell technology and material selection. In accordance to IEC 62804-1.

Electrical Specifications		SIL-360 NX mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	360	258
Maximum power voltage (Vpmax)	V	36.6	33.1
Maximum power current (Ipmax)	A	9.9	7.8
Open circuit voltage (Voc)	V	44.5	40.4
Short circuit current (Isc)	A	10.5	8.2
Module efficiency	%	19.7	17.6
Maximum system voltage (VDC)	V	1000	
Series fuse rating	A	20	
Power Tolerance	Wp	0 to +10	

Measurement conditions: STC 1000 W/m2 • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
• Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

Temperature Ratings	SIL-360 NX mono PERC
Temperature Coefficient Isc	+0.064 %/°C
Temperature Coefficient Voc	-0.279 %/°C
Temperature Coefficient Pmax	-0.36 %/°C
NOCT (± 2°C)	46 °C
Operating temperature	-40/+85 °C

Mechanical Properties and Components	SIL-360 NX mono PERC	
	Metric	Imperial
Module weight	20±0.2 kg	44±0.4 lbs
Dimensions (H x L x D)	1832 mm x 1000 mm x 38 mm	72.13 in x 39.4 in x 1.5 in
Maximum surface load (wind/snow)*	4000 Pa rear load / 5400 Pa front load	83.5/112.8 lb/ft^2
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	66 - Si mono-PERC - 5 busbar 158.75 x 158.75 mm	66 - Si mono-PERC - 5 busbar 62.25 x 62.25 in
Glass	3.2 mm high transmittance, tempered, DSM anti-reflective coating	0.126 in high transmittance, tempered, DSM anti-reflective coating
Cables and connectors (refer to installation manual)	1200 mm ø 5.7 mm, MC4 from Staubli	47.2 in, ø 0.22 (12AWG), MC4 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet	
Frame	Anodized Aluminum (Black)	
Bypass diodes	3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP67 rated	

Warranties	SIL-360 NX mono PERC			
Module product workmanship warranty	25 years**			
Linear power performance guarantee	30 years			
	≥ 97.1% end 1st year	≥ 91.6% end 12th year	≥ 85.1% end 25th year	≥ 82.6% end 30th year

Certifications	SIL-360 NX mono PERC
Product	ULC ORD C1703, UL1703, CEC listed***, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***. IEC 61730-1/-2***, CSA C22.2#61730-1/-2, IEC 62716 Ammonia Corrosion; IEC61701:2011 Salt Mist Corrosion Certifed, UL Fire Rating: Type 2
Factory	ISO9001:2015

All states except California
- Modules Per Pallet: 26
- Pallets Per Truck: 34
- Modules Per Truck: 884

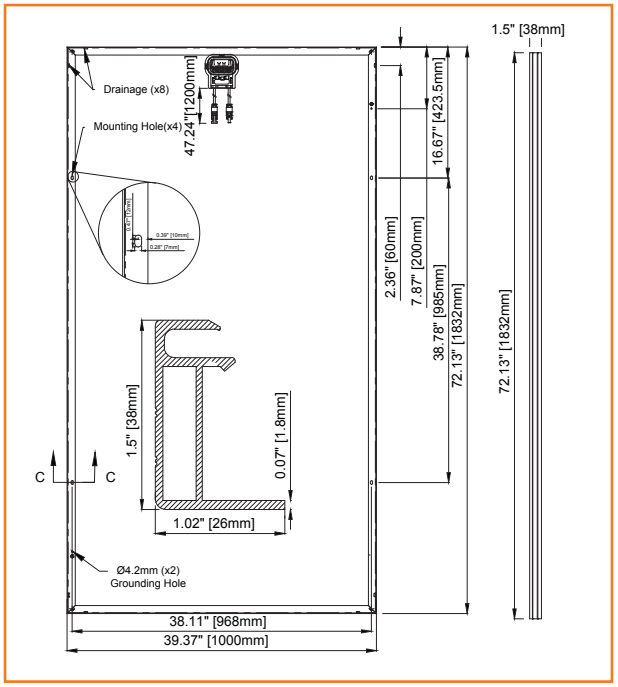
California
- Modules Per Pallet: 26
- Pallets Per Truck: 32
- Modules Per Truck: 832

*⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

**12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfabsolar.com.

***Certification and CEC listing in progress.

PAN files generated from 3rd party performance data are available for download at: www.silfabsolar.com/downloads.



