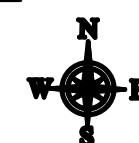
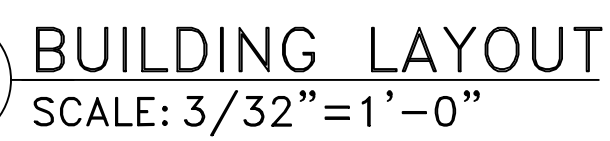


## PERMANENT HORIZONTAL LIFE LINE



## 2 FIRE CLEARANCE LAYOUT

S 1.10F



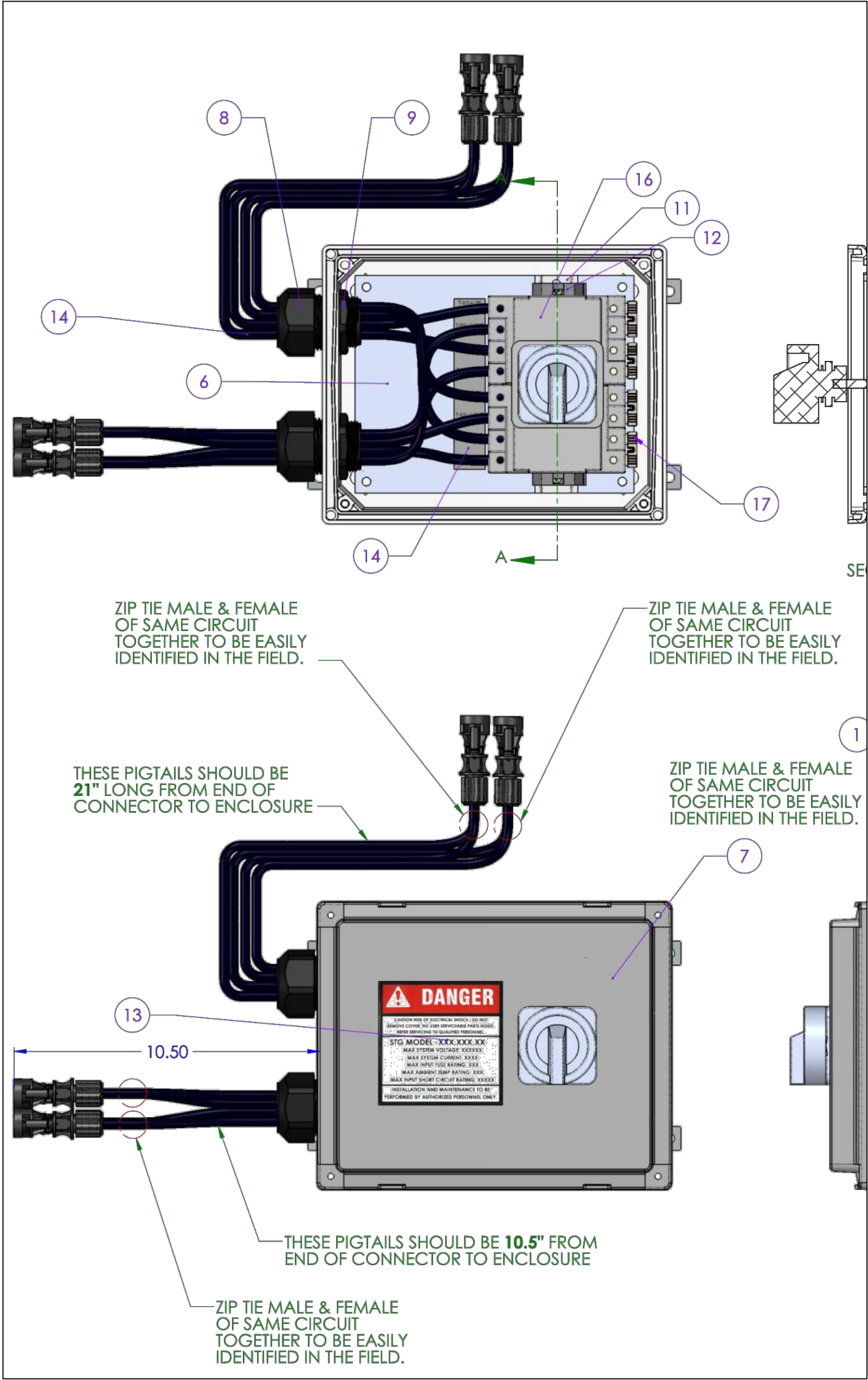
2381 VIA MARIPOSA  
STRING LAYOUT

SunPower® | Helix Roof Solution

HELIX ROOF Power Station



| DC Branch                   |                                                                      |
|-----------------------------|----------------------------------------------------------------------|
| Model                       | Helix plug-and-play DC Branch                                        |
| String input options        | 2, 3, and 4 string                                                   |
| String fuse rating          | 15 A                                                                 |
| Conductor size              | #12 to #8 AWG                                                        |
| Conductor insulation rating | Sunlight-resistant PV Wire                                           |
| Voltage rating              | 2000 VDC                                                             |
| Fusing                      | 12 A                                                                 |
| Connectors                  | String side: Tyco PV4 Solarlock<br>Combined side: Amphenol H4-UTX-XL |

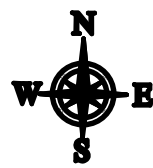
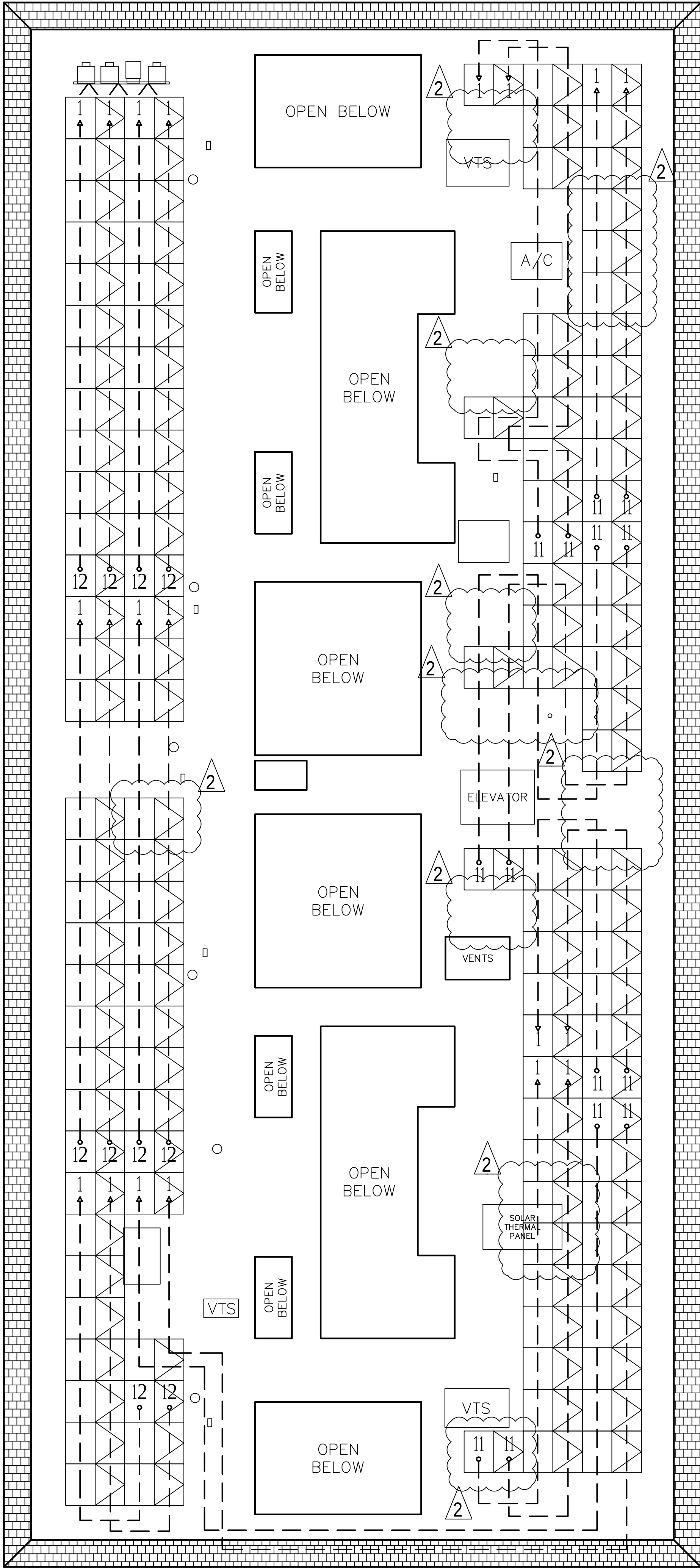


LEGEND:

---> STRINGS

----- INVERTER DESIGNATION

1 STRING LAYOUT  
SCALE: 3/32"=1'-0"



PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



**SOLAR OPTIMUM**

SOLAR OPTIMUM, INC.  
501 WEST GLENOAKS BLVD.  
GLENDALE, CA 91202  
800-552-9970  
WWW.SOLAROPTIMUM.COM  
LICENSE NUMBER 972228 C10

CONTRACTOR



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SIGNATURE

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DRAWN BY: SCOTT  
CHECKED BY: T.T.T.  
SCALE: AS SHOWN  
DATE: 12/22/16

SHEET TITLE

STRING LAYOUT

SHEET NUMBER

S1.1 ST



WARNING: PHOTOVOLTAIC  
POWER SOURCE

LABEL "PHOTOVOLTAIC POWER SOURCE" SHALL BE PERMANENTLY AFFIXED ON ALL EXPOSED RACEWAYS, CABLE TRAYS, PULL BOXES, AND JUNCTION BOXES. LABELS SHALL BE SPACED NO GREATER THAN 10 FEET APART AND SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE INSTALLED.

⚠

WARNING

ARC FLASH AND SHOCK HAZARD  
APPROPRIATE PPE AND TOOLS REQUIRED  
WHEN WORKING ON THIS EQUIPMENT

OUTDOOR RATED ARC FLASH STICKER MOUNTED ON ALL EQUIPMENT

NOTES:  
1. ORANGE BACKGROUND  
2. BLACK LETTERING  
3. MINIMUM 5/8" LETTER HEIGHT  
4. ALL CAPITAL LETTERS  
5. ARIAL OR SIMILAR FONT, NON-BOLD  
6. WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT

INVERTER 1: 24kW

WARNING: ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY ARE UNGROUNDED AND MAY BE ENERGIZED

DC DISCONNECT    AC DISCONNECT

OPERATING CURRENT: 29.9 A    MAXIMUM AC    36.25 A  
OPERATING VOLTAGE: 748.2 V    OPERATING CURRENT: 29 A  
MAXIMUM CURRENT: 32.3 A    NOMINAL AC    480 V  
MAXIMUM VOLTAGE: 887.8 V    OPERATING VOLTAGE: 480 V

INVERTER 2: 24kW

WARNING: ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY ARE UNGROUNDED AND MAY BE ENERGIZED

DC DISCONNECT    AC DISCONNECT

OPERATING CURRENT: 29.9 A    MAXIMUM AC    36.25 A  
OPERATING VOLTAGE: 685.9 V    OPERATING CURRENT: 29 A  
MAXIMUM CURRENT: 32.3 A    NOMINAL AC    480 V  
MAXIMUM VOLTAGE: 813.8 V    OPERATING VOLTAGE: 480 V

INVERTER 3: 20kW

WARNING: ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY ARE UNGROUNDED AND MAY BE ENERGIZED

DC DISCONNECT    AC DISCONNECT

OPERATING CURRENT: 22.4 A    MAXIMUM AC    30 A  
OPERATING VOLTAGE: 685.9 V    OPERATING CURRENT: 24 A  
MAXIMUM CURRENT: 24.2 A    NOMINAL AC    480 V  
MAXIMUM VOLTAGE: 813.8 V    OPERATING VOLTAGE: 480 V

WARNING!  
INVERTER OUTPUT CONNECTION  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE

PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLTAGE: 277/480 V  
MAXIMUM OPERATING AC OUTPUT  
CURRENT: 102.5 AMPS

MARKING FOR MAIN PANEL COVER

CAUTION:  
SOLAR ELECTRIC  
SYSTEM CONNECTED

MARKING FOR MAIN SERVICE

SOLAR GENERATOR  
AC DISCONNECT SWITCH

WARNING: ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS.  
TERMINALS ON BOTH LINE &  
LOAD SIDE MAY BE ENERGIZED  
IN THE OPEN POSITION.

OPERATING CURRENT: 102.5 A  
OPERATING VOLTAGE: 480 V

SOLAR AC  
COMBINER BOX -  
PANELBOARD

WARNING: ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS.  
TERMINALS ON BOTH LINE &  
LOAD SIDE MAY BE ENERGIZED  
IN THE OPEN POSITION.

OPERATING CURRENT: 102.5 A  
OPERATING VOLTAGE: 480 V

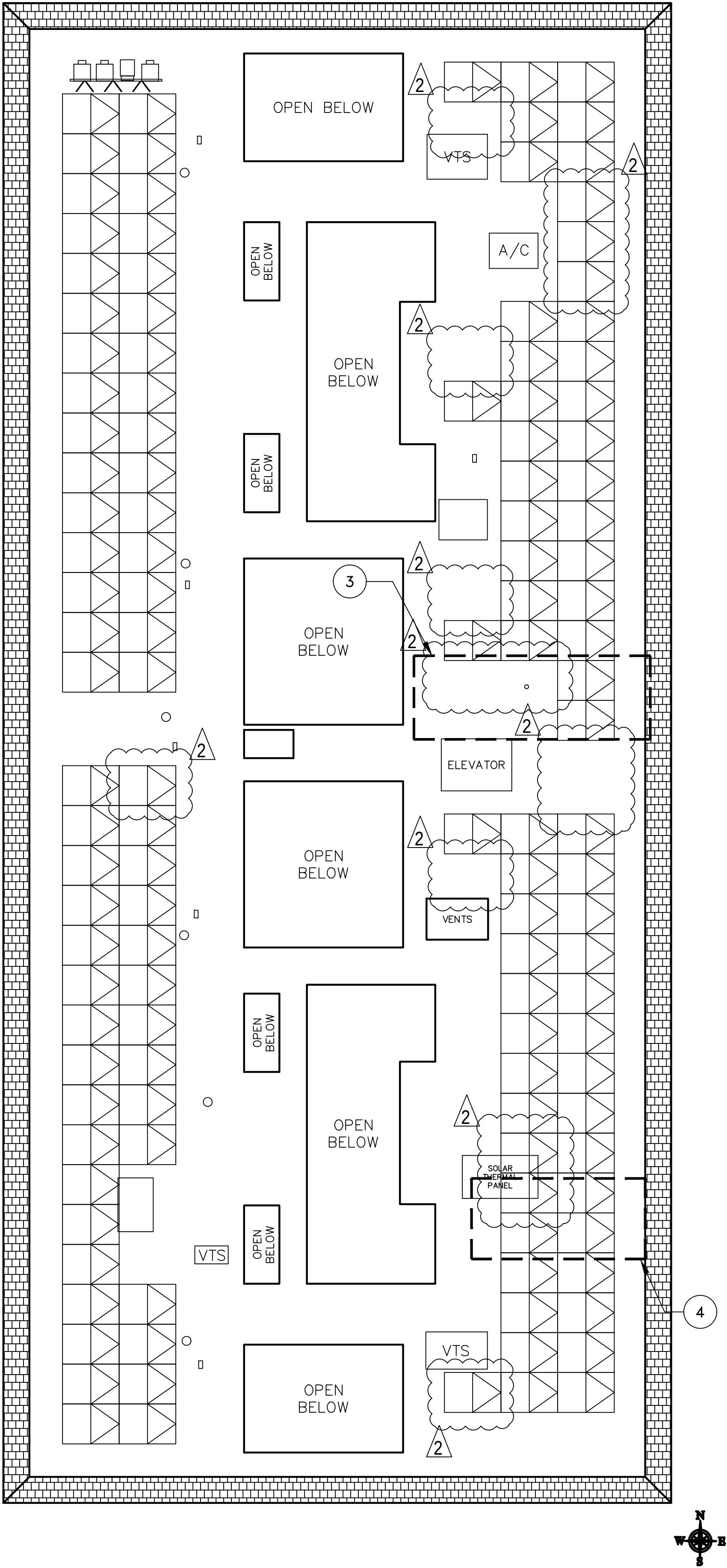
CAUTION:  
EMERGENCY AC  
SOLAR DISCONNECT  
RAPID SHUTDOWN SYSTEM  
IS LOCATED AT THE  
AC COMBINER BOX ON THE ROOF  
"YOU MUST TURN OFF ALL  
INVERTER BREAKERS"

MARKING FOR MAIN SERVICE AND AC COMBINER

- NOTES:
1. LETTERING ON SIGNS SHALL BE CAPITAL LETTERS, MINIMUM SIZE OF 1/8" HIGH. LETTERING SHALL BE REFLECTIVE RED ON WHITE BACKGROUND OR VICE VERSA.
  2. CLEARLY LABEL ALL CIRCUIT BREAKERS IN THE PANELBOARD. THE LABEL SHALL INDICATE THE NAME OF THE DEVICE IT SERVES.

## 2381 VIA MARIPOSA SITE PLAN

- NOTES:
1. ROOF PERIMETER FIRE CLEARANCE: MIN 4'-0".
  2. FIRE CLEARANCE AROUND SKYLIGHT: MIN 4'-0".
  3. FIRE CLEARANCE AROUND OPENINGS: MIN 4'-0".
  4. ROOF HEIGHT: 40'-0" APPROXIMATE.
  5. ROOF PITCH: 0°
  6. CONDUIT TO PENETRATE ROOF AND ENTER THIRD FLOOR LAUNDRY ROOM. CONDUIT RUN WILL CONTINUE DOWN ALONG SIDE THE TRASH SHOOT FINALLY ENTERING TRASH CLOSET AT GROUND LEVEL, CONDUIT WILL THEN PENETRATE WALL INSIDE OF TRASH CLOSET AND TERMINATE AT PV AC DISCONNECT ON OPPOSITE SIDE OF WALL, USE ADEQUATE SLEEVE TO PROTECT CONDUIT FROM ELEMENTS.



2 ARRAY LAYOUT  
SCALE: 3/32"=1'-0"

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



SOLAR OPTIMUM, INC  
501 WEST GLENOAKS BLVD.  
GLENDALE, CA 91202  
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LICENSE NUMBER 972228 C10

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CHECKED BY: T.T.T.  
SCALE: AS SHOWN  
DATE: 12/22/16

