

ROOF MOUNT SOLAR PERMIT PACKAGE

40.50KW GRID TIED PHOTOVOLTAIC SYSTEM

PV SYSTEM SUMMARY:

SYSTEM SIZE :	STC: 450 x 90 = 40.50kW DC, 33.0kW AC PTC: 412.62 x 90 = 37.14kW DC, CEC = 29.25kW AC
MODULE:	(90) TALESUN BISTAR TP6L72M/450 450W
INVERTER:	(01) SMA STP33-US-41 INVERTERS
RACKING:	AEROCOMPACT BALLASTED SYSTEM
MSP:	EXISTING 800A WITH 800A MAIN BREAKER
UTILITY:	N/A

GENERAL NOTE:

- ALL WORK SHALL COMPLY WITH 2019 CALIFORNIA ELECTRICAL CODE, 2019 CALIFORNIA BUILDING CODE, MUNICIPAL CODE AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.
- PHOTOVOLTAIC SYSTEM WILL COMPLY WITH 2019 CALIFORNIA ELECTRIC CODE.
- ELECTRICAL SYSTEM GROUNDING WILL COMPLY WITH 2019 CALIFORNIA ELECTRIC CODE.
- PHOTOVOLTAIC SYSTEM IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.35.
- MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
- INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.
- RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
- RAPID SHUTDOWN REQUIREMENTS MET WHEN INVERTERS AND ALL CONDUCTORS ARE WITHIN ARRAY BOUNDARIES PER NEC 690.12(1).
- CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(G).
- ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT.
- 11.54 AMPS MODULE SHORT CIRCUIT CURRENT.
- 18.00 AMPS DERATED SHORT CIRCUIT CURRENT [690.8 (a) & 690.8 (b)].

CODE INFORMATION

THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC SYSTEMS SHALL COMPLY WITH THE FOLLOWING

2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA RESIDENTIAL CODE
2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA GREEN BUILDING STANDARDS
2019 CALIFORNIA ENERGY CODE
2019 CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA PLUMBING CODE

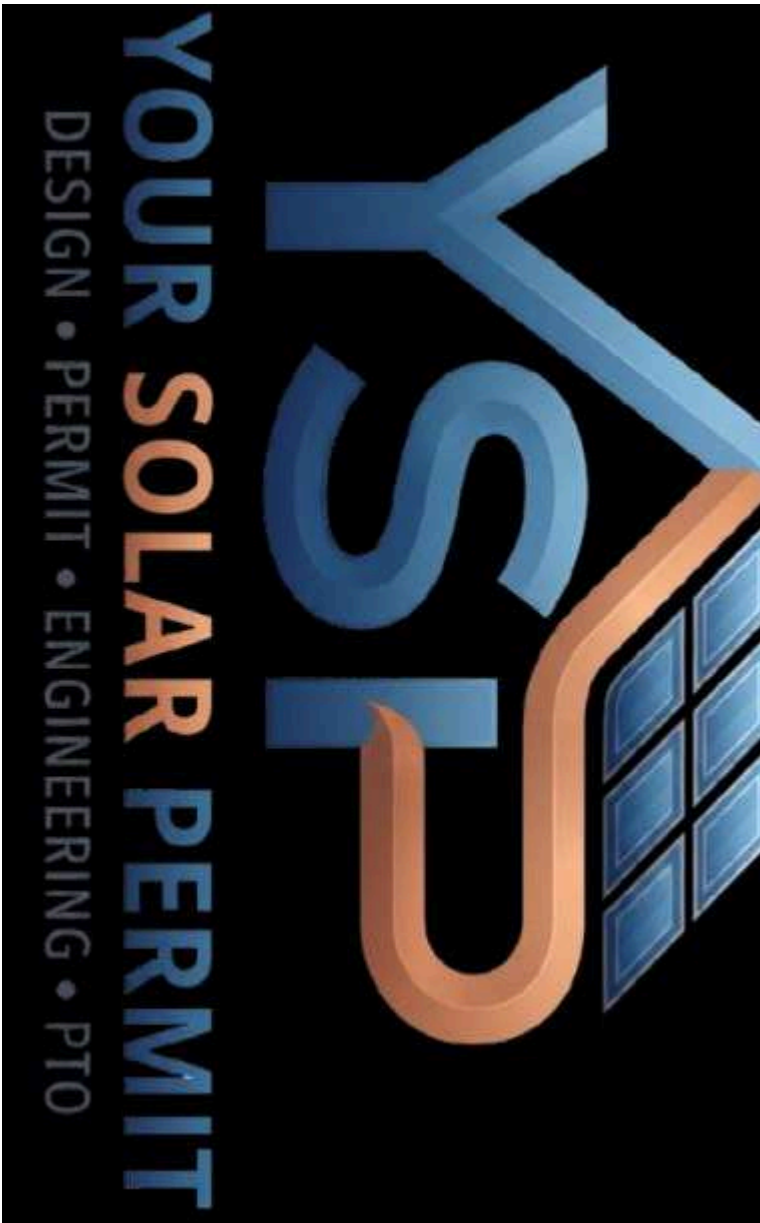
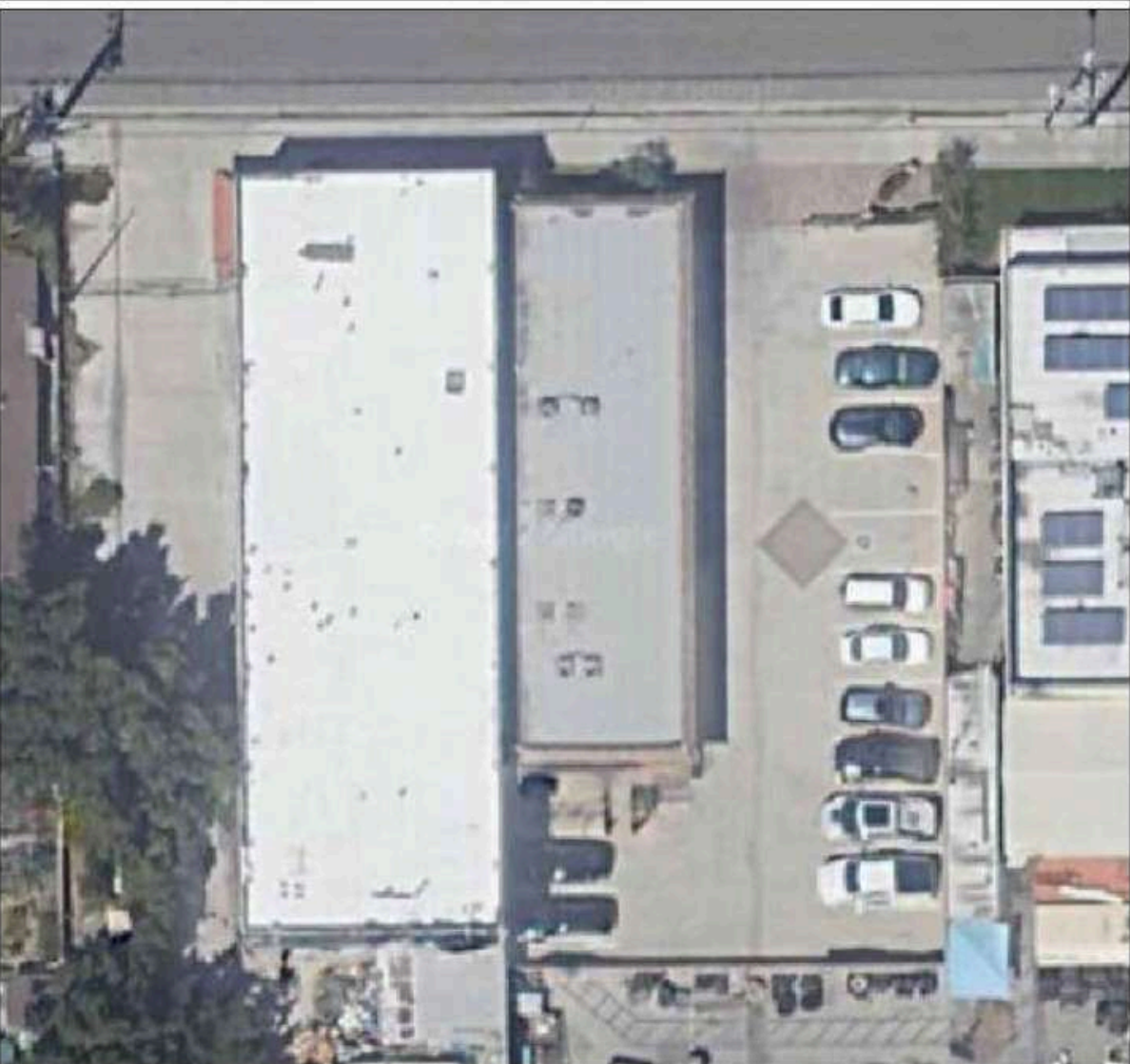
BUILDING INFOR

2 STORY BUILDING
ROOF: FLAT TPO ROOF
APN: N/A
PROPERTY TYPE: COMMERCIAL

SHEET INDEX

PV-1.0	COVER SHEET
PV-2.0	SITE PLAN
PV-3.0	ARRAY LAYOUT & ATTACHM
PV-3.1	STRING LAYOUT
PV-3.2	BALLAST DETAIL
PV-4.0	ATTACHMENT DETAIL
PV-5.0	SINGLE LINE DIAGRAM
PV-6.0	SIGNAGE
PV-7.0 +	SPEC. SHEETS

AERIAL VIEW



LEGENDS:

