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PV-2D	STRINGING CONFIGURATION (SOLAREDGE SE50KUS, UNIT #2 / UNIT #3)
PV-2E	STRINGING CONFIGURATION (SOLAREDGE SE50KUS, UNIT #3)
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PV15	UL CERTIFICATION LETTER (SOLAREDGE SE50KUS)

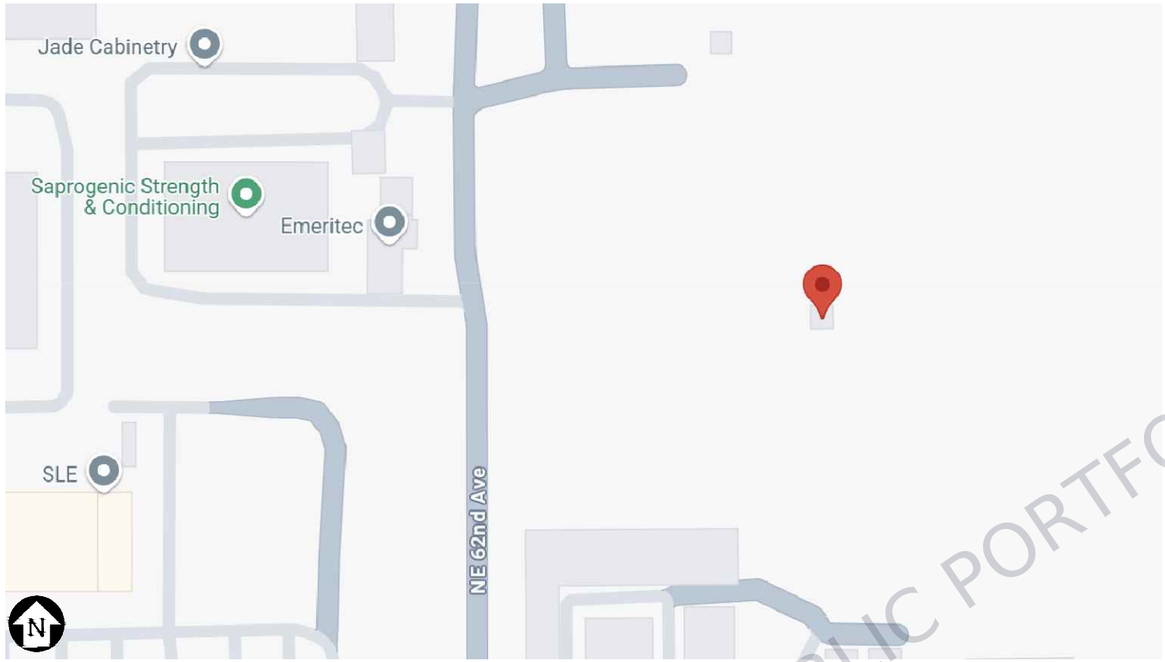
PROJECT DETAILS	
PROPERTY OWNER	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER / DEVELOPER ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER / DEVELOPER PHONE	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER / DEVELOPER CONTACT	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER / DEVELOPER EMAIL	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROPERTY ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROPERTY NAME	(INFO WITHHELD FOR PUBLIC SAMPLE)
APN	(INFO WITHHELD FOR PUBLIC SAMPLE)
OCCUPANCY	R-2, M, A-3
PROJECT TYPE	ROOF-MOUNTED PHOTOVOLTAIC ARRAY
OBSERVED CODES	**2023 NATIONAL ELECTRICAL CODE (NEC)** **2021 WASHINGTON ADMINISTRATIVE CODE (WAC)** 2021 WASHINGTON STATE ENERGY CODE - RESIDENTIAL 2021 INTERNATIONAL CODES REVISED CODE OF WASHINGTON (RCW) WASHINGTON BUILDING CODE & STATE AMENDMENTS CITY OF VANCOUVER MUNICIPAL CODE OSHA 29 CFR 1910.269 UNDERWRITERS LABORATORIES (UL) STANDARDS
STRUCT. METHOD	ASCE7-16

CONTRACTOR INFORMATION	
CONTRACTOR	(INFO WITHHELD FOR PUBLIC SAMPLE)
LICENSE NO.	(INFO WITHHELD FOR PUBLIC SAMPLE)
ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
PHONE	(INFO WITHHELD FOR PUBLIC SAMPLE)
CONTRACTOR SIGNATURE	

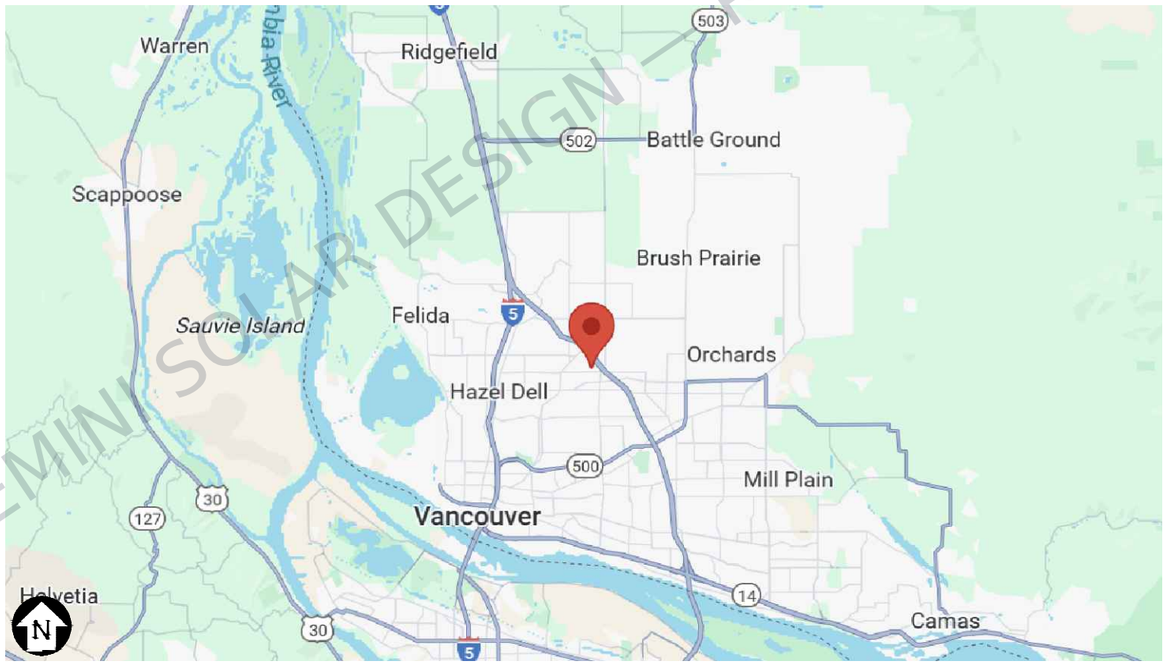
PLAN DESIGNER INFORMATION	
COMPANY	GEMINI SOLAR DESIGN, LLC.
NAME	SANJAY CHRISTOPHER MALLIPUDI
ADDRESS	495 HOWARD HEIGHTS ROAD FRESHWATER, CA 95503
PHONE	(609) 802-5743
PLAN DESIGNER SIGNATURE	Sanjay Mallipudi

SYSTEM DETAILS	
DC RATING OF SYSTEM	164.830W
TOTAL COMBINED AC OUTPUT CURRENT	418.5A @ 208VAC
PV MODULE	(311) SILFAB SOLAR SIL-530 XM
STRING INVERTER	***(TYP. OF 3) SOLAREDGE SE50KUS*** ***WHICH IS COMPOSED OF THE FOLLOWING;*** ***(TYP. OF 3) SE-TRI-US00IBNS4 SYNERGY MANAGERS*** ***(TYP. OF 9) USESUK-USR0INNN8 INVERTER UNITS***
POWER OPTIMIZER	(311) SOLAREDGE C651U
INTERCONNECTION	LOAD-SIDE BACKFED CIRCUIT BREAKER

SITE SPECIFICATIONS	
UTILITY SERVICE	208Y / 120VAC, 3-Ø, 4-WIRE
"MDP-1B" SWITCHBOARD (SOLAR POINT OF INTERCONNECTION)	***1600A RATED BUSBAR*** ***1200A / 3P MAIN BREAKER*** ***600A / 3P BACKFED SOLAR BREAKER***
ASHRAE EXTREME ANNUAL MEAN MINIMUM DENSITY DRY BULB TEMP.	-8°C
ASHRAE 2% ANNUAL DRY DENSITY BULB TEMP.	32°C
BASIC WIND SPEED	97 MPH
DESIGN ROOF SNOW LOAD	25 PSF
WIND EXPOSURE CATEGORY	B
RISK CATEGORY	II



1 PV-1 PLOT
SCALE: NTS



2 PV-1 LOCALE
SCALE: NTS

CONSTRUCTION NOTES	
1	CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO INITIATING CONSTRUCTION.
2	CONTRACTOR SHALL REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
3	ALL EQUIPMENT SHALL BE LISTED BY THE U.L. (OR EQUAL) AND LISTED FOR ITS SPECIFIC APPLICATION.
4	ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
5	ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6	ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
7	ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 VOLTS AND 90°C WET ENVIRONMENT, UNLESS OTHERWISE NOTED.
8	WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
9	PV MODULES FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER G.E.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
10	PV MODULES RACKING RAIL SHALL BE BONDED TO BARE COPPER G.E.C VIA WEEB LUG, ILSCO GBL-4DBT LAY-IN LUG, OR EQUIVALENT LISTED LUG.
11	GROUNDING ELECTRODE CONDUCTOR (G.E.C) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED
12	ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
13	WORKING SPACE AROUND ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC SECTION 110.26.

SCOPE OF WORK DESCRIPTION

THE **PROPOSED** SYSTEM IS A ROOF MOUNTED PHOTOVOLTAIC ARRAY UTILIZING SOLAREDGE STRING INVERTERS WITH MODULE-LEVEL POWER OPTIMIZERS. THE PHOTOVOLTAIC (PV) SYSTEM IS TO BE INSTALLED ON THE OCCUPANCY TYPE "R-2, M, A-3" STRUCTURE IN THE CITY OF VANCOUVER, CLARK COUNTY, WASHINGTON. THE ENERGY PRODUCED BY THE PV SYSTEM SHALL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE ON-SITE ELECTRICAL EQUIPMENT **VIA A LOAD-SIDE BACKFED CIRCUIT BREAKER POINT OF CONNECTION.** THIS PROJECT DOES NOT INCLUDE STORAGE BATTERIES.

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

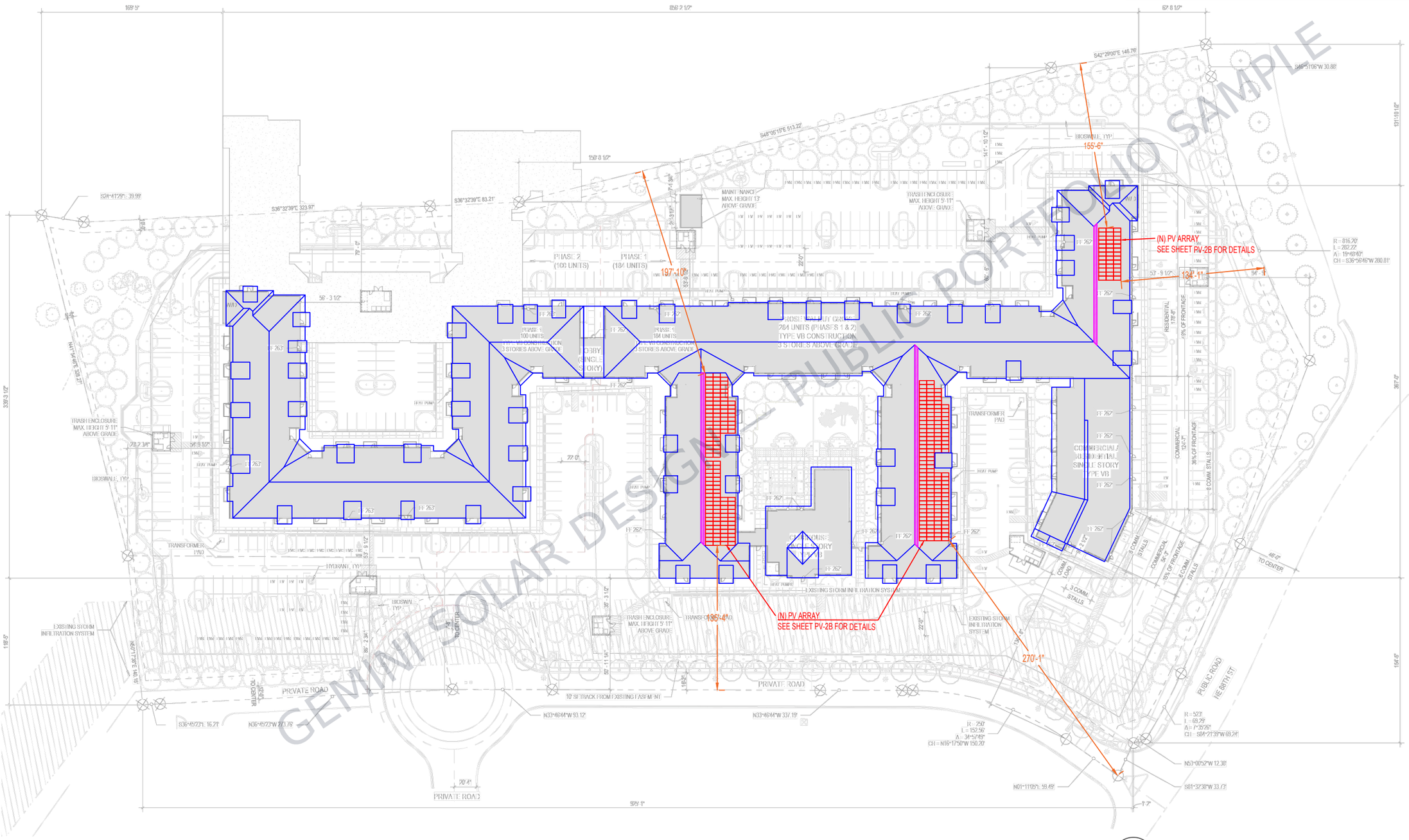
PROJECT INFO

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-1

NOTE TO PLAN REVIEWER:
SHEET PV-2A REPRESENTS A GENERAL SITE PLAN DEPICTING THE RELEVANT ELEMENTS OF THE PARCEL, AND THE SETBACKS FROM THE PROPOSED PV ARRAY TO THE PROPERTY LINES.

