

# PHOTOVOLTAIC ROOF MOUNT SYSTEM

38 MODULES-ROOF MOUNTED - 15.390 kW DC, 15.200 kW AC

269 S W THOMAS RD, LAKE CITY, FL 32024



LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807



## PROJECT DATA

PROJECT ADDRESS: 269 S W THOMAS RD, LAKE CITY, FL 32024

OWNER: DELEON KELLY

CONTRACTOR: LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
PHONE: 813-540-8807

DESIGNER: ESR

SCOPE: 15.390 KW DC ROOF MOUNT SOLAR PV SYSTEM WITH  
38 JA SOLAR: JAM54S31-405/MR (1000V)  
405W PV MODULES WITH  
14 TESLA: MCI-2 RAPID SHUTDOWN DEVICE WITH  
02 TESLA: SOLAR INVERTER 7.6KW INVERTERS  
**DERATE MAIN BREAKER FROM 200A RATED TO 175A**  
AUTHORITIES HAVING JURISDICTION:  
BUILDING: COLUMBIA COUNTY  
ZONING: COLUMBIA COUNTY  
UTILITY: FPL

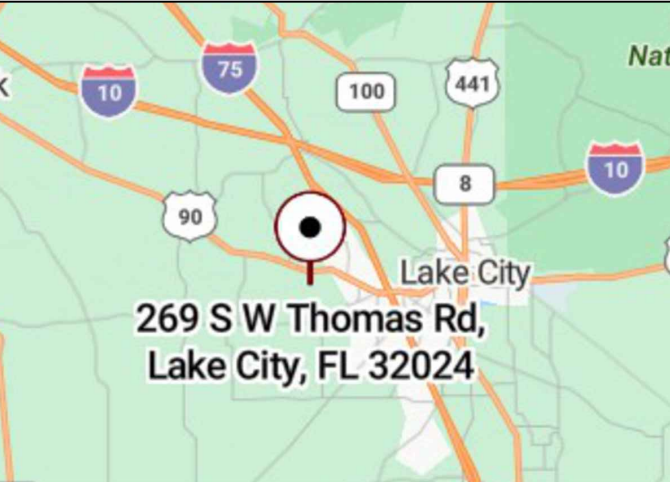
## SHEET INDEX

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| PV-11+ | EQUIPMENT SPECIFICATIONS |

## GENERAL NOTES

- ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
- THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2020.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
- ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
- WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
- HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 2020 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
- ALL SINAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SINAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
- INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
- THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
- ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
- ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

## VICINITY MAP



## HOUSE PHOTO



## CODE REFERENCES

PROJECT TO COMPLY WITH THE FOLLOWING:

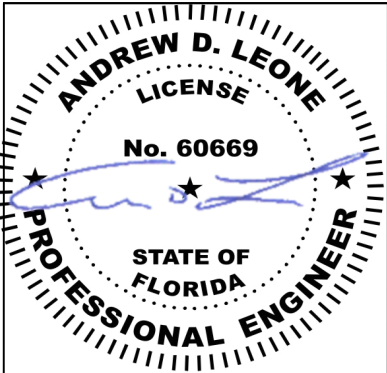
FLORIDA RESIDENTIAL CODE, 8TH EDITION 2023 (FRC)  
FLORIDA PLUMBING CODE, 8TH EDITION 2023 (FPC)  
FLORIDA BUILDING CODE, 8TH EDITION 2023 (FBC)  
FLORIDA MECHANICAL CODE, 8TH EDITION 2023 (FMC)  
2020 NATIONAL ELECTRICAL CODE  
FLORIDA FIRE PREVENTION CODE, 8TH EDITION 2023 (FFPC)

## PROFESSIONAL ENGINEER SEAL

This item has been digitally signed and sealed by Andrew D. Leone on the date adjacent to the seal.

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| REVISIONS   |      |     |
|-------------|------|-----|
| DESCRIPTION | DATE | REV |
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|             |      |     |



08/01/2025  
DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
COVER SHEET

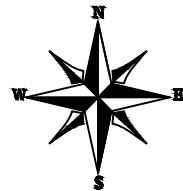
SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-1

PROJECT DESCRIPTION:

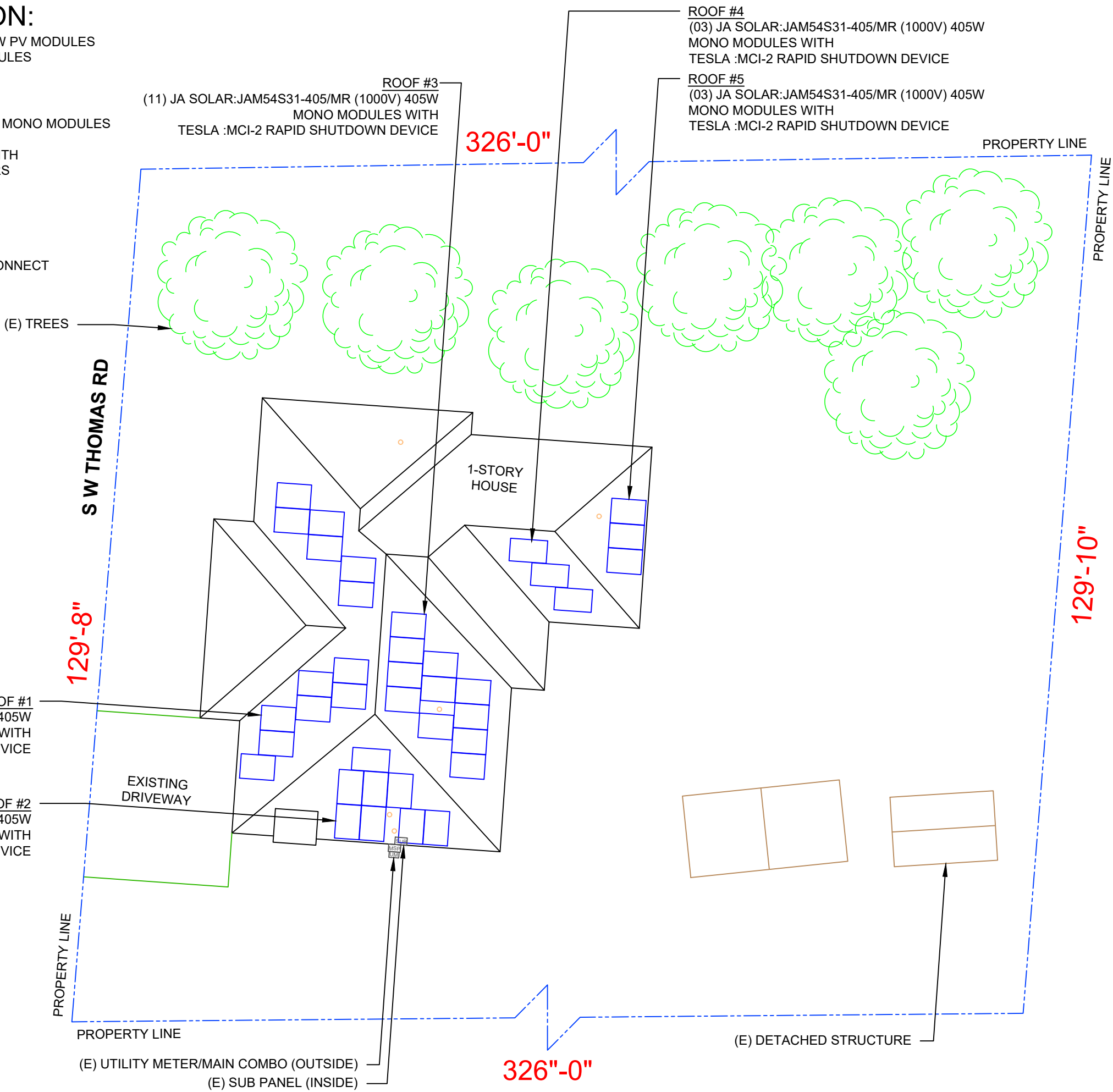
38 X JA SOLAR: JAM54S31-405/MR (1000V) 405W PV MODULES  
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES  
DC SYSTEM SIZE: 38 x 405 = 15.390 kW DC  
AC SYSTEM SIZE: 02 x 7600 = 15.200 kW AC  
EQUIPMENT SUMMARY  
38 JA SOLAR: JAM54S31-405/MR (1000V) 405W MONO MODULES WITH  
14 TESLA: MCI-2 RAPID SHUTDOWN DEVICE WITH  
02 TESLA SOLAR INVERTER 7.6kW INVERTERS  
ROOF ARRAY AREA #1:- 273.13 SQ FT.  
ROOF ARRAY AREA #2:- 168.08 SQ FT.  
ROOF ARRAY AREA #3:- 231.11 SQ FT.  
ROOF ARRAY AREA #4:- 63.03 SQ FT.  
ROOF ARRAY AREA #5:- 63.03 SQ FT.

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT LOCATED WITHIN 10' OF UTILITY METER



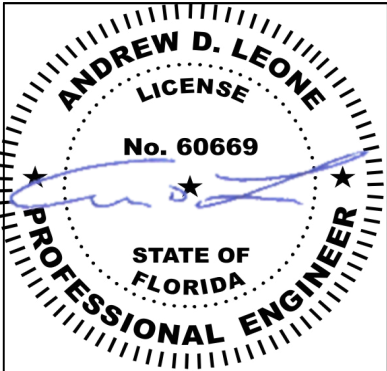
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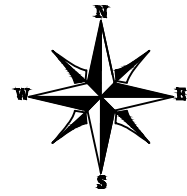
SHEET NAME  
SITE PLAN

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-2



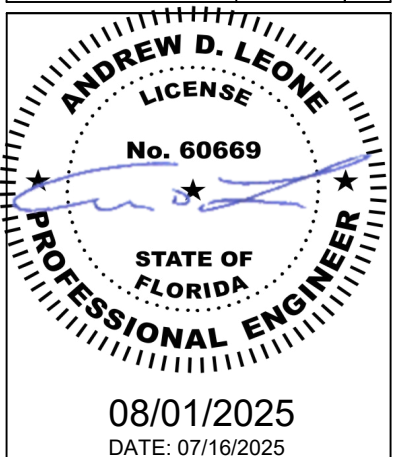
NUMBER OF MODULES = 38 MODULES  
MODULE TYPE = JA SOLAR: JAM54S31-405/MR (1000V) 405W MONO MODULES  
MODULE WEIGHT = 47.39 LBS / 21.5 KG.  
MODULE DIMENSIONS = 67.79" x 44.64" = 21.01 SF



| ARRAY AREA & ROOF AREA CALC'S |                 |                            |                           |                                      |
|-------------------------------|-----------------|----------------------------|---------------------------|--------------------------------------|
| ROOF                          | # OF<br>MODULES | ARRAY<br>AREA<br>(Sq. Ft.) | ROOF<br>AREA<br>(Sq. Ft.) | ROOF<br>AREA COVERED<br>BY ARRAY (%) |
| #1                            | 13              | 273.13                     | 704.32                    | 39                                   |
| #2                            | 08              | 168.08                     | 396.61                    | 42                                   |
| #3                            | 11              | 231.11                     | 501.28                    | 46                                   |
| #4                            | 03              | 63.03                      | 188.66                    | 33                                   |
| #5                            | 03              | 63.03                      | 189.75                    | 33                                   |
| TOTAL                         | 38              | 798.38                     | 3413.03                   | 23                                   |

| ROOF DESCRIPTION |            |         |               |               |
|------------------|------------|---------|---------------|---------------|
| ROOF TYPE        |            |         | COMP. SHINGLE |               |
| ROOF             | ROOF PITCH | AZIMUTH | TRUSS SIZE    | TRUSS SPACING |
| #1               | 23°        | 274°    | 2"X4"         | 24"           |
| #2               | 23°        | 184°    | 2"X4"         | 24"           |
| #3               | 23°        | 94°     | 2"X4"         | 24"           |
| #4               | 23°        | 184°    | 2"X4"         | 24"           |
| #5               | 23°        | 94°     | 2"X4"         | 24"           |

The image shows the Lunex Power logo, which consists of the company name in a bold, blue, sans-serif font. A stylized blue and yellow swoosh is positioned between the words 'Lunex' and 'Power'. Below the name, the tagline 'THE PURE SOURCE' is written in a smaller, blue, sans-serif font. Underneath the logo, the company's address is listed: 'LUNEX POWER INC.', '4721 N GRADY AVE', 'TAMPA FL 33614'. The contact information 'LIC #: CVC57085' and 'PHONE: 813-540-8807' is provided at the bottom of the logo section.



