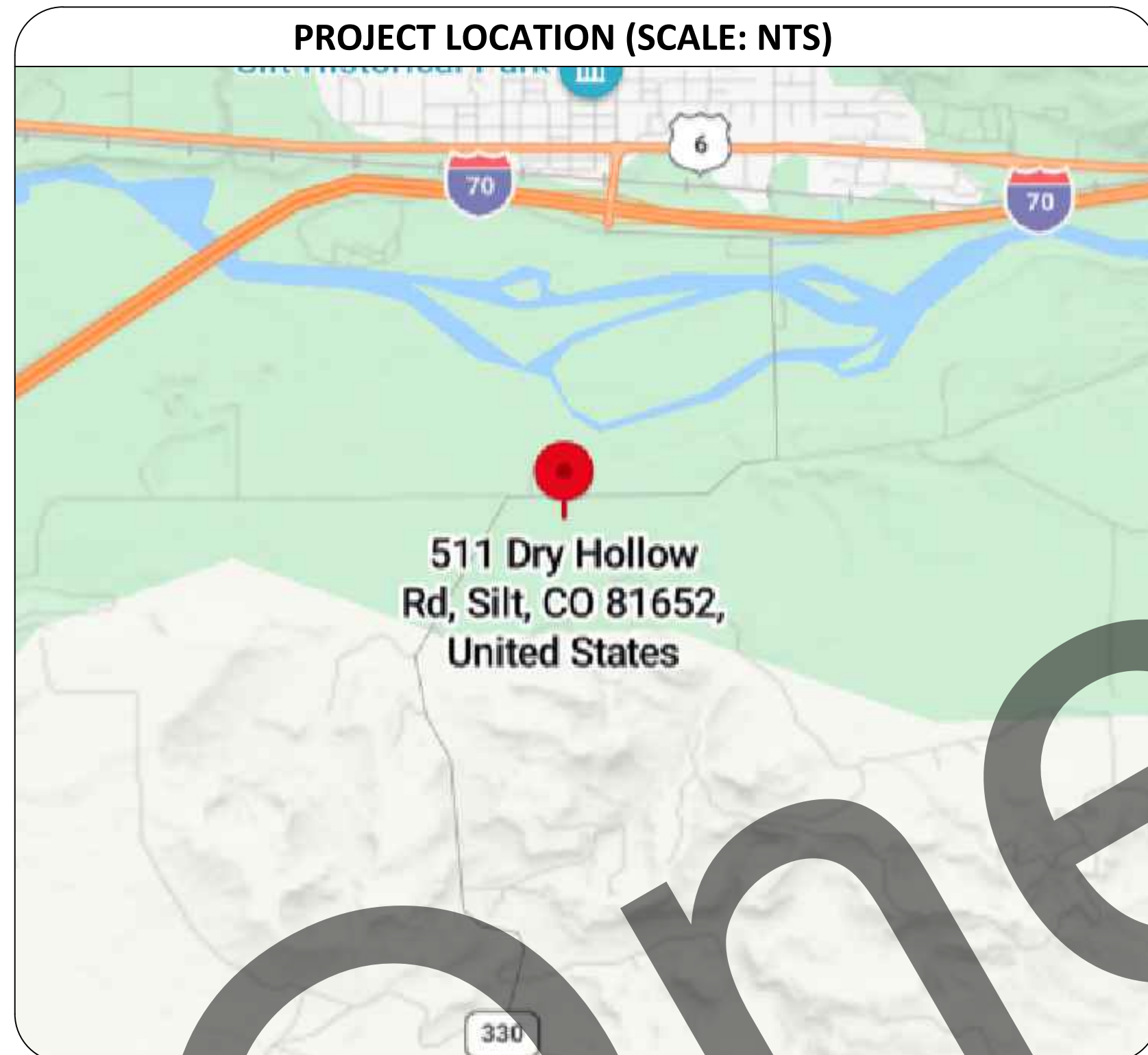


PROJECT: PV SYSTEM DETAILS	
[DC] SYSTEM SIZE	[AC] SYSTEM SIZE
NO. OF MODULES x PEAK POWER	NO. OF INVERTERS x PEAK CONTINUOUS POWER
(999) MODULES x 535W	(08) INVERTERS x 60000W
534.47 kW	480.00 kW



- SCOPE OF WORK**
- PROPOSED PROJECT TO INSTALL GRID- TIED PV ONLY SYSTEM ON AN EXISTING ROOFTOP STRUCTURE AT A COMMERCIAL LOCATION:
 - THE PV MODULES WILL BE SECURED ON ROOF USING PRE-ENGINEERED ROOF RACKING SYSTEM.
 - INSTALLED PV SYSTEM WILL BE THEN CONNECTED TO BUINESS OWNER SERVICE EQUIPMENT USING APPLICABLE INTERCONNECTION METHOD (AS PER AHJ).
 - THE ENERGY PRODUCED BY PV SYSTEM WILL BE USED TO POWER THE BUILDING EQUIPMENT. EXCESS POWER IS SENT BACK TO THE UTILITY GRID.

- APPLICABLE GOVERNING CODES & NOTES**
- THIS PROJECT SHALL COMPLY WITH THE FOLLOWING CODES:
- 2021 COLORADO BUILDING CODE
 - 2021 COLORADO RESIDENTIAL CODE
 - 2021 COLORADO MECHANICAL CODE
 - 2021 COLORADO PLUMBING CODE
 - 2021 COLORADO ENERGY CODE
 - 2021 COLORADO FIRE CODE
 - 2020 COLORADO ELECTRICAL CODE
- ALL OTHER RELATED STATE & AHJ BY-LAWS & ORDINANCES

- DESIGN CRITERIA**
- CONSTRUCTION: COMMERCIAL
 - EXPOSURE CATEGORY : C, RISK CATEGORY : II
 - WIND SPEED (ASCE 7-16) : 104 MPH
 - GROUND SNOW LOAD (ASCE 7-16) : NO DATA
 - ASHRAE EXTREME LOW: -22°C
 - ASHRAE HIGH TEMP (2% AVG.) : 34°C
 - ASHRAE DISTANCE ABOVE ROOF (7/8") : 56°C

SHEET INDEX

PV-0	PROJECT SUMMARY
PV-1	SITE PLAN
PV-2	ROOF ATTACHMENT DETAILS
PV-3 & PV-3.1	STRING LAYOUT & BOM
S-1	STRUCTURAL DETAILED DIAGRAM
E-1 - E-1.3	ELECTRICAL DIAGRAM
E-2	ELECTRICAL CALCULATIONS
E-3	PLACARDS
E-4	CAUTION LABEL
E.S	EQUIPMENT SPECIFICATIONS

EQUIPMENT DETAILS

(#) PV MODULES	(999) SOLAR4AMERICA S4A535-144MH10
(#) INVERTER	(8) CHINT CPS SCA60KTL-DO/US-480
OUTPUT CURRENT	577.60A
BRANCH CIRCUIT	39 STRINGS OF 16 MODULES & 25 STRINGS OF 15 MODULES
ROOF RACKING SYSTEM	AEROCOMPACT COMPACTMETAL TM W/ SHORT RAIL
POINT OF INTERCONNECTION	800A LOAD SIDE BREAKER IN THE INTERIOR METER MAIN SERVICE PANEL WITH 4000A MAIN BREAKER, 4000A BUSBAR, 120/480V, 4W, 3φ
UTILITY	----
AHJ	GARFIELD COUNTY

- GENERAL NOTES**
- ALL COMPONENTS ARE UL LISTED & NEC CERTIFIED, WHERE WARRANTED
 - A DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS.
 - HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
 - A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC
 - GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
 - PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
 - PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
 - WATER PROOF CONNECTORS AND HUBS SHALL BE USED WHERE APPLICABLE PER NEC 312.2 AND 314.15.
 - GROUNDING/BONDING BUSHINGS SHALL BE INSTALLED WHERE APPLICABLE PER NEC 250.92.
 - ALL EXTERIOR RACEWAYS ON WALLS SHOULD BE EMT UNLESS NOTED OTHERWISE.
 - CONTRACTOR SHALL INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS & NOTHING IN THIS DOCUMENT SHALL BE INTERPRETED IN A WAY THAT OVERRIDES THEM.
 - CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL CONDITIONS, DIMENSIONS & DETAILS IN THIS DOCUMENT. ALL DIMENSIONS SHALL BE VERIFIED BY SUBCONTRACTOR BEFORE INSTALLATION.
- PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL1703 STANDARD.

- ELECTRICAL NOTES**
- THE EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE INSTALLED ONLY BY QUALIFIED PEOPLE. A QUALIFIED PERSON IS ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED. (NEC690.4(E) AND 705.6)
 - LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION. FOR A LINE SIDE TAP CONNECTION, UTILITY NEEDS TO BE NOTIFIED WELL IN ADVANCE TO COORDINATE BUILDING ELECTRICAL SHUT OFF.
 - NEW CONDUIT ROUTING SHOWN IS ESSENTIALLY SCHEMATIC. SUBCONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
 - ARRAY WIRING SHOULD NOT BE READILY ACCESSIBLE EXCEPT TO QUALIFIED PERSONNEL.
 - ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE WATERTIGHT AND APPROVED FOR USE IN WET LOCATIONS .
 - WIRING METHODS FOR PV SYSTEM CONDUCTORS AREN'T PERMITTED WITHIN 10 IN. OF THE ROOF DECKING OR SHEATHING EXCEPT WHERE LOCATED DIRECTLY BELOW THE ROOF SURFACE THAT'S COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT WIRING
 - BACK-FED BREAKER MUST BE AT THE OPPOSITE END OF BUS BAR FROM THE MAIN BREAKER OR MAIN LUG SUPPLYING CURRENT FROM THE UTILITIES.
 - ALL CONDUCTORS AND WIRE TIES EXPOSED TO SUNLIGHT ARE LISTED AS UV RESISTANT.
 - CONTRACTOR SHALL FOLLOW ALL ELECTRICAL EQUIPMENT LABELING REQUIREMENTS ACCORDING TO NEC.
 - MEASURE THE LINE-TO-LINE AND LINE-TO-NEUTRAL VOLTAGE OF ALL SERVICE ENTRANCE CONDUCTORS PRIOR TO INSTALLING ANY SOLAR EQUIPMENT. THE VOLTAGES FOR THE 240VAC RATED.

<p>DATE</p> <p>PROJECT ID</p> <p>CREATED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>SHEET SIZE</p>		<p>HOMEOWNER INFO</p>	<table border="1"> <tr> <th>#</th> <th>REVISION/UPDATE</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	#	REVISION/UPDATE	DATE													<p>SIGNED & STAMP BY</p>	<p>PV-0</p> <p>SHEET NAME</p> <p>PROJECT SUMMARY</p> <p>SHEET INFORMATION</p>
	#			REVISION/UPDATE	DATE															

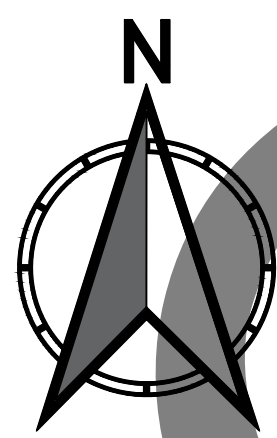
COUNTY RD 33 I

(N) 8 X CHINT CPS SCA60KTL-DO/US-480 & 8 X 150A DC DISCONNECT
 (132) SOLAR4AMERICA S4A535-144MH10 MODULES
 ROOF #3
 (N) LOAD CENTER
 (N) 1000A NON-FUSED AC DISCONNECT
 (E) UTILITY METER
 (E) INTERIOR 4000A MAIN SERVICE PANEL

ROOF ACCESS POINT
 ROOF #2
 (129) SOLAR4AMERICA S4A535-144MH10
 MODULES

ROOF #4 (370) SOLAR4AMERICA S4A535-144MH10 MODULES
 ROOF #1 (368) SOLAR4AMERICA S4A535-144MH10 MODULES

LEGEND	
	UTILITY METER
	MAIN SERVICE PANEL
	SOLAR LOAD CENTER
	CHINT CPS SCA60KTL-DO/US-480
	AC DISCONNECT
	DC DISCONNECT
	PROPERTY LINE
	VENT, ATTIC FAN (ROOF OBSTRUCTIONS)



DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	1/320" = 1'-0"
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