PLEASE REFER TO SHEET PV-2B FOR A DETAILED SITE PLAN WITH REGARDS TO THE DESIGN, AND ALL RELEVANT ELECTRICAL DETAILS. THANK YOU.



A PV-2A SITE PLAN (GENERAL)
SCALE: 1" = ~90'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

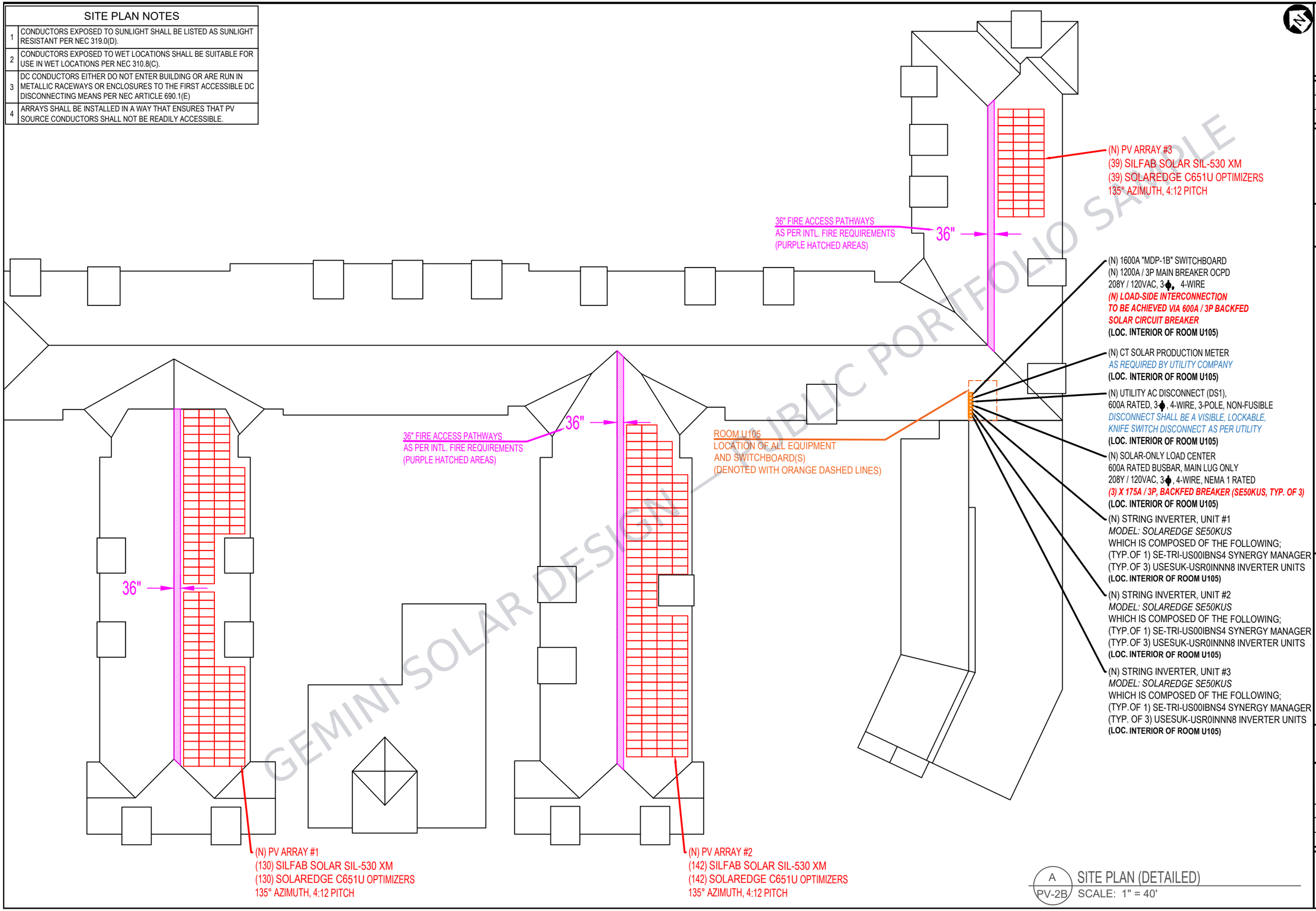
(INFO WITHHELD FOR PUBLIC SAMPLE)

SITE PLAN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-2A

SITE PLAN NOTES	
1	CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 319.0(D).
2	CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.8(C).
3	DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER NEC ARTICLE 690.1(E)
4	ARRAYS SHALL BE INSTALLED IN A WAY THAT ENSURES THAT PV SOURCE CONDUCTORS SHALL NOT BE READILY ACCESSIBLE.



A PV-2B SITE PLAN (DETAILED)
SCALE: 1" = 40'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

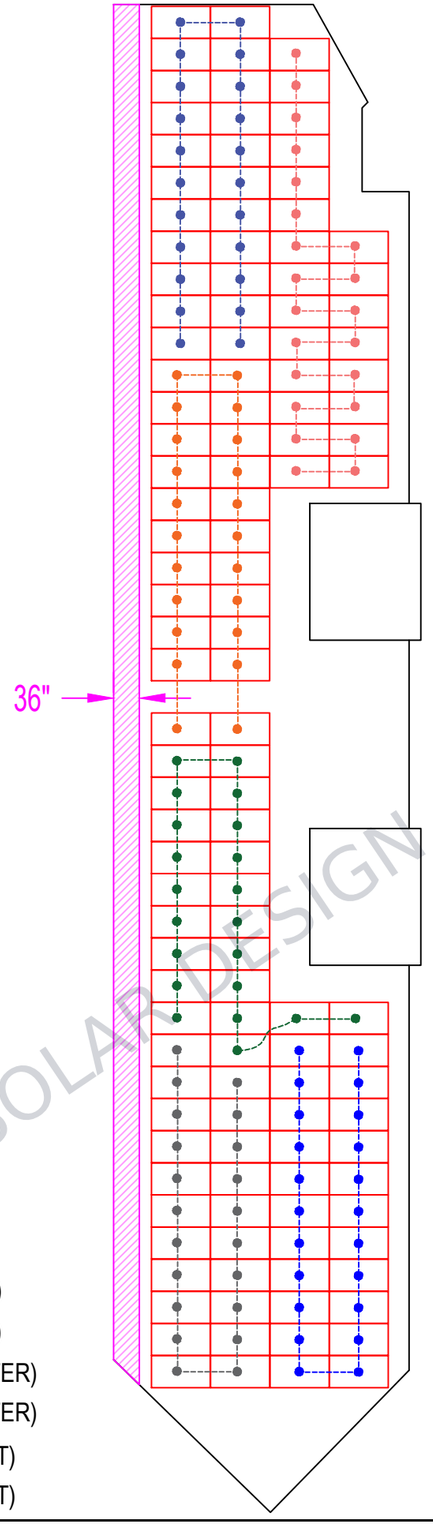
SITE PLAN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-2B

(N) NEMA 3R JUNCTION BOX (LOC. ON ROOF)
THE JUNCTION BOX FOR THIS SUB-ARRAY SHALL TRANSITION (TYP. OF 6) DC STRING CIRCUITS INTO A 2.00" EMT CONDUIT THAT SHALL BE RAN ON THE SURFACE OF THE ROOF AND INTERIOR OF THE BUILDING TO THE INVERTER (UNIT #1)

(N) PV ARRAY #1
(130) SILFAB SOLAR SIL-530 XM
(130) SOLAREDGE C651U OPTIMIZERS
135° AZIMUTH, 4:12 PITCH



- 1 STRING OF 21 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, LEFT)
- 1 STRING OF 22 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, LEFT)
- 1 STRING OF 21 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, CENTER)
- 1 STRING OF 22 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, CENTER)
- 1 STRING OF 22 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, RIGHT)
- 1 STRING OF 22 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #1, RIGHT)

A PV-2C STRINGING CONFIGURATION (SOLAREDGE SE50KUS, UNIT #1)
SCALE: 1" = 18'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

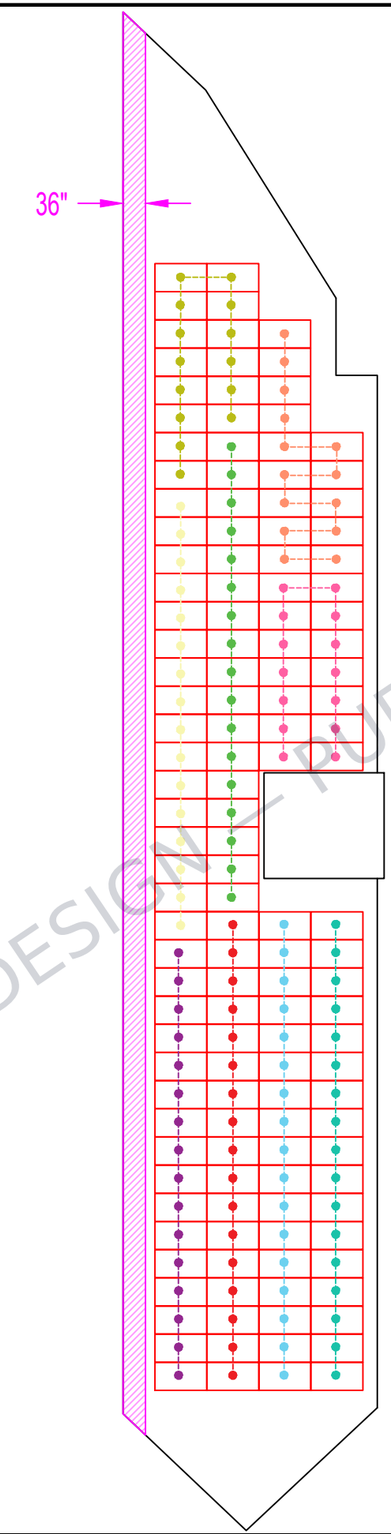
STRINGING CONFIG.

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-2C

(N) NEMA 3R JUNCTION BOX (LOC. ON ROOF)
THE JUNCTION BOX FOR THIS SUB-ARRAY SHALL TRANSITION
(TYP. OF 9) DC STRING CIRCUITS INTO A 2.00" EMT CONDUIT
THAT SHALL BE RAN ON THE SURFACE OF THE ROOF AND
INTERIOR OF THE BUILDING TO THE INVERTERS (UNIT #2 / UNIT #3)

(N) PV ARRAY #2
(142) SILFAB SOLAR SIL-530 XM
(142) SOLAREDGE C651U OPTIMIZERS
135° AZIMUTH, 4:12 PITCH



- 1 STRING OF 16 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, LEFT)
- 1 STRING OF 17 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, LEFT)
- 1 STRING OF 16 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, CENTER)
- 1 STRING OF 17 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, CENTER)
- 1 STRING OF 17 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, RIGHT)
- 1 STRING OF 17 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #2, RIGHT)
- 1 STRING OF 14 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, LEFT)
- 1 STRING OF 14 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, LEFT)
- 1 STRING OF 14 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, CENTER)

A / PV-2D STRINGING CONFIGURATION (SOLAREDGE SE50KUS, UNIT #2 / UNIT #3)
SCALE: 1" = 20'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

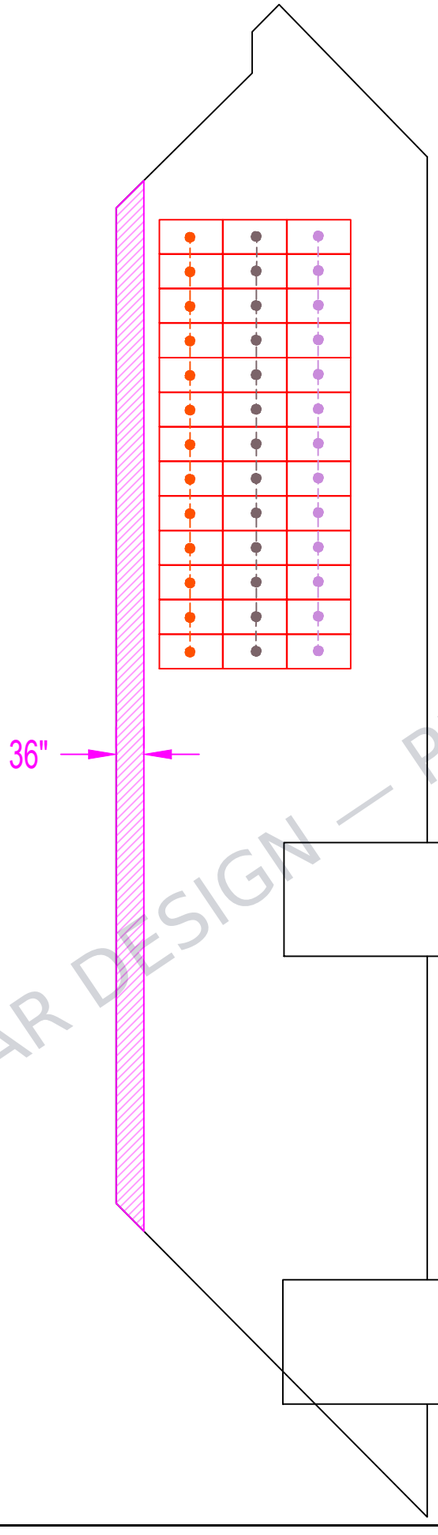
STRINGING CONFIG.

