

2.1.1 SITE NOTES:  
2.1.2 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.  
2.1.3 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.  
2.1.4 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.  
2.1.5 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 EQUIPMENT LOCATIONS  
2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.  
2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 AND NEC TABLES 310.15 (B)(2)(A).  
2.2.4 JUNCTION AND PULL BOXES ARE PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.  
2.2.5 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.  
2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.  
2.2.7 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.3.1 STRUCTURAL NOTES:  
2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.  
2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.  
2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.  
2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.  
2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 GROUNDING NOTES:  
2.4.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.  
2.4.3 AS IN CONVENTIONAL PV SYSTEMS, UNGROUNDED PV SYSTEMS REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN ACCORDANCE WITH 250.134 OR 250.136(A). ONLY THE DC CONDUCTORS ARE UNGROUNDED.  
2.4.4 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.  
2.4.5 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURE CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).  
2.4.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.  
2.4.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.  
2.4.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]  
2.4.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.  
2.4.10 ACCORDING TO NEC 690.47 (C)(3), UNGROUNDED SYSTEMS INVERTER MAY SIZE DC GEC ACCORDING TO EGC REQUIREMENTS OF NEC 250.122. HOWEVER, DC GEC TO BE UNSPLICED OR IRREVERSIBLY SPLICED.  
2.4.11 IN UNGROUNDED INVERTERS, GROUND FAULT PROTECTION IS PROVIDED BY "ISOLATION MONITOR INTERRUPTER," AND GROUND FAULT DETECTION PERFORMED BY "RESIDUAL-CURRENT DETECTOR."

2.5.1 INTERCONNECTION NOTES:  
2.5.2 INTERCONNECTION IN THIS PROJECT IS AS PER NEC 705.12(B)(2) WHICH STATES THAT WHERE TWO SOURCES, ONE A PRIMARY POWER SOURCE AND THE OTHER ANOTHER POWER SOURCE, ARE LOCATED AT OPPOSITE ENDS OF A BUSBAR THAT CONTAINS LOADS, THE SUM OF 125 PERCENT OF THE POWER-SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE BUSBAR AMPERE RATING. THE BUS BAR SHALL BE SIZED FOR THE LOADS CONNECTED IN ACCORDANCE WITH ARTICLE 220. A PERMANENT WARNING LABEL SHALL BE APPLIED TO THE DISTRIBUTION EQUIPMENT ADJACENT TO THE BACK-FED BREAKER FROM THE POWER SOURCE THAT DISPLAYS THE FOLLOWING OR EQUIVALENT WORDING:  
  
WARNING:  
POWER SOURCE OUTPUT DO NOT RELOCATE  
THIS OVERCURRENT DEVICE.

THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH 110.21(B).  
  
2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:  
2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).  
2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.  
2.6.4 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED. THEREFORE BOTH MUST OPEN WHERE A DISCONNECT IS REQUIRED, ACCORDING TO NEC 690.13.  
2.6.5 DC DISCONNECT INTEGRATED INTO ROOFTOP DC COMBINER OR INSTALLED WITHIN 6 FT, ACCORDING TO NEC 690.15 (C).  
2.6.6 RAPID SHUTDOWN OF ENERGIZED CONDUCTORS BEYOND 10 FT OF PV ARRAY OR 5 FT INSIDE A RACKING WITHIN 10 SECONDS. CONTROLLED CONDUCTORS ≤30V AND ≤240VA [NEC 690.12]. LOCATION OF LABEL ACCORDING TO AHJ.  
2.6.7 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.  
2.6.8 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED, THEREFORE BOTH REQUIRE OVER-CURRENT PROTECTION, ACCORDING TO NEC 240.21. (SEE EXCEPTION IN NEC 690.9)  
2.6.9 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 WIRING & CONDUIT NOTES:  
2.7.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.  
2.7.3 ALL CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.  
2.7.4 EXPOSED UNGROUNDED PV SOURCE AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.35 (D)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS, ACCORDING TO NEC 690.35 (D)(3).  
2.7.5 PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE [NEC 200.6 (A)(6)].  
2.7.6 MODULE WIRING SHALL BE LOCATED AND SECURED UNDER THE ARRAY.  
2.7.7 ACCORDING TO NEC 200.7, UNGROUNDED SYSTEMS DC CONDUCTORS COLORED OR MARKED AS FOLLOWS:  
DC POSITIVE- RED, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN  
DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN  
2.7.8 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:  
FOR 277/480 V  
PHASE A OR L1- PURPLE  
PHASE B OR L2- BROWN  
PHASE C OR L3- YELLOW  
NEUTRAL- GREY  
GROUND- GREEN OR BARE WIRE

\* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

**SYMBOL LEGEND**

|                       |                   |                   |                     |                         |                     |
|-----------------------|-------------------|-------------------|---------------------|-------------------------|---------------------|
| MAIN ENTRANCE DOOR    | COMBINER BOX      | (E) UTILITY METER | PROPERTY LINE       | PV MODULE               | DETAIL INDICATOR    |
| MAIN ELECTRICAL PANEL | TAP BOX           | PV REVENUE METER  | ROOF RAFTERS        | PV MODULE STRING        | METER               |
| JUNCTION BOX          | SUB (AC) PANEL    | UTILITY POLE      | MODULE STRINGING    | CONDUIT                 | PV METER            |
| AC DISCONNECT         | METERMAIN         | MODULE STRINGING  | FIRE CLEARANCE      | INVERTER                | CURRENT TRANSFORMER |
| DC/AC INVERTER        | RAPID SHUTDOWN    | MODULE STRINGING  | ELEVATION INDICATOR | SHEET KEYNOTE INDICATOR | AC DISCONNECT       |
| DC DISCONNECT         | (DC) COMBINER BOX | MODULE STRINGING  | NORTH INDICATOR     |                         |                     |
| AC PANELBOARD         |                   |                   |                     |                         |                     |

DISCLAIMER: PLEASE NOTE THAT THE ABBREVIATIONS, ANNOTATIONS, AND SYMBOLS LISTED ARE INTENDED TO ILLUSTRATE THOSE THAT ARE COMMONLY USED; NOT ALL ARE NECESSARILY UTILIZED WITHIN THIS SET OF DRAWINGS.

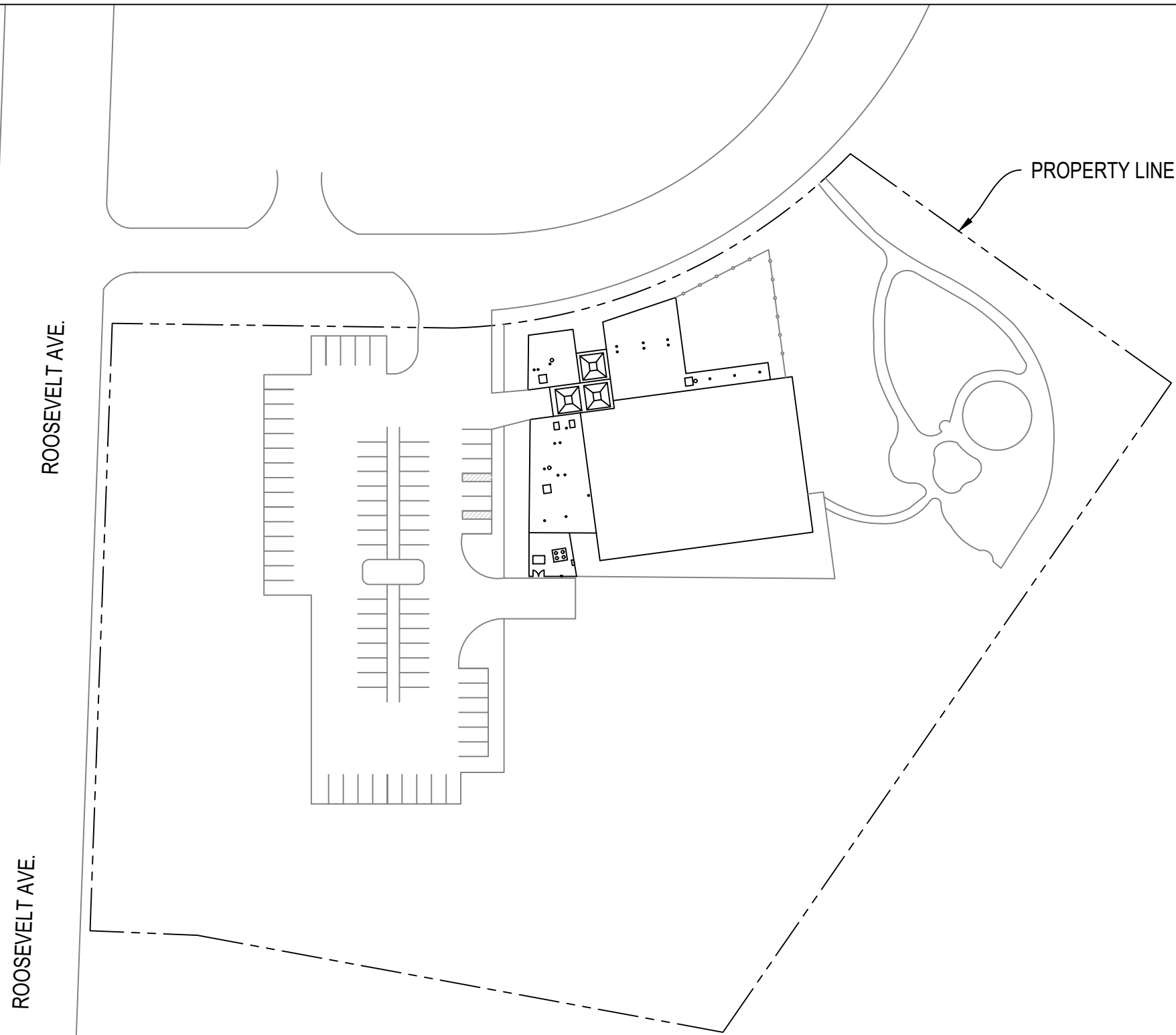
# NEW PV SYSTEM: 191.40 kWDC/ 162.50 kWAC

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01 AERIAL PHOTO  
NOT TO SCALE



02 PLAT MAP  
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### SHEET LIST TABLE

| SHEET NUMBER | SHEET TITLE                    |
|--------------|--------------------------------|
| T-001        | COVER PAGE                     |
| A-101        | SITE PLAN                      |
| A-102        | ELECTRICAL PLAN                |
| A-103        | STRING PLAN                    |
| A-104        | LIGHTING PLAN                  |
| A-105        | PHOTOMETRY PLAN-1              |
| A-106        | PHOTOMETRY PLAN-2              |
| A-107        | EQUIPMENT ELEVATION            |
| E-601        | THREE LINE DIAGRAM             |
| E-602        | WIRING CALCULATIONS & PLACARDS |
| E-603        | LIGHTING LINE DIAGRAM          |
| R-001        | RESOURCE DOCUMENTS-1           |
| R-002        | RESOURCE DOCUMENTS-2           |

### PROJECT INFORMATION

**OWNER**  
NAME: CITY OF SAN ANTONIO

**CONTRACTOR**  
NAME: BIG SUN SOLAR  
ADDRESS: 200 E GRAYSON ST #126, SAN ANTONIO, TX 78215  
PHONE: (210) 960-2303

**APPLICABLE CODES & STANDARDS**  
BUILDING: 2024 INTERNATIONAL BUILDING CODE  
ELECTRICAL: 2023 NATIONAL ELECTRICAL CODE  
FIRE: 2024 INTERNATIONAL FIRE CODE  
AHJ: SAN ANTONIO CITY  
UTILITY: CPS ENERGY

**SCOPE OF WORK**  
TOTAL SIZE: STC: 348 X 550W = 191.40 kWDC  
AC: (2) 50kW + 62.5kW = 162.50 kWAC  
  
(348) MISSION SOLAR MSH10-550HT4T (550W) MODULES  
(02) SMA SUNNY TRIPOWER X 50-US (480V) (50kW) INVERTERS  
(01) SMA SUNNY TRIPower X 62-US (480V) (62.5kW) INVERTER

MSP UPGRADE: NO

CONSTRUCTION CATEGORY: CONSTRUCTION TYPE: II  
OCCUPANCY: U  
CP-1: 6317.96 SQFT  
CP-2: 1430.42 SQFT  
CP-3: 2019.80 SQFT



#### CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL# 32590

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091110-176  
TEML #95185

#### REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

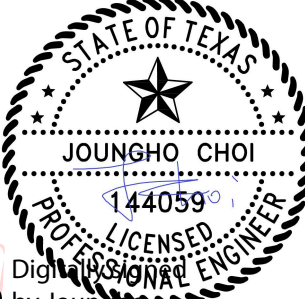
#### PROJECT

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Date: 2026.08.27  
12:27:59 PM

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

COVER PAGE

(SHEET 1)