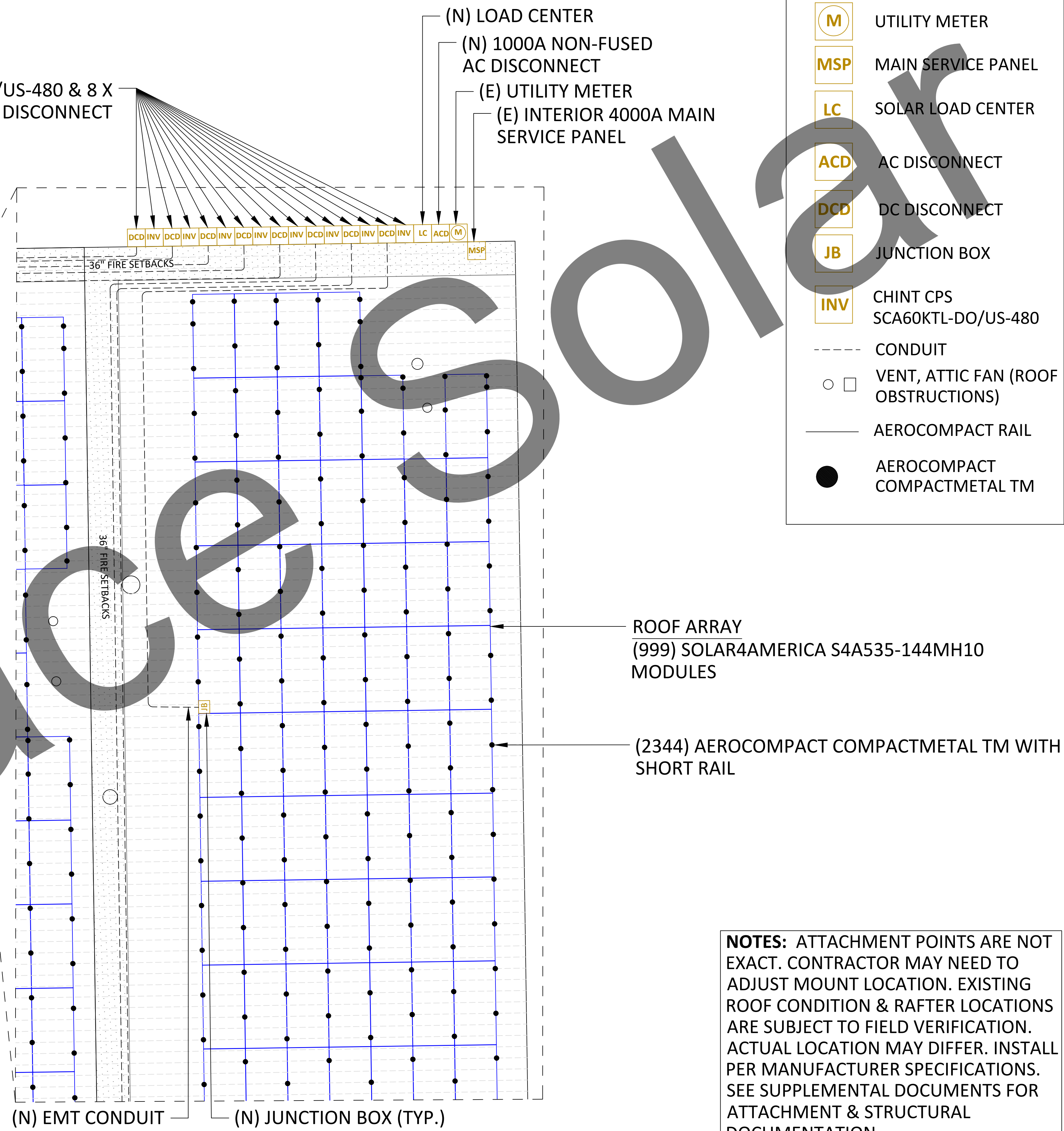
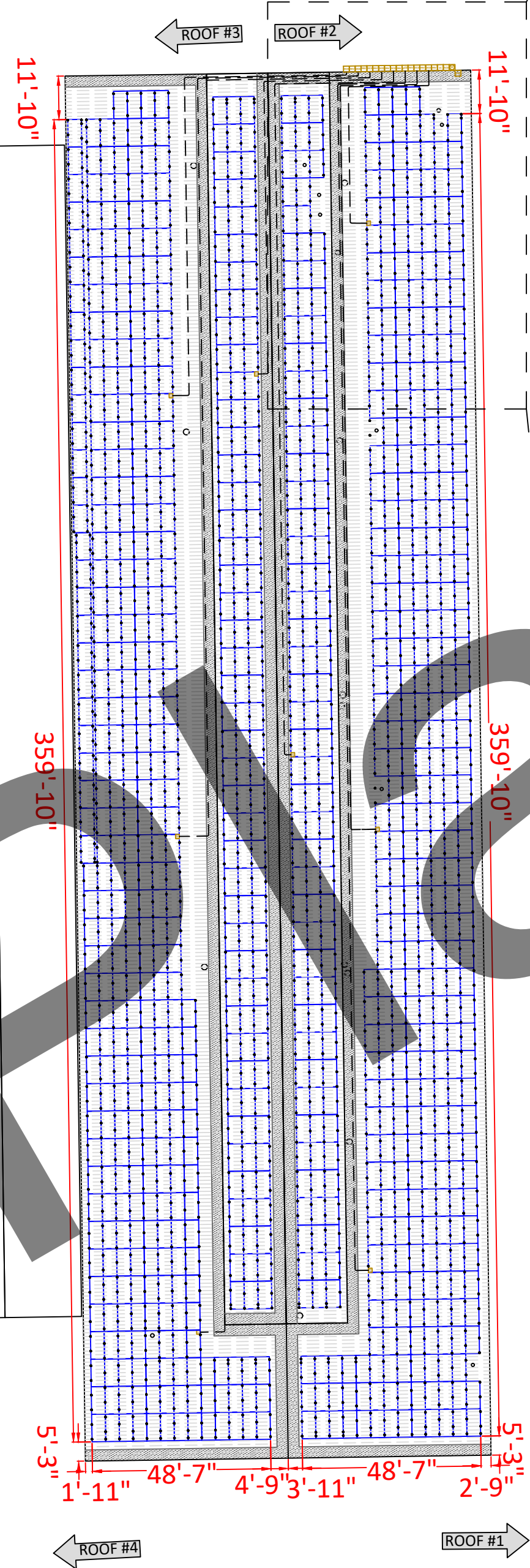
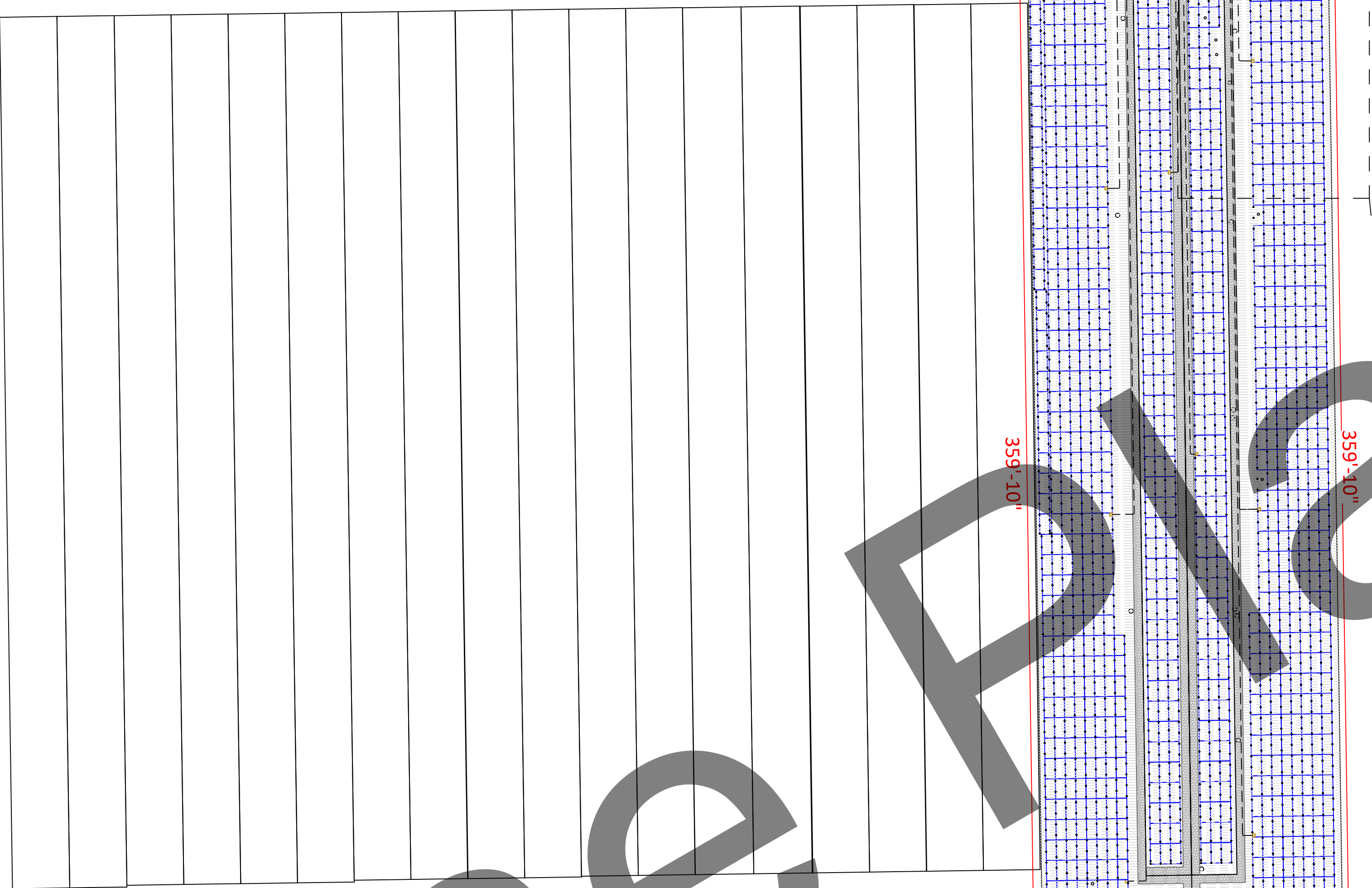
SIGNED & STAMP BY

PV-1
 SHEET NAME
SITE PLAN
 SHEET INFORMATION

ROOF DETAILS				
MOUNTING PLANE	ROOF #1	ROOF #2	ROOF #3	ROOF #4
NO. OF MODULES	368	129	132	370
AZIMUTH	89°	89°	269°	269°
ROOF TILT	7°	7° <td 7°	7°	
ROOF TYPE	STANDING SEAM METAL	STANDING SEAM METAL	STANDING SEAM METAL	STANDING SEAM METAL
TRUSS SIZE	2"X4"	2"X4"	2"X4"	2"X4"
TRUSS SPACING	12" O.C	12" O.C	12" O.C	12" O.C
ARRAY AREA	10235.26	3587.90	3671.34	10290.88
(TOTAL ARRAY AREA/ TOTAL ROOF AREA) X 100% = (27785.39/41629.89) X 100% = 66.74%				

LEGEND	
	UTILITY METER
	MAIN SERVICE PANEL
	SOLAR LOAD CENTER
	AC DISCONNECT
	DC DISCONNECT
	JUNCTION BOX
	CHINT CPS SCA60KTL-DO/US-480
	CONDUIT
	VENT, ATTIC FAN (ROOF OBSTRUCTIONS)
	AEROCOMPACT RAIL
	AEROCOMPACT COMPACTMETAL TM

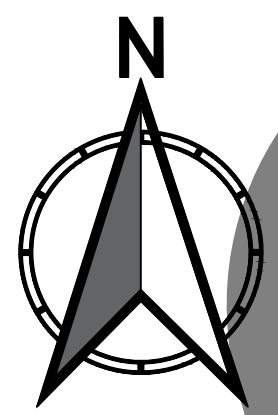
COUNTY RD 331
FRONT OF BUILDING



ROOF ARRAY
(999) SOLAR4AMERICA S4A535-144MH10
MODULES

(2344) AEROCOMPACT COMPACTMETAL TM WITH
SHORT RAIL

NOTES: ATTACHMENT POINTS ARE NOT EXACT. CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATION. EXISTING ROOF CONDITION & RAFTER LOCATIONS ARE SUBJECT TO FIELD VERIFICATION. ACTUAL LOCATION MAY DIFFER. INSTALL PER MANUFACTURER SPECIFICATIONS. SEE SUPPLEMENTAL DOCUMENTS FOR ATTACHMENT & STRUCTURAL DOCUMENTATION.



BACK OF BUILDING

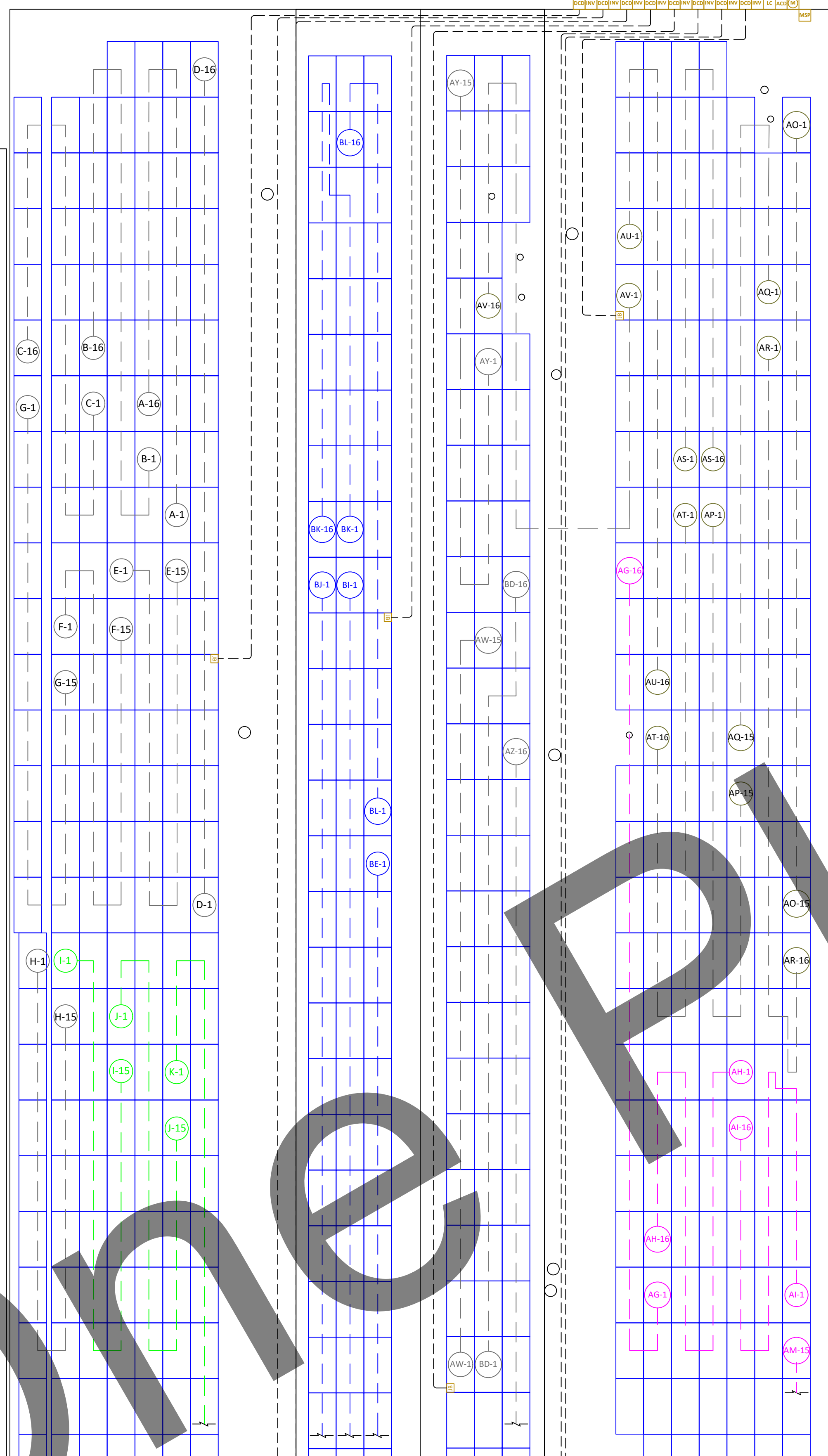
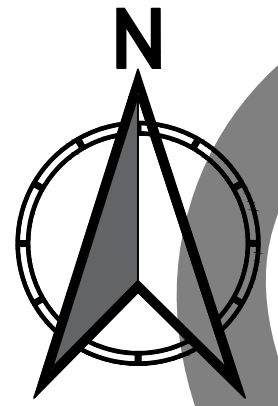
DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	1/32" = 1'-0"
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

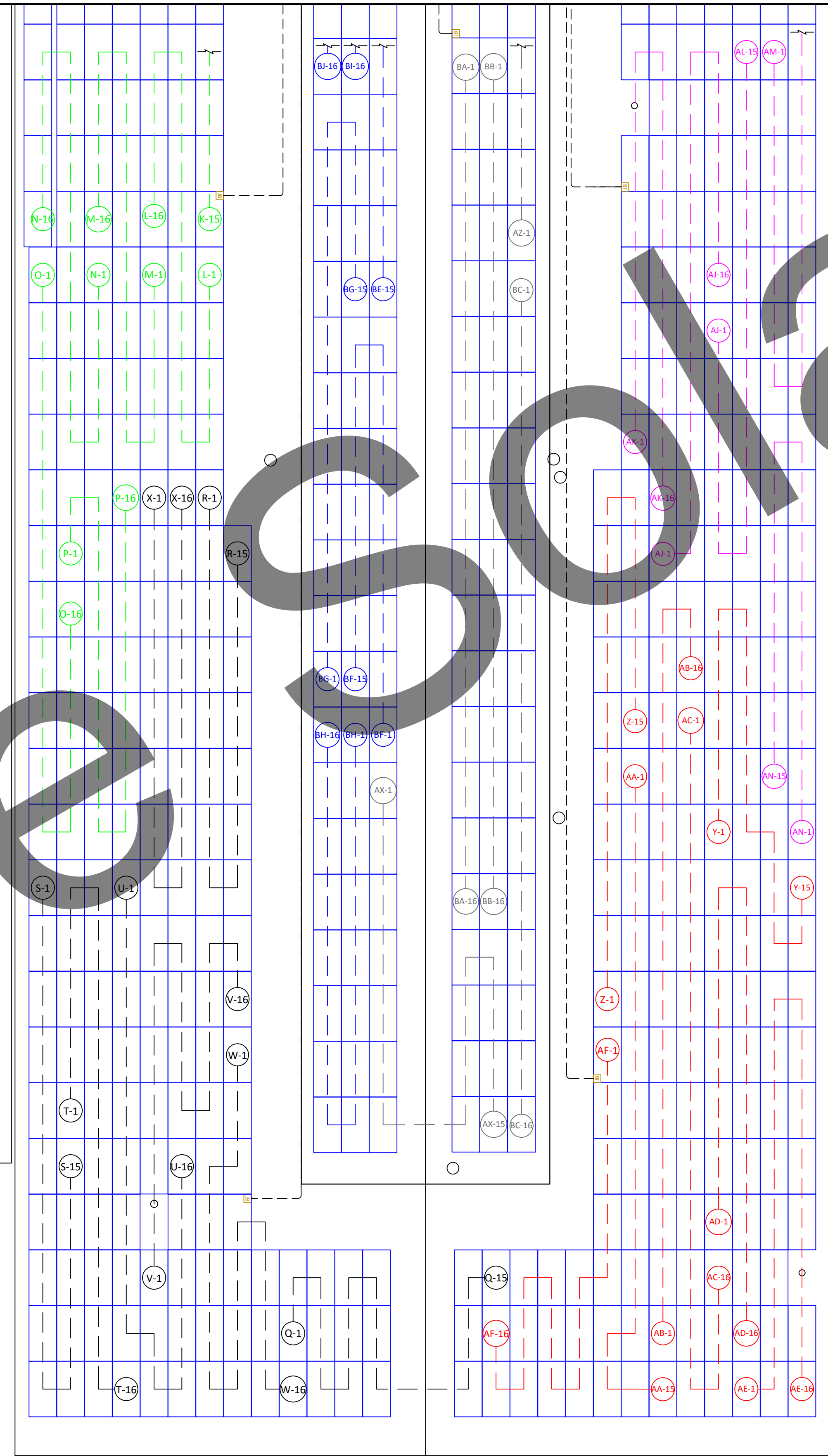
SIGNED & STAMP BY

PV-2
SHEET NAME
ATTACHMENT DETAILS
SHEET INFORMATION



DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	3/32"= 1'-0"
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO	