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-2D

(N) NEMA 3R JUNCTION BOX (LOC. ON ROOF)
THE JUNCTION BOX FOR THIS SUB-ARRAY SHALL TRANSITION (TYP. OF 3) DC STRING CIRCUITS INTO A 1.00" EMT CONDUIT THAT SHALL BE RAN ON THE SURFACE OF THE ROOF AND INTERIOR OF THE BUILDING TO THE INVERTER (UNIT #3)

(N) PV ARRAY #3
(39) SILFAB SOLAR SIL-530 XM
(39) SOLAREDGE C651U OPTIMIZERS
135° AZIMUTH, 4:12 PITCH



1 STRING OF 13 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, CENTER)
1 STRING OF 13 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, RIGHT)
1 STRING OF 13 MODULES (SILFAB SOLAR SIL-530 XM, UNIT #3, RIGHT)

A PV-2E STRINGING CONFIGURATION (SOLAREDGE SE50KUS, UNIT #3)
SCALE: 1" = 20'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

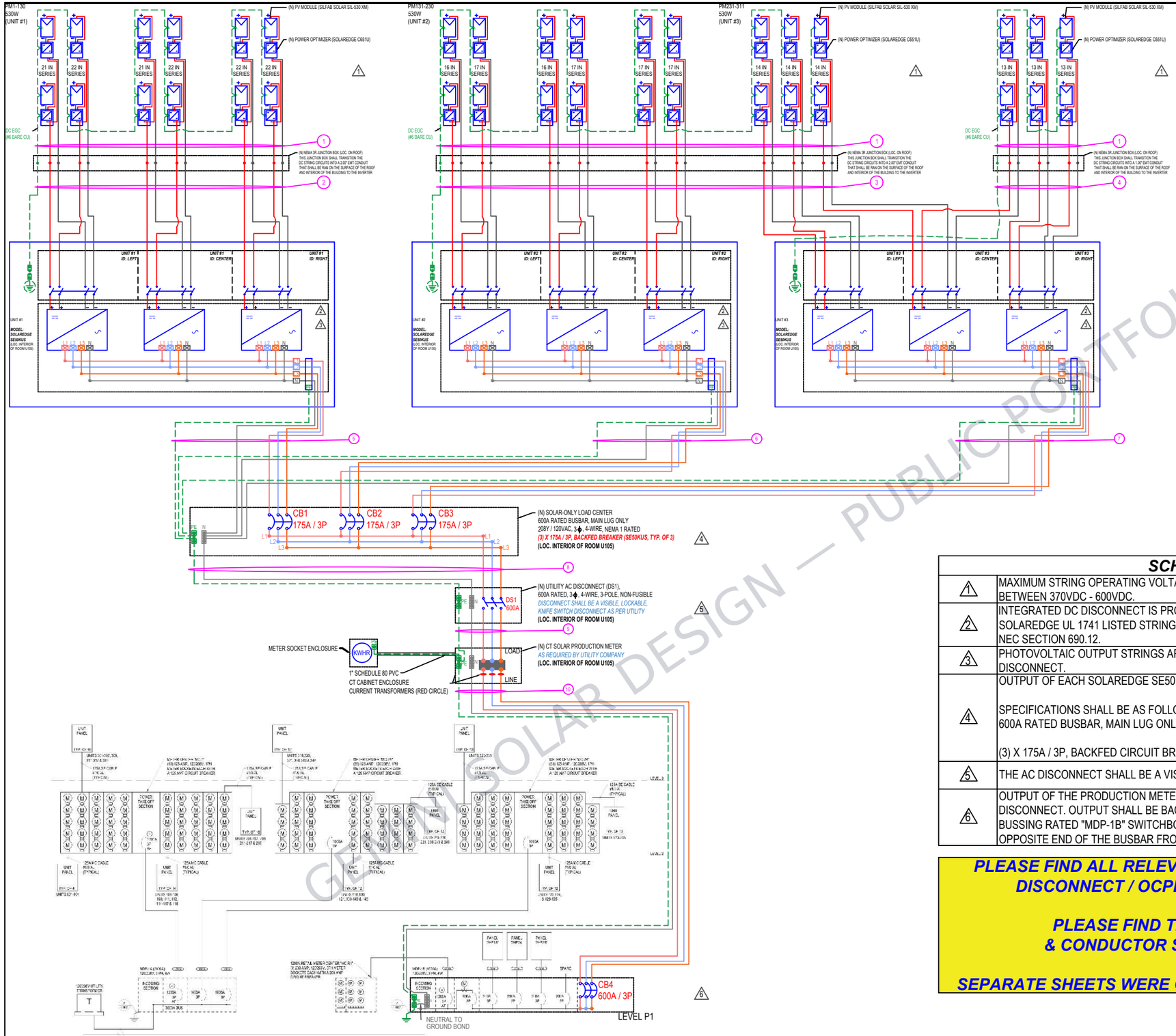
NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

STRINGING CONFIG.

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-2E



SCHEMATIC NOTES

1	MAXIMUM STRING OPERATING VOLTAGE OF ARRAY AT DESIGN LOW TEMPERATURE OF -8°C WOULD BETWEEN 370VDC - 600VDC.
2	INTEGRATED DC DISCONNECT IS PROVIDED WITH INVERTER. DISCONNECT IS LISTED FOR USE WITH SOLAREDGE UL 1741 LISTED STRING INVERTERS. INVERTER HAS RAPID SHUTDOWN INTEGRATED AS PER NEC SECTION 690.12.
3	PHOTOVOLTAIC OUTPUT STRINGS ARE COMBINED INSIDE THE INVERTERS' DC INTEGRATED DISCONNECT.
4	OUTPUT OF EACH SOLAREDGE SE50KUS WILL BE BACKFED INTO A "SOLAR-ONLY LOAD CENTER" SPECIFICATIONS SHALL BE AS FOLLOWS: 600A RATED BUSBAR, MAIN LUG ONLY, 208Y / 120VAC, 3-ϕ , 4-WIRE, NEMA 1 RATED (3) X 175A / 3P, BACKFED CIRCUIT BREAKER (SOLAREDGE SE50KUS, TYP. OF 3 UNITS)
5	THE AC DISCONNECT SHALL BE A VISIBLE, LOCKABLE, KNIFE SWITCH DISCONNECT AS PER THE UTILITY.
6	OUTPUT OF THE PRODUCTION METER IS CONNECTED TO UTILITY ON LOAD SIDE OF SERVICE DISCONNECT. OUTPUT SHALL BE BACKFED THROUGH A 600A / 3P CIRCUIT BREAKER IN THE 1600A BUSSING RATED "MDP-1B" SWITCHBOARD. SOLAR BACKFED BREAKER SHALL BE LOCATED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER DISCONNECT.

PLEASE FIND ALL RELEVANT TABLES, SYSTEM DETAILS, AND DISCONNECT / OCPD SCHEDULES ON SHEET PV-3B.

PLEASE FIND THE CORRESPONDING WIRE & CONDUCTOR SCHEDULE ON SHEET PV-3C.

SEPARATE SHEETS WERE CREATED DUE TO SPACE LIMITATIONS.

A PV-3A THREE-LINE DIAGRAM
SCALE: N/A

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC
(INFO WITHHELD FOR PUBLIC SAMPLE)

THREE-LINE DIAGRAM

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-3A

PHOTOVOLTAIC MODULE

REF.	TYP.	MODULE	STC POWER	ISC	IMP	VOC	VMP	SERIES FUSE RATING
PM1-311	311	SILFAB SOLAR SIL-530 XM	530W	13.71A	12.91A	47.74V	41.05V	30A

STRING INVERTER

INVERTER	TRANSFORMERLESS	AC VOLTAGE	INTEGRATED RAPID SHUTDOWN (NEC 2023)	RATED AC ACTIVE OUTPUT POWER	MAXIMUM CONTINUOUS OUTPUT CURRENT (PER PHASE, PF=1)	MAXIMUM INPUT CURRENT	MAXIMUM INPUT VOLTAGE (DC+ TO DC-)	STRING OPERATING VOLTAGE RANGE	CEC WEIGHTED EFF.
(TYP. OF 3) SOLAREDGE SE50KUS WHICH IS COMPOSED OF THE FOLLOWING; (TYP. OF 3) SE-TRI-US00IBNS4 SYNERGY MANAGERS (TYP. OF 9) USESUK-USR0INNN8 INVERTER UNITS	YES	208Y / 120, 3-Ø, 4-WIRE	YES	50,000W	139.5A @ 208VAC	46.5A PER UNIT (MAX. OF 3 UNITS)	600VDC	370VDC - 600VDC	97%

POWER OPTIMIZER (PART OF SOLAREDGE STRING INVERTER DESIGN)

TYP.	MODEL	MAXIMUM OUTPUT CURRENT	STRING OPERATING VOLTAGE RANGE *(WHEN PAIRED WITH SE50KUS)*	RATED INPUT DC POWER	ABSOLUTE MAXIMUM INPUT VOLTAGE (VOC AT LOWEST TEMPERATURE)	MAXIMUM OUTPUT VOLTAGE	MAXIMUM CONTINUOUS POWER PER STRING	CEC WEIGHTED EFF.
311	SOLAREDGE C651U	24A	370VDC - 600VDC	650W	80VDC	60VDC	9,600W	98.8%

SYSTEM SUMMARY (UNIT #1 - SOLAR EDGE SE50KUS)

ARRAY STC POWER	22,790W | Unit #1 22,790W | Unit #2 23,320W | Unit #3 ***68,900W | Total***
ARRAY CIRCUITS	1 String X 21 Modules (21x C651U) | Unit #1 1 String X 22 Modules (22x C651U) | Unit #1 1 String X 21 Modules (21x C651U) | Unit #2 1 String X 22 Modules (22x C651U) | Unit #2 1 String X 22 Modules (22x C651U) | Unit #3 1 String X 22 Modules (22x C651U) | Unit #3
DC STRING MAXIMUM OUTPUT CURRENT	***24A (TYP. OF ALL STRINGS)***
MAXIMUM CONTINUOUS OUTPUT CURRENT, (PER PHASE, PF=1)	***139.5A @ 208VAC***

SYSTEM SUMMARY (UNIT #2 - SOLAR EDGE SE50KUS)

ARRAY STC POWER	17,490W | Unit #1 17,490W | Unit #2 18,020W | Unit #3 ***53,000W | Total***
ARRAY CIRCUITS	1 String X 16 Modules (16x C651U) | Unit #1 1 String X 17 Modules (17x C651U) | Unit #1 1 String X 16 Modules (16x C651U) | Unit #2 1 String X 17 Modules (17x C651U) | Unit #2 1 String X 17 Modules (17x C651U) | Unit #3 1 String X 17 Modules (17x C651U) | Unit #3
DC STRING MAXIMUM OUTPUT CURRENT	***24A (TYP. OF ALL STRINGS)***
MAXIMUM CONTINUOUS OUTPUT CURRENT, (PER PHASE, PF=1)	***139.5A @ 208VAC***

SYSTEM SUMMARY (UNIT #3 - SOLAR EDGE SE50KUS)

ARRAY STC POWER	14,840W | Unit #1 14,310W | Unit #2 13,780W | Unit #3 ***42,930W | Total***
ARRAY CIRCUITS	1 String X 14 Modules (14x C651U) | Unit #1 1 String X 14 Modules (14x C651U) | Unit #1 1 String X 14 Modules (14x C651U) | Unit #2 1 String X 13 Modules (13x C651U) | Unit #2 1 String X 13 Modules (13x C651U) | Unit #3 1 String X 13 Modules (13x C651U) | Unit #3
DC STRING MAXIMUM OUTPUT CURRENT	***24A (TYP. OF ALL STRINGS)***
MAXIMUM CONTINUOUS OUTPUT CURRENT, (PER PHASE, PF=1)	***139.5A @ 208VAC***

COMBINED SYSTEM SUMMARY (AGGREGATE TOTALS)

TOTAL ARRAY STC POWER	***164,830W***
MAXIMUM CONTINUOUS OUTPUT CURRENT, (PER PHASE, PF=1)	***418.5A @ 208VAC***

OCPD SCHEDULE

REF.	TYP.	POLES	CURRENT RATING	RATED VOLTAGE
CB1 (UNIT #1, SOLAREDGE SE50KUS)	1	3	175A	208VAC
CB2 (UNIT #2, SOLAREDGE SE50KUS)	1	3	175A	208VAC
CB3 (UNIT #3, SOLAREDGE SE50KUS)	1	3	175A	208VAC
CB4 (LOAD-SIDE BACKFED CIRCUIT BREAKER)	1	3	600A	208VAC

UTILITY AC DISCONNECT SCHEDULE

REF.	FUSIBLE	POLES	CURRENT RATING	RATED VOLTAGE
UTILITY AC DISCONNECT (DS1), GENERAL DUTY 3-POLE KNIFE DISCONNECT, NON-FUSIBLE	NO	3	600A	208VAC

SOLAREDGE GROUND FAULT PROTECTION NOTES

1	THE SOLAREDGE SYSTEM INCLUDES GROUND FAULT DETECTION AS REFERENCED BY ARTICLE 690.5 AND REQUIRED BY 690.35 (C). BECAUSE THE ARRAY CIRCUIT CONDUCTORS ARE UNGROUNDED, ONLY THE REQUIREMENTS OF ARTICLE 690.35 (C) (1), (2) AND (3) APPLY. EACH POWER OPTIMIZER MONITORS ITS CONNECTED MODULES AND COMMUNICATES ANY DETECTED FAULT TO THE INVERTER. THE INVERTER MONITORS THE CONDUCTORS BETWEEN THE POWER OPTIMIZERS AND THE INVERTER. IN RESPONSE TO A GROUND FAULT THE INVERTER WILL CEASE TO EXPORT POWER, SHUT DOWN THE POWER OPTIMIZERS TO ISOLATE THE FAULTED CIRCUIT, AND INDICATE THE GROUND FAULT ON THE INVERTER'S DISPLAY.

ELECTRICAL NOTES SPECIFICATIONS

1	MODULE INTERCONNECTION CONNECTORS SHALL BE IN COMPLIANCE WITH NEC 690.33(A) AND SHALL BE POLARIZED AND NON INTERCHANGEABLE WITH RECEPTACLES IN OTHER ELECTRICAL SYSTEMS ON THE PREMISES.
2	MODULE INTERCONNECTION CONNECTORS SHALL BE OF THE LOCKING TYPE REQUIRING A TOOL FOR OPENING IN ACCORDANCE WITH NEC 690.33(C)
3	MODULE INTERCONNECTION CONNECTORS SHALL BE MARKED "DO NOT OPEN UNDER LOAD" IN ACCORDANCE WITH NEC 690.33(E).
4	THE CONNECTION OF ALL MODULES SHALL BE ARRANGED SO THAT THE REMOVAL OF ANY PANEL OR MODULE SHALL NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT IN ACCORDANCE WITH NEC 690.4(C).
5	ALL EQUIPMENT IN PHOTOVOLTAIC SYSTEM SHALL BE LISTED BY AN INDEPENDENT TESTING AGENCY.
6	THE GROUNDING ELECTRODE CONDUCTORS SHALL BE CONTINUOUS IN COMPLIANCE WITH NEC 250.64(C) AND 250.160.
7	THIS SYSTEM CONFORMS TO NEC SECTION 690.11, WHICH REQUIRES THAT PV SYSTEMS WITH DC SOURCE CIRCUITS, DC OUTPUT CIRCUITS, OR BOTH, OPERATING AT A PV SYSTEM MAXIMUM SYSTEM VOLTAGE OF 80 VOLTS OR GREATER, SHALL BE PROTECTED BY A LISTED (DC) ARC-FAULT CIRCUIT INTERRUPTER, OR OTHER LISTED COMPONENTS TO PROVIDE EQUIVALENT PROTECTION.