SHEET TITLE

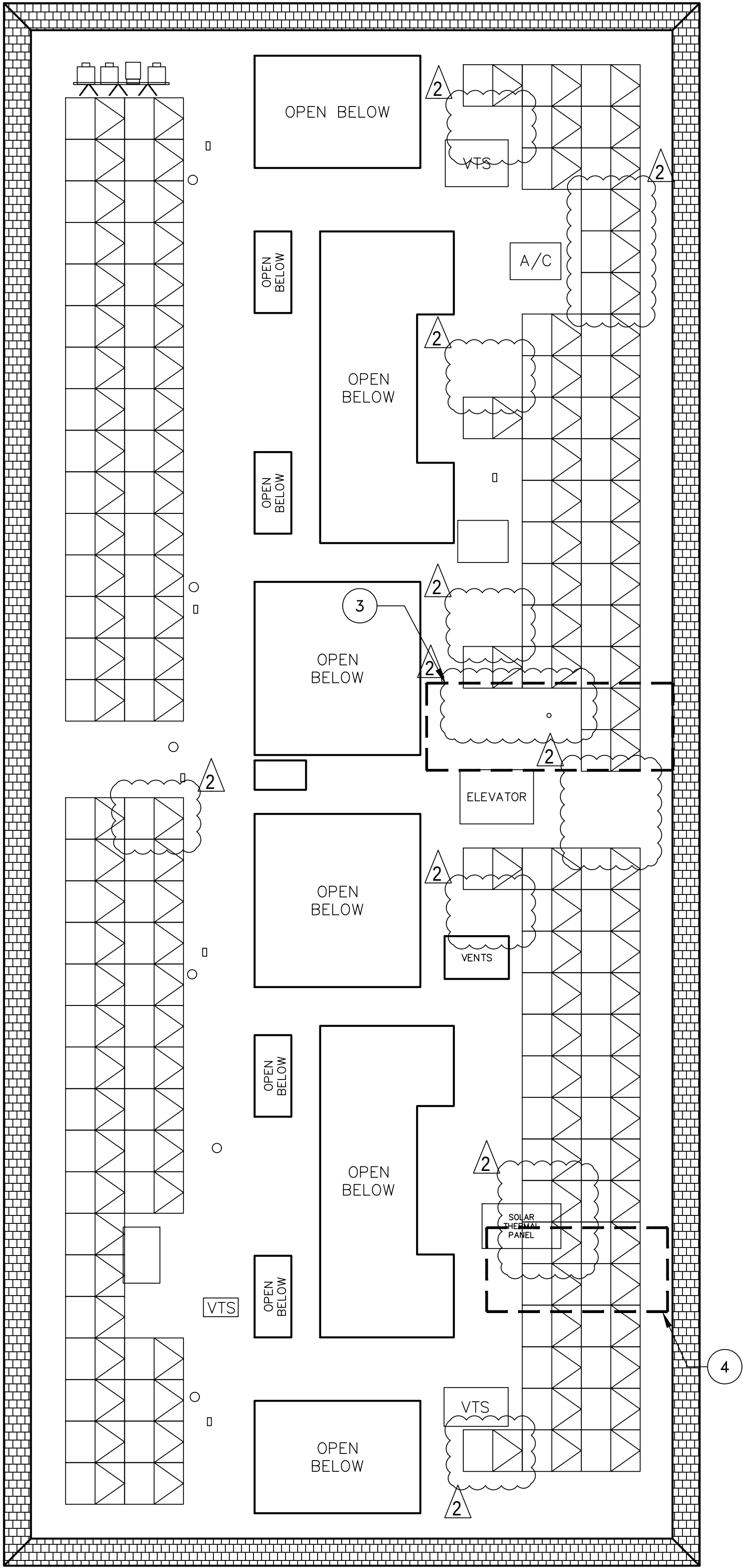
LABELS

SHEET NUMBER

S 1.10L

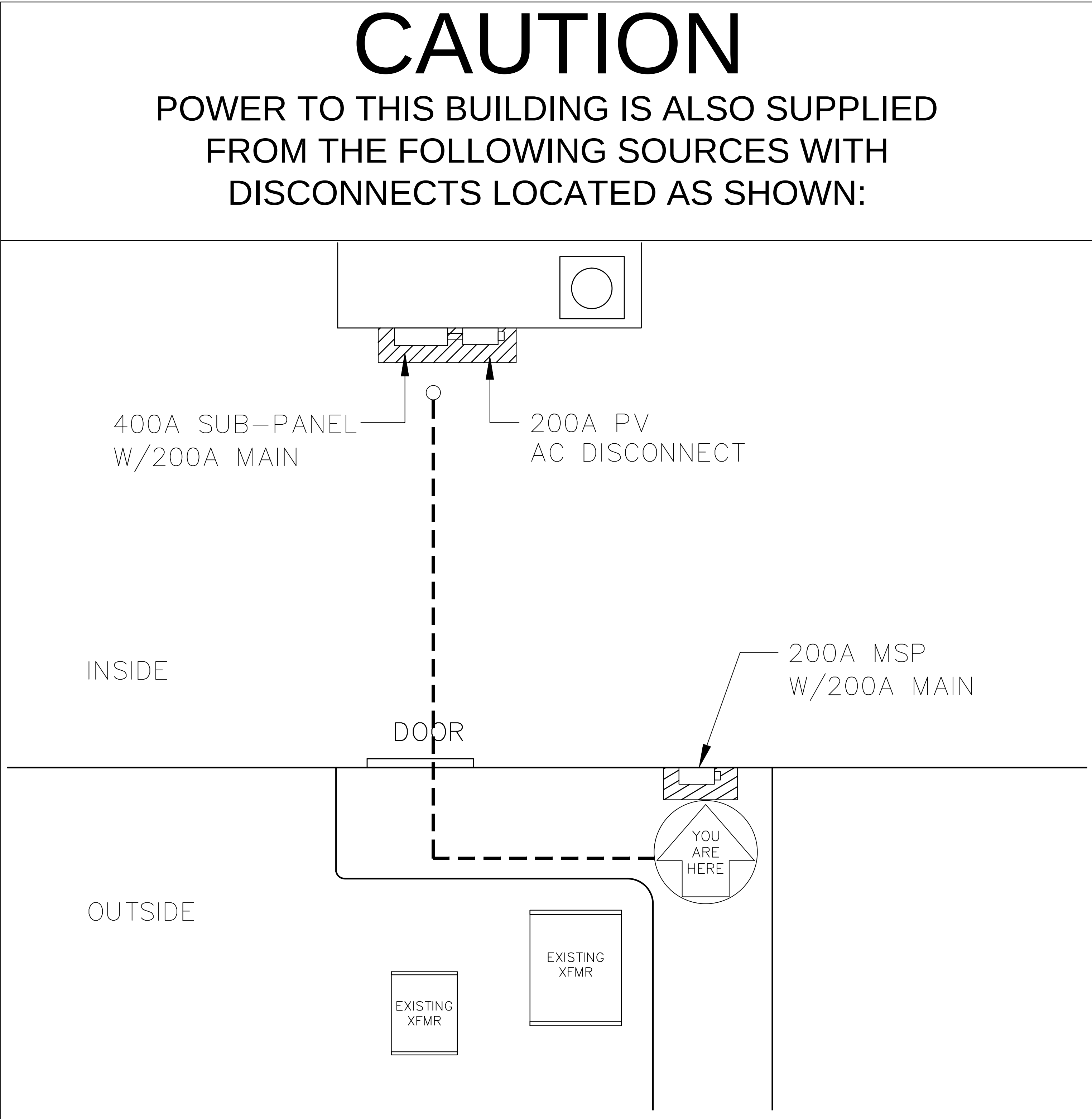


2381 VIA MARIPOSA  
SITE PLAN



2 ARRAY LAYOUT  
SCALE: 3/32"=1'-0"

2381 VIA MARIPOSA  
SITE PLAN



PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES  
  
24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



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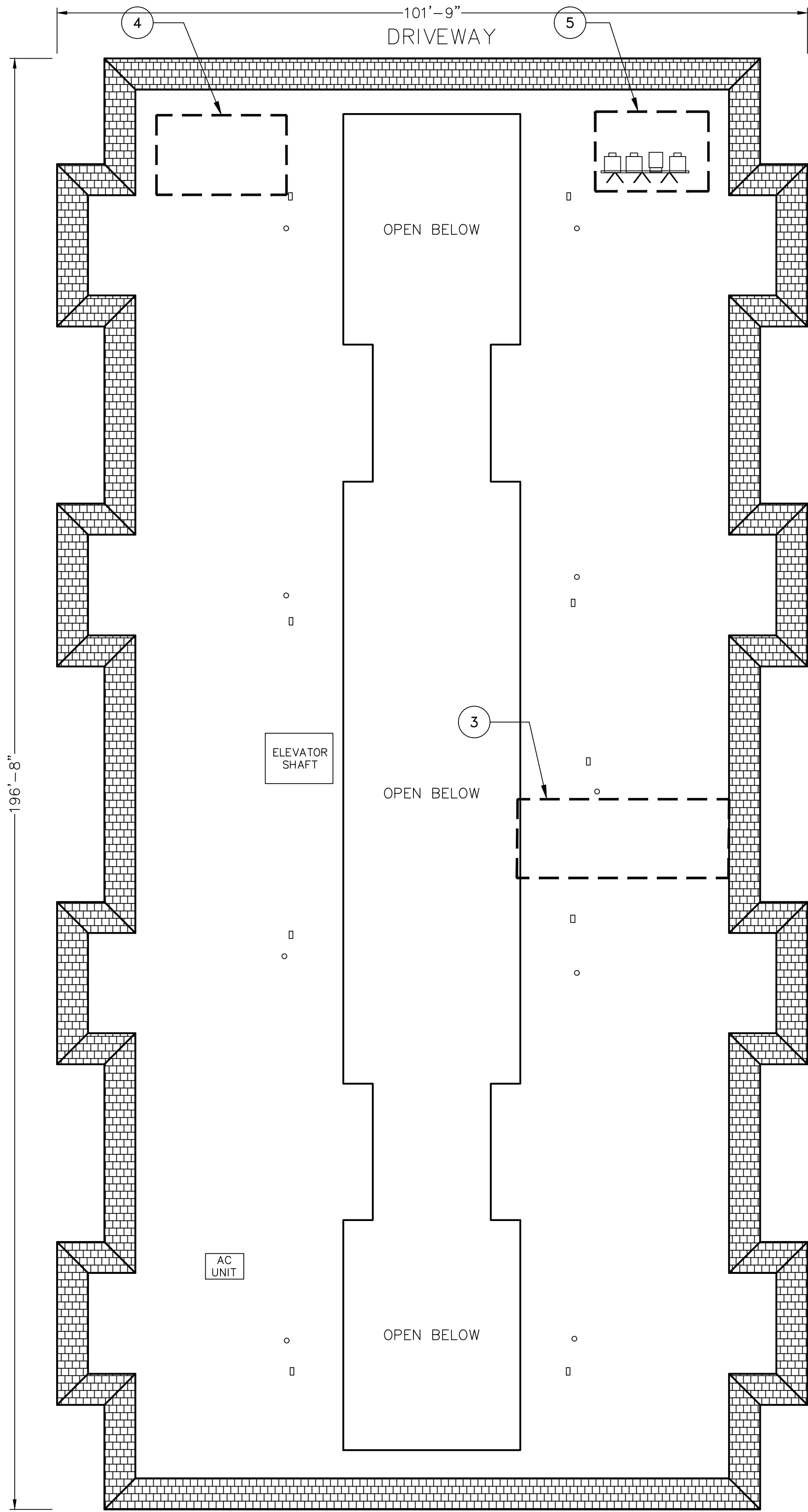
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LABELS

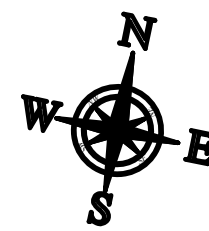
SHEET NUMBER

DIRECTORY MAP





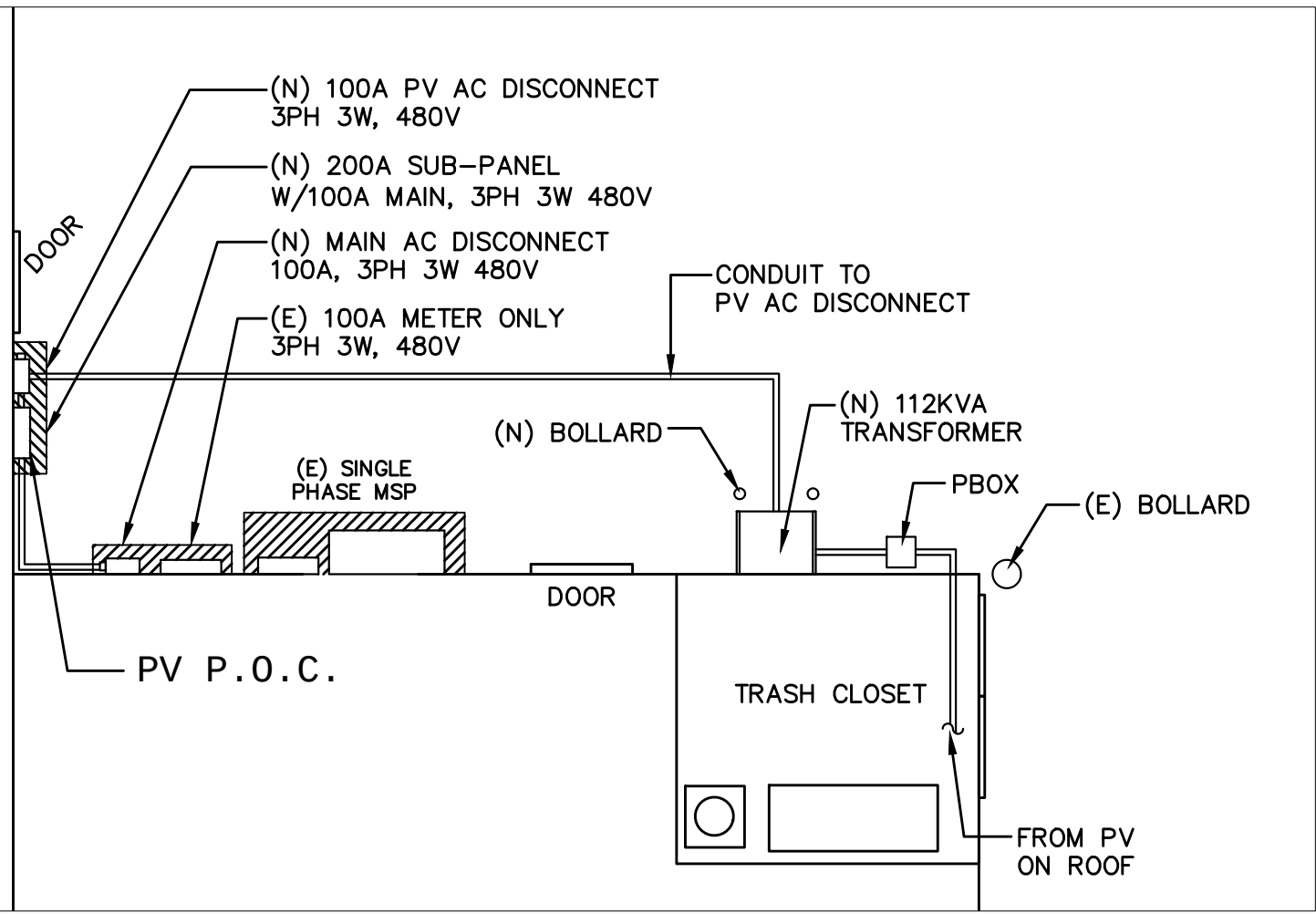
1 BUILDING LAYOUT  
SCALE: 3/32"=1'-0"



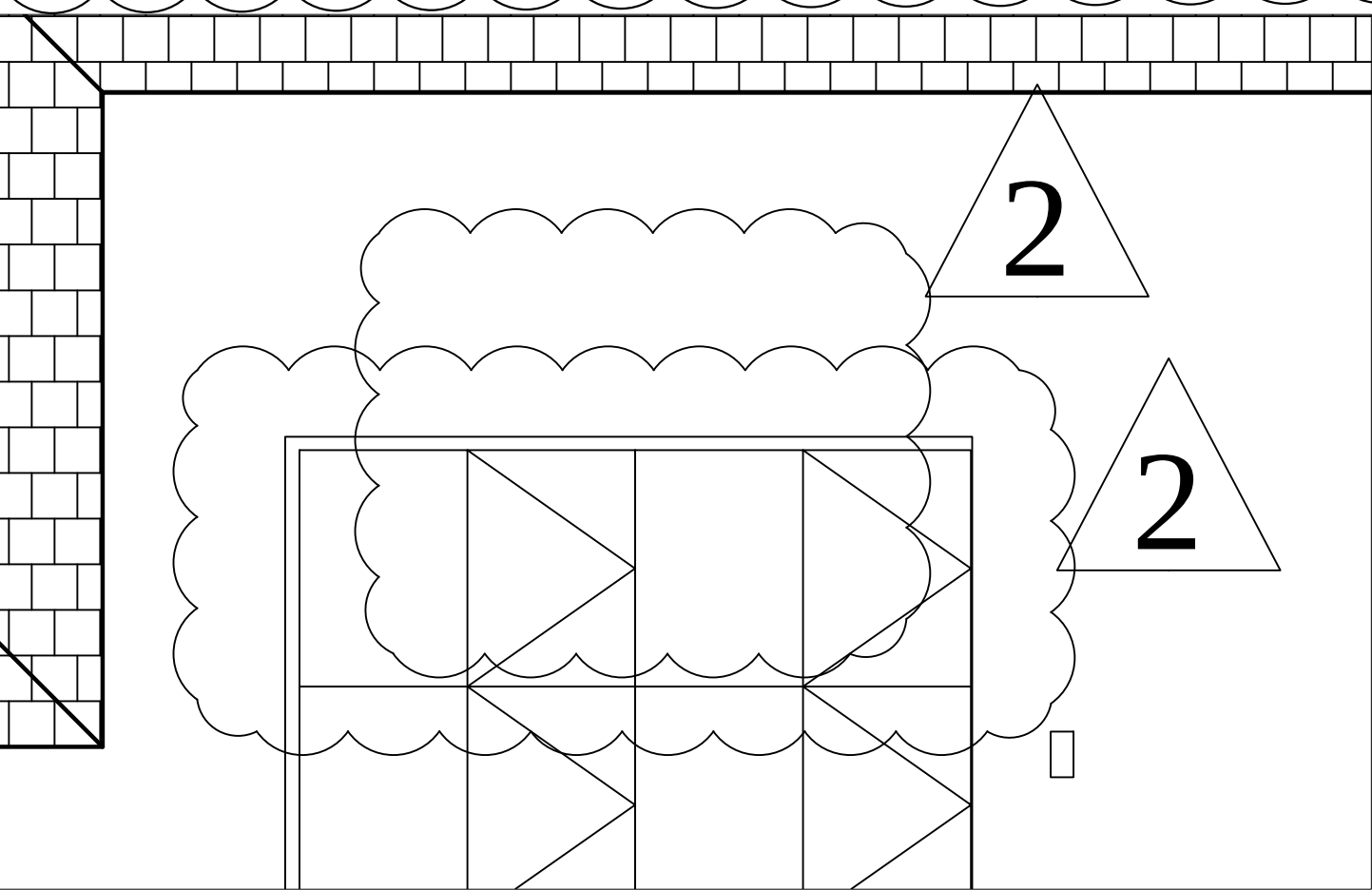
## 2400 VIA MARIPOSA WEST SITE PLAN

### NOTES:

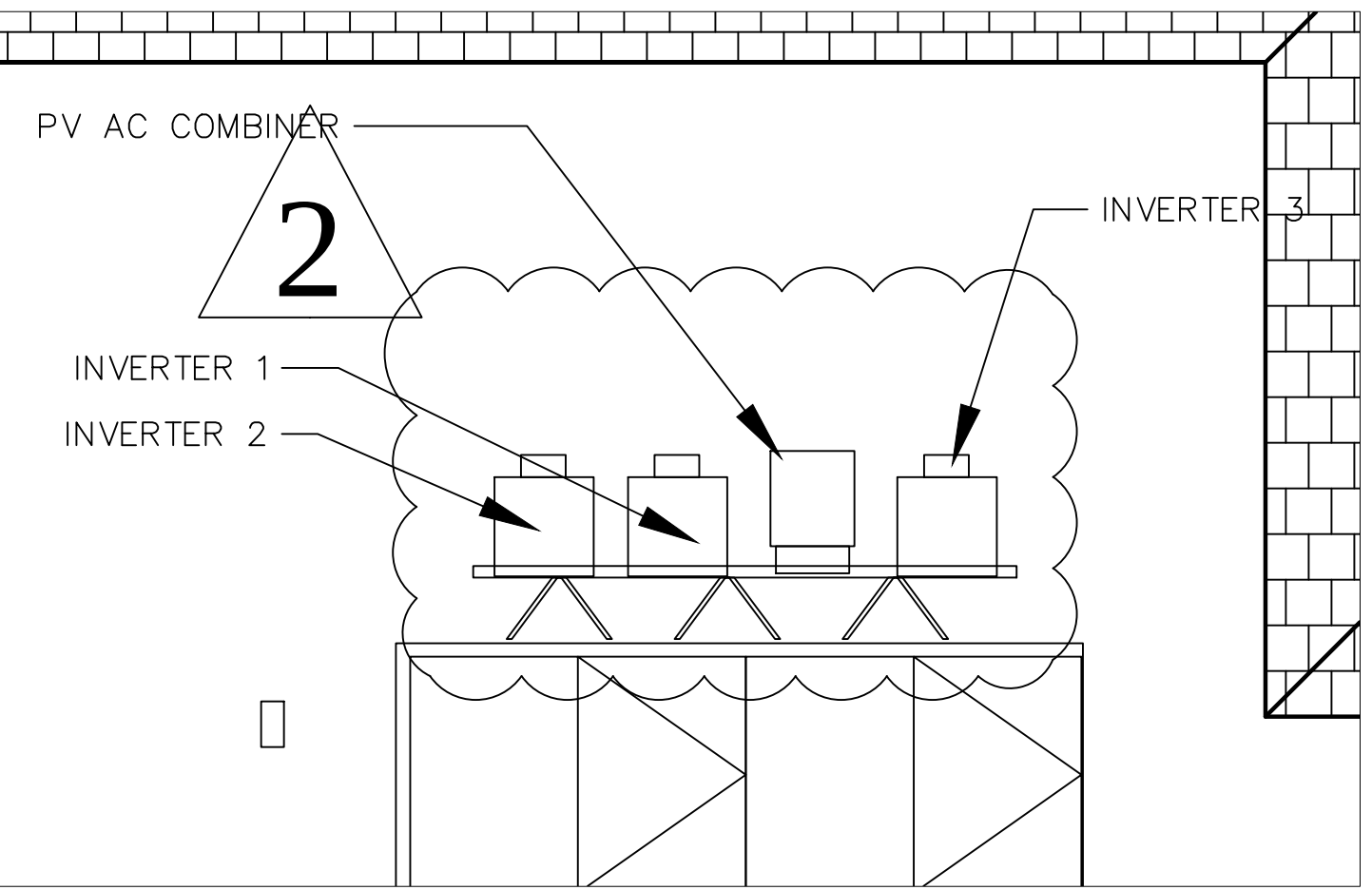
1. ROOF PERIMETER FIRE CLEARANCE: MIN 4'-0".
2. FIRE CLEARANCE AROUND SKYLIGHT: MIN 4'-0".
3. FIRE CLEARANCE AROUND OPENINGS: MIN 4'-0".
4. ROOF HEIGHT: 40'-0" APPROXIMATE.
5. ROOF PITCH: 0"
6. CONDUIT TO PENETRATE ROOF AND ENTER THIRD FLOOR LAUNDRY ROOM. CONDUIT RUN WILL CONTINUE DOWN ALONG SIDE THE TRASH SHOOT FINALLY ENTERING TRASH CLOSET AT GROUND LEVEL, CONDUIT WILL THEN PENETRATE WALL INSIDE OF TRASH CLOSET AND TERMINATE AT PV AC DISCONNECT ON OPPOSITE SIDE OF WALL, USE ADEQUATE SLEEVE TO PROTECT CONDUIT FROM ELEMENTS.



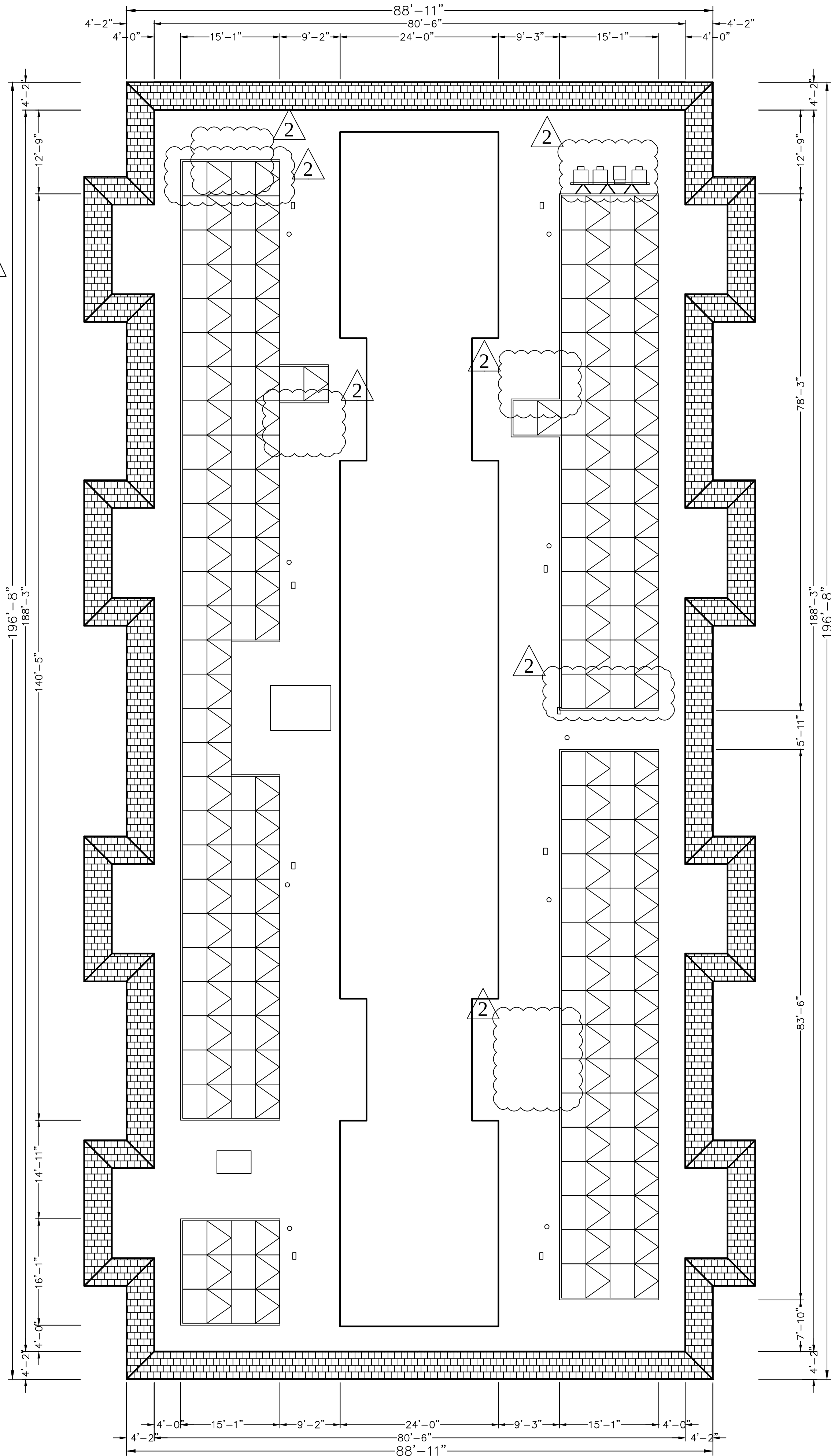
3 MAIN PANEL LOCATION 1ST FLOOR  
SCALE: N.T.S.



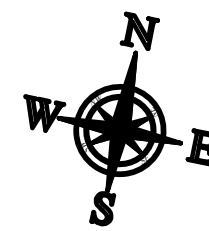
4 POWER STATION LOCATION ROOF  
SCALE: N.T.S.