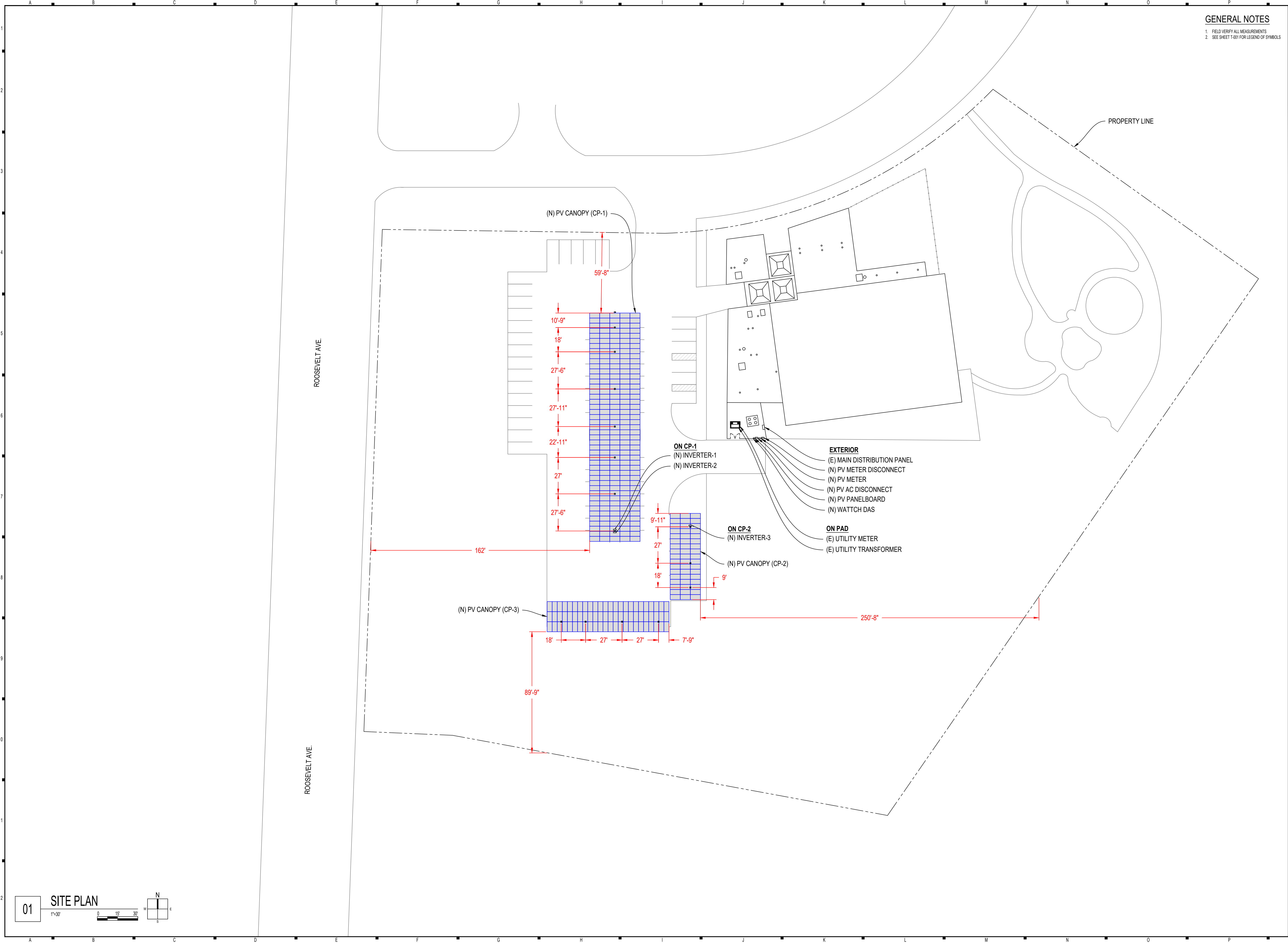
DATE: 8/27/2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

T-001.00



GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. SEE SHEET T-001 FOR LEGEND OF SYMBOLS



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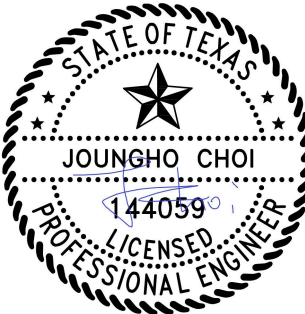
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SHEET TITLE:

SITE PLAN

(SHEET 2)

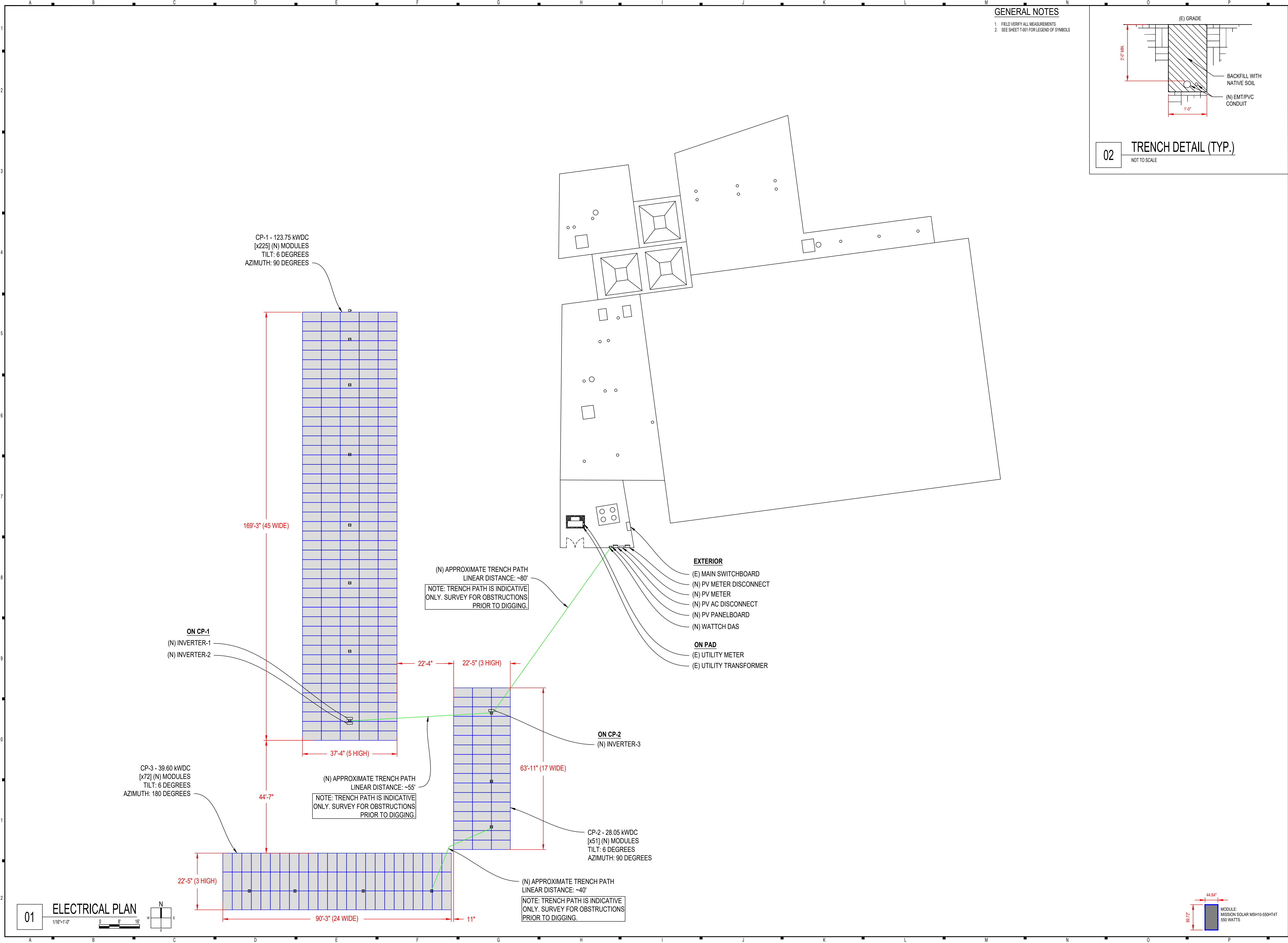
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CHECKED BY: R.E.S.

SHEET NUMBER:

A-101.00



GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS  
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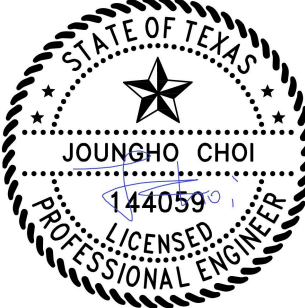
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ELECTRICAL PLAN

(SHEET 3)

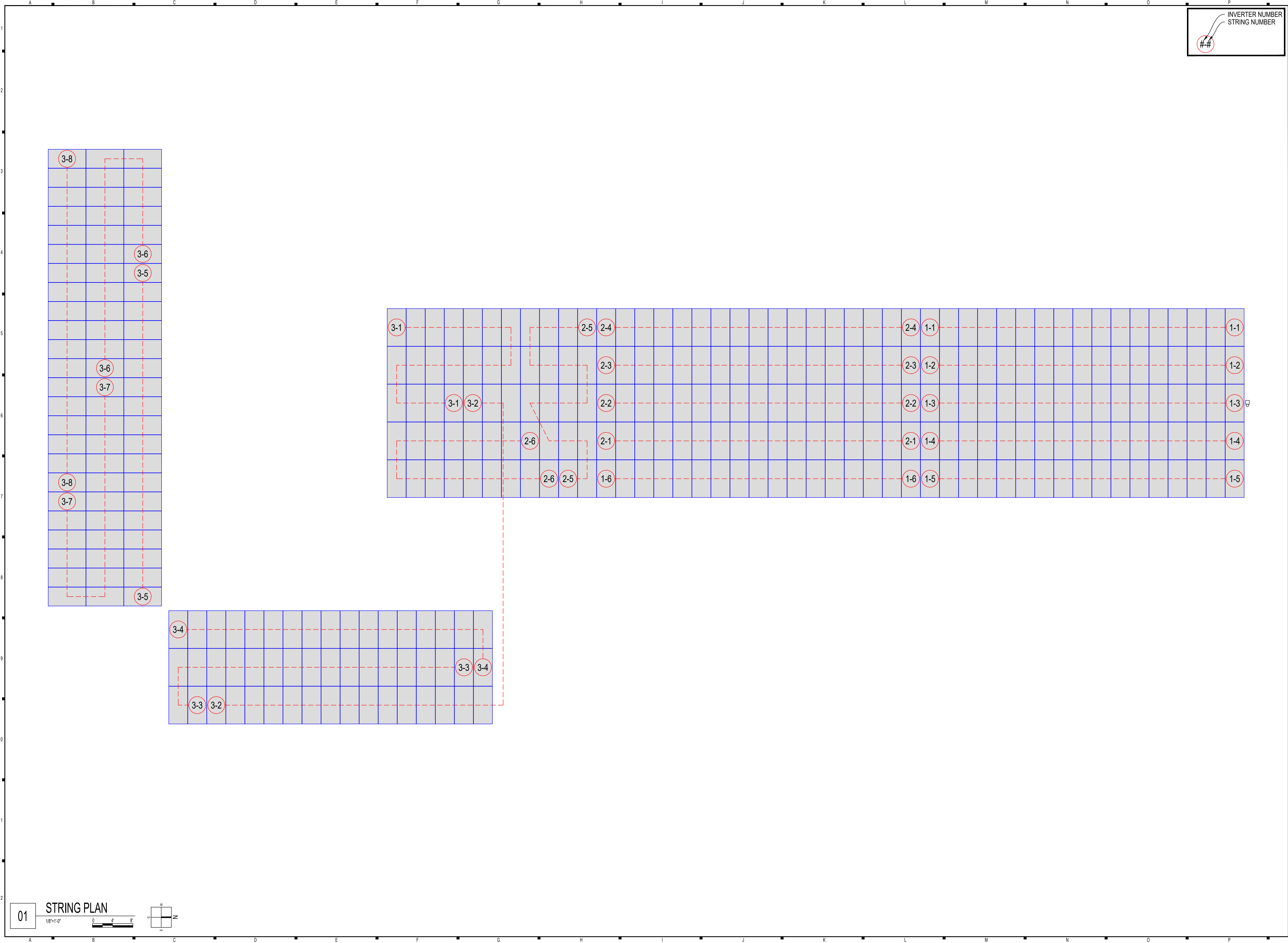
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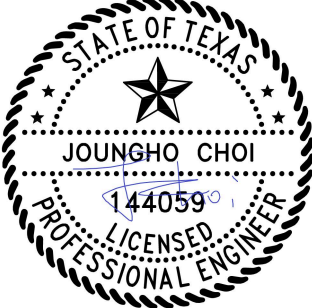
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STRING PLAN

(SHEET 4)

DATE: 8.27.2026

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SHEET NUMBER:

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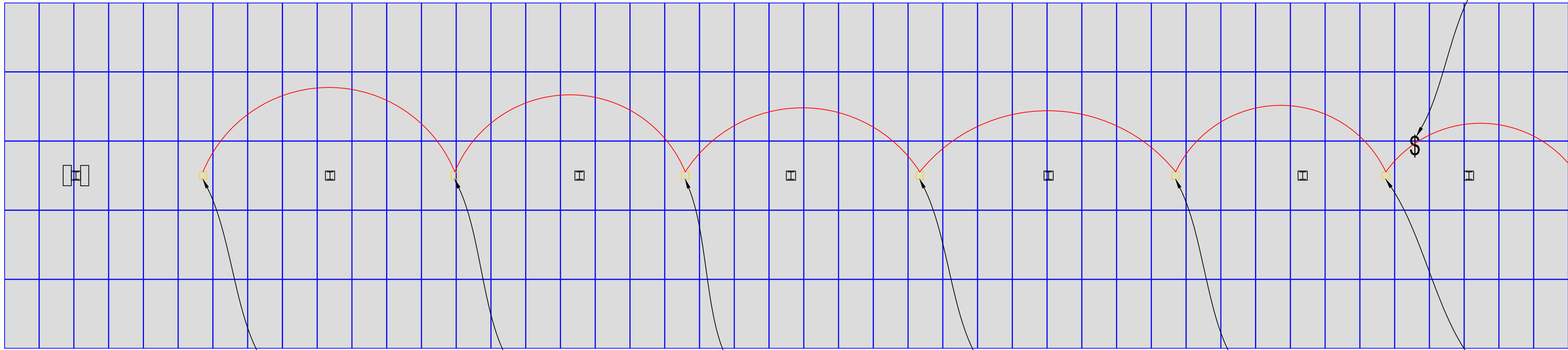
GENERAL NOTES:

1. LIGHTS SHALL BE AUTOMATICALLY TURNED OFF WHEN DAYLIGHT IS PRESENT AND SATISFIES THE LIGHTING NEEDS, PER IECC SEC. C405.2.7.1  
2. ALL CANOPY LIGHTING TO TIE INTO EXISTING LIGHTING CIRCUITS AND TO EXISTING BUILDING LIGHTING CONTROLS. LIGHTING CONTROLS TO BE COMPLY WITH IECC SEC. C405.2.7.1, SEC. C405.2.7.2 OR SEC. C405.2.7.3, AND SEC. C405.2.7.4  
3. LUMINAIRES (FIXTURES) MEET AND EXCEED ALL BACKLIGHTING AND GLARE REQUIREMENTS. UPLIGHTING REQUIREMENTS ARE IRRELEVANT DUE TO THE INSTALLATION TYPE - THE LUMINAIRES WILL BE COMPLETELY COVERED BY THE CARPORTS AND WILL BE INSTALLED PARALLEL TO THE FINISHED GRADE  
4. DEBRIS TO BE REMOVED FROM SITE.