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RESIDENCE  
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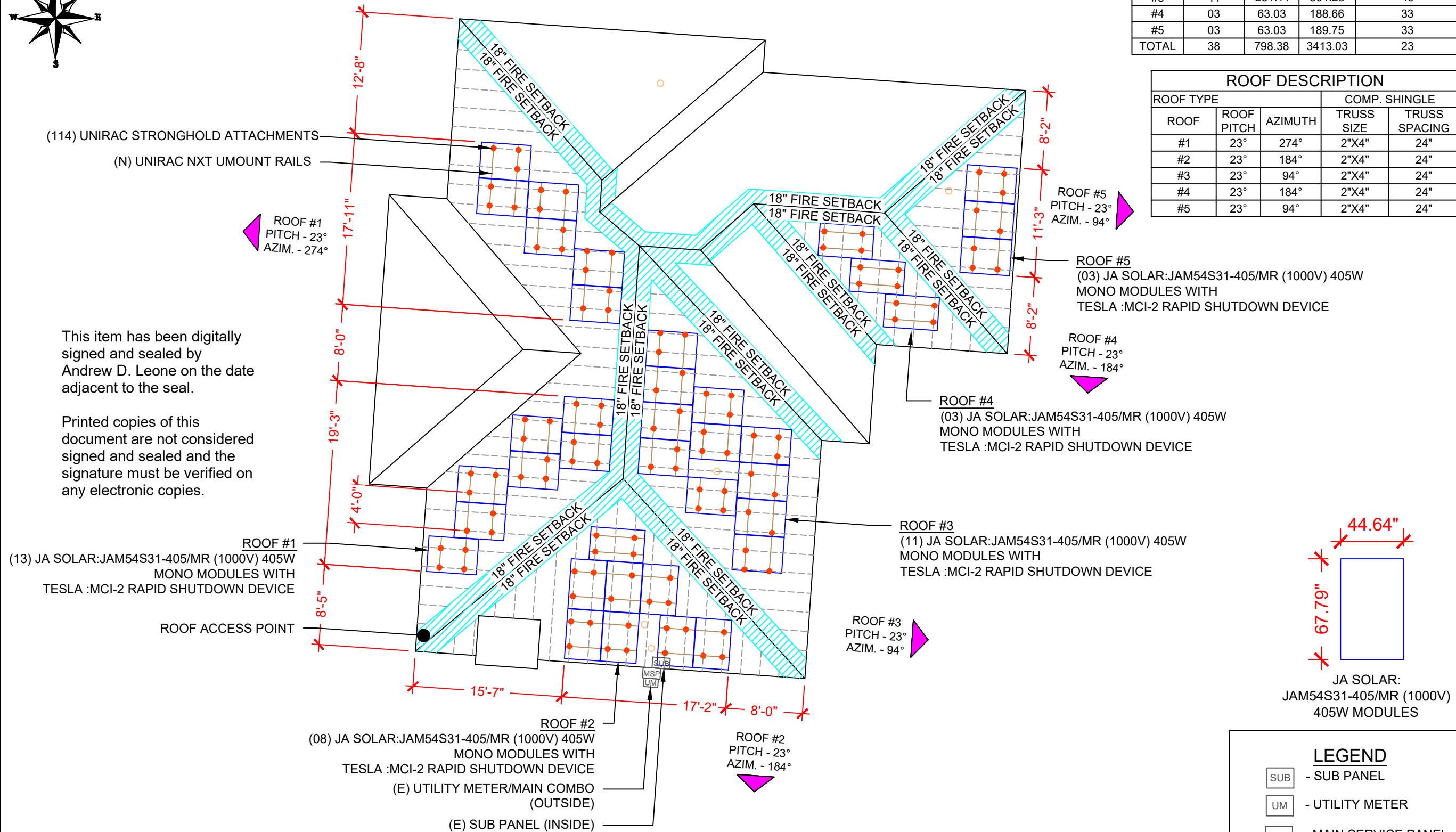
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SHEET NAME  
**ROOF PLAN &  
MODULES**

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER

PV-3

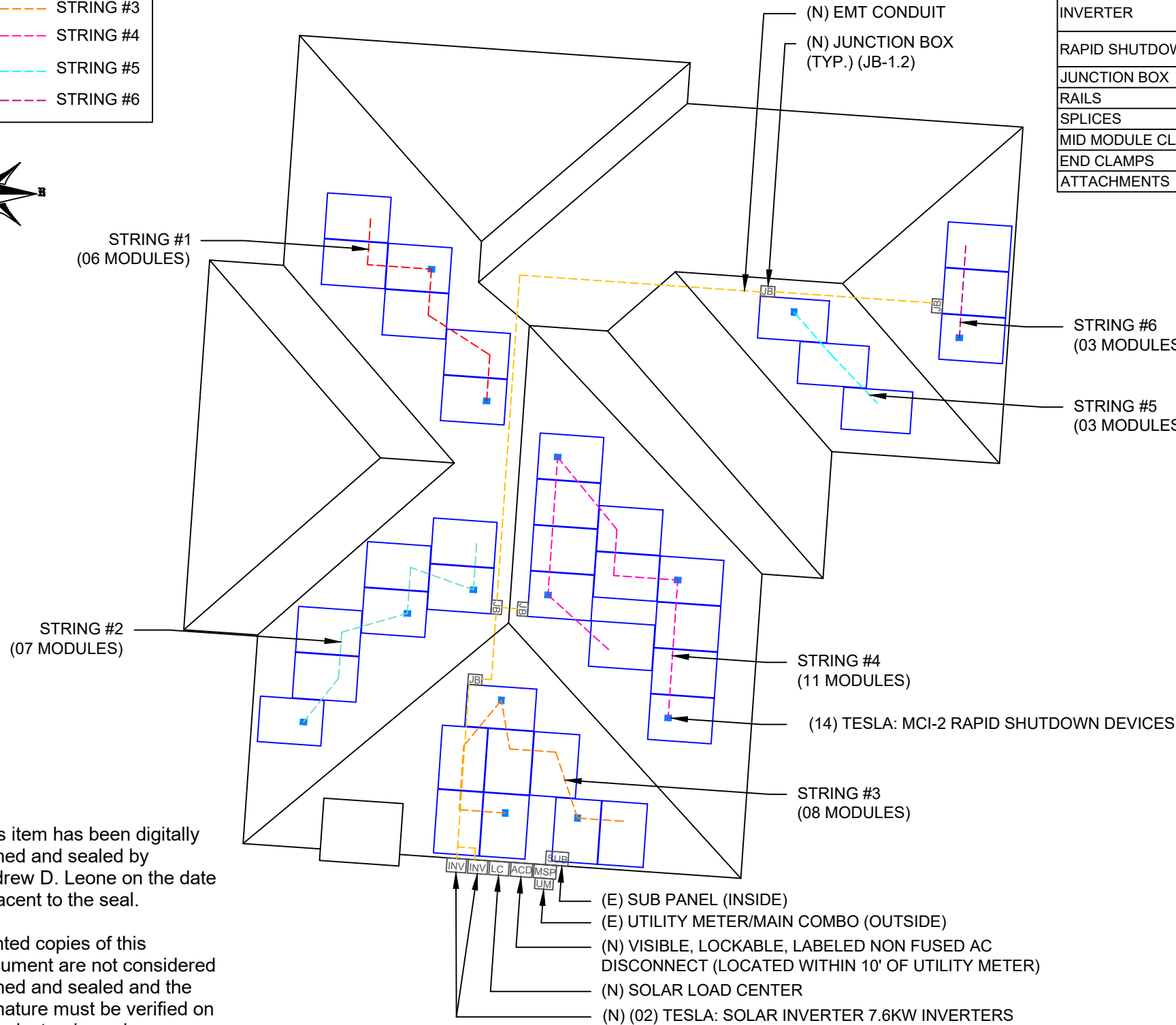
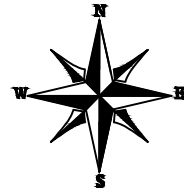


JA SOLAR:  
JAM54S31-405/MR (1000V)  
405W MODULES

## LEGEND

|                                                                                       |                      |
|---------------------------------------------------------------------------------------|----------------------|
|  | - SUB PANEL          |
|  | - UTILITY METER      |
|  | - MAIN SERVICE PANEL |
|  | - VENT, ATTIC FAN    |
|  | (ROOF OBSTRUCTION)   |
|  | - ROOF ATTACHMENT    |
|  | - TRUSS              |

| STRING LEGENDS                           |           |
|------------------------------------------|-----------|
| <span style="color: red;">---</span>     | STRING #1 |
| <span style="color: green;">---</span>   | STRING #2 |
| <span style="color: orange;">---</span>  | STRING #3 |
| <span style="color: magenta;">---</span> | STRING #4 |
| <span style="color: cyan;">---</span>    | STRING #5 |
| <span style="color: magenta;">---</span> | STRING #6 |



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| BILL OF MATERIALS     |     |                                               |
|-----------------------|-----|-----------------------------------------------|
| EQUIPMENT             | QTY | DESCRIPTION                                   |
| SOLAR PV MODULES      | 38  | JA SOLAR: JAM54S31-405/MR (1000V) 405W MODULE |
| INVERTER              | 02  | TESLA: SOLAR INVERTER 7.6KW                   |
| RAPID SHUTDOWN DEVICE | 14  | TESLA:MCI-2 RAPID SHUTDOWN DEVICE             |
| JUNCTION BOX          | 5   | JUNCTION BOXES (JB-1.2)                       |
| RAILS                 | 22  | UNIRAC NXT UMount RAIL                        |
| SPICES                | 4   | SPLICE KIT                                    |
| MID MODULE CLAMPS     | 38  | MID MODULE CLAMPS                             |
| END CLAMPS            | 76  | END CLAMPS / STOPPER SLEEVE                   |
| ATTACHMENTS           | 114 | UNIRAC STRONGHOLD ATTACHMENTS                 |

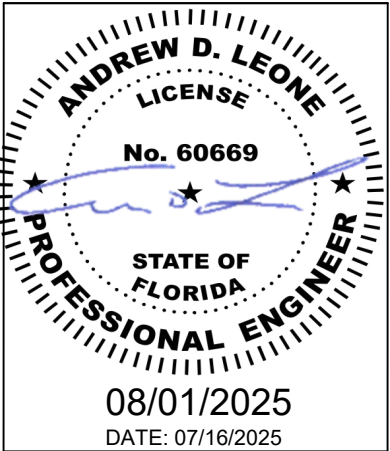
### LEGEND

- LC - SOLAR LOAD CENTER
- SUB - SUB PANEL
- JB - JUNCTION BOX
- INV - INVERTER
- ACD - AC DISCONNECT
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- - CONDUIT



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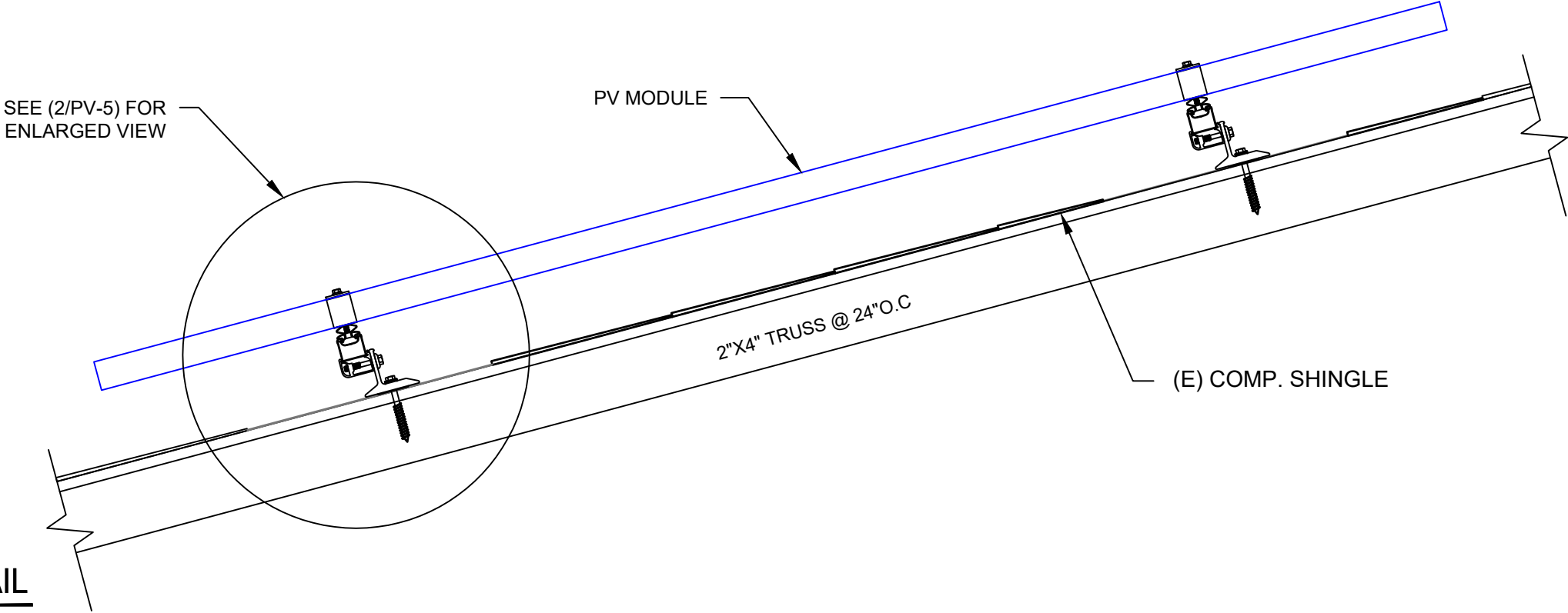
SHEET NAME  
ELECTRICAL PLAN