5 POWER STATION 2 LOCATION ROOF  
SCALE: N.T.S.



2 ARRAY LAYOUT  
SCALE: 3/32"=1'-0"



PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



SOLAR OPTIMUM, INC  
501 WEST GLENOAKS BLVD.  
GLENDALE, CA 91202  
800-552-9970  
WWW.SOLAROPTIMUM.COM  
LICENSE NUMBER 972228 C10

CONTRACTOR



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DRAWN BY: SCOTT  
CHECKED BY: T.T.T.  
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DATE: 12/21/16

SHEET TITLE

SITE PLAN  
2400 VIA MARIPOSA

SHEET NUMBER

S1.11



| WIND LOAD SUMMARY                             |                  |                                            |      |      |      |      |
|-----------------------------------------------|------------------|--------------------------------------------|------|------|------|------|
| OUTPUTS                                       |                  | WIND ZONES                                 |      |      |      |      |
| PANEL TYPES                                   | ATTRIBUTES       | A                                          | B    | C    | D    | E    |
| 1                                             | Ballast Block(s) | 5                                          | 0    | 12   | 4    | 0    |
|                                               | Wind Anchor(s)   | 1                                          | 1    | 0    | 0    | 0    |
|                                               | Pressure (psf)   | 4.21                                       | 2.40 | 6.84 | 3.65 | 2.40 |
| 2                                             | Ballast Block(s) | 0                                          | 0    | 9    | 3    | 0    |
|                                               | Wind Anchor(s)   | 1                                          | 1    | 0    | 0    | 0    |
|                                               | Pressure (psf)   | 2.40                                       | 2.40 | 5.71 | 3.49 | 2.40 |
| 3                                             | Ballast Block(s) | 0                                          | 0    | 9    | 3    | 0    |
|                                               | Wind Anchor(s)   | 1                                          | 1    | 0    | 0    | 0    |
|                                               | Pressure (psf)   | 2.26                                       | 2.26 | 5.58 | 3.34 | 2.26 |
| 4                                             | Ballast Block(s) | 0                                          | 9    | 3    | 0    | 0    |
|                                               | Wind Anchor(s)   | 1                                          | 0    | 0    | 0    | 0    |
|                                               | Pressure (psf)   | 2.26                                       | 5.58 | 3.34 | 2.26 | 2.26 |
| Minimum Array Size by Zone (Tents)            |                  | 18                                         | 15   | 16   | 17   | 6    |
| L <sub>b</sub> – BUILDING SCALING FACTOR (FT) |                  | K <sub>z</sub> – SITE WIND PRESSURE FACTOR |      |      |      |      |
| 34.78                                         |                  | 0.86                                       |      |      |      |      |

| INVERTER SUMMARY TABLE |         |               |              |                              |
|------------------------|---------|---------------|--------------|------------------------------|
| ROOF                   | MODULES | INVERTER TYPE | INVERTER QTY | STRING CONFIGURATION         |
| 1                      | 96      | 24 kW         | 1            | MPPT 1: 12 MODULES, 4 STRING |
|                        |         |               |              | MPPT 2: 12 MODULES, 4 STRING |
|                        | 88      | 24 kW         | 1            | MPPT 1: 11 MODULES, 4 STRING |
|                        |         |               |              | MPPT 2: 11 MODULES, 4 STRING |
|                        | 60      | 15 kW         | 1            | MPPT 1: 10 MODULES, 3 STRING |
|                        |         |               |              | MPPT 2: 10 MODULES, 3 STRING |
| TOTAL                  | 244     |               | 3            |                              |

| BALLAST AND ANCHOR SUMMARY |               |              |                    |          |             |
|----------------------------|---------------|--------------|--------------------|----------|-------------|
| ROOF                       | BALLAST COUNT | ANCHOR COUNT | ARRAY WEIGHT (LBS) | MAX. PSF | AVERAGE PSF |
| 1                          | 90            | 125          | 12,019             | 4.21     | 2.55        |
| TOTAL                      | 90            | 125          |                    |          |             |

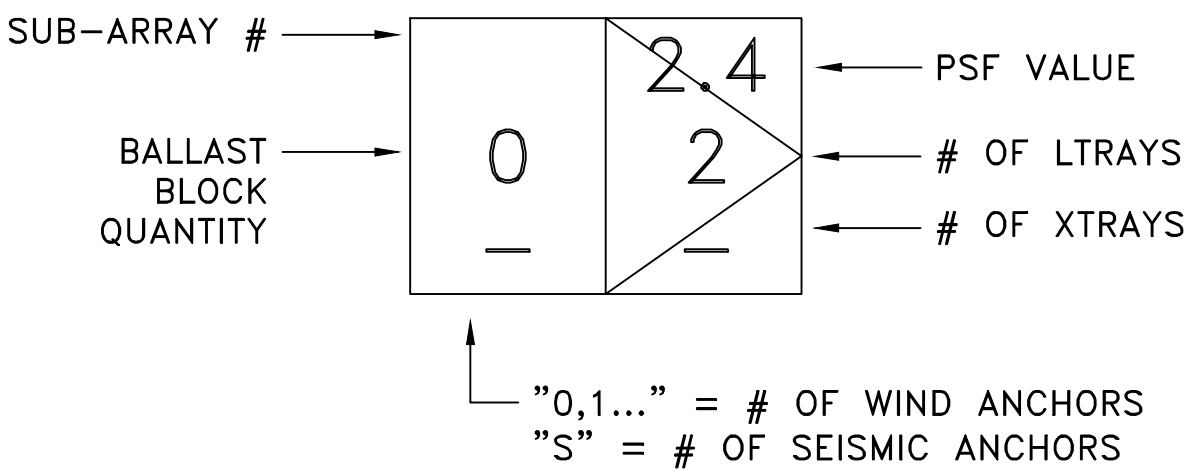
- NOTES:
- ALREADY INCLUDED THE ADDITIONAL ANCHOR & BALLAST IDENTIFIED IN NOTES ITEM#2.
  - EXISTING TRUSSES TYPICAL: 2" X 4" @ 24" O.C.
  - MAXIMUM 8PSF FOR BALLAST SYSTEM.

| SITE CHARACTERIZATION                                        |       |                                             |                    |
|--------------------------------------------------------------|-------|---------------------------------------------|--------------------|
| BUILDING HEIGHT (ft)                                         | 40    | BUILDING WIDTH (ft)                         | 189                |
| BUILDING LENGTH (ft)                                         | 81    | PARAPET HEIGHT (ft)                         | 0                  |
| WIND SPEED (ASCE7-10) (mph)                                  | 130   | EXPOSURE CATEGORY                           | B TO C             |
| EXPOSURE TRANSITION DISTANCE (ft)                            | 1,500 | BALLAST BLOCK WEIGHT (lbs)                  | 14                 |
| MAX ALLOWABLE SYSTEM PRESSURE (psf)                          | 8     | ANCHOR TYPE                                 | OMG POWERGRIP PLUS |
| DESIGN SPECTRAL RESPONSE ACCELERATION (S <sub>ps</sub> ) (g) | 0.994 | SEISMIC IMPORTANCE FACTOR (I <sub>p</sub> ) | 1                  |

## 2400 VIA MARIPOSA WEST BALLAST AND PENETRATION PLAN

| PROPOSED SYSTEM SPECIFICATION                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TOTALS:<br>79.788 kWp<br>244 HIGH EFF. (327W) MODULES<br>12 MODULES/STRING, 8 STRINGS<br>11 MODULES/STRING, 8 STRINGS<br>10 MODULES/STRING, 6 STRINGS<br>ROOF HEIGHT: 40'<br>ROOF PITCH: ASSUMED FLAT |

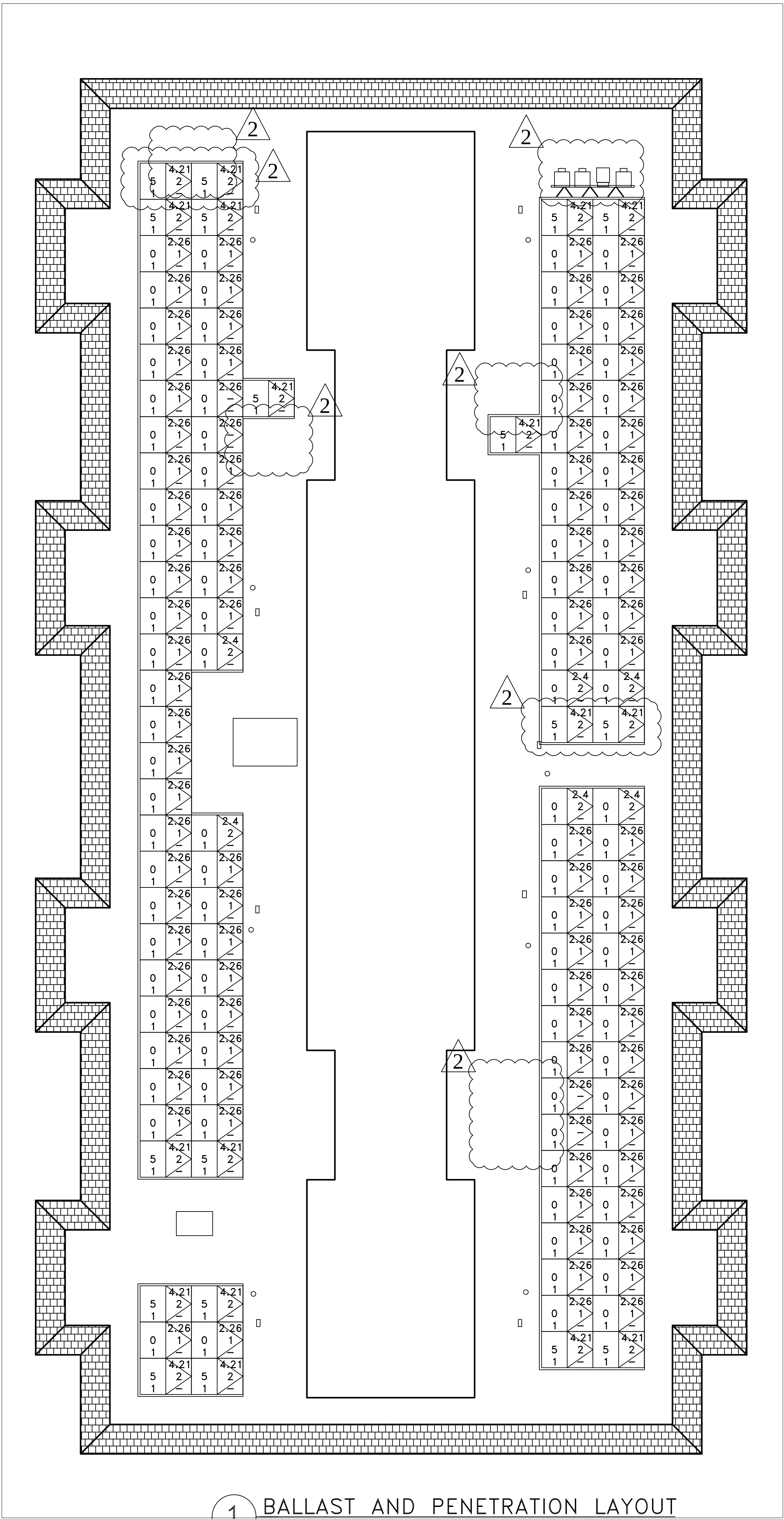
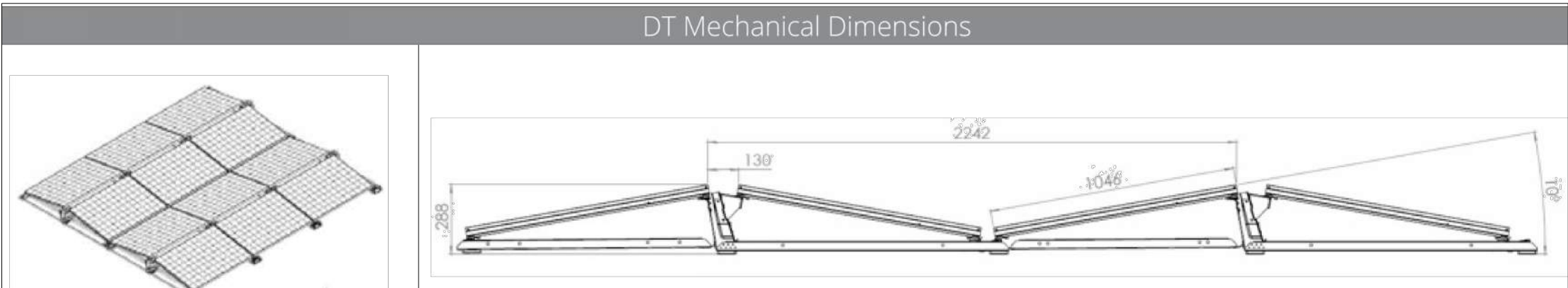
- NOTES:
- SUBARRAYS THAT DID NOT MEET THE REQUIRED MINIMUM ARRAY SIZE WILL REQUIRE ADDITIONAL ANCHORING. PLEASE CONSULT STRUCTURAL ENGINEERING.
  - ADDITIONAL ANCHORS OR BALLAST REQUIRED PER SUBARRAY FOR LATERAL LOADS.  
ROOF 1:  
2.1 SUBARRAY 2: [3]
  - ADDITIONAL ANCHORS CAN BE PLACED ANYWHERE WITHIN THE SUBARRAY.



LEGEND  
SCALE: N.T.S.



|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| Tilt angle                  | 10 degrees                                                         |
| Module compatibility        | SPR-E20-327-COM (327 W DC)*                                        |
| Ground coverage ratio (GCR) | 0.91 0.67                                                          |
| Base system weight          | 9.3 kg/m <sup>2</sup> (1.9 psf) 12.2 kg/m <sup>2</sup> (2.5 psf)   |
| Maximum ballast capacity    | 58.6 kg/m <sup>2</sup> (12 psf)                                    |
| Warranty                    | 25 years                                                           |
| Certifications              | UL 2703 (pending)                                                  |
| Wind tunnel testing         | ASCE 7-10 and SEAOC PV2 compliant                                  |
| Material (structure)        | 5052 H32 aluminum and 301 stainless steel                          |
| Material (foot pad)         | Recycled rubber (92% approx.), polyurethane binder (8% approx.)    |
| Compatible roof anchors     | EcoFasten Solar® Eco-65/F-202, OMG PowerGrip®, OMG PowerGrip Plus® |



1 BALLAST AND PENETRATION LAYOUT  
SCALE: N.T.S.

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER

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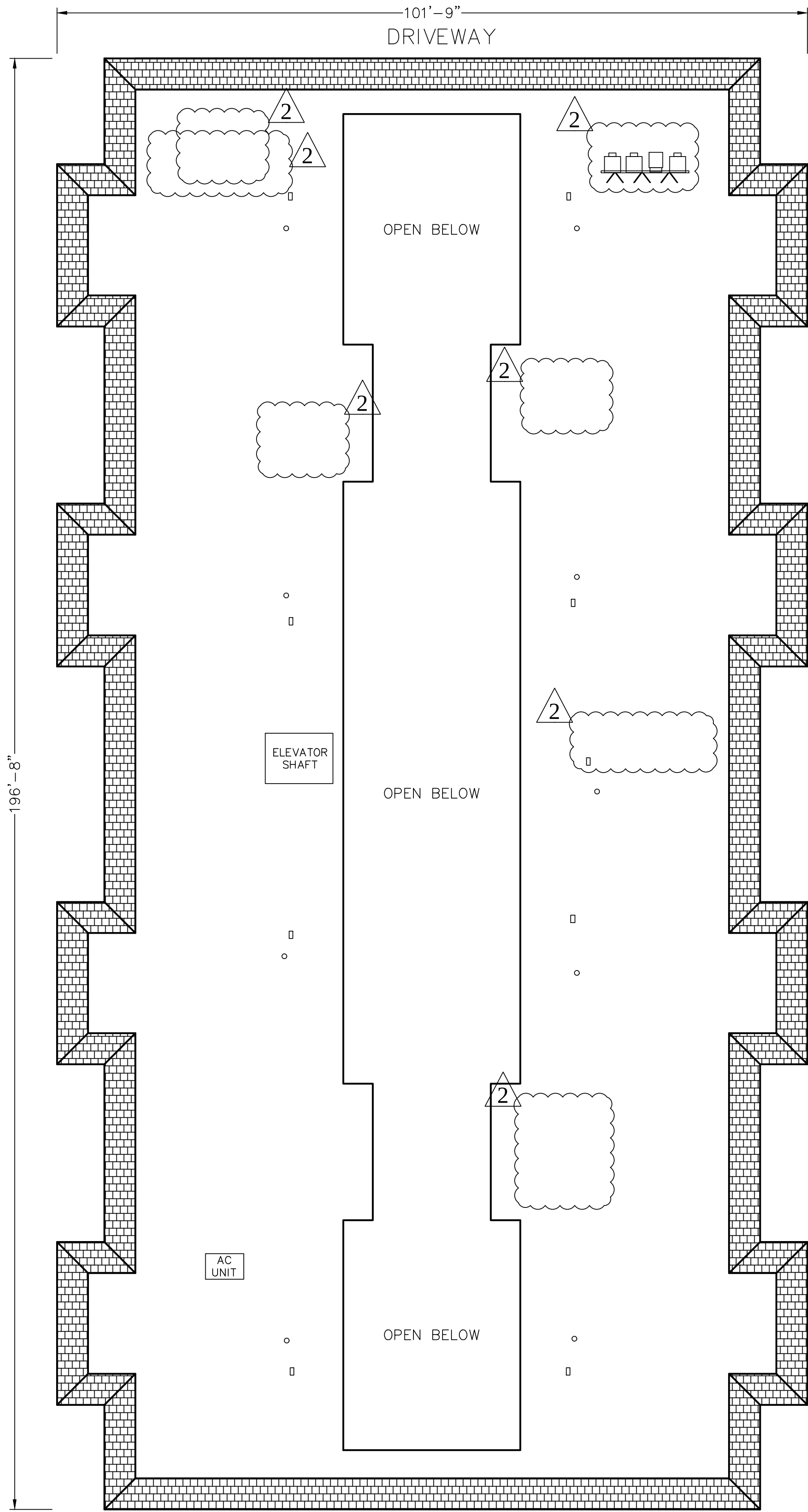
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CHECKED BY: T.T.T.  
SCALE: AS SHOWN  
DATE: 12/21/16

SHEET TITLE

BALLAST AND  
PENETRATION  
SITE PLAN  
2400 VIA MARIPOSA  
SHEET NUMBER

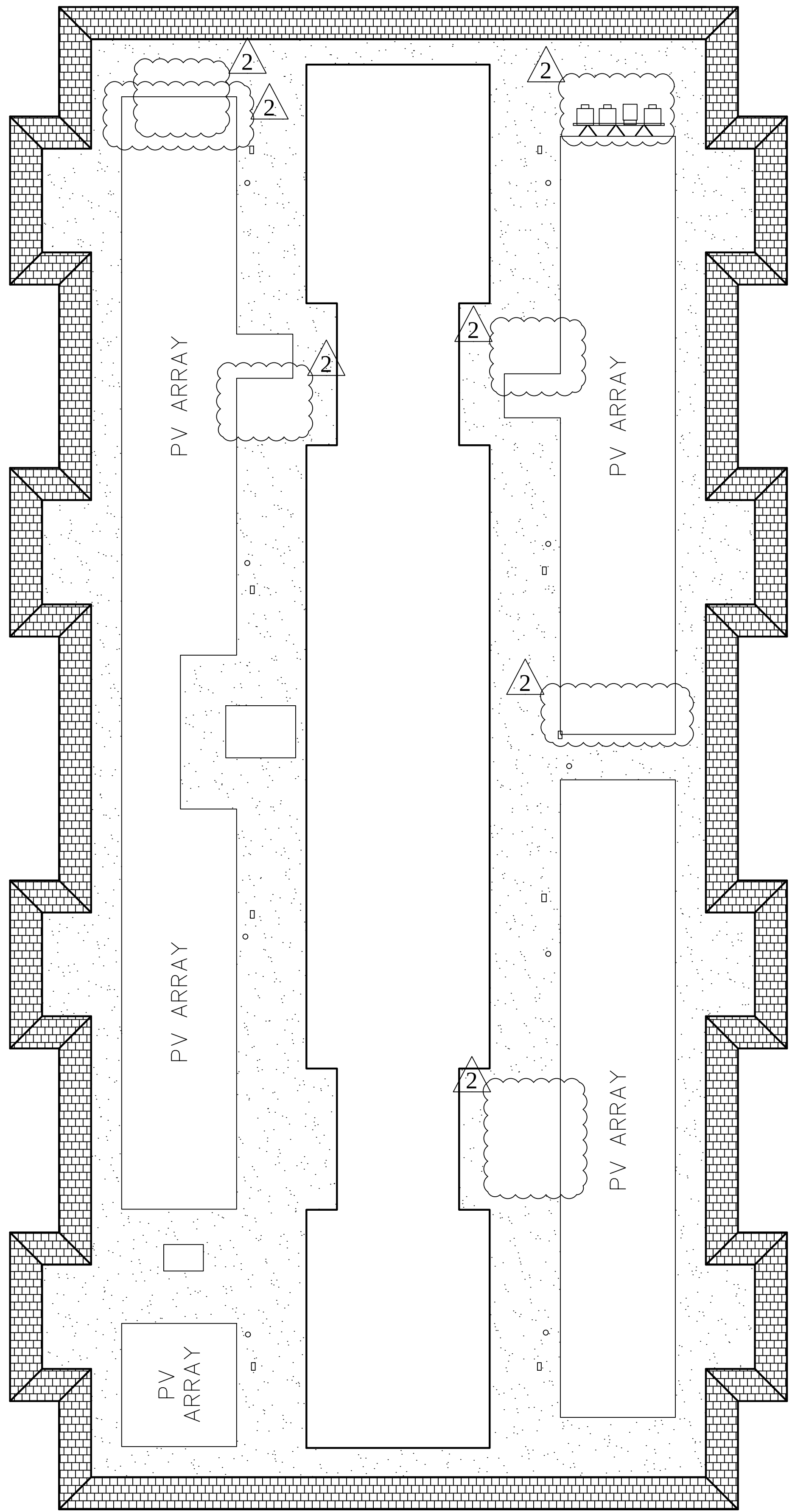
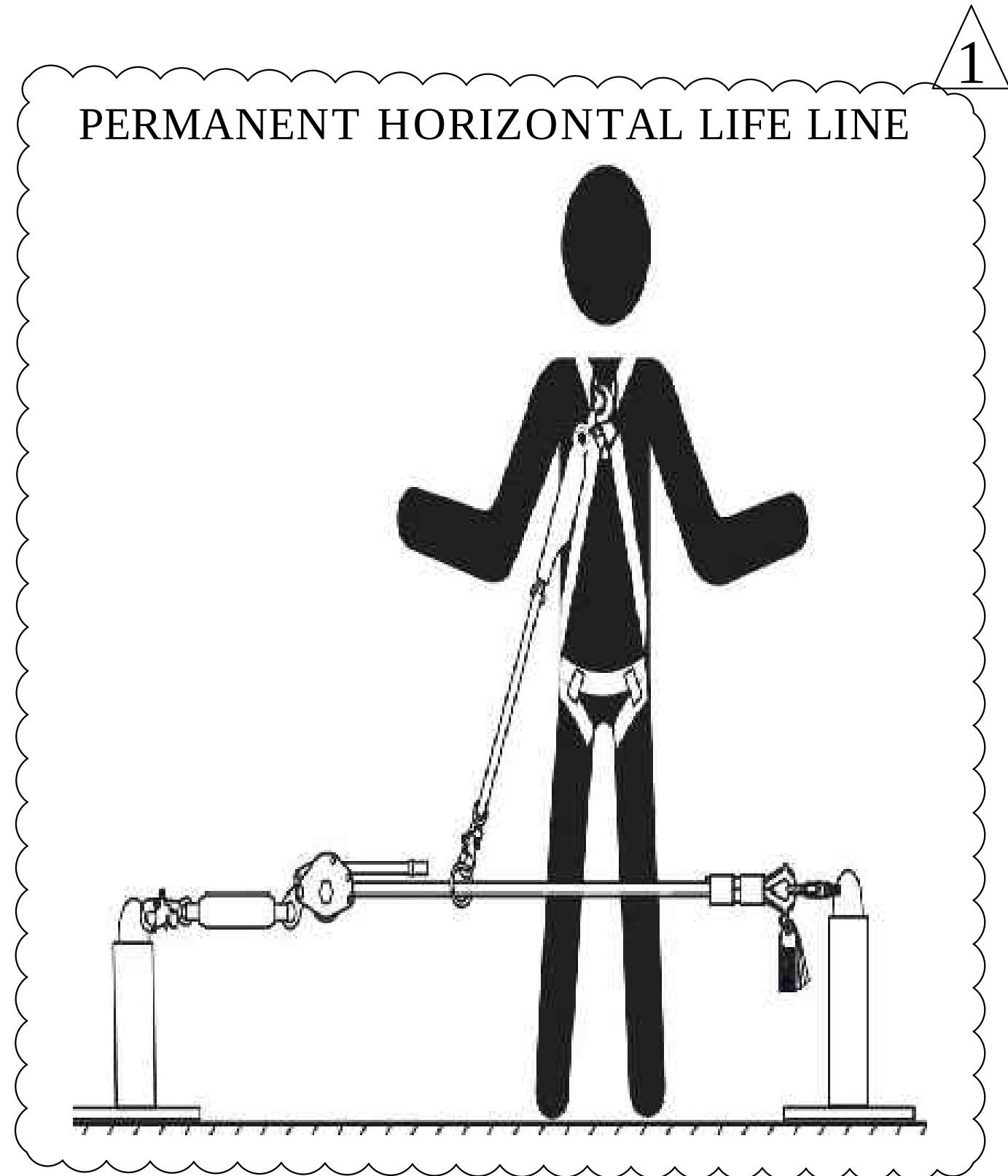
STR 1.11





1 BUILDING LAYOUT  
SCALE: 3/32"=1'-0"

## 2400 VIA MARIPOSA WEST FIRE CLEARANCE SITE PLAN



2 FIRE CLEARANCE LAYOUT  
SCALE: 3/32"=1'-0"

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SCOTT

CHECKED BY:

T.T.T.

