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June 16, 2022

Sunpro Solar
22171 MCH Road
Mandeville, LA 70471

Re: Engineering Services
Cousin Residence
1010 North Roman Street, New Orleans LA
8.740 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

B. Description of Structure:

Roof Framing: Prefabricated wood trusses at 24" on center with all members consisting of 2x4 dimensional lumber.

Roof Material: Composite Asphalt Shingles

Roof Slopes: 26, 30 and 37 degrees

Attic Access: Accessible

Foundation: Permanent

C. Loading Criteria Used

- **Dead Load**
 - Existing Roofing and framing = 7 psf
 - New Solar Panels and Racking = 3 psf
 - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 0 psf
- **Wind Load** based on ASCE 7-10
 - Ultimate Wind Speed = 144 mph (based on Risk Category II)
 - Exposure Category C

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2015 International Residential Code, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.

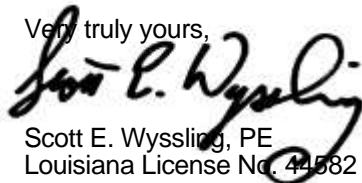
D. Solar Panel Anchorage

1. The solar panels shall be mounted in accordance with the most recent Unirac installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal force for a $\frac{5}{16}$ " lag screw is 235 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on a minimum penetration depth of $2\frac{1}{2}$ ", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using one $\frac{5}{16}$ " diameter lag screw with a minimum of $2\frac{1}{2}$ " embedment will be adequate and will include a sufficient factor of safety.
3. Considering the wind speed, roof slopes, size and spacing of framing members, and condition of the roof, the panel supports shall be placed no greater than 48" on centers.
4. Panel supports connections shall be staggered to distribute load to adjacent framing members.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2015 IRC, current industry standards and practice, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,


Scott E. Wyssling, PE
Louisiana License No. 44582



Date Signed 06-16-22

PHOTOVOLTAIC ROOF MOUNT SYSTEM

23 MODULES-ROOF MOUNTED - 8.740 KW DC STC, 8.098 KW DC PTC, 6.670 KW AC



1010 N ROMAN ST, NEW ORLEANS, LA 70116

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT DATA

PROJECT ADDRESS: 1010 N ROMAN ST,
NEW ORLEANS, LA 70116

OWNER: MANUEL COUSIN III

CONTRACTOR: MARC JONES CONSTRUCTION,
LLC DBA SUNPRO SOLAR
PHONE: 5052180838

DESIGNER: ESR

SCOPE: 8.740 KW DC ROOF MOUNT
SOLAR PV SYSTEM WITH
23 LG ELECTRONICS : LG380N1C-A6 380W
PV MODULES WITH
23 ENPHASE IQ7PLUS-72-2-US
MICROINVERTERS
1 ESS: ENCHARGE 10 = 3.84KW / 10.08KWH



AUTHORITIES HAVING JURISDICTION:
BUILDING: CITY OF NEW ORLEANS
ZONING: CITY OF NEW ORLEANS
UTILITY: ENTERGY LA