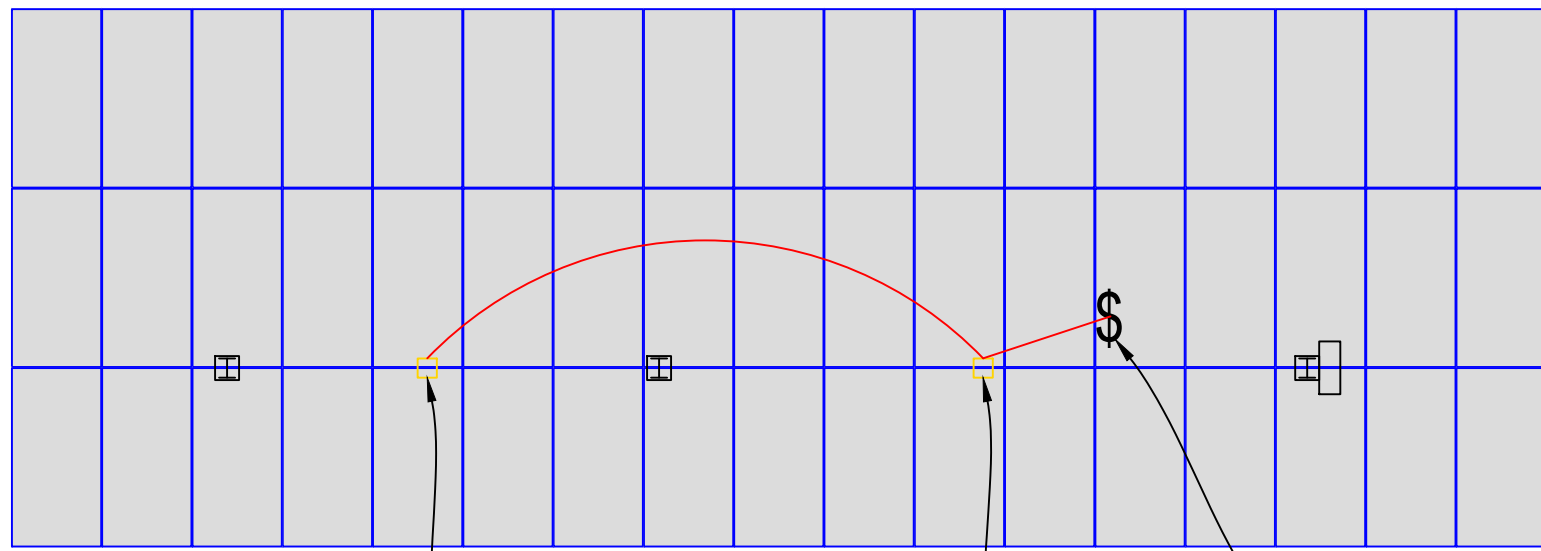
LEGEND:

LUMINAIRE

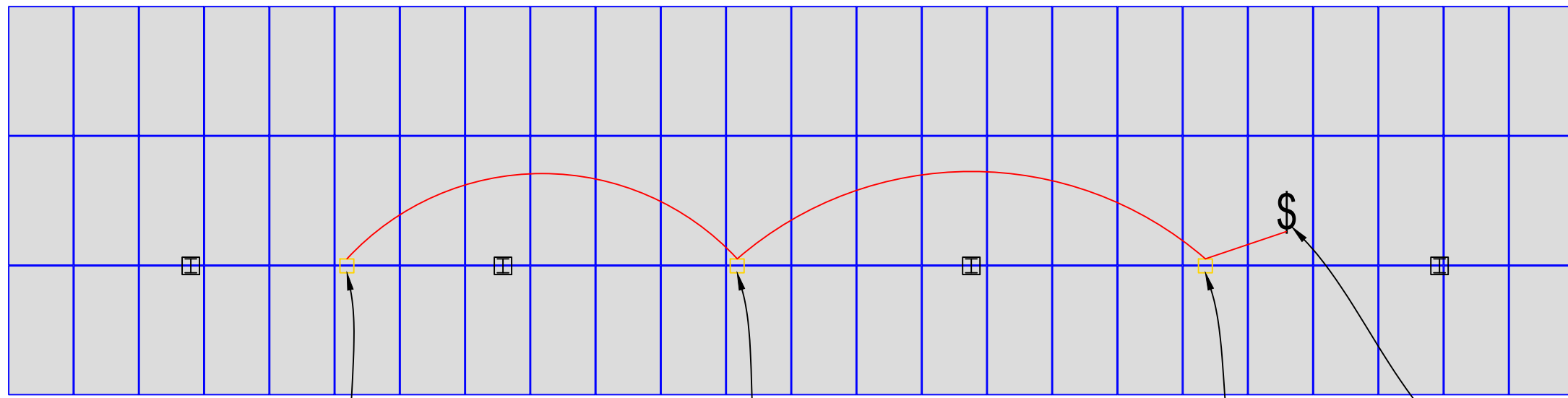
SOLAR MODULE



01 LIGHTING PLAN- (CP-1)



02 LIGHTING PLAN- (CP-2)



03 LIGHTING PLAN- (CP-3)

LUMINAIRE SCHEDULE

| SYMBOL | QTY | LABEL | ARRANGEMENT | ARR. LUM. LUMENS | LLF   | BUG RATING | DESCRIPTION                | LUM. LUMENS |
|--------|-----|-------|-------------|------------------|-------|------------|----------------------------|-------------|
|        | 11  | C1    | SINGLE      | 7579             | 0.900 | B3-U3-G2   | COOPER # CLCS15S-60W-3000K | 7579        |

2M CALCULATION SUMMARY

| LABEL | CALC TYPE   | UNITS | AVG  | MAX  | MIN | AVG/MIN | MAX/MIN | MOUNTING HEIGHT | DISTANCE TO NEAREST PROPERTY LINE |
|-------|-------------|-------|------|------|-----|---------|---------|-----------------|-----------------------------------|
| CP    | ILLUMINANCE | Fc    | 8.07 | 16.3 | 0.1 | 80.70   | 163.00  | 10.00           | 150.00                            |

LIGHTING CIRCUIT ANALYSIS

| STRING | QTY | PHASE | OCPD | PHASE A | KW   |
|--------|-----|-------|------|---------|------|
| 1      | 11  | A     | 20   | 0.66    | 0.66 |
| TOTAL  | 11  |       |      | 0.66    | 0.66 |

LIGHTING CIRCUIT MAINTENANCE

| LIGHTING CIRCUIT | LOCATION                       |
|------------------|--------------------------------|
| CIRCUIT 1        | LIGHTING CONTROL PANEL CKT #11 |

DEMOLITION NOTES:

ELECTRICAL

1. ELECTRICAL CIRCUITS TO BE DISCONNECTED AT GROUND JUNCTION BOXES.  
POLE LIGHT FIXTURES TO BE REMOVED FROM FOUNDATION.  
2. LIGHT FIXTURES TO BE REMOVED FROM POLE AND PALLETIZED FOR STORAGE USING MODULE PALLETS.  
3. EQUIPMENT TO BE STORED ON SITE.  
4. EXISTING LIGHTING CIRCUITS TO BE USED FOR NEW CANOPY LIGHT FIXTURES.

FOUNDATION

1. CEMENT FOUNDATIONS TO BE REMOVED TO 6" BELOW GRADE.  
2. EXISTING REBAR TO BE REMOVED TO GROUND LEVEL.  
3. NEW CEMENT CAPS TO BE INSTALLED TO GRADE.  
4. IN LOCATIONS DETERMINED BY ELECTRICIAN, REMOVE FOUNDATION TO 14" BELOW GRADE, AND POUR NEW CEMENT CAPS AROUND GROUND JUNCTION BOX.  
5. DEBRIS TO BE REMOVED FROM SITE.



CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL#32590

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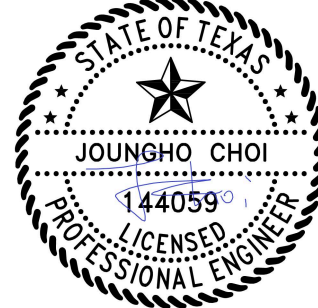
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Firm #20326

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

LIGHTING PLAN

(SHEET 5)

DATE: 8/27/2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

A-104.00



NOTE: THE AMOUNT OF LIGHT FALLING ON THE SURFACE/GROUND (ILLUMINANCE) IS REPRESENTED ON THE PLAN USING NUMERICAL DECIMAL VALUES IN FOOTCANDLES (FC).

**CONTRACTOR**

G SUN SOLAR

**PHONE:** (210) 960-2303

TECL# 32590

UNAUTHORIZED USE OF THIS  
DRAWING SET WITHOUT WRITTEN  
PERMISSION FROM CONTRACTOR IS  
VIOLATION OF U.S. COPYRIGHT LAW  
AND WILL BE SUBJECT TO CIVIL  
DAMAGES AND PROSECUTIONS.



HARLES E. KIRK  
091110-176  
TEML #95185

## REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

## PROJECT

NEW PV SYSTEM: 191.40 kWDC / 162.50 kWAC

COSA - MISSION BRANCH  
LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

## ENGINEER OF RECORD

PER SIZE: 36" x 24" (ARCH D)

**SHEET TITLE**

### THERMOMETRY PLAN-

SHEET 6)

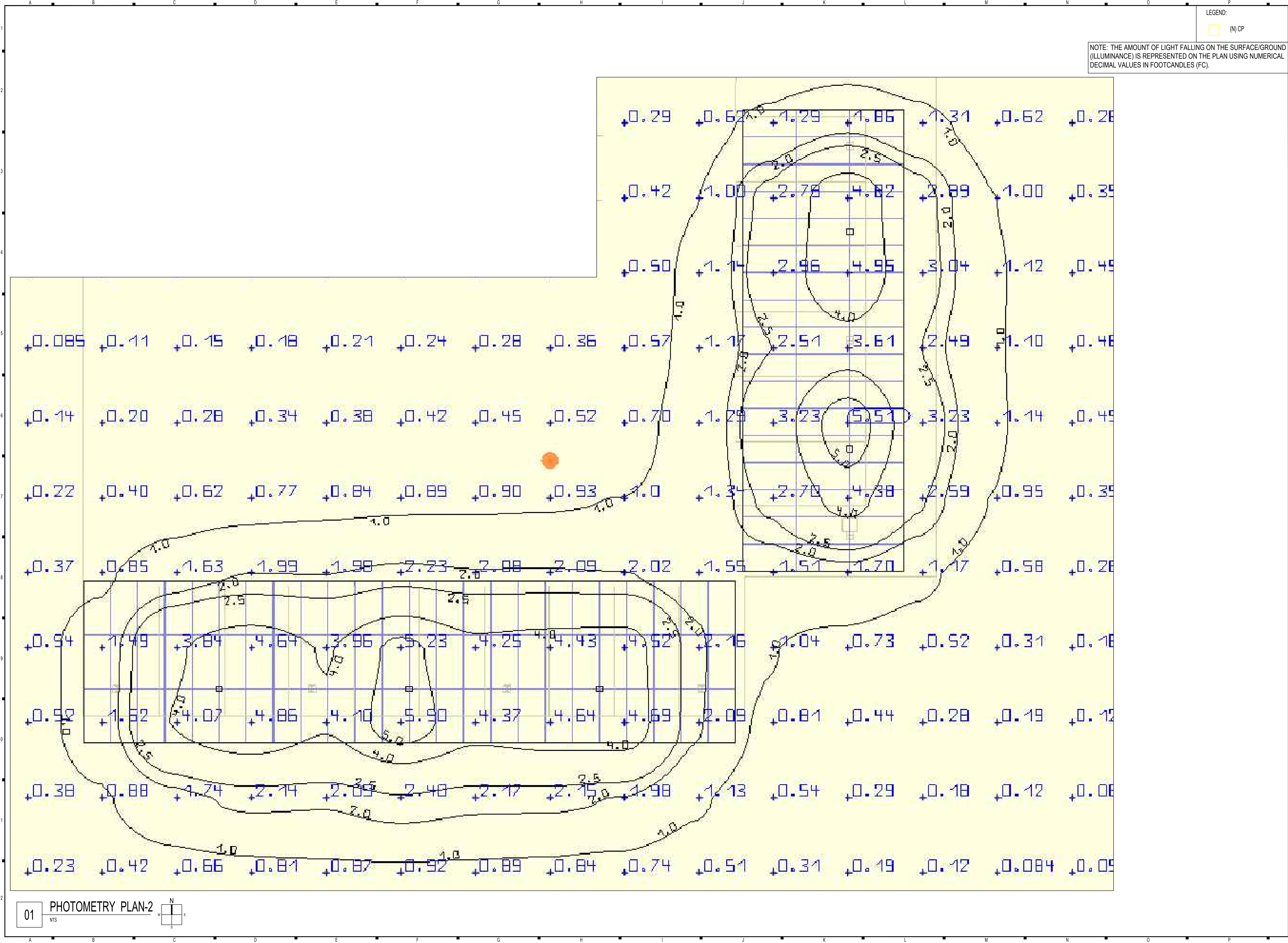
DATE: 8.27.2026

DESIGN BY: R.E.S

CHECKED BY: R.E.S

SHEET NUMBER

A-105.00



CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECH# 32590

UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT WRITTEN PERMISSION FROM CONTRACTOR IS IN VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTIONS.