SCALE:

AS SHOWN

DATE:

12/21/16

SHEET TITLE

FIRE CLEARANCE  
SITE PLAN  
2400 VIA MARIPOSA

SHEET NUMBER

S1.11F



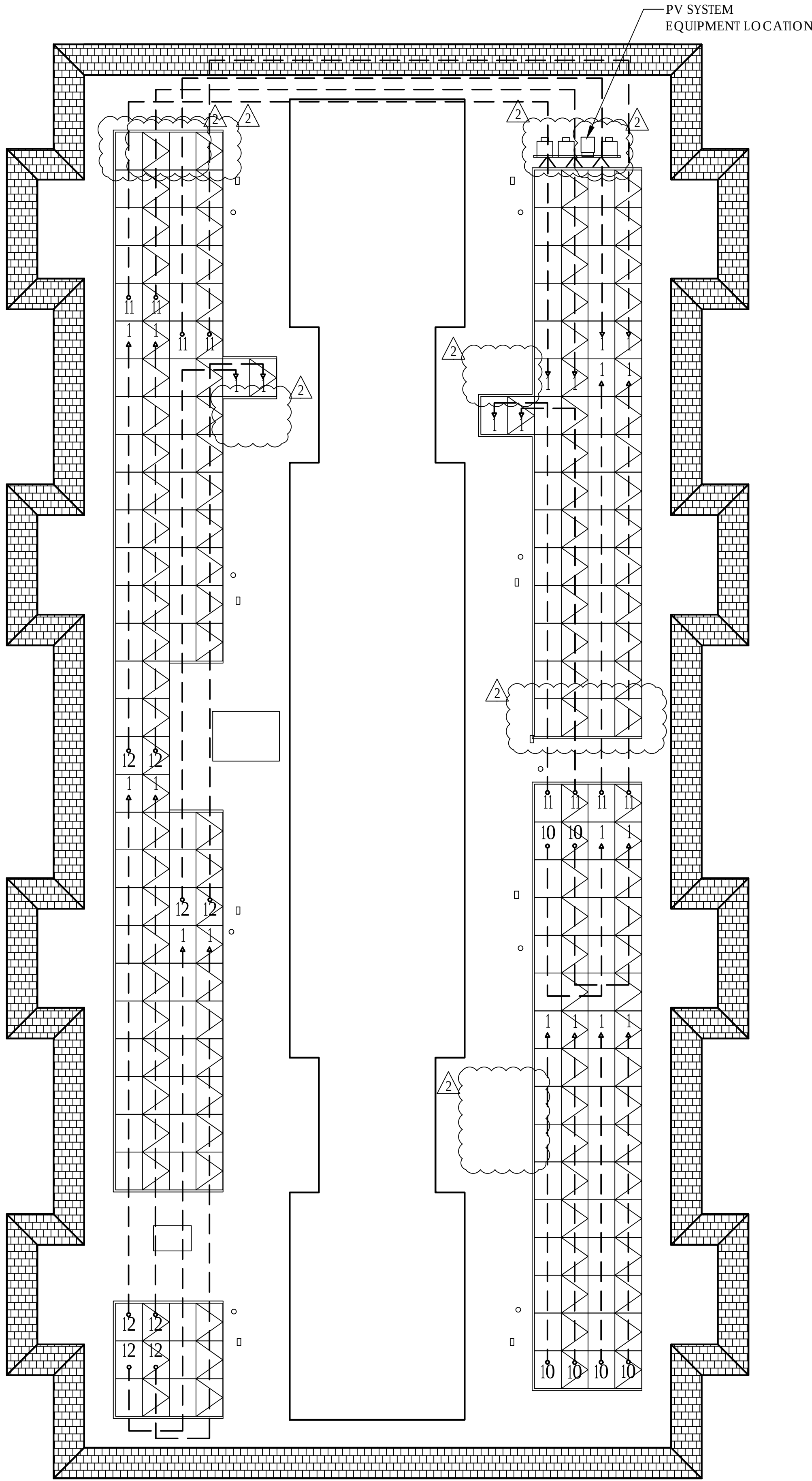
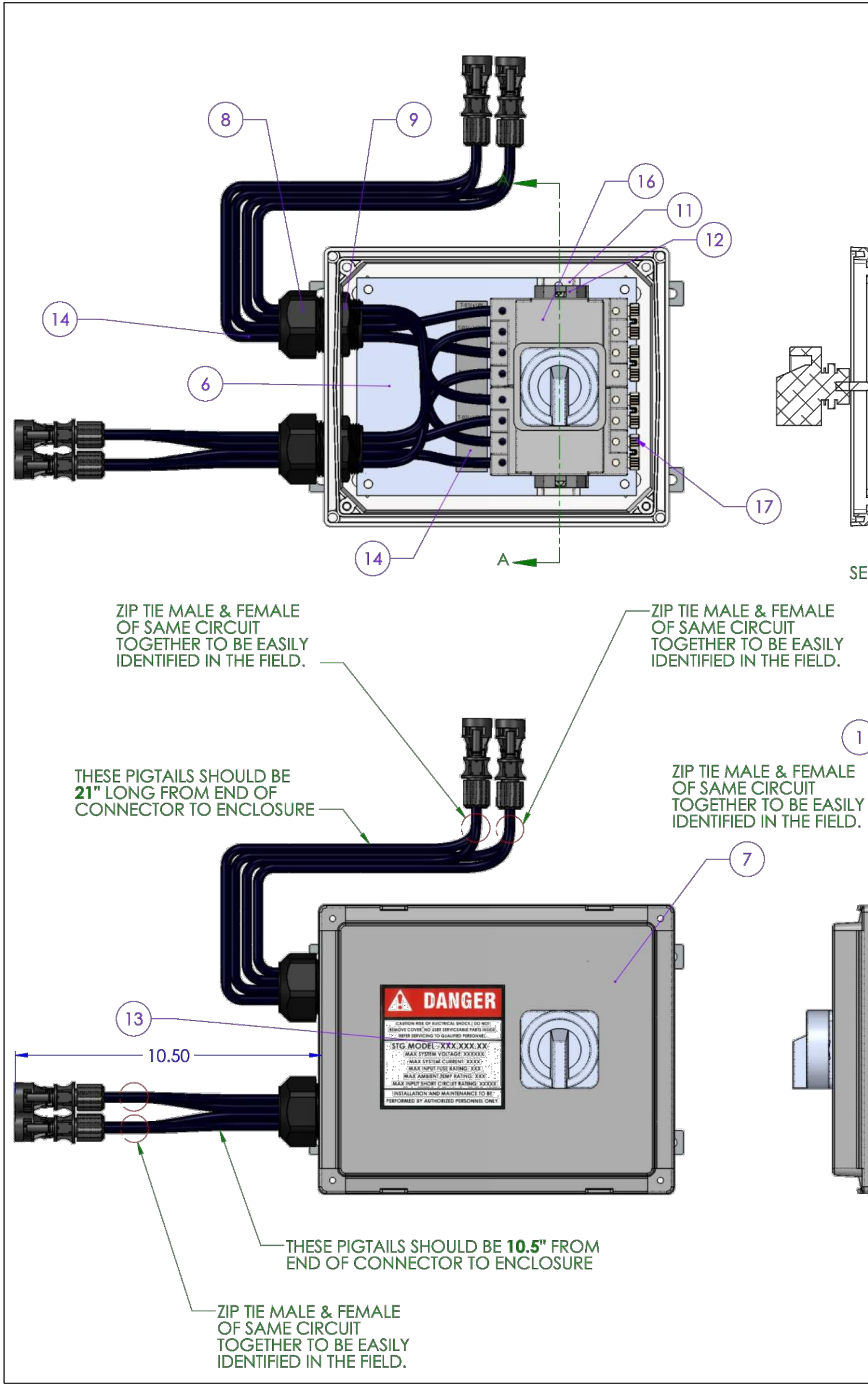
2400 VIA MARIPOSA WEST  
STRING LAYOUT

SunPower® | Helix Roof Solution

HELIX ROOF Power Station



| DC Branch                   |                                                                      |
|-----------------------------|----------------------------------------------------------------------|
| Model                       | Helix plug-and-play DC Branch                                        |
| String input options        | 2, 3, and 4 string                                                   |
| String fuse rating          | 15 A                                                                 |
| Conductor size              | #12 to #8 AWG                                                        |
| Conductor insulation rating | Sunlight-resistant PV Wire                                           |
| Voltage rating              | 2000 VDC                                                             |
| Fusing                      | 12 A                                                                 |
| Connectors                  | String side: Tyco PV4 Solarlock<br>Combined side: Amphenol H4-UTX-XL |



1 STRING LAYOUT  
SCALE: 3/32"=1'-0"

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES  
  
24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



SOLAR OPTIMUM, INC  
501 WEST GLENOAKS BLVD.  
GLENDALE, CA 91202  
800-552-9970  
WWW.SOLAROPTIMUM.COM  
LICENSE NUMBER 972228 C10

CONTRACTOR



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SHEET TITLE

STRING LAYOUT

SHEET NUMBER

S1.1 ST



LABEL "PHOTOVOLTAIC POWER SOURCE" SHALL BE PERMANENTLY AFFIXED ON ALL EXPOSED RACEWAYS, CABLE TRAYS, PULL BOXES, AND JUNCTION BOXES. LABELS SHALL BE SPACED NO GREATER THAN 10 FEET APART AND SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE INSTALLED.

**ARC FLASH AND SHOCK HAZARD**  
APPROPRIATE PPE AND TOOLS REQUIRED  
WHEN WORKING ON THIS EQUIPMENT

OUTDOOR RATED ARC FLASH STICKER MOUNTED ON ALL EQUIPMENT

**NOTES:**

- 1. ORANGE BACKGROUND**
- 2. BLACK LETTERING**
- 3. MINIMUM 3/8" LETTER HEIGHT**
- 4. ALL CAPITAL LETTERS**
- 5. ARIAL OR SIMILAR FONT, NON-BOLD**
- 6. WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT**

**WARNING: ELECTRIC SHOCK HAZARD**

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY  
ARE UNGROUNDED AND MAY BE ENERGIZED

|                    |         |                    |         |
|--------------------|---------|--------------------|---------|
| OPERATING CURRENT: | 29.6 A  | MAXIMUM AC         | 36.25 A |
| OPERATING VOLTAGE: | 748.2 V | OPERATING CURRENT: | 29 A    |
| MAXIMUM CURRENT:   | 32.28 A | NOMINAL AC         | 480 V   |
| MAXIMUM VOLTAGE:   | 887.8 V | OPERATING VOLTAGE: | 480 V   |

**WARNING: ELECTRIC SHOCK HAZARD**

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY  
ARE UNGROUNDED AND MAY BE ENERGIZED

|                    |         |                    |         |
|--------------------|---------|--------------------|---------|
| OPERATING CURRENT: | 29.6 A  | MAXIMUM AC         | 36.25 A |
| OPERATING VOLTAGE: | 685.9 V | OPERATING CURRENT: | 29 A    |
| MAXIMUM CURRENT:   | 32.28 A | NOMINAL AC         | 480 V   |
| MAXIMUM VOLTAGE:   | 813.8 V | OPERATING VOLTAGE: | 480 V   |

**WARNING: ELECTRIC SHOCK HAZARD**

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC ARRAY  
ARE UNGROUNDED AND MAY BE ENERGIZED

|                    |          |                    |         |
|--------------------|----------|--------------------|---------|
| OPERATING CURRENT: | 22.2 A   | MAXIMUM AC         | 18.75 A |
| OPERATING VOLTAGE: | 623.58 V | OPERATING CURRENT: | 14.4 A  |
| MAXIMUM CURRENT:   | 24.21 A  | NOMINAL AC         | 480 V   |
| MAXIMUM VOLTAGE:   | 739.8 V  | OPERATING VOLTAGE: | 480 V   |

INVERTER OUTPUT CONNECTION  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE

OPERATING AC VOLTAGE: 277/480V  
MAXIMUM OPERATING AC OUTPUT  
CURRENT: 95 AMPS

MARKING FOR MAIN SERVICE

**WARNING: ELECTRIC SHOCK HAZARD**

DO NOT TOUCH TERMINALS.  
TERMINALS ON BOTH LINE &  
LOAD SIDE MAY BE ENERGIZED  
IN THE OPEN POSITION.

OPERATING CURRENT: 95 A  
OPERATING VOLTAGE: 480 V

**WARNING: ELECTRIC SHOCK HAZARD**

DO NOT TOUCH TERMINALS.  
TERMINALS ON BOTH LINE &  
LOAD SIDE MAY BE ENERGIZED  
IN THE OPEN POSITION.

OPERATING CURRENT: 95 A  
OPERATING VOLTAGE: 480 V

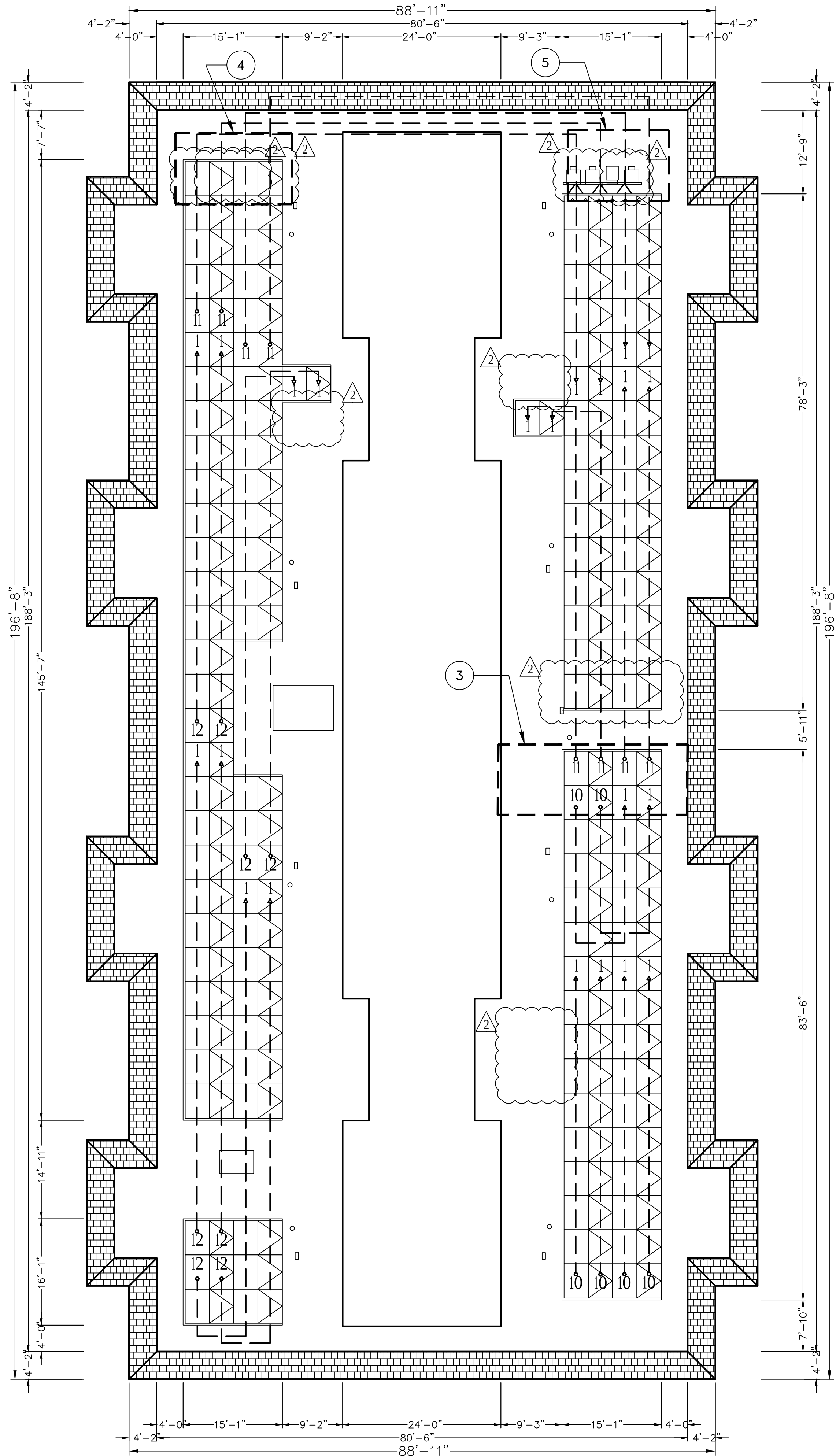
## MARKING FOR MAIN SERVICE AND AC COMBINER

NOTES:

1. LETTERING ON SIGNS SHALL BE CAPITAL LETTERS, MINIMUM SIZE OF 1/8" HIGH. LETTERING SHALL BE REFLECTIVE RED ON WHITE BACKGROUND OR VICE VERSA.
2. CLEARLY LABEL ALL CIRCUIT BREAKERS IN THE PANELBOARD. THE LABEL SHALL INDICATE THE NAME OF THE DEVICE IT SERVES.

NOTES:

1. ROOF PERIMETER FIRE CLEARANCE: MIN 4'-0".
2. FIRE CLEARANCE AROUND SKYLIGHT: MIN 4'-0".
3. FIRE CLEARANCE AROUND OPENINGS: MIN 4'-0".
4. ROOF HEIGHT: 40'-0" APPROXIMATE.
5. ROOF PITCH: 0°
6. CONDUIT TO PENETRATE ROOF AND ENTER THIRD FLOOR LAUNDRY ROOM. CONDUIT RUN WILL CONTINUE DOWN ALONG SIDE THE TRASH SHOOT FINALLY ENTERING TRASH CLOSET AT GROUND LEVEL, CONDUIT WILL THEN PENETRATE WALL INSIDE OF TRASH CLOSET AND TERMINATE AT PV AC DISCONNECT ON OPPOSITE SIDE OF WALL, USE ADEQUATE SLEEVE TO PROTECT CONDUIT FROM ELEMENTS.



2 ARRAY LAYOUT  
SCALE: 3/32"=1'-0"



SHEET NUMBER

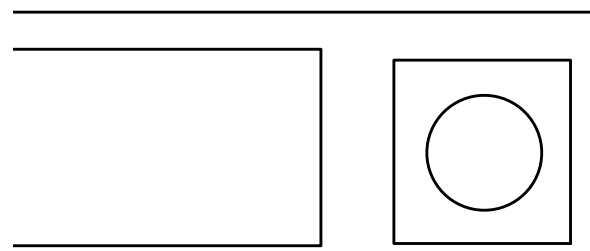
S 1.1 1L



2400 VIA MARIPOSA WEST  
SITE PLAN

CAUTION

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



SH CLOSET

200A SUB-PANEL  
W/100A MAIN, PV P.O.C.

MAIN 100A  
AC DISCONNECT

100A MSP  
METER ONLY

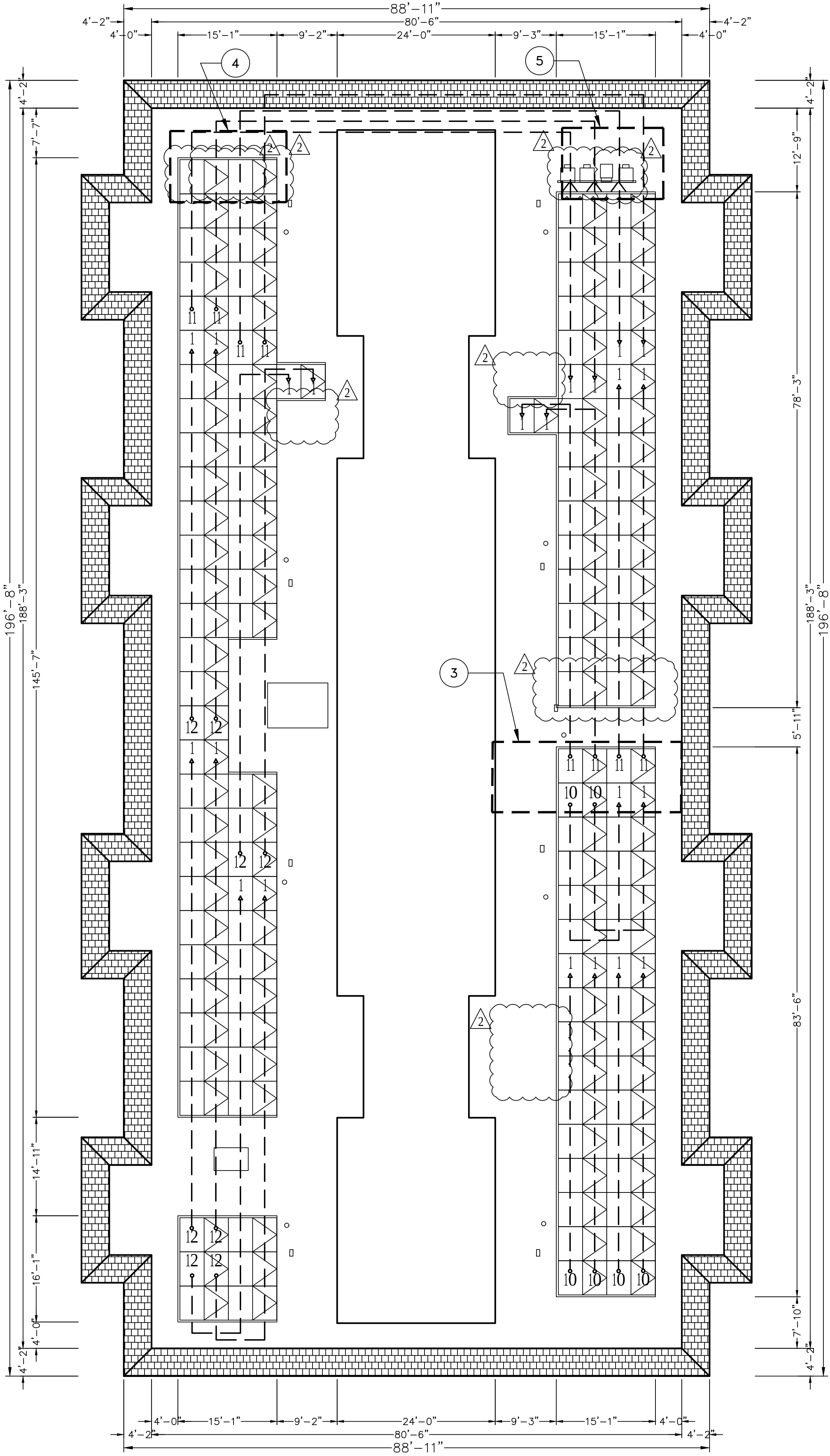
DOOR

(E) SINGLE  
PHASE MSP



100A PV  
AC DISCONNECT

DOOR



2 ARRAY LAYOUT  
SCALE: 3/32"=1'-0"



PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



SOLAR OPTIMUM, INC  
501 WEST GLENOAKS BLVD.  
GLENDALE, CA 91202  
800-552-9970  
WWW.SOLAROPTIMUM.COM  
LICENSE NUMBER 972228 C10

CONTRACTOR



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SCALE: AS SHOWN  
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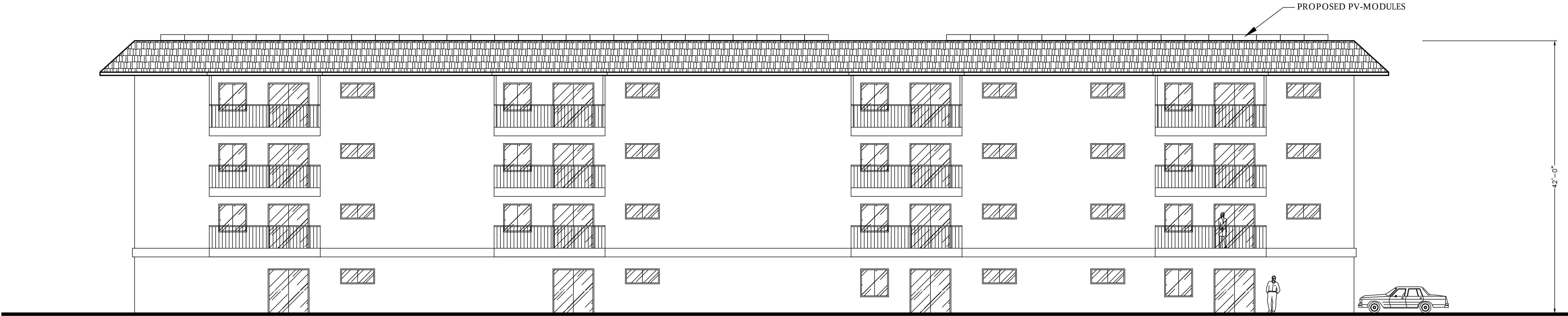
LABELS

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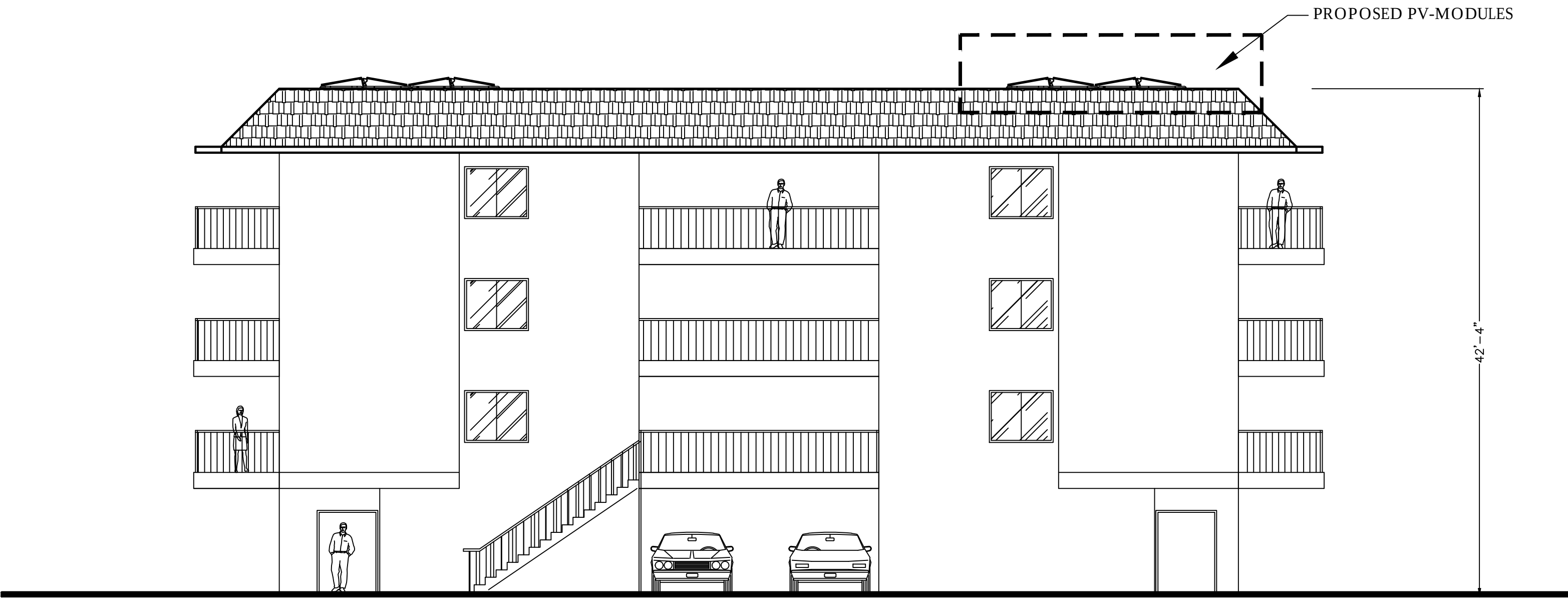
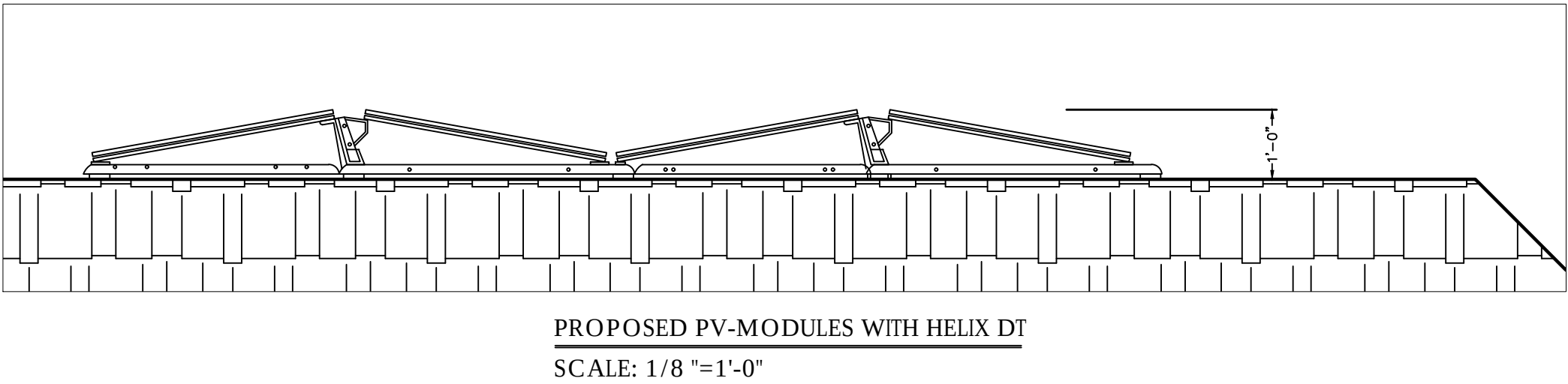
S1.11L