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-4



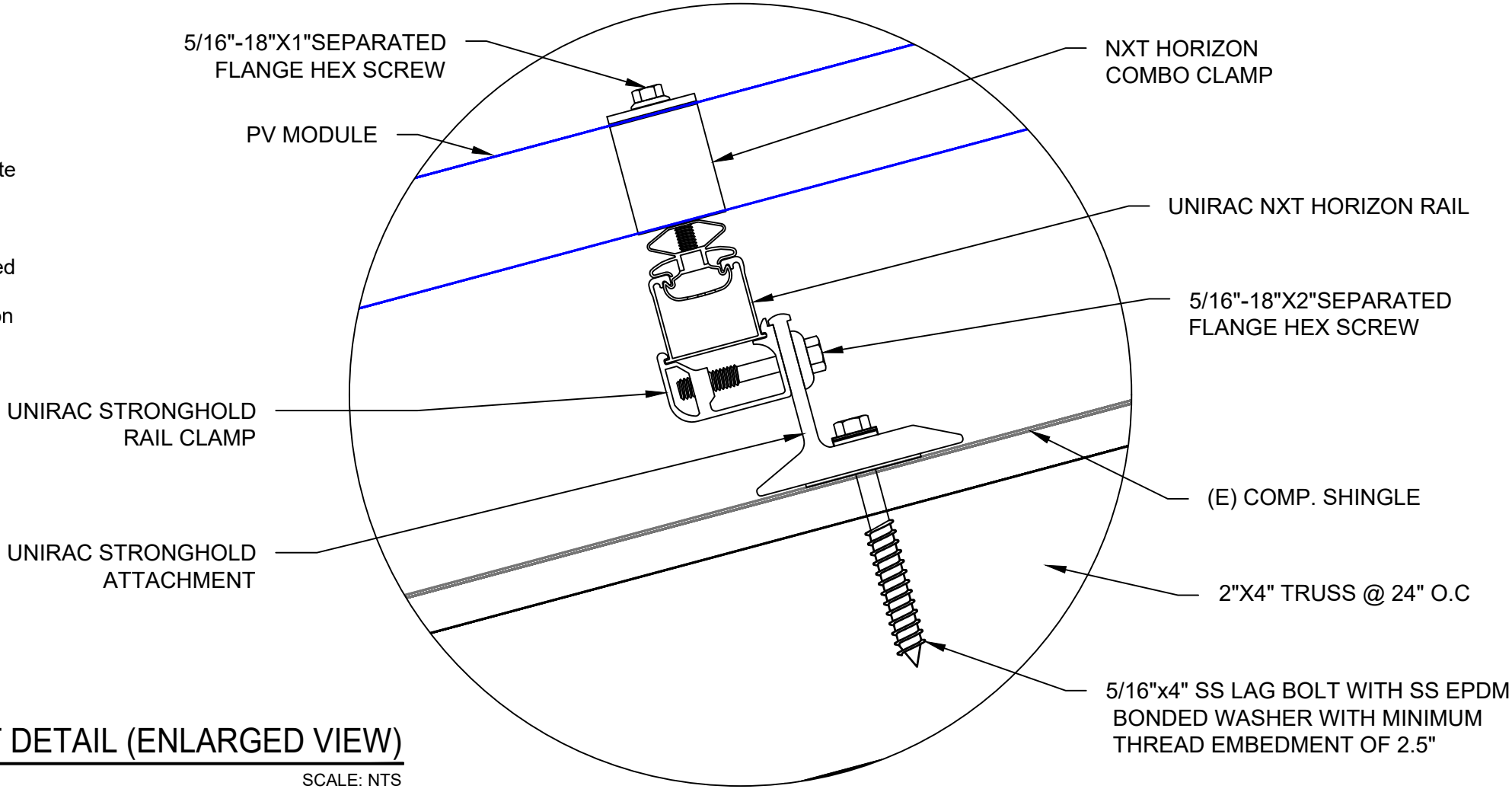
DESCRIPTION: CANTILEVER  
CANTILEVER CONSIDER 1/3<sup>RD</sup> OF ROOF ATTACHMENT SPACING.  
ATTACHMENT SPACING= 48" O/C  
CANTILEVER = 16"



1 ATTACHMENT DETAIL  
PV-5 SCALE: NTS

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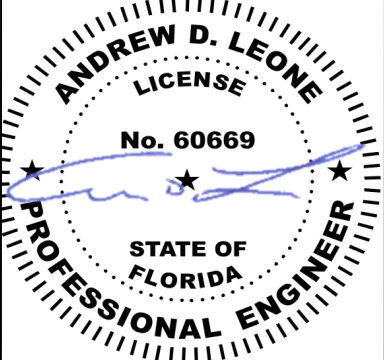


2 ATTACHMENT DETAIL (ENLARGED VIEW)  
PV-5 SCALE: NTS



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SHEET NAME  
STRUCTURAL DETAIL

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-5

DC SYSTEM SIZE: 38 x 405 = 15.390KW DC  
AC SYSTEM SIZE: 02 x 7600 = 15.200KW AC

38 JA SOLAR: JAM54S31-405/MR (1000V) 405W MONO MODULES WITH  
14 TESLA: MCI-2 RAPID SHUTDOWN DEVICE WITH  
02 TESLA: SOLAR INVERTER 7.6KW INVERTERS

- (01) STRING OF 06 MODULES AND  
(01) STRING OF 07 MODULES AND  
(01) STRING OF 08 MODULES AND  
(01) STRING OF 11 MODULES AND  
(02) STRINGS OF 03 MODULES ARE CONNECTED IN SERIES

|                                                               |
|---------------------------------------------------------------|
| 120% RULE                                                     |
| BUS BAR RATING X 120%) - MAIN BREAKER RATING<br>=MAX. PV OCPD |
| (225x 120%) - 175=95A                                         |

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**INTERCONNECTION NOTES:**

1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.59].
2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95].
3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

**DISCONNECT NOTES:**

1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
3. DISCONNECT MEANS AND THEIR LOCATION SHALL BE IN ACCORDANCE WITH [NEC 225.31] AND [NEC 225.32].

**RACKING NOTE:**

1. BOND EVERY OTHER RAIL WITH #6 BARE COPPER

**INSTALLER / ELECTRICIAN NOTE:**

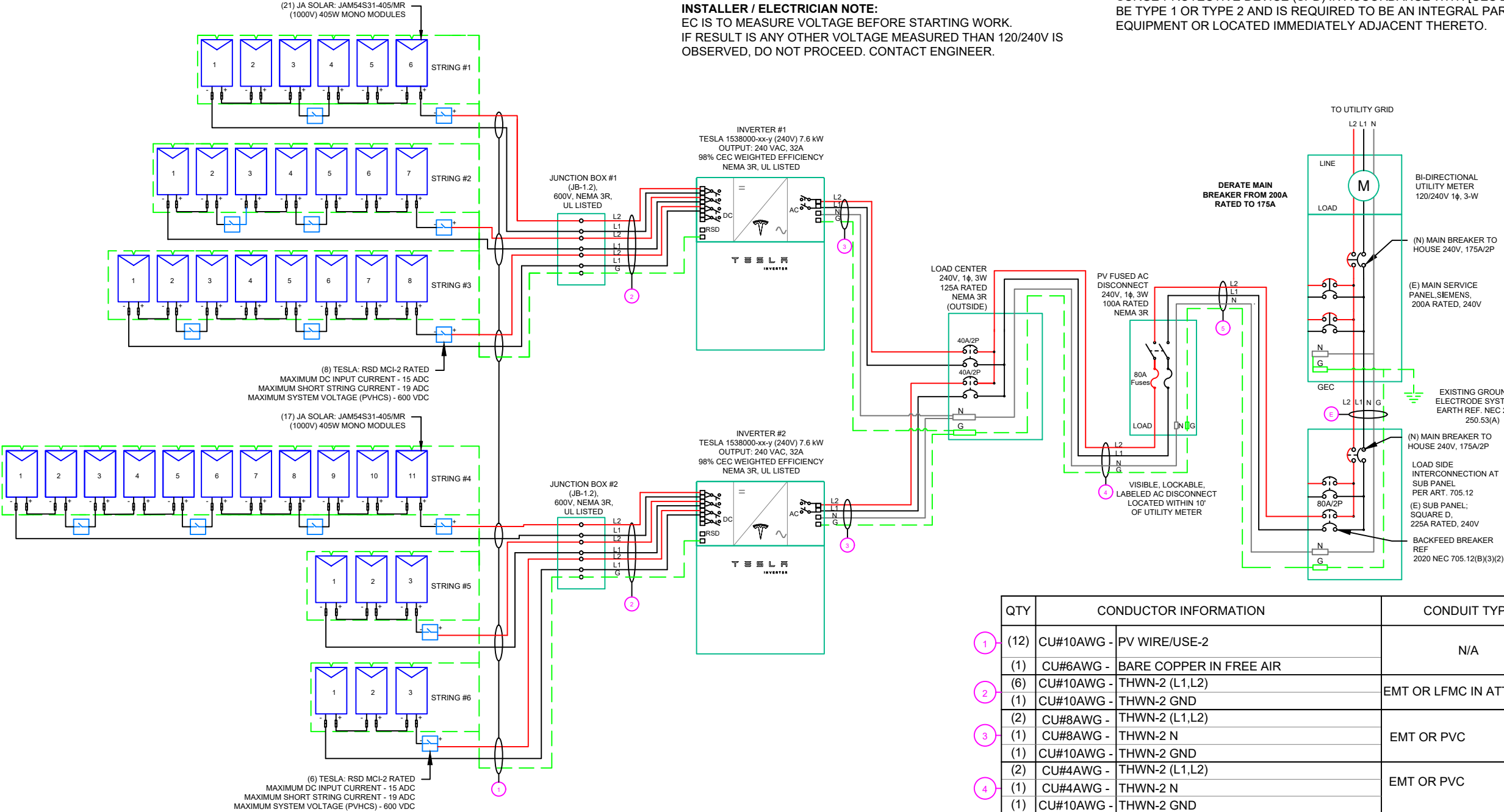
EC IS TO MEASURE VOLTAGE BEFORE STARTING WORK.  
IF RESULT IS ANY OTHER VOLTAGE MEASURED THAN 120/240V IS OBSERVED, DO NOT PROCEED. CONTACT ENGINEER.

**GROUNDING & GENERAL NOTES:**

**1. GROUNDING ELECTRODES AND GROUNDING ELECTRODE CONDUCTORS.**

ADDITIONAL GROUNDING ELECTRODES SHALL BE PERMITTED TO BE INSTALLED IN ACCORDANCE WITH 250.52 AND 250.54. GROUNDING ELECTRODES SHALL BE PERMITTED TO BE CONNECTED DIRECTLY TO THE PV MODULE FRAME(S) OR SUPPORT STRUCTURE PER [NEC 690.47(B)]

2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
5. JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOX DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.
8. ALL NEW SERVICE INSTALLATIONS AND REPLACEMENTS REQUIRE A SURGE-PROTECTIVE DEVICE (SPD) IN ACCORDANCE WITH [CEC 230.67]. THE SPD SHALL BE TYPE 1 OR TYPE 2 AND IS REQUIRED TO BE AN INTEGRAL PART OF THE SERVICE EQUIPMENT OR LOCATED IMMEDIATELY ADJACENT THERETO.