CHARLES E. KIRK  
091110-176  
TEML #95185

REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

PROJECT

NEW PV SYSTEM: 191.40 KWDC / 162.50 KWAC

COSA - MISSION BRANCH  
LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

ENGINEER OF RECORD

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

PHOTOMETRY PLAN-2

(SHEET 7)

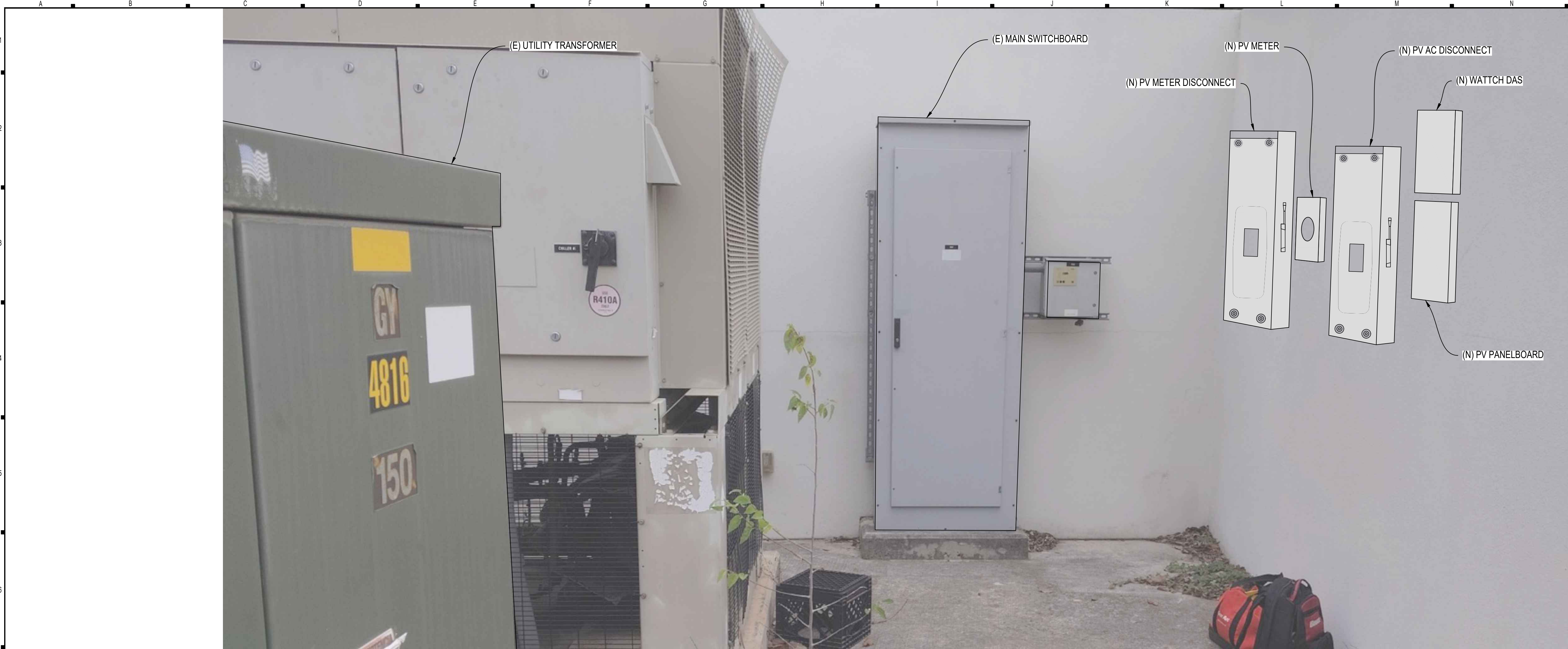
DATE: 8/27/2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

A-106.00



A EQUIPMENT ELEVATION-1 (EXTERIOR)



B EQUIPMENT ELEVATION-2 (EXTERIOR)



C EQUIPMENT ELEVATION-3 (EXTERIOR)



CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL# 32590

UNAUTHORIZED USE OF THIS  
DRAWING SET WITHOUT WRITTEN  
PERMISSION FROM CONTRACTOR IS IN  
VIOLATION OF U.S. COPYRIGHT LAWS  
AND WILL BE SUBJECT TO CIVIL  
DAMAGES AND PROSECUTIONS.



CHARLES E. KIRK  
091110-176  
TEML #95185

REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

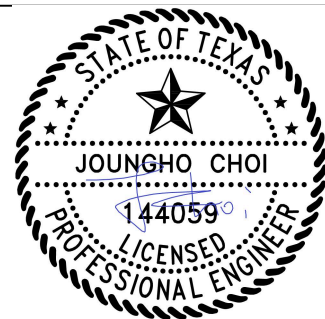
PROJECT

NEW PV SYSTEM: 191.40 kWDC / 162.50 kWAC

COSA - MISSION BRANCH  
LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

ENGINEER OF RECORD



Barun Corp.  
Firm #20326

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

EQUIPMENT ELEVATION

(SHEET 6)

DATE: 8.27.2026

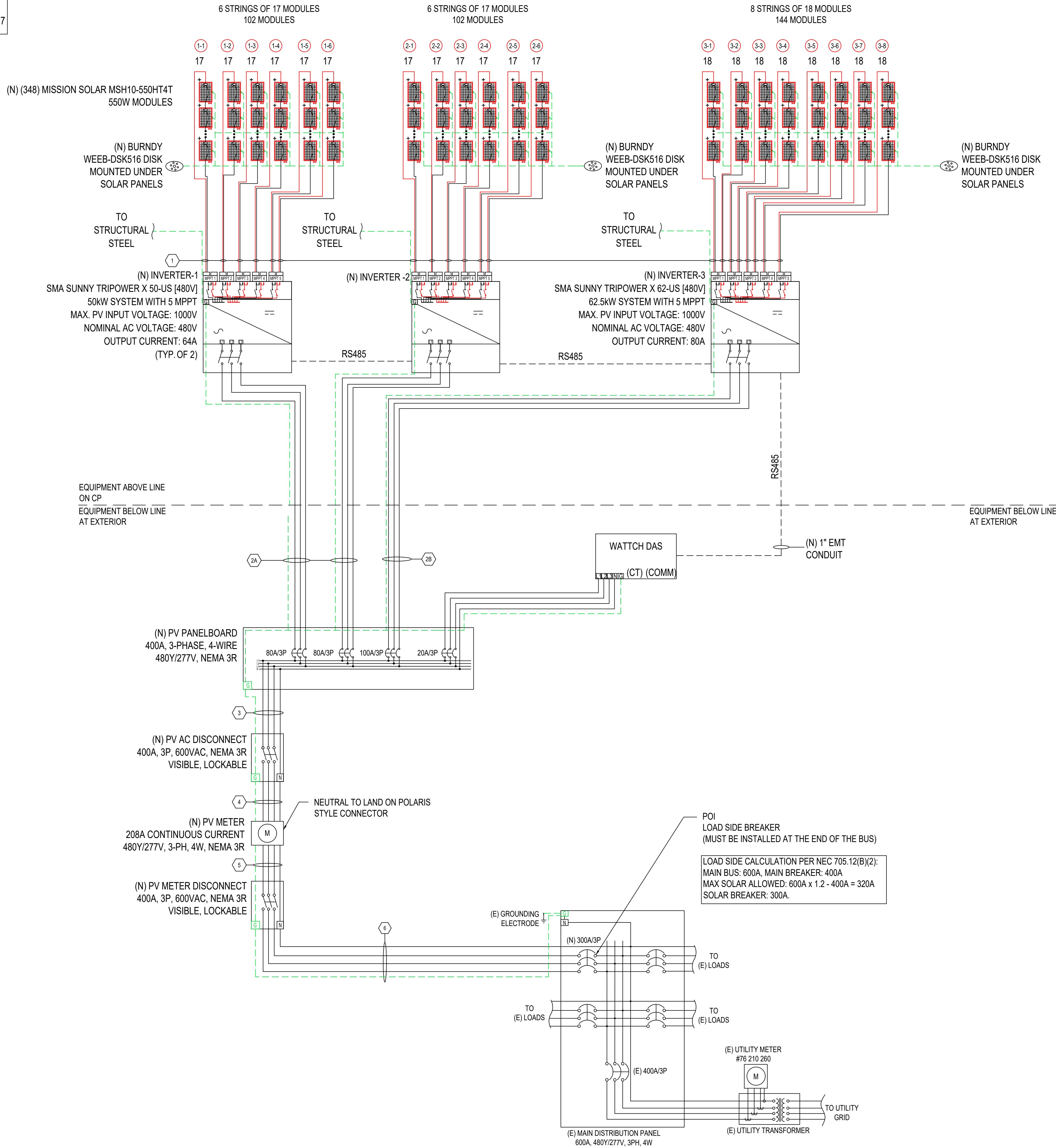
DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

A-107.00

NOTES:  
1. ALL PARALLEL CONDUCTORS TO BE IN SEPARATE CONDUITS  
2. ALL BUILDING METAL PIPING TO BE BONDED.  
3. NEW AC SURGE PROTECTOR TO BE INSTALLED OBSERVING NEC 230.67



01

### THREE LINE DIAGRAM

NOT TO SCALE



#### CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL#32590

UNAUTHORIZED USE OF THIS  
DRAWING SET WITHOUT WRITTEN  
PERMISSION FROM CONTRACTOR IS IN  
VIOLATION OF U.S. COPYRIGHT LAWS  
AND WILL BE SUBJECT TO CIVIL  
DAMAGES AND PROSECUTIONS.



CHARLES E. KIRK  
091110-176  
TEML #95185

#### REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

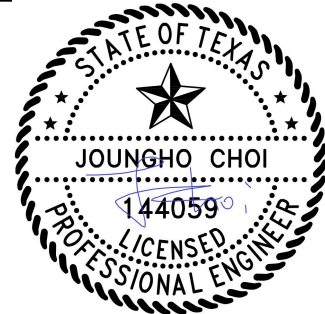
#### PROJECT

NEW PV SYSTEM: 191.40 kWDC / 162.50 kWAC

### COSA - MISSION BRANCH LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

#### ENGINEER OF RECORD



Barun Corp.  
Firm #20326

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

THREE LINE DIAGRAM

(SHEET 09)

DATE: 8.27.2026

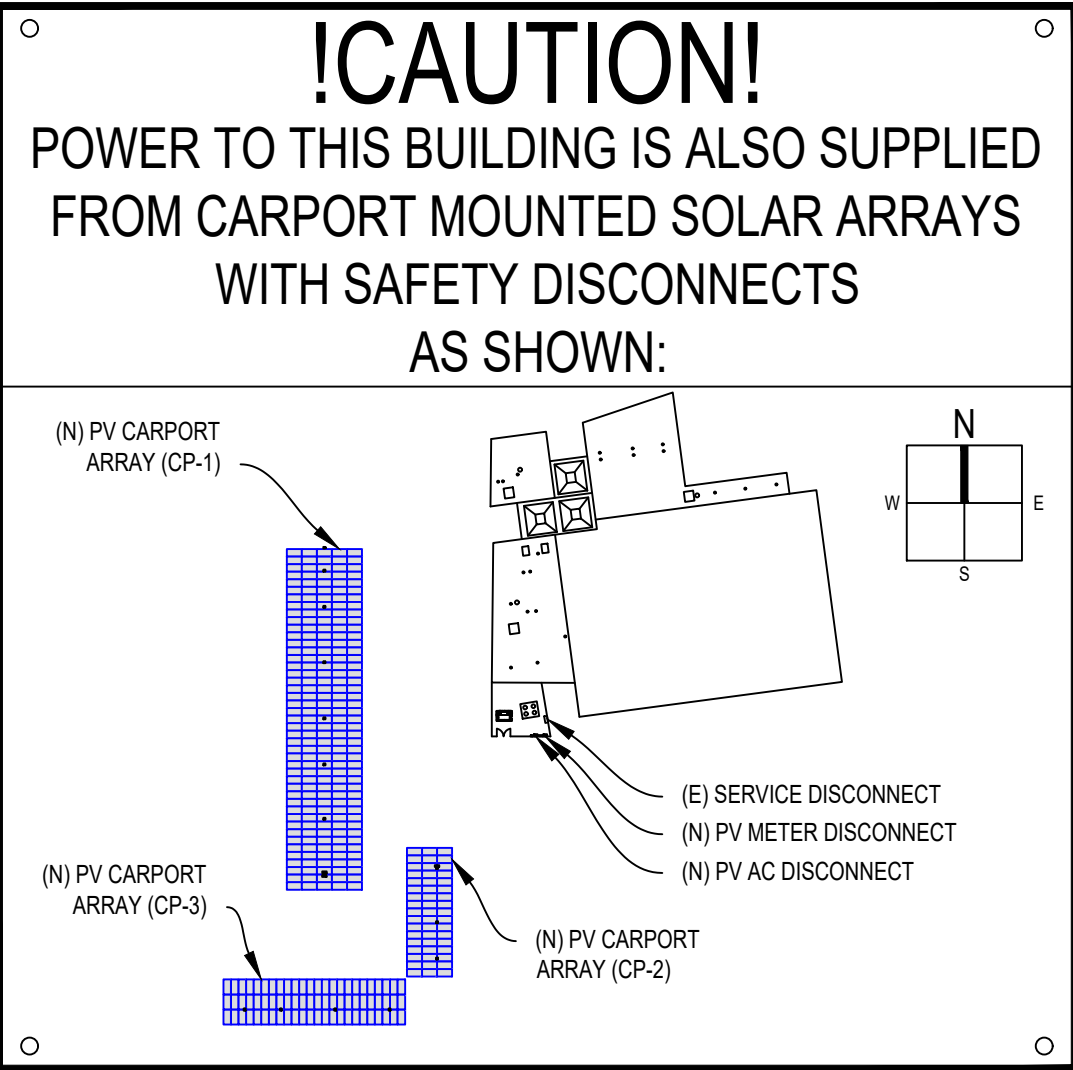
DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