TYPICAL BUILDING ELEVATIONS: 2353 VIA PUERTA  
2381 VIA MARIPOSA EAST  
2393 VIA MARIPOSA WEST GARDEN VILLA  
2394 VIA MARIPOSA WEST GARDEN VILLA  
3420 CALLE AZUL CASA DORADO  
5510 PASEO DEL LAGO WEST EL MIRRADOR



FRONT ELEVATION  
SCALE: 1/8"=1'-0"



SIDE ELEVATION  
SCALE: 1/8"=1'-0"

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

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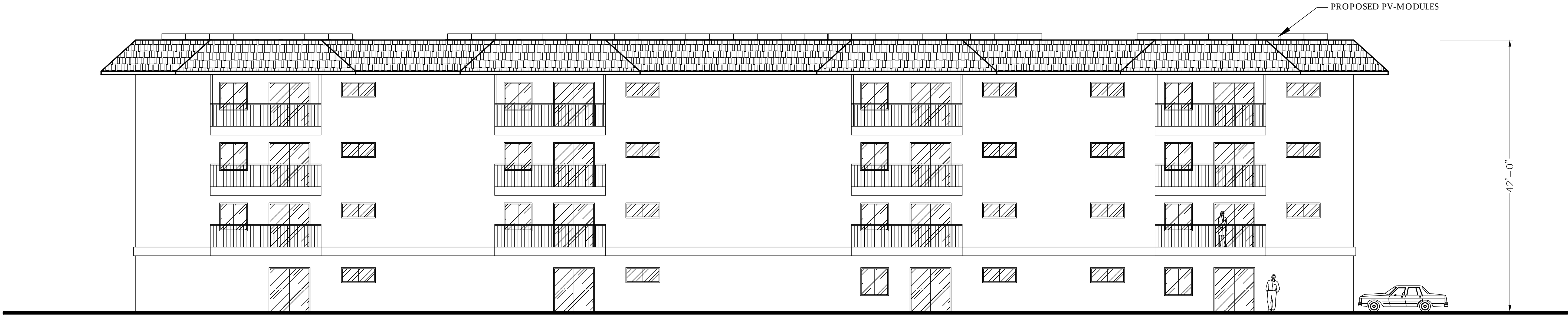
ELEVATIONS

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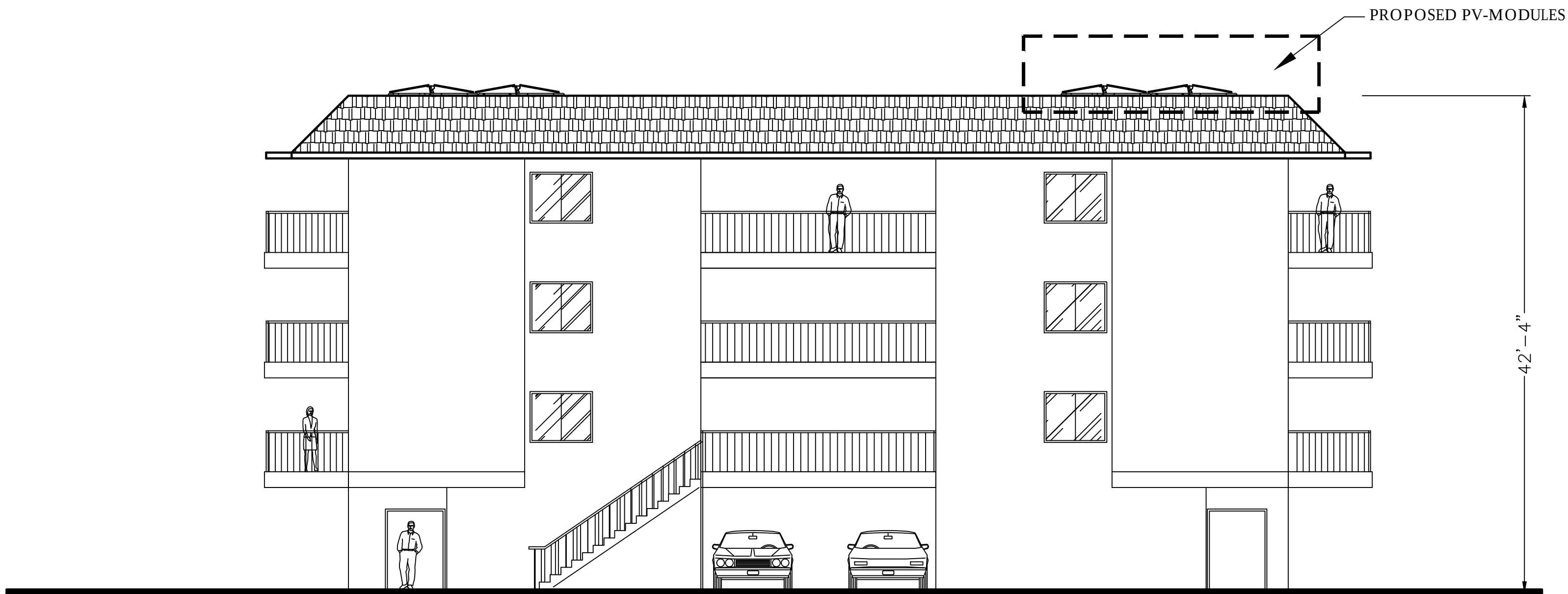
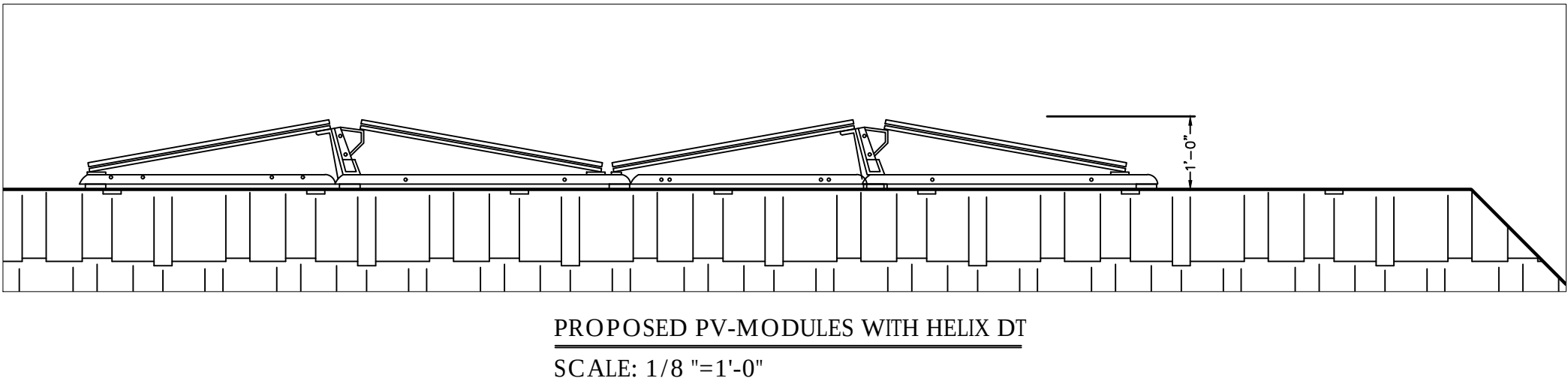
ELV1



TYPICAL BUILDING ELEVATIONS: 2397 VIA MARIPOSA WEST VILLA CAPRI  
2399 VIA MARIPOSA WEST VILLA CAPRI  
2400 VIA MARIPOSA WEST  
3242 SAN AMADEO VILLA PUERTA  
5372 PUNTA ALTA VILLA PUERTA



FRONT ELEVATION  
SCALE: 1/8 " = 1'-0"



SIDE ELEVATION  
SCALE: 1/8 " = 1'-0"

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



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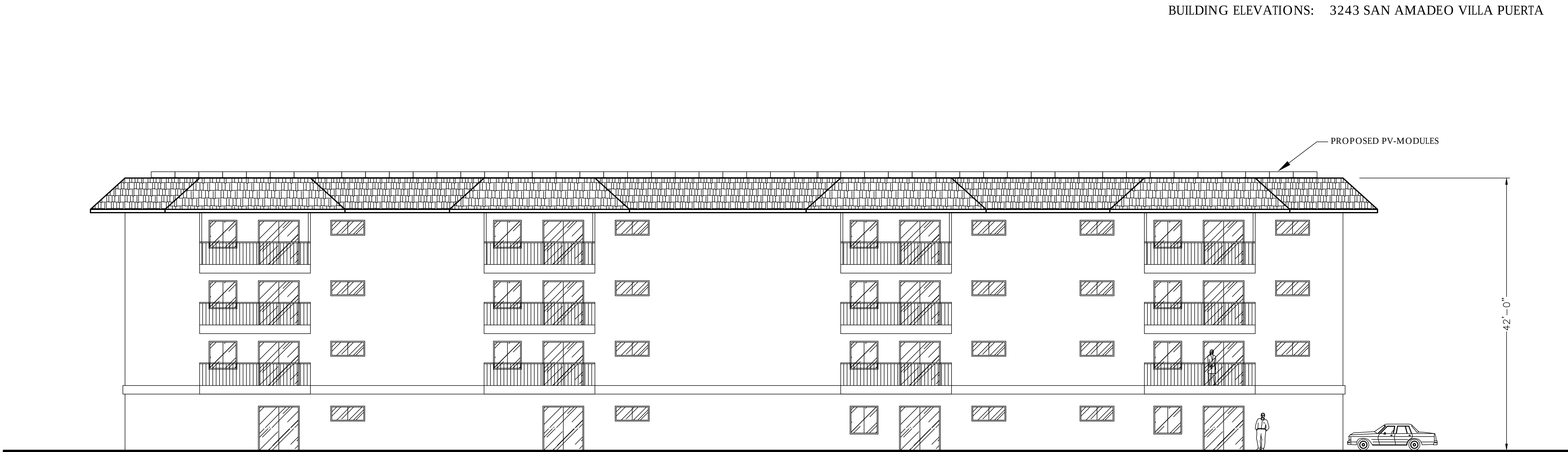
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ELEVATIONS

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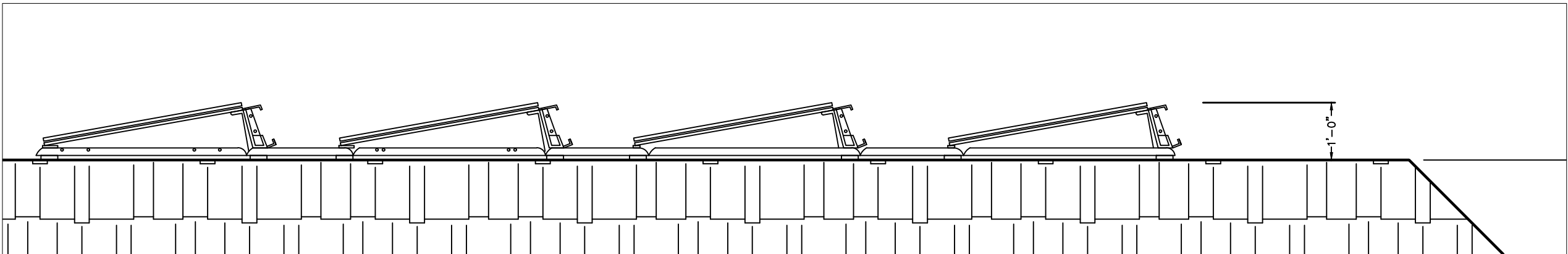
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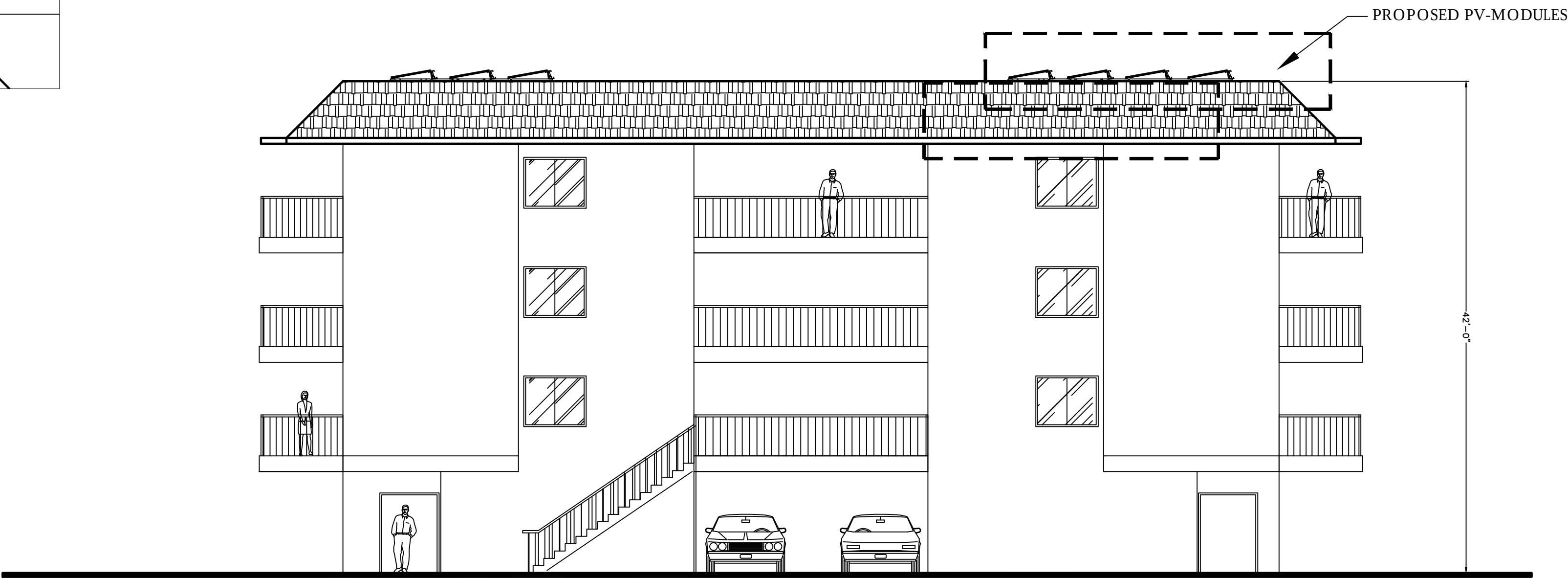


FRONT ELEVATION

SCALE: 1/8"=1'-0"



PROPOSED PV-MODULES WITH HELIX ST  
SCALE: 1/8"=1'-0"



SIDE ELEVATION

SCALE: 1/8"=1'-0"

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES  
  
24351 EL TORO RD.  
LAGUNA WOODS, CA 92637

PROJECT DEVELOPER



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SHEET TITLE

ELEVATIONS

SHEET NUMBER

ELV3



THIRD MUTUAL  
LAGUNA WOODS VILLAGES

4351 EL TORO RD.



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OPTIMUM

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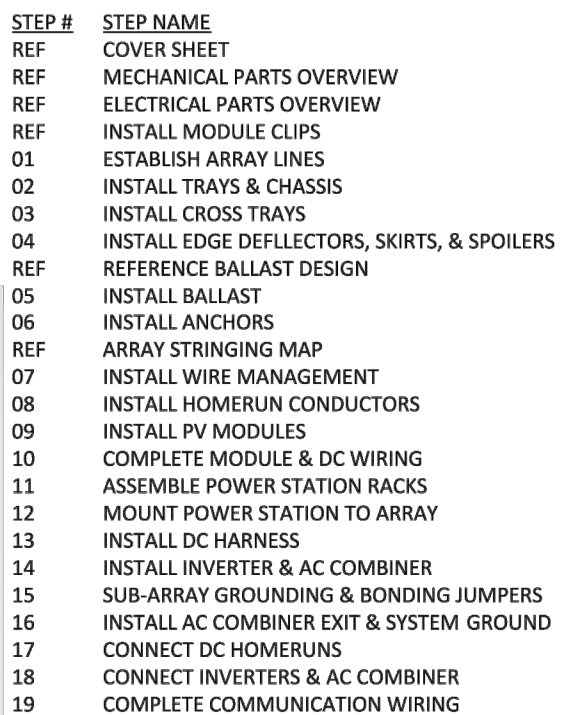
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| SCALE:      | AS SHOWN |
| DATE:       | 12/21/16 |

ASSEMBLY  
SHEET-SINGLE

AS 1



2. FOLLOW ALL FASTENER TORQUE SPECIFICATIONS OUTLINED HEREIN THIS DOCUMENT IN ORDER TO ENSURE PROPER ASSEMBLY AND BONDING FOR THE SYSTEM PER UL 2703. ALL CONNECTIONS REQUIRE PERIODIC RE-INSPECTION TO VERIFY THAT THERE ARE NO LOOSE COMPONENTS, LOOSE FASTENERS, OR CORROSION. IF LOOSE COMPONENTS, LOOSE FASTENERS, OR CORROSION IS FOUND, AFFECTED COMPONENTS SHOULD BE IMMEDIATELY REPLACED.

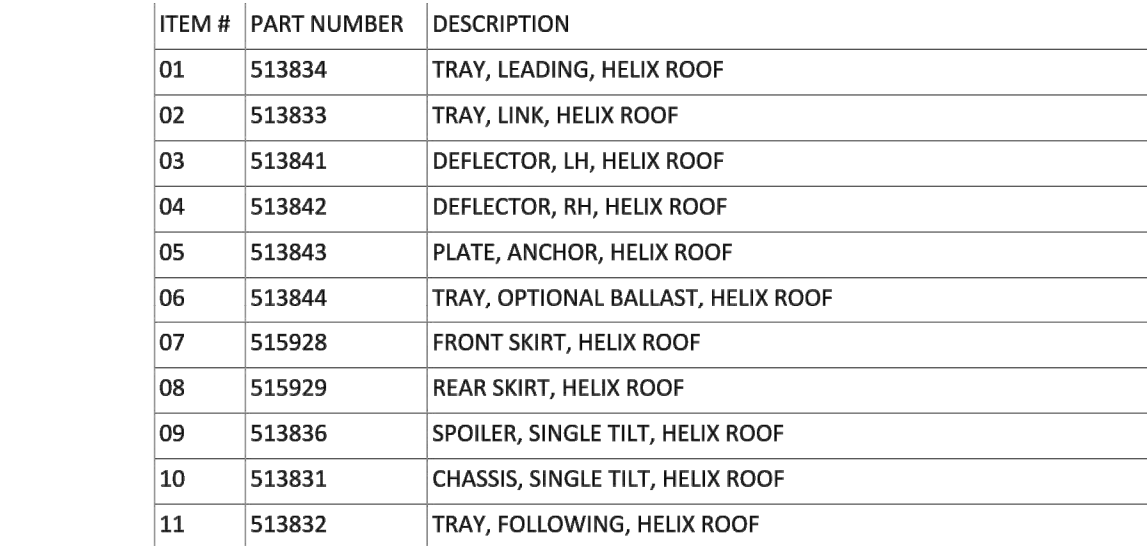
4. IN ADDITION TO THE INSTRUCTIONS OUTLINED IN THIS DOCUMENT, IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE COMPLIANCE WITH NFPA 70 U.S. NATIONAL ELECTRICAL CODE.

**6. THE HELIX ROOF MOUNTING SYSTEM HAS BEEN EVALUATED FOR A CLASS A SYSTEM FIRE CLASSIFICATION FOR A LOW-SLOPED ROOF USING TYPE 2 MODULES. REFER TO FA302, FA303, & FA304 FOR ADDITIONAL FIRE CLASSIFICATION REQUIREMENTS.**

8. THE SYSTEM HAS BEEN EVALUATED FOR A DOWNWARD LOAD OF 30 PSF, AN UPWARD LOAD OF 10 PSF, AND A DOWNSLOPE LOAD OF 5.2 PSF.



A close-up photograph of a metal bracket. A callout box with the number 29 points to a small hole in the bracket's body.



**NOTE:**  
1. THE FOLLOWING COMPONENT HAVE NOT BEEN EVALUATED FOR BONDING OR MECHANICAL LOADING: DEFLECTOR LEFT - PART NO. 513841, DEFLECTOR RIGHT - PART NO. 513842, FRONT SKIRT - PART NO. 515928, REAR SKIRT - PART NO. 515929, LINK TRAY - PART NO. 513833, SPOILER - PART NO. 513836.



### RIVET ATTACHMENT

1. PLACE MODULE CLIP ON CORNER OF MODULE FRAME & ALIGN HOLES.
2. USE RIGHT-HAND AND LEFT-HAND CLIPS ON THE APPROPRIATE CORNERS, WITH THE WIDE CLIP TABS EXTENDING BEYOND THE SHORT SIDE OF THE MODULE, AND NARROW STACKING TABS EXTENDING BEYOND THE LONG SIDE OF THE MODULE.
3. INSERT RIVET THROUGH CLIP AND MODULE FRAME
4. USE RIVET GUN TO PULL RIVET, SECURING CLIP TO MODULE FRAME
5. REPEAT AT ALL CORNERS.

### SCREW-NUT ATTACHMENT

1. PLACE MODULE CLIP ON CORNER OF MODULE FRAME & ALIGN HOLES.
2. USE RIGHT-HAND AND LEFT-HAND CLIPS ON THE APPROPRIATE CORNERS, WITH THE WIDE CLIP TABS EXTENDING BEYOND THE SHORT SIDE OF THE MODULE, AND NARROW STACKING TABS EXTENDING BEYOND THE LONG SIDE OF THE MODULE.
3. INSERT SCREW THROUGH CLIP AND MODULE FRAME, AND SECURE WITH NUT.
4. TORQUE SCREW-NUT FASTENER COMBINATION TO 80 IN.-LB (9.0 N-m)
5. REPEAT AT ALL CORNERS.

**NOTE:**  
1. USE THIS REFERENCE FOR  
MODULES WITHOUT  
PREINSTALLED CLIPS, AND IN  
CASES OF MODULE FIELD  
REPLACEMENT.