#	REVISION/UPDATE	DATE

SIGNED & STAMP BY	

PV-3
SHEET NAME
STRING LAYOUT
SHEET INFORMATION

STRING LEGEND

- A - D STRING #1 TO STRING #4 - 16 MODULES
- E - K STRING #5 TO STRING #11 - 15 MODULES
- L - P STRING #12 TO STRING #16 - 16 MODULES
- Q - S STRING #17 TO STRING #19 - 15 MODULES
- T - X STRING #20 TO STRING #24 - 16 MODULES
- Y - AA STRING #25 TO STRING #27 - 15 MODULES
- AB - AK STRING #28 TO STRING #37 - 16 MODULES
- AL - AQ STRING #38 TO STRING #43 - 15 MODULES
- AR - AV STRING #44 TO STRING #48 - 16 MODULES
- AW - AY STRING #49 TO STRING #50 - 15 MODULES
- AZ - BD STRING #51 TO STRING #55 - 16 MODULES
- BE - BG STRING #56 TO STRING #58 - 15 MODULES
- BH - BL STRING #59 TO STRING #64 - 16 MODULES

LEGEND

- M UTILITY METER
- MSP MAIN SERVICE PANEL
- LC SOLAR LOAD CENTER
- ACD AC DISCONNECT
- DCD DC DISCONNECT
- JB JUNCTION BOX
- INV CHINT CPS
SCA60KTL-DO/US-480
- CONDUIT
- □ VENT, ATTIC FAN (ROOF
OBSTRUCTIONS)

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	999	SOLAR4AMERICA S4A535-144MH10 MODULES
INVERTER	8	CHINT CPS SCA60KTL-DO/US-480 INVERTERS
JUNCTION BOX	8	JUNCTION BOX, 600V, NEMA 3R, UL LISTED
SOLAR LOAD CENTER	1	800A RATED SOLAR LOAD CENTER, 480V, UL LISTED
AC DISCONNECT	1	1000A NON-FUSED AC DISCONNECT, 480V, UL LISTED
DC DISCONNECT	8	150A DC DISCONNECT, NON FUSED, 600V, UL LISTED
ATTACHMENT	2344	AEROCOMPACT COMPACTMETAL TM WITH STANDING SEAM CLAMP (TMDS08) & SHORT RAIL (S08)
GROUNDING LUG	40	GROUNDING LUG

One Place Solar

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

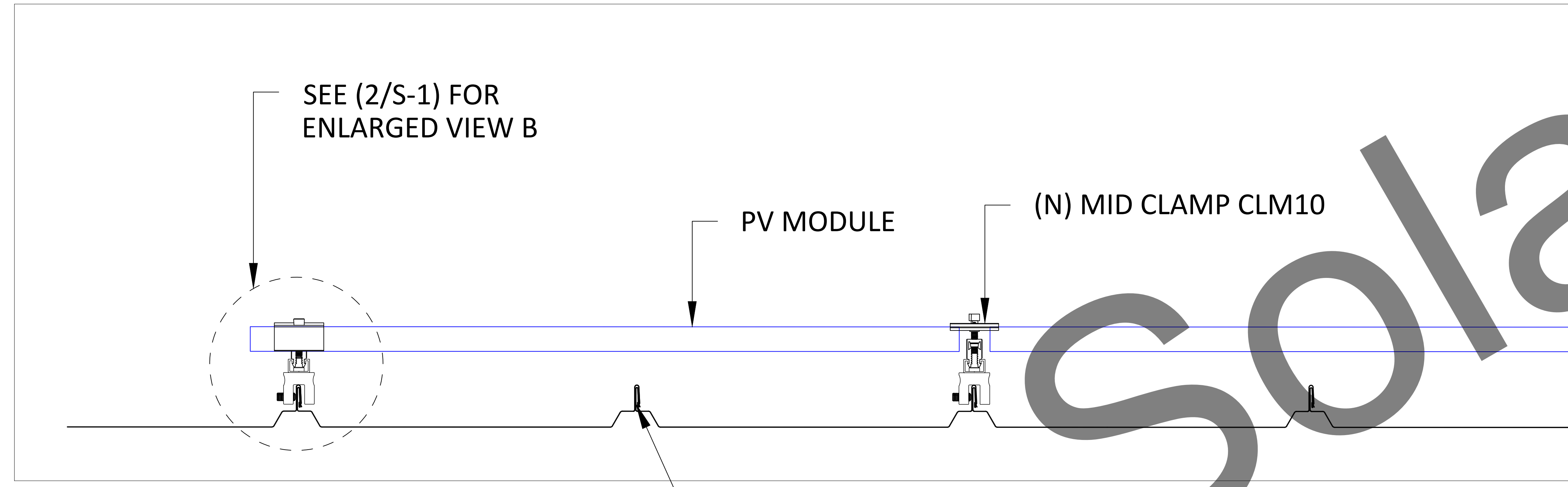
#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

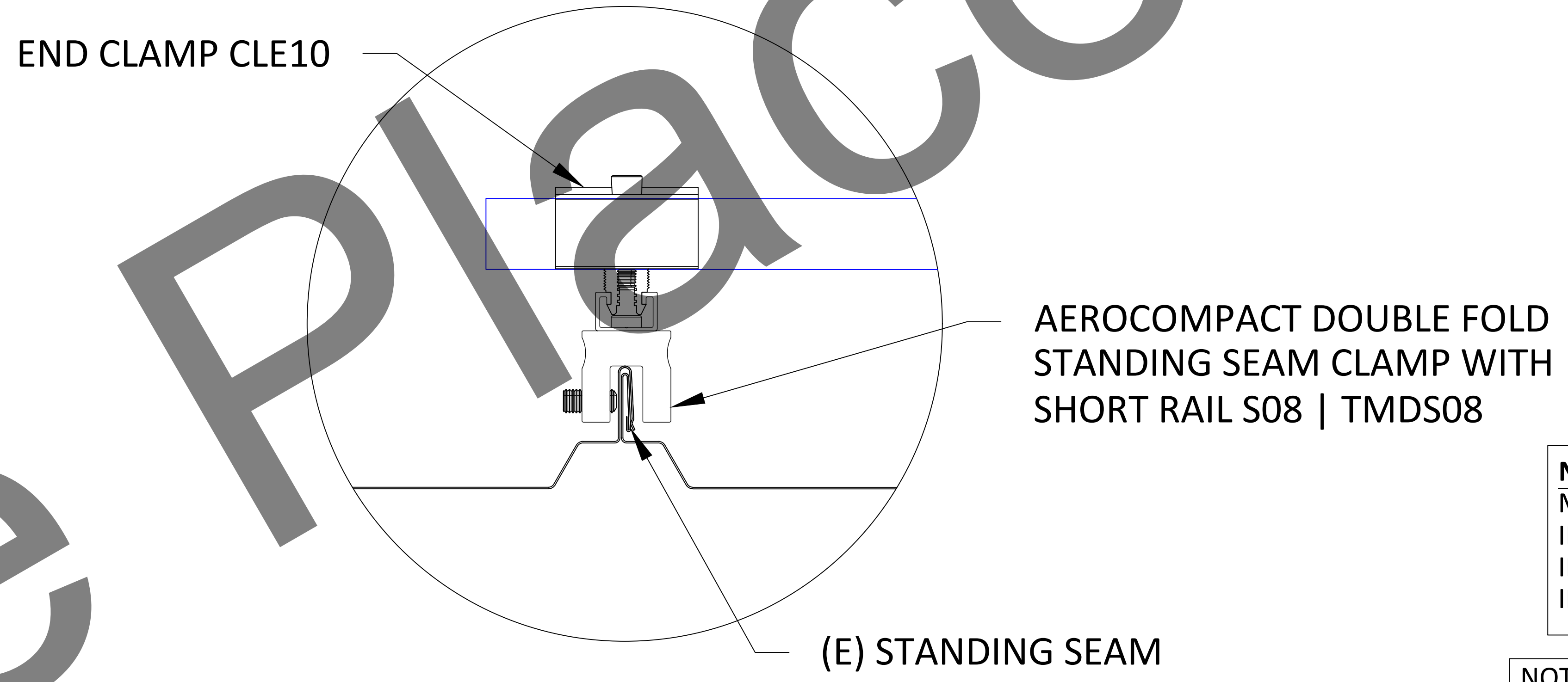
PV-3.1
SHEET NAME
BOM
SHEET INFORMATION

STRUCTURAL NOTES:

1. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE AEROCOMPACT SYSTEM WITH AEROCOMPACT COMPACTMETAL™ ATTACHMENTS.
2. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS, AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.
3. THE PROPOSED PV SYSTEM ADDS TO THE ROOF FRAMING SYSTEM.
4. ROOF LIVE LOAD = 20 PSF
5. GROUND SNOW LOAD = NO DATA
6. WIND SPEED = 104 MPH
7. EXPOSURE CATEGORY = C
8. RISK CATEGORY = II



1 ATTACHMENT DETAIL (SIDE VIEW)
SCALE : NTS



2 ATTACHMENT DETAIL (ENLARGED VIEW)
SCALE : NTS

NOTES: FLASHING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS. IF THERE IS ANY CONFLICT BETWEEN WHAT IS DEPICTED & INSTRUCTION AS PER MANUFACTURER, MANUFACTURERS INSTRUCTIONS SHALL SUPERSEDE.

NOTE: - CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS. CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION.

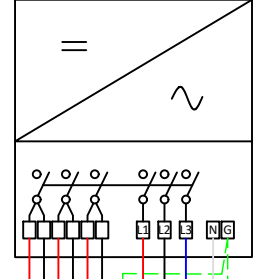
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>DATE</td><td></td></tr> <tr><td>PROJECT ID</td><td></td></tr> <tr><td>CREATED BY</td><td>RK</td></tr> <tr><td>CHECKED BY</td><td>BR</td></tr> <tr><td>SCALE</td><td>NTS</td></tr> <tr><td>SHEET SIZE</td><td>24"X 36"</td></tr> <tr><td></td><td>ANSI D</td></tr> </table>	DATE		PROJECT ID		CREATED BY	RK	CHECKED BY	BR	SCALE	NTS	SHEET SIZE	24"X 36"		ANSI D		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>#</th><th>REVISION/UPDATE</th><th>DATE</th></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	#	REVISION/UPDATE	DATE																	<p style="text-align: center;">S-1</p> <p style="text-align: center;">SHEET NAME STRUCTURAL DETAILED DIAGRAM</p> <p style="text-align: center;">SIGNED & STAMP BY</p> <p style="text-align: center;">SHEET INFORMATION</p>
DATE																																					
PROJECT ID																																					
CREATED BY	RK																																				
CHECKED BY	BR																																				
SCALE	NTS																																				
SHEET SIZE	24"X 36"																																				
	ANSI D																																				
#	REVISION/UPDATE	DATE																																			

(JB01) SOLAR4AMERICA S4A535-144MH10 MODULES
4 STRINGS OF 16 MODULES & 4 STRINGS OF 15 MODULES

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

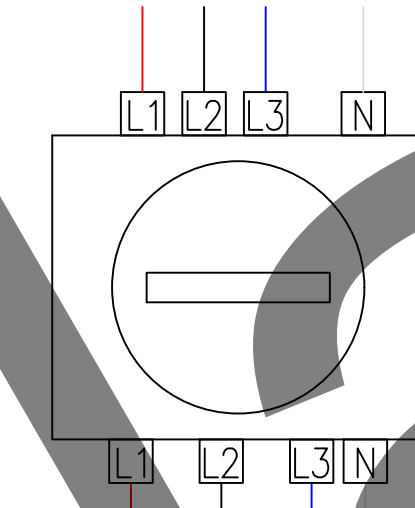
JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED



LOAD CENTER, 800A
RATED, 480V, 3-P, 4-W,
NEMA 3R, UL LISTED

TO UTILITY GRID



(E) 4000A MAIN
BREAKER TO
HOUSE, 480V

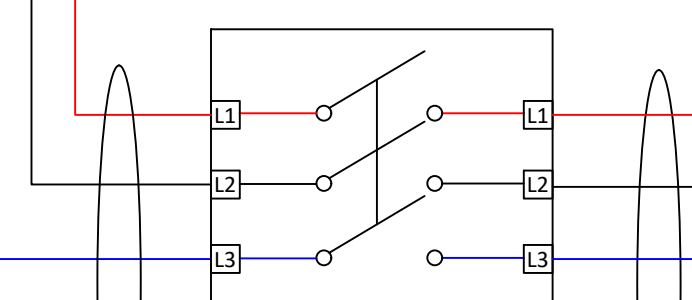
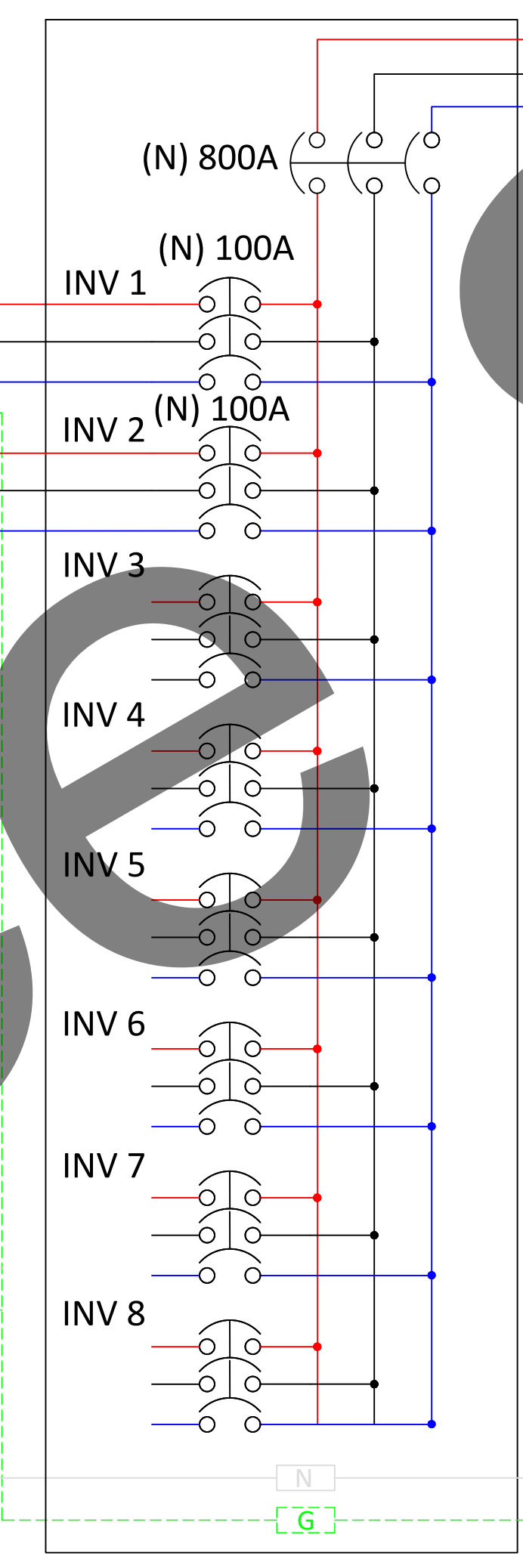
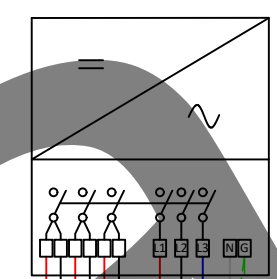
(E) 480V/4000A BUS BAR
RATING, METER-MAIN
ATTACH SERVICE PANEL,
THREE PHASE, WITH A
4000A MAIN DISCONNECT
UTILITY COMPANY -
BI-DIRECTIONAL
UTILITY METER#