A PV-3B THREE-LINE DIAGRAM
SCALE: N/A

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

THREE-LINE DIAGRAM

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-3B

CONDUCTOR SCHEDULE WITH NEC ELECTRICAL CALCULATIONS

ID	TYP	DESCRIPTION	CONDUCTOR	CONDUIT	NO. OF CURRENT CARRYING CONDUCTORS IN CONDUIT	FILL %	RATED AMPS	OCPD	EGC	TEMP. CORR. FACTOR @ 90°C TEMP. RATING	FILL ADJ. FACTOR	CONTINUOUS CURRENT	MAXIMUM CURRENT	TERMINAL RATING CHECK (ASSUME 75°C) SHALL EXCEED 1.25X CONT. CURRENT	BASE AMPACITY @ 90°C TEMP. RATING	CONDITIONS OF USE (COU) @ 90°C TEMP. RATING
1	18	DC CIRCUIT: POWER OPTIMIZER OUTPUT TO JUNCTION BOX	12 AWG PV WIRE COPPER	*FREE AIR*	*N/A*	N/A	*24A (POWER OPTIMIZER)*	N/A	6 AWG BARE COPPER	0.76 (54°C) (ROOF-TOP CONDITION)	1.0	*24A (POWER OPTIMIZER)*	30A (POWER OPTIMIZER)	35A ≥ 30A PASS	40A *(IN FREE AIR)*	*40A* *(IN FREE AIR)*
2	1	DC CIRCUIT (TRANSITIONED): JUNCTION BOX TO SOLAREDGE SE50KUS (UNIT #1)	6 AWG THWN-2 COPPER	*2.00" DIA. EMT* *(6 DC STRINGS FOR THIS CONDUIT RUN)*	*12* *6 X DC (+)* *6 X DC (-)*	18.8%	*24A (POWER OPTIMIZER)*	N/A	10 AWG THWN-2 COPPER	0.76 (54°C) (ROOF-TOP CONDITION)	0.5	*24A (POWER OPTIMIZER)*	30A (POWER OPTIMIZER)	65A ≥ 30A PASS	75A *(IN CONDUIT)*	*37.5A* *(IN CONDUIT)*
3	1	DC CIRCUIT (TRANSITIONED): JUNCTION BOX TO SOLAREDGE SE50KUS (UNIT #2)	6 AWG THWN-2 COPPER	*2.00" DIA. EMT* *(9 DC STRINGS FOR THIS CONDUIT RUN)*	*18* *9 X DC (+)* *9 X DC (-)*	27.8%	*24A (POWER OPTIMIZER)*	N/A	10 AWG THWN-2 COPPER	0.76 (54°C) (ROOF-TOP CONDITION)	0.5	*24A (POWER OPTIMIZER)*	30A (POWER OPTIMIZER)	65A ≥ 30A PASS	75A *(IN CONDUIT)*	*37.5A* *(IN CONDUIT)*
4	1	DC CIRCUIT (TRANSITIONED): JUNCTION BOX TO SOLAREDGE SE50KUS (UNIT #3)	8 AWG THWN-2 COPPER	*1.00" DIA. EMT* *(3 DC STRINGS FOR THIS CONDUIT RUN)*	*6* *3 X DC (+)* *3 X DC (-)*	28.0%	*24A (POWER OPTIMIZER)*	N/A	10 AWG THWN-2 COPPER	0.76 (54°C) (ROOF-TOP CONDITION)	0.8	*24A (POWER OPTIMIZER)*	30A (POWER OPTIMIZER)	50A ≥ 30A PASS	55A *(IN CONDUIT)*	*44A* *(IN CONDUIT)*
5	1	SOLAREDGE SE50KUS (UNIT #1) OUTPUT: SOLAREDGE SE50KUS (UNIT #1) TO SOLAR-ONLY LOAD CENTER	2/0 AWG THWN-2 COPPER	*2.00" DIA. EMT* *(EACH INVERTER OUTPUT IS IN ITS OWN CONDUIT RUN)*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	28.0%	*139.5A (UNIT #1)*	175A / 3P (CB1)	6 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*139.5A (UNIT #1)*	*174.38A (UNIT #1)*	175A > 174.38A PASS	195A *(IN CONDUIT)*	*195A* *(IN CONDUIT)*
6	1	SOLAREDGE SE50KUS (UNIT #2) OUTPUT: SOLAREDGE SE50KUS (UNIT #2) TO SOLAR-ONLY LOAD CENTER	2/0 AWG THWN-2 COPPER	*2.00" DIA. EMT* *(EACH INVERTER OUTPUT IS IN ITS OWN CONDUIT RUN)*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	28.0%	*139.5A (UNIT #2)*	175A / 3P (CB2)	6 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*139.5A (UNIT #2)*	*174.38A (UNIT #2)*	175A > 174.38A PASS	195A *(IN CONDUIT)*	*195A* *(IN CONDUIT)*
7	1	SOLAREDGE SE50KUS (UNIT #3) OUTPUT: SOLAREDGE SE50KUS (UNIT #3) TO SOLAR-ONLY LOAD CENTER	2/0 AWG THWN-2 COPPER	*2.00" DIA. EMT* *(EACH INVERTER OUTPUT IS IN ITS OWN CONDUIT RUN)*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	28.0%	*139.5A (UNIT #3)*	175A / 3P (CB3)	6 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*139.5A (UNIT #3)*	*174.38A (UNIT #3)*	175A > 174.38A PASS	195A *(IN CONDUIT)*	*195A* *(IN CONDUIT)*
8	1	COMBINED OUTPUT OF STRING INVERTERS: SOLAR-ONLY LOAD CENTER TO UTILITY AC DISCONNECT (DS1)	2 PARALLEL SETS OF 350 MCM (KCMIL) THHN / THWN-2 COPPER	*(TYP. OF 2)* *3.00" DIA. EMT* *(EACH PARALLEL SET OF CONDUCTORS IS IN ITS OWN CONDUIT RUN*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	25.5%	*418.5A*	600A / 3P (DS1)	1 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*418.5A*	*523.13A*	620A > 523.13A PASS	700A *(IN CONDUIT)*	*700A* *(IN CONDUIT)*
9	1	UTILITY AC DISCONNECT (DS1) OUTPUT: UTILITY AC DISCONNECT (DS1) TO CT SOLAR PRODUCTION METER	2 PARALLEL SETS OF 350 MCM (KCMIL) THHN / THWN-2 COPPER	*(TYP. OF 2)* *3.00" DIA. EMT* *(EACH PARALLEL SET OF CONDUCTORS IS IN ITS OWN CONDUIT RUN*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	25.5%	*418.5A*	N/A	1 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*418.5A*	*523.13A*	620A > 523.13A PASS	700A *(IN CONDUIT)*	*700A* *(IN CONDUIT)*
10	1	CT SOLAR PRODUCTION METER OUTPUT: CT SOLAR PRODUCTION METER TO 1600A SWITCHBOARD "MDP-1B" *(LOAD-SIDE POINT OF INTERCONNECTION VIA 3-POLE BACKFED CIRCUIT BREAKER)*	2 PARALLEL SETS OF 350 MCM (KCMIL) THHN / THWN-2 COPPER	*(TYP. OF 2)* *3.00" DIA. EMT* *(EACH PARALLEL SET OF CONDUCTORS IS IN ITS OWN CONDUIT RUN*	*3* *(L1, L2, L3) X 1* *(NEUTRAL IS NOT A CCC, AND IS FOR REFERENCE ONLY)*	25.5%	*418.5A*	600A / 3P (CB4)	1 AWG THWN-2 COPPER	0.96 (32°C) (GROUND-LEVEL CONDITION)	1.0	*418.5A*	*523.13A*	620A > 523.13A PASS	700A *(IN CONDUIT)*	*700A* *(IN CONDUIT)*

ALL CONDUCTORS, OCPD SIZES AND TYPES SPECIFIED ACCORDING TO NEC ARTICLES 690.8(A)(1), NEC ARTICLE 240, AND NEC ARTICLE 690.7.

A PV-3C THREE-LINE DIAGRAM
SCALE: N/A

(LOGO WITHHELD FOR SAMPLE)
(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

THREE-LINE DIAGRAM

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-3C

OVERALL SYSTEM RATED AC CURRENT

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
OPERATING CURRENT 418.5 AMPS
OPERATING VOLTAGE 208 VOLTS

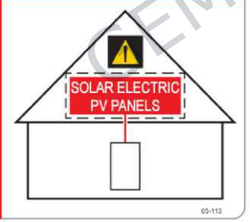
NEC 690.14(C)(2) & NEC 690.54

WARNING
DUAL POWER SUPPLY
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

NET METER
pvlabels.com 03-364

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT

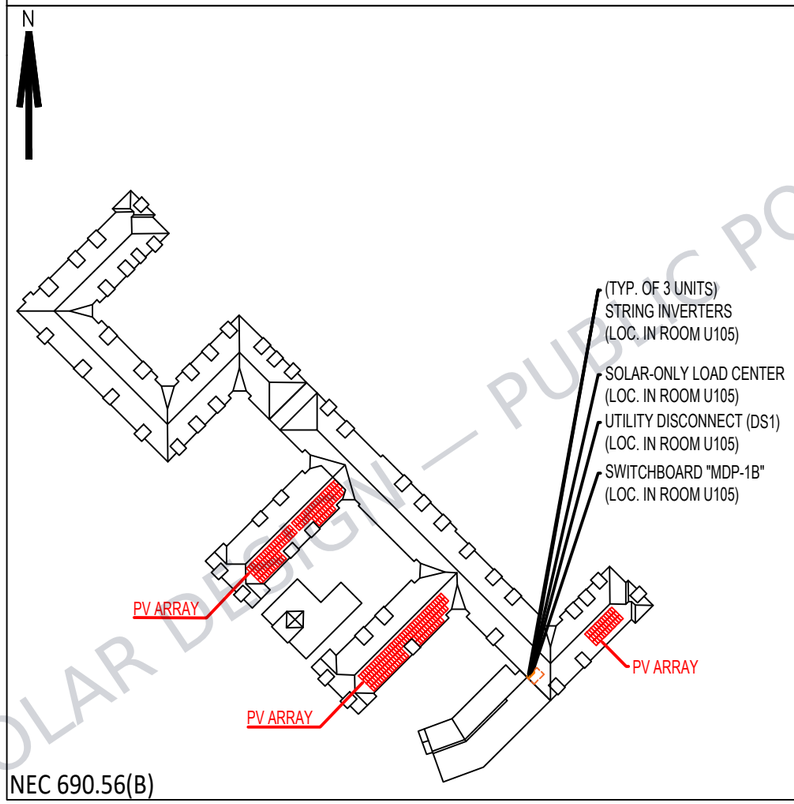


pvlabels.com 03-112

SITE OVERVIEW

CAUTION

POWER TO THIS SERVICE IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



NEC 690.56(B)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM
pvlabels.com 07-316

1 PV-4 PLACARDS
SCALE: N/A

(LOGO WITHHELD FOR SAMPLE)

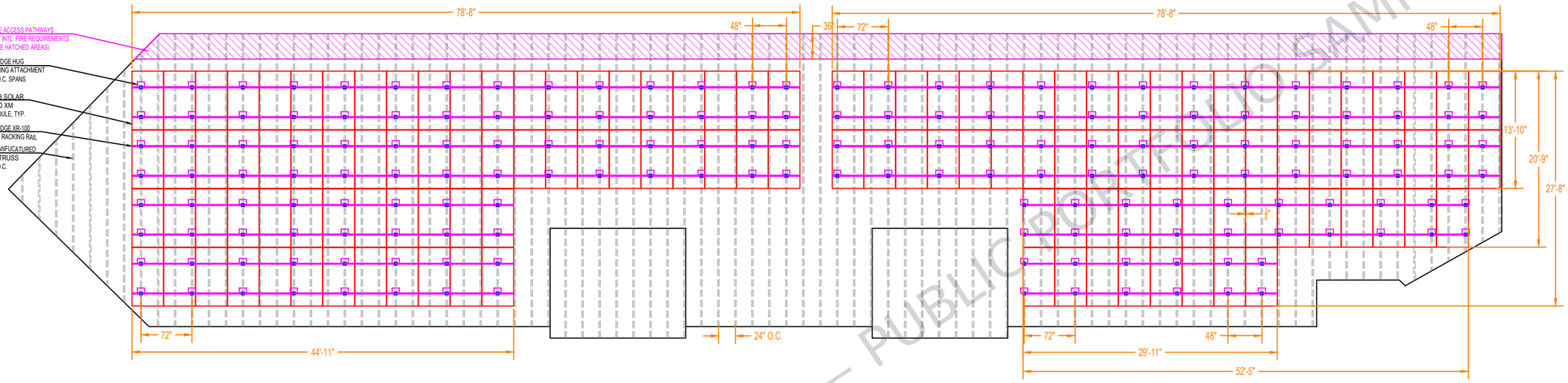
(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC
(INFO WITHHELD FOR PUBLIC SAMPLE)

PLACARDS

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-4



ROOF INFORMATION	
ROOF TYPE	COMPOSITE SHINGLE
PITCH	4:12
PRE-MANUFACTURED TRUSS SPACING	24" O.C.
PRE-MANUFACTURED TRUSS DIMENSIONS	2" X 4"

LAYOUT SPECIFICATIONS	
NUMBER OF MODULES	130
AREA	3,377.6 SQ. FT
AZIMUTH	135°
TOTAL WEIGHT OF ARRAY	8,581.4 LBS
DEAD LOAD	2.54 PSF

LOCAL DESIGN CRITERIA	
WIND EXPOSURE CATEGORY	B
RISK CATEGORY	II
BASIC WIND SPEED	97 MPH
DESIGN ROOF SNOW LOAD	25 PSF

PV MODULES AND IRON RACKING SYSTEM HAVE A CLASS A FIRE RATING CLASSIFICATION.