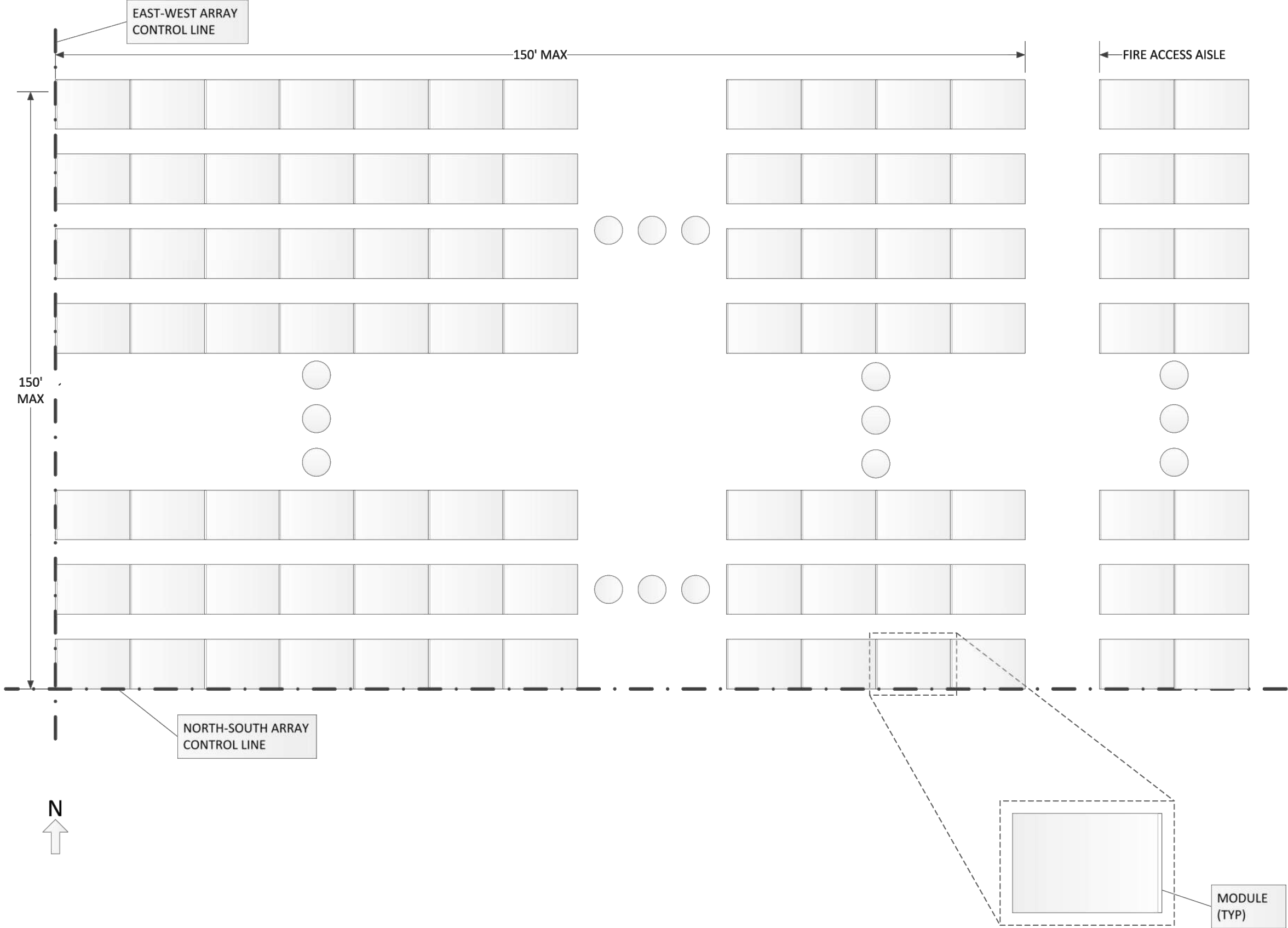


## IN-FIELD MODULE CLIP INSTALLATION – SCREW-NUT ATTACHMENT



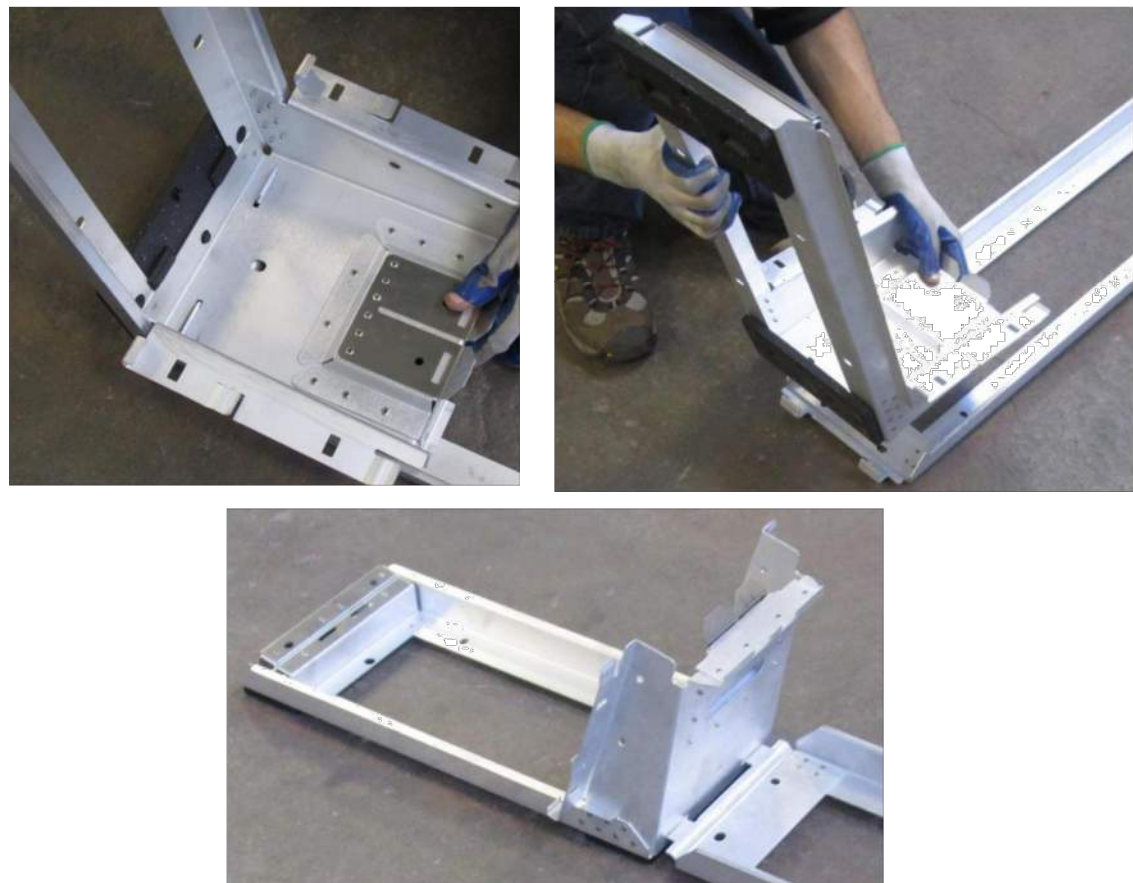
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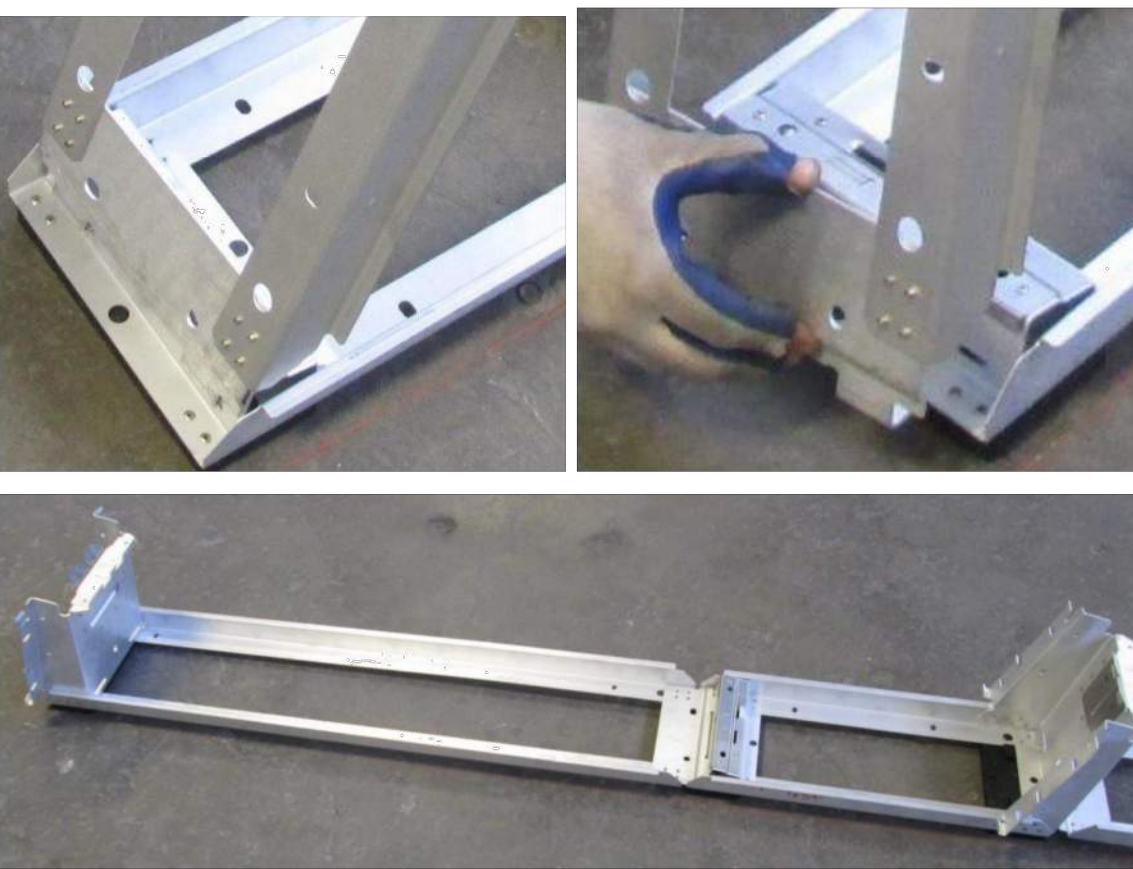
STEP 1 – ESTABLISH ARRAY LINES

- STEP 1 – ESTABLISH ARRAY LINES**
- A. STARTING FROM ANY CORNER, SNAP CHALK LINES FROM A DIMENSIONED OFFSET FROM THE ROOF EDGE, OR OTHER CONTROLLED SETBACK. EACH ARRAY SHOULD HAVE AT LEAST ONE EAST-WEST AND ONE NORTH-SOUTH CONTROL LINE.**
- NOTE:**
1. REFER TO THE PROJECT DRAWINGS FOR PROJECT SPECIFIC DIMENSIONS.
  2. SUNPOWER RECOMMENDS A MAXIMUM E-W AND N-S ARRAY DIMENSION OF 150' IN ACCORDANCE WITH CALFIRE MAXIMUM ARRAY SIZE.



STEP B – CONNECT MAIN CHASSIS

STEP A – POSITION LEADING TRAYS

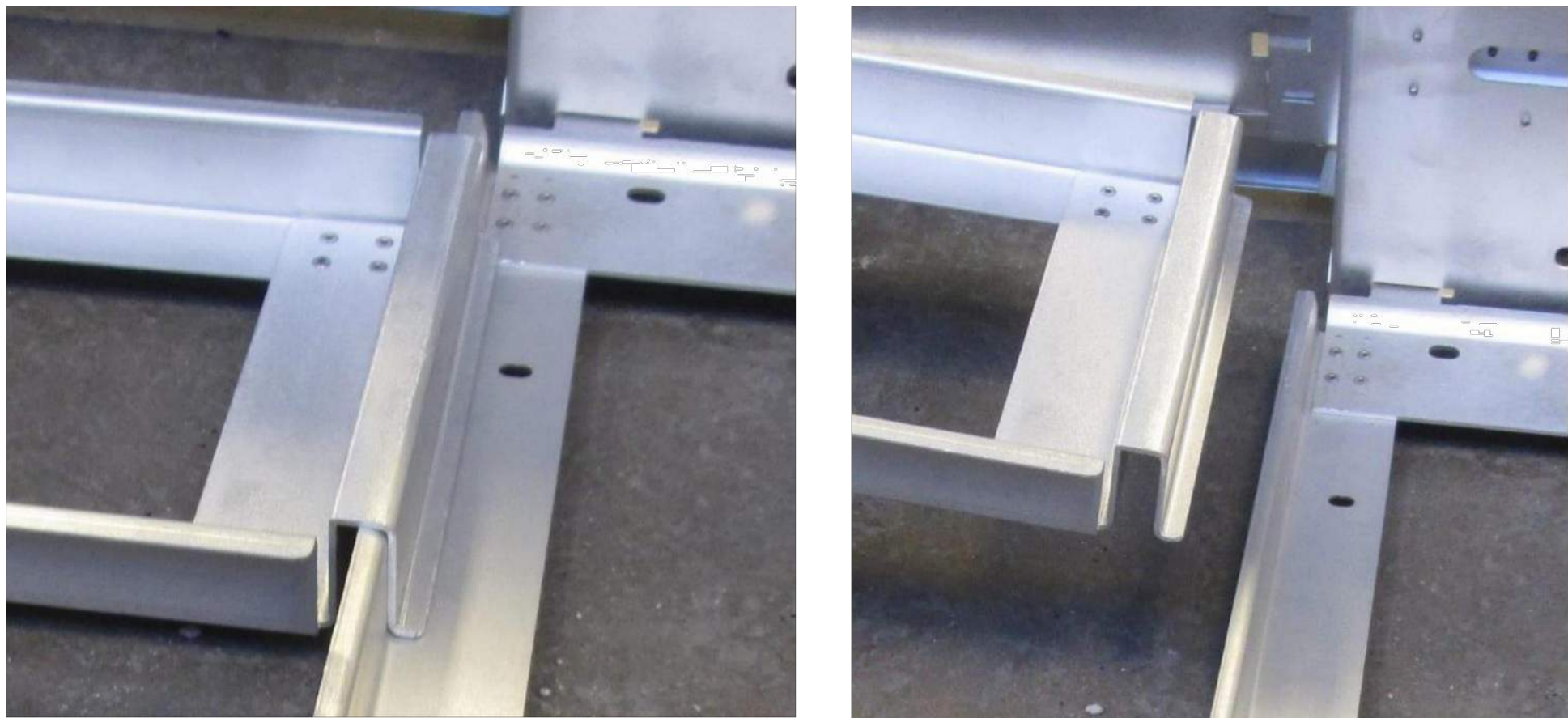


STEP D – CONNECT FOLLOWING TRAY



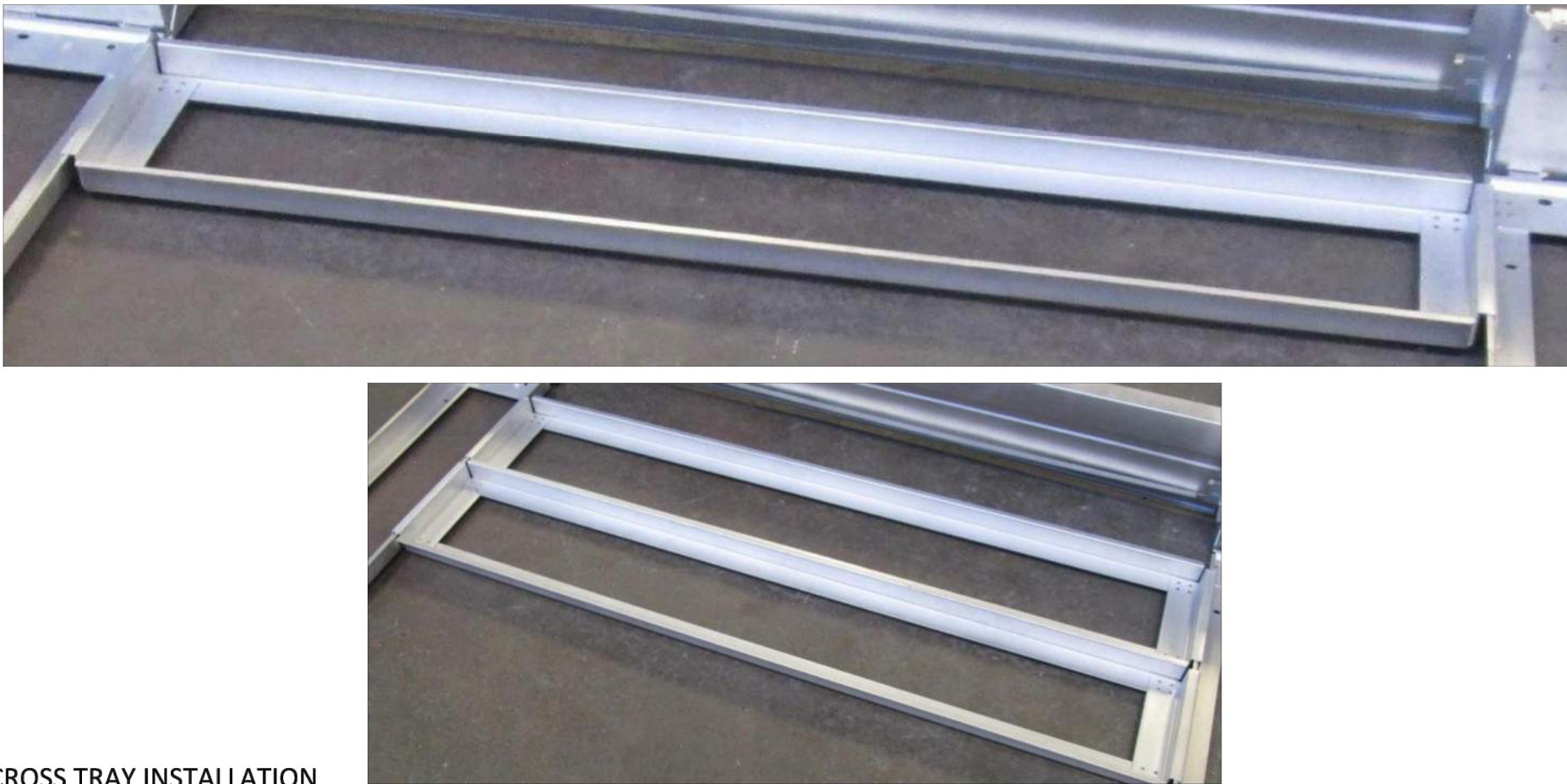
STEP C – CONNECT LINK TRAY

- STEP 2 – INSTALL TRAYS & CHASSIS**
- A. POSITION LEADING TRAYS**
1. ALIGN AND POSITION FIRST LEADING TRAY AT INTERSECTION OF N-S AND E-W CONTROL LINES.
  2. POSITION ADJACENT LEADING TRAYS IN E-W DIRECTION, ALIGNING THEIR EDGE WITH THE N-S CONTROL LINE.
- B. CONNECT MAIN CHASSIS**
1. INSERT CHASSIS SLOTS INTO LEADING TRAY TABS
  2. LOWER CHASSIS AND ROTATE DOWN SO THAT MAIN CHASSIS SITS FLUSH ON ROOF.
  3. RE-ADJUST ALIGNMENT OF LEADING TRAYS WITH CONTROL LINES.
  4. REPEAT AT ALL LEADING TRAY LOCATIONS.
- C. CONNECT LINK TRAY**
1. INSERT LINK TRAY TABS INTO MAIN CHASSIS SLOTS.
  2. LOWER LINK TRAY AND ROTATE DOWN TO ROOF SURFACE.
  2. COMPLETED LINK TRAY TO CHASSIS TO LEADING TRAY.
  3. REPEAT AT ALL RELEVANT MAIN CHASSIS LOCATIONS.
- D. CONNECT FOLLOWING TRAY**
1. CONNECT FOLLOWING TRAY TO LINK TRAY, FOLLOWING THE PROCEDURE IN STEP B.
  2. REPEAT FOR ALL LINK TRAYS AT NORTH EDGES OF THE ARRAY.
- NOTE:**
1. PAIRS OF LINK TRAYS ARE REQUIRED AROUND THE PERIMETER OF THE ARRAY REGARDLESS OF BALLASTING.
  2. LINK TRAYS MAY NOT BE REQUIRED WITHIN THE INTERIOR OF AN ARRAY. REFER TO PROJECT ARRAY LAYOUT DOCUMENTATION FOR MORE SPECIFIC GUIDANCE.
  3. 1 ADDITIONAL ROOF SPACER PAD MAY BE INSTALLED UNDERNEATH A PRE-INSTALLED SPACER PAD IN ORDER ENSURE THAT CHASSIS AND TRAY RAILS DO NOT CONTACT THE ROOF SURFACE AS THE ARRAY MOVES OVER ROOF UNDULATIONS. ENSURE THAT STACKED PADS ARE PROPERLY NESTED.
  4. THE HELIX ROOF MOUNTING SYSTEM HAS BEEN EVALUATED FOR A CLASS A SYSTEM FIRE CLASSIFICATION FOR A LOW-SLOPED ROOF USING TYPE 2 MODULES. REFER TO FA304 FOR ADDITIONAL FIRE CLASSIFICATION REQUIREMENTS.

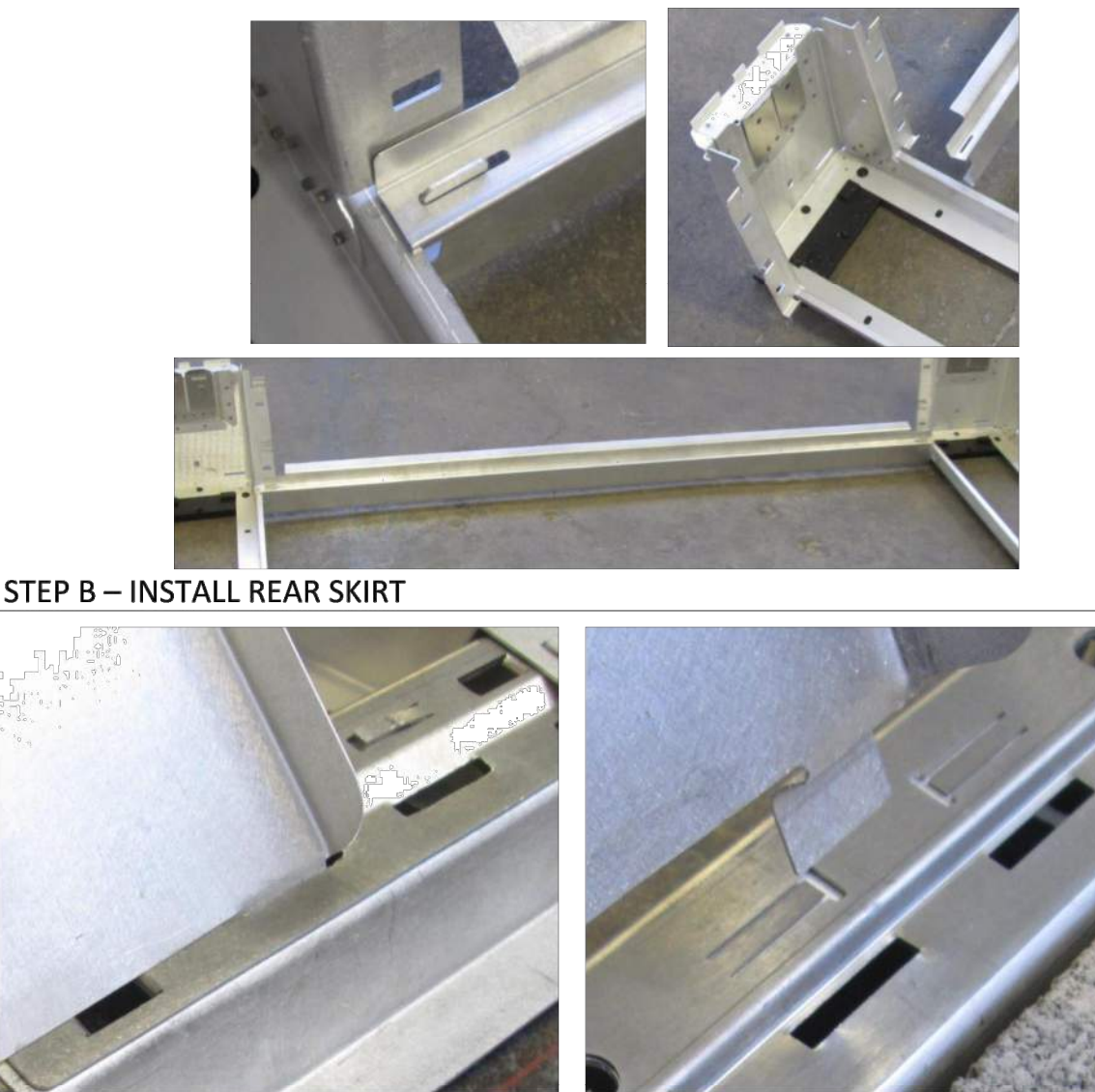


STEP A – INSTALL CROSS TRAY

- STEP 3 – INSTALL CROSS TRAYS**
- A. INSTALL CROSS TRAYS**
1. FIT CROSS TRAY OVER EDGE OF CHASSIS, LINK TRAY, OR LEADING TRAY.
  2. LOCATE CROSS TRAYS AS CLOSE TO MAIN CHASSIS UPRIGHT AS POSSIBLE.
  3. INSTALL A MAXIMUM OF 2 CROSS TRAYS UNDER A SINGLE MODULE LOCATIONS
- B. COMPLETE CROSS TRAY INSTALLATION**
1. REPEAT FOR ALL CROSS TRAY LOCATIONS, FOLLOWING THE PROCEDURE IN STEP A.
- NOTE:**
1. CROSS TRAYS MAY BE USED TO ESTABLISH E-W SPACING OF MAIN CHASSIS, LINK TRAYS, AND LEADING TRAYS.
  2. REFER TO PROJECT-SPECIFIC DOCUMENTATION FOR SPECIFIC CROSS TRAY LOCATIONS.
  3. 1 ADDITIONAL ROOF SPACER PAD MAY BE INSTALLED UNDERNEATH A PRE-INSTALLED SPACER PAD IN ORDER ENSURE THAT CHASSIS AND TRAY RAILS DO NOT CONTACT THE ROOF SURFACE AS THE ARRAY MOVES OVER ROOF UNDULATIONS. ENSURE THAT STACKED PADS ARE PROPERLY NESTED.
  4. THE HELIX ROOF MOUNTING SYSTEM HAS BEEN EVALUATED FOR A CLASS A SYSTEM FIRE CLASSIFICATION FOR A LOW-SLOPED ROOF USING TYPE 2 MODULES. REFER TO FA304 FOR ADDITIONAL FIRE CLASSIFICATION REQUIREMENTS.