E-601.00

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| MODULES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                                                       |                |                                        |             |                             |                        |                     | SYSTEM SUMMARY            |                    |                                         |                     |                              |                     |                           |                         |                |
| QTY.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MAKE AND MODEL              |                                                       | PMAX           | ISC                                    | IMP         | VOC                         | VMP                    | TEMP. COEFF. OF VOC | MAX. FUSE RATING          | INVERTER # MPPT #  | INVERTER -1 MPPT #1, 2, 3, 4            | INVERTER -1 MPPT #5 | INVERTER -2 MPPT #1, 2, 3, 4 | INVERTER -2 MPPT #5 | INVERTER -3 MPPT #1, 2, 3 | INVERTER -3 MPPT # 4, 5 |                |
| 348                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MISSION SOLAR MSH10-550HT4T |                                                       | 550W           | 14A                                    | 13.12A      | 49.8V                       | 41.95V                 | -0.258%/°C          | 25A                       | INVERTER STRINGING | (1-1) THRU (1-4)                        | (1-5) THRU (1-6)    | (2-1) THRU (2-4)             | (2-5) THRU (2-6)    | (3-1) THRU (3-6)          | (3-7) THRU (3-8)        |                |
| INVERTERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                                                       |                |                                        |             |                             |                        |                     | MODULE COUNT              | 17                 | 17X2                                    | 17                  | 17X2                         | 18X2                | 18                        |                         |                |
| QTY.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MAKE AND MODEL              |                                                       | AC VOLTAGE     | MIN OCPD RATING                        | RATED POWER | MAX OUTPUT CURRENT PER MPPT | MAX INPUT CURRENT      | MAX ISC             | MAX INPUT VOLTAGE         | MPPT VMP           | 660V                                    | 660V                | 660V                         | 660V                | 699V                      | 699V                    |                |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SMA SUNNY TRIPOWER X 50-US  |                                                       | 480V           | 80A                                    | 50,000W     | 64A                         | 40A                    | 50A                 | 1000V                     | MPPT VOC           | 933V                                    | 933V                | 933V                         | 933V                | 988V                      | 988V                    |                |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SMA SUNNY TRIPOWER X 62-US  |                                                       | 480V           | 100A                                   | 62,500W     | 80A                         | 40A                    | 50A                 | 1000V                     | MPPT IMP           | 13.1A                                   | 26.3A               | 13.1A                        | 26.3A               | 26.3A                     | 13.1A                   |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                       |                |                                        |             |                             |                        |                     | STRING ARRAY STC POWER    | 9,350W             | 18,700W                                 | 9,350W              | 18,700W                      | 19,800W             | 9,900W                    |                         |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                       |                |                                        |             |                             |                        |                     | TOTAL STC POWER           | 191,400W           |                                         |                     |                              |                     |                           |                         |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                       |                |                                        |             |                             |                        |                     | TOTAL INVERTER AC CURRENT | 208 A              |                                         |                     |                              |                     |                           |                         |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                       |                |                                        |             |                             |                        |                     | TOTAL INVERTER AC POWER   | 162,500W           |                                         |                     |                              |                     |                           |                         |                |
| DESIGN TEMPERATURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| ASHRAE EXTREME LOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | -4.4°C (24.1°F), SOURCE: SAN ANTONIO STINSON, TX, USA |                |                                        |             |                             |                        |                     |                           |                    |                                         |                     |                              |                     |                           |                         |                |
| ASHRAE 2% HIGH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             | 31.4°C (88.5°F), SOURCE: SAN ANTONIO STINSON, TX, USA |                |                                        |             |                             |                        |                     |                           |                    |                                         |                     |                              |                     |                           |                         |                |
| CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TYPICAL                     | CONDUCTOR                                             | CONDUIT        | CURRENT-CARRYING CONDUCTORS IN CONDUIT |             | OCPD                        | EGC                    | TEMP. CORR. FACTOR  | CONDUIT FILL FACTOR       | CONT. CURRENT      | MAX. CURRENT (156% FOR DC, 125% FOR AC) | BASE AMP.           | DERATED AMP.                 | TERM. TEMP. RATING  | AMP. @ TERMINAL           | LENGTH (FT)             | VOLTAGE DROP % |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20                          | 10 AWG PV WIRE (1000V), COPPER                        | N/A            | FREE AIR                               |             | N/A                         | 6 AWG BARE, COPPER     | 0.96 (31.4°C)       | 1.0                       | 14.00A             | 21.84A                                  | 55A                 | 52.8A                        | 60°C                | 40A                       | 130                     | 0.66           |
| 2A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2                           | 1 AWG THWN-2, ALUMINUM                                | 1-1/2" PVC/EMT | 3                                      |             | 80A                         | 6 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 64.00A             | 80A                                     | 115A                | 110.4A                       | 60°C                | 80A                       | 145                     | 0.84           |
| 2B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                           | 1/0 AWG THWN-2, ALUMINUM                              | 1-1/2" PVC/EMT | 3                                      |             | 100A                        | 6 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 80.00A             | 100A                                    | 135A                | 129.6A                       | 75°C                | 100A                      | 90                      | 0.52           |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                           | 500 MCM THWN-2, ALUMINUM                              | 3" EMT         | 3+N                                    |             | N/A                         | 2 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 208.00A            | 260A                                    | 350A                | 336A                         | 75°C                | 310A                      | 5                       | 0.01           |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                           | 500 MCM THWN-2, ALUMINUM                              | 3" EMT         | 3+N                                    |             | 300A                        | 2 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 208.00A            | 260A                                    | 350A                | 336A                         | 75°C                | 310A                      | 5                       | 0.01           |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                           | 500 MCM THWN-2, ALUMINUM                              | 3" EMT         | 3+N                                    |             | 300A                        | 2 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 208.00A            | 260A                                    | 350A                | 336A                         | 75°C                | 310A                      | 5                       | 0.01           |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                           | 500 MCM THWN-2, ALUMINUM                              | 3" EMT         | 3+N                                    |             | 300A                        | 2 AWG THWN-2, ALUMINUM | 0.96 (31.4°C)       | 1.0                       | 208.00A            | 260A                                    | 350A                | 336A                         | 75°C                | 310A                      | 10                      | 0.03           |
| <div><div><div><div>! WARNING !</div><div>ELECTRIC SHOCK HAZARD<br/>DO NOT TOUCH TERMINALS<br/>TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.</div></div><div>LABEL 1<br/>AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT<br/>[NEC 690.17]</div></div><div><div><div></div><div>MAX INPUT CURRENT: 26.3A DC<br/>OPERATING VOLTAGE: 660V DC<br/>MAX SHORT CURRENT: 34.7A DC<br/>MAX VOLTAGE: 933V DC</div><div></div></div><div>LABEL 2A INVERTER-1<br/>AT EACH APPLICABLE DC DISCONNECTING MEANS<br/>[NEC 690.53]</div></div><div><div><div></div><div>MAX INPUT CURRENT: 26.3A DC<br/>OPERATING VOLTAGE: 660V DC<br/>MAX SHORT CURRENT: 34.7A DC<br/>MAX VOLTAGE: 933V DC</div><div></div></div><div>LABEL 2B INVERTER-2<br/>AT EACH APPLICABLE DC DISCONNECTING MEANS<br/>[NEC 690.53]</div></div><div><div><div></div><div>MAX INPUT CURRENT: 26.3A DC<br/>OPERATING VOLTAGE: 660V DC<br/>MAX SHORT CURRENT: 34.7A DC<br/>MAX VOLTAGE: 988V DC</div><div></div></div><div>LABEL 2C INVERTER-3<br/>AT EACH APPLICABLE DC DISCONNECTING MEANS<br/>[NEC 690.53]</div></div><div><div><div></div><div>PV AC DISCONNECT</div><div>OPERATING CURRENT: 208A AC<br/>OPERATING VOLTAGE: 480V AC</div><div></div></div><div>LABEL 3A<br/>AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS<br/>[NEC 690.54]</div></div><div><div><div></div><div>PV METER DISCONNECT</div><div>OPERATING CURRENT: 208A AC<br/>OPERATING VOLTAGE: 480V AC</div><div></div></div><div>LABEL 3A<br/>AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS<br/>[NEC 690.54]</div></div></div> <div><div><div><div>! WARNING !</div><div>DUAL POWER SOURCES. SECOND SOURCE IS PV SYSTEM</div></div><div>LABEL 4<br/>AT POINT OF INTERCONNECTION<br/>[NEC 705.12(D)(4)]</div></div><div><div><div></div><div>WARNING: PHOTOVOLTAIC POWER SOURCE</div><div></div></div><div>LABEL 5<br/>AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS. [NEC 690.31(G)]<br/>LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE [IFC 605.11.1.1]</div></div><div><div><div></div><div>PHOTOVOLTAIC DC DISCONNECT</div><div></div></div><div>LABEL 6<br/>AT EACH DC DISCONNECTING MEANS<br/>[NEC 690.13(B)]</div></div><div><div><div></div><div>INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED<br/>PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED SOUTH SIDE OF THE BUILDING</div><div></div></div><div>PLAQUE</div></div><div><div><div></div><div>INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED</div><div></div></div><div>LABEL 7<br/>AT UTILITY METER<br/>[NEC 690.56(B)]</div></div></div> <div><div><div><div>PHOTOVOLTAIC AC DISCONNECT</div><div></div></div><div>LABEL 8<br/>AT EACH AC DISCONNECTING MEANS<br/>[NEC 690.13(B)]</div></div><div><div><div><div>! WARNING</div><div>ELECTRICAL SHOCK HAZARD<br/>TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</div></div><div>LABEL 9<br/>AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT (2" X 4").<br/>[NEC 690.13].</div></div><div><div><div><div>! WARNING</div><div>POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE</div></div><div>LABEL 10<br/>MAIN DISTRIBUTION PANEL (ONLY IF SOLAR IS BACK-FED)<br/>SUBPANEL (ONLY IF SOLAR IS BACK-FED)<br/>CODE REF: NEC 705.12 (B)(2)</div></div><div><div><div></div><div>PV METER</div><div></div></div><div>LABEL 11<br/>AT PV METER SOCKET</div></div><div><div><div></div><div>REVENUE METER</div><div></div></div><div>LABEL 12<br/>AT CPS ENERGY REVENUE METER SOCKET</div></div></div><div><div><div><div><div>!CAUTION!</div><div>POWER TO THIS BUILDING IS ALSO SUPPLIED FROM CARPORT MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:</div><div><div><div>(N) PV CARPORT ARRAY (CP-1)</div><div>(N) PV CARPORT ARRAY (CP-3)</div><div>(N) PV CARPORT ARRAY (CP-2)</div><div>(E) SERVICE DISCONNECT</div><div>(N) PV METER DISCONNECT</div><div>(N) PV AC DISCONNECT</div></div><div><div>N</div><div>W</div><div>E</div><div>S</div></div></div></div><div><div>DIRECTORY</div><div>PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION [NEC 690.56(B)]<br/>WHERE THE INVERTERS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE INSTALLED AT EACH DC PV SYSTEM DISCONNECTING MEANS, AT EACH AC DISCONNECTING MEANS, AND AT THE MAIN SERVICE DISCONNECTING MEANS SHOWING THE LOCATION OF ALL AC AND DC PV SYSTEM DISCONNECTING MEANS IN THE BUILDING. [NEC 690.4(H)]<br/>LABELING NOTES<br/>1.1 LABELING REQUIREMENTS BASED ON THE 2023 NATIONAL ELECTRICAL CODE, 2024 INTERNATIONAL FIRE CODE, OSHA 29 CFR 1910.269, ANSI Z535<br/>1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.<br/>1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.<br/>1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.<br/>1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]</div></div></div></div></div></div></div> |                             |                                                       |                |                                        |             |                             |                        |                     |                           |                    |                                         |                     |                              |                     |                           |                         |                |



**DIRECTORY**  
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION  
[NEC 690.56(B)]  
WHERE THE INVERTERS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE INSTALLED AT EACH DC PV SYSTEM DISCONNECTING MEANS, AT EACH AC DISCONNECTING MEANS, AND AT THE MAIN SERVICE DISCONNECTING MEANS SHOWING THE LOCATION OF ALL AC AND DC PV SYSTEM DISCONNECTING MEANS IN THE BUILDING.  
[NEC 690.4(H)]

**LABELING NOTES**  
1.1 LABELING REQUIREMENTS BASED ON THE 2023 NATIONAL ELECTRICAL CODE, 2024 INTERNATIONAL FIRE CODE, OSHA 29 CFR 1910.269, ANSI Z535  
1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.  
1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.  
1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.  
1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]



CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL# 32590

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CHARLES E. KIRK  
091110-176  
TEML #95185

REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

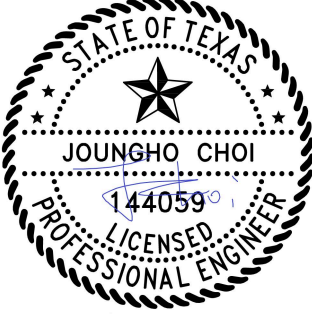
PROJECT

NEW PV SYSTEM: 191.40 kWDC / 162.50 KWAC

COSA - MISSION BRANCH LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

ENGINEER OF RECORD



Barun Corp.  
Firm #20326

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

WIRING CALCULATIONS & PLACARDS

(SHEET 10)