ATTACHMENT PLAN NOTES	
1	ROOF MEMBERS AND PENETRATIONS TO BE DETERMINED IN THE FIELD.
2	THE SOLAR PHOTOVOLTAIC INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
3	***PLEASE SEE SHEETS PV-6A AND PV-6B FOR DETAILS REGARDING THE MOUNTING ATTACHMENT TO BE USED, THE FLASHING TO BE USED, AS WELL AS THE RELEVANT CUTSHEETS.***
4	***PLEASE SEE SHEET PV-12 FOR A STRUCTURAL CERTIFICATION LETTER FOR THE IRON RIDGE FLUSH MOUNT SYSTEM. LETTER IS STAMPED BY A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER (PE).***

1 PV-5A ATTACHMENT PLAN (ARRAY #1)
SCALE: 1" = 13'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

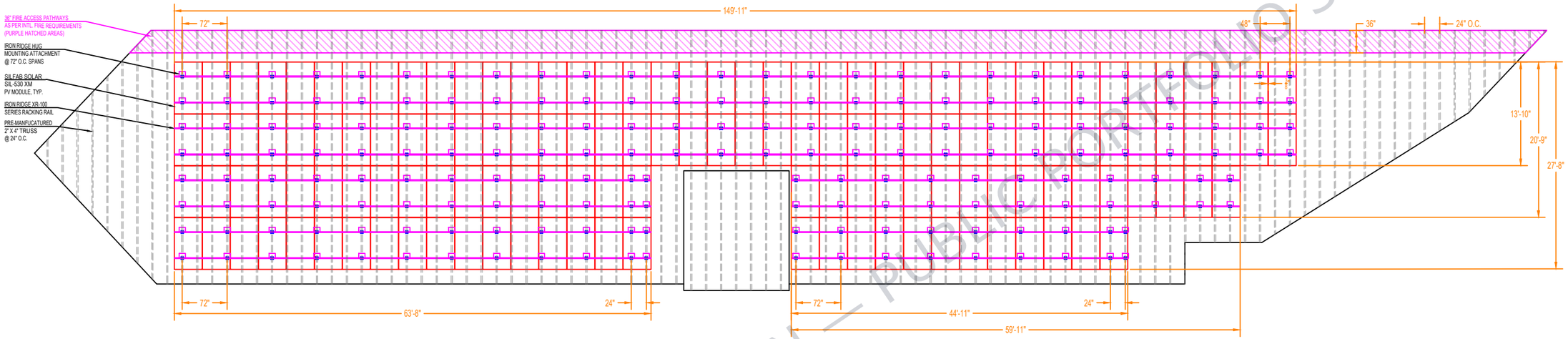
NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

ATTACHMENT PLAN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-5A



ROOF INFORMATION	
ROOF TYPE	COMPOSITE SHINGLE
PITCH	4:12
PRE-MANUFACTURED TRUSS SPACING	24" O.C.
PRE-MANUFACTURED TRUSS DIMENSIONS	2" X 4"

LAYOUT SPECIFICATIONS	
NUMBER OF MODULES	142
AREA	3,686.8 SQ. FT
AZIMUTH	135°
TOTAL WEIGHT OF ARRAY	9,293.1 LBS
DEAD LOAD	2.52 PSF

LOCAL DESIGN CRITERIA	
WIND EXPOSURE CATEGORY	B
RISK CATEGORY	II
BASIC WIND SPEED	97 MPH
DESIGN ROOF SNOW LOAD	25 PSF

PV MODULES AND IRON RACKING SYSTEM HAVE A CLASS A FIRE RATING CLASSIFICATION.

ATTACHMENT PLAN NOTES	
1	ROOF MEMBERS AND PENETRATIONS TO BE DETERMINED IN THE FIELD.
2	THE SOLAR PHOTOVOLTAIC INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
3	***PLEASE SEE SHEETS PV-6A AND PV-6B FOR DETAILS REGARDING THE MOUNTING ATTACHMENT TO BE USED, THE FLASHING TO BE USED, AS WELL AS THE RELEVANT CUTSHEETS.***
4	***PLEASE SEE SHEET PV-12 FOR A STRUCTURAL CERTIFICATION LETTER FOR THE IRON RIDGE FLUSH MOUNT SYSTEM. LETTER IS STAMPED BY A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER (PE).***

1 PV-5B ATTACHMENT PLAN (ARRAY #2)
SCALE: 1" = 15'

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

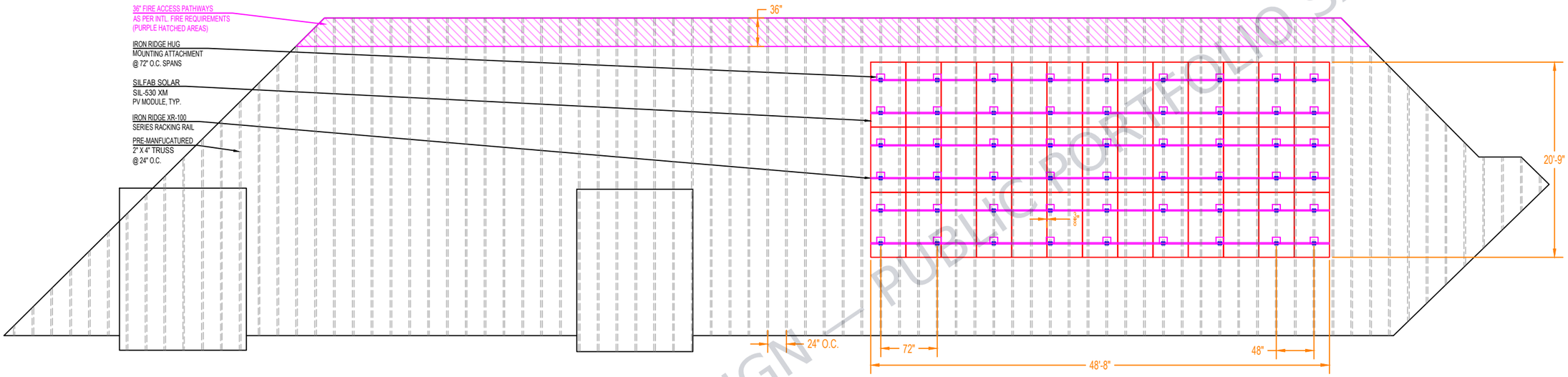
NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

ATTACHMENT PLAN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-5B



ROOF INFORMATION	
ROOF TYPE	COMPOSITE SHINGLE
PITCH	4:12
PRE-MANUFACTURED TRUSS SPACING	24" O.C.
PRE-MANUFACTURED TRUSS DIMENSIONS	2" X 4"

LAYOUT SPECIFICATIONS	
NUMBER OF MODULES	39
AREA	1,012.2 SQ. FT
AZIMUTH	135°
TOTAL WEIGHT OF ARRAY	2,574.4 LBS
DEAD LOAD	2.55 PSF

LOCAL DESIGN CRITERIA	
WIND EXPOSURE CATEGORY	B
RISK CATEGORY	II
BASIC WIND SPEED	97 MPH
DESIGN ROOF SNOW LOAD	25 PSF

PV MODULES AND IRON RACKING SYSTEM HAVE A CLASS A FIRE RATING CLASSIFICATION.

ATTACHMENT PLAN NOTES	
1	ROOF MEMBERS AND PENETRATIONS TO BE DETERMINED IN THE FIELD.
2	THE SOLAR PHOTOVOLTAIC INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
3	***PLEASE SEE SHEETS PV-6A AND PV-6B FOR DETAILS REGARDING THE MOUNTING ATTACHMENT TO BE USED, THE FLASHING TO BE USED, AS WELL AS THE RELEVANT CUTSHEETS.***
4	***PLEASE SEE SHEET PV-12 FOR A STRUCTURAL CERTIFICATION LETTER FOR THE IRON RIDGE FLUSH MOUNT SYSTEM. LETTER IS STAMPED BY A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER (PE).***

1 PV-5C ATTACHMENT PLAN (ARRAY #3)
SCALE: 1" = 11'-6"

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

ATTACHMENT PLAN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-5C

IRONRIDGE

The Respect Your Roof Deserves

When integrating with a home, solar attachments must be dependable for the lifetime of the rooftop. Due to recent innovations, many asphalt shingles have bonded courses. A mount that protects without the need to pry shingles can really speed things up.

Halo UltraGrip™ (HUG™) is here to respect the roof. Its Halo is a cast-aluminum barrier that encases the UltraGrip, our industrial-grade, foam-and-mastic seal. This allows HUG to accelerate the installation process and provide the utmost in waterproofing protection. Give your roof a HUG.™

Tech Brief

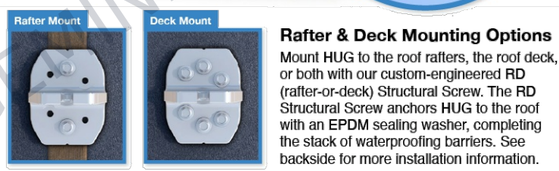
QuickMount® HUG

Multi-Tiered Waterproofing
HUG utilizes a multi-tiered stack of components to provide revolutionary waterproofing protection. The Halo cast-aluminum, raised-perimeter foundation surrounds the UltraGrip base—a foam-backed mastic seal combination that prevents water intrusion by adhering and sealing with the shingle surface.

Halo UltraGrip™ is part of the QuickMount® product line.

UltraGrip™ Seal Technology
HUG UltraGrip utilizes a state-of-the-art seal design that uses a unique, foam-and-mastic combination. The foam-backed adhesive provides an entirely new flashing system that conforms and adheres to every nook and cranny of composition shingles, filling gaps and shingle step-downs (up to 1/8" in height).

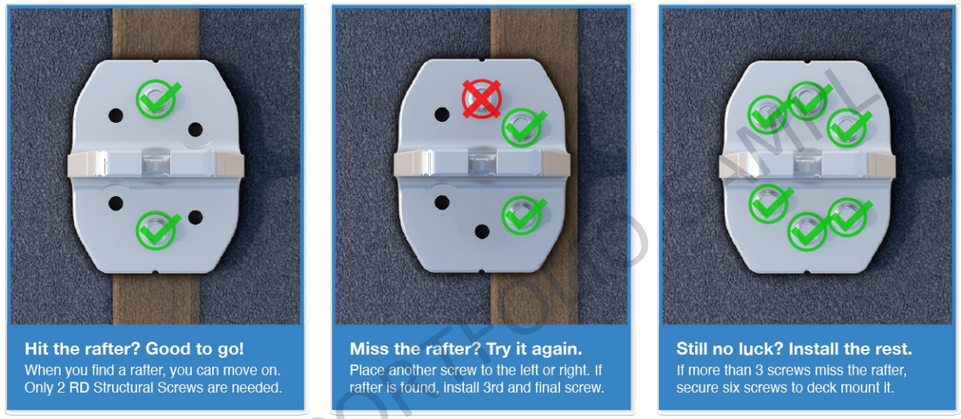
Triple Rated & Certified to Respect the Roof™
UL 2703, 441 (27)
TAS 100(A)-95



Rafter & Deck Mounting Options
Mount HUG to the roof rafters, the roof deck, or both with our custom-engineered RD (rafter-or-deck) Structural Screw. The RD Structural Screw anchors HUG to the roof with an EPDM sealing washer, completing the stack of waterproofing barriers. See backside for more installation information.

Tech Brief

Adaptive, Rafter-Friendly Installation

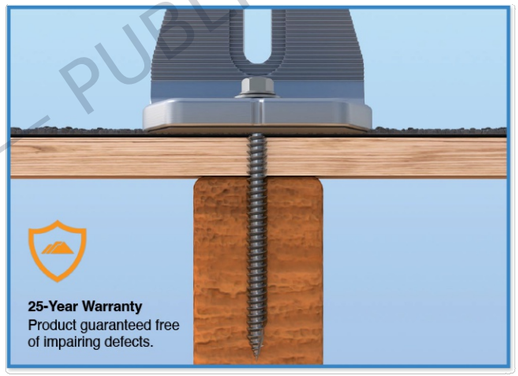


Hit the rafter? Good to go!
When you find a rafter, you can move on. Only 2 RD Structural Screws are needed.

Miss the rafter? Try it again.
Place another screw to the left or right. If rafter is found, install 3rd and final screw.

Still no luck? Install the rest.
If more than 3 screws miss the rafter, secure six screws to deck mount it.

Trusted Strength & Less Hassle



25-Year Warranty
Product guaranteed free of impairing defects.

Structural capacities of HUG™ were reviewed in many load directions, with racking rail running cross-slope or up-slope in relation to roof pitch.

For further details, see the HUG certification letters for attaching to rafters and decking.

IronRidge designed the HUG, in combination with the RD Structural Screw to streamline installs, which means the following:

- No prying shingles
- No roof nail interference
- No pilot holes necessary
- No sealant (in most cases)
- No butyl shims needed

Attachment Loading
The rafter-mounted HUG has been tested and rated to support 1004 (lbs) of uplift and 368 (lbs) of lateral load.

Structural Design
Parts are designed and certified for compliance with the International Building Code & ASCE/SEI-7.

Water Seal Ratings
HUG passed both the UL 441 Section 27 "Rain Test" and TAS 100(A)-95 "Wind Driven Rain Test" by Intertek.

UL 2703 System
Systems conform to UL 2703 mechanical and bonding requirements. See Flush Mount Manual for more info.