STEP B – COMPLETE CROSS TRAY INSTALLATION



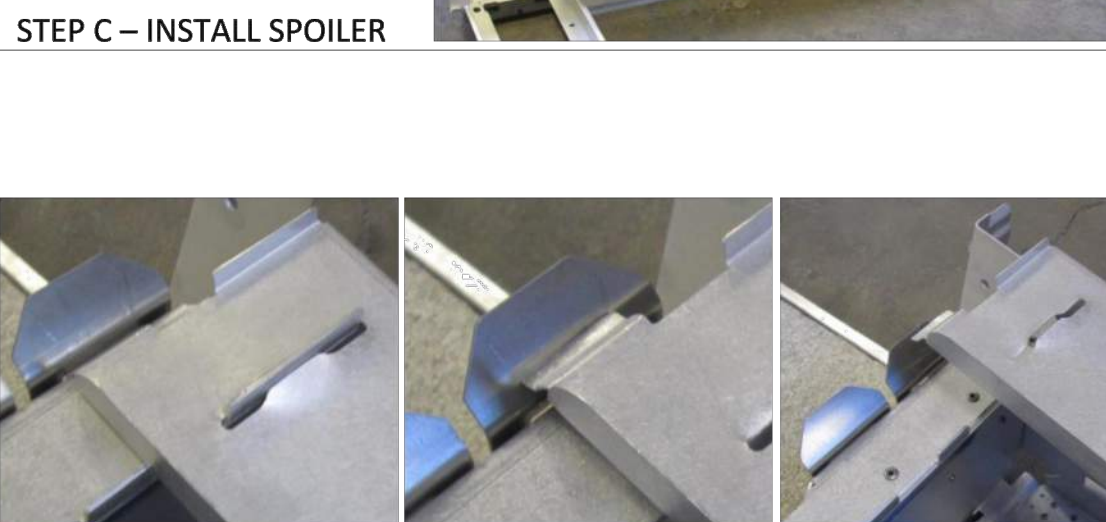
STEP B – INSTALL REAR SKIRT



STEP A – INSTALL FRONT SKIRT



STEP D – INSTALL DEFLECTOR



STEP C – INSTALL SPOILER

- STEP 4 – INSTALL ARRAY SKIRTS & EDGE DEFLECTORS**
- A. INSTALL FRONT SKIRT**
1. PLACE FRONT SKIRT OVER EDGE OF LEADING TRAY AT EDGE/END OF ARRAY.
  2. ALIGN ADJACENT LEADING TRAY AND PLACE OTHER END OF FRONT SKIRT OVER EDGE OF LEADING TRAY.
  3. REPEAT PROCESS TO INSTALL FRONT SKIRTS AT ALL LEADING TRAYS
- B. INSTALL REAR SKIRT**
1. PLACE REAR SKIRT OVER LOWER TAB ON NORTH EDGE OF CHASSIS/FOLLOWING TRAYS.
  2. ALIGN ADJACENT CHASSIS AND PLACE OTHER END OF REAR SKIRT OVER LOWER TAB OF CHASSIS/FOLLOWING TRAY
  3. REPEAT PROCESS TO INSTALL REAR SKIRTS AT ALL CHASSIS AND FOLLOWING TRAY LOCATIONS, COLOCATED BELOW SPOILERS.
- C. INSTALL SPOILER**
1. PLACE SPOILER OVER TOP TWO TABS ON NORTH EDGE OF CHASSIS OR FOLLOWING TRAY.
  2. ALIGN ADJACENT CHASSIS AND PLACE OTHER END OF SPOILER OVER TOP TWO TABS OF CHASSIS OR FOLLOWING TRAY
  3. REPEAT PROCESS TO INSTALL SPOILERS AT ALL CHASSIS AND FOLLOWING TRAYS.
- D. INSTALL DEFLECTOR**
1. INSERT BOTTOM OF DEFLECTOR INTO SLOT IN TO LEADING TRAY OR CHASSIS.
  2. PIVOT DEFLECTOR DOWN TO CHASSIS OR FOLLOWING TRAY.
  3. SNAP IN TOP OF DEFLECTOR TO SPRING CLIP ON CHASSIS OR FOLLOWING TRAY
  4. REPEAT PROCESS FOR ALL RH AND LH DEFLECTORS ON EAST AND WEST EDGES OF AN ARRAY.
- NOTE:**
1. ARRAY SKIRTS MAY BE USED TO ESTABLISH N-S SPACING OF MAIN CHASSIS, LINK TRAYS, AND LEADING TRAYS.
  2. SPRING CLIPS MAY HAVE TO BE PUSHED BACK USING THUMBS TO AVOID DEFORMATION OF EDGE DEFLECTOR TABS.
  3. AVOID STEPPING OR STANDING ON ARRAY SKIRTS, SPOILERS, AND DEFLECTORS TO PREVENT DEFORMATION AND DAMAGE.
  4. THE HELIX ROOF MOUNTING SYSTEM HAS BEEN EVALUATED FOR A CLASS A SYSTEM FIRE CLASSIFICATION FOR A LOW-SLOPED ROOF USING TYPE 2 MODULES. IN ORDER TO MAINTAIN THE SYSTEM CLASSIFICATION, MODULES MUST BE MOUNTED OVER A FIRE RESISTANT ROOF COVERING RATED FOR THE APPLICATION, MOUNTED WITH 3/4 IN GAP OR LESS BETWEEN THE ROOF AND THE SYSTEM, AND THE SYSTEM BE INSTALLED WITH DEFLECTOR LEFT, PART NO. 53844, DEFLECTOR RIGHT, PART NO. 53842, FRONT SKIRT, PART NO. 53592B, AND REAR SKIRT, PART NO. 53592B.

STEP D – INSTALL DEFLECTOR









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- STEP 8 – INSTALL HOMERUN CONDUCTORS
- A-C. ROUTE HOMERUNS N-S
1. PULL HOMERUN WIRING, STARTING FROM POWERSTATION LOCATIONS, TO THE IDENTIFIED STRING ENDS WITHIN ARRAY
  2. ONCE ALL STRINGS ARE LAID OUT, GATHER BUNDLE OF HOMERUN CONDUCTORS AND ROUTE THROUGH THE HOOK FEATURES ON THE STUMPS.
  3. CONTROL TENSIONS ON HOMERUN WIRING SO THAT CONDUCTORS ARE ELEVATED ABOVE ROOF SURFACE BETWEEN SPANS.
- D. ROUTE HOMERUNS E-W
1. FROM MANAGED N-S HOMERUN TRUNK LINE, GATHER BUNDLES OF CONDUCTORS AND ROUTE IN THE E-W DIRECTION BY LAYING THEM INTO THE CABLE SUPPORT TRAYS AT THE MODULE VALLEY LOCATIONS.
  2. POSITION AND INSTALL HOMERUNS INTO ADDITIONAL STUMPS AS NECESSARY TO ENSURE THAT HOMERUNS ARE ADEQUETLY SUPPORTED IN THE E-W DIRECTION.
  3. INSTALL OPTIONAL SUPPORT TRAY LIDS AS REQUIRED.

- NOTE:
1. ENSURE CONDUCTORS TO NOT CONTACT ANY METAL EDGES OF TRAYS AND CHASSIS OR CONCRETE BALLAST. SHIFT BALLAST TO AVOID CONTACT.
  2. ADDITIONAL SUPPORT TRAYS AND STUMPS MAY BE INSTALLED BETWEEN HOMERUN CONDUCTORS AND BALLAST AS CONDUCTORS ARE TRANSPORTED OVER BALLAST BLOCKS TO AVOID CONTACT.
  3. CONDUCTORS WILL BE FURTHER SUPPORTED VIA WIREFORM CABLE CLIPS DURING MODULE INSTALLATION.
  4. COMPLY WITH MAXIMUM COMPONENT CONDUCTOR FILL.



STEP A – ROUTE HOMERUNS THROUGH STUMPS



STEP C – COMPLETE E-W HOMERUN ROUTING



STEP B – ROUTE HOMERUNS THROUGH STUMPS



STEP D – ROUTE HOMERUNS N-S & E-W

- STEP 10 – COMPLETE MODULE WIRING & DC WIRE MANAGEMENT
- A-B. SECURE MODULE-TO-MODULE WIRING.
1. INSTALL TWO 6-WIRE WIREFORM MODULE CLIPS ON THE SHORT AND LONG SIDE AT THE LOCATIONS SHOWN IN THE PHOTO.
  2. CONNECT ADJACENT INTER-STRING MODULE LEADS TOGETHER. ENSURE THE CONNECTORS PROPERLY MATE.
  3. INSERT INTERCONNECTED MODULE LEADS INTO WIREFORM CLIP.
- C. SECURE HOMERUNS
1. INSTALL 32-WIRE CLIPS AS NECESSARY ONTO A MODULE WHICH HAS BEEN INSTALLED OR IS IN THE PROCESS OF BEING INSTALLED.
  2. INSERT HOMERUN CONDUCTORS, POSSIBLY BETWEEN A PAIR OF STUMPS, INTO THE WIRE CLIP.
- D. INSTALL HOMERUN CONNECTORS
1. ENSURE THAT ALL HOMERUN CONDUCTORS ARE LABELED ACCURATELY ON THE ARRAY AND POWER STATION ENDS.
  2. INSTALL A TYCO PV-4 CONECTOR ONTO THE POWERSTATION END OF THE HOMERUN.
  3. INSTALL A CONNECTOR MATCHING THE PV MODULE TO THE ARRAY END OF THE HOMERUN. MODULE STRING ENDS WITH THE HOME RUN.
  4. TEST Voc AND POLARITY AT THE POWERSTATION HOME RUN END TO VALIDATE LABELLING.

- NOTE:
1. WIREFORM CLIPS AND FINAL WIRE MANAGEMENT OF INTER-STRING AND HOMERUN WIRING SHOULD OCCUR SIMULTANEOUSLY WITH MODULE INSTALLATION.
  2. WIRE CLIPS MAY HAVE TO INSTALL AROUND CONDUCTORS BEFORE THEY CAN BE SECURED TO THE MODULE.
  3. COMPLY WITH NEC MINIMUM BEND RADIUS AND OTHER SUNPOWER WIRING GUIDELINES.



STEP A – SECURE MODULE-TO-MODULE WIRING



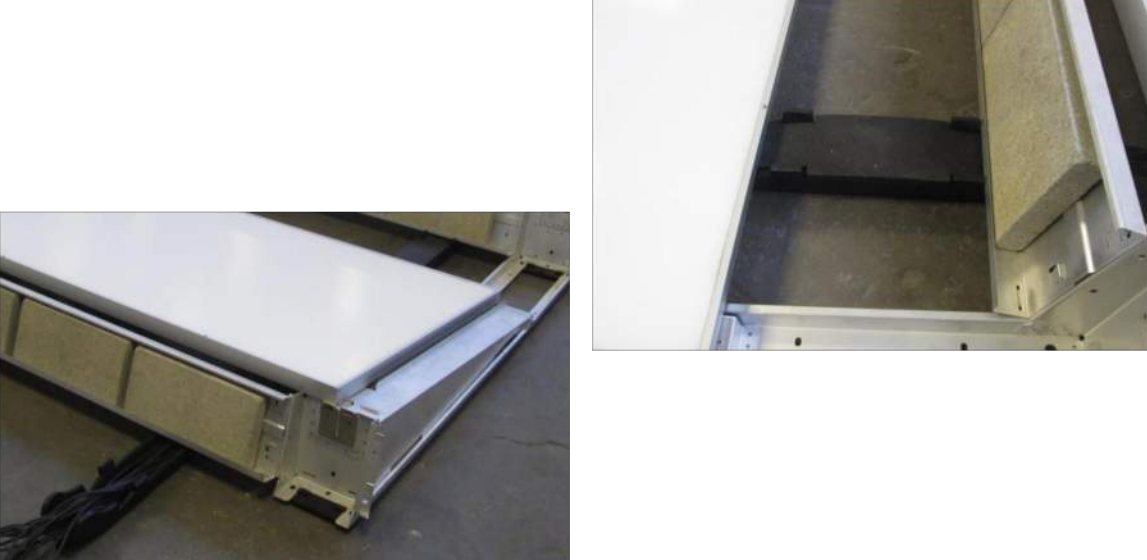
STEP D – E-W HOMERUN WIRING MANAGED IN AN ARRAY



STEP B – SUBSTEP



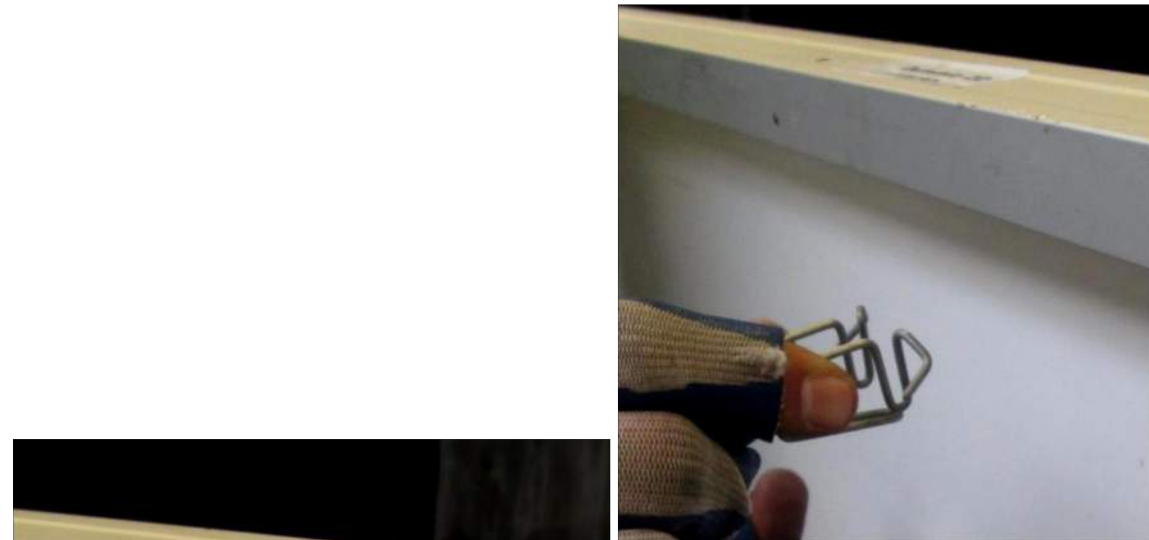
STEP C – SECURE HOMERUNS WITH WIREFORM CLIPS



STEP E – N-S HOMERUN WIRING MANAGED IN AN ARRAY

- STEP 7 – INSTALL WIRE MGMT.
- A-B. INSTALLING 6-WIRE AND 32-WIRE CLIPS TO MODULE FRAME
1. ALIGN GROOVE OF WIRE CLIP WITH FRAME LOCATION WHERE CLIP WILL BE INSTALLED. DEPENDING ON THE DIRECTION THEY ARE BEING ROUTED, CONDUCTORS MAY HAVE TO BE INSTALLED INTO THE CLIP AT THIS STAGE.
  2. PUSH CLIP ONTO MODULE FRAME FLANGE SO THAT THE END RETURNS ENGAGE AND THE INSIDE GROOVE BOTTOMS OUT.
- C. DISTRIBUTE STUMPS
1. ESTABLISH N-S AND E-W HOMERUN ROUTING AND TRUNK LINES.
  2. PLACE CABLE SUPPORT TRAY AT VALLEY OF ARRAY ALONG THE N-S HOMERUN TRUNK LINE.
  3. ADDITIONAL STUMPS MAY BE REQUIRED IN N-S DIRECTION NEAR MODULE PEAKS.
- D. DISTRIBUTE CABLE SUPPORT TRAYS
1. ESTABLISH N-S AND E-W HOMERUN ROUTING AND TRUNK LINES.
  2. PLACE CABLE SUPPORT TRAY AT VALLEY OF ARRAY ALONG THE N-S HOMERUN TRUNK LINE.
  3. ADDITIONAL STUMPS MAY BE REQUIRED IN N-S DIRECTION NEAR MODULE PEAKS.

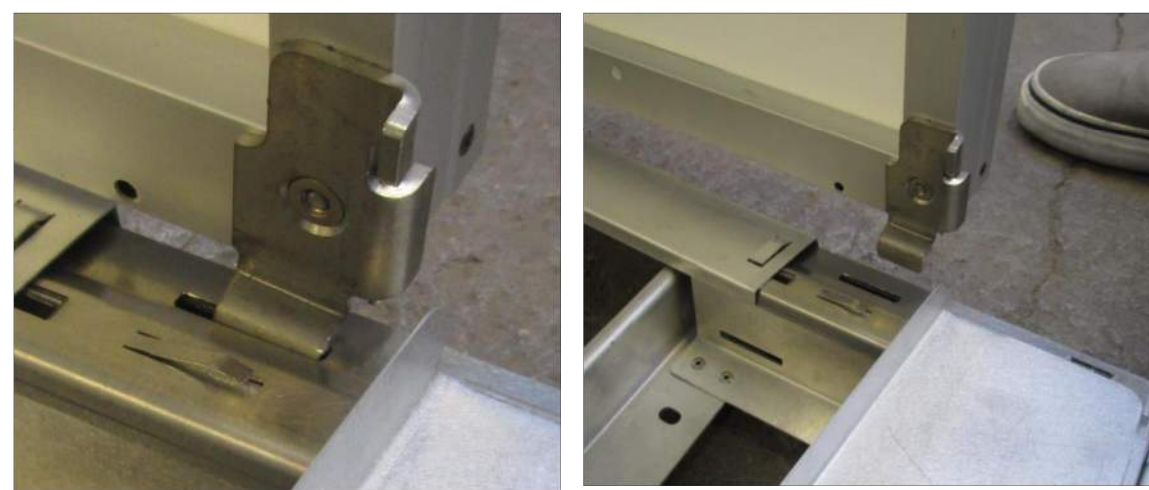
- NOTE:
1. THE ABOVE STEPS AND ASSOCIATED PHOTOS PROVIDE EXAMPLE APPLICATIONS OF WHERE AND HOW WIRE MANAGEMENT COMPONENTS CAN BE UTILIZED. SPECIFIC USE ON SITE MAY VARY.
  2. INSTALLATION OF 6-WIRE AND 32-WIRE CLIPS SHOULD OCCUR WHEN MODULES ARE PLACED WITHIN ARRAY DURING MODULE INSTALLATION STEPS.
  3. THE CROSS SECTIONAL AREAS OF WIRE MANAGEMENT COMPONENTS ARE SIZED BASED ON NOMINAL DIMENSIONS OF #12 AWG PV RATED CONDUCTORS. STUMPS AND SUPPORT TRAYS CAN ACCOMMODATE UP TO 32 CONDUCTORS.



STEP A – INSTALL 6-WIRE CLIP TO MODULE FRAME



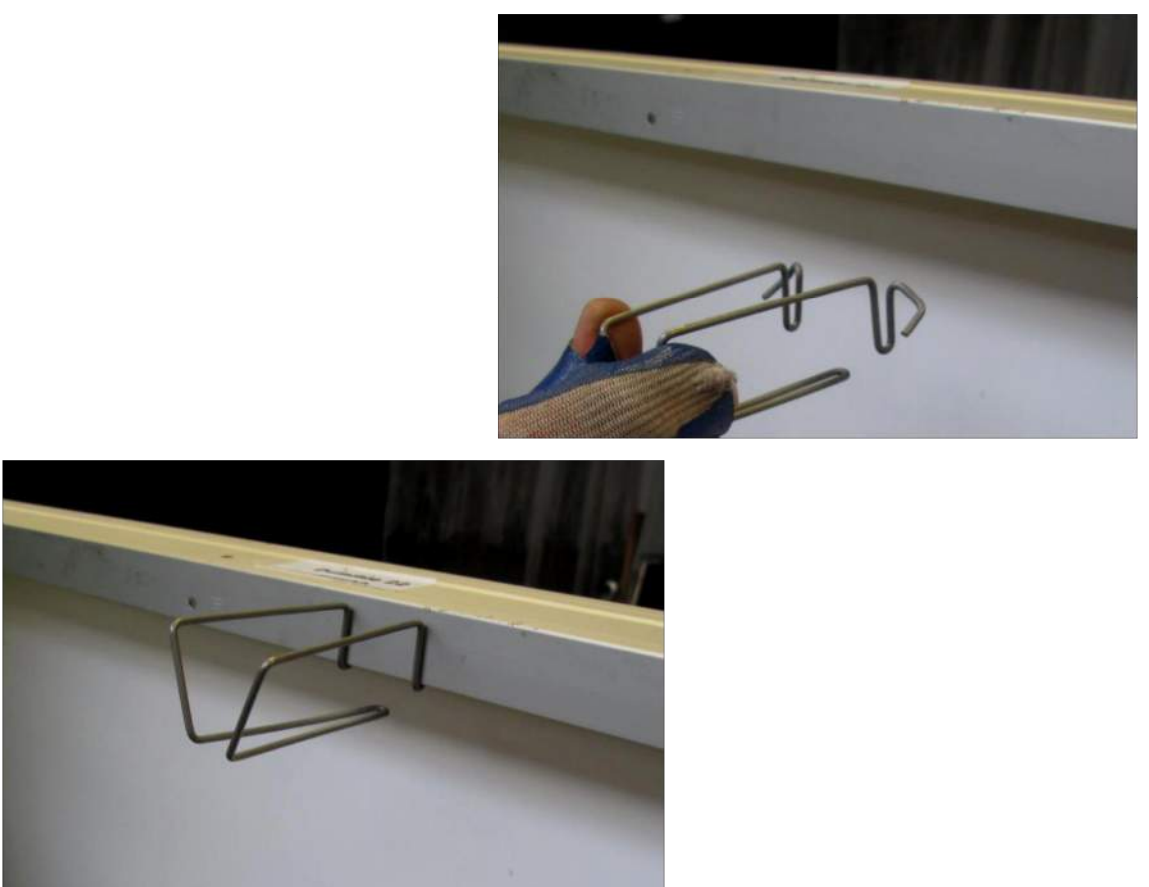
STEP C – DISTRIBUTE STUMPS



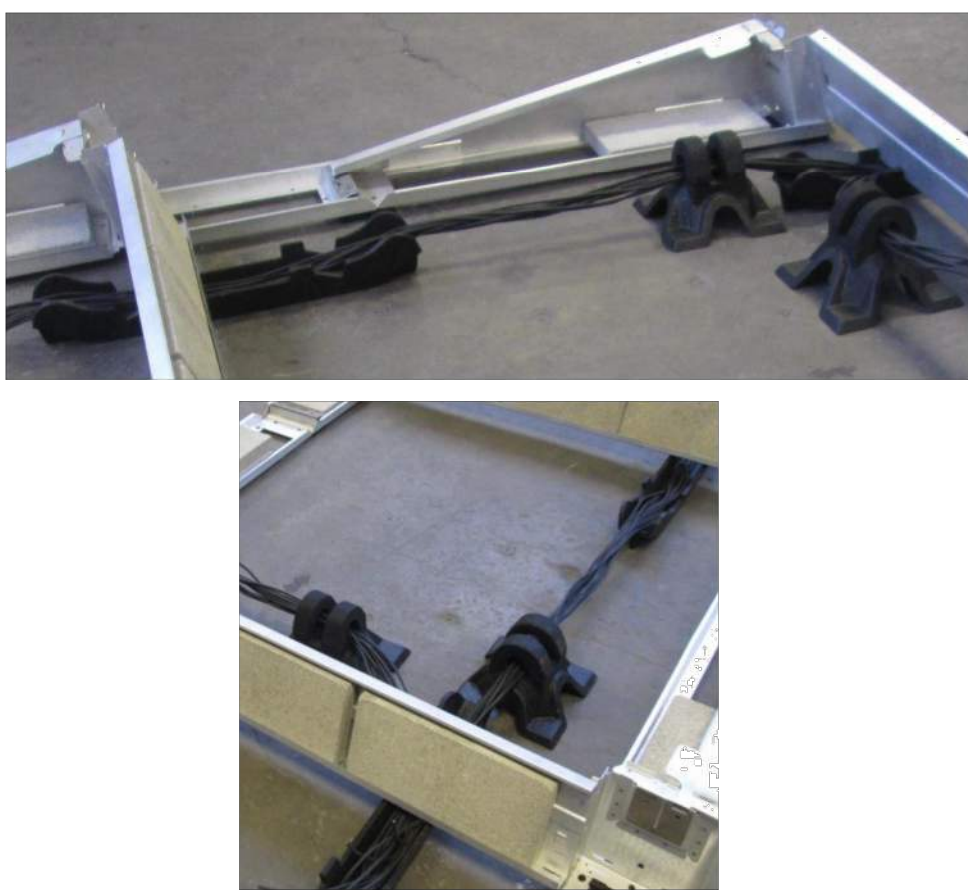
STEP A – INSERT MODULES INTO TRAY/CHASSIS SLOT