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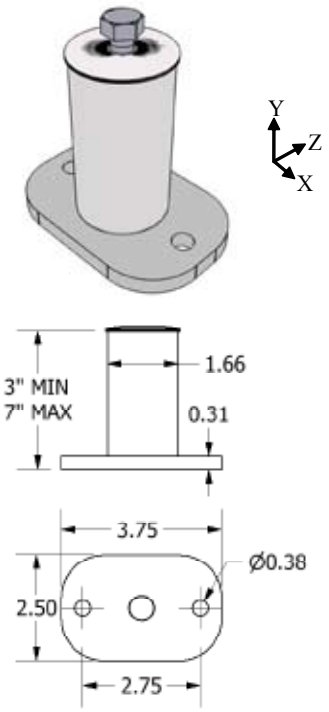
2-Piece Standoff Technical Datasheet

Pub 101026-1td V1.0 October 2010

Standoffs

2-Piece Aluminum Standoffs

Part No. 310503, 310504, 310506, 310507, 310553, 310554, 310556, 310557, 310603, 310604, 310606, 310607, 310653, 310654, 310656, 310657



Dimensions specified in inches unless noted

Standoff and Base Material:

- One of the following extruded aluminum alloys: 6005-T5, 6105-T5, 6061-T6
- Ultimate tensile: 38 ksi; Yeild: 35 ksi
- Clear or Dark anodized

Weight:

- 3" Standoff (as shown): 0.522 pounds (237 g)
- Add 0.086 pounds per inch (39 g/ inch)

Allowable and design loads are valid for a Unirac 2-piece aluminum standoff

Attach with zinc plated carbon steel or stainless steel fasteners

Resistance and safety factors are determined according to Part 1A section 9 of the 2005 Aluminum Design Manual

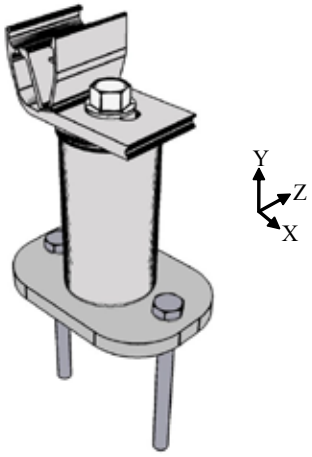
NOTE: Loads are given for the standoff only. Check load limits for lag screw or other attachment method.

Applied Load Direction	Average Ultimate Load lbs (N)	Allowable Load lbs (N)	Safety Factor, W	Design Load lbs (N)	Resistance Factor, F
Tension/ Compression, Y±	3266 (14528)	1089 (4844)	3.00	1633 (7264)	0.500
↻Z Bending, Applied Moment*	559 ft lbs (758 Nm)	250 ft lbs (339 Nm)	2.24	378 ft lbs (512 Nm)	0.676

*Example: If the module is mounted 6" (0.5 ft) from the base of the standoff, the allowable side load is 250 ft*lbs/ 0.5 ft = 500 lbs

2-Piece Aluminum Standoff with SolarMount-I 1-flange connection

Part No. 05013C, 05014C, 05016C, 05017C



Reference the SolarMount-I series datasheet for 1-flange connection specifications.

For the 1-flange connection to standoff:

- Use included 1 ¾" EPDM washer between the 1-flange connection and standoff
- Assemble with included 300 series stainless steel ⅜"-16 flanged hex head screw
- Use anti-seize and tighten to 30 ft-lbs of torque

Allowable and design loads are valid when components are assembled according to authorized Unirac documents.

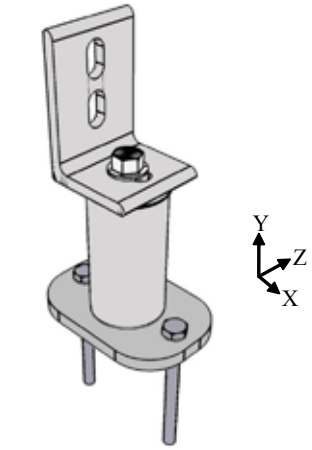
1-Flange connections are compatible with SolarMount-I series beams.

Resistance factors and allowable loads are determined according to part 1A section 9 of the 2005 Aluminum Design Manual.

NOTE: Loads are for the connection and standoff only. Check load limits for the lag screw or other attachment method.

Applied Load Direction	Average Ultimate lbs (N)	Allowable Load lbs (N)	Safety Factor, FS	Design Loads lbs (N)	Resistance Factor, Φ
Tension, Y+	1415 (6294)	635 (2825)	2.23	960 (4270)	0.679
Compression, Y-	1949 (8670)	873 (3883)	2.23	1320 (5872)	0.677
Transverse, X-, downhill	635 (2825)	313 (1392)	2.03	473 (2104)	0.745
Transverse, X+, uphill	42 (187)	20 (89)	2.15	30 (133)	0.705
↻Z Bending, Applied Moment	559 ft lbs (758 Nm)	250 ft lbs (339 Nm)	2.24	378 ft lbs (512 Nm)	0.676

2-Piece Aluminum Standoff with L-foot connection



Reference the SolarMount datasheet for L-foot specifications.