AC DISCONNECT
1000A NON FUSED, 480V,
NEMA 3R, UL LISTED

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED



POINT OF INTERCONNECT,
800A LOAD SIDE BREAKER

EXISTING GROUNDING
ELECTRODE

(JB02) SOLAR4AMERICA S4A535-144MH10 MODULES
5 STRINGS OF 16 MODULES & 3 STRINGS OF 15 MODULES

JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED



A2

B2

C

D

A1

B1

C

D

E

F

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36" ANSI D

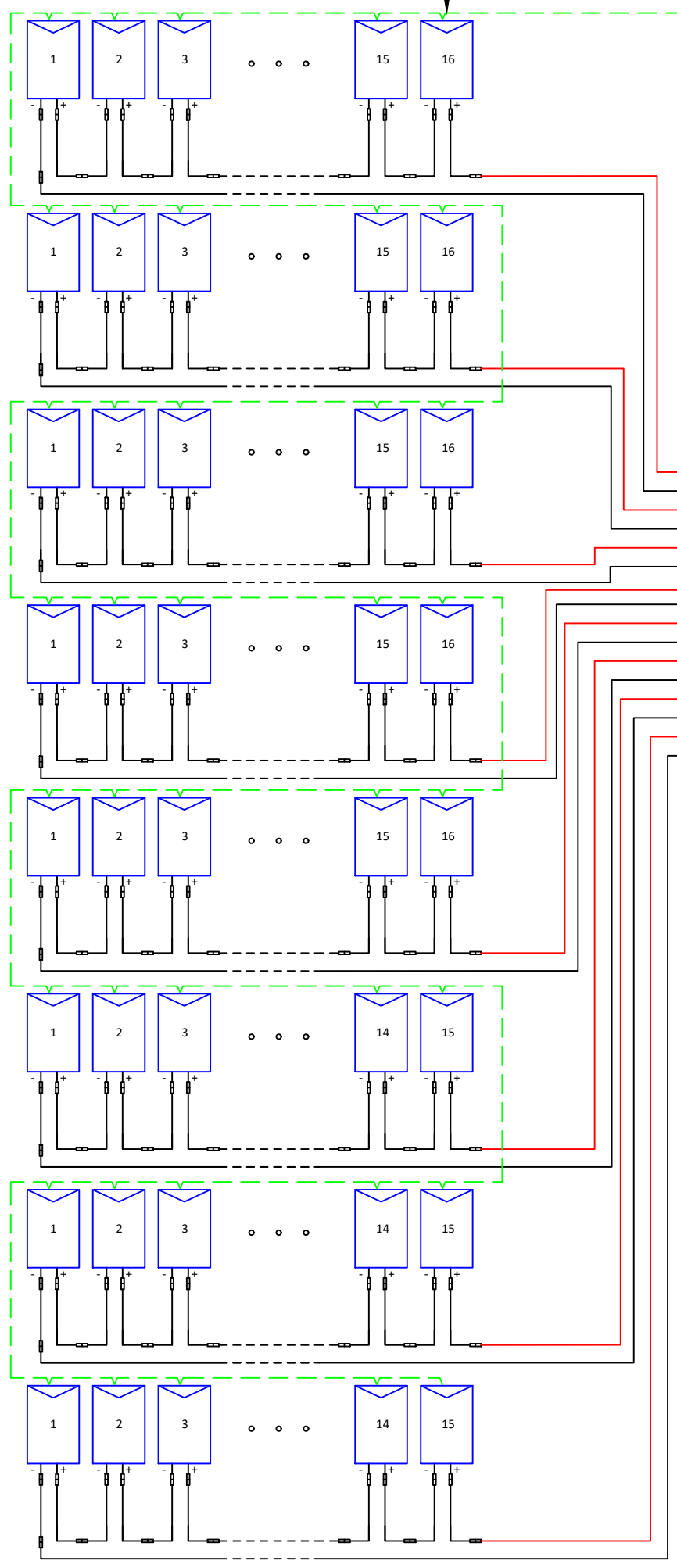
HOMEOWNER INFO

#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

E-1
SHEET NAME
ELECTRICAL
DIAGRAM
SHEET INFORMATION

(JB03) SOLAR4AMERICA S4A535-144MH10 MODULES
5 STRINGS OF 16 MODULES & 3 STRINGS OF 15 MODULES



JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED

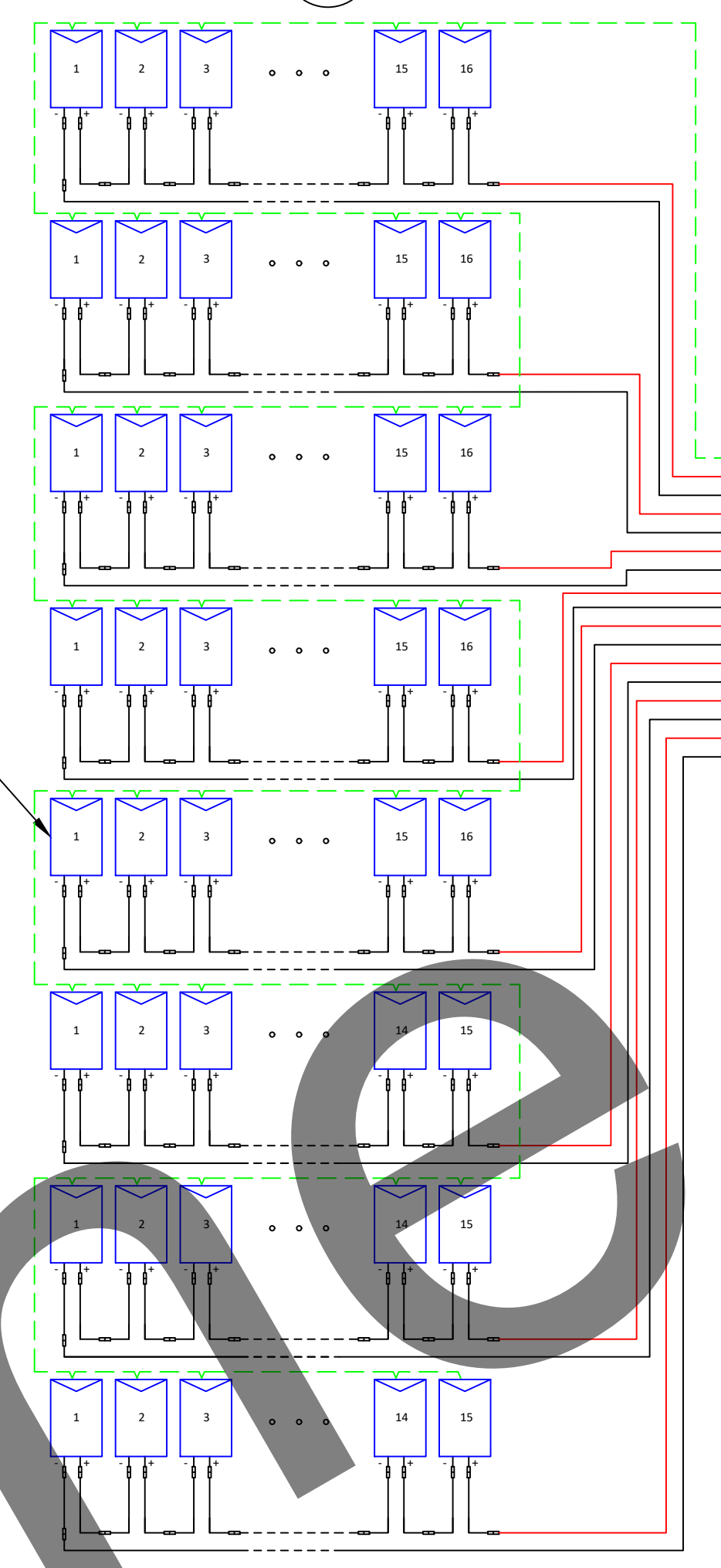
CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

A3

B3

C

D



JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

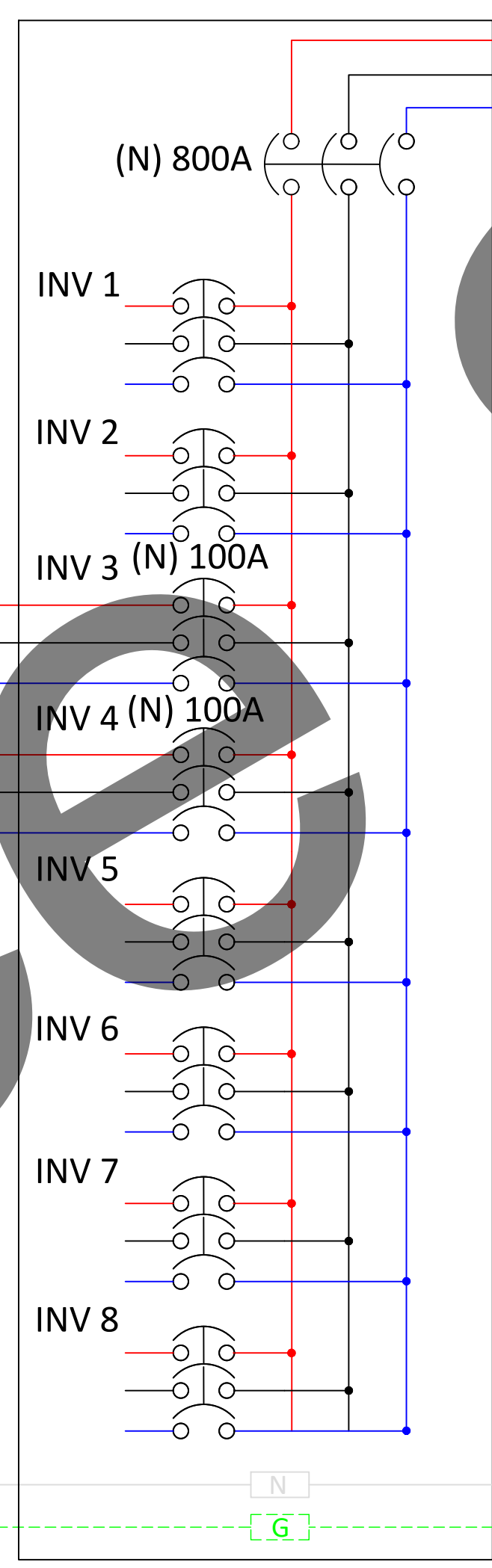
A4

B4

C

D

LOAD CENTER, 800A
RATED, 480V, 3-P, 4-W,
NEMA 3R, UL LISTED



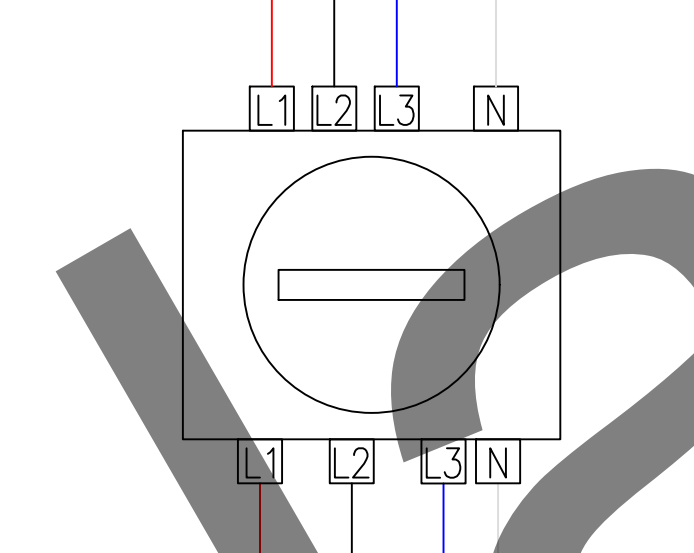
AC DISCONNECT
1000A NON FUSED, 480V,
NEMA 3R, UL LISTED

POINT OF INTERCONNECT,
800A LOAD SIDE BREAKER

E

F

TO UTILITY GRID



(E) 4000A MAIN
BREAKER TO
HOUSE, 480V

(E) 480V/4000A BUS BAR
RATING, METER-MAIN
ATTACH SERVICE PANEL,
THREE PHASE, WITH A
4000A MAIN DISCONNECT
UTILITY COMPANY -
BI-DIRECTIONAL
UTILITY METER#

4000A

(N) 800A/3P

EXISTING GROUNDING
ELECTRODE

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

E-1.1

SHEET NAME

ELECTRICAL
DIAGRAM

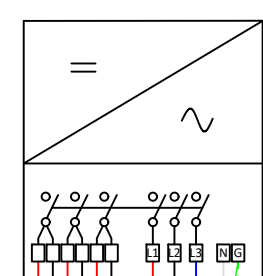
SHEET INFORMATION

(JB05) SOLARAAMERICA S4A535-144MH10 MODULES
5 STRINGS OF 16 MODULES & 3 STRINGS OF 15 MODULES

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

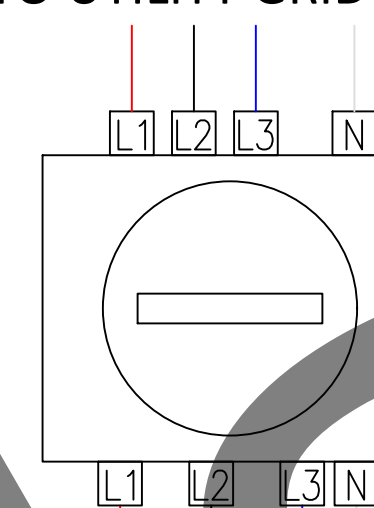
JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED



LOAD CENTER, 800A
RATED, 480V, 3-P, 4-W,
NEMA 3R, UL LISTED

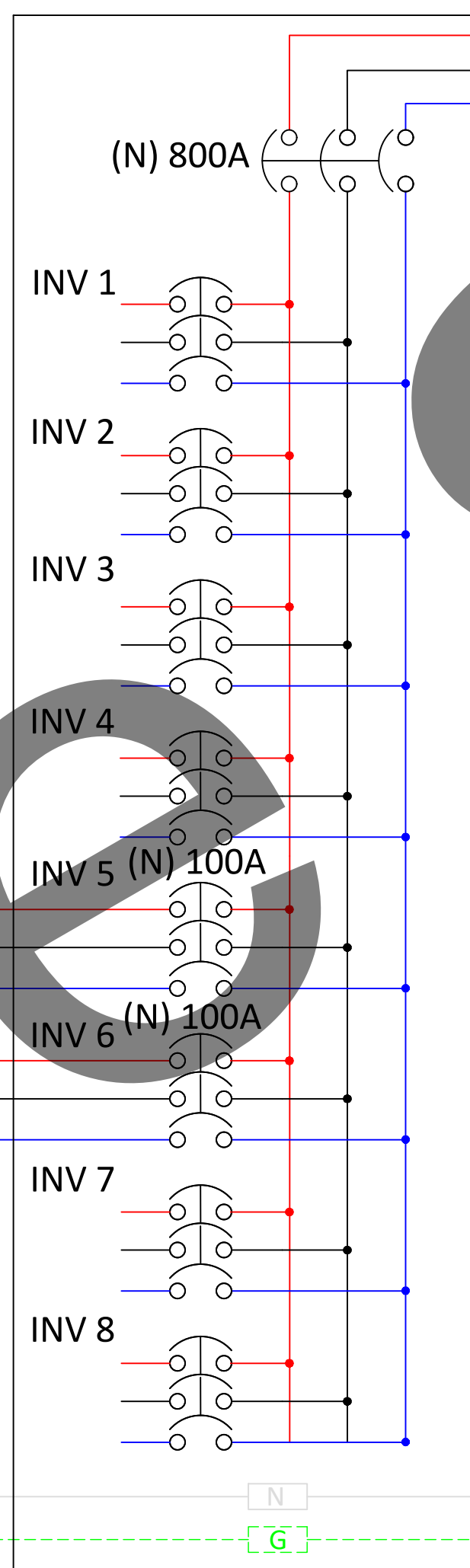
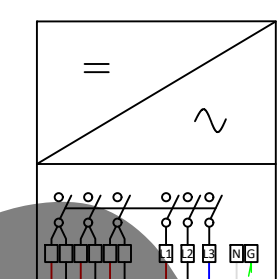
TO UTILITY GRID