48" ACCESS PATHWAYS

A

MAIN SERVICE PANEL

B

UTILITY METER

C

AC DISCONNECT

D

JUNCTION BOX

E

INVERTER ON ROOF

F

SOLAREDGE OPTIMIZER

G

400A DP 3P 120/208V

PARKING

FENCE

GATE

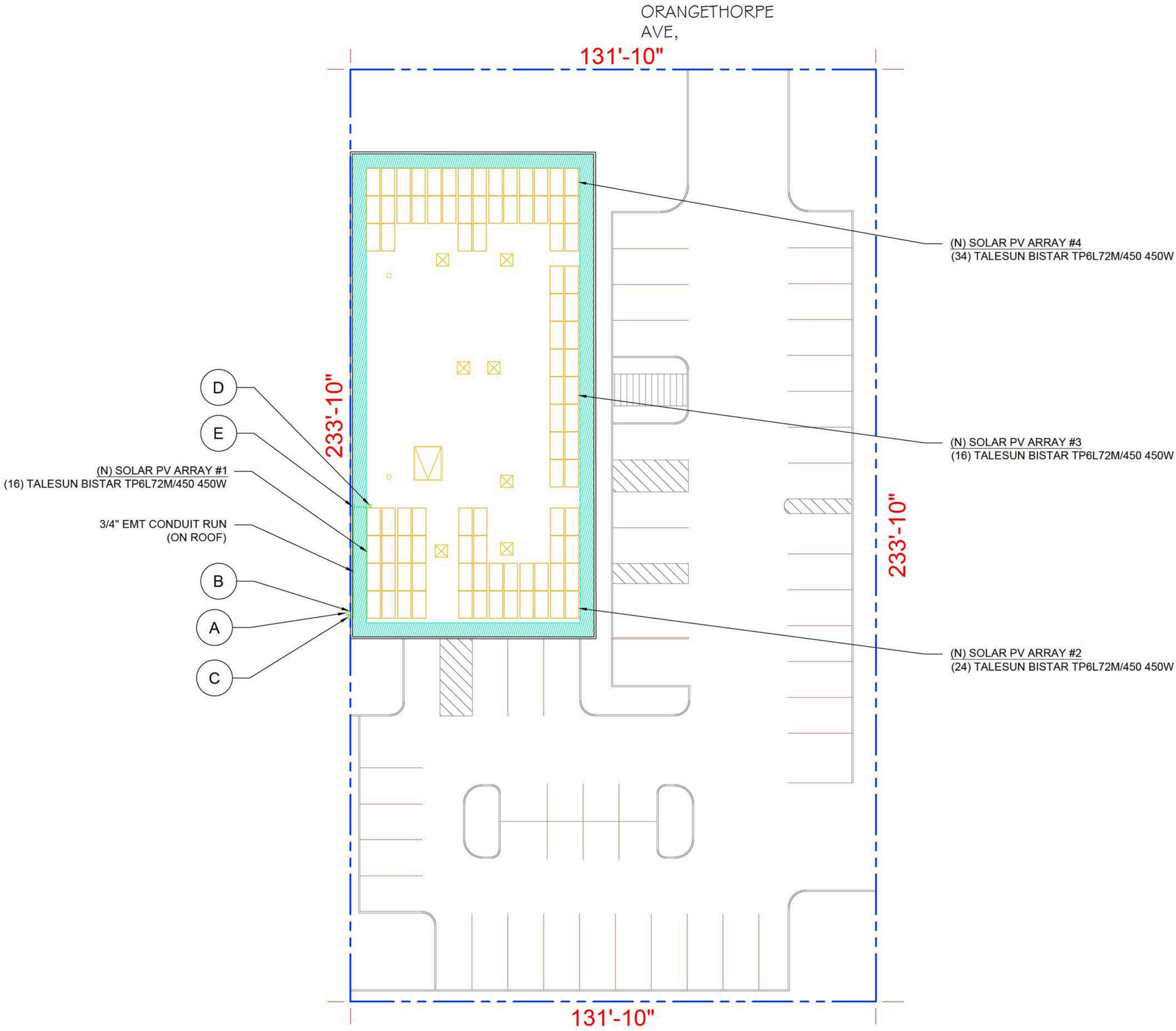
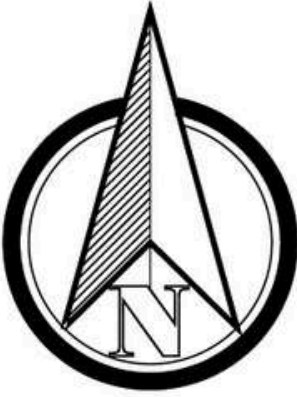
PROPERTY

DRIVE WAY

ROOF ACCESS POINT:
ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENING SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINT OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES, OR SIGNS

NOTE:

- THE AUXILIARY GROUNDING ELECTRODE CONDUCTOR SHALL BE CONNECTED DIRECTLY TO THE ELECTRODE GROUNDING AT THE SERVICE.
- A 36-INCH WIDE PATHWAY SHALL BE PROVIDED TO THE EMERGENCY ESCAPE AND RESCUE OPENING.



1 SITE PLAN
SCALE: 1/16" = 1'-0"

CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME
SITE PLAN

SHEET SIZE
24" X 36"

SHEET NUMBER
PV-2.0

MODULE TYPE, DIMENSIONS & WEIGHT
NUMBER OF MODULES = 90 MODULES
MODULE TYPE = TALESUN BISTAR TP6L72M/450 450W
MODULE WEIGHT = 51.81 LBS / 23.5 KG.
MODULE DIMENSIONS = 82.44"x 40.87" = 23.39 SF
UNIT WEIGHT OF ARRAY = 2.21 PSF

ORANGETHORPE AVE,
(E) FRONT YARD

ARRAY AREA				
ARRAY	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	16	374.24	430.55	86.92
#2	24	561.36	646.57	86.82
#3	16	374.24	433.49	86.33
#4	34	795.26	913.89	87.02

ROOF DESCRIPTION		
ROOF TYPE - FLAT ROOF		
ROOF	ARRAY TILT	AZIMUTH
#1	10.0°	270° - 90°
#2	10.0°	270° - 90°
#3	10.0°	270° - 90°
#4	10.0°	270° - 90°

CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME
ARRAY LAYOUT &
ATTACHMENT DETAILS

SHEET SIZE

24" X 36"

SHEET NUMBER

PV-3.0

- Aerocompact 2.1 + Connector short
- Aerocompact 2.1 + Middle Bracket
- BT-880 Ballast tray short 880mm (34.6")
- BT-2130 Ballastwanne lang 2300mm
- Aerocompact 2.1 S10/+ Frontbracket

(N) SOLAR PV ARRAY #1
(16) TALESUN BISTAR TP6L72M/450 450W

(N) SOLAR PV ARRAY #4
(34) TALESUN BISTAR TP6L72M/450 450W

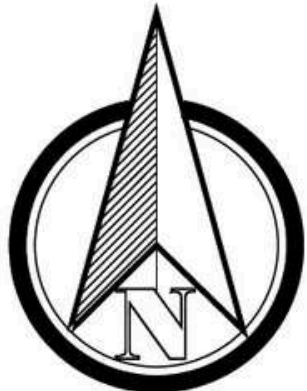
COMPACT FLAT S10 380MM
BALLASTED SYSTEM

(N) SOLAR PV ARRAY #3
(16) TALESUN BISTAR TP6L72M/450 450W

(N) SOLAR PV ARRAY #2
(24) TALESUN BISTAR TP6L72M/450 450W

ΣTotal Sil.: 0 lbs
ΣTotal Upl.: 1,261.04 lbs
ΣTotal Ballast blocks 90 (1,350 lbs)
ΣTotal ballast components 254.63 lbs

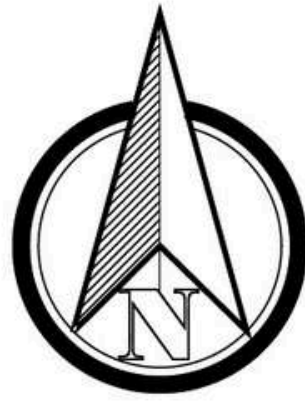
(E) BACK YARD



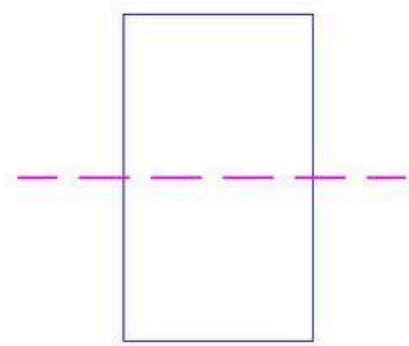
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ARRAY LAYOUTS DETAILS

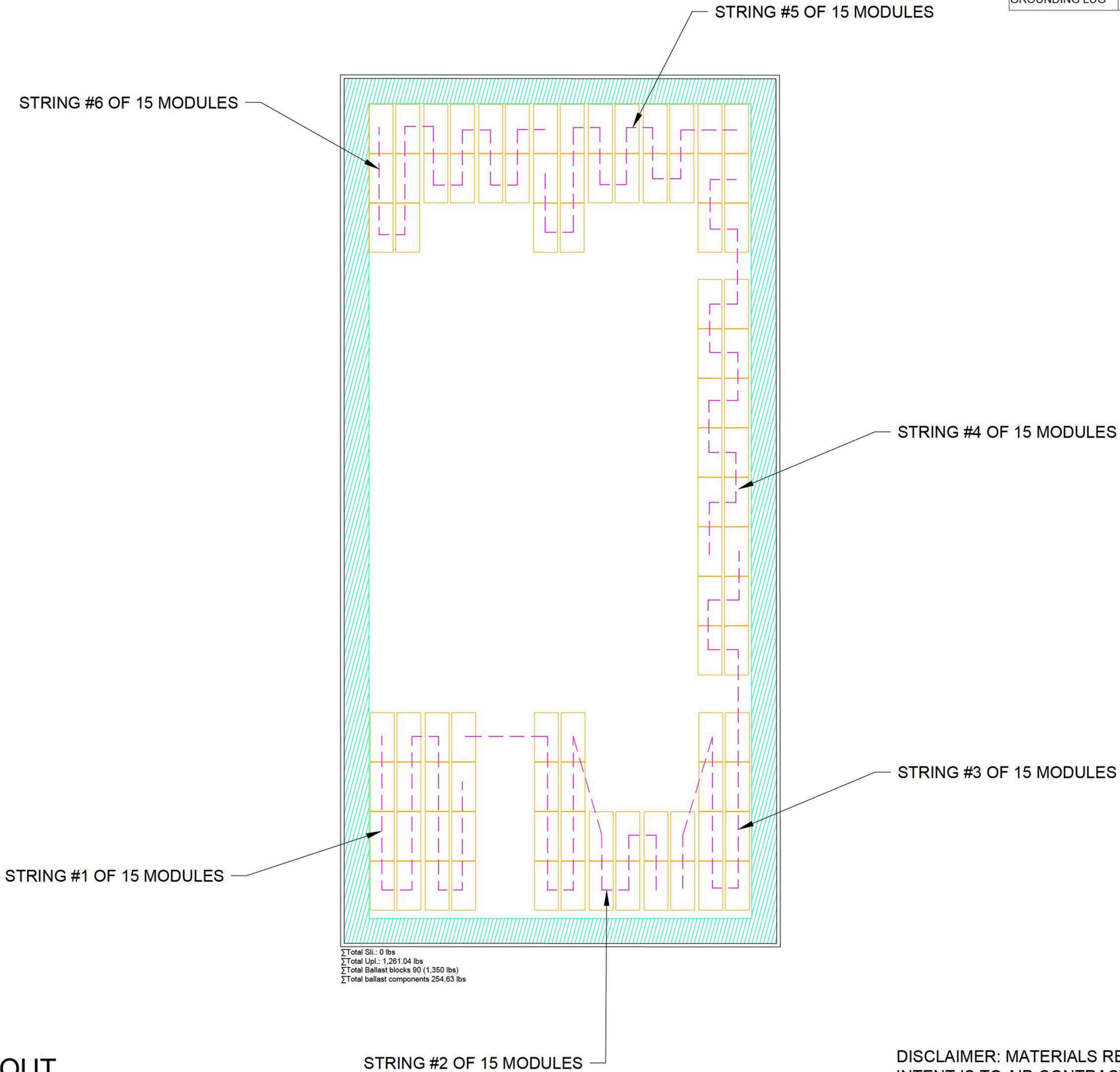
SCALE: /8" = 1'-0"