STEP C – INSTALL MODULE AT CHASSIS AND FOLLOWING TRAYS



STEP B – INSTALL 32-WIRE CLIP TO MODULE FRAME



STEP D – DISTRIBUTE CABLE SUPPORT TRAYS



STEP B – INSERT MODULE INTO SPRING CLIP



STEP D – COMPLETE MODULE INSTALLATION





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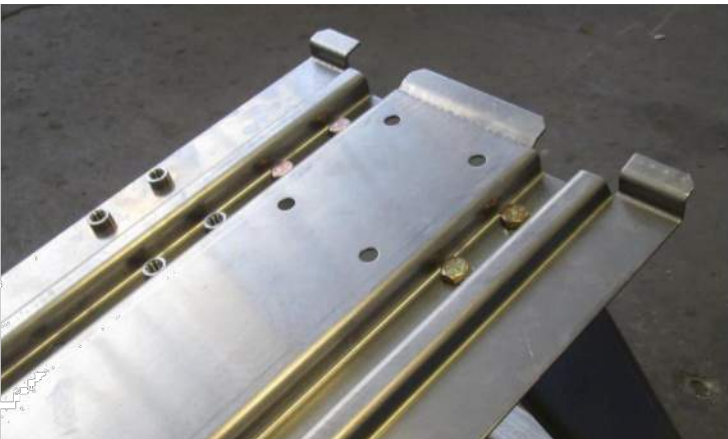
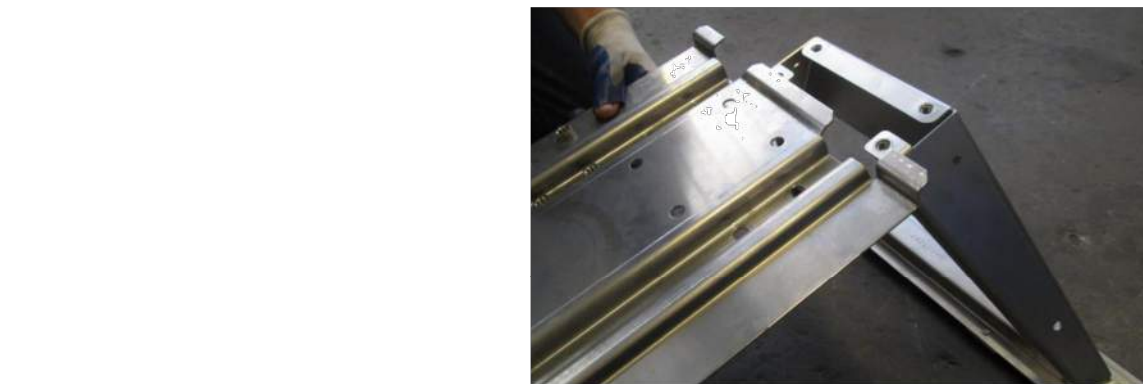
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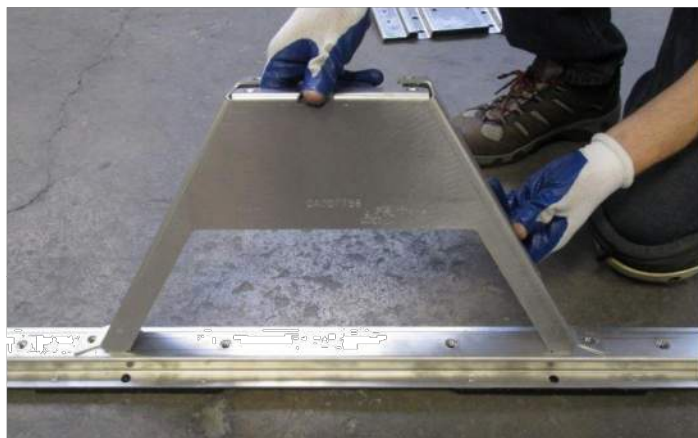


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STEP B – INSTALL BACK PLATE TO REAR LEG



STEP A – INSTALL REAR LEG TO RAIL



STEP D – INSTALL DC WHIP TRAY TO BACK PLATE



STEP C – INSTALL FRONT LEG TO BACK PLATE

- STEP 11 – ASSEMBLE POWER STATION RACKS
- A. INSTALL REAR LEG TO RAIL
1. INSTALL TWO SPACER PADS TO BOTTOM OF POWER STATION RAIL BY ALIGNING HOLES/GROOVES AND PRESSING SO THAT THE RUBBER FLANGES ENGAGE.
  2. INSERT TABS OF REAR LEGS INTO SLOTS ON RAIL.
  3. SECURE WITH TWO 3/8-16 FASTENERS VIA PEM NUTS AND TORQUE BOLTS.
- B. INSTALL BACK PLATE TO REAR LEG
1. ALIGN FOUR HOLES IN BACK PLATE WITH PEM NUTS ON TOP OF THE REAR LEG. CHECK THAT THE BENT TABS ARE FACING UP AND AWAY FROM THE ROOF.
  2. SECURE WITH FOUR 3/8-16 FASTENERS VIA PREINSTALLED PEM NUTS AND TORQUE BOLTS.
- C. INSTALL FRONT LEG TO BACK PLATE
1. INSTALL ONE SPACER PAD TO BOTTOM OF FRONT LEG BY ALIGNING HOLES/GROOVES AND PRESSING SO THAT THE RUBBER FLANGES ENGAGE.
  2. ALIGN FOUR HOLES IN BACK PLATE WITH PEM NUTS ON TOP OF THE FRONT LEG.
  3. SECURE WITH FOUR 3/8-16 FASTENERS VIA PREINSTALLED PEM NUTS AND TORQUE BOLTS.
- D. INSTALL DC WHIP TRAY TO BACK PLATE (ONLY FOR RACKS TO SUPPORT INVERTERS)
1. ALIGN FOUR HOLES IN WHIP TRAY WITH PEM NUTS ON BACK PLATE.
  2. SECURE WITH FOUR 3/8-16 FASTENERS VIA PREINSTALLED PEM NUTS AND TORQUE BOLTS.
- NOTE:
1. IT IS ADVISED THAT THIS STEP BE PERFORMED ON AN ELEVATED PRE-FAB WORKING STATION, NOT AT ROOF LEVEL.
  2. FASTENERS AND PEM NUTS ARE NON-TREATED STAINLESS STEEL AND SUCCEPTABLE TO GAULING. AVOID TIGHTENING THE FASTENERS AT EXCESSIVE SPEEDS AND DO NOT OVERTIGHTEN.
  3. TORQUE – 150 IN-LBS (17 N-m) USING 9/16" DRIVER.

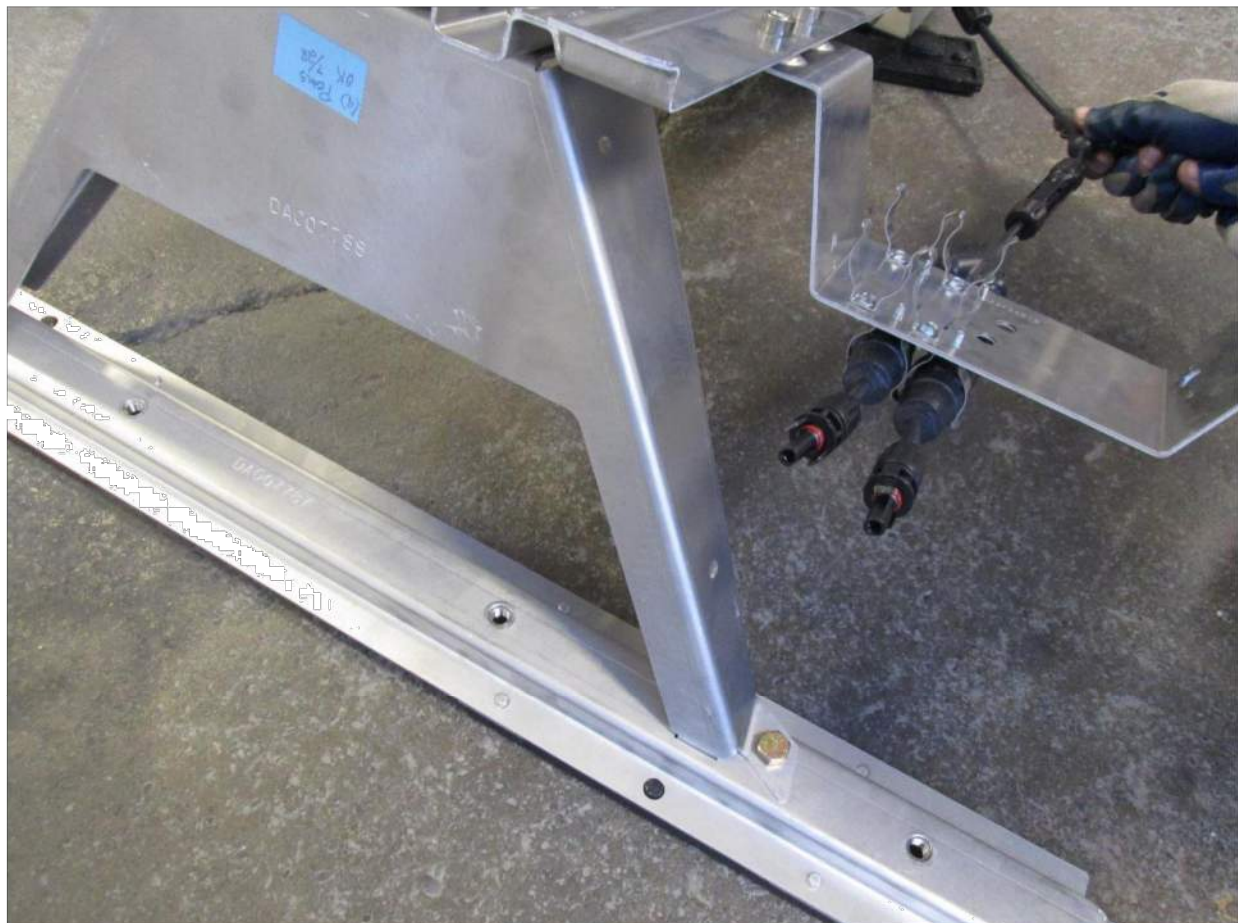
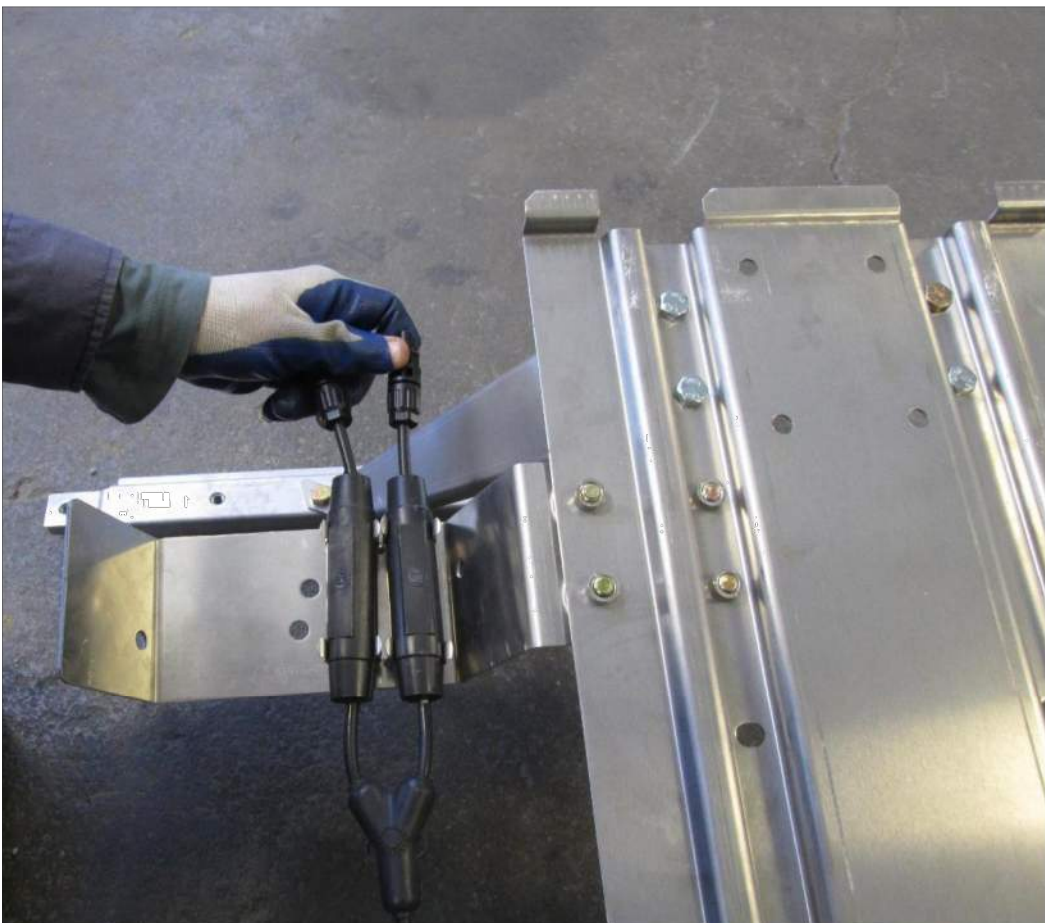


STEP A – ATTACH ADJACENT POWER STATION RACKS



STEP B – ATTACH POWER STATION RACKS TO ARRAY USING LINKS

- STEP 12 – MOUNTING POWER STATION RACKS TO ARRAY
- A. ATTACH ADJACENT POWER STATION RACKS
1. EACH POWER STATION RAIL HAS A LEFT AND RIGHT HAND SIDE, WITH A HOLE AND PREINSTALLED PEM NUT. SLIDE THE NARROW PEM NUT END INTO THE THROUGH HOLE END.
  2. SECURE WITH 1 3/8-16 FASTENER VIA PREINSTALLED PEM NUT AND TORQUE BOLT.
  3. REPEAT STEPS 1-2 AS NECESSARY BASED ON PROJECT AND ARRAY SPECIFIC POWER STATION CONFIGURATION.
- B. ATTACH POWER STATION RACKS TO ARRAY USING LINKS.
1. ALIGN ARRAY LINK(S) TO PEM NUT LOCATIONS AT POWER STATION RAILS.
  2. SECURE WITH 1 3/8-16 FASTENER VIA PREINSTALLED PEM NUT AND TORQUE BOLT.
  3. ALIGN VERTICAL END OF ARRAY LINK(S) WITH PRE-PUNCHED HOLES ON FOLLOWING TRAYS.
  4. SECURE AND TORQUE EACH LINK-ARRAY CONNECTION WITH 1 3/8-16 NUT AND BOLT COMBINATION.
- NOTE:
1. REFER TO PROJECT DRAWINGS FOR EXACT CONFIGURATION AND PLACEMENT OF RACKS WITH RESPECT TO ARRAY, IN ADDITION TO EXACT CONFIGURATION OF ARRAY LINKS.
  2. FASTENERS AND PEM NUTS ARE NON-TREATED STAINLESS STEEL AND SUCCEPTABLE TO GAULING. AVOID TIGHTENING THE FASTENERS AT EXCESSIVE SPEEDS AND DO NOT OVERTIGHTEN.
  3. TORQUE – 150 IN-LBS (17 N-m) USING 9/16" DRIVER.
  4. USE ADDITIONAL SPACER PADS TO ENSURE RACK IS AT LEAST 15 DEGREES FROM THE ROOF SURFACE. ENSURE THAT STACKED PADS ARE PROPERLY NESTED.



STEP A – INSTALL DC HARNESS INTO TRAY

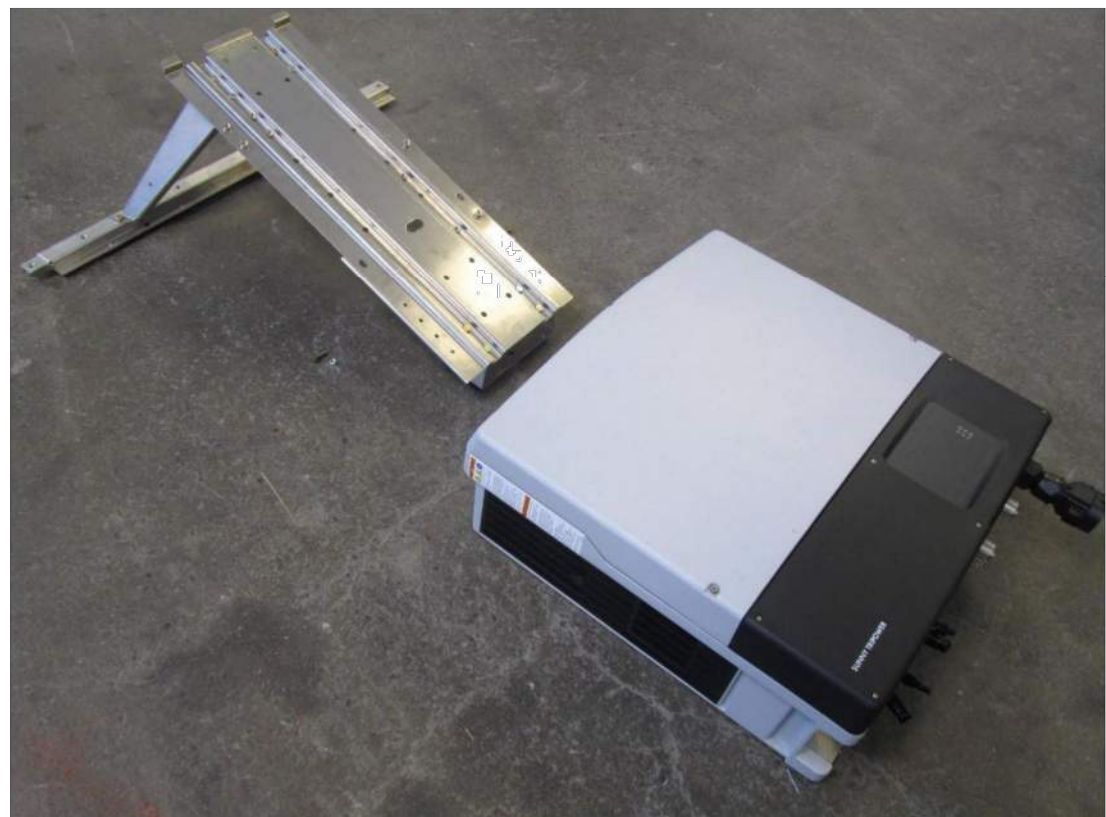
- STEP 13 – INSTALL DC HARNESS
- A. INSTALL DC HARNESS INTO TRAY
1. IDENTIFY THE TYPE OF DC HARNESS WHICH IS REQUIRED AT THE INVERTER LOCATION.
  2. INSERT OVERMOLDED FUSE HOLDER INTO DC TRAY FUSE CLIPS.
  3. DO NOT CONNECT HOMERUN ENDS TO THE DC HARNESS.
- NOTE:
1. ENSURE THAT CORRESPONDING MALE AND FEMALE CONNECTORS FOR POSITIVE AND NEGATIVE ENDS OF THE SAME STRINGS AND MPPTS ARE INSTALLED IN A SYMMETRICAL MANNER AROUND THE FUSE CLIPS.
  2. DO NOT LEAVE CONNECTORS OF DC HARNESS EXPOSED TO OUTDOOR CONDITIONS FOR EXTENDED PERIODS OF TIME TO PREVENT OXIDATION OF CONNECTOR CONTACTS.



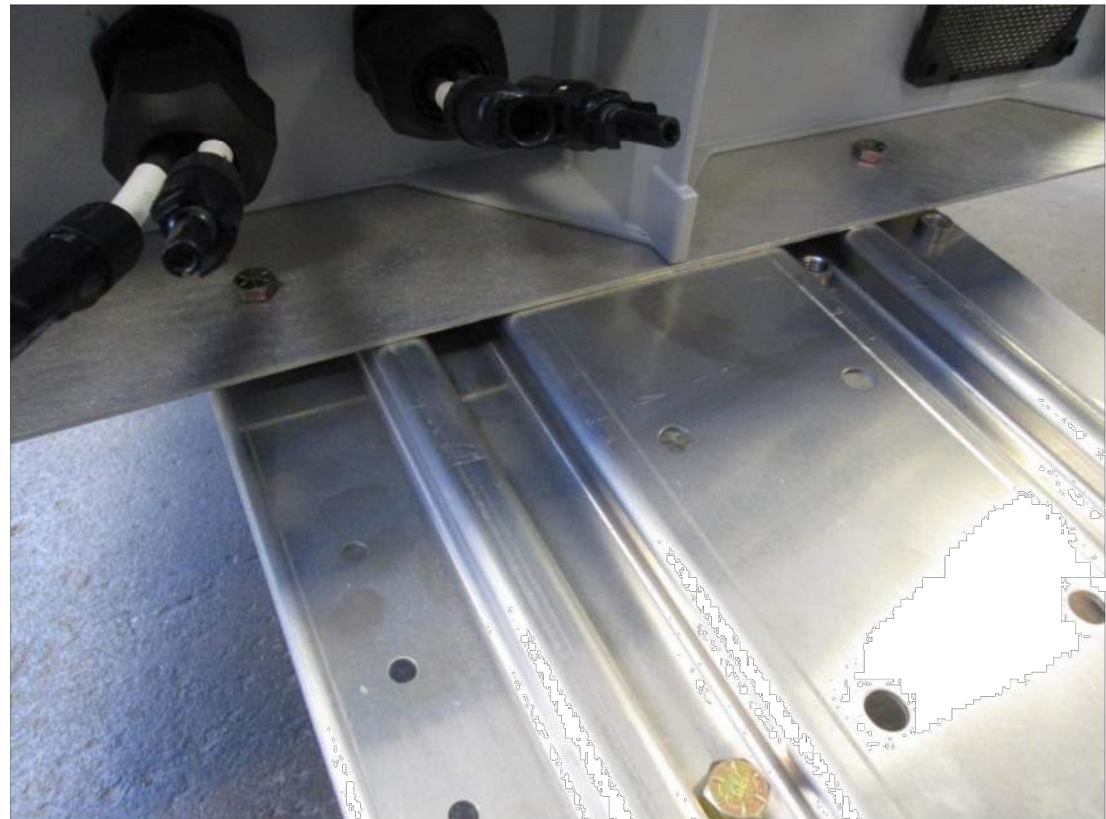
STEP B – ALIGN MOUNTING TAB WITH INVERTER SLOT



STEP D – SECURE AC COMBINER TO POWER STATION RACK



STEP A – STAGE INVERTER AT POWER STATION



STEP C – SECURE INVERTER TO POWER STATION RACK

- STEP 14 – INSTALL INVERTER AND AC COMBINER TO POWER STATION RACKS
- A. STAGE INVERTER AT POWER STATION
1. AT EACH POWER STATION AND INVERTER LOCATION, VERIFY THE SIZE/RATING OF THE INVERTER TO BE INSTALLED.
- B. ALIGN MOUNTING TAB WITH INVERTER SLOT.
1. PLACE INVERTER ON MOUNTING BACK PLATE OF POWER STATION RACK.
  2. INVERTER SLOT SHOULD FIT SECURELY OVER TOP OF MOUNTING BACK PLATE.
- C. SECURE INVERTER TO POWER STATION RACK
1. SECURE INVERTER TO MOUNTING BACK PLATE WITH HARDWARE PROVIDED WITH INVERTER.
  2. TORQUE ACCORDING TO INVERTER MANUFACTURER SPECIFICATIONS.
- D. SECURE AC COMBINER TO POWER STATION RACK
1. ATTACH PREINSTALLED MOUNTING STRUT TO MOUNTING BACK PLATE WITH TWO 3/8-16 FASTENERS AND STRUT NUTS AT HIGH END OF POWER STATION RACK.
  2. ATTACH PREINSTALLED MOUNTING STRUT TO MOUNTING BACK PLATE WITH TWO 3/8-16 FASTENERS AND STRUT NUTS AT LOW END OF POWER STATION RACK.
  3. SECURE THE INTEGRATED GROUNDING WIRE FROM THE AC COMBINER BOX TO THE BACK PLATE USING SUPPLIED HARDWARE. TORQUE TO 150 IN-LBS (17 N-m).
- NOTE:
1. REFER TO PROJECT DRAWINGS FOR SITE SPECIFIC INVERTER AND AC COMBINER CONFIGURATIONS.
  2. SUNPOWER PVS WILL ALSO MOUNT TO A POWER STATION RACK FOLLOWING SIMILAR MEANS AND METHODS.









COMMUNICATION AND MONITORING POWER WIRING

STEP 19 – COMPELTE COMMUNICATION WIRING

A. USING PRODUCTIZED COMMUNICATION WIRING, DAISY CHAIN INVERTER COMMUNICATION WITHIN POWER STATION

B. USING FIELD ASSEMBLED WIRING, DAISY CHAIN INVERTERS ACROSS MULTIPLE POWER STATIONS

C. CONNECT PVS POWER TO AUX OUTPUT OF AC COMBINER BOX USING CONNECTORIZED POWER CABLE.

D. COMPLETE COMMUNICATION WIRING PER PROJECT DOCUMENTATION.

NOTE:

1. MAINTAIN A MAXIMUM POINT-TO-POINT DISTANCE OF 328 FT (100 M) FOR ANY SINGLE INVERTER TO INVERTER CONNECTION.

2. A SINGLE PV SUPERVISOR CAN ACCOMMODATE UP TO 75 DAISY CHAINED INVERTERS.

PROJECT SITE

THIRD MUTUAL  
LAGUNA WOODS VILLAGES

24351 EL TORO RD.  
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PROJECT DEVELOPER



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SHEET TITLE

ASSEMBLY  
SHEET-SINGLE

SHEET NUMBER

AS7