For the L- foot to standoff connection:

- Use included 1 ¾" EPDM washer between the L-foot and standoff
- Assemble with included 300 series stainless steel ⅜"-16 flanged hex head screw
- Use anti-seize and tighten to 30 ft-lbs of torque

Allowable and design loads are valid when components are assembled according to authorized Unirac documents.

L-feet are compatible with SolarMount, SolarMount Heavy Duty, and SunFrame rails.

Resistance factors and allowable loads are determined according to part 1A section 9 of the 2005 Aluminum Design Manual.

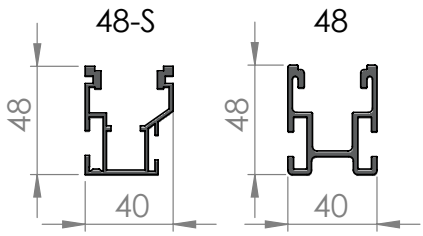
NOTE: Loads are for the connection and standoff only. Check load limits for the lag screw or other attachment method.

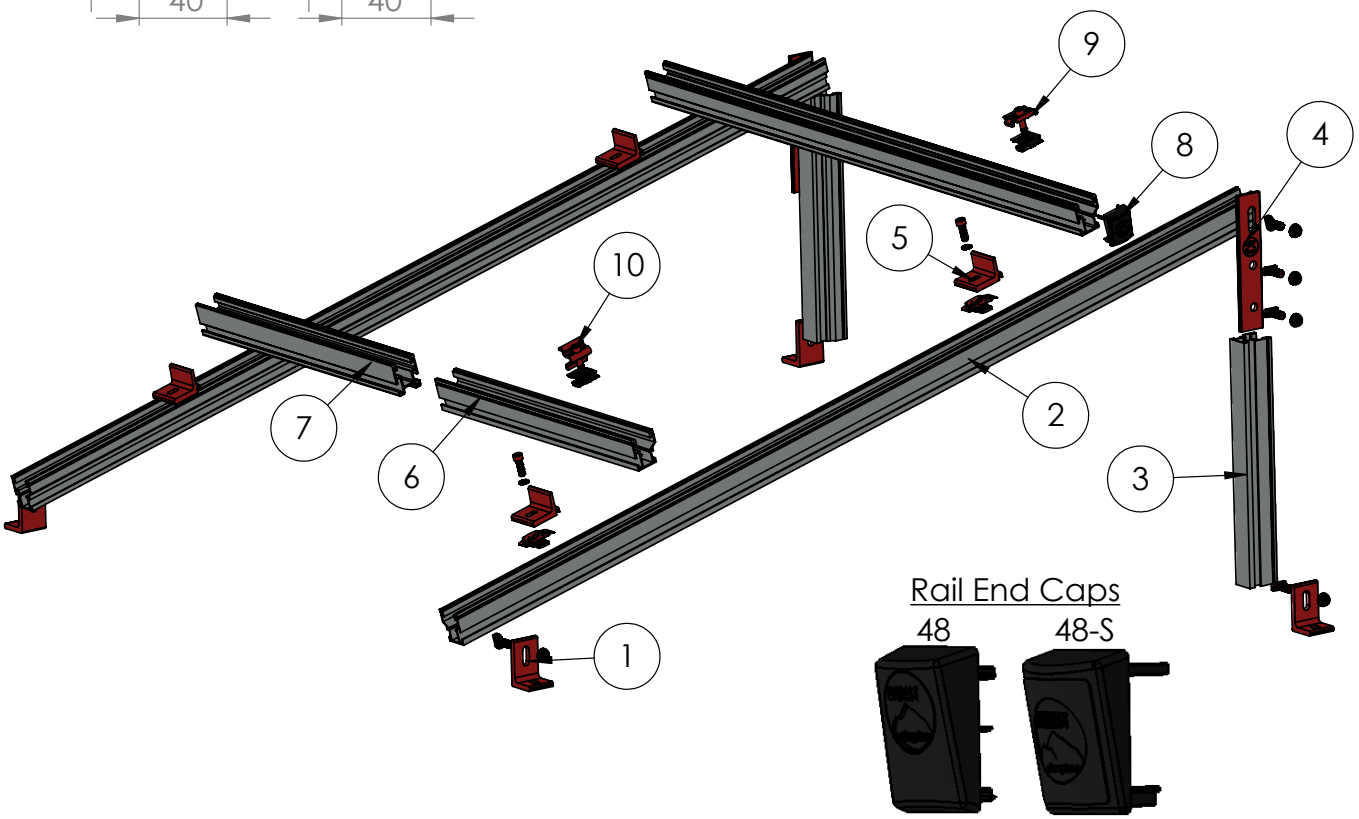
Applied Load Direction	Average Ultimate lbs (N)	Allowable Load lbs (N)	Safety Factor, FS	Design Loads lbs (N)	Resistance Factor, Φ
Tension, Y+	1859 (8269)	707 (3144)	2.63	1069 (4755)	0.575
Compression, Y-	3258 (14492)	1325 (5893)	2.46	2004 (8913)	0.615
Sliding, Z±	1766 (7856)	755 (3356)	2.34	1141 (5077)	0.646
Transverse, X±	486 (2162)	213 (949)	2.28	323 (1436)	0.664
↻Z Bending, Applied Moment	559 ft lbs (758 Nm)	250 ft lbs (339 Nm)	2.24	378 ft lbs (512 Nm)	0.676