1 PV-6A IRON RIDGE QUICKMOUNT HUG DATASHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MOUNTING DETAIL

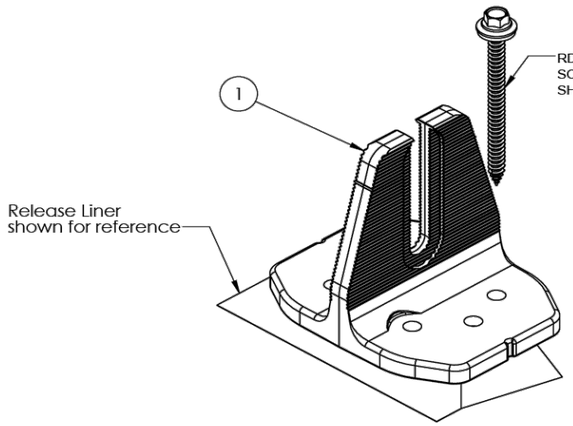
PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-6A

Cut Sheet

IRONRIDGE

QuickMount® Halo UltraGrip

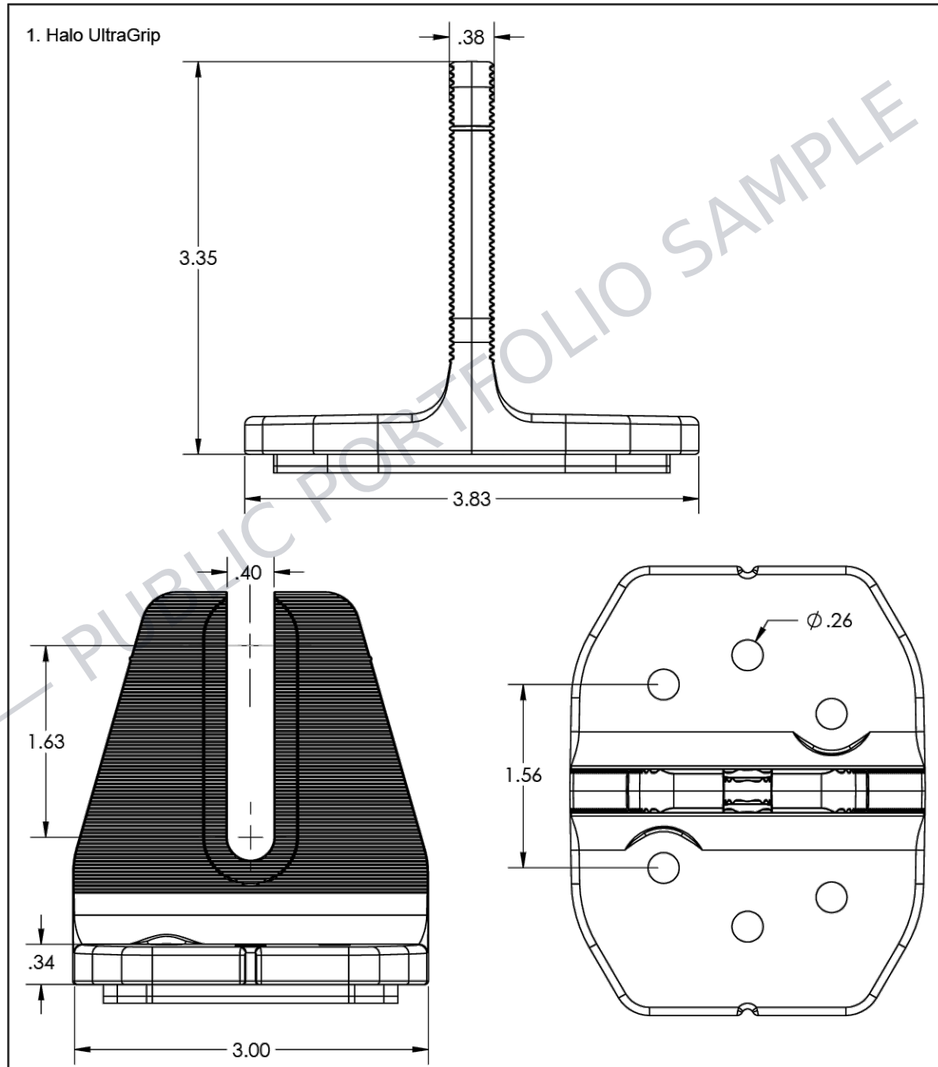


ITEM NO	DESCRIPTION	QTY IN KIT
1	QM Halo UltraGrip(Mill or Black)	1

PART NUMBER	DESCRIPTION
QM-HUG-01-M1	Halo UltraGrip - Mill
QM-HUG-01-B1	Halo UltraGrip - Black

Cut Sheet

1. Halo UltraGrip



Property	Value
Material	300 Series Aluminium
Finish	Mill or Black

1 PV-6B IRON RIDGE QUICKMOUNT HUG CUTSHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MOUNTING DETAIL

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-6B

Datasheet

IRONRIDGE

Flush Mount System

Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs 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 Assistant
Online software makes it simple to create, share, and price projects.

UL 2703 Listed System
Entire system and components meet newest effective UL 2703 standard.

25-Year Warranty
Products guaranteed to be free of impairing defects.

Datasheet

XR Rails

XR10 Rail

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

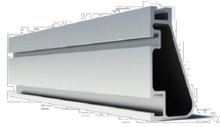
- 6' spanning capability
- Moderate load capability
- Clear and black finish

XR100 Rail

The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

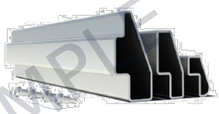
XR1000 Rail



A heavyweight mounting rail for commercial projects.

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

Bonded Splices

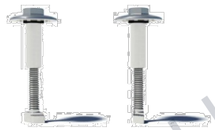


All rails use internal splices for seamless connections.

- Self-drilling screws
- Varying versions for rails
- Forms secure bonding

Clamps & Grounding

UFOs



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

Stopper Sleeves

Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

CAMO

Bond modules to rails while staying completely hidden.

- Universal end-cam clamp
- Tool-less installation
- Fully assembled

Grounding Lugs

Connect arrays to equipment ground.

- Low profile
- Single tool installation
- Mounts in any direction

Attachments

FlashFoot2

Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

Conduit Mount

Flash and mount conduit, strut, or junction boxes.

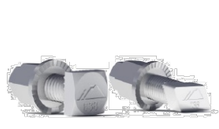
- Twist-on Cap eases install
- Wind-driven rain tested
- Secures ¾" or 1" conduit

Slotted L-Feet

Drop-in design for rapid rail attachment.

- Secure rail connections
- Slot for vertical adjusting
- Clear and black finish

Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

Resources

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

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

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

RACKING DATASHEET

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-7

SILFAB COMMERCIAL NTC

SIL-530 XM
BIFACIAL

SILFAB SOLAR®

NEXT-GENERATION N-TYPE CELL TECHNOLOGY

- Improved Shade Tolerance
- Improved Low-Light Performance
- Increased Performance in High Temperatures
- Efficient Bifacial Energy Yield
- Enhanced Durability
- Reduced Degradation Rate
- 25-Year Product Warranty/ 30-Year Performance Warranty

SILFABSOLAR.COM

ELECTRICAL SPECIFICATIONS		530		
Test Conditions		STC	BSTC	NOCT
Module Power (Pmax)	Wp	530	578.2	391.3
Maximum power voltage (Vpmax)	V	41.05	41.05	37.76
Maximum power current (Ipmax)	A	12.91	14.08	10.36
Open circuit voltage (Voc)	V	47.74	47.79	43.91
Short circuit current (Isc)	A	13.71	14.96	11.00
Module efficiency	%	22.3%		
Maximum system voltage (VDC)	V	1500		
Series fuse rating	A	30		
Power Tolerance	Wp	0 to +10		
Bifaciality Factor	%	80±5		

Performance conditions: Measurement tolerance ≤ 3% • Standard Test Conditions (STC): 1000 W/m², AM 1.5, Temperature 25 °C • Nominal Operating Cell Temperature (NOCT): 800 W/m², AM 1.5 • Bifacial Standard Test Conditions (BSTC): 1000 W/m2 + φ × 135 W/m2 , φ = 80 % , AM 1.5 • Electrical characteristics may vary by ±5%.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	26.2 kg ±0.2 kg	57.8 lbs ±0.4 lbs
Dimensions (H x L x D)	2098 mm x 1133 mm x 35 mm	82.6 in x 44.6 in x 1.4 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load	50.1 lb/ft² rear load / 112.8 lb/ft² front load
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	132 Half cells - N-Type Silicon solar cell 91 x 182 mm	132 Half cells - N-Type Silicon solar cell 3.58 x 7.16 in
Glass	3.2 mm high transmittance, tempered, DSM antireflective coating	0.126 in high transmittance, tempered, DSM antireflective coating
Cables and connectors (refer to installation manual)	1350 mm, ø 5.7 mm, EVO2 from Staubli	53.1 in, ø 0.22 in (12AWG), EVO2 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free clear PV backsheet	
Frame	Anodized Aluminum (Silver)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated, 3 diodes	

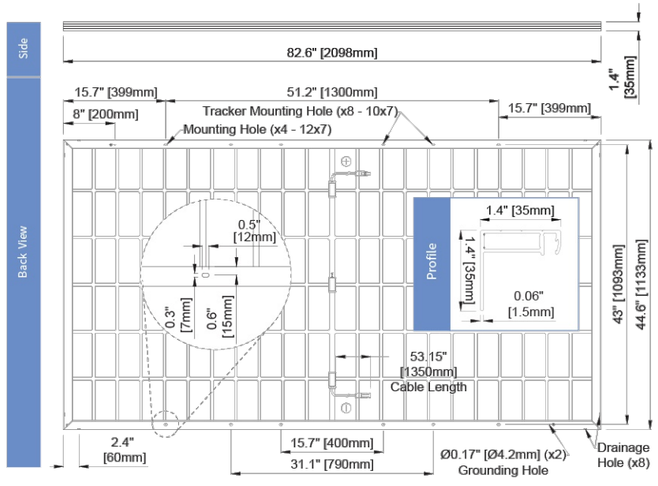
TEMPERATURE RATINGS	
Temperature Coefficient Isc	0.04 %/°C
Temperature Coefficient Voc	-0.24 %/°C
Temperature Coefficient Pmax	-0.29 %/°C
NOCT (± 2°C)	45 °C
Operating temperature	-40/+85 °C

WARRANTIES	
Module product workmanship warranty	25 years**
Linear power performance guarantee	30 years
	≥ 98% end 1st yr ≥ 94.7% end 12th yr ≥ 90.8% end 25th yr ≥ 89.3% end 30th yr

CERTIFICATIONS	
Product	UL 61215***, UL 61730*** , CSA C22.2#61730***, IEC 61215***, IEC 61730***, IEC 61701 (Salt Mist Corrosion), IEC 62716 (Ammonia Corrosion), CEC Listing***, UL Fire Rating: Type 1
Factory	ISO9001:2015

SHIPPING SPECS	
Modules Per Pallet:	29 or 29 (California)
Pallets Per Truck	24 or 23 (California)
Modules Per Truck	696 or 667 (California)

* ⚠ 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 silfabsolar.com.
PAN files generated from 3rd party performance data are available for download at: silfabsolar.com/downloads.
*** Certification and CEC listing in progress.



SILFAB SOLAR INC.

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T +1 360.569.4733
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240 Courtneypark Drive East
Mississauga ON L5T 2S5 Canada
T +1 905.255.2501
F +1 905.696.0267

1 PV-8 PV MODULE DATASHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MODULE DATASHEET

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-8

Three Phase Inverter with Synergy Technology

USA Domestic Content Eligible

For North America

SE50KUS / SE80KUS / SE100KUS / SE110KUS / SE120KUS

INVERTER

12-20 YEAR WARRANTY

Made in the USA from imported parts

SolarEdge's USA-manufactured Offering for C&I rooftops and carports

- Eligible for domestic content*: SolarEdge USA-manufactured inverters, when paired with certain SolarEdge USA-manufactured power optimizers, are intended to be eligible for the enhanced federal income tax credit for domestic content
- Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- Easy two-person installation with lightweight, modular design (each inverter consists of two or three Synergy units and one Synergy Manager)
- Independent operation of each Synergy unit enables higher uptime and easy serviceability
- Built-in thermal sensors detect faulty wiring, ensuring enhanced protection and safety
- Built-in arc fault protection and rapid shutdown
- Built-in PID mitigation for maximized system performance
- Monitored** and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

* For more details, see Eligibility for Domestic Content on the last page.
** Applicable only for DC and AC SPDs.

solaredge.com

solaredge

Three Phase Inverter with Synergy Technology

USA Domestic Content Eligible for North America

SE50KUS / SE80KUS / SE100KUS / SE110KUS / SE120KUS

Applicable to inverters with part numbers	SE-DBL-USxxIBNxx	SE-TRI-USxxIBNxx				
Model Number	SE80KUS	SE50KUS	SE100KUS	SE110KUS	SE120KUS	UNITS
OUTPUT						
Total Rated AC Output Capacity	80,000	120,000				W
Rated AC Active Output Power	80,000	50,000	100,000	110,000	120,000	W
Maximum AC Apparent Output Power	80,000	50,000	100,000	120,000	120,000	VA
AC Output Line Connections	3W + PE, 4W + PE					
Supported Grids	WYE: TN-C; TN-S; TN-C-S; TT, IT; Delta: IT					
AC Output Voltage Minimum-Nominal-Maximum[1] (L-N)	244 – 277 – 305	105 – 120 – 132.5	244 – 277 – 305			Vac
AC Output Voltage Minimum-Nominal-Maximum[1] (L-L)	422.5 – 480 – 529	183 – 208 – 229	422.5 – 480 – 529			Vac
AC Frequency Minimum-Nominal-Maximum[1]	59.5 – 60 – 60.5					Hz
Maximum Continuous Output Current (per phase, PF=1)	96.5	139.5	120	144.3		Aac
GFDI Threshold	1					A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes					
Total Harmonic Distortion	≤ 3					%
Power Factor Range	±0.85 to 1					
INPUT[2]						
Maximum DC Power (Module STC) Inverter / Synergy Unit	140,000 / 70,000	87,500 / 29,165	175,000 / 58,300	210,000 / 70,000		W
Transformer-less, Ungrounded	Yes					
Maximum Input Voltage DC+ to DC-	1000	600	1000			Vdc
Operating Voltage Range	850 – 1000	370 – 600	850 – 1000			Vdc
Maximum Input Current	2 x 48.25	3 x 46.5	3 x 40	3 x 48.25		Adc
Reverse-Polarity Protection	Yes					
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit[3]					
CEC Weighted Efficiency	98.5	97	98.5			%
Nighttime Power Consumption	< 8	< 12				W
ADDITIONAL FEATURES						
Supported Communication Interfaces[4]	2 x RS485; Ethernet; Wi-Fi (optional); Cellular (optional)					
Smart Energy Management	Export Limitation					
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection					
Arc Fault Protection	Built-in, user configurable (according to UL 1699B)					
Photovoltaic Rapid Shutdown System	NEC 2014 – 2023, built-in, if paired with C651U					
PID Rectifier	Nighttime, built-in					
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated					
AC, DC Surge Protection	Type II, field replaceable, integrated					
DC SAFETY SWITCH						
DC Disconnect	Built-in					
STANDARD COMPLIANCE						
Safety	UL 1699B; UL 1741; UL 1741 SA; UL 1741 SB; UL 1998; CSA C22.2#107.1; Canadian AFCI according to T.I.L. M-07					
Grid Connection Standards	IEEE 1547-2018, Rule 21, Rule 14 (HI)					
Emissions	FCC Part 15 Class A					

(1) For other regional settings please contact SolarEdge support.
(2) For compatibility of inverters and power optimizers, see this technical note.
(3) Where permitted by local regulations.
(4) For specifications of the optional communication options, visit the Communication product page or the Knowledge Center to download the relevant product datasheet.