(90) TALESUN BISTAR TP6L72M/450 450W MODULES
6 STRINGS OF 15 MODULES



BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	90	TALESUN BISTAR TP6L72M/450 450W MODULES
INVERTER	01	SMA STP33-US-41 INVERTERS
AC DISCONNECT	1	LOCKABLE BLADE TYPE NON-FUSED AC DISCONNECT, 200A, 3R, 2P, 277/480VAC
GROUNDING LUG	21	WEEB LUG



Σ Total Sil.: 0 lbs
Σ Total Upol.: 1,281.04 lbs
Σ Total Ballast blocks 90 (1,350 lbs)
Σ Total ballast components 254.63 lbs

DISCLAIMER: MATERIALS REQUIRED LIST FOR CONCEPTUAL USE ONLY THE INTENT IS TO AID CONTRACTOR FOR ORDERING REQUIRED MATERIALS FOR THE PROJECT. CONTRACTOR RESPONSIBLE TO VERIFY PRIOR TO SOLAR EQUIPMENT ORDERING

CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME

STRING LAYOUT

SHEET SIZE

24" X 36"

SHEET NUMBER

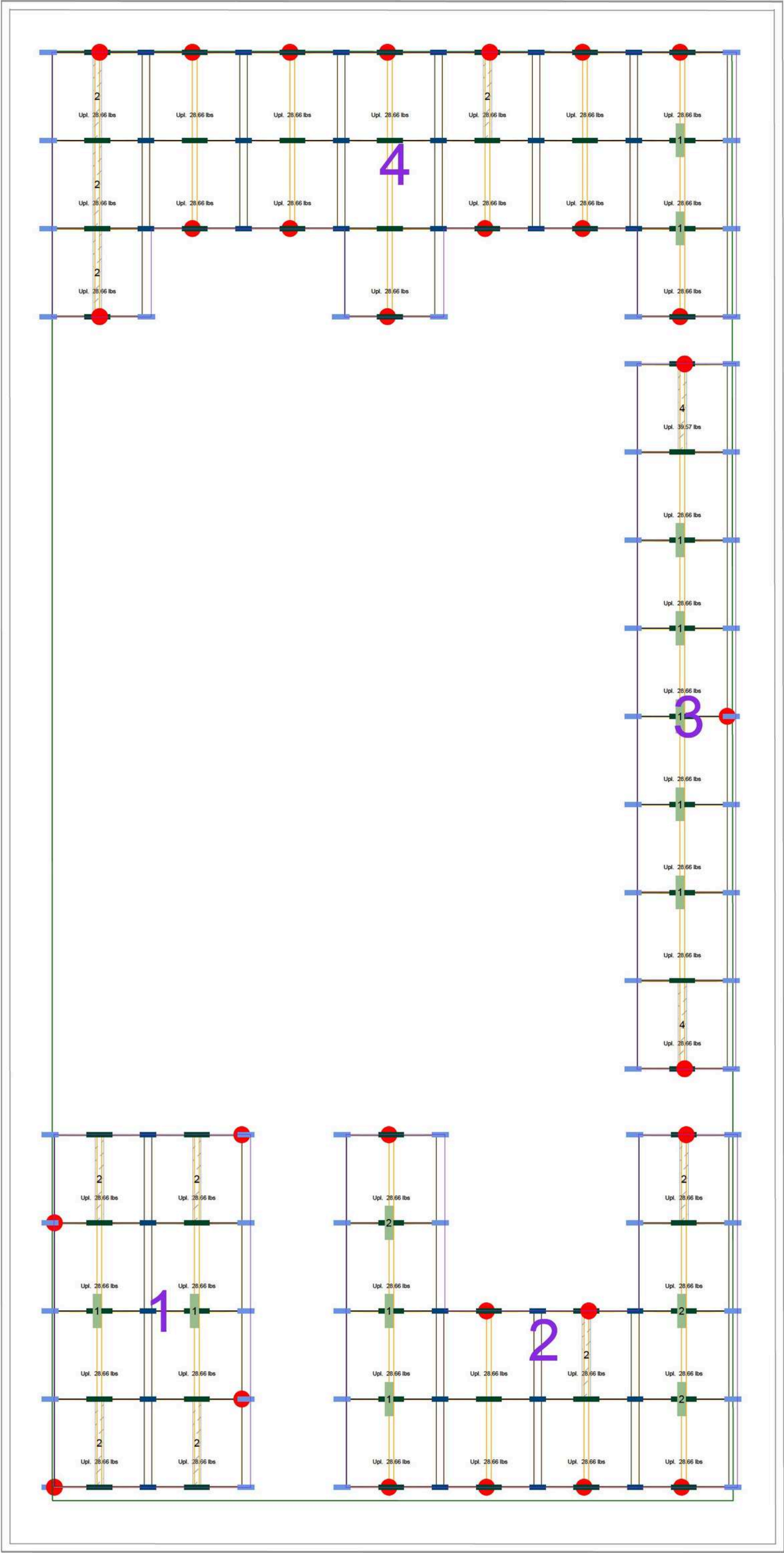
PV-3.1

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BALLAST DETAIL

SCALE: NTS

ΣTotal Sil.: 0 lbs
ΣTotal Up.: 1,281.04 lbs
ΣTotal Ballast blocks 90 (1,350 lbs)
ΣTotal ballast components 254.63 lbs



CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

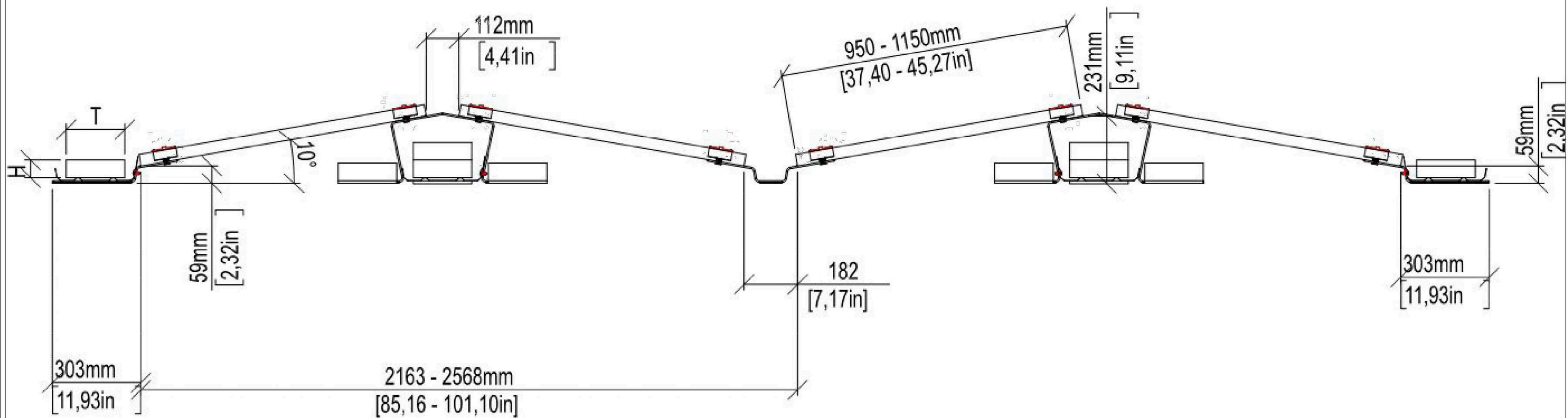
SHEET NAME
BALLAST DETAIL

SHEET SIZE

24" X 36"