CrossRail Tilt Up

Technical Sheet

Mounting systems for solar technology





Rail End Caps

**All dimensions in mm unless otherwise specified

ITEM NO.	DESCRIPTION
1	L-Foot w/T-Bolt & Nut, CR48-S/48/80 Mill
2	CrossRail 48-S, Front Tilt Leg
3	CrossRail 48-S, Rear Tilt Leg
4	Tilt Up Connector Set, Mill
5	Climber Set CR 48-S/48/80, Hole
6	CrossRail 48-S, Mill, Dark Anodized
7	CrossRail 48, Mill, Dark Anodized
8	CrossRail 48-S End Cap
9	Mid Clamp UL 2703, SS, Set 30-50mm CR
10	End Clamp UL 2703, SS, Set 30-50mm CR

CrossRail Tilt Up

Technical Sheet

Mounting systems for solar technology

EVEREST solar systems

CrossRail Tilt Up Installation Dimensions

The CrossRail Tilt Up is a fully customizable solution. The table below provides recommended installation dimensions based upon a standard 60 cell PV module with 1/6 –point clamping locations. Always ensure that the dimensions are suitable for the project site.

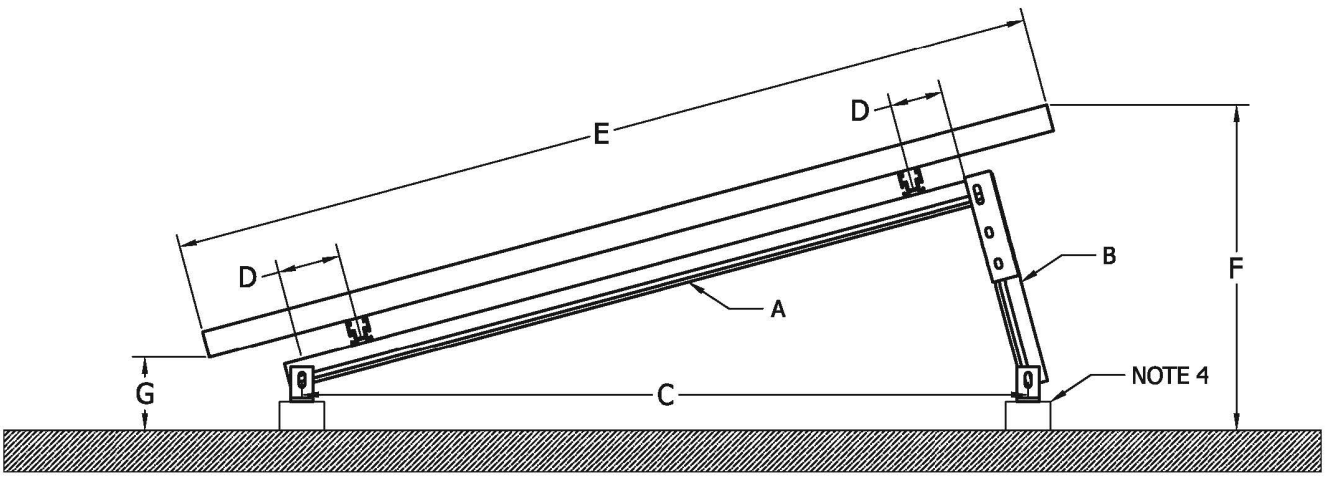


Figure 2.1: CrossRail Tilt Up Dimensions

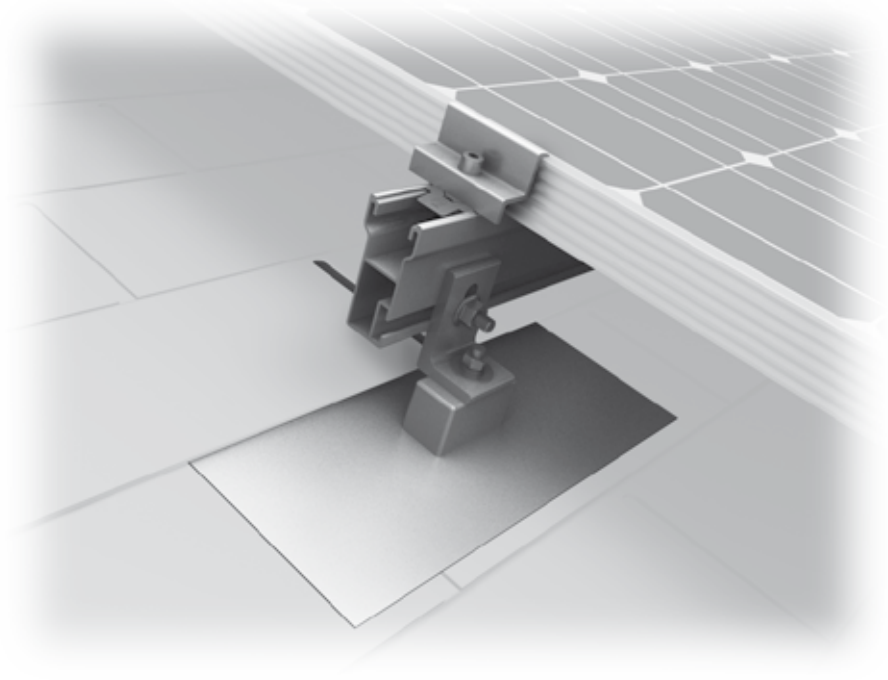
Dimension	Description	Tilt Angle		
		15	10	7
A	Front Leg	54.5	54.5	54.5
B	Rear Leg	15	9.5	6.5
C	L-Foot Spacing	54	53	52.5
D	Rail Offset[1]	5	5	5
E	Module Length	65	65	65
F	Rear Module Height[2]	22	17	14
G	Front Module Height[3]	3 1/3	3 7/8	4 1/8

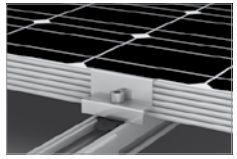
Table 2.1: Tilt Up Installation Dimensions
Note: All dimensions in inches

NOTES:

1. Rail offset not to exceed 8 inches.
2. Rear module height not to exceed 24". Note that dimension provided in Table 2.1 does not include roof attachment height.
3. Front module height dimension does not include roof attachment height.
4. Roof attachment to be provided by installer. Installer responsible for ensuring compatibility with CrossRail Tilt Up. Refer to CrossRail Tilt Up Engineering Letter(s) for reaction loads at L-Feet.