Three Phase Inverter with Synergy Technology

USA Domestic Content Eligible for North America

SE50KUS / SE80KUS / SE100KUS / SE110KUS / SE120KUS

Applicable to inverters with part numbers		SE-DBL-USxxIBNxx	SE-TRI-USxxIBNxx				
Model Number		SE80KUS	SE50KUS	SE100KUS	SE110KUS	SE120KUS	UNITS
INSTALLATION SPECIFICATIONS							
Number of Synergy Units per Inverter		2	3				
AC Maximum Conduit Size		2 ½"					in
AC Maximum Conductor Size Line / PE		4/0 AWG / 1/0 AWG					
DC Maximum Conduit Size		1 x 3"; 2 x 2"					in
Inverter Unit / Synergy Manager	Multi-input (fuse-less)[5] (SE-xxxx-USxxxxSx)	6 / 3 pairs; 6 – 12 AWG	9 / 3 pairs; 6 – 12 AWG				
	Combined input (fuse-less) (SE-xxx-USxxIxxWx)	N/A	3 pairs / 1 pair, 2 – 4 AWG; copper or aluminum				
Dimensions (H x W x D)		Synergy Unit: 22 x 12.9 x 10.75 / 558 x 328 x 273 Synergy Manager: 14.17 x 22.4 x 11.6 / 360 x 560 x 295					in / mm
Weight		Synergy Unit: 70.4 / 32 Synergy Manager: 39.6 / 18					lb / kg
Operating Temperature Range		-40 to +140 / -40 to +60[6]					°F / °C
Cooling		Fan (user replaceable)					
Noise		< 67					dBA
Protection Rating		NEMA 3R					
Mounting		Brackets provided					

(5) Fusing is not included with the multi-input version of the Synergy Manager.
(6) For power derating information, see the Temperature Derating technical note for North America.

*Eligibility for Domestic Content

As it relates to the domestic content rules, the U.S. Department of Treasury and the IRS have not yet issued proposed or final regulations. Rather, the IRS has issued three notices - Notice 2023-38, Notice 2024-41 and Notice 2025-08. These notices provide guidance regarding the domestic content rules. SolarEdge products referenced herein are manufactured with the intent to be eligible for inclusion under the elective safe harbor table in calculating the Domestic Cost Percentage under the "Rooftop [MLPE]" category (under IRS Notices 2024-41 and 2025-08, depending on the PIN used – see chart below). Eligibility is subject to the installation of qualified USA-Manufactured Inverters and Power Optimizers (C65IU) in the same project. SolarEdge does not provide tax and/or legal advice. You should consult with your own legal and/or tax advisor(s) regarding the eligibility of your project for the ITC or PTC, including the 10% Domestic Content bonus, to determine how the applicable rules apply to your project. The forward-looking statements in this document are accurate as of the date herein and are subject to change. For more information, please contact your local SolarEdge sales representative.

PN	Domestically produced MPCs per notice 2024-41*	Domestically produced MPCs per notice 2025-08*
USESUK-USR0INNN6, when paired with C651U	Printed Circuit Board Assemblies, Electrical Parts, Enclosure (35.6%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)
USESUK-USR0INNNB, when paired with C651U	Printed Circuit Board Assemblies, Enclosure (17.6%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)

1 PV-9 STRING INVERTER DATASHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

INVERTER DATASHEET

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-9

Commercial Power Optimizer

USA Domestic Content Eligible*

C651U

POWER OPTIMIZER

Made in the USA from imported parts

SolarEdge's USA-manufactured offering for C&I rooftops, for power optimization at the module level

- **Eligible for Domestic Content***
  - SolarEdge USA-manufactured power optimizers, when paired with certain SolarEdge USA-manufactured inverters, are intended to be eligible for the enhanced federal income tax credit for domestic content
- **Higher Energy Yields**
  - Generates maximum power from each PV module
  - High efficiency (99.5%)
  - Supports high power and bifacial PV modules, including G12 modules
- **Enhanced Monitoring and Visibility**
  - Maximum system visibility up to the individual module level
  - Pinpointed fault detection and remote troubleshooting
- **Maximum Protection with Built-in Safety**
  - Designed to automatically reduce high DC voltage to touch-safe levels, upon grid/inverter shutdown, with SafeDC™
  - Includes SolarEdge Sense Connect, designed to prevent arcs by monitoring Power Optimizer connectors for overheating
  - Certified to Photovoltaic Rapid Shutdown, according to NEC 2014 – 2023

* Manufactured by SolarEdge with the intent to be eligible for inclusion under the elective safe harbor in calculating the Domestic Cost Percentage under the "Rooftop (MLPE)" category (under IRS Notice 2024-41). The PCBA, Electrical Parts, and Enclosure are domestically manufactured to meet the requirements of eligibility to be considered for the ITC domestic content bonus adder. SolarEdge does not provide tax and/or legal advice. You should consult with your own legal and/or tax advisor(s) regarding the eligibility of your project for the ITC or PTC, including the 10% domestic content bonus, to determine how the applicable rules apply to your particular project. The forward-looking statements in this datasheet are accurate as of the date herein and are subject to change. For more information, please contact your local SolarEdge sales representative.

solaredge.com

solaredge

Power Optimizer

USA Domestic Content Eligible for North America

C651U

Power Optimizer Model	C651U	
INPUT		
Rated Input DC Power(1)	650	W
Absolute Maximum Input Voltage (Voc)	80	Vdc
MPPT Operating Range	12.5 – 80	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module(2)	20	Adc
Maximum Adjusted Short Circuit Current (with Safety Factor)(3)	25	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.8	%
Overvoltage Category	II	
OUTPUT DURING OPERATION		
Maximum Output Power	650	Wdc
Maximum Output Current	24	Adc
Maximum Output Voltage	60	Vdc
SAFETY FEATURES		
SafeDC™	Yes	
Safety Output Voltage per Power Optimizer	0.5 ± 0.075	Vdc
Sense Connect	Yes	
Photovoltaic Rapid Shutdown System	Yes, NEC 2014 – 2023	
STANDARD COMPLIANCE		
EMC	FCC Part 15; IEC 61000-6-2; IEC 61000-6-3	
Safety	IEC62109-1 (class II safety); UL 1741; UL 3741; CSA C22.2#107.1	
Material	UL94 V-0, UV Resistant	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2013-05	
INSTALLATION SPECIFICATIONS		
Compatible SolarEdge Inverters(4)	Commercial Three Phase Inverters with one of the following part number structures: USE-SIN-USxxbxxxx SE-DBL-USxxbxxxx SE-TRI-USxxbxxxx	
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	128 x 155 x 52 / 5.03 x 6.10 x 2.05	mm / in
Weight	1080 / 2.38	gr / lb
Input Connector	MC4(5)	
Input Wire Length	(+) 1.4, (-) 1.4 / (+) 4.59, (-) 4.59(6)	m / ft
Output Connector	MC4	
Output Wire Length	(+) 3.0 (-) 0.10 / (+) 9.84, (-) 0.32	m / ft
Operating Temperature Range(7)	-40 to +85 / -40 to +185	°C / °F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 – 100	%

(1) Modules with a front side maximum power of up to 715W at STC are allowed. Up to +5% power tolerance is allowed.
(2) When using bifacial modules, consider only the front side Isc at STC (0% back side gain). For details, see here.
(3) Adjusted for ambient temperature, irradiance, bifacial gain, safety factor, and so on, in accordance with NEC and CSA.
(4) For detailed inverter compatibility information, see here.
(5) For other connector types please contact SolarEdge.
(6) The Sense Connect feature is only enabled on the output wire connectors. For details, see here.
(7) For ambient temperatures above +65°C / +149°F, power derating is applied. For details, see here.

RoHS

1 / PV-10 POWER OPTIMIZER DATASHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

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NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

OPTMZR. DATASHEET

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-10

Intertek

8431 Murphy Drive
Middleton, WI 53562 USA

Telephone: 608.836.4400
Facsimile: 608.831.9279
www.intertek.com

Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544 USA
Product Description:	Flush Mount System with XR Rails.
Ratings & Principle Characteristics:	Fire Class Resistance Rating: -Flush Mount (Symmetrical). Class A Fire Rated for Low Slope applications when using Type 1, 2 and 3, listed photovoltaic modules. Class A Fire Rated for Steep Slope applications with Type1, 2 and 3, listed photovoltaic modules. Tested with a 5" gap (distance between the bottom the module frame and the roof covering), per the standard this system can be installed at any gap allowed by the manufacturers installation instructions. No perimeter guarding is required. This rating is applicable with any IronRidge or 3'rd party roof anchor.
Models:	IronRidge Flush Mount with XR Rails
Brand Name:	IronRidge Flush Mount
Relevant Standards:	UL 2703 (Section 15.2 and 15.3) Standard for Safety Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels, First Edition dated Jan. 28, 2015 **Referencing** UL1703 Third Edition dated Nov. 18, 2014, (Section 31.2) Standard for Safety for Flat-Plate Photovoltaic Modules and Panels.
Verification Issuing Office:	Intertek Testing Services NA, Inc. 8431 Murphy Drive Middleton, WI 53562
Date of Tests:	08/27/2014 to 03/17/2015
Test Report Number(s):	101769343MID-001r1, 101769343MID-001a, 101915978MID-001 & 101999492MID-001ar1-cr1.

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:	Chris Zimbrich	**Reviewed by:**	Chad Naggs
Title:	Technician II, Fire Resistance	**Title:**	Technician I, Fire Resistance
Signature:		**Signature:**	
Date:	05/25/2016	**Date:**	05/25/2016

GFT-OP-11a (24-MAR-2014)

Tech Brief

IRONRIDGE

Class A Fire Rating

Background

All roofing products are tested and classified for their ability to resist fire.

Recently, these fire resistance standards were expanded to include solar equipment as part of the roof system. Specifically, this requires the modules, mounting hardware and roof covering to be tested together as a system to ensure they achieve the same fire rating as the original roof covering.

These new requirements are being adopted throughout the country in 2016.

IronRidge Certification

IronRidge was the first company to receive a Class A Fire Rating—the highest possible rating—from Intertek Group plc., a Nationally Recognized Testing Laboratory.

IronRidge Flush Mount and Tilt Mount Systems were tested on sloped and flat roofs in accordance with the new UL 1703 & UL 2703 test standards. The testing evaluated the system's ability to resist flame spread, burning material and structural damage to the roof.

Refer to the table below to determine the requirements for achieving a Class A Fire Rating on your next project.

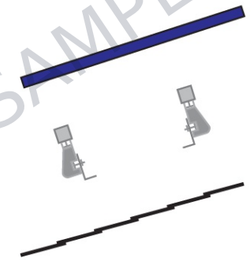
Fire Testing Process

Test Setup

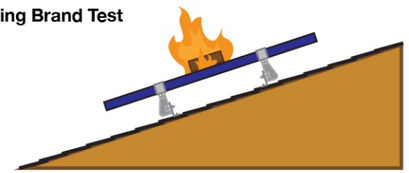
Solar Modules
Solar modules are given a Type classification based on their materials and construction.

Mounting System
Mounting is tested as part of a system that includes type-tested modules and fire-rated roof covering.

Roof Covering
Roof covering products are given a Fire Class Rating of A, B or C based on their tested fire resistance.

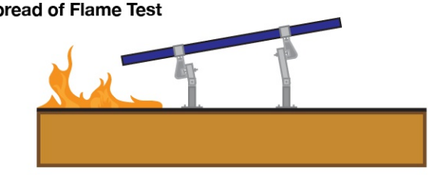


Burning Brand Test



A burning wooden block is placed on module as a fan blows at 12 mph. Flame cannot be seen on underside of roof within 90 minutes.

Spread of Flame Test



Flame at southern edge of roof is aimed up the roof as a fan blows at 12 mph. The flame cannot spread 6 feet or more in 10 minutes.

System	Roof Slope	Module	Fire Rating*
Flush Mount	Any Slope	Type 1, 2, & 3	Class A
Tilt Mount	≤ 6 Degrees	Type 1, 2, & 3	Class A

*Class A rated PV systems can be installed on Class A, B, and C roofs.

1 PV-11 CLASS A FIRE RATING DATASHEET
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

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PHONE: (INFO WITHHELD)
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NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

CLASS A FIRE RATING

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-11

28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com

Attn: Sean McDonald, CEO, IronRidge Inc.
Date: May 31st, 2024

Re: Structural Certification and Span Tables for the IronRidge Flush Mount System

This letter addresses the structural performance and code compliance of IronRidge's Flush Mount System. The contents of the letter shall be read in its entirety before applying to any project design. The Flush Mount System is a proprietary rooftop mounting system used to support photovoltaic (PV) modules installed in portrait or landscape orientation and set parallel to the underlying roof surface. PV modules are supported by extruded aluminum XR Rails and secured to the rails with IronRidge mounting clamps. The XR Rails are side mounted to a selected roof attachment with 3/8" stainless steel bonding hardware and then attached directly to the roof structure or to a stanchion that is fastened to the underlying roof structure. Assembly details of a typical Flush Mount installation and its core components are shown in Exhibit EX-0015.

The IronRidge Flush Mount System is designed and certified to the structural requirements of the reference standards listed below, for the load conditions and configurations tabulated in the attached span tables.

- ASCE/SEI 7-16 Minimum Design Loads for Buildings and Other Structures (ASCE 7-16)
- 2021 International Building Code (IBC-2021)
- 2021 Washington State Building Code
- 2020 Aluminum Design Manual (ADM-2020)
- Report SEAOC (Structural Engineer Association of California) PV2-2017 Wind Design for Solar Arrays

The tables included in this letter provide the maximum allowable spans of XR Rails in the Flush Mount System for the respective loads and configurations listed, covering wind exposure categories B, C, & D, roof zones provided in ASCE 7-16 for gable & hip roof profiles, and roof slopes of 8° to 45°. The tabulated spans are applicable when the following conditions are met:

1. *Span* is the distance between two adjacent roof attachment points (measured at the center of the attachment fastener).
2. Each module shall be supported by 2 rails (2 rail system) or 3 rails (3 rail system). Spans are calculated based on 2 rail systems, and conservatively deemed acceptable for 3 rail systems.
3. The underlying roof slope, measured between the roof surface and horizontal plane, is 8º to 45º.
4. The *mean roof height*, defined as the average of the roof eave height and the roof ridge height measured from grade, does not exceed 30 feet.
5. A clearance from the underside of the array to the roof surface of 2" minimum shall be provided and the height of the array, the distance from the module top surface to the roof surface (defined as h_2), shall not exceed 10".
6. Module length and area shall not exceed the maximum values listed on the respective span tables.
7. All Flush Mount components shall be installed in a professional workmanlike manner per IronRidge's *Flush Mount Installation Manual* and other applicable standards for the general roof construction practice.