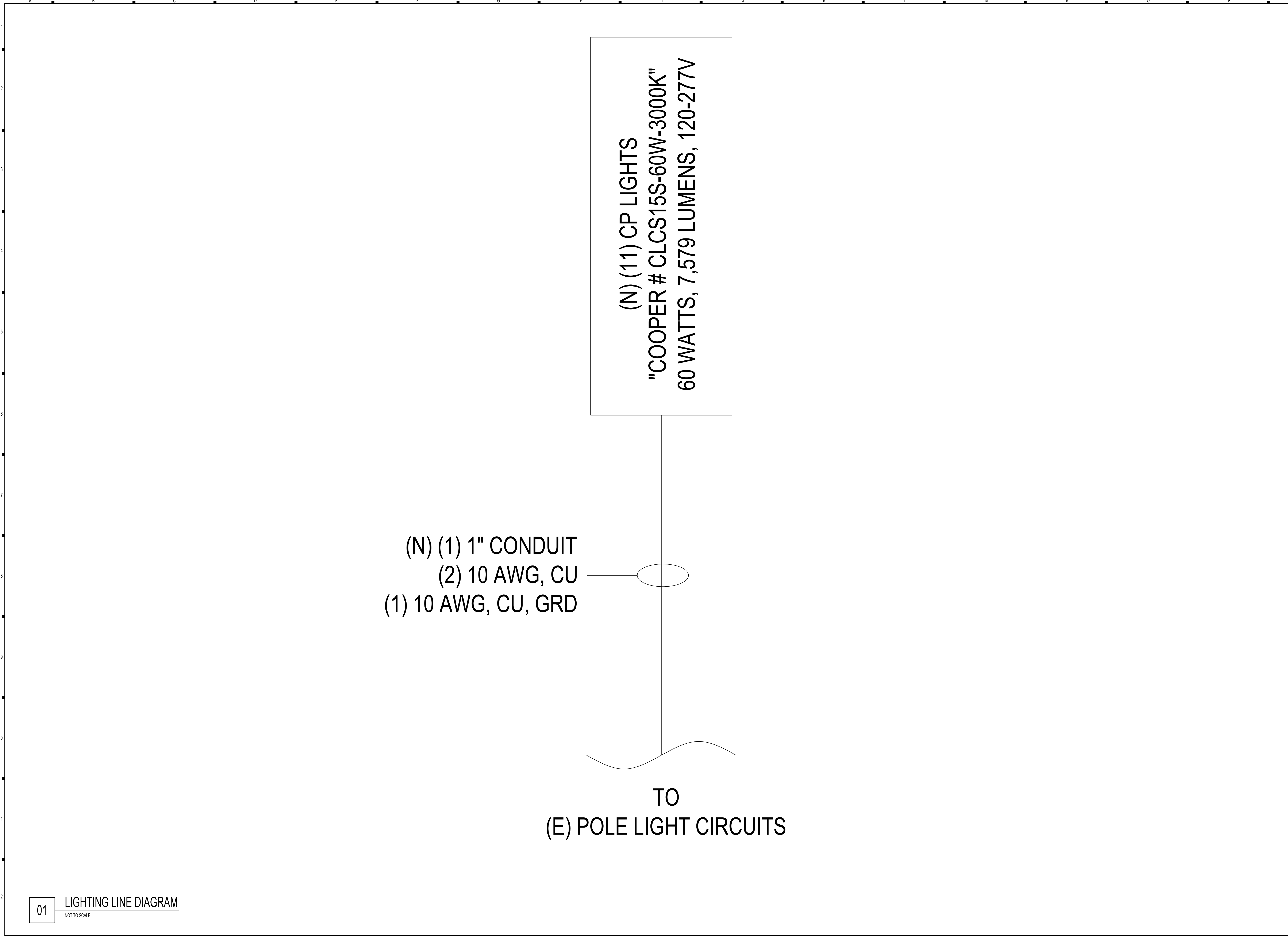
DATE: 8/27/2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

E-602.00



01 LIGHTING LINE DIAGRAM  
NOT TO SCALE



CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL#32590

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DAMAGES AND PROSECUTIONS.



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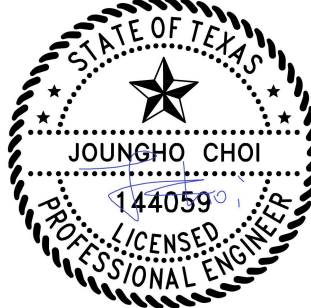
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LIBRARY

3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

ENGINEER OF RECORD



Barun Corp.  
Firm #20326

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

LIGHTING LINE DIAGRAM

(SHEET 11)

DATE: 8.27.2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

E-603.00

P-PERC Bifacial 144HC  
Transparent Backsheet



540-560W  
Class leading power output

Positive Power  
Tolerance  
0 to +3%

## Solar Built for the Long Haul

Mission Solar Energy is headquartered in San Antonio, Texas. This product is tailored for commercial and utility applications. Every Mission Solar Energy solar module is certified and surpasses industry standard regulations, providing excellent performance over the long term. Mission Solar Energy is a proud member of the OCI family of companies.

### America's Module Company®

- Fair Trade Practices**
  - Free of forced labor at all stages of the supply chain
  - Not subject to AD/CVD tariffs or investigations
- Certified Reliability**
  - Tested to UL 61730
  - PID resistant
- Advanced Technology**
  - Half-cut cell with 10 busbar
  - Passivated Emitter Rear contact
  - Engineered for residential and commercial applications
- Extreme Weather Resilience**
  - Up to 5,400 Pa front load & 2,400 Pa back load
  - Tested load to UL 61730
  - Hail tests results exceed 25mm at 23 m/s

### CERTIFICATIONS



If you have questions or concerns about certification of our products in your area, please contact Mission Solar Energy.

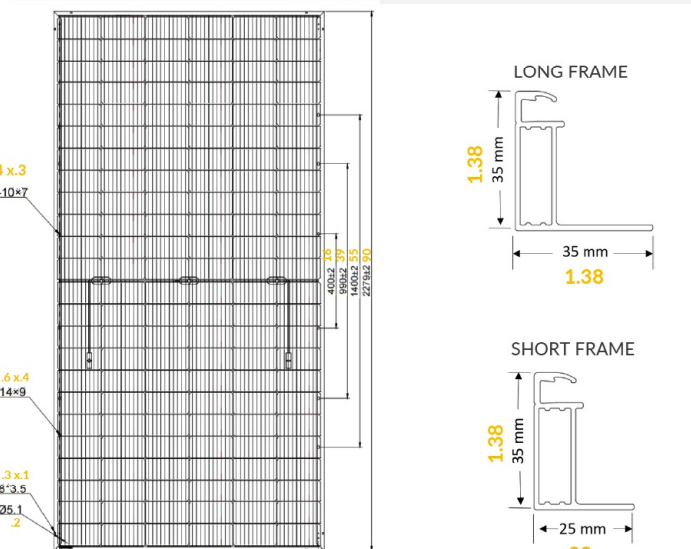
www.missionsolar.com | info@missionsolar.com

Class Leading  
540-560W

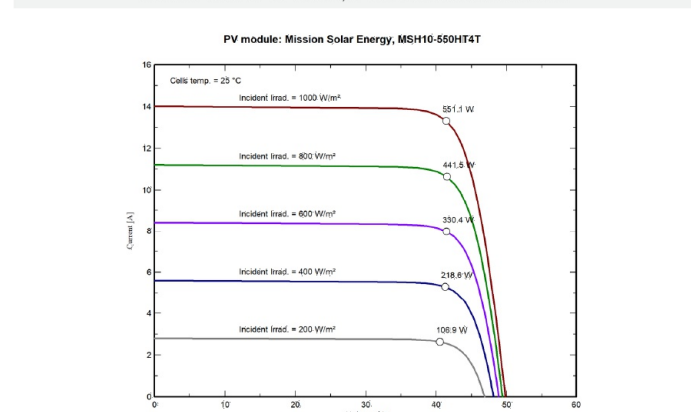
## P-PERC Bifacial 144HC Transparent Backsheet

| ELECTRICAL SPECIFICATION |                            |       |       |       |
|--------------------------|----------------------------|-------|-------|-------|
| PRODUCT TYPE             | MSH10-550H4T (Pmax = Pmax) |       |       |       |
| Power Output             | Pmax                       | Wp    | 545   | 555   |
| Module Efficiency        | %                          | 21.1  | 21.3  | 21.5  |
| Open Circuit Voltage     | Voc                        | 49.65 | 49.8  | 49.95 |
| Short Circuit Current    | Isc                        | A     | 13.95 | 14    |
| Open Circuit Voltage     | Voc                        | V     | 49.65 | 49.8  |
| Rated Current            | Imp                        | A     | 13.05 | 13.2  |
| Rated Voltage            | Vmp                        | V     | 41.95 | 42.1  |
| Fuse Rating              | A                          | 25    | 25    | 25    |
| System Voltage           | V                          | 1,500 | 1,500 | 1,500 |

### BASIC DIMENSIONS



### CURRENT-VOLTAGE CURVE



Mission Solar Energy  
8303 S. New Braunfels Ave., San Antonio, Texas  
78235 www.missionsolar.com | info@missionsolar.com  
Mission Solar Energy reserves the right to make specification changes without notice.  
C-MKTG-0061 VERSION: 1 VERSION DATE: 1/28/2025

www.missionsolar.com | info@missionsolar.com

| ELECTRICAL SPECIFICATION (BACKSIDE) |      |    |       |       |
|-------------------------------------|------|----|-------|-------|
| Power Output                        | Pmax | Wp | 405   | 413   |
| Short Circuit Current               | Isc  | A  | 11.26 | 11.3  |
| Open Circuit Voltage                | Voc  | V  | 47.06 | 47.2  |
| Rated Current                       | Imp  | A  | 10.22 | 10.35 |
| Rated Voltage                       | Vmp  | V  | 39.62 | 39.76 |

| TEMPERATURE COEFFICIENTS                    |              |
|---------------------------------------------|--------------|
| Nominal Module Operating Temperature (NMOT) | 45°C (123°F) |
| Temperature Coefficient of Pmax             | -0.325%/°C   |
| Temperature Coefficient of Voc              | -0.258%/°C   |
| Temperature Coefficient of Isc              | 0.051%/°C    |

| OPERATING CONDITIONS            |                                             |
|---------------------------------|---------------------------------------------|
| Maximum System Voltage          | 1,500 Vdc                                   |
| Operating Temperature Range     | -40°F to 185°F (-40°C to +85°C)             |
| Maximum Series Fuse Rating/Fire | 25A                                         |
| Safety Classification           | Type 1                                      |
| Front & Back Load (UL Standard) | Up to 5,400 Pa front and 2,400 Pa back load |

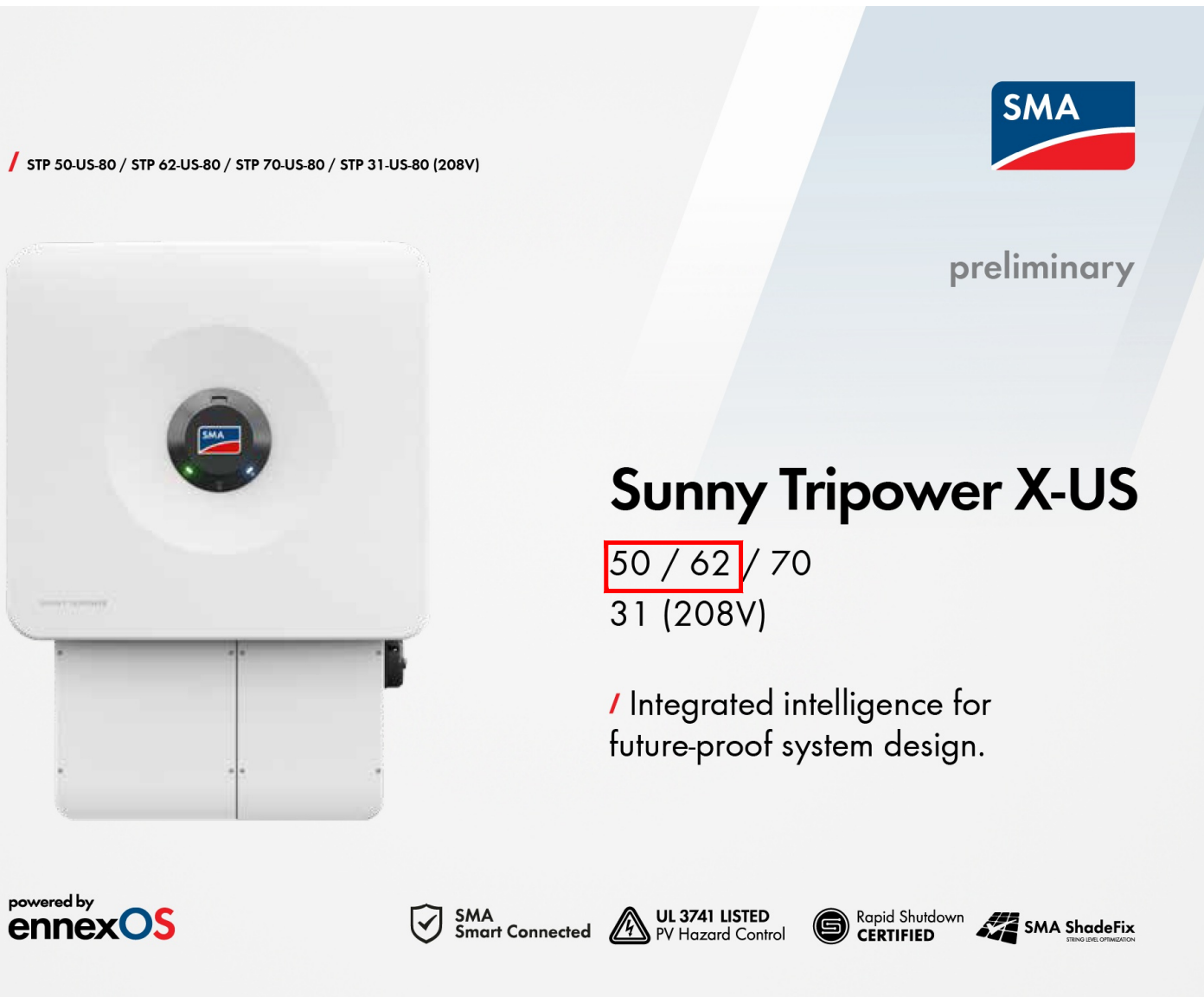
| MECHANICAL DATA  |                                         |
|------------------|-----------------------------------------|
| Solar Cells      | P-PERC Monocrystalline                  |
| Cell Orientation | 144 cells                               |
| Module Dimension | 2279 mm x 1134 mm x 35 mm               |
| Weight           | 60.6 lbs. (27.5 kg)                     |
| Front Glass      | 3.2 mm High Transmission Tempered Glass |
| Frame            | Anodized Aluminum Alloy                 |
| Encapsulant      | Ethylene Vinyl Acetate (EVA)            |
| Junction Box     | IP 68 Rated                             |
| Cable            | Wire 4 mm² (12AWG)                      |
| Connector        | MCA EVQ2 / MCA                          |

| SHIPPING INFORMATION                                         |                                  |
|--------------------------------------------------------------|----------------------------------|
| Truck Load                                                   | Ship To Pallets Modules 610W Bin |
| 53'                                                          | Most States 20 620 341 kW        |
| Double Stack (Horizontal Orientation): 31 modules per pallet |                                  |

| PALLET [31 MODULES] |                    |
|---------------------|--------------------|
| Weight              | 1969 lbs. (893 kg) |
| Height              | 49 in. (1243 mm)   |
| Width               | 45 in. (1143 mm)   |
| Length              | 91 in. (2304 mm)   |



www.missionsolar.com | info@missionsolar.com



## Sunny Tripower X-US

50 / 62 / 70  
31 (208V)

/ Integrated intelligence for future-proof system design.