SHEET NUMBER

PV-3.2

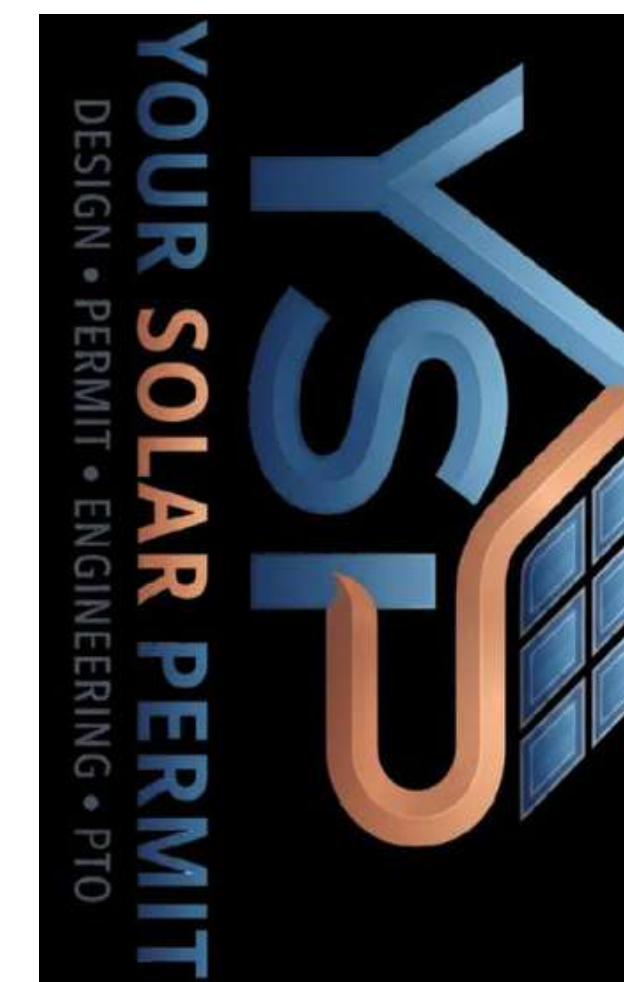


1 ATTACHMENT DETAIL
SCALE: NTS

CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

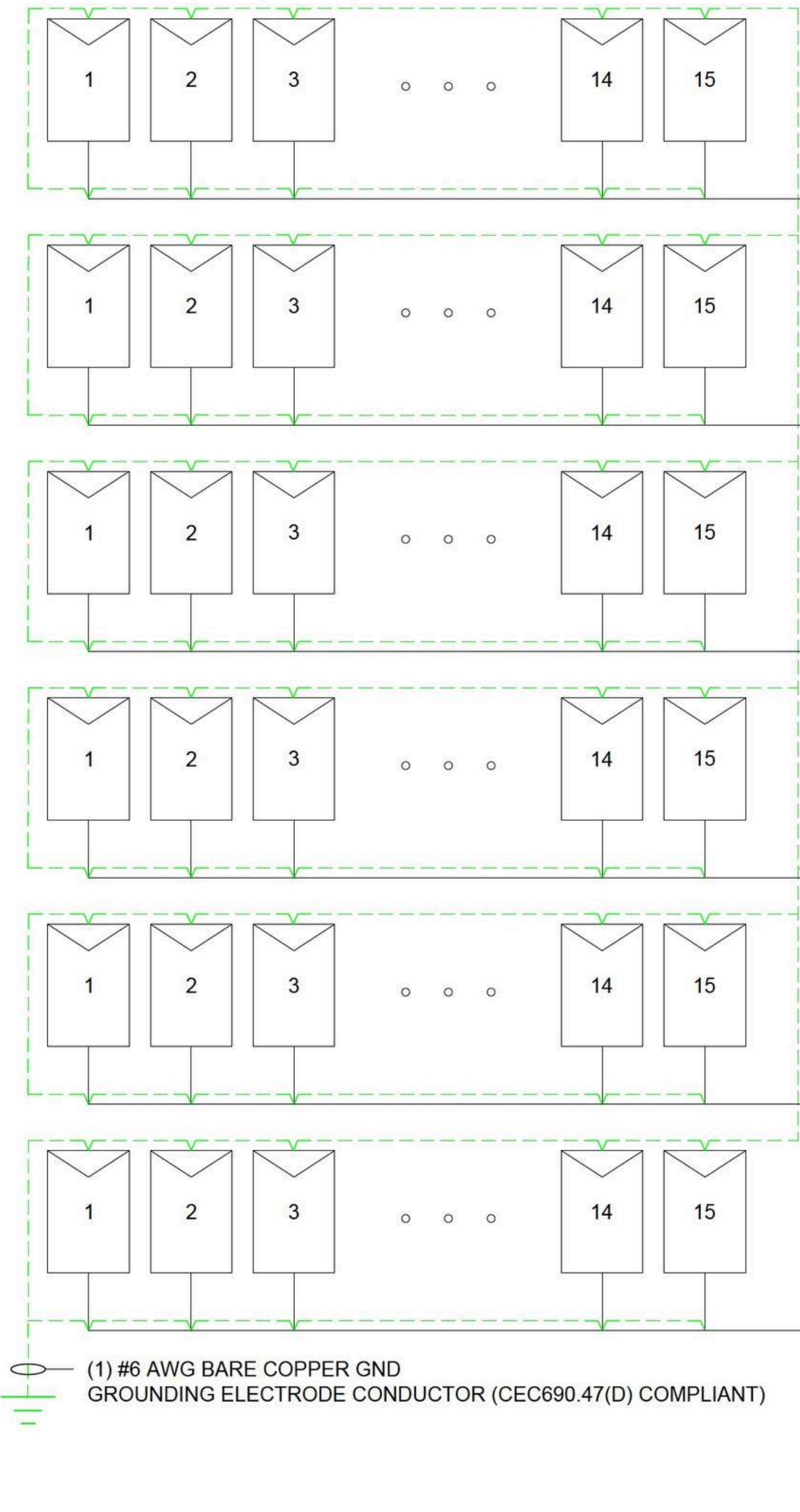
SHEET NAME
ATTACHMENT
DETAIL

SHEET SIZE

24" X 36"

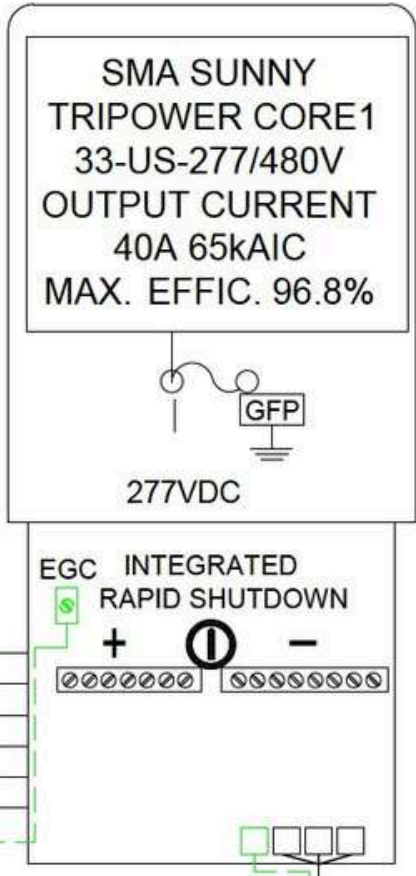
SHEET NUMBER

PV-4.0

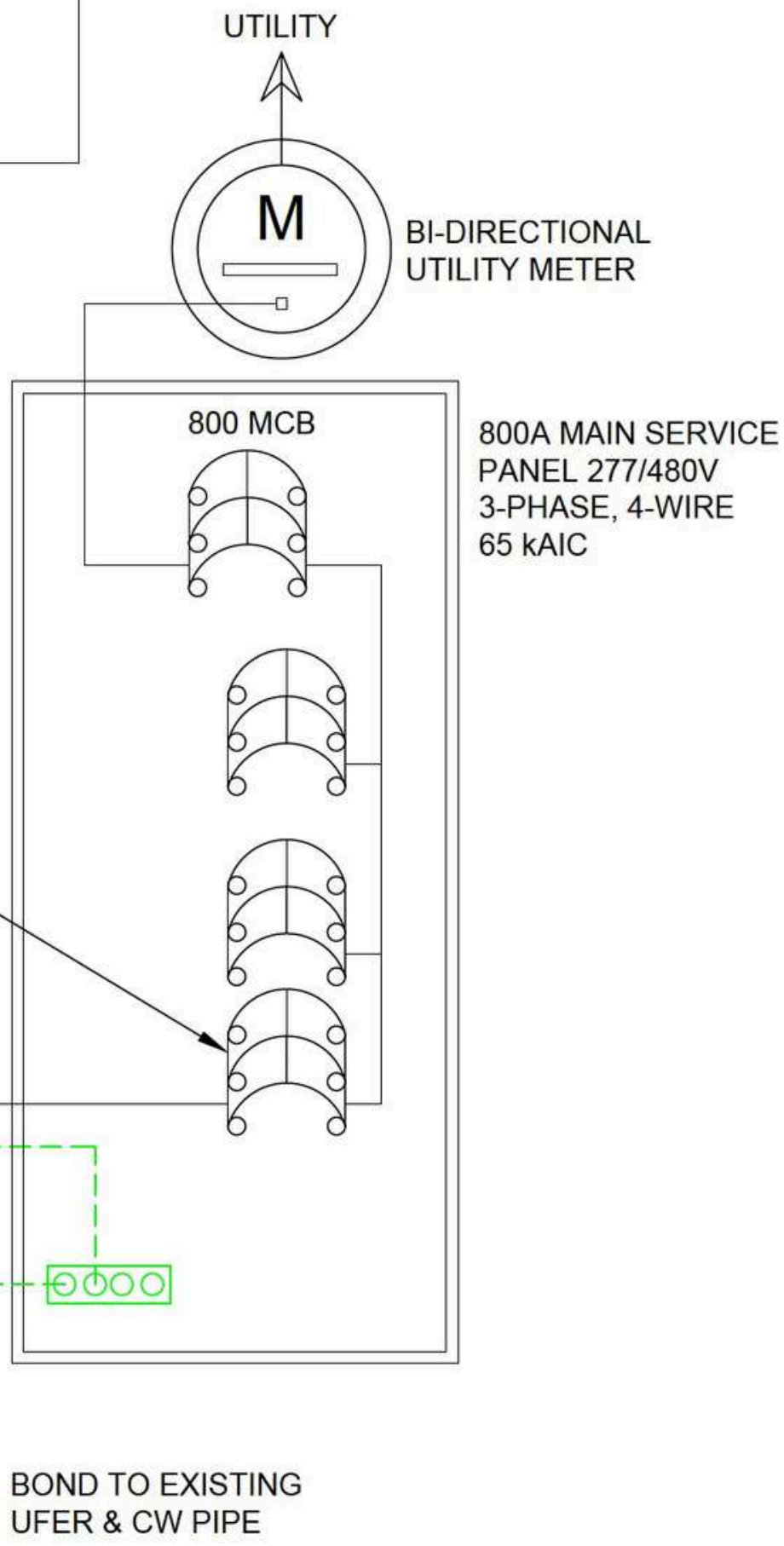


MAIN PANEL RATING
3 PHASE: 3W, 277/480V
BUSBAR RATING = 800A
MAIN SERVICE BREAKER = 800A
120% RULE:
MAX ALLOWABLE BACKFEED:
(800A * 1.2) - 800A = 160A
ACTUAL PV BACKFEED:
50A (PV) <= 160A OK
1.25 * 40A = 50.00A (50A PV BREAKER)

SYSTEM SIZE : STC: 450 x 90 = 40.50kW DC, 33.0kW AC
PTC: 412.62 x 90 = 37.14kW DC, CEC = 29.25kW AC
MODULE: (90) TALESUN BISTAR TP6L72M/450 450W
INVERTER: (01) SMA SUNNY TRIPOWER STP33-US-41



(N) 50A/3P PV BREAKER



- NOTE:
- PER ARTICLE 690.47 (D), RUN AN ARRAY GROUND CONDUCTOR WITH THE SYSTEM CONDUCTORS, BONDING THE ARRAY FRAME TO THE FACILITY GROUND ELECTRODE.
 - EGC TO BE RUN IN IRONRIDGE RAIL AND PROTECTED FROM PHYSICAL DAMAGE PER NEC 250.120(C).
 - THE AUXILIARY GROUNDING ELECTRODE CONDUCTOR SHALL BE CONNECTED DIRECTLY TO THE ELECTRODE GROUNDING AT THE SERVICE.

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	CONDUCTOR	CONDUIT	NEUTRAL	OCPD	EGC/GEC	TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	MAX. CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING
1	(6) #10 AWG THWN-2/STRING	FREE AIR	NONE	N/A	(1) #6 AWG GEC	0.96	31°	0.50	11.54A	18.03	40A	38.40	90°C
2	(6) #10 AWG THWN-2	3/4" EMT	NONE	N/A	(1) #10 AWG GEC	0.76	53°	0.50	11.54A	18.03	40A	30.40	90°C
3	(3) #8 AWG THWN-2	3/4" EMT	(1) #8 AWG THWN-2 COPPER	N/A	(1) #10 AWG GEC	0.96	31°	0.80	40.00A	50.00	55A	52.80	90°C

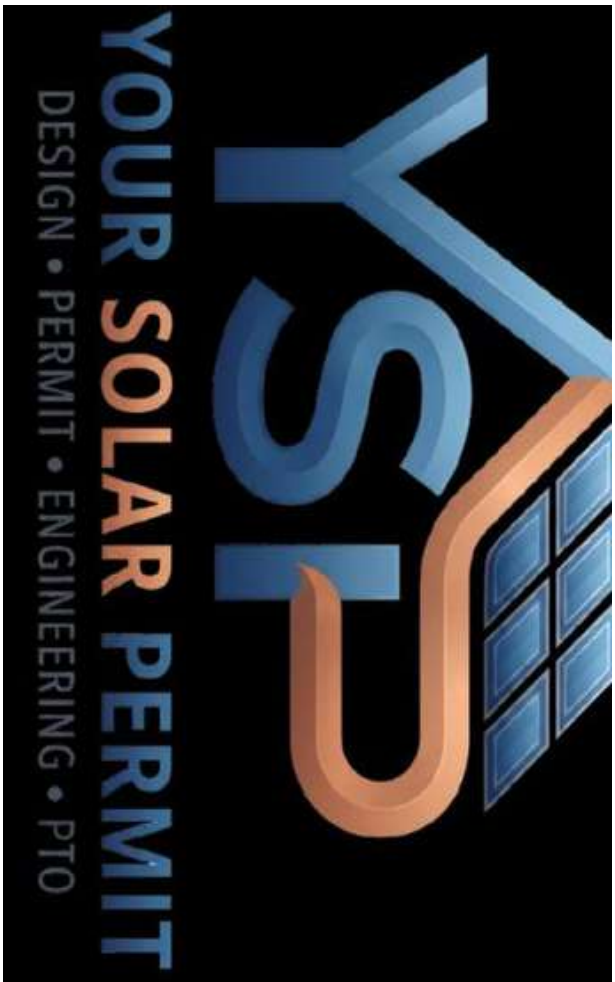
SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	BISTAR TP6L72M/450W 450W MODULES
VMP	40.9V
IMP	11.01A
VOC	49.6V
ISC	11.54A
MODULE DIMENSION	82.44"L x 40.87"W x 1.38"D (In Inch)