28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com

The span tables provided in this letter are certified based on the structural performance of IronRidge XR Rails only with no consideration of the structural adequacy of the chosen roof attachments, PV modules, or the underlying roof supporting members. It is the responsibility of the installer or system designer to verify the structural capacity and adequacy of the aforementioned system components in regards to the applied or resultant loads of any chosen array configuration. This letter certifies the IronRidge products referenced within this document and provides no determination of the project specific conditions including site loads, building profile, & roof zones, which remain the responsibility of the installer or system designer.

Sincerely,

MATTHEW S KUZILA
STATE OF WASHINGTON
23015110
REGISTERED
PROFESSIONAL ENGINEER

Matthew S Kuzila, P.E.

Digitally Sealed 05.31.2024

(LOGO WITHHELD FOR SAMPLE)

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

ENGINEERING LETTER

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-12

1 PV-12 STATE OF WASHINGTON RACKING ENGINEERING LETTER
SCALE: NTS

Tech Brief

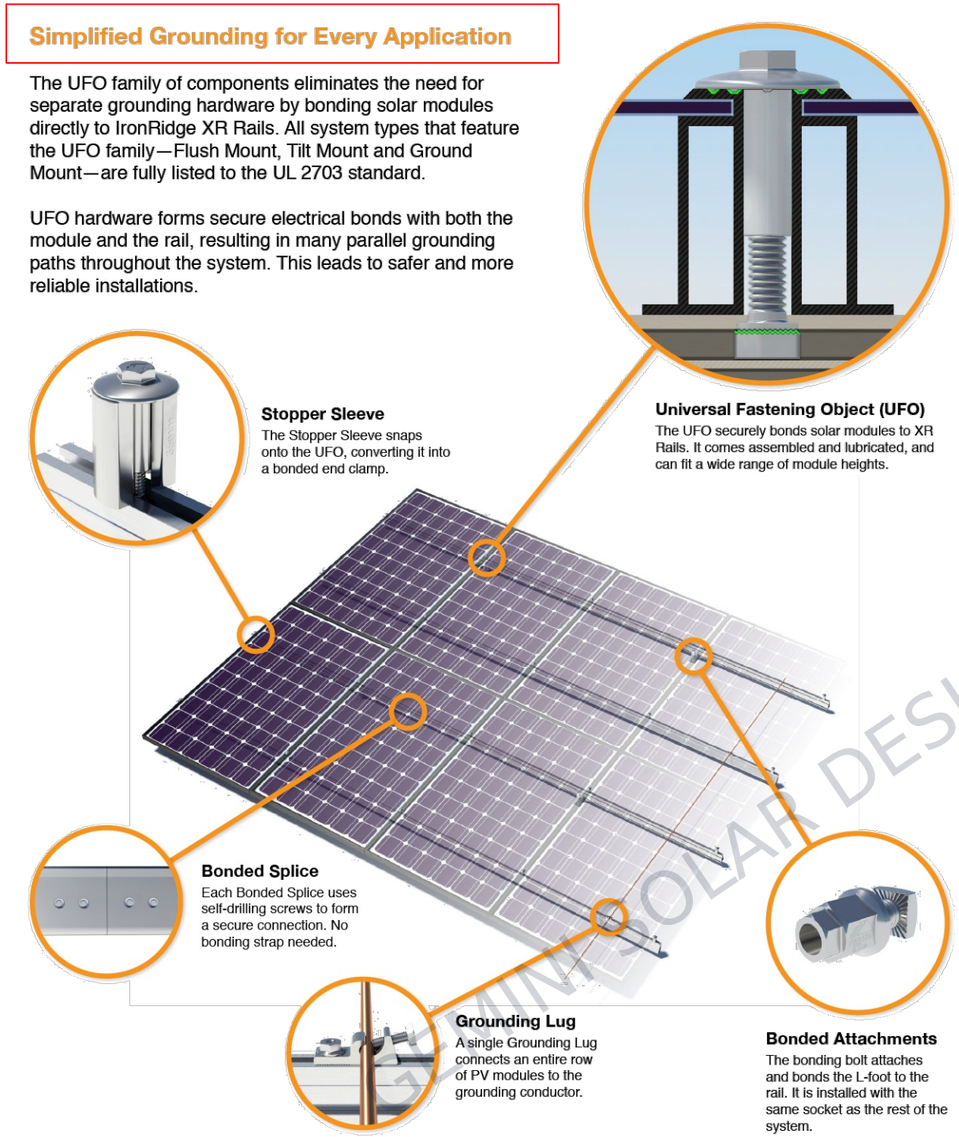
IRONRIDGE

UFO Family of Components

Simplified Grounding for Every Application

The UFO family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge XR Rails. All system types that feature the UFO family—Flush Mount, Tilt Mount and Ground Mount—are fully listed to the UL 2703 standard.

UFO hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.



Stopper Sleeve
The Stopper Sleeve snaps onto the UFO, converting it into a bonded end clamp.

Universal Fastening Object (UFO)
The UFO securely bonds solar modules to XR Rails. It comes assembled and lubricated, and can fit a wide range of module heights.

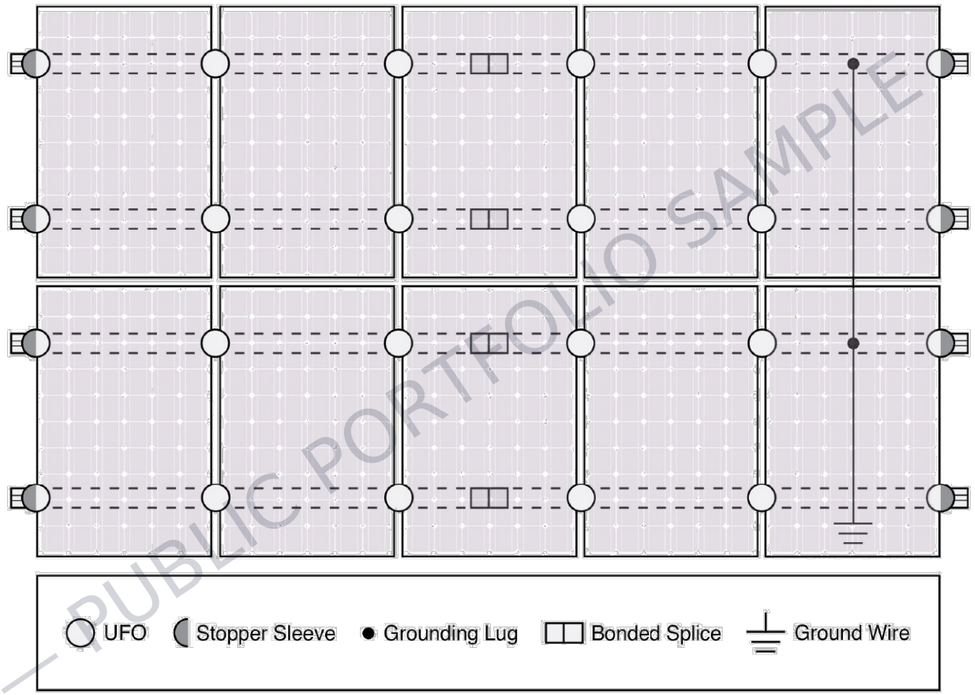
Bonded Splice
Each Bonded Splice uses self-drilling screws to form a secure connection. No bonding strap needed.

Grounding Lug
A single Grounding Lug connects an entire row of PV modules to the grounding conductor.

Bonded Attachments
The bonding bolt attaches and bonds the L-foot to the rail. It is installed with the same socket as the rest of the system.

Tech Brief

System Diagram



Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

UL Certification

The IronRidge Flush Mount, Tilt Mount, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to IronRidge.com/UFO

Cross-System Compatibility

Feature	Flush Mount	Tilt Mount	Ground Mount
XR Rails	✔	✔	XR1000 Only
UFO/Stopper	✔	✔	✔
Bonded Splice	✔	✔	N/A
Grounding Lugs	1 per Row	1 per Row	1 per Array
Microinverters & Power Optimizers	Enphase - M250-72, M250-60, M215-60, C250-72 Darfon - MIG240, MIG300, G320, G640 SolarEdge - P300, P320, P400, P405, P600, P700, P730		
Fire Rating	Class A	Class A	N/A
Modules	Tested or Evaluated with over 400 Framed Modules Refer to installation manuals for a detailed list.		

1 PV-13 GROUNDING DETAILS (IRON RIDGE RACKING)
SCALE: NTS

(LOGO WITHHELD FOR SAMPLE)

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CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

GROUNDING DETAILS

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-13

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Intertek
3933 US Route 11
Cortland, NY 13045
Telephone: 607-753-7311
www.intertek.com

Subject: ETL Evaluation of SolarEdge Products to Rapid Shutdown Requirements

To, whom it may concern

This letter represents the testing results of the below listed products to the requirements contained in the following standards:

The evaluation was done on the PV Rapid Shutdown System (PVRSS), and covers installations consisting of optimizers and inverters with part numbers listed below.

The testing done has verified that controlled conductors are limited to:

- Not more than 30 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation outside the array.
- Not more than 80 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation inside the array.

The rapid shutdown initiation is performed by either disconnecting the AC feed to the inverter, or – if the inverter DC Safety switch is readily accessible – by turning off the DC Safety switch.

Applicable products:

(1) Power optimizers:

PB followed by 001 to 350; followed by -AOB or -TFI.
OP followed by 001 to 500; followed by -LV, -MV, -IV or -EV.
P followed by 001 to 1100.
SP followed by 001 to 350.
When optimizers are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use optimizers with parallel inputs. Also meeting NEC 2020 rapid shutdown requirement.

(2) 1 -PH Inverters

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US / SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US when the following label is labeled on the side of the inverter:

Inverter part number may be followed by a suffix.

(3) 3 -PH Inverters

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SE9KUS / SE10KUS / SE14.4KUS/ SE16.7kUS / SE17.3kUS / SE20KUS/ SE24KUS / SE30KUS / SE33.3KUS / SE40KUS / SE43.2KUS / SE50KUS / SE66.6KUS / SE80KUS / SE85KUS / SE100KUS / SE120KUS; when the following label is labeled on the side of the inverter:

Please note, this Letter Report does not represent authorization for the use of any Intertek certification marks.

Brand Name(s)	SolarEdge
Relevant Standard(s)	UL 1741, UL 1741 CRD for rapid shutdown National Electric Code, 2020, Section 690.12 requirement for rapid shutdown
Verification Issuing Office	3933 US Route 11, Cortland, NY 13045

NRTL Disclaimer, Different for each NRTL – Examples: "This Verification is for the exclusive use of NRTL's Client and is provided pursuant to the agreement between NRTL and its Client. NRTL's responsibility and liability are limited to the terms and conditions of the agreement. NRTL assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to copy or distribute this Verification. Any use of the NRTL name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by NRTL. The observations and test results referenced from this Verification are relevant only to the sample tested. This Verification by itself does not imply that the material, product, or service is or has ever been under an NRTL certification program."

Signature:

Name: Mukund Rana
Position: Staff Engineer
Date:5/17/2021

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Cortland, NY 13045
Telephone: 607-753-7311
www.intertek.com

Date	Engineer / Reviewer	Description
5/17/2021 G104683664CRT	Dishant Patel	Added New 3-PH Inverter model SE50KUS, SE80KUS, SE85KUS and SE120KUS.
	Mukund Rana	Updated Power optimizers from "P followed by 001 to 960" to "P followed by 001 to 1100" Updated NEC standard from "National Electric Code, 2017, Section 690.12 requirement for rapid shutdown" To "National Electric Code, 2020, Section 690.12 requirement for rapid shutdown"

1 PV-14 RAPID SHUTDOWN DATASHEET
SCALE: NTS

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PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

RAPID SHUTDOWN

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-14

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AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant:	SolarEdge Technologies Ltd	**Manufacturer:**	SolarEdge Technologies Inc
Address:	1 Ha'Mada St. Herzeliya 4673335	**Address:**	447 Ingenuity Avenue Suite 120, Bldg. B, Sparks, NV 89441
Country:	Israel	**Country:**	USA

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services NA, Inc., Cortland, NY

Control Number: *4004590* **Authorized by:** _____
for L. Matthew Snyder, Certification Manager

C ETL LISTED US
Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

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AUTHORIZATION TO MARK

Standard(s):	Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3] Grid Support Utility Interactive Equipment - Supplement SA to UL 1741:2021 Ed.3 - Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3 (Supplement SA)] Grid Support Utility Interactive Inverters and Converters Based Upon IEEE 1547:2018 & IEEE 1547.1:2020 - Supplement SB to UL 1741:2021 Ed.3 - Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3 (Supplement SB)] Power Conversion Equipment (R2021) [CSA C22.2#107.1:2016 Ed.4] Photovoltaic (PV) DC Arc-Fault Circuit Protection [UL 1699B:2018 Ed.1+R:18May2021] Interconnection of Distributed Energy Resources and Electricity Supply Systems [CSA C22.3#9:2020 Ed.2] Photovoltaic Rapid Shutdown Systems [CSA C22.2#330:2023 Ed.2]
Product:	Grid support Utility Interactive Inverter system
Brand Name:	SolarEdge
Models:	SE followed by 43.2 or 50 or 66.6 or 80 or 85 or 90 or 100 or 110 or 120; followed by KUS.

1 PV-15 UL CERTIFICATION LETTER (SOLAREDGE SE50KUS)
SCALE: NTS

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LICENSE NO. (INFO WITHHELD)

NEW GRID-TIED SYSTEM 164.83kW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

UL CERTIFICATION

PROJECT NO: GSD-20250701-SCM
DRAWN BY: SCM
DATE: 12/15/2025

PV-15