5. Always refer to chosen PV module manufacturer's installation instructions for approved clamping locations. Dimensions in Table 2.1 assume a standard 60-cell module with clamping locations at the 1/6-points on the module's long edge; ~11 inches from the short edge.
6. Installer responsible for cutting rail to lengths specified "A" and "B" in Table 2.1.
7. Dimensions provided in Table 2.1 are suggested values. Installer shall verify dimensions are appropriate for the individual site conditions, selected PV module, and roof surface.
8. Adjust based on your installation needs.

Mounting systems for solar technology





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EVEREST SOLAR SYSTEMS
RESIDENTIAL ROOF SOLUTIONS
CROSSRAIL SYSTEM

CROSSRAIL SYSTEM

- High quality, German engineered system optimized for residential installation
- Everest M K2 mounting hardware simplifies module installation – fast, easy, and secure
- Easily integrates with third party roof attachment products, such as QuickMountPV
- L-foot provides adjustability and compatibility with common roof interfaces (Comp, Tile & Metal)
- No shingle cutting, won't void roof manufacturer's warranty
- 100% code-compliant, structural validation for all solar states
- Two rail sizes available to suit all structural conditions
- Fast installation, minimal component count result in low total installed cost
- Simple to design and permit using code compliant "Everest Base" software

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 attachement	screw connection into rafter
Structural Validity	IBC compliant, stamped engineering letters available for all solar states
Warranty	10 years
System components	CrossRail 36, 48 or 80, L-Foot, mid and end clamp sets, M K2, third-party roof attachment products such as QuickMountPV

Flashing System with CrossRail 48 for asphalt shingle roofs