- Integrated System Manager**
- Monitoring and control for up to 5 inverters
  - Remote access with Sunny Portal powered by ennexOS
  - SMA Dynamic Power Control

- Enhanced safety**
- Integrated AC and DC disconnects
  - Integrated AC type 2 and DC type 1 + 2 surge protection
  - Integrated SunSpec PRC signal for module-level shutdown
  - Advanced DC AFCI arc-fault protection

- Maximum yields**
- Five MPPT trackers for flexible array design and maximum power production
  - SMA ShadeFix string level optimization
  - Integrated IV curve diagnostics

- Smart monitoring, control and service**
- SMA Smart Connected proactive monitoring and service solution
  - SMA ennexOS cross-sector energy management platform

Sunny Tripower X-US is the new innovative inverter solution for commercial PV systems.

Providing five MPPT trackers with SMA ShadeFix string optimization technology for optimal PV array design flexibility and maximum energy yields, the German-engineered Sunny Tripower X-US delivers top-tier performance. SMA's proven integrated rapid shutdown support and reliable DC AFCI arc-fault protection ensure enhanced system safety. And now with the new integrated System Manager, powered by SMA's ennexOS cross-sector energy management platform, Sunny Tripower X-US becomes the centerpiece of the SMA Commercial Energy Solution for comprehensive commercial energy systems now and in the future.

| preliminary                                                                                        |                                                                                                                          |                                                                                                                          |                                                                                                                          |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Technical data                                                                                     | Sunny Tripower X 50 US                                                                                                   | Sunny Tripower X 62 US                                                                                                   | Sunny Tripower X 70 US                                                                                                   |
| <b>Input [DC]</b>                                                                                  |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Maximum array power                                                                                | 75000 Wp STC                                                                                                             | 93750 Wp STC                                                                                                             | 105000 Wp STC                                                                                                            |
| Maximum system voltage                                                                             | 1000 V                                                                                                                   | 1000 V                                                                                                                   | 1000 V                                                                                                                   |
| Rated MPPT voltage range                                                                           | 500 V ... 850 V                                                                                                          | 500 V ... 850 V                                                                                                          | 500 V ... 850 V                                                                                                          |
| MPPT operating voltage range                                                                       | 200 V ... 1000 V                                                                                                         | 200 V ... 1000 V                                                                                                         | 200 V ... 1000 V                                                                                                         |
| Maximum DC voltage / start voltage                                                                 | 200 V / 250 V                                                                                                            | 200 V / 250 V                                                                                                            | 200 V / 250 V                                                                                                            |
| MPPT trackers / strings per MPPT input                                                             | 5 / 2                                                                                                                    | 5 / 2                                                                                                                    | 5 / 2                                                                                                                    |
| Maximum usable operating input current / Maximum short circuit current per MPPT                    | 40 A / 50 A                                                                                                              | 40 A / 50 A                                                                                                              | 40 A / 50 A                                                                                                              |
| <b>Output [AC]</b>                                                                                 |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Nominal output power                                                                               | 50000 W                                                                                                                  | 62500 W                                                                                                                  | 70000 W                                                                                                                  |
| Maximum apparent power                                                                             | 53000 VA                                                                                                                 | 64000 VA                                                                                                                 | 75000 VA                                                                                                                 |
| Output phases / line connection                                                                    | 3 / 31N/PE                                                                                                               | 3 / 31N/PE                                                                                                               | 3 / 31N/PE                                                                                                               |
| Nominal AC voltage                                                                                 | 480 V / 277 V WYE                                                                                                        | 480 V / 277 V WYE                                                                                                        | 480 V / 277 V WYE                                                                                                        |
| AC voltage range                                                                                   | 80 A                                                                                                                     | 244 V ... 305 V                                                                                                          | 95.3 A                                                                                                                   |
| Maximum output current                                                                             | 64 A                                                                                                                     | 80 A                                                                                                                     | 95.3 A                                                                                                                   |
| Rated grid frequency / range                                                                       | 60 Hz / 54 Hz ... 66 Hz                                                                                                  | 60 Hz / 54 Hz ... 66 Hz                                                                                                  | 60 Hz / 54 Hz ... 66 Hz                                                                                                  |
| Power factor of rated power / adjustable displacement                                              | 1 / 0.8 leading ... 0.8 lagging                                                                                          | 1 / 0.8 leading ... 0.8 lagging                                                                                          | 1 / 0.8 leading ... 0.8 lagging                                                                                          |
| Harmonics (THD)                                                                                    | < 3 %                                                                                                                    | < 3 %                                                                                                                    | < 3 %                                                                                                                    |
| <b>Efficiency</b>                                                                                  |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| CEC efficiency                                                                                     | TBD                                                                                                                      | TBD                                                                                                                      | TBD                                                                                                                      |
| <b>Protection and safety features</b>                                                              |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Load rated AC disconnect / Load rated DC disconnect                                                | • / •                                                                                                                    | • / •                                                                                                                    | • / •                                                                                                                    |
| Ground fault monitoring / grid monitoring                                                          | • / •                                                                                                                    | • / •                                                                                                                    | • / •                                                                                                                    |
| DC reverse polarity protection / AC short-circuit protection                                       | • / •                                                                                                                    | • / •                                                                                                                    | • / •                                                                                                                    |
| All pole sensitive residual-current monitoring unit                                                | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| DC AFCI arc-fault protection / IV curve diagnostic function                                        | • / •                                                                                                                    | • / •                                                                                                                    | • / •                                                                                                                    |
| SunSpec PRC signal for rapid shutdown                                                              | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Surge protection                                                                                   | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Protection class / overvoltage category                                                            | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| <b>General data</b>                                                                                |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Device dimensions (W/H/D)                                                                          | 670 mm / 640 mm / 270 mm (26.4 in / 25.2 in / 10.6 in)                                                                   | 670 mm / 640 mm / 270 mm (26.4 in / 25.2 in / 10.6 in)                                                                   | 670 mm / 640 mm / 270 mm (26.4 in / 25.2 in / 10.6 in)                                                                   |
| Device weight                                                                                      | 43 kg (95 lb)                                                                                                            | 43 kg (95 lb)                                                                                                            | 43 kg (95 lb)                                                                                                            |
| Operating temperature range                                                                        | -25 °C to +60 °C (-13 °F to +140 °F)                                                                                     | -25 °C to +60 °C (-13 °F to +140 °F)                                                                                     | -25 °C to +60 °C (-13 °F to +140 °F)                                                                                     |
| Audible noise emission (full power @ 1 m and 25 °C)                                                | 55 dB(A)                                                                                                                 | 55 dB(A)                                                                                                                 | 55 dB(A)                                                                                                                 |
| Topology / cooling concept                                                                         | Transformerless / OptiCool (forced convection, variable speed fans)                                                      | Transformerless / OptiCool (forced convection, variable speed fans)                                                      | Transformerless / OptiCool (forced convection, variable speed fans)                                                      |
| Enclosure protection rating                                                                        | Type 40 (as per UL 508)                                                                                                  | Type 40 (as per UL 508)                                                                                                  | Type 40 (as per UL 508)                                                                                                  |
| Corrosive classification                                                                           | C5                                                                                                                       | C5                                                                                                                       | C5                                                                                                                       |
| Maximum permissible relative humidity (non-condensing)                                             | 100%                                                                                                                     | 100%                                                                                                                     | 100%                                                                                                                     |
| <b>Additional information</b>                                                                      |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Mounting                                                                                           | Vertical rack / wall mount to 15" from horizontal                                                                        | Vertical rack / wall mount to 15" from horizontal                                                                        | Vertical rack / wall mount to 15" from horizontal                                                                        |
| DC connection / AC connection                                                                      | Staubli MCA / TBD                                                                                                        | Staubli MCA / TBD                                                                                                        | Staubli MCA / TBD                                                                                                        |
| LED indicators (status / fault / communication)                                                    | • / • / •                                                                                                                | • / • / •                                                                                                                | • / • / •                                                                                                                |
| Network interfaces: Ethernet / WLAN                                                                | • (2 ports) / •                                                                                                          | • (2 ports) / •                                                                                                          | • (2 ports) / •                                                                                                          |
| Data protocols: SMA Modbus / SunSpec Modbus / Speedwire                                            | • / • / •                                                                                                                | • / • / •                                                                                                                | • / • / •                                                                                                                |
| Multi-function relay                                                                               | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Digital inputs / Fast Stop                                                                         | 4 / 2                                                                                                                    | 4 / 2                                                                                                                    | 4 / 2                                                                                                                    |
| ShadeFix technology for string level optimization                                                  | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Integrated Plant Control / Q on Demand 24/7                                                        | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| SMA Smart Connected (proactive monitoring and service support)                                     | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Standard warranty                                                                                  | 10 years                                                                                                                 | 10 years                                                                                                                 | 10 years                                                                                                                 |
| Optional warranty extensions (total warranty coverage cannot exceed 20 years)                      | 15 years, 110 years                                                                                                      | 15 years, 110 years                                                                                                      | 15 years, 110 years                                                                                                      |
| <b>Certificates and approvals</b>                                                                  |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Certificates and approvals                                                                         | UL 1741, UL 62109-1, UL 1699B Ed.1, PV Rapid Shutdown System Equipment in accordance with UL 1741-2021, UL 3741, UL 1998 | UL 1741, UL 62109-1, UL 1699B Ed.1, PV Rapid Shutdown System Equipment in accordance with UL 1741-2021, UL 3741, UL 1998 | UL 1741, UL 62109-1, UL 1699B Ed.1, PV Rapid Shutdown System Equipment in accordance with UL 1741-2021, UL 3741, UL 1998 |
| FCC compliance                                                                                     | FCC Part 15 Class A                                                                                                      | FCC Part 15 Class A                                                                                                      | FCC Part 15 Class A                                                                                                      |
| Grid interconnection standards                                                                     | UL 1741-2021, IEEE 1547-2018, CA Rule 21, HECO 5RD V2.0                                                                  | UL 1741-2021, IEEE 1547-2018, CA Rule 21, HECO 5RD V2.0                                                                  | UL 1741-2021, IEEE 1547-2018, CA Rule 21, HECO 5RD V2.0                                                                  |
| <b>Integrated System Manager</b>                                                                   |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| Maximum number of supported inverters / energy meters                                              | 5 / 1                                                                                                                    | 5 / 1                                                                                                                    | 5 / 1                                                                                                                    |
| Maximum system power PV inverters (nominal AC power)                                               | TBD                                                                                                                      | TBD                                                                                                                      | TBD                                                                                                                      |
| Centralized commissioning of all devices in the system                                             | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Remote parameterization of SMA devices                                                             | via Sunny Portal powered by ennexOS                                                                                      | via Sunny Portal powered by ennexOS                                                                                      | via Sunny Portal powered by ennexOS                                                                                      |
| SMA Dynamic Power Control (e.g. zero export / Volt/VAr)                                            | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Type designation                                                                                   | STP 50US-80                                                                                                              | STP 62US-80                                                                                                              | STP 70US-80                                                                                                              |
| • Standard features: 0: Optional - Not available Data in nominal conditions Last revision: 08/2025 |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| <b>Accessories</b>                                                                                 |                                                                                                                          |                                                                                                                          |                                                                                                                          |
| SMA Data Manager M ENEMAUS-20                                                                      | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| DC terminal cover                                                                                  | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |
| Rail Mount Kit                                                                                     | •                                                                                                                        | •                                                                                                                        | •                                                                                                                        |

| Project     | Catalog # | Type |
|-------------|-----------|------|
| Prepared by | Notes     | Date |



## Lumark AP CLCS Canopy

Surface / Canopy Luminaire

### Product Features



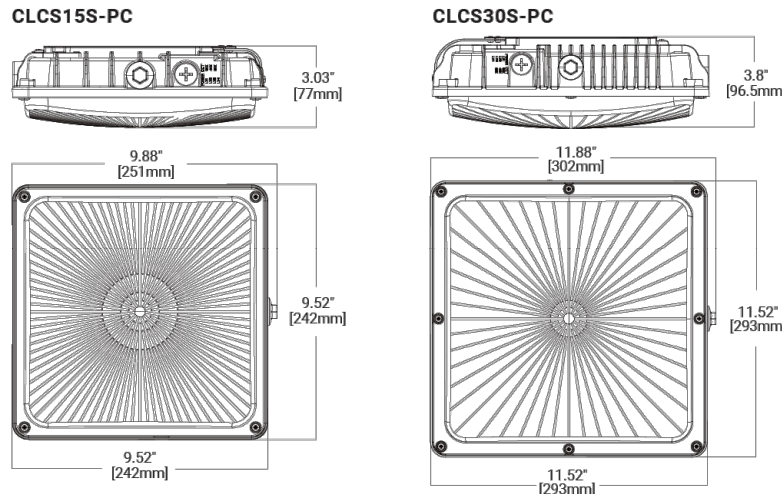
### Product Certifications



- Interactive Menu**
- Stock Ordering Information page 2
  - Product Specifications page 2
  - Energy and Performance Data page 2

- Quick Facts**
- Selectable configurations available across 2 housing sizes
  - Dusk to dawn capability with ON/OFF photocontrol
  - Lumen packages range 3,400 - 8,200 lm for 60W and 7,300 - 17,600 lm for 120W fixture.
  - Replaces 150W up to 300W HID equivalent
  - Efficacies up to 157 lumens per watt at maximum output
  - Energy and maintenance savings up to 86% versus HID solutions

### Dimensional Details



## Lumark AP

## CLCS Canopy

### Stock Ordering Information

| Ordering Logic                | Lumens / Wattage                            |  | Color Temperature                      |  | Voltage           | Controls                                   |
|-------------------------------|---------------------------------------------|--|----------------------------------------|--|-------------------|--------------------------------------------|
| Model Number(s)               | Selectable Lumens: 1,400-2,000 / 3,400W     |  | Selectable CCT: 3000-4000/3000K / 8028 |  | 120-247V, 50/60Hz | Factory-installed button-type photocontrol |
| CLCS15S-PC - Small LED Canopy | Selectable Lumens: 1,400-2,000 / 3,400W     |  | Selectable CCT: 3000-4000/3000K / 8028 |  | 120-247V, 50/60Hz | Factory-installed button-type photocontrol |
| CLCS30S-PC - Large LED Canopy | Selectable Lumens: 7,300 - 17,600 / 60-120W |  | Selectable CCT: 3000-4000/3000K / 8028 |  | 120-247V, 50/60Hz | Factory-installed button-type photocontrol |

NOTES:  
1. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.