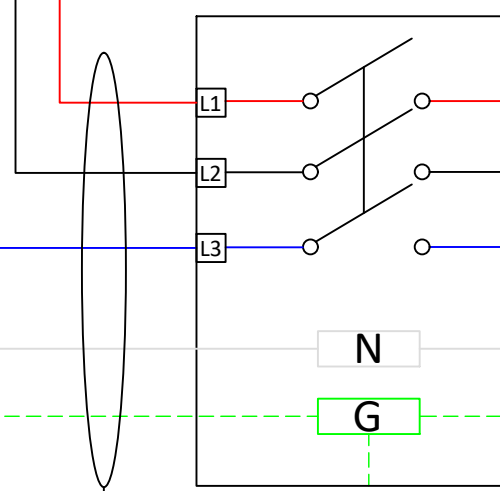
CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

JUNCTION BOX
600V, NEMA 3R,
UL LISTED

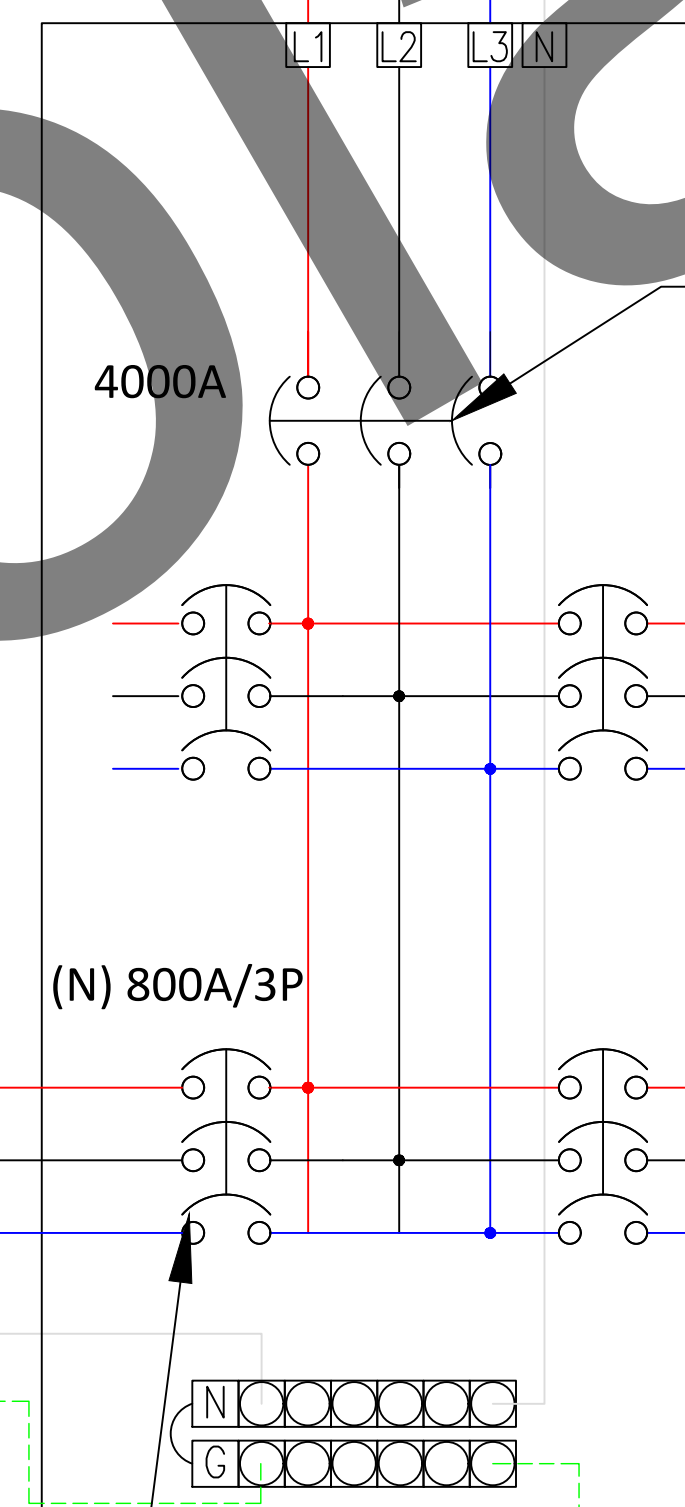
DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED



AC DISCONNECT
1000A NON FUSED, 480V,
NEMA 3R, UL LISTED



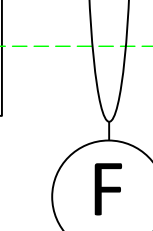
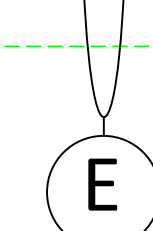
POINT OF INTERCONNECT,
800A LOAD SIDE BREAKER



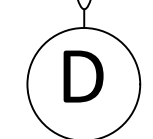
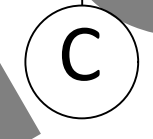
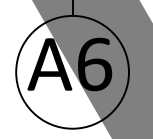
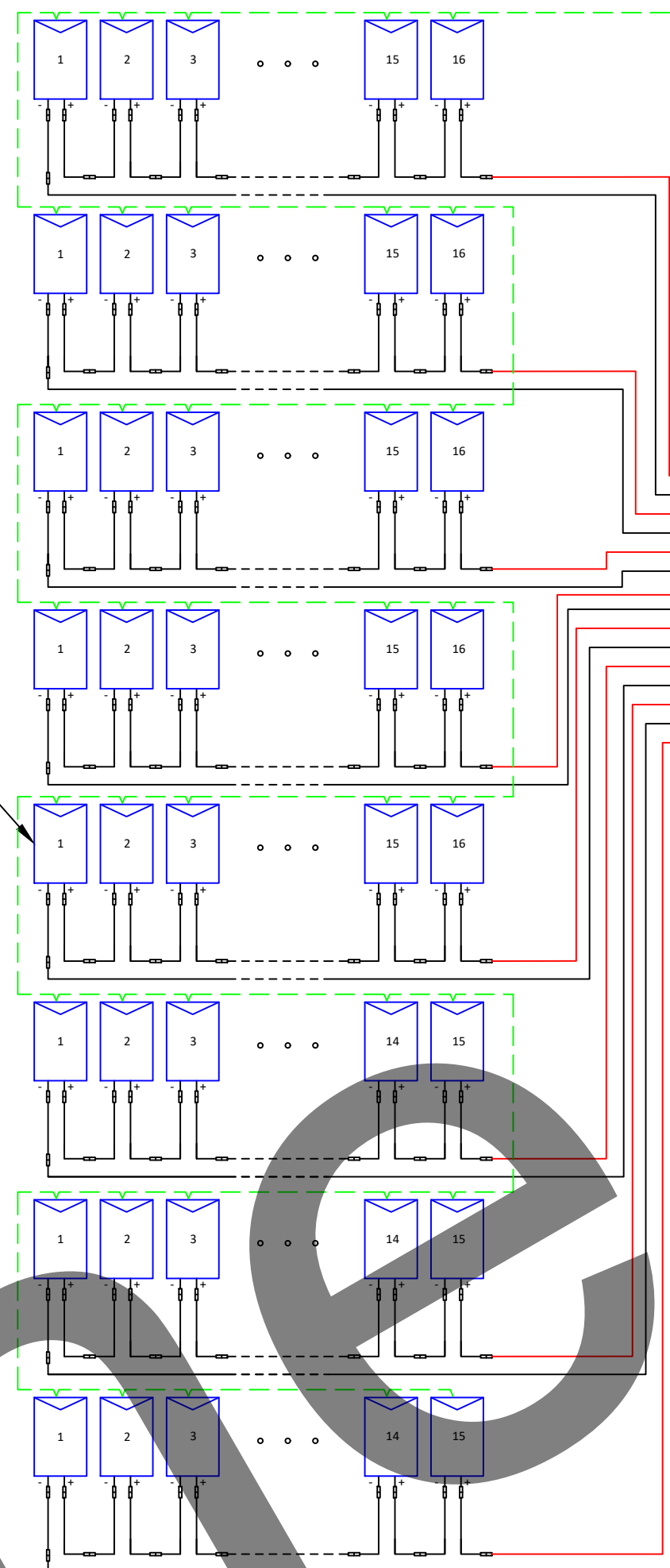
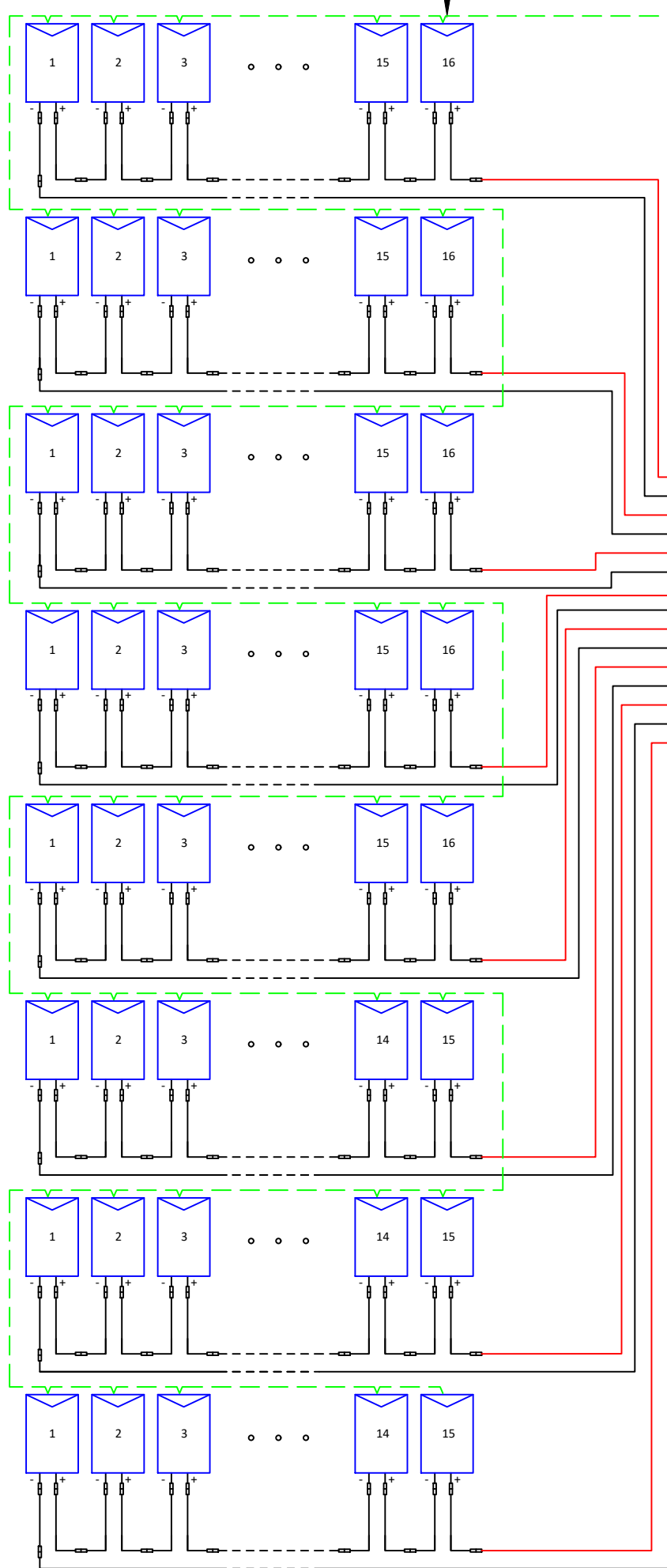
(E) 4000A MAIN
BREAKER TO
HOUSE, 480V

(E) 480V/4000A BUS
BAR
RATING, METER-MAIN
ATTACH SERVICE PANEL,
THREE PHASE, WITH A
4000A MAIN DISCONNECT
UTILITY COMPANY -
BI-DIRECTIONAL
UTILITY METER#