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	SMA STP33-US-41
NOMINAL AC POWER	33.0 KW
NOMINAL OUTPUT VOLTAGE	277 VAC
NOMINAL OUTPUT CURRENT	40A

- ELECTRICAL NOTES**
- PROPER LISTING EXPECTED FOR CONDITIONS OF USE ON ALL LUGS, FITTINGS, CRIMPS, ETC.
 - ALL CONDUIT BEND RADII TO CONFORM THE NEC MINIMUM BEND RADII REQUIREMENTS.
 - MINIMUM CLEARANCE SHALL BE MAINTAINED PER NEC FOR ALL NEW EQUIPMENTS TO BE INSTALLED
 - EXISTING GROUNDING ELECTRODE SYSTEM MUST MEET NEC AND LOCAL UTILITY REQUIREMENTS.
 - COPPER CONDUCTORS SHALL BE USED UNLESS SPECIFIED.
 - IF MAIN SERVICE PANEL IS TO BE UPGRADED, IT WILL BE PERMITTED AND INSTALLED BY 3RD PARTY.
 - CONDUIT SIZE BASED ON 2 BENDS MAXIMUM. ANY ADDITIONAL BENDS MAY REQUIRE UPSIZE.
 - AC WIRING SHALL UPSIZE IF VOLTAGE DROP EXCEEDS 2%
 - RUN CONDUCTORS IN EXISTING CONDUIT WHEN AVAILABLE PROVIDED IT HAS NO OTHER CONDUCTORS RUNNING THROUGH.

CONTRACTOR'S SIGNATURE

REVISIONS		
DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME
SINGLE LINE
DIAGRAM

SHEET SIZE

24" X 36"

SHEET NUMBER

PV-5.0

!

WARNING

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL
(IF APPLICABLE).
PER CODE: CEC 2019

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WARNING

ELECTRICAL 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: CEC 2019

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WARNING

ELECTRICAL SHOCK HAZARD

THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNGROUND AND MAY BE
ENERGIZED

LABEL LOCATION:
INVERTER(S), DC DISCONNECTS.
PER CODE: CEC 2019

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WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID
AND PV SOLAR ELECTRIC
SYSTEM

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN
SERVICE PANEL.
PER CODE: CEC 2019

WARNING: PHOTOVOLTAIC
POWER SOURCE

LABEL LOCATION:
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT, AT EACH TURN, ABOVE AND
BELOW PENETRATIONS, ON EVERY JB/PULL BOX CONTAINING DC CIRCUITS.
PER CODE(S): NEC 2017: 690.31(G)(3)

INVERTER #1

PHOTOVOLTAIC DC DISCONNECT

RATED MAXIMUM POWER-POINT CURRENT:

66.06

ADC

RATED MAXIMUM POWER-POINT VOLTAGE:

654.40

VDC

MAXIMUM SYSTEM VOLTAGE:

793.60

VDC

MAXIMUM SHORT CIRCUIT CURRENT:

69.24

ADC

LABEL LOCATION:
INVERTER(S), DC DISCONNECT(S).
PER CODE: CEC 2019

PHOTOVOLTAIC 89L AC DISCONNECT

MAXIMUM AC OPERATING CURRENT:

50.0

AMPS

NOMINAL OPERATING AC VOLTAGE:

480

VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF
INTERCONNECTION.
PER CODE: CEC 2019

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WARNING

PHOTOVOLTAIC SYSTEM
COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF
APPLICABLE).
PER CODE: CEC 2019

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WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER (IF
APPLICABLE).
PER CODE: CEC 2019

- NOTES AND SPECIFICATIONS:
- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE 2008 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
 - SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
 - LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
 - LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
 - SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
 - DO NOT COVER EXISTING MANUFACTURER LABELS.

CAUTION:

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

N

SOLAR PANEL
ON ROOF

(N) INVERTERS

(E) MAIN SERVICE PANEL

(E) UTILITY METER

(E) AC DISCONNECT

7282 ORANGETHORPE AVE, BUENA PARK, CA 90621

LABEL LOCATION:
MAIN SERVICE PANEL

CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV

YOUR SOLAR PERMIT

DESIGN • PERMIT • ENGINEERING • PTO

YSIP

DESIGNER

SHEET NAME
SIGNAGE

SHEET SIZE
24" X 36"

SHEET NUMBER
PV-6.0



BISTAR

TP6L72M
TP6L72M(H) **144-cell**

435 - 455W
9BB Half-cut Mono Perc

SYSTEM & PRODUCT CERTIFICATES

- IEC 61215 / IEC 61730 / UL 61730
- ISO 9001: 2015 Quality Management System
- ISO 14001: 2015 Environment Management System
- ISO 45001: 2018 Occupational Health and Safety Management Systems



PERFORMANCE WARRANTY



KEY FEATURES



9BB Half-cut Cell Technology

New circuit design, lower internal current, lower Rs loss
Ga doped wafer, attenuation <2% (1st year) / ≤0.55% (Linear)



Significantly Lower the Risk of Hot Spot

Special circuit design with much lower hot spot temperature



Excellent Anti-PID Performance

2 times of industry standard Anti-PID test



Wider Application

No water-permeability and high wear-resistance,
can be widely used in high-humid, windy and dusty area



IP68 Junction Box

High waterproof level

www.talesun.com

marketing.hq@talesun.com

* GL-EN-Version 2022.03.01

ELECTRICAL CHARACTERISTICS

Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power (Pmax/W)	435	324	440	328	445	332	450	335	455	339
Operating Voltage (Vmpp/V)	40.3	37.6	40.5	37.8	40.7	38.0	40.9	38.2	41.1	38.4
Operating Current (Imp/A)	10.80	8.62	10.87	8.67	10.94	8.73	11.01	8.78	11.08	8.84
Open-Circuit Voltage (Voc/V)	49.0	45.6	49.2	45.8	49.4	46.0	49.6	46.2	49.8	46.4
Short-Circuit Current (Isc/A)	11.33	9.15	11.40	9.20	11.47	9.26	11.54	9.32	11.61	9.37
Module Efficiency [%]	20.00		20.20		20.40		20.70		20.90	

STC: Irradiance 1000W/m², Spectra at AM1.5, Module Temperature 25 °C, Power output tolerance: 0~+5W, Test uncertainty for Pmax: ±3%
NMOT: Irradiance 800W/m², Spectra at AM1.5, Ambient Temperature 20 °C, Wind speed 1m/s

MECHANICAL CHARACTERISTICS

Cell Type	Monocrystalline Silicon (9Busbar)
No. of Cells	144pcs in series (6*24)
Module Dimensions	2094*1038*35mm (82.44*40.87*1.38inches)
Weight	23.5kg (51.81lbs)
Front Glass	3.2mm AR Coating Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68, 3 Bypass Diodes
Output Cables	4mm ² (IEC), 12AWG(UL) 300mm in Length or Customized Length
Connectors	T01/LJQ-3-CSY/MC4/MC4-EV02

APPLICATION CONDITIONS

Maximum System Voltage	1000V/1500V/DC
Operating Temperature	-40°C~+85°C
Maximum Series Fuse	20A
Safety Protection Class	Class II
Mechanical Load (Front side)	5400Pa
Mechanical Load (Back side)	2400Pa

TEMPERATURE CHARACTERISTICS

Temperature Coefficient of Pmax	-0.36%/°C
Temperature Coefficient of Voc	-0.26%/°C
Temperature Coefficient of Isc	+0.043%/°C
Nominal Module Operating Temperature(NMOT)	43±2°C