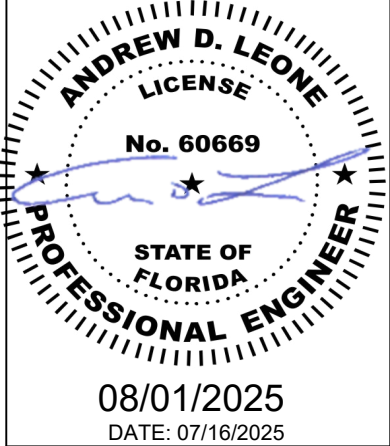


| QTY  | CONDUCTOR INFORMATION             | CONDUIT TYPE         | CONDUIT SIZE |
|------|-----------------------------------|----------------------|--------------|
| (12) | CU#10AWG - PV WIRE/USE-2          | N/A                  | N/A          |
| (1)  | CU#6AWG - BARE COPPER IN FREE AIR |                      |              |
| (6)  | CU#10AWG - THWN-2 (L1,L2)         | EMT OR LFMC IN ATTIC | 3/4"         |
| (1)  | CU#10AWG - THWN-2 GND             |                      |              |
| (2)  | CU#8AWG - THWN-2 (L1,L2)          | EMT OR PVC           | 3/4"         |
| (1)  | CU#8AWG - THWN-2 N                |                      |              |
| (1)  | CU#10AWG - THWN-2 GND             | EMT OR PVC           | 1"           |
| (2)  | CU#4AWG - THWN-2 (L1,L2)          |                      |              |
| (1)  | CU#4AWG - THWN-2 N                | EMT OR PVC           | 1"           |
| (1)  | CU#10AWG - THWN-2 GND             |                      |              |
| (2)  | CU#4AWG - THWN-2 (L1,L2)          | EMT OR PVC           | 1"           |
| (1)  | CU#4AWG - THWN-2 N                |                      |              |
| (1)  | CU#10AWG - THWN-2 GND             | N/A                  | N/A          |
| (2)  | CU#2/0AWG - THWN-2 (L1,L2)        |                      |              |
| (1)  | CU#2/0AWG - THWN-2 N              | N/A                  | N/A          |
| (1)  | CU#6AWG - THWN-2 GND              |                      |              |



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**PROJECT NAME & ADDRESS**

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
ELECTRICAL LINE DIAGRAM

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-6



| INVERTER SPECIFICATIONS  |                             |
|--------------------------|-----------------------------|
| MANUFACTURER / MODEL #   | TESLA: SOLAR INVERTER 7.6KW |
| NOMINAL AC POWER         | 7.600KW                     |
| NOMINAL GRID VOLTAGE     | 120/240 VAC                 |
| NOMINAL OUTPUT CURRENT   | 32A                         |
| PV MAXIMUM INPUT VOLTAGE | 600 VDC                     |

| SOLAR MODULE SPECIFICATIONS |                                               |
|-----------------------------|-----------------------------------------------|
| MANUFACTURER / MODEL #      | JA SOLAR: JAM54S31-405/MR (1000V) 405W MODULE |
| VMP                         | 31.21V                                        |
| IMP                         | 12.98A                                        |
| VOC                         | 37.23V                                        |
| ISC                         | 13.87A                                        |
| TEMP. COEFF. VOC            | -0.275%/°C                                    |
| MODULE DIMENSION            | 67.79"L x 44.64"W x 1.18"D (In Inch)          |

| AMBIENT TEMPERATURE SPECS             |            |
|---------------------------------------|------------|
| RECORD LOW TEMP                       | -5°        |
| AMBIENT TEMP (HIGH TEMP 2%)           | 37°        |
| MODULE TEMPERATURE COEFFICIENT OF Voc | -0.275%/°C |

| PERCENT OF VALUES | NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT |
|-------------------|----------------------------------------------|
| .80               | 4-6                                          |
| .70               | 7-9                                          |
| .50               | 10-20                                        |

| DC FEEDER CALCULATIONS |                     |             |                          |              |               |                    |                |                   |                   |                    |                                 |                   |                                                          |                                                             |                           |                   |                      |                                |                         |              |                  |
|------------------------|---------------------|-------------|--------------------------|--------------|---------------|--------------------|----------------|-------------------|-------------------|--------------------|---------------------------------|-------------------|----------------------------------------------------------|-------------------------------------------------------------|---------------------------|-------------------|----------------------|--------------------------------|-------------------------|--------------|------------------|
| CIRCUIT ORIGIN         | CIRCIUT DESTINATION | VOLTAGE (V) | FULL LOAD AMPS "FLA" (A) | FLA*1.25 (A) | OCPD SIZE (A) | GROUND SIZE        | CONDUCTOR SIZE | 75°C AMPACITY (A) | AMPACITY CHECK #1 | AMBIENT TEMP. (°C) | TOTAL CC CONDUCT ORS IN RACEWAY | 90°C AMPACITY (A) | DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(1) | DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(C)(1) | 90°C AMPACITY DERATED (A) | AMPACITY CHECK #2 | FEEDER LENGTH (FEET) | CONDUCTOR RESISTANCE (OHM/KFT) | VOLTAGE DROP AT FLA (%) | CONDUIT SIZE | CONDUIT FILL (%) |
| STRING 1               | JUNCTION BOX #1     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 23                   | 1.24                           | 0.143                   | N/A          | #N/A             |
| STRING 2               | JUNCTION BOX #1     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 27                   | 1.24                           | 0.167                   | N/A          | #N/A             |
| STRING 3               | JUNCTION BOX #1     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 32                   | 1.24                           | 0.198                   | N/A          | #N/A             |
| STRING 4               | JUNCTION BOX #2     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 46                   | 1.24                           | 0.285                   | N/A          | #N/A             |
| STRING 5               | JUNCTION BOX #2     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 11                   | 1.24                           | 0.068                   | N/A          | #N/A             |
| STRING 6               | JUNCTION BOX #2     | 600         | 15.00                    | 18.75        | 20            | BARE COPPER #6 AWG | CU #10 AWG     | 35                | PASS              | 37                 | 2                               | 40                | 0.91                                                     | 1                                                           | 36.4                      | PASS              | 8                    | 1.24                           | 0.050                   | N/A          | #N/A             |
| JUNCTION BOX #1        | INVERTER #1         | 600         | 15.00                    | 18.75        | 20            | CU #10 AWG         | CU #10 AWG     | 35                | PASS              | 37                 | 6                               | 40                | 0.91                                                     | 0.8                                                         | 29.12                     | PASS              | 27                   | 1.24                           | 0.167                   | 3/4" EMT     | 27.71107         |
| JUNCTION BOX #2        | INVERTER #2         | 600         | 15.00                    | 18.75        | 20            | CU #10 AWG         | CU #10 AWG     | 35                | PASS              | 37                 | 6                               | 40                | 0.91                                                     | 0.8                                                         | 29.12                     | PASS              | 27                   | 1.24                           | 0.167                   | 3/4" EMT     | 27.71107         |

|                       |       |
|-----------------------|-------|
| String 1 Voltage Drop | 0.310 |
| String 2 Voltage Drop | 0.335 |
| String 3 Voltage Drop | 0.366 |
| String 4 Voltage Drop | 0.453 |
| String 5 Voltage Drop | 0.236 |
| String 6 Voltage Drop | 0.217 |

| AC FEEDER CALCULATIONS |                     |             |                          |              |               |              |             |                |                   |                   |                    |                                |                   |                                                          |                                                             |                           |                   |                             |                                |                         |              |                  |
|------------------------|---------------------|-------------|--------------------------|--------------|---------------|--------------|-------------|----------------|-------------------|-------------------|--------------------|--------------------------------|-------------------|----------------------------------------------------------|-------------------------------------------------------------|---------------------------|-------------------|-----------------------------|--------------------------------|-------------------------|--------------|------------------|
| CIRCUIT ORIGIN         | CIRCIUT DESTINATION | VOLTAGE (V) | FULL LOAD AMPS "FLA" (A) | FLA*1.25 (A) | OCPD SIZE (A) | NEUTRAL SIZE | GROUND SIZE | CONDUCTOR SIZE | 75°C AMPACITY (A) | AMPACITY CHECK #1 | AMBIENT TEMP. (°C) | TOTAL CC CONDUCTORS IN RACEWAY | 90°C AMPACITY (A) | DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(1) | DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(C)(1) | 90°C AMPACITY DERATED (A) | AMPACITY CHECK #2 | FEEDER LENGTH (FEET)        | CONDUCTOR RESISTANCE (OHM/KFT) | VOLTAGE DROP AT FLA (%) | CONDUIT SIZE | CONDUIT FILL (%) |
| INVERTER #1            | LOAD CENTER         | 240         | 32                       | 40           | 40            | CU #8 AWG    | CU #10 AWG  | CU #8 AWG      | 50                | PASS              | 37                 | 2                              | 55                | 0.91                                                     | 1                                                           | 50.05                     | PASS              | 5                           | 0.778                          | 0.104                   | 3/4" EMT     | 24.5591          |
| INVERTER #2            | LOAD CENTER         | 240         | 32                       | 40           | 40            | CU #8 AWG    | CU #10 AWG  | CU #8 AWG      | 50                | PASS              | 37                 | 2                              | 55                | 0.91                                                     | 1                                                           | 50.05                     | PASS              | 5                           | 0.778                          | 0.104                   | 3/4" EMT     | 24.5591          |
| LOAD CENTER            | AC DISCONNECT       | 240         | 64                       | 80           | 80            | CU #4 AWG    | CU #10 AWG  | CU #4 AWG      | 85                | PASS              | 37                 | 2                              | 95                | 0.91                                                     | 1                                                           | 86.45                     | PASS              | 5                           | 0.308                          | 0.082                   | 1" EMT       | 31.0532          |
| AC DISCONNECT          | POI                 | 240         | 64                       | 80           | 80            | CU #4 AWG    | CU #10 AWG  | CU #4 AWG      | 85                | PASS              | 37                 | 2                              | 95                | 0.91                                                     | 1                                                           | 86.45                     | PASS              | 5                           | 0.308                          | 0.082                   | 1" EMT       | 31.0532          |
|                        |                     |             |                          |              |               |              |             |                |                   |                   |                    |                                |                   |                                                          |                                                             |                           |                   | CUMULATIVE VOLTAGE DROP INV |                                | 0.268                   |              |                  |
|                        |                     |             |                          |              |               |              |             |                |                   |                   |                    |                                |                   |                                                          |                                                             |                           |                   | CUMULATIVE VOLTAGE DROP INV |                                | 0.268                   |              |                  |

ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.

2. ALL CONDUCTORS SHALL BE RATED UPTO 600V FOR RESIDENTIAL AND 1000V FOR COMMERCIAL AND 90 DEGREE C WET ENVIRONMENT.

3. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.

4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.

5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.

6. WHERE SIZES OF JUNCTION BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.

7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.

8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.

9. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.

10. TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.

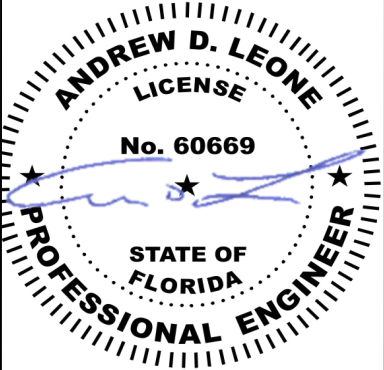
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LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

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| DESCRIPTION | DATE | REV |
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|             |      |     |
|             |      |     |



08/01/2025  
DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
WIRING CALCULATIONS

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-7





CAUTION:  
AUTHORIZED SOLAR  
PERSONNEL ONLY!