EXISTING GROUNDING
ELECTRODE



(JB06) SOLARAAMERICA S4A535-144MH10 MODULES
5 STRINGS OF 16 MODULES & 3 STRINGS OF 15 MODULES



DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

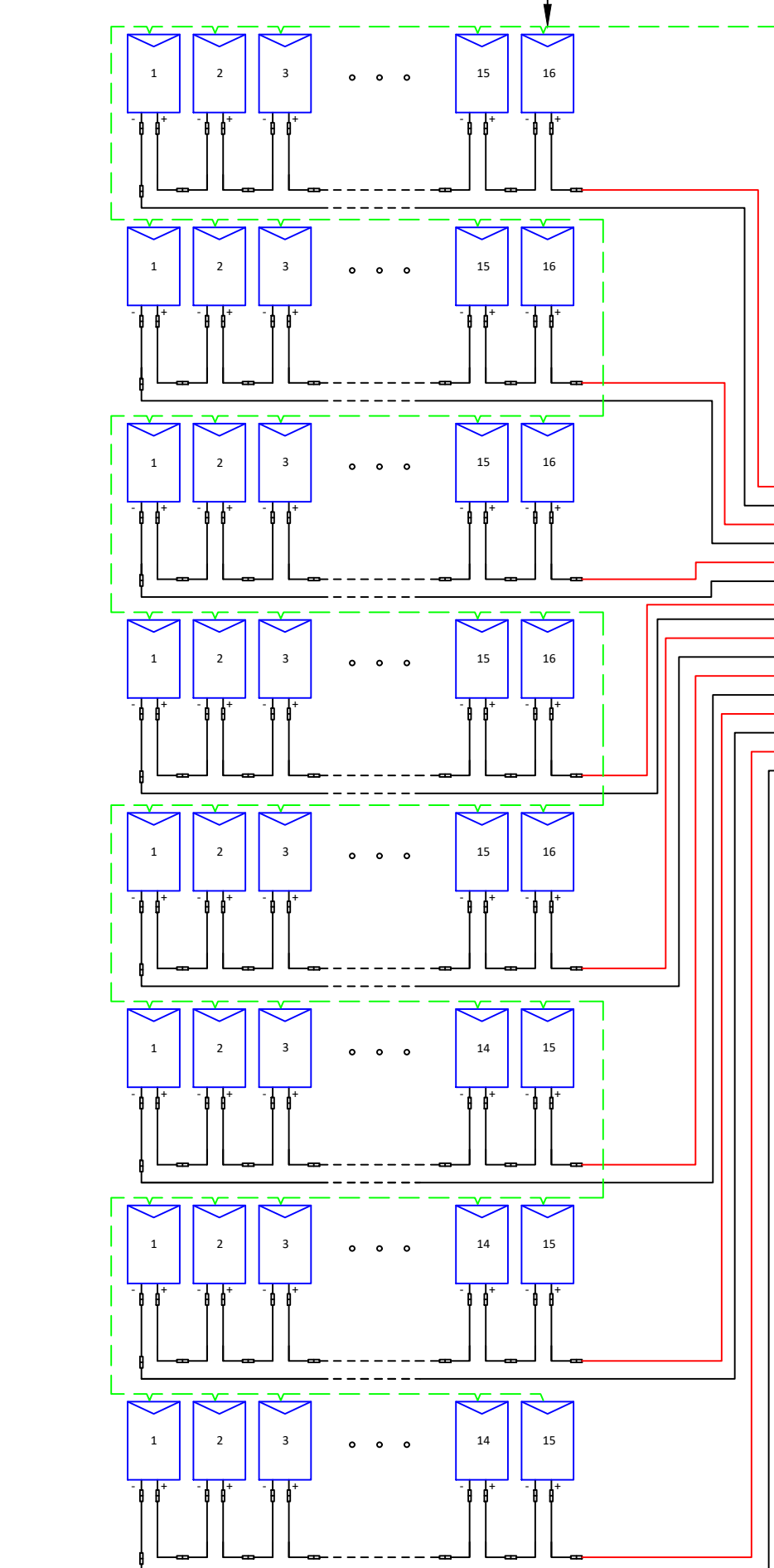
E-1.2

SHEET NAME

ELECTRICAL
DIAGRAM

SHEET INFORMATION

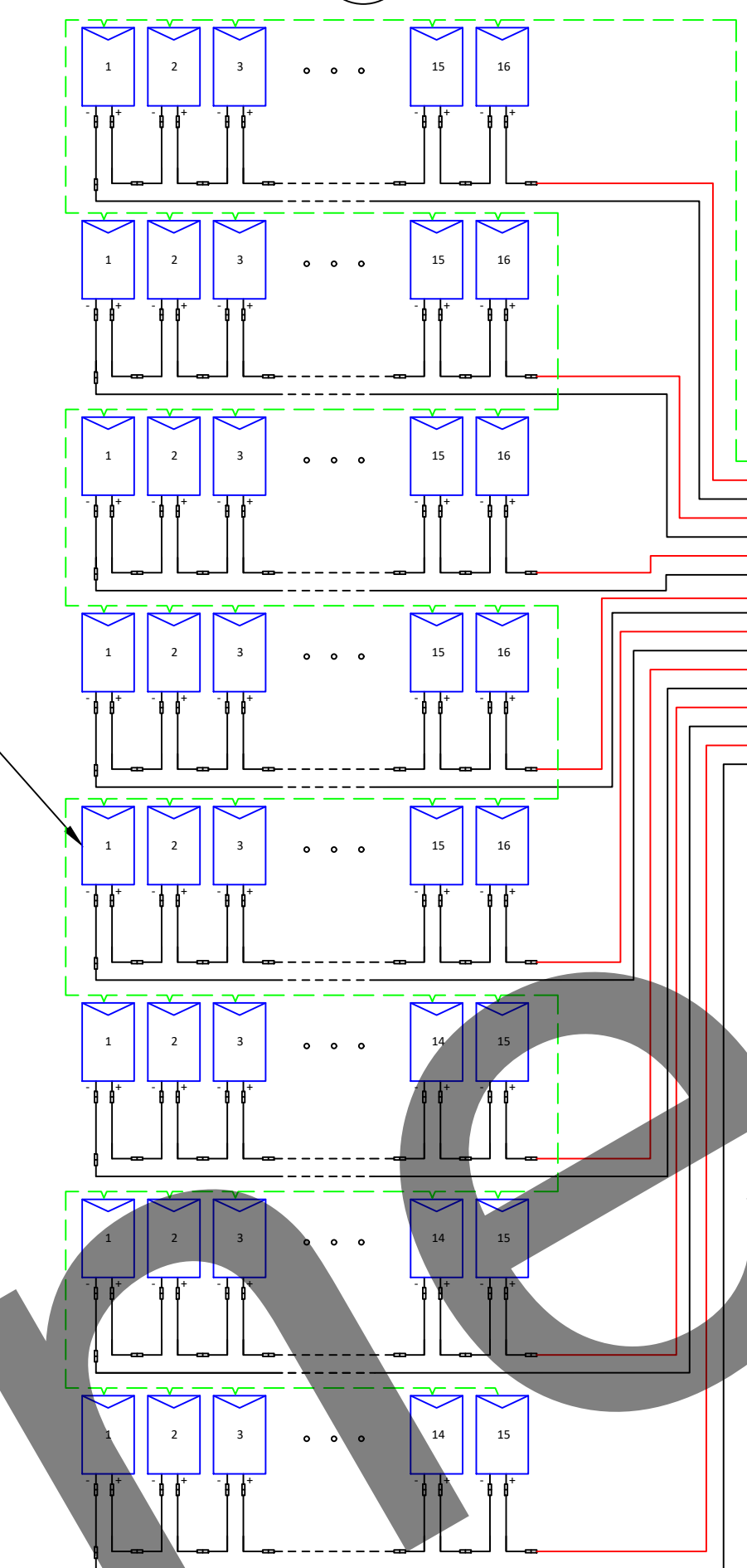
(JB07) SOLAR4AMERICA S4A535-144MH10 MODULES
5 STRINGS OF 16 MODULES & 3 STRINGS OF 15 MODULES



JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

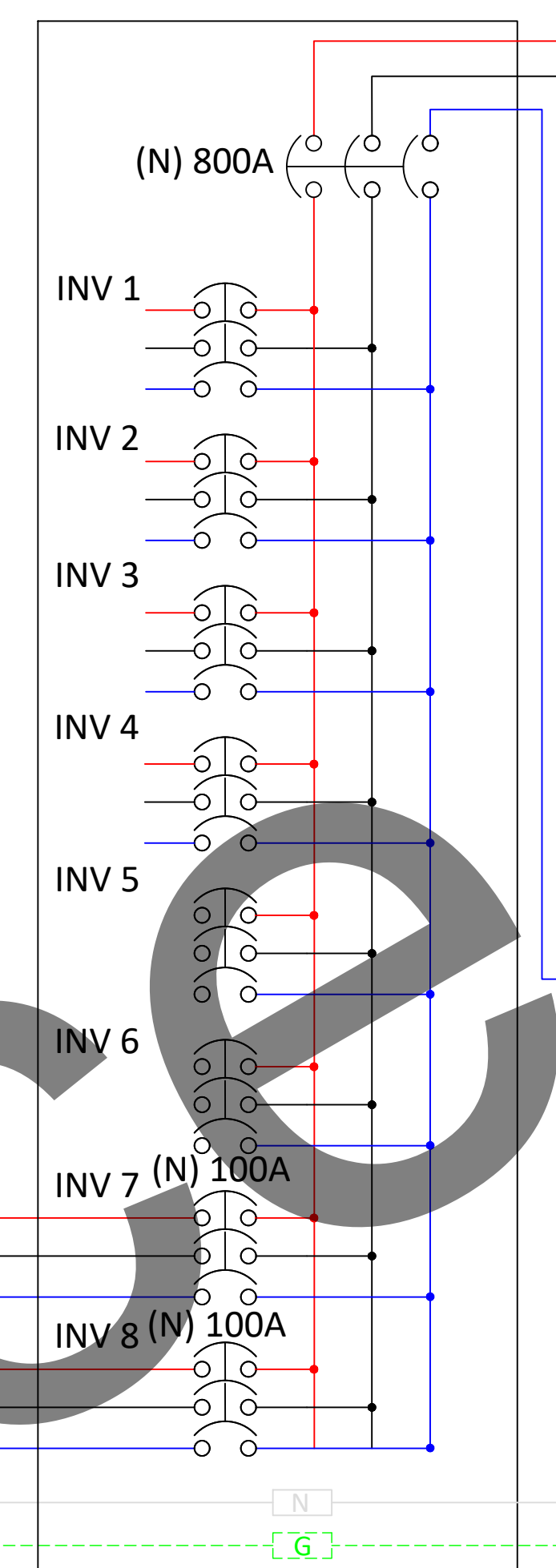


JUNCTION BOX
600V, NEMA 3R,
UL LISTED

DC DISCONNECT,
150A NON FUSED
NEMA3R, UL LISTED

CHINT CPS SCA60KTL-DO/US-480
INVERTER 98.5% CEC EFFICIENCY @
480VAC 60000WAC CONTINUOUS
MAXIMUM OUTPUT CURRENT
72.2A GROUND-FAULT PROTECTION
PROVIDED PER NEC ARTICLE 690.35

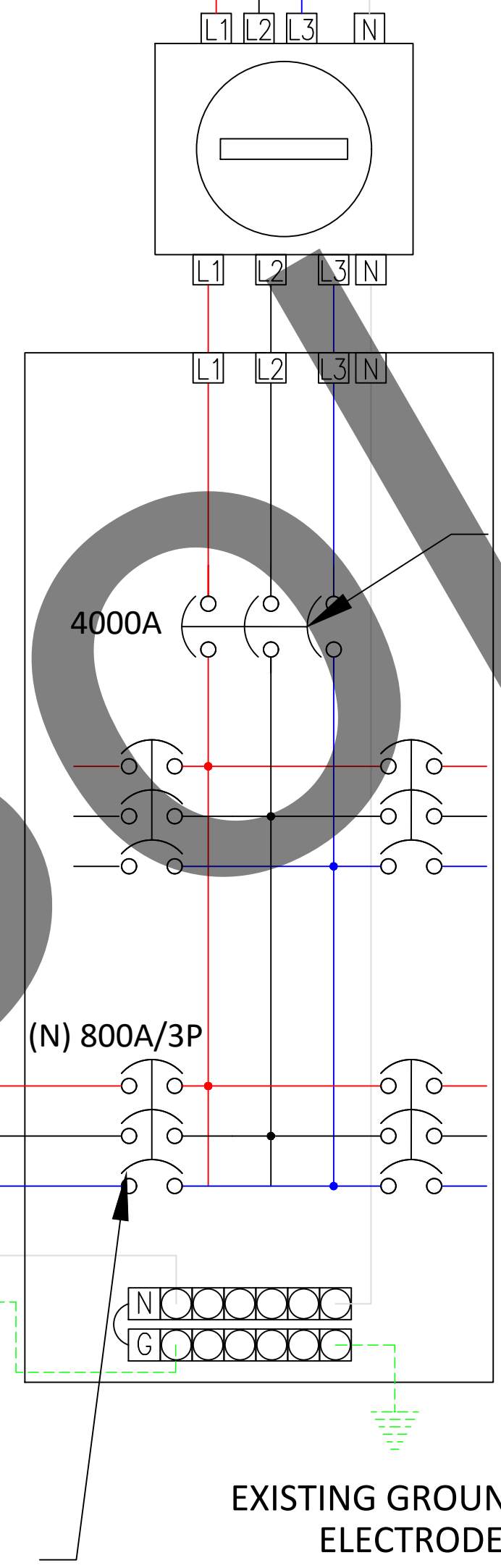
LOAD CENTER, 800A
RATED, 480V, 3-P, 4-W,
NEMA 3R, UL LISTED



AC DISCONNECT
1000A NON FUSED, 480V,
NEMA 3R, UL LISTED

POINT OF INTERCONNECT,
800A LOAD SIDE BREAKER

TO UTILITY GRID



(E) 4000A MAIN BREAKER
TO HOUSE, 480V

(E) 480V/4000A BUS BAR
RATING, METER-MAIN
ATTACH SERVICE PANEL,
THREE PHASE, WITH A
4000A MAIN DISCONNECT
UTILITY COMPANY -
BI-DIRECTIONAL
UTILITY METER#

EXISTING GROUNDING
ELECTRODE

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

E-1.3
SHEET NAME
ELECTRICAL
DIAGRAM
SHEET INFORMATION

[DC] SYSTEM SIZE	[AC] SYSTEM SIZE
NO. OF MODULES x PEAK POWER	NO. OF INVERTERS x PEAK CONTINUOUS POWER
(999) MODULES x 535W	(8) INVERTERS x 60000W
534.47 kW	480.00 kW

120% RULE CEC 705.12 (B)(2)(3)(b)
(BUS BAR RATING X 120%) - MAIN BREAKER RATING = MAX. PV OCPD
(4000A x 120%) - 4000A = 800A
INSTALLED PV BREAKER = 800A

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	SOLAR4AMERICA S4A535-144MH10
VMP	41.48V
IMP	12.90A
VOC	49.46V
ISC	13.79A
TEMP. COEFF. VOC	-0.26 %/°C
MODULE DIMENSION	89.72" (L) x 44.64" (W)
PANEL WATTAGE	535W

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-22°C
AMBIENT TEMP (HIGH TEMP 2%)	34°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	56°C
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.26 %/°C

EQUIPMENT DETAILS	
(#) PV MODULES	(999) SOLAR4AMERICA S4A535-144MH10
(#) MICROINVERTERS	(8) CHINT CPS SCA60KTL-DO/US-480
OUTPUT CURRENT	577.60A
BRANCH CIRCUIT	39 STRINGS OF 16 MODULES & 25 STRINGS OF 15 MODULES
POINT OF INTERCONNECTION	800A LOAD SIDE BREAKER IN THE MAIN SERVICE PANEL WITH 4000A MAIN BREAKER, 4000A BUSBAR AND 120/480V, 4W, 3φ
UTILITY AHJ	--- GARFIELD COUNTY

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	CHINT CPS SCA60KTL-DO/US-480
NOMINAL OUTPUT VOLTAGE	480VAC
CONTINUOUS OUTPUT CURRENT	72.2A

ID	CONDUCTOR		CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	CONDUIT FILL PERCENT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT			MAX CURRENT	BASE AMP.	DERATED AMP.	LENGTH	VOLTAGE DROP	
A1	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	149FT	1.12%
A2	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	158FT	1.19%
A3	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	204FT	1.54%
A4	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	159FT	1.20%
A5	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	183FT	1.38%
A6	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	140FT	1.06%
A7	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	240FT	1.81%
A8	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG BARE COPPER	0.71 (56°C)	N/A	13.79A	x	1.25	=	17.24A	N/A	N/A	306FT	2.31%
B1	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	170FT	1.62%
B2	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	291FT	2.77%
B3	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	424FT	4.04%
B4	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	374FT	3.56%
B5	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	259FT	2.47%
B6	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	91FT	0.87%
B7	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	248FT	2.36%
B8	6 AWG	THWN-2 COPPER	MIN 1" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	146FT	1.39%
C	6 AWG	THWN-2 COPPER	MIN 0.75" Dia EMT	3	6	39.44%	N/A	8 AWG THWN-2, COPPER	0.96 (34°C)	0.8	41.37A	x	1.25	=	51.71A	75A	75A x0.8x 0.96 = 57.6A	5FT	0.05%
D	3 AWG	THWN-2 COPPER	MIN 1.25" Dia EMT	1	4	31.43%	100A	8 AWG THWN-2, COPPER	0.96 (34°C)	1	72.2A	x	1.25	=	90.3A	115A	115A x1x 0.96 = 110.4A	10FT	0.09%
E	800 KCMIL	THWN-2 COPPER	MIN 5" Dia EMT	2	8	38.86%	N/A	3 AWG THWN-2, COPPER	0.96 (34°C)	0.7	288.8A	x	1.25	=	361.0A	555A	555A x0.7x 0.96 = 372.9A	5FT	0.03%
F	800 KCMIL	THWN-2 COPPER	MIN 5" Dia EMT	2	8	38.86%	800A	3 AWG THWN-2, COPPER	0.96 (34°C)	0.7	288.8A	x	1.25	=	361.0A	555A	555A x0.7x 0.96 = 372.9A	5FT	0.03%

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO	
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#	REVISION/UPDATE	DATE

SIGNED & STAMP BY	
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E-2
SHEET NAME
ELECTRICAL CALCULATION
SHEET INFORMATION

1

! WARNING

ELECTRIC SHOCK HAZARD

**DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION**

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONNECT/INVERTER/
AC COMBINER
2020 CEC 690.13(B)

2

! WARNING

ELECTRIC SHOCK HAZARD

**IF GROUND FAULT IS INDICATED
ALL NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUND AND ENERGIZED**

LABEL LOCATION:
INVERTER(S), ENPHASE ENVOY ENCLOSURE (IF
APPLICABLE).
PER CODE(S): CEC 2020: 690.5(C)

3

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT 577.60A

NOMINAL OPERATING AC VOLTAGE 480 VAC

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONNECT
2020 CEC 690.53

4

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM**

LABEL LOCATION:
INVERTER
AT OR WITHIN 3' OF THE DC COMBINER
SWITCH
2020 CEC 690.56(C)(3)

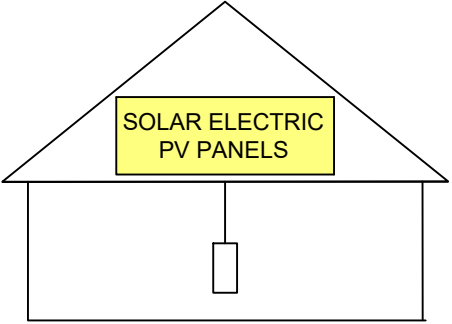
ADHESIVE FASTENED SIGNS:

- LABELS SHALL BE MADE OF RED PLASTIC MATERIAL WITH ENGRAVED WHITE LETTERS.
- LETTERS SHALL BE A MINIMUM 3/8" IN SIZE.
- THE LABELS SHALL BE PERMANENTLY ATTACHED TO THE APPROPRIATE PANEL.
- AC & DC CONDUIT, RACEWAY, ENCLOSURES, CABLE ASSEMBLIES AND JUNCTION BOXES SHALL BE RED BACKGROUND MATERIAL WITH WHITE LETTERING MADE OF DURABLE ADHESIVE, REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT PER UL 969; TO ALERT FIRE SERVICE TO AVOID CUTTING THEM OFF.