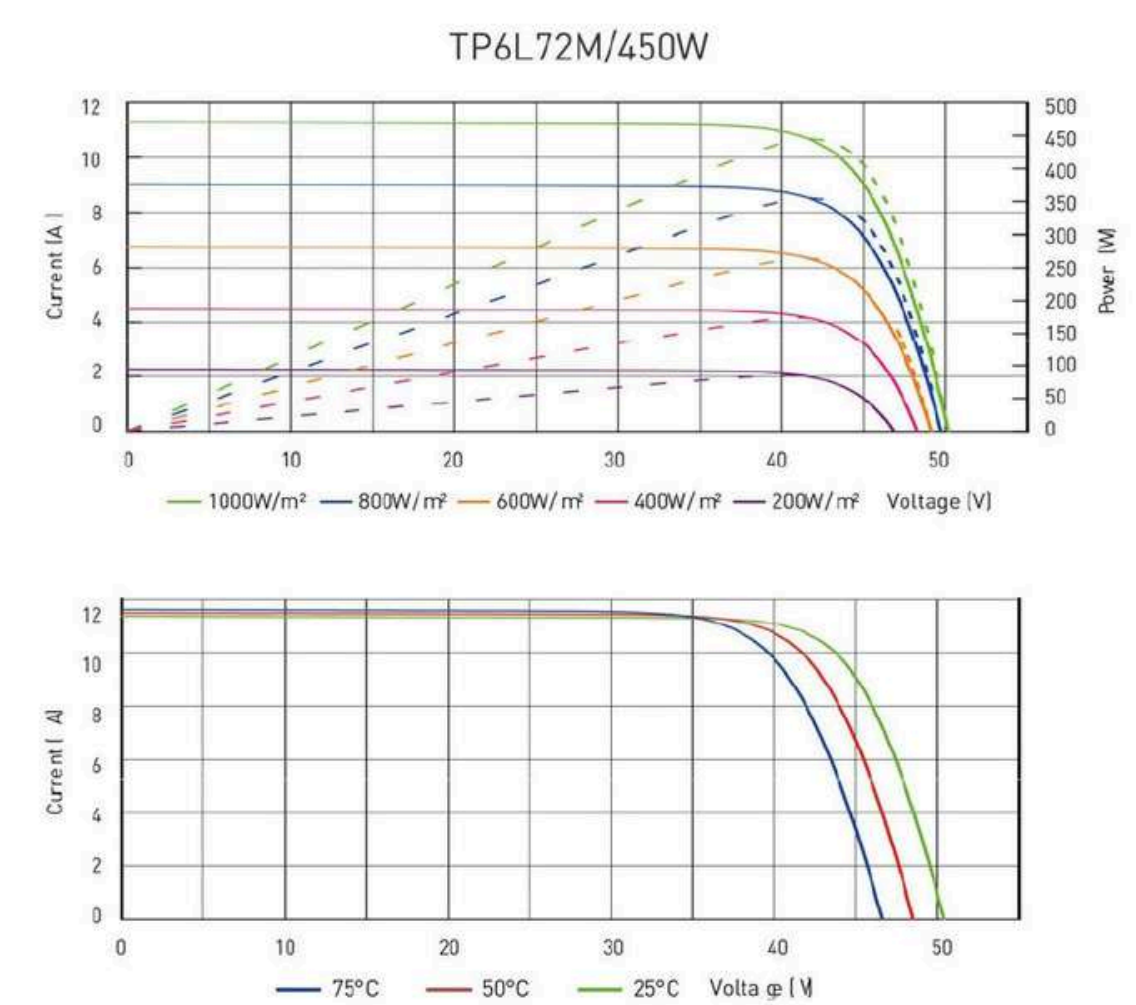
PACKING CONFIGURATION

Pieces Per Pallet	31	31(USA)
Pieces Per Container(40'HQ)	715	682

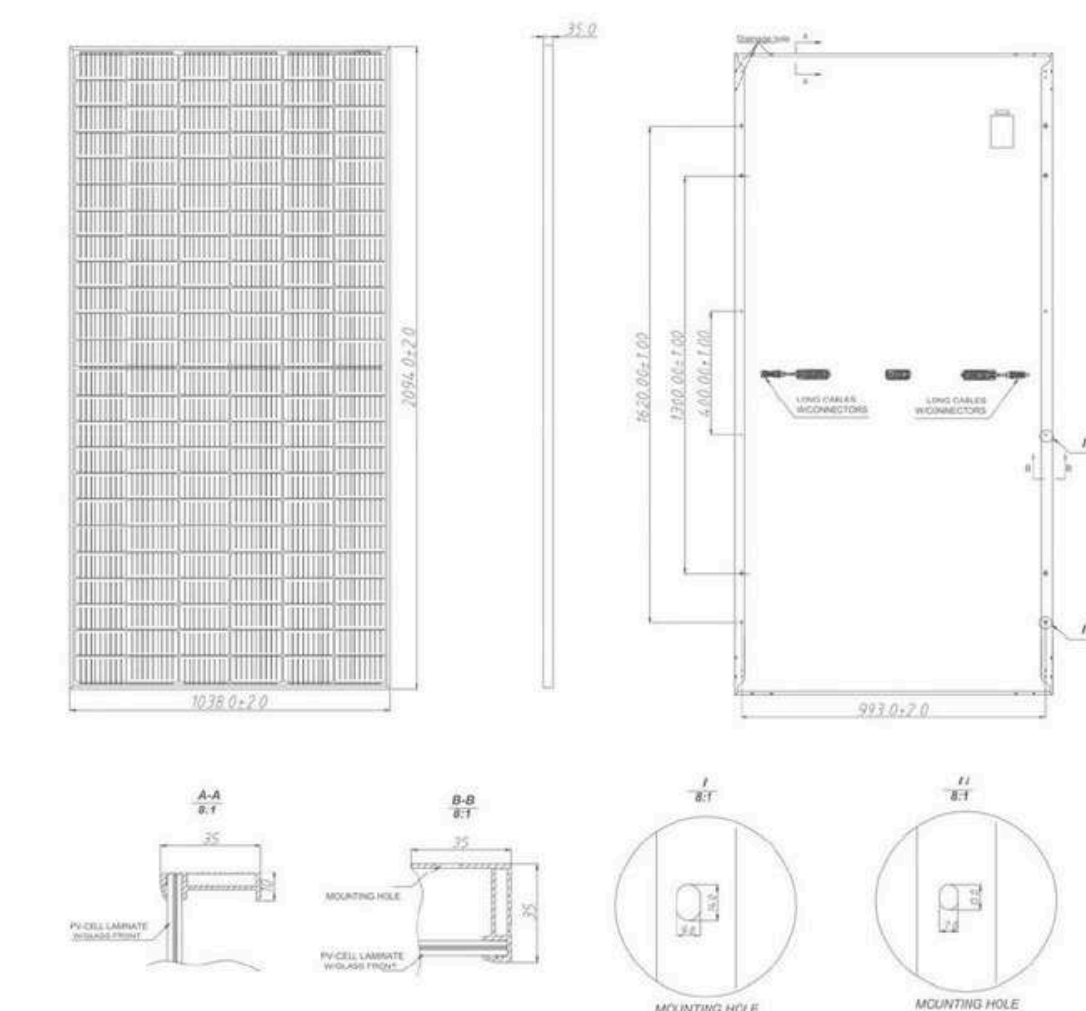


The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to ongoing innovation, R&D enhancement, Suzhou Talesun Solar Technologies Co., Ltd. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

I-V CURVE



TECHNICAL DRAWINGS



CONTRACTOR'S SIGNATURE

REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME
SPEC. SHEETS

SHEET SIZE

24" X 36"

SHEET NUMBER

PV-7.0

SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US



STP33-US-41 / STP50-US-41 / STP62-US-41

UP TO 60% FASTER
INSTALLATION FOR
COMMERCIAL PV SYSTEMS



Fully integrated

- Innovative design requires no additional racking for rooftop installation
- Integrated DC and AC disconnects and overvoltage protection
- 12 direct string inputs for reduced labor and material costs

Increased power, flexibility

- Multiple power ratings for small to large scale commercial PV installations
- Six MPP trackers for flexible stringing and maximum power production
- OptiTrac™ Global Peak shade tolerant MPP tracking

Enhanced safety, reliability

- Integrated SunSpec PLC signal for module-level rapid shutdown compliance to 2017 NEC
- Next-gen DC AFCI arc-fault protection certified to new Standard UL 1699B

Smart monitoring, control, service

- Advanced smart inverter grid support capabilities
- Increased ROI with SMA ennexOS cross sector energy management platform
- SMA Smart Connected proactive O&M solution reduces time spent diagnosing and servicing in the field

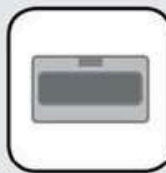
SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US

It stands on its own

The Sunny Tripower CORE1 is the world's first free-standing PV inverter for commercial rooftops, carports, ground mount and repowering legacy solar projects. Now with expanded features and new power classes, the CORE1 is the most versatile, cost-effective commercial solution available. From distribution to construction to operation, the Sunny Tripower CORE1 enables logistical, material, labor and service cost reductions. Integrated SunSpec PLC for rapid shutdown and enhanced DC AFCI arc-fault protection ensure compliance to the latest safety codes and standards. With Sunny Tripower CORE1 and SMA's ennexOS cross sector energy management platform, system integrators can deliver comprehensive commercial energy solutions for increased ROI.

www.SMA-America.com

Technical data *	Sunny Tripower CORE1 33-US	Sunny Tripower CORE1 50-US	Sunny Tripower CORE1 62-US
Input (DC)			
Maximum array power	50000 Wp STC	75000 Wp STC	93750 Wp STC
Maximum system voltage		1000 V	
Rated MPP voltage range	330 V ... 800 V	500 V ... 800 V	550 V ... 800 V
MPPT operating voltage range		150 V ... 1000 V	
Minimum DC voltage / start voltage		150 V / 188 V	
MPP trackers / strings per MPP input		6 / 2	
Maximum operating input current / per MPP tracker		120 A / 20 A	
Maximum short circuit current / per MPPT / per string input		30 A / 30 A	
Output (AC)			
AC nominal power	33300 W	50000 W	62500 W
Maximum apparent power	33300 VA	50000 VA	66000 VA
Output phases / line connections		3 / 3-(N)-PE	
Nominal AC voltage		480 V / 277 V WYE	
AC voltage range		244 V ... 305 V	
Maximum output current	40 A	64 A	79.5 A
Rated grid frequency		60 Hz	
Grid frequency / range		50 Hz, 60 Hz / -6 Hz ... +6 Hz	
Power factor at rated power / adjustable displacement		1 / 0.0 leading ... 0.0 lagging	
Harmonics THD		<3 %	
Efficiency			
CEC efficiency (preliminary)	97.5%	98%	98%
Protection and safety features			
Load rated DC disconnect		•	
Load rated AC disconnect		•	
Ground fault monitoring: Riso / Differential current		• / •	
DC AFCI arc-fault protection		•	
SunSpec PLC signal for rapid shutdown		•	
DC reverse polarity protection		•	
AC short circuit protection		•	
DC surge protection: Type 2 / Type 1+2		0 / 0	
AC surge protection: Type 2 / Type 1+2		0 / 0	
Protection class / overvoltage category (as per UL 840)		I / IV	
General data			
Device dimensions (W / H / D)		621 mm / 733 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)	
Device weight		84 kg (185 lbs)	
Operating temperature range		-25 °C ... +60 °C (-13 °F ... +140 °F)	
Storage temperature range		-40 °C ... +70 °C (-40 °F ... +158 °F)	
Audible noise emissions (full power @ 1m and 25 °C)		65 dB (A)	
Internal consumption at night		5 W	
Topology		Transformerless	
Cooling Concept		OptiCool (forced convection, variable speed fans)	
Enclosure protection rating		Type 4X, 3SX (as per UL 50E)	
Maximum permissible relative humidity (non-condensing)		100 %	
Additional information			
Mounting		Free-standing with included mounting feet	
DC connection		Amphenol UTX PV connectors	
AC connection		Screw terminals - 4 AWG to 4/0 AWG CU/Al	
LED indicators (Status / Fault / Communication)		•	
Network interfaces: Ethernet / WLAN / RS485		• (2 ports) / • / 0	
Data protocols: SMA Modbus / SunSpec Modbus / Webconnect		• / • / •	
Multifunction relay		•	
OptiTrac Global Peak (shade-tolerant MPP tracking)		•	
Integrated Plant Control / Q on Demand 24/7		• / •	
Off-Grid capable / SMA Fuel Save Controller compatible		• / •	
SMA Smart Connected (proactive monitoring and service support)		•	
Certifications (pending as of June 2018)			
Certifications and approvals		UL 1741, UL 1699B, UL 1998, IEEE 1547, CAN/CSA-C22.2 No. 62109	
FCC compliance		FCC Part 15 Class A	
Grid interconnection standards		UL 1741 SA - CA Rule 21, HECO Rule 14H	
Advanced grid support capabilities		L/HVRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor	
Warranty			
Standard		10 years	
Optional extensions		15 / 20 years	
O Optional features • Standard features – Not available		* Preliminary data as of June 2018	
Type designation	STP33-US-41	STP50-US-41	STP62-US-41



SMA Data Manager M
EDMM-US-10



SMA Sensor Module
MD.SEN-US-40



Universal Mounting System
UMS_KIT-10



AC Surge Protection Module Kit
AC_SPD_KIT1-10, AC_SPD_KIT2_11T2
DC Surge Protection Module Kit
DC_SPD_KIT4-10, DC_SPD_KIT5_11T2

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

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REVISIONS

DESCRIPTION	DATE	REV



DESIGNER

SHEET NAME
SPEC. SHEETS

SHEET SIZE

24" X 36"