LABEL- 1:  
LABEL LOCATION:  
AC DISCONNECT

⚠ WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY  
BE ENERGIZED IN THE OPEN POSITION

LABEL- 2:  
LABEL LOCATION:  
AC DISCONNECT  
COMBINER  
MAIN SERVICE PANEL  
SUBPANEL  
MAIN SERVICE DISCONNECT  
CODE REF: NEC 690.13(B)

⚠ WARNING DUAL POWER SOURCE  
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL- 3:  
LABEL LOCATION:  
PRODUCTION METER  
UTILITY METER  
MAIN SERVICE PANEL  
SUBPANEL  
CODE REF: NEC 705.12(C) & NEC 690.59

⚠ WARNING

TURN OFF PHOTOVOLTAIC AC  
DISCONNECT PRIOR TO  
WORKING INSIDE PANEL

LABEL- 4:  
LABEL LOCATION:  
MAIN SERVICE PANEL  
SUBPANEL  
MAIN SERVICE DISCONNECT  
COMBINER  
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

PRODUCTION  
METER

LABEL- 5:  
LABEL LOCATION:  
PRODUCTION METER (ONLY IF PRODUCTION METER IS USED)

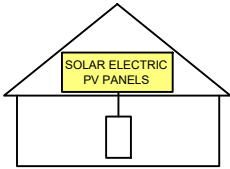
⚠ WARNING

POWER SOURCE OUTPUT  
CONNECTION. DO NOT  
RELOCATE THIS  
OVERCURRENT DEVICE

LABEL- 6:  
LABEL LOCATION:  
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
CODE REF: NEC 705.12(B)(3)(2)

SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN

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



LABEL- 7:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: IFC 605.11.3.1(1) & NEC 690.56(C)

RAPID SHUTDOWN SWITCH  
FOR SOLAR PV SYSTEM

LABEL- 8:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: NEC 690.56(C)(2)

PHOTOVOLTAIC

AC DISCONNECT

LABEL- 9:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: NEC 690.13(B)

PHOTOVOLTAIC  
AC DISCONNECT

NOMINAL OPERATING AC VOLATGE240 V

RATED AC OUTPUT CURRENT64 A

LABEL- 10:  
LABEL LOCATION:  
MAIN SERVICE PANEL  
SUBPANEL  
AC DISCONNECT  
CODE REF: NEC 690.54

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS  
BACKFEED

LABEL- 11:  
LABEL LOCATION:  
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
CODE REF: NEC 705.12(D) & NEC 690.59

MAXIMU VOLTAGE:600 V

MAXIMUM CIRCUIT CURRENT:15.0 A

MAXIMUM RATED OUTPUT  
CURRENT OF THE CHARGE  
CONTROLLER OR DC-TO-DC  
CONVERTER (IF INSTALLED):

LABEL- 12:  
LABEL LOCATION:  
INVERTER  
CODE REF: NEC 690.53

CAUTION: PHOTOVOLTAIC SYSTEM  
FOR SERVICE : LUNEX POWER  
813-540-8807

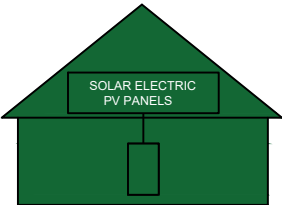
LABEL-13:

WARNING: PHOTOVOLTAIC  
POWER SOURCE

LABEL-14:  
LABEL LOCATION:  
EMT/CONDUIT RACEWAY  
SOLADECK/JUNCTION BOX  
CODE REF : NEC 690.31 (D) (14)

EMERGENCY RESPONDER  
THIS SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN  
SWITCH TO THE 'OFF'  
POSITION TO SHUTDOWN  
ENTIRE PV SYSTEM.



THE LABEL SHALL BE REFLECTIVE, WITH ALL LETTERS CAPITALIZED AND HAVING  
A MINIMUM HEIGHT OF 3/8 IN. (9.5 MM), IN WHITE ON A RED BACKGROUND.

LABEL- 15:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF:NFPA 1 (11.12.2.1.1.1.1)  
1. THE RAPID SHUTDOWN LABEL SHALL BE LOCATED ON OR NO MORE  
THAN 3 FT (1 M) FROM THE SERVICE DISCONNECTING MEANS  
2. (HEIGHT OF LABEL IS 3/8 IN. (9.5 MM), IN WHITE ON A RED BACKGROUND)

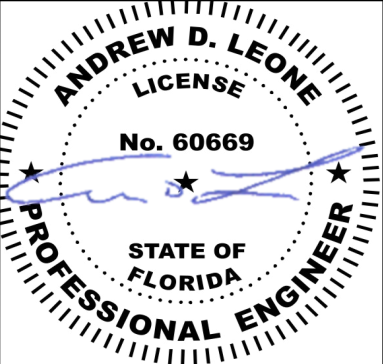
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4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

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08/01/2025  
DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE

269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY

ESR

SHEET NAME

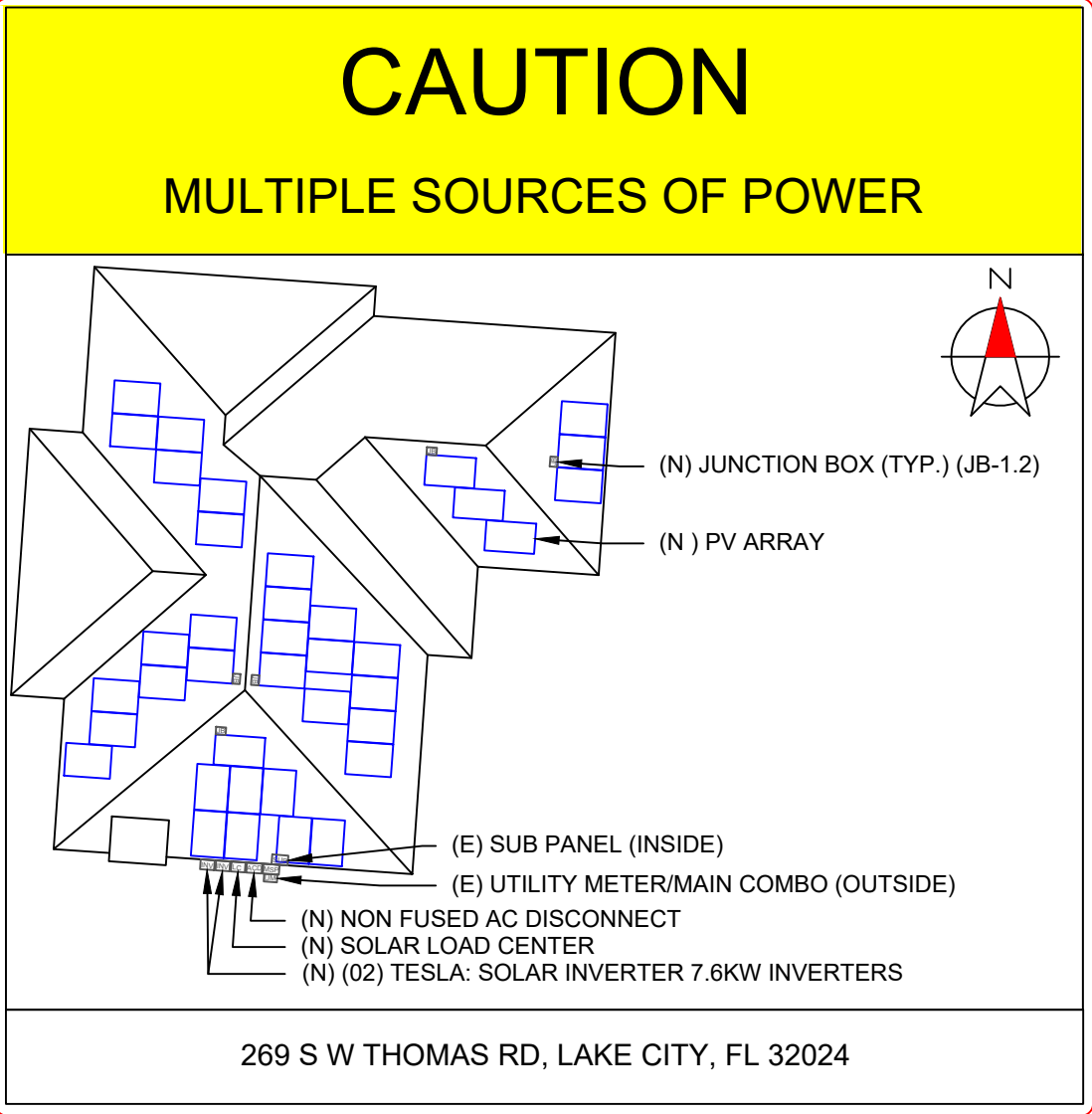
LABELS

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-8



DIRECTORY  
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE  
SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN:  
NEC 690.56(B)&(C), [NEC 705.10])

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LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]

LUNEX POWER

THE PURE SOURCE

LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

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ANDREW D. LEONE

LICENSE

No. 60669

STATE OF FLORIDA

PROFESSIONAL ENGINEER

08/01/2025  
DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY

ESR

SHEET NAME

PLACARD

SHEET SIZE

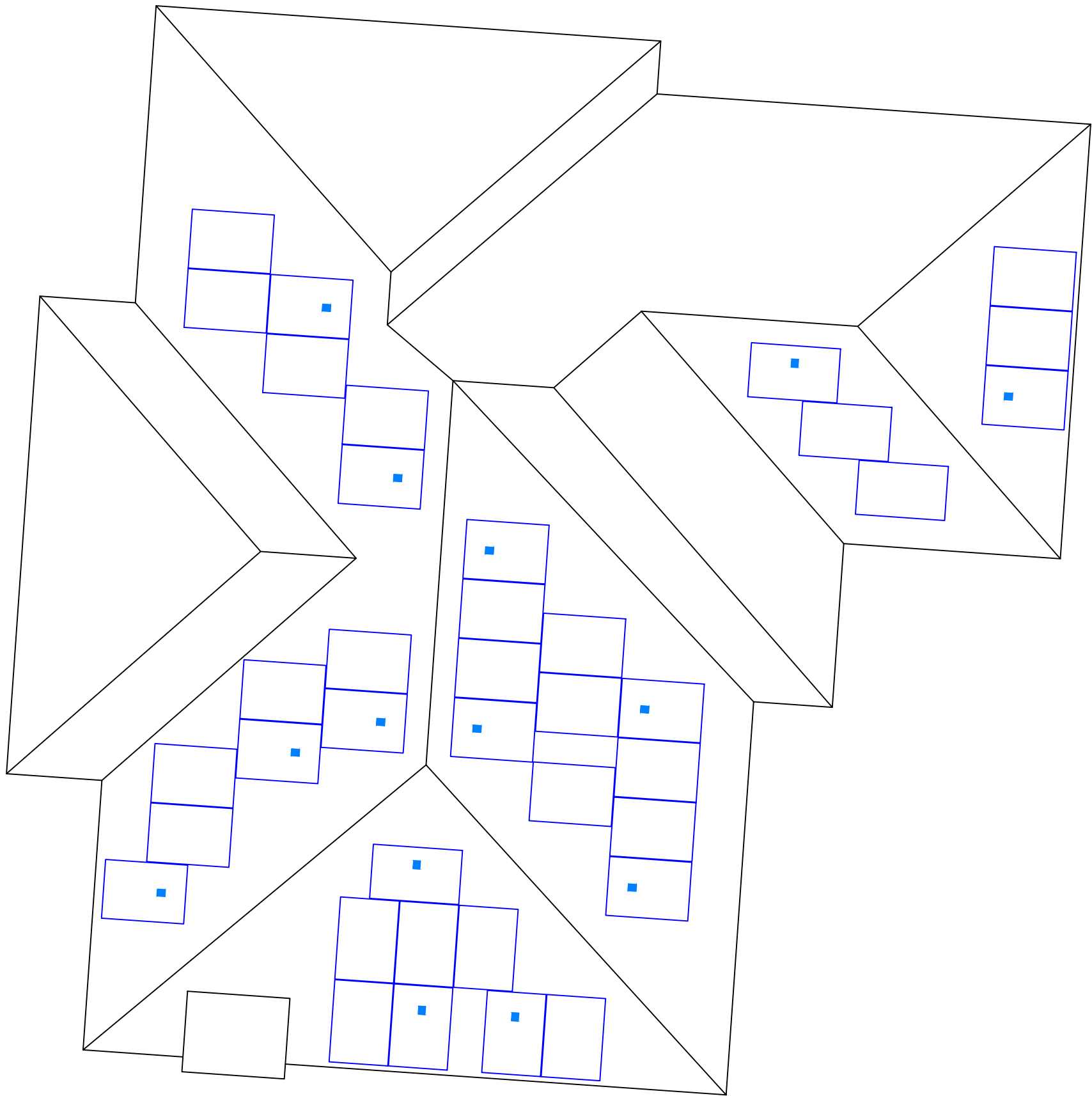
ANSI B  
11" X 17"

SHEET NUMBER

PV-9



# RAPID SHUTDOWN CHART





LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

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DATE: 07/16/2025

DELEON KELLY  
RESIDENCE

269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
RAPID SHUTDOWN CHART

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-10

Harvest the Sunshine

DEEP BLUE 3.0

415W MBB Half-cell Black Module

JAM54S31 380-405/MR Series

Mono

Introduction

Assembled with 11BB PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.