5

**SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN**

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



LABEL LOCATION:
MAIN SERVICE PANEL
IF MSD IS OUTSIDE PLACE IT THERE / IF
MSD IS INSIDE PLACE ON THE AC DISCONNECT
2020 CEC 690.56(C)(1)(a)

6

! WARNING

**PHOTOVOLTAIC SYSTEM
COMBINER PANEL**

DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).
PER CODE(S): CEC 2020: 705.12(B)(2)(3)(c)

7

**PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH**

LABEL LOCATION:
AC DISCONNECT
2020 CEC 690.54

8

! CAUTION

**DUAL POWER SOURCE
SECOND SOURCE US
PHOTOVOLTAIC**

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONNECT/AC COMBINER/
REVENUE METER
2020 CEC 705.12(D)(3)

Solar

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

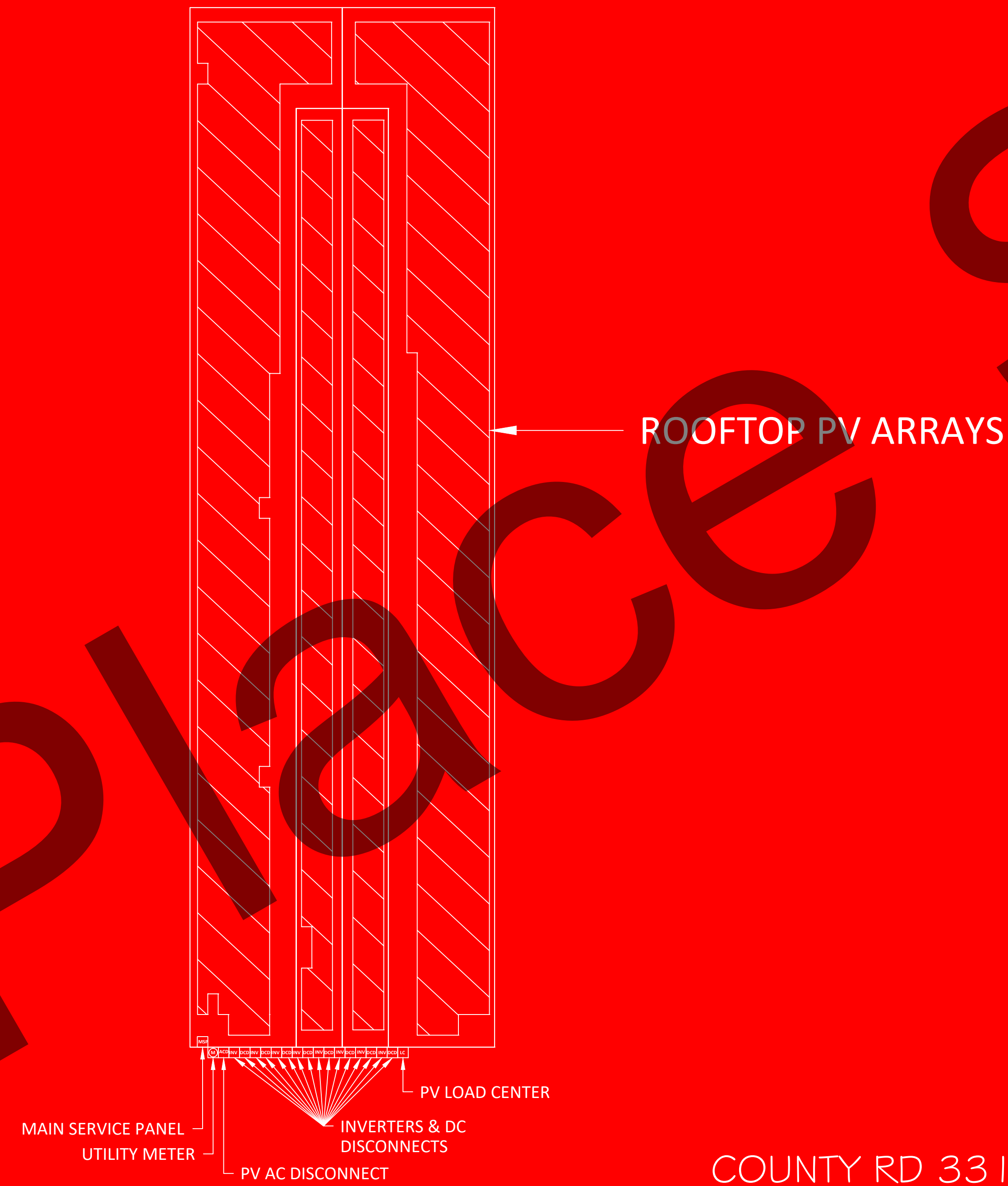
SIGNED & STAMP BY

E-3
SHEET NAME
PLACARDS
SHEET INFORMATION



CAUTION!

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



COUNTY RD 33 I

LABEL LOCATION:
EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED

DATE	
PROJECT ID	
CREATED BY	RK
CHECKED BY	BR
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

SIGNED & STAMP BY

E-4
SHEET NAME

CAUTION LABEL

SHEET INFORMATION



S4A550-144MH10

550W

144 Half-cut Bifacial
Transparent Back Sheet
10BB Mono Perc



530W-550W



America's Solution for
Quality, Performance,
and Reliability.

Our products are manufactured locally in the US,
under the highest quality standards.

- 10BB Half-Cut Cell Technology**
Efficient circuit design, lower internal current, lower RS loss, GA doped wafer
- Significantly Lower Risk of Hot Spot**
Special circuit design with much lower hot spot temperature
- Excellent Anti-PID Performance**
2X industry standard Anti-PID
- Lower LCOE**
2% more power generation
- IP68 Junction Box**
High waterproof level

Solar4America Technology Inc.
4803 Urbani Ave, McClellan Park, CA 95652, USA
916-671-5606

www.solar4america.com
PVsales@solar4america.com

*Subject to warranty terms and conditions

MODULE EFFICIENCY

21.3%

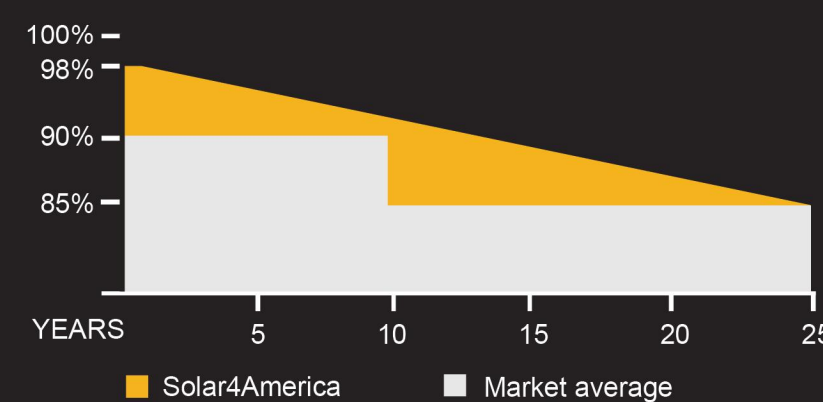
HIGH POWER OUTPUT

550W



Linear Power
WARRANTY

0.55% year 2-25
Annual Degradation



Solar4America Technology Inc. is headquartered and has module production facilities in Sacramento, California. Our S4A branded product line offers high quality, exceptional performance, and great value to our customers. Our state-of-the-art manufacturing facility uses industry-leading automated production equipment to optimize product performance and quality.

S4A550-144MH10

144 Half-cut Cell | 10BB Mono Perc | Transparent Back Sheet

Rev: 01/17/2023

ELECTRICAL PARAMETERS

Module Type	S4A530		S4A535		S4A540		S4A545		S4A550	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power - Pmax (W)	530	395	535	398	540	402	545	406	550	410
Maximum Power Voltage - Vmpp (V)	41.32	38.6	41.48	38.7	41.64	38.8	41.80	39.0	41.96	39.1
Maximum Power Current - Imp (A)	12.83	10.24	12.90	10.30	12.97	10.36	13.04	10.41	13.11	10.47
Open Circuit Voltage - Voc (V)	49.32	46.4	49.46	46.5	49.60	46.7	49.76	46.8	49.92	47.0
Short Circuit Current - Isc (A)	13.72	11.06	13.79	11.12	13.86	11.17	13.93	11.23	14.00	11.28
Module Efficiency	20.50%		20.70%		20.90%		21.10%		21.30%	

STC: irradiance 1,000 W/m²; Spectra at AM 1.5; module temperature 25°C. Power output tolerance: 0→+5W. Measuring tolerance of power: ±3%
NMOT: irradiance 800 W/m²; Spectra at AM 1.5; Cell temperature 45°C; Ambient temperature 20°C. Wind speed 1m/s

BIFACIAL REAR SIDE POWER GAIN

Electrical characteristics with different rear side power gain for reference to 550W front.

Module	Bifaciality: 70±5%				
	Maximum Power	Pmax Gain	Voc/V	Isc/A	Vmp/V
578W	5%	49.92	14.70	41.96	13.77
605W	10%	49.92	15.40	41.96	14.42
633W	15%	49.92	16.10	41.96	15.08
660W	20%	49.92	16.80	41.96	15.73
688W	25%	49.92	17.50	41.96	16.39

Bifacial gain: the additional gain from the rear side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle, etc.) and albedo of the ground.

TEMPERATURE CHARACTERISTICS

NMOT	43°C (±2°C)
Temperature Coefficient of Pmax	-0.35%/°C
Temperature Coefficient of Isc	+0.048%/°C
Temperature Coefficient of Voc	-0.26%/°C

MATERIAL CHARACTERISTICS

Dimensions	2279×1134×35mm (L×W×H)
Weight	28kg
Frame	Silver anodized aluminum alloy
Glass	3.2 mm coated tempered glass
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Back Sheet	Transparent
Solar Cells	144(6×24) monocrystalline (182mm×91mm)
Junction Box	IP68, 3 bypass diodes
Cable & Connector	Length 1400mm, 1x4mm ² / MC4 and MC4 Compatible

MAXIMUM RATINGS

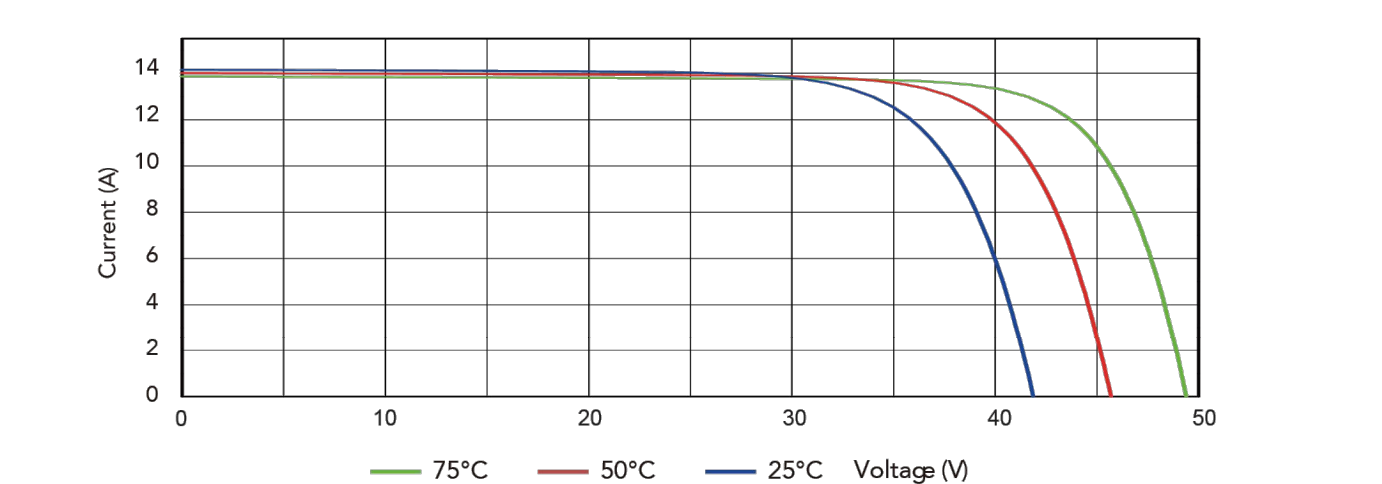
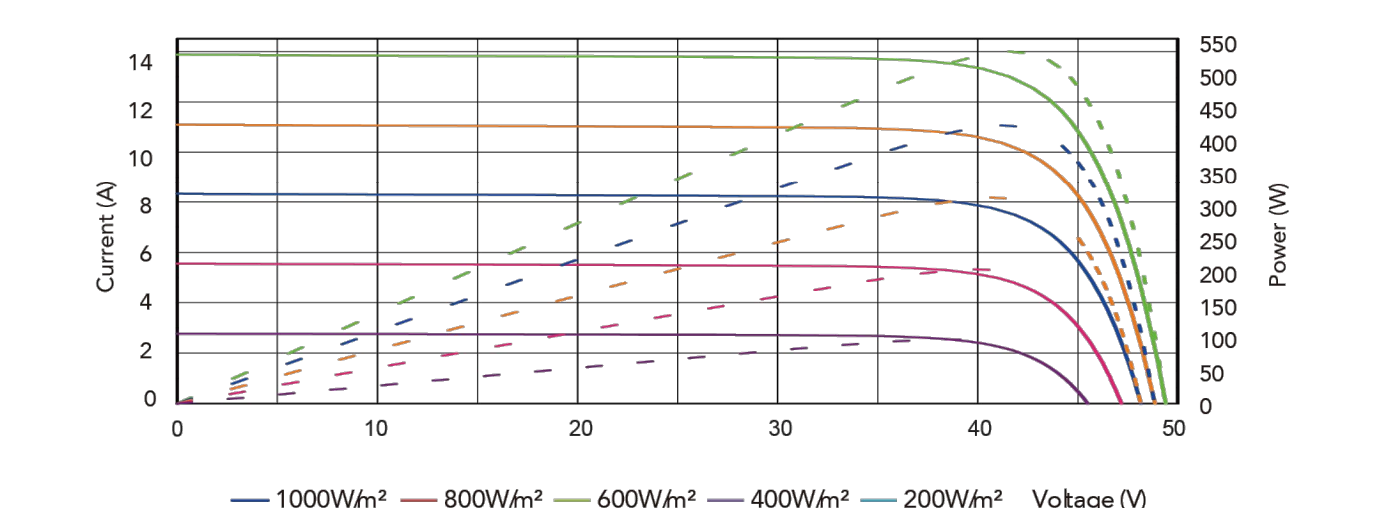
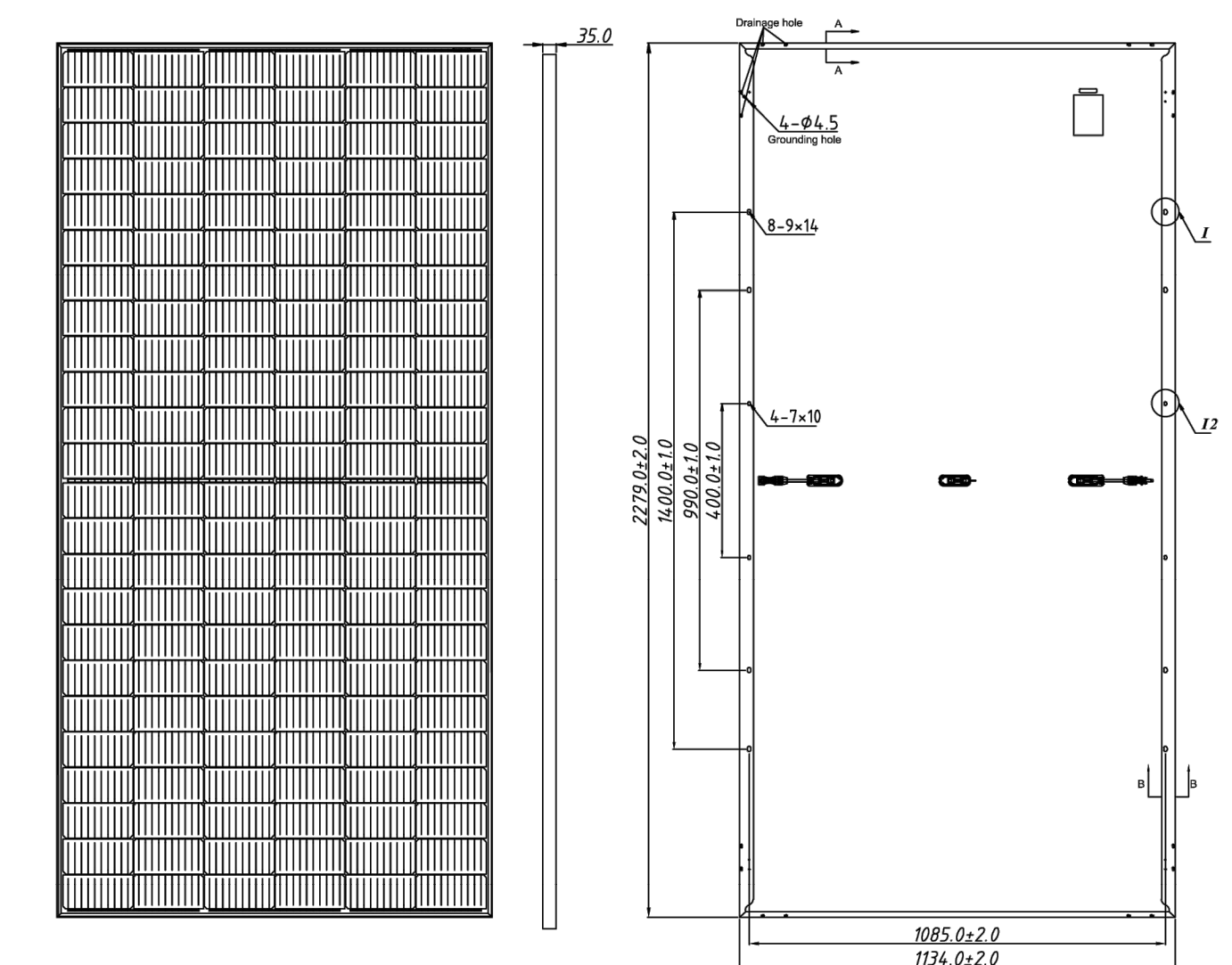
Maximum System Voltage (V)	1500
Series Fuse Rating (A)	25