SHEET NUMBER

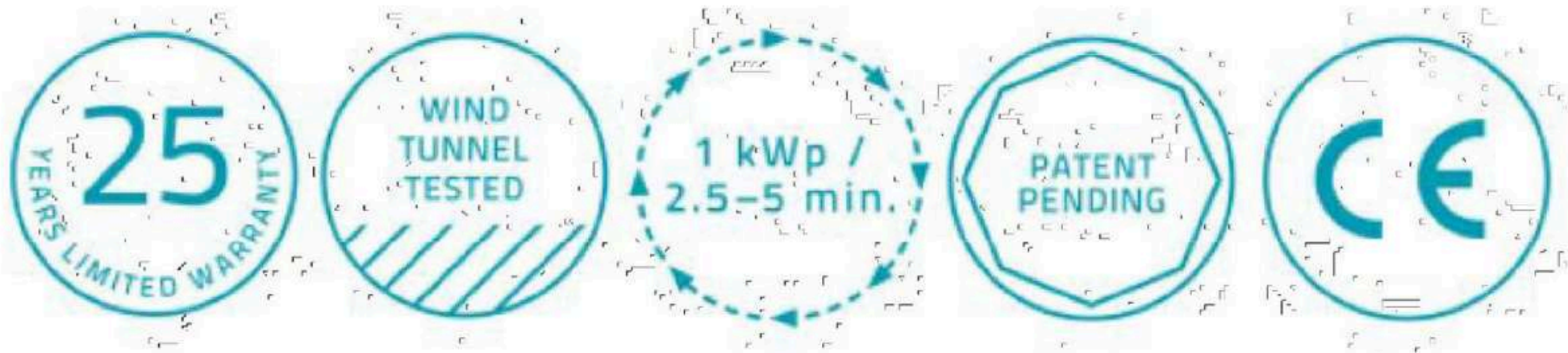
PV-8.0

COMPACTFLAT PLUS

PROJECT REPORT

West_Coast_Sand_and_Gravel_v4

Roof_1_SD
9/7/2022



COMPACTFLAT PLUS

West_Coast_Sand_and_Gravel_v4

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PV-9.0

INTRODUCTION:

Thank you for choosing the Aerocompact mounting system.
Please read these instructions carefully before starting the installation and make sure that you can meet the required guidelines in this installation manual.

An important part of this Project Report is the installation manual, please read and follow this manual step by step. Please make sure that the position of the modules on the roof and the ballast distribution is installed as required in project report. In case the module layout changes do to circumstances like obstructions, the ballast calculation needs to be modified with the Aerotool software. It is required to design the static calculation of the system with the Aero Tool Software program (Solar.Pro.Tool).

The technical documentation is part of the product. The company AEROCOMPACT is not liable for damages occurring from non-compliance with the installation instructions, particularly the safety instructions, as well as from misuse of the products. In addition to this installation manual the current general conditions as well as warranty conditions apply. The current versions are available at www.aerocompact.com

Faults and damage as well as limited or lacking operability of the system as a result of assembly that is faulty and/or deviating from the installation instructions and/or the project report (Solar.Pro.Tool) preclude a material defect is not the responsibility of Aerocompact. With unprofessional installation, all rights of the purchaser shall expire. The required compressive strength of the roof insulation and the maximum static roof load needs to be checked before starting the installation.

Photovoltaic flat roof systems are not maintenance free. Maintenance, particular the right position of the ballast blocks and the building protection pads should be conducted annually. For exceptional high-wind events, we recommend to do a Maintenance and system check right after the storm event.

Faults and damage as well as limited or lacking operability of the system as a result of assembly that is faulty and/or deviating from the installation instructions and/or the project report (Solar.Pro.Tool) preclude a material defect is not the responsibility of Aerocompact. With unprofessional installation, all rights of the purchaser shall expire. The system warranty shall be effective only if all system components were purchased from Aerocompact.

The system requires that the module can also be used with this type of assembly (clamping to the short sides of the module). This release can be present either generally within the scope of module certification or may in some circumstances also be provided project-specifically by the module manufacturer.

If the Roof-Gravel is located right on the water-bearing roof the Aerocompact System can not be installed on the gravel layer. The gravel must be removed in this case in the area of the Aluminum Brackets.

In case of doubt, please contact the Team of Aerocompact directly at office.us@aerocompact.com or call 0800 578 0474

MASTER DATA

Project Name	West_Coast_Sand_and_Gravel_v4
Project Number:	Ae_US_aL09SKXb
Comment	AR Solar
Planning Responsible	SW/JB/RT
Software v.:	10.0.20.11533
Amount Modules	90
System Size	40.5 kWp
Orientation [°]	180
Roofpitch [°]	1.5

PROJECT ADDRESS

Name	
Street Address	Orangethorpe Avenue 7282
Postal code	90621
City	Buena Park
Phone	
Email	
Notes	
State	California
Country	USA
Latitude [°]	33.85861
Longitude [°]	-118.00604
Altitude [ft]	66

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SHEET SIZE

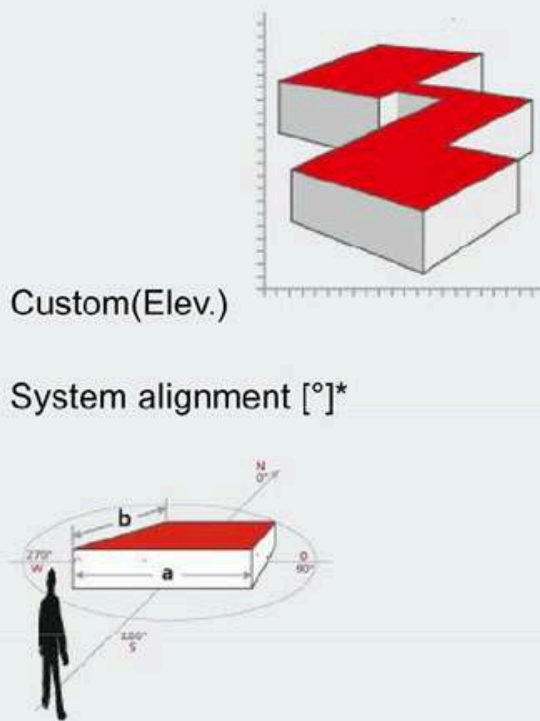
24" X 36"

SHEET NUMBER

PV-10.0

ROOF [ROOF_1_SD]

Building height h [ft]	30.5
Slope of roof [°]	1.5
Roofing	Membrane roof
Product Type:	COMPACTFLAT PLUS
System alignment [°]	180
Parapet height [in]:	32.664
Parapet width [in]:	8.004



SNOW LOAD ASCE 7-16

Snow load (psf)	0
Slope of roof [°]:	1.5
Exposure Factor:	0.90
Thermal Factor:	1.20

WIND LOAD ASCE 7-16

Wind load (psf)	13.79
Wind speed (mph)	95
Building height h [ft]	30.5
Exposure category	Exp. B
Standard	ASCE 7-16
Risk Category:	II
Topographic factor:	1

PV-MODULE [ROOF_1_SD]

Manufacturer:	Talesun Solar Co. Ltd.
Name	TD6I72M
Width [mm]:	1038
Height [mm]:	2094
Thickness [mm]:	30
Framing:	Aluminum
Weight (lb)	61.729
Nominal Power [Watt]:	450
Module Type:	Monocrystalline
Installation:	On Both Sides
Frame color	Aluminum
Temperature coefficient [%/°C]:	-0.36
Efficiency STC:	0.205
Output current MPP - STC [A]:	11.01
Output voltage MPP - STC [V]:	40.9
Short circuit current [A]:	11.54
Open circuit voltage [V]:	49.6
Temperature coefficient Current [%/K]:	0.043
Temperature coefficient Voltage [%/K]:	-0.26
Max. System voltage EU:	1500
Max module backcurrent [A]	20
Galvanic seperation required:	No

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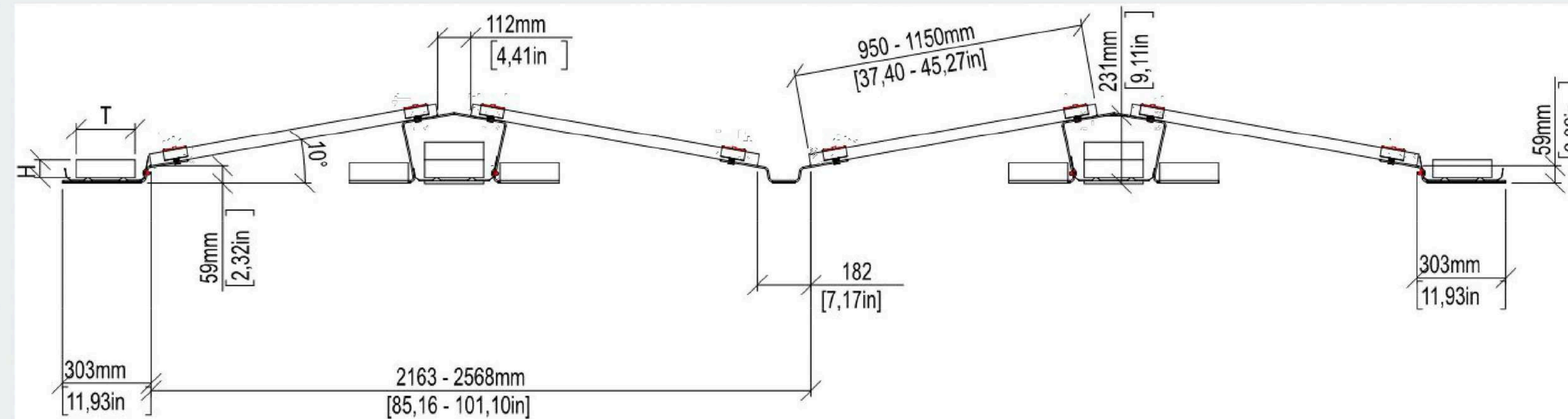
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COMPACTFLAT PLUS

West_Coast_Sand_and_Gravel_v4

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RACKING PARAMETER [ROOF_1_SD]

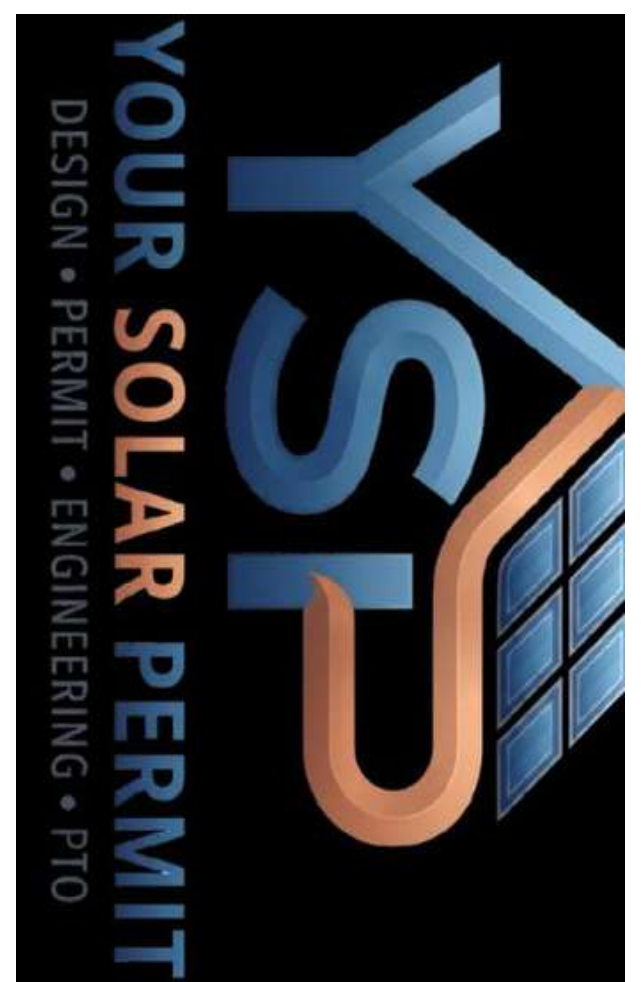


Bracket tilt α [°]:	10
Inter-row spacing	7.2 in
Friction Constant μ	0.5

Suggested friction constants need to be checked by the installer/customer (wet and dry testing). In case the onsite testing results in a lower friction constant, the latter must be entered here for the static load calculation. Friction constants suggested for flat roofs are based on tests on typical roofing foils carried out by Aerocompact in cooperation with TÜV Rheinland. Friction constants suggested for other surfaces are based on tests carried out by Aerocompact in addition to the former. Similar surfaces made up of comparable materials may show diverging friction constants.