Higher output power

Lower LCOE

Less shading and lower resistive loss

Better mechanical loading tolerance

Superior Warranty

12-year product warranty

25-year linear power output warranty

0.55% Annual Degradation Over 25 years

Standard module linear power warranty

New linear power warranty

Comprehensive Certificates

IEC 61215, IEC 61730, UL 61215, UL 61730

ISO 9001: 2015 Quality management systems

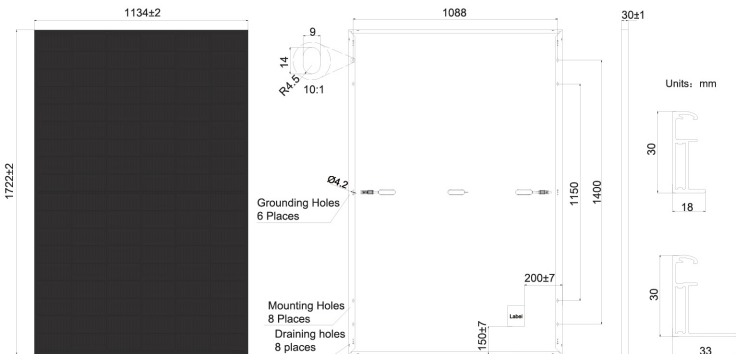
ISO 14001: 2015 Environmental management systems

ISO 45001: 2018 Occupational health and safety management systems

IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval

JA SOLAR

MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request

ELECTRICAL PARAMETERS AT STC

| TYPE                                   | JAM54S31 -380/MR                                   | JAM54S31 -385/MR | JAM54S31 -390/MR | JAM54S31 -395/MR | JAM54S31 -400/MR | JAM54S31 -405/MR |
|----------------------------------------|----------------------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Rated Maximum Power(Pmax) [W]          | 380                                                | 385              | 390              | 395              | 400              | 405              |
| Open Circuit Voltage(Voc) [V]          | 36.58                                              | 36.71            | 36.85            | 36.98            | 37.07            | 37.23            |
| Maximum Power Voltage(Vmp) [V]         | 30.28                                              | 30.46            | 30.64            | 30.84            | 31.01            | 31.21            |
| Short Circuit Current(Isc) [A]         | 13.44                                              | 13.52            | 13.61            | 13.70            | 13.79            | 13.87            |
| Maximum Power Current(Imp) [A]         | 12.55                                              | 12.64            | 12.73            | 12.81            | 12.90            | 12.98            |
| Module Efficiency [%]                  | 19.5                                               | 19.7             | 20.0             | 20.2             | 20.5             | 20.7             |
| Power Tolerance                        | 0~+5W                                              |                  |                  |                  |                  |                  |
| Temperature Coefficient of Isc(α_Isc)  | +0.045%/°C                                         |                  |                  |                  |                  |                  |
| Temperature Coefficient of Voc(β_Voc)  | -0.275%/°C                                         |                  |                  |                  |                  |                  |
| Temperature Coefficient of Pmax(γ_Pmp) | -0.350%/°C                                         |                  |                  |                  |                  |                  |
| STC                                    | Irradiance 1000W/m², cell temperature 25°C, AM1.5G |                  |                  |                  |                  |                  |

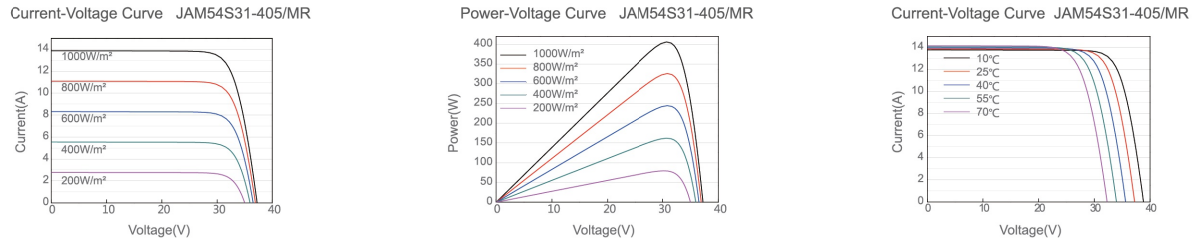
Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

ELECTRICAL PARAMETERS AT NOCT

| TYPE                           | JAM54S31 -380/MR                                                      | JAM54S31 -385/MR | JAM54S31 -390/MR | JAM54S31 -395/MR | JAM54S31 -400/MR | JAM54S31 -405/MR |
|--------------------------------|-----------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Rated Max Power(Pmax) [W]      | 286                                                                   | 290              | 294              | 298              | 302              | 306              |
| Open Circuit Voltage(Voc) [V]  | 34.36                                                                 | 34.49            | 34.62            | 34.75            | 34.88            | 35.12            |
| Max Power Voltage(Vmp) [V]     | 28.51                                                                 | 28.68            | 28.87            | 29.08            | 29.26            | 29.47            |
| Short Circuit Current(Isc) [A] | 10.75                                                                 | 10.82            | 10.89            | 10.96            | 11.03            | 11.10            |
| Max Power Current(Imp) [A]     | 10.03                                                                 | 10.11            | 10.18            | 10.25            | 10.32            | 10.38            |
| NOCT                           | Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G |                  |                  |                  |                  |                  |

|                            |                   |
|----------------------------|-------------------|
| Maximum System Voltage     | 1000V/1500V DC    |
| Operating Temperature      | -40 °C ~+85 °C    |
| Maximum Series Fuse Rating | 25A               |
| Maximum Static Load,Front* | 5400Pa(112lb/ft²) |
| Maximum Static Load,Back*  | 2400Pa(50lb/ft²)  |
| NOCT                       | 45±2 °C           |
| Safety Class               | Class II          |
| Fire Performance           | UL Type 1         |

CHARACTERISTICS



Premium Cells, Premium Modules

Version No. : Global\_EN\_20210119



LUNEX POWER INC.  
4721 N GRADY AVE  
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DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-11



Tesla Solar Inverter  
with Site Controller

Tesla Solar Inverter completes the Tesla home solar system, converting DC power from solar to AC power for home consumption. Tesla's renowned expertise in power electronics has been combined with robust safety features and a simple installation process to produce an outstanding solar inverter that is compatible with both Solar Roof and traditional solar panels. Once installed, homeowners use the Tesla mobile app to manage their solar system and monitor energy consumption, resulting in a truly unique ecosystem experience.

KEY FEATURES

- Built on Powerwall technology for exceptional efficiency and reliability
- Designed to integrate with Tesla Powerwall and Tesla App
- Wi-Fi, Ethernet, and cellular connectivity with easy over-the-air updates
- 0.5% revenue-grade metering for Solar Renewable Energy Credit (SREC) programs included



March 17, 2024

Tesla Solar Inverter Technical Specifications

|                                           |                                  |                             |          |          |          |
|-------------------------------------------|----------------------------------|-----------------------------|----------|----------|----------|
| Electrical Specifications:<br>Output (AC) | Model Number                     | 1538000-xx-y                |          |          |          |
|                                           | Output (AC) <sup>1</sup>         | 3.8 kW                      | 5 kW     | 5.7 kW   | 7.6 kW   |
|                                           | Nominal Power                    | 3,800 W                     | 5,000 W  | 5,700 W  | 7,600 W  |
|                                           | Maximum Apparent Power           | 3,840 VA                    | 5,040 VA | 6,000 VA | 7,680 VA |
|                                           | Maximum Continuous Current       | 16 A                        | 21 A     | 24 A     | 32 A     |
|                                           | Breaker (Overcurrent Protection) | 20 A                        | 30 A     | 30 A     | 40 A     |
|                                           | Nominal Power Factor             | 1 - 0.9 (leading / lagging) |          |          |          |
|                                           | THD (at Nominal Power)           | <5%                         |          |          |          |

|                                          |                                                           |                           |
|------------------------------------------|-----------------------------------------------------------|---------------------------|
| Electrical Specifications:<br>Input (DC) | MPPT                                                      | 4                         |
|                                          | Input Connectors per MPPT                                 | 1-2-1-2                   |
|                                          | Maximum Input Voltage                                     | 600 VDC                   |
|                                          | DC Input Voltage Range                                    | 60 - 550 VDC              |
|                                          | DC MPPT Voltage Range                                     | 60 - 480 VDC <sup>1</sup> |
|                                          | Maximum Current per MPPT (I <sub>MP</sub> )               | 13 A <sup>2</sup>         |
|                                          | Maximum Short Circuit Current per MPPT (I <sub>SC</sub> ) | 17 A <sup>2</sup>         |
|                                          | <sup>1</sup> Maximum current.                             |                           |

<sup>2</sup>Where the DC input current exceeds an MPPT rating, jumpers can be used to allow a single MPPT to intake additional DC current up to 26 A I<sub>MP</sub> / 34 A I<sub>SC</sub>.

|                               |                                                                                                      |                                                                         |
|-------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Performance<br>Specifications | Peak Efficiency                                                                                      | 98.6% at 240 V                                                          |
|                               | CEC Efficiency                                                                                       | 98.0% at 240 V                                                          |
|                               | Allowable DC/AC Ratio                                                                                | 1.7                                                                     |
|                               | Customer Interface                                                                                   | Tesla Mobile App                                                        |
|                               | Internet Connectivity                                                                                | Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G) <sup>3</sup> |
|                               | Revenue Grade Meter                                                                                  | Revenue Accurate (+/- 0.5%)                                             |
|                               | AC Remote Metering Support                                                                           | Wi-Fi (2.4 GHz, 802.11 b/g/n)                                           |
|                               | Protections                                                                                          | Integrated arc fault circuit interrupter (AFCI), Rapid Shutdown         |
|                               | Supported Grid Types                                                                                 | 60 Hz, 240 V Split Phase                                                |
|                               | Warranty                                                                                             | 12.5 years                                                              |
|                               | <sup>3</sup> Cellular connectivity subject to network operator service coverage and signal strength. |                                                                         |
|                               |                                                                                                      |                                                                         |

Tesla Solar Inverter and Solar Shutdown Device Datasheet

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Tesla Solar Inverter Technical Specifications

|                           |                  |                                                 |
|---------------------------|------------------|-------------------------------------------------|
| Mechanical Specifications | Dimensions       | 660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in) |
|                           |                  |                                                 |
| Weight                    |                  | 52 lb <sup>4</sup>                              |
|                           | Mounting Options | Wall mount (bracket)                            |

<sup>4</sup>Door and bracket can be removed for a mounting weight of 37 lb.

|                              |                                                                                                               |                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Environmental Specifications | Operating Temperature                                                                                         | -30°C to 45°C (-22°F to 113°F) <sup>5</sup>                                             |
|                              | Operating Humidity (RH)                                                                                       | Up to 100%, condensing                                                                  |
|                              | Storage Temperature                                                                                           | -30°C to 70°C (-22°F to 158°F)                                                          |
|                              | Maximum Elevation                                                                                             | 3000 m (9843 ft)                                                                        |
|                              | Environment                                                                                                   | Indoor and outdoor rated                                                                |
|                              | Enclosure Rating                                                                                              | Type 3R                                                                                 |
|                              | Ingress Rating                                                                                                | IP55 (Wiring compartment)                                                               |
|                              | Pollution Rating                                                                                              | PD2 for power electronics and terminal wiring compartment, PD3 for all other components |
| Operating Noise @ 1 m        |                                                                                                               | < 40 db(A) nominal, < 50 db(A) maximum                                                  |
|                              | <sup>5</sup> Performance may be de-rated to 6.2 kW at 240 V when operating at temperatures greater than 45°C. |                                                                                         |

|                        |                       |                                                                           |
|------------------------|-----------------------|---------------------------------------------------------------------------|
| Compliance Information | Grid Certifications   | UL 1741, UL 1741 SA, UL 1741 SB, UL 1741 PCS, IEEE 1547-2018, IEEE 1547.1 |
|                        | Safety Certifications | UL 1741 PVRSS, UL 1699B, UL 1998 (US), UL 3741                            |
|                        | Emissions             | EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)                           |

Tesla Solar Inverter and Solar Shutdown Device Datasheet

3



LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

| REVISIONS   |      |     |
|-------------|------|-----|
| DESCRIPTION | DATE | REV |
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DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY  
ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-12



# Solar Shutdown Device Technical Specifications

The Solar Shutdown Device is a Mid-Circuit Interrupter (MCI) and is integral to the rapid shutdown (RSD) function required for rooftop PV systems in accordance with Article 690 of the NEC. When paired with Powerwall 3, solar array shutdown is initiated by an External System Shutdown Switch or the On/Off Enable switch located on Powerwall 3. Systems not subject to rapid shutdown requirements must still install one or more MCIs for functional purposes; see the Powerwall 3 installation manual for details.