### Product Specifications

- Construction**
- Die-cast aluminum housing with 1/2" NPT side conduit entries
  - Tethered, quick mount plate for surface or junction box mounting
  - Persistent mount via 3/4" NPT pipe (not supplied)
- Optics**
- UV-resistant polycarbonate lens
- Electrical**
- Selectable SKUs offer 4 wattage selections (100%-60%-40%-20%) and 3 CCTs (3000, 4000, 5000). Default settings are highest wattage and 4000K CCT.
  - Operating temperature range: -40°C to +40°C
  - < 0.9 power factor
  - < 20% total harmonic distortion
  - 0-10V dimming driver is standard
  - Standard color is bronze
- Controls**
- An Integrated button type photocontrol for dusk-to-dawn operation. You can disable photocontrol with sensor cap provided separately (in PE bag).
  - Fixture turn ON < 30 lux
  - Fixture turn OFF > 120 lux
  - Photosensitive wavelength: 700~1100nm
- Typical Applications**
- Bank and pharmacy drive-thrus, covered side walks, hospitality, and healthcare entryways
- Finish**
- Standard color is bronze
- Shipping Data**
- CLCS15S-PC: 3.79 lbs (1.72 kg)
  - CLCS30S-PC: 7.51 lbs (3.40 kg)
- Warranty**
- Five-year limited warranty. Consult website for details. [www.cooperlighting.com/legal](http://www.cooperlighting.com/legal)

### Energy and Performance Data

Power and Lumens

| Light Engine             | CLCS15S-PC   |              |              |              | CLCS30S-PC   |               |               |               |
|--------------------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
|                          | (Set to 24W) | (Set to 36W) | (Set to 49W) | (Set to 60W) | (Set to 70W) | (Set to 100W) | (Set to 120W) | (Set to 120W) |
| Power (Watts)            | 24.51        | 36.47        | 49.09        | 56.75        | 50.80        | 76.32         | 100.98        | 119.8         |
| Input Current @ 120V (A) | 0.208        | 0.310        | 0.417        | 0.478        | 0.432        | 0.649         | 0.859         | 0.993         |
| Input Current @ 277V (A) | 0.090        | 0.134        | 0.181        | 0.215        | 0.187        | 0.281         | 0.372         | 0.950         |
| Input current @ 347V (A) | 0.072        | 0.107        | 0.144        | 0.177        | 0.149        | 0.224         | 0.297         | 0.921         |
| <b>Color Temperature</b> |              |              |              |              |              |               |               |               |
| 3000K CCT                |              |              |              |              |              |               |               |               |
| BUG Rating               | 8149-01      | 8249-02      | 8249-02      | 8349-02      | 8349-02      | 8349-03       | 8349-03       | 8349-03       |
| Lumens per Watt          | 140          | 136          | 128          | 127          | 144          | 141           | 135           | 132           |
| Lumens                   | 3,710        | 5,370        | 6,800        | 8,250        | 7,990        | 11,590        | 14,660        | 17,659        |
| 4000K CCT                |              |              |              |              |              |               |               |               |
| BUG Rating               | 8249-01      | 8249-02      | 8249-02      | 8349-02      | 8349-03      | 8349-03       | 8349-03       | 8349-03       |
| Lumens per Watt          | 151          | 147          | 138          | 145          | 157          | 152           | 145           | 147           |
| Lumens                   | 3,650        | 5,290        | 6,820        | 8,082        | 7,780        | 11,290        | 14,280        | 17,157        |
| 5000K CCT                |              |              |              |              |              |               |               |               |
| BUG Rating               | 8249-01      | 8249-02      | 8249-02      | 8349-02      | 8349-03      | 8349-03       | 8349-03       | 8349-03       |
| Lumens per Watt          | 149          | 145          | 139          | 136          | 153          | 148           | 141           | 139           |

### Lumen Maintenance

| Configuration (Up to 40°C) | TM-21 Lumen Maintenance (50,000 Hours) | Theoretical L70 (Hours) |
|----------------------------|----------------------------------------|-------------------------|
| Up to 60W                  | 88.34%                                 | >90,000                 |
| Up to 120W                 | 88.34%                                 | >90,000                 |



### CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECL#32590

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Charles E. Kirk  
091110-176  
TEML #95185

### REVISION / RELEASE

| NO. | DESCRIPTION             | DATE       |
|-----|-------------------------|------------|
| 01  | 90% DESIGN              | 02.12.2026 |
| 02  | UPDATED CLIENT COMMENTS | 03.03.2026 |
| 03  | UPDATED CLIENT COMMENTS | 08.20.2026 |
| 04  | UPDATED CLIENT COMMENTS | 08.24.2026 |
| 05  | UPDATED CLIENT COMMENTS | 08.25.2026 |
| 06  | UPDATED CLIENT COMMENTS | 08.27.2026 |

### PROJECT

NEW PV SYSTEM: 191.40 KWDC / 162.50 KWAC

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3134 ROOSEVELT AVE  
SAN ANTONIO, TX 78214  
APN: 1254170

### ENGINEER OF RECORD



## LITE DATA ACQUISITION SYSTEM

WDAS-LI

### FEATURES

- ANSI C12.20 revenue-grade energy metering
- Universal compatibility with Modbus/RTU and Modbus/TCP devices
- Second-by-second monitoring and control for distributed generation assets
- Intuitive installation and configuration

## SPECIFICATIONS

| GENERAL    |                                                                     |
|------------|---------------------------------------------------------------------|
| Dimensions | 11.82 x 15.75 x 7.37 in (300 x 400 x 187 mm)                        |
| Weight     | 12 lb (5.4 kg)                                                      |
| Ratings    | UL 508A                                                             |
| Mounting   | Non-penetrating surface-mount installation with included flange kit |
| Warranty   | 3 years against defects in materials and workmanship                |

| ENVIRONMENTAL         |                                                      |
|-----------------------|------------------------------------------------------|
| Operating Temperature | -20 to 70°C, 20-90% relative humidity non-condensing |
| Protection Ratings    | NEMA 4X / IP67, outdoor-rated                        |

| POWER SUPPLY                   |                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|
| Input Voltage <sup>1</sup>     | 180-500Vrms L-L                                                                                               |
| Input Protection <sup>2</sup>  | 2A Class CC fuses on L1, L2, and L3 inputs                                                                    |
| Power Consumption <sup>3</sup> | Average: 9W<br>Peak: 43W                                                                                      |
| External                       | Up to 1A at 24V DC available for external devices and sensors<br>Switched via UL 1077 supplementary protector |

| DATA ACQUISITION              |                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Resolution                    | 10 second nominal<br>Configurable down to 1 second                                                                  |
| Device Limit                  | 250 devices over ethernet<br>32 devices over RS-485<br>Contact sales@wattch.io for options to increase device count |
| Compatibility                 | Modbus/RTU or Modbus/TCP devices<br>Contact sales@wattch.io for an up-to-date hardware compatibility list           |
| Interfaces <sup>4</sup>       | (1) RS-485                                                                                                          |
| Storage Capacity <sup>5</sup> | Up to 3 months of offline data storage capacity                                                                     |
| Connectivity                  | LTE Cat 4 Modem with multi-carrier compatibility (requires Wattch data plan)                                        |

| METERING  |                                                        |
|-----------|--------------------------------------------------------|
| CT Inputs | (3) 300A CTs included<br>Compatible with any 333 mV CT |

<sup>1</sup> A neutral connection is required to power the meter  
<sup>2</sup> An upstream means of disconnect must be provided in order to de-energize the DAS  
<sup>3</sup> Sum of all three phases (if connected); highest drawn on L1 to power the 24V rail  
<sup>4</sup> If ethernet communication is desired, an ethernet switch needs to be used; please contact Wattch about our recommended solution  
<sup>5</sup> Exact value varies with the number of configured devices  
<sup>6</sup> Applies from 1% to 120% of rated CT current; NIST traceable calibration certificate available upon request for an additional fee



## BILL OF MATERIALS

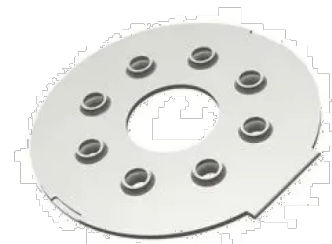
| GENERAL                        |                     |
|--------------------------------|---------------------|
| Enclosure                      | Ensto WPCP304018G   |
| POWER SUPPLY                   |                     |
| Power Supply                   | Mean Well WDR-60-24 |
| Fuses                          | Edison HCLR1        |
| Fuse Holder                    | Edison EHCC3DU      |
| RS-485 Supplementary Protector | Eaton FAZ-1-SP      |

| DATA ACQUISITION       |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Production Meter       | AccuEnergy AcuRev 1313<br>Includes (3) AcuCT 125-300/333mV current transformers |
| Data Logger/Controller | Wattch Edge Controller                                                          |
| COMMUNICATIONS         |                                                                                 |
| LTE Modem              | Digi International IX10-00G4                                                    |



## WEEB-DSK516, 1.01" WEEB disk washer, Bottom Mount Application, 0.32" hole size

By Burndy  
Catalog # WEEB-DSK516



WEEB- Washer Electrical Equipment Bond.

### Features

- Made from corrosion resistant 304 stainless steel for outstanding durability and performance
- Eliminates the need for surface preparation and oxide inhibitor
- Detailed manual specifying proper hardware, torque, and mounting information is available upon request
- UL467 Recognized for grounding and bonding equipment
- Custom grounding and bonding solutions available upon request

### Application

WEEB washers offer a simple, low cost method to bond any non-conductive coated surfaces together reducing time, labor costs and the amount of copper wiring. WEEB's patented teeth pierce through most non-conductive coatings and embed into the underlying metal creating a bonding connection between the mounting surface and coated metal component that it is installed on or between.

### General

|                   |                     |
|-------------------|---------------------|
| Catalog Number    | WEEB-DSK516         |
| Item Type         | 3B                  |
| Material          | 304 Stainless Steel |
| UPC               | 781810644782        |
| UPC 14 Digit GTIN | 00781810644782      |

### Dimensions

|                         |   |
|-------------------------|---|
| Dimension - Thread Size | - |
|-------------------------|---|

### Certifications And Compliance

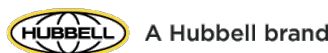
|                               |                      |
|-------------------------------|----------------------|
| Buy America(n) Qualified      | Contact Manufacturer |
| Certification - CSA Approved  | N                    |
| Certification - ETL           | Y                    |
| Certification - UL Recognized | Y                    |
| Certification - cULus         | N                    |
| Certified Listed              | UL2703 Recognized    |
| Industry Standard(s)          | UL2703 Recognized    |
| Standards - RoHS Compliance   | CM                   |
| Status                        |                      |
| UL Listed                     | Yes                  |

### Logistics

|                 |      |
|-----------------|------|
| Carton Quantity | 6000 |
| Pallet Quantity | 100  |

### Product Assets

Brochures - WEEB Washer Guide and WEEB Washer Theory Catalogs - Burndy Grounding Catalog  
Catalogs - BURNDY Master Catalog - Section E4 - Wiley Grounding  
Catalogs - BURNDY Master Catalog - Full Line BURNDY Catalog  
Catalogs - BURNDY Master Catalog - Section G - Wire Management  
Certifications - Certificate of Compliance, UL 2703  
Customer Notices - Prop 65 Notice  
Interactive Catalog - BURNDY Full-Line Digital Catalog  
Sales Drawings - WEEB-DSK516 Equipment Bond  
Sales Drawings - 50017076  
Specifications - WEEBDSK516



A Hubbell brand

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BRDY-WEEBDSK516-SPEC-EN | REV 7/2025



### CONTRACTOR

BIG SUN SOLAR

PHONE: (210) 960-2303

LIC. NO.: TECOL#32590

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CHARLES E. KIRK  
091110-176  
TEML #95185

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### PROJECT

NEW PV SYSTEM: 191.40 kWDC / 162.50 kWAC

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### ENGINEER OF RECORD

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SHEET TITLE:

RESOURCE DOCUMENTS-2

(SHEET 13)

DATE: 8/27/2026

DESIGN BY: R.E.S.

CHECKED BY: R.E.S.

SHEET NUMBER:

R-002.00