Ballast block [kg]	15 lbs
Height H	2 in
Length B	16 in
Width T	8 in
Distance to roof edge	48 in

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SHEET NAME
SPEC. SHEETS

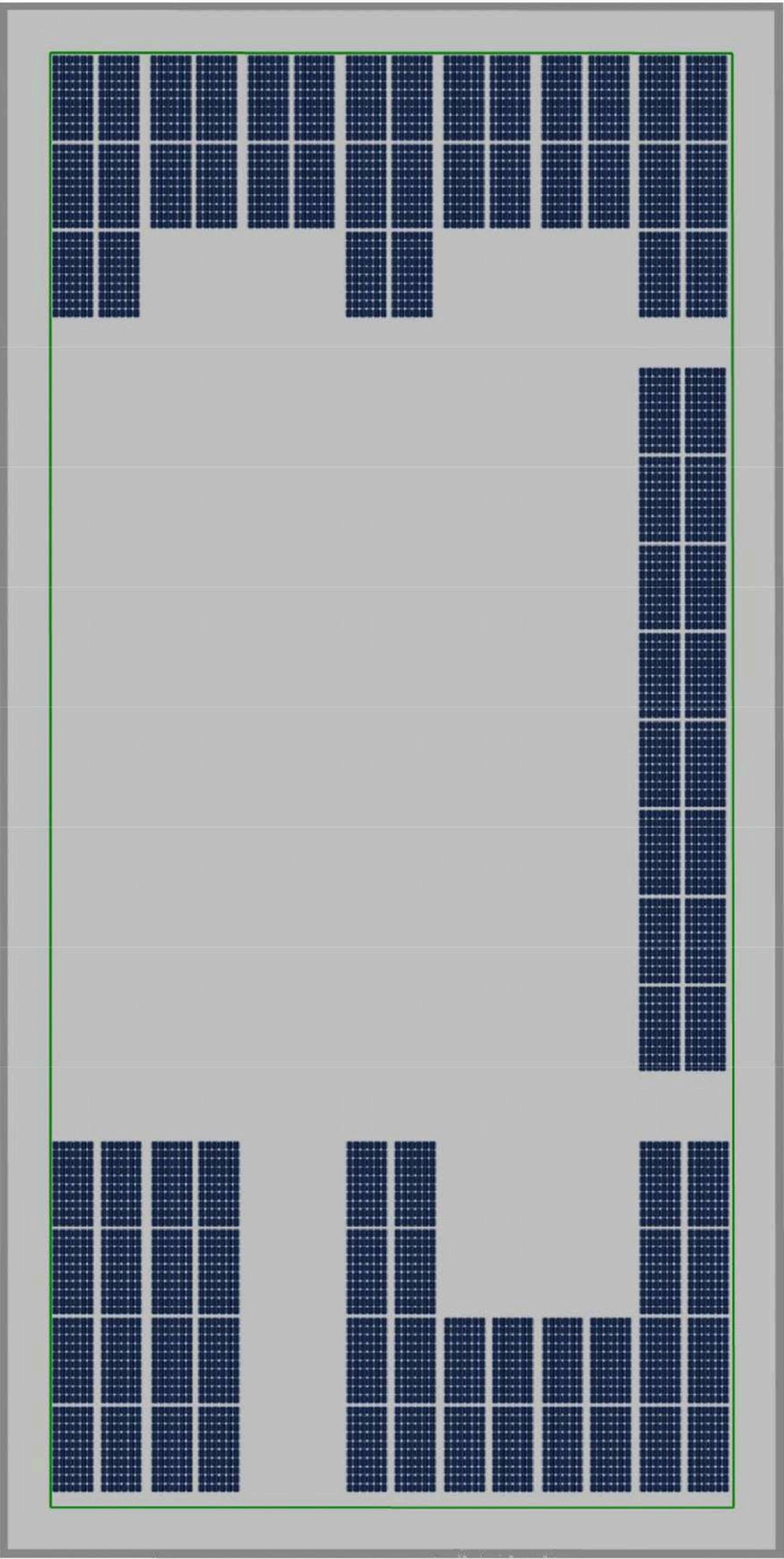
SHEET SIZE

24" X 36"

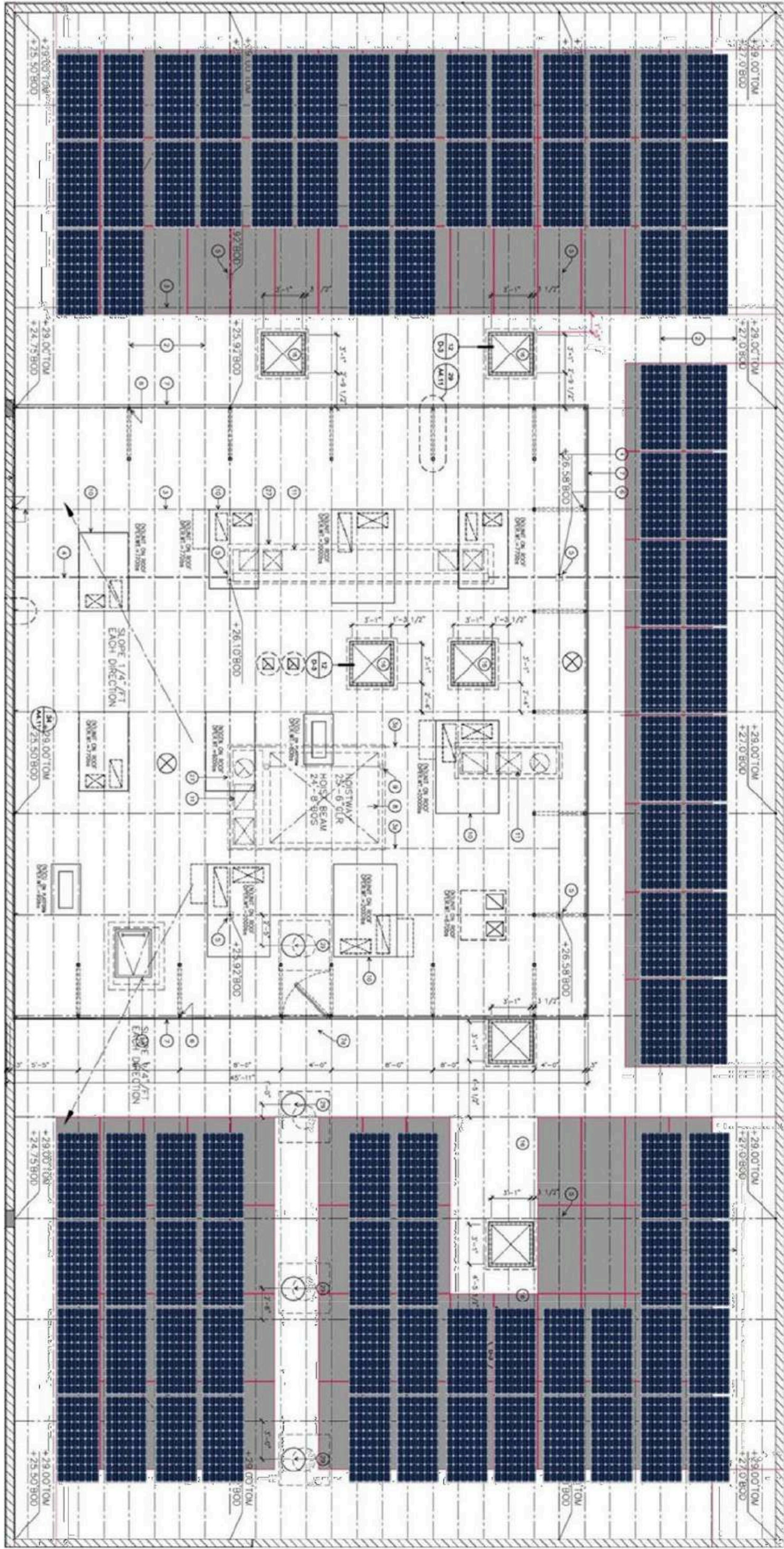
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PV-12.0

POSITION [ROOF_1_SD]



DISPOSITION - GOOGLE MAPS [ROOF_1_SD]



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24" X 36"

SHEET NUMBER

PV-13.0

MATERIAL LIST [ROOF_1_SD]

Image	Part number	Description	Pck	Total Nr.	Required Total	Weight (lb)	Total weight (lb)	Length (in)	Total length (in)
	000015	Stone 15	1	45	45	15.000	675.000	--	--
	701501	STS8x16 self-tapping screw M8(5/16")x16	1	72	72	0.029	2.064	--	--
	701902	CLP-M Cable-tie clip module	100	2	180	0.004	0.794	--	--
	704015	GL-B Grounding lug for bracket	1	4	4	0.093	0.370	--	--
	706000-880	BT-880 Ballast tray short 880mm (34.6")	1	14	14	3.333	46.667	--	--
	706002-2300	BT-2300 Ballast tray long 2300mm (90.6")	1	12	12	8.799	105.584	--	--
	706410	APA Anchor point attachment	1	29	29	1.457	42.260	--	--
	707011	CLM10 Middle clamp Click 30-46	1	130	124	0.141	17.496	--	--
	707080	CLE10+ End clamp Click 30-46 80mm (3.1")	1	210	204	0.192	39.128	--	--
	720921	S10+MB-PP Middle bracket S10+ with pads	1	59	59	2.884	170.135	--	--
	720932	S10+CNS-PP Connector S10+ short with pad	1	32	32	1.193	38.166	--	--
	721011	S10FB-PP Front bracket S10 with pad	1	54	54	1.171	63.215	--	--
	823002-28	Flat washer M8, D:28	100	1	72	0.024	1.746	--	--
	823037V	PP200/80 protection pad 200x80x10	10	16	158	0.062	9.753	--	--
							1212.38		0

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SHEET SIZE
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SHEET NUMBER
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