## Electrical Specifications

| Model                                            | MCI-1    | MCI-2                   | MCI-2<br>High Current   |
|--------------------------------------------------|----------|-------------------------|-------------------------|
| Nominal Input DC Current Rating ( $I_{MP}$ )     | 13 A     | 13 A                    | 15 A                    |
| Maximum Input Short Circuit Current ( $I_{SC}$ ) | 19 A     | 17 A                    | 19 A                    |
| Maximum System Voltage                           | 600 V DC | 1000 V DC <sup>14</sup> | 1000 V DC <sup>14</sup> |
| Maximum Disconnect Voltage <sup>15</sup>         | 600 V DC | 165 V DC                | 165 V DC                |

<sup>14</sup> Maximum System Voltage is limited by Powerwall to 600 V DC.

<sup>15</sup> Maximum Disconnect Voltage is the maximum voltage allowed across each MCI in the open position (Rapid Shutdown Initiated). An individual MCI-2 has a voltage rating of 165V but in combination (connected in the same string) their voltage ratings are additive.

## RSD Module Performance

|                                      |                       |
|--------------------------------------|-----------------------|
| Maximum Number of Devices per String | 5                     |
| Control                              | Power Line Excitation |
| Passive State                        | Normally Open         |
| Maximum Power Consumption            | 7 W                   |
| Warranty                             | 25 years              |

## Environmental Specifications

|                       |                                   |                                   |
|-----------------------|-----------------------------------|-----------------------------------|
| Operating Temperature | -40°C to 50°C<br>(-40°F to 122°F) | -45°C to 70°C<br>(-49°F to 158°F) |
| Storage Temperature   | -30°C to 70°C<br>(-22°F to 158°F) | -30°C to 70°C<br>(-22°F to 158°F) |
| Enclosure Rating      | NEMA 4X / IP65                    |                                   |

## Mechanical Specifications

|                        |                                                                             |                                        |
|------------------------|-----------------------------------------------------------------------------|----------------------------------------|
| Electrical Connections | MC4 Connector                                                               |                                        |
| Housing                | Plastic                                                                     |                                        |
| Dimensions             | 125 x 150 x 22 mm<br>(5 x 6 x 1 in)                                         | 173 x 45 x 22 mm<br>(6.8 x 1.8 x 1 in) |
| Weight                 | 350 g (0.77 lb)                                                             | 120 g (0.26 lb)                        |
| Mounting Options       | ZEP Home Run Clip<br>M4 Screw (#10)<br>M8 Bolt (5/16")<br>Nail / Wood screw | Wire Clip                              |

## Compliance Information

|                       |                                                                      |
|-----------------------|----------------------------------------------------------------------|
| Certifications        | UL 1741 PVRSE, UL 3741,<br>PVRSA (Photovoltaic Rapid Shutdown Array) |
| RSD Initiation Method | External System Shutdown Switch or<br>Powerwall 3 Enable Switch      |

## UL 3741 PV Hazard Control (and PVRSA) Compatibility

See [UL 3741 Application Addendum](#)



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RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

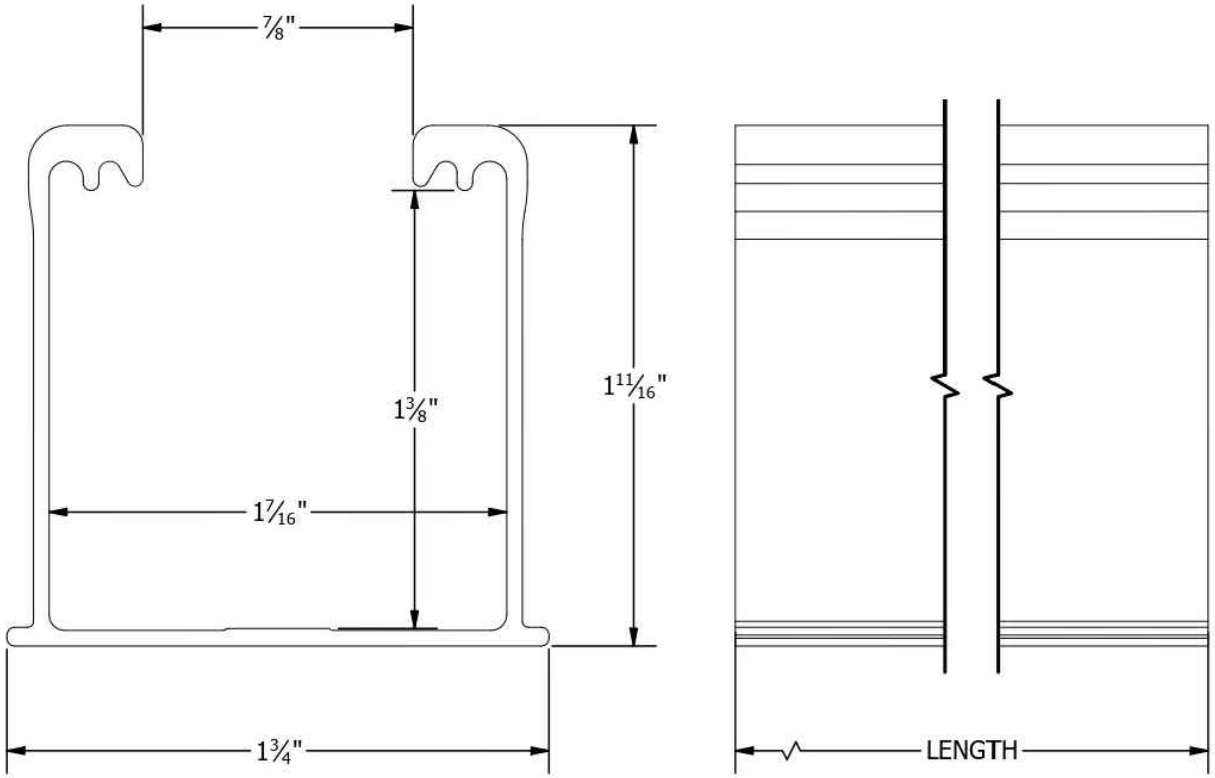
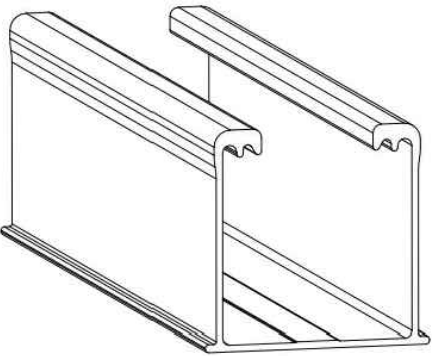
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ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-13

| PART # TABLE |                            |        |
|--------------|----------------------------|--------|
| P/N          | DESCRIPTION                | LENGTH |
| 084RLM1      | NXT HORIZON RAIL 84" MILL  | 84"    |
| 084RLD1      | NXT HORIZON RAIL 84" DARK  | 84"    |
| 168RLM1      | NXT HORIZON RAIL 168" MILL | 168"   |
| 168RLD1      | NXT HORIZON RAIL 168" DARK | 168"   |
| 208RLM1      | NXT HORIZON RAIL 208" MILL | 208"   |
| 208RLD1      | NXT HORIZON RAIL 208" DARK | 208"   |
| 246RLM1      | NXT HORIZON RAIL 246" MILL | 246"   |
| 246RLD1      | NXT HORIZON RAIL 246" DARK | 246"   |





1411 BROADWAY BLVD. NE  
ALBUQUERQUE, NM 87102 USA  
PHONE: 505.242.6411  
WWW.UNIRAC.COM

|                |             |
|----------------|-------------|
| PRODUCT LINE:  | NXT HORIZON |
| DRAWING TYPE:  | PART DETAIL |
| DESCRIPTION:   | RAIL        |
| REVISION DATE: | 9/13/2021   |

DRAWING NOT TO SCALE  
ALL DIMENSIONS ARE  
NOMINAL

PRODUCT PROTECTED BY  
ONE OR MORE US PATENTS

LEGAL NOTICE

NH-P01

SHEET



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|             |      |     |

DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE

269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY

ESR

SHEET NAME

EQUIPMENT  
SPECIFICATION

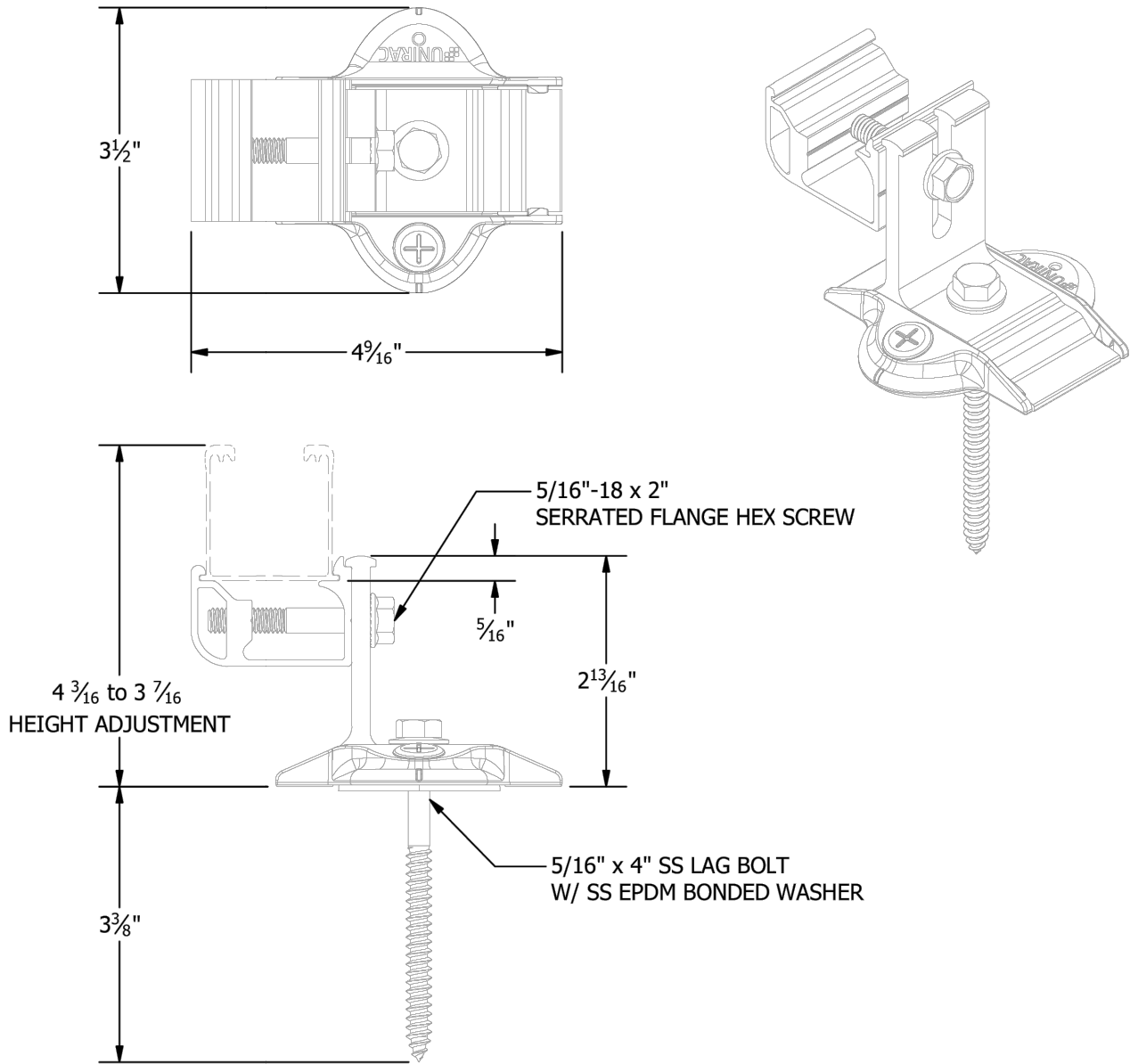
SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-14

| PART # TABLE |                               |
|--------------|-------------------------------|
| P/N          | DESCRIPTION                   |
| SHCPKTM1     | STRONGHOLD ATT KIT COMP MILL  |
| SHCPKTD1     | STRONGHOLD ATT KIT COMP DRK   |
| SHCPKTM1-NS  | STRONGHOLD ATT COMP MILL (NS) |
| SHCPKTD1-NS  | STRONGHOLD ATT COMP DRK (NS)  |