PACKAGING

Pallet Dimensions	2304x1130x1247mm
Pallet Quantity	31 Modules
Truck (53') Quantity	744 Modules

SYSTEM DESIGN

Temperature Range	-40°C to +85°C
Mechanical Load Front	5,400 Pa
Mechanical Load Back	2,400 Pa
Safety Protection Class	Class II



50/60 kW, 1000 Vdc String Inverters for North America

The 50 & 60 kW (55 & 66 kVA) medium-power CPS three-phase string inverters are designed for ground mount, large rooftop and carport applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.8% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications.

The CPS 50/60KTL products ship with either the Standard Wire-box or the Rapid Shutdown Wire-box, each fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown Wire-box enables PVRSS certified module-level rapid shutdown when used with APS RSD-S-PLC/RSD-D products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

Key Features

- NEC 2017/2020 PVRSS certified for rapid shutdown
- 55 & 66 kVA rating allows max rated active power @ ±0.91 PF
- Selectable max AC apparent power of 50/55 kVA and 60/66 kVA
- NEC compliant and UL listed arc-fault circuit protection
- 15-90° mounting orientation for low profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 3 MPPTs with 5 inputs each for maximum flexibility
- NEMA Type 4X outdoor rated enclosure
- UL 1741-SA certified to CA Rule 21, including SA8 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions up to 20 years



CPS SCA50KTL-DO/US-480
CPS SCA60KTL-DO/US-480



50/60KTL Standard Wire-box

50/60KTL Rapid Shutdown Wire-box

Model Name	CPS SCA50KTL-DO/US-480	CPS SCA60KTL-DO/US-480
DC Input		
Max. PV power	90 kW (33 kW per MPPT)	
Max. DC input voltage	1000 Vdc	
Operating DC input voltage range	200-950 Vdc	
Start-up DC input voltage / power	330 V / 80 W	
Number of MPP trackers	3	
MPPT voltage range @ PF>0.99	480-850 Vdc	540-850 Vdc
Max. PV short-circuit current (Isc x 1.25)	204 A (68 A per MPPT)	
Number of DC inputs	15 inputs, 5 per MPPT	
DC disconnection type	Load-rated DC switch	
DC surge protection	Type II MOV	
AC Output		
Rated AC output power @ PF>0.99 to ±0.91 ¹	50 kW	60 kW
Max. AC apparent power (selectable)	50 / 55 kVA	60 / 66 kVA
Rated output voltage	480 Vac	
Output voltage range ²	422 - 528 Vac	
Grid connection type	3Ø/PE/N (Neutral optional)	
Max. AC output current @ 480 Vac	60.2 / 66.2 A	72.2 / 79.4 A
Rated output frequency	60 Hz	
Output frequency range ²	57 - 63 Hz	
Power factor	>0.99 (±0.8 adjustable)	
Current THD @ rated load	<3%	
Max. fault current contribution (1 cycle RMS)	64.1 A (1.06/0.88 PU)	
Max. OCPD rating	110 A	125 A
AC disconnection type	Load-break rated AC switch	
AC surge protection	Type II MOV	
System and Performance		
Topology	Transformerless	
Max. efficiency	98.8%	
CEC efficiency	98.5%	
Stand-by / night consumption	<1 W	
Environment		
Enclosure protection degree	NEMA Type 4X	
Cooling method	Variable speed cooling fans	
Operating temperature range ³	-22°F to +140°F / -30°C to +60°C	
Non-operating temperature range ⁴	No low temp minimum to +158°F / +70°C maximum	
Operating humidity	0 to 100%	
Operating altitude	13123 ft / 4000 m (derating from 9843 ft / 3000 m)	
Audible noise	<60 dBA @ 1 m and 25°C	
Display and Communication		
User interface and display	LCD+LED	
Inverter monitoring	SunSpec, Modbus RS485	
Site-level monitoring	CPS FlexOM Gateway (1 per 32 Inverters)	
Modbus data mapping	CPS	
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (H x W x D)	39.4 x 23.6 x 10.24 in (1000 x 600 x 260 mm)	
Weight	Inverter: 123.5 lbs (56 kg); Wire-box: 33 lbs (15 kg)	
Mounting / installation angle ⁵	15 to 90 degrees from horizontal (vertical or angled)	
AC termination	M8 stud type terminal block (wire range: #6 - 3/0 AWG CU/AL; lugs not supplied)	
DC termination ⁶	Screw clamp, neg. busbar (RSD version ⁶) wire range: #14 - #6 AWG CU	
Fused string inputs (5 per MPPT) ⁷	RSD ⁶ and Standard Wire-box: 20 A fuses provided (fuse values up to 30 A acceptable)	
Safety		
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 1699B, UL 1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC PART15	
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018 ⁸ , CA Rule 21, ISO-NE, HECO	
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt	
Warranty		
Standard	10 years	
Extended terms	15 and 20 years	

1) Active power derating begins at PF = ±0.91 to ±0.80 when max AC apparent power is set to 55 or 66 kVA.
 2) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
 3) Active power derating begins at 40°C when PF = ±0.9 and MPPT≥V_{min}; at 45°C when PF = 1 and MPPT≥V_{min}; and at 50°C when PF = 1 and MPPT≥700Vdc.
 4) See user manual for further requirements regarding non-operating conditions.
 5) Shade cover accessory required for installation angles of 75 degrees or less.
 6) RSD wire-box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020.
 7) Fuse values above 20 A have additional spacing requirements or require the use of the Y-Comb Terminal Block. See user manual for more details.
 8) Firmware version 17.0 or later required.



THE SEAM CLAMPS

TMDS08 double seam clamp

Penetration-free fastening on the handcrafted double lock standing seam, optimum form fit due to convex/concave preformed fixing screws.

TMM08 Angle and Snap Seam Clamp

Penetration-free fastening on the craftsman angled standing seam and snap seam profiles such as Nordic Klickfalz®, etc. Optimum form fit due to convex/concave preformed fixing screws.

TMR08 round seam clamp

Penetration-free fastening to round seam roofs n like BEMO®, Kalzip®, Aluform®4 or RIB-ROOF Evolution®5. Optimal form fit thanks to convex/concave preformed fixing screws.

TMRD08 sliding fold seam clamp small

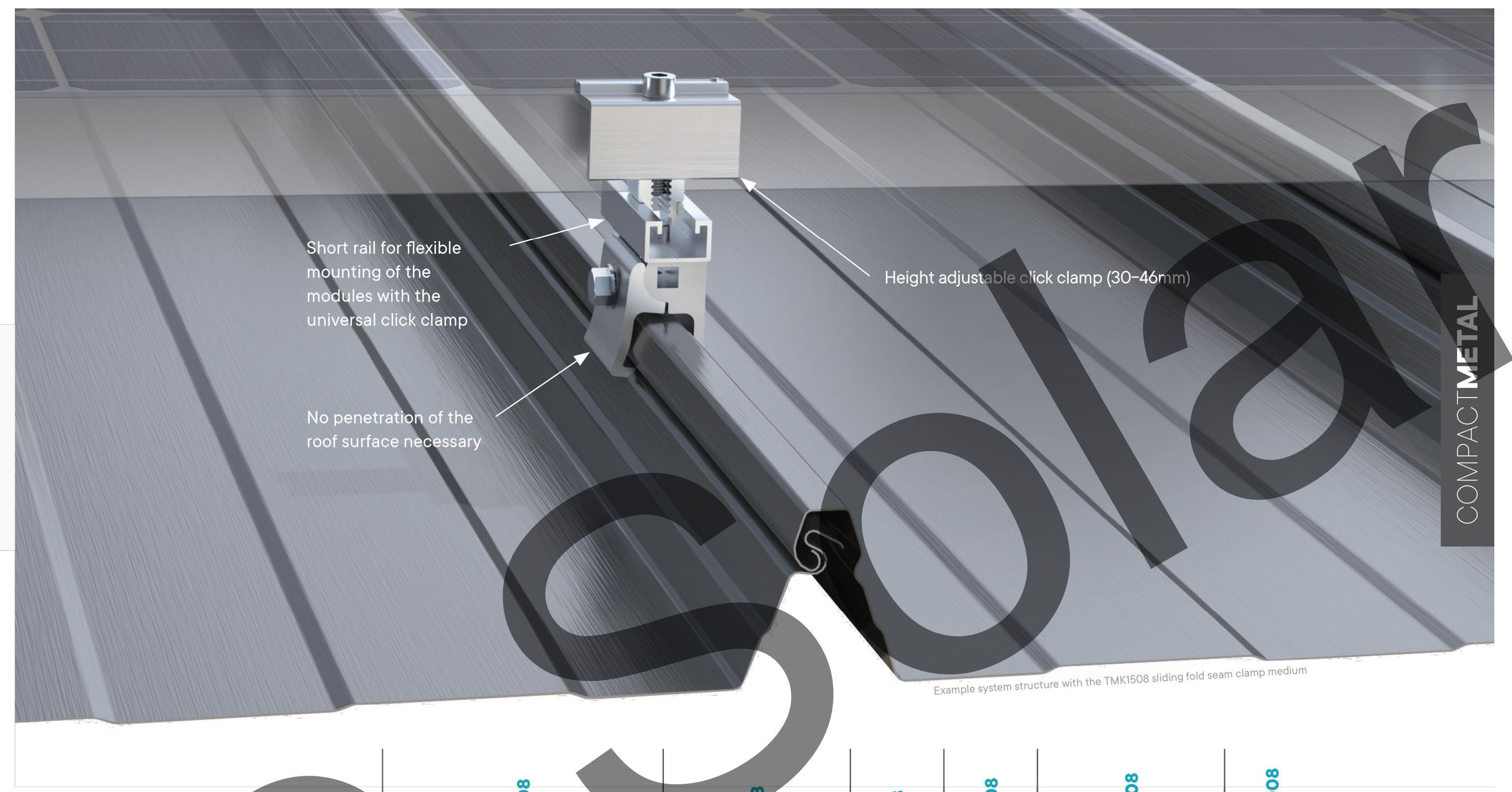
Two-piece and form-fitting clamp, especially designed for system sliding fold seam roofs such as RIB-ROOF 465® and GBS®.

TMK1508 sliding fold seam clamp medium

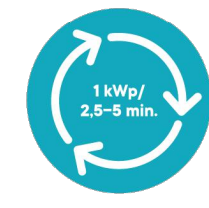
Two-piece and form-fitting clamp, especially designed for system sliding fold seam roofs such as Domitec®, KLIP-LOK 406®, SAFLOK 410®, etc.

TMK2008 sliding fold seam clamp large

Two-piece and form-fitting clamp, especially designed for system sliding fold seam roofs such as KLIP-LOK 980 Optima®, KLIP-LOK 700®, WeatherClip 655®, Weather-Clip 700®, etc.



		TMDS08		TMM08		TMR08	TMRD08	TMK1508	TMK2008	
Max. pressure [kN]	1,5	1,5	2,97	1,5	2,54	2,38	1,5	1,5	1,75	2,36
Max. shear force [kN]	1,94	1,53	1,56	1,94	2,24	2,69	0,8	0,41	0,59	0,43
Max. pull [kN]	0,97	1,33	2,97	0,97	2,54	2,38	1,16	1,29	1,75	2,36
Tested on	Prefalz® roof, 0,7 mm, aluminum	Rheinzink® roof, 0,7 mm, titanium zinc	600LMR® roof, 0,66 mm, galvanised steel	Handcrafted angle seam roof, 0,7 mm, aluminum	Nordic Klick Falz® roof, 0,6 mm, galvanised steel	RIB-ROOF Evolution® roof, 0,8 mm, aluminum	GBS® roof, 0,8 mm, aluminum	Domitec® roof, 0,5 mm, aluminum	KLIP-LOK 406® roof, 0,5 mm, galvanised steel	KLIP-LOK 980® roof, 0,5 mm, galvanised steel
a [mm]		7		14		24	8	15		20
b [mm]		14,5		24		36	16	23		23
c [mm]		9		-		-	12	22,5		26



DSA10 Stainless steel saddle

The stainless steel saddle enables the TM standing seam series to be used on copper roofs. It prevents direct contact between the aluminum of the clamps and the copper of the covering and thus prevents electrochemical corrosion.

Portrait Mode with X rail

The installation of modules in portrait mode (portrait format) is easily possible using the X40 / 50 mounting rail from the CompactPITCH modular system. The rail is attached directly to the standing seam clamp with the XPN cross connector provided for this purpose. This variant can be planned in AeroTOOL.