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ALBUQUERQUE, NM 87102 USA  
PHONE: 505.242.6411  
WWW.UNIRAC.COM

|                |                       |
|----------------|-----------------------|
| PRODUCT LINE:  | NXT UMount            |
| DRAWING TYPE:  | PARTS ASSEMBLY        |
| DESCRIPTION:   | STRONGHOLD ATTACHMENT |
| REVISION DATE: | 11/17/2022            |

DRAWING NOT TO SCALE  
ALL DIMENSIONS ARE  
NOMINAL

PRODUCT PROTECTED BY  
ONE OR MORE US PATENTS  
LEGAL NOTICE

NU-A04

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TAMPA FL 33614  
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DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

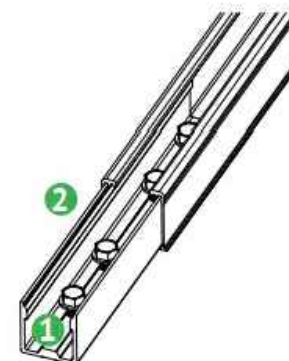
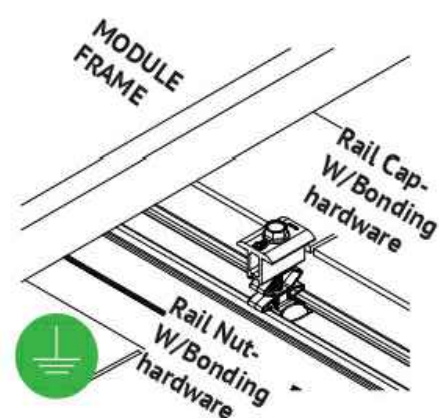
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SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-15

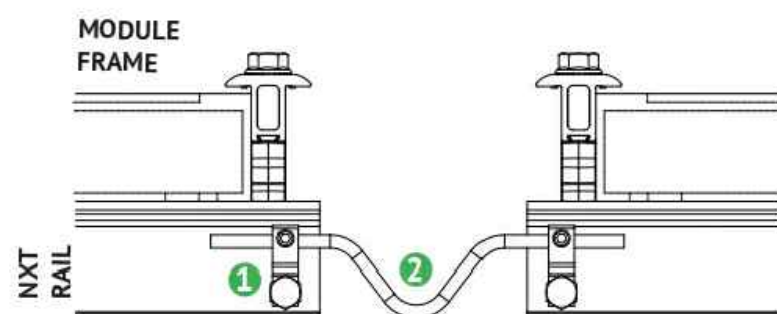




### BONDING COMBO MID-END CLAMP ASSEMBLY

- 1 Aluminum combo mid-end clamp cap with stainless steel bonding pins that pierce module frame anodization to bond module to module through clamp
- 2 Stainless steel bolt bonds aluminum clamp to stainless steel Hex bolt
- 3 Aluminum combo mid-end clamp rail nut with stainless steel bonding pins that pierce rail anodization to bond module to module through clamp

**NOTE:** See Page 19 for installation details.



### BONDING BETWEEN THERMAL BREAKS

- 1 Lug is connected at the end of each thermal break to the rail.
- 2 Solid copper wire is connected across the gap to bond the two ends.

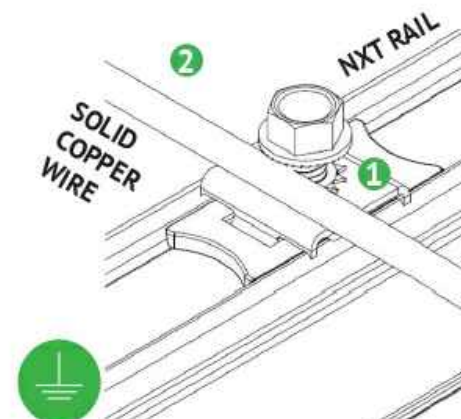
**NOTE:** See Page 5 for installation details.

### BONDING RAIL SPLICE

- 1 Bonding Hardware creates bond between Splice bar and each rail section.
- 2 Aluminum splice bar spans across rail gap to create rail to rail bond. Rail on at least one side of splice will be grounded.

#### NOTE:

- See Page 15 for installation details
- Splice certified for single-use only



### RACK SYSTEM GROUNDING

- 1 Tabs on the stainless-steel washer pierce anodization on the rail to bond rail to ground wire.
- 2 Solid copper wire connected to lug is routed to provide final system ground connection.

**NOTE:** See Page 16 for installation details and alternate racking system grounding methods.

#### REVISIONS

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DATE: 07/16/2025

#### PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

#### DRAWN BY

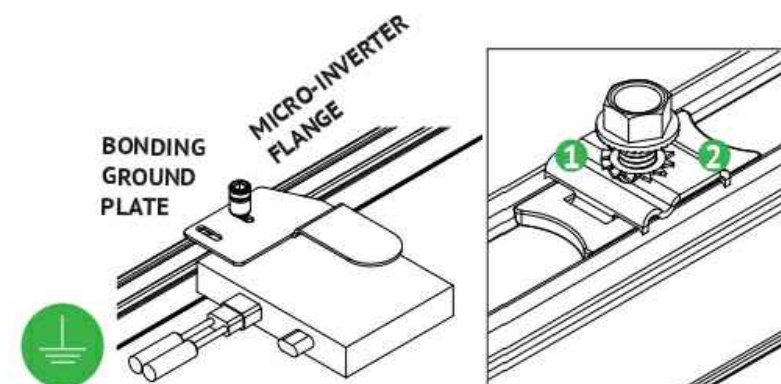
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SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

#### SHEET NUMBER

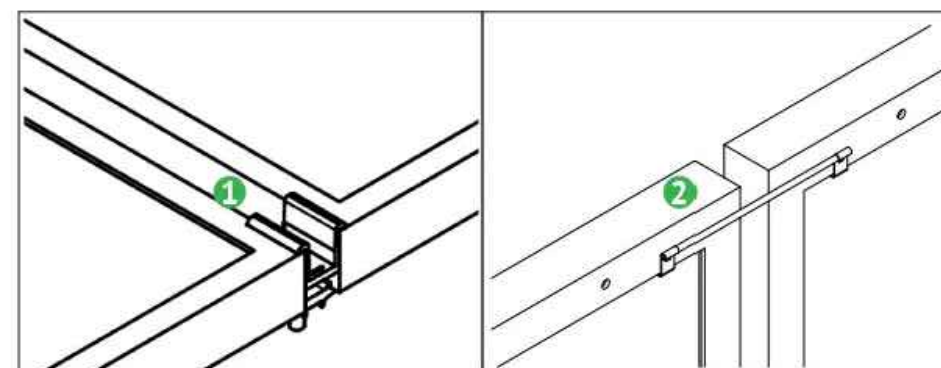
PV-16



### BONDING MICROINVERTER MOUNT

- 1 Stainless steel Tooth lock washer beneath the MLPE flange remove anodization on the MLPE and bonds.
- 2 Tabs on the stainless steel washer remove anodization on the rail and bonds.

**NOTE:** See Page 17 for installation details



### ALTERNATE ROW-TO-ROW BONDING PATHS

- 1 Row-to-row module bonding is accomplished with bonding clamp with 2 integral bonding pins.
- 2 Alternate method by connecting clips on either module to complete the bonding path.

**NOTE:**

- See Page 16 for installation details
- Row-to-row module bonding certified for single-use only

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PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
269 S W THOMAS RD,  
LAKE CITY, FL 32024

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ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-17





## JB-1.2, JB-1.XL

# Specification Sheet

## PV Junction Box for Composition/Asphalt Shingle Roofs

### A. System Specifications and Ratings

- Maximum Voltage: 1,000 Volts
- Maximum Current: **JB-1.2**: 80 Amps; **JB-1.XL**: 120 Amps
- Allowable Wire: 14 AWG – 6 AWG
- Spacing: Please maintain a spacing of at least ½” between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.
- Enclosure Rating: Type 3R
- Roof Slope Range: 2.5 – 12:12
- Max Side Wall Fitting Size: 1”
- Max Floor Pass-Through Fitting Size: 1”
- Ambient Operating Conditions: (-35°C) - (+75°C)
- Compliance:
  - **JB-1.2**: UL1741, CSA C22.2 No. 290; **JB-1.XL**: UL1741, CSA C22.2 No. 290
  - Approved wire connectors: must conform to UL1741, CSA C22.2 No. 290
- System Marking: **Intertek Symbol and File #5019942**
- Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.



### Table 1: Typical Wire Size, Torque Loads and Ratings

|                                                          | 1 Conductor | 2 Conductor | Torque  |             |             |         |         |
|----------------------------------------------------------|-------------|-------------|---------|-------------|-------------|---------|---------|
|                                                          |             |             | Type    | NM          | Inch Lbs    | Voltage | Current |
| ABB ZS6 terminal block                                   | 10-24 awg   | 16-24 awg   | Sol/Str | 0.5-0.7     | 6.2-8.85    | 600V    | 30 amp  |
| ABB ZS10 terminal block                                  | 6-24 awg    | 12-20 awg   | Sol/Str | 1.0-1.6     | 8.85-14.16  | 600V    | 40 amp  |
| ABB ZS16 terminal block                                  | 4-24 awg    | 10-20 awg   | Sol/Str | 1.6-2.4     | 14.6-21.24  | 600V    | 60 amp  |
| ABB M6/8 terminal block                                  | 8-22 awg    |             | Sol/Str | .08-1       | 8.85        | 600V    | 50 amp  |
| Ideal 452 Red <small>WING-NUT Wire Connector</small>     | 8-18 awg    |             | Sol/Str | Self-Torque | Self-Torque | 600V    |         |
| Ideal 451 Yellow <small>WING-NUT Wire Connector</small>  | 10-18 awg   |             | Sol/Str | Self-Torque | Self-Torque | 600V    |         |
| Ideal, In-Sure <small>Push-In Connector Part #39</small> | 10-14 awg   |             | Sol/Str | Self-Torque | Self-Torque | 600V    |         |
| WAGO, 2204-1201                                          | 10-20 awg   | 16-24 awg   | Sol/Str | Self-Torque | Self-Torque | 600V    | 30 amp  |
| WAGO, 221-612                                            | 10-20 awg   | 10-24 awg   | Sol/Str | Self-Torque | Self-Torque | 600V    | 30 amp  |
| Dottie DRC75                                             | 6-12 awg    |             | Sol/Str | Snap-In     | Snap-In     |         |         |
| ESP NG-53                                                | 4-6 awg     |             | Sol/Str |             | 45          | 2000V   |         |
|                                                          | 10-14 awg   |             | Sol/Str |             | 35          |         |         |
| ESP NG-717                                               | 4-6 awg     |             | Sol/Str |             | 45          | 2000V   |         |
|                                                          | 10-14 awg   |             | Sol/Str |             | 35          |         |         |
| Brumall 4-5,3                                            | 4-6 awg     |             | Sol/Str |             | 45          | 2000V   |         |
|                                                          | 10-14 awg   |             | Sol/Str |             | 35          |         |         |

**Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)**

| Wire size, AWG or<br>kcmil (mm2) | Wires per terminal (pole) |         |    |        |    |        |           |        |
|----------------------------------|---------------------------|---------|----|--------|----|--------|-----------|--------|
|                                  | 1                         |         | 2  |        | 3  |        | 4 or More |        |
|                                  | mm                        | (inch)  | mm | (inch) | mm | (inch) | mm        | (inch) |
| 14-10 (2.1-5.3)                  | Not Specified             |         | -  |        | -  |        | -         |        |
| 8 (8.4)                          | 38.1                      | (1-1/2) | -  |        | -  |        | -         |        |
| 6 (13.3)                         | 50.8                      | (2)     | -  |        | -  |        | -         |        |



LUNEX POWER INC.  
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DATE: 07/16/2025

PROJECT NAME & ADDRESS

DELEON KELLY  
RESIDENCE  
2269 S W THOMAS RD,  
LAKE CITY, FL 32024

DRAWN BY

# ESR

SHEET NAME  
EQUIPMENT  
PECIFICATION

HEET SIZE

ANSI B  
1" X 17"

SHEET NUMBER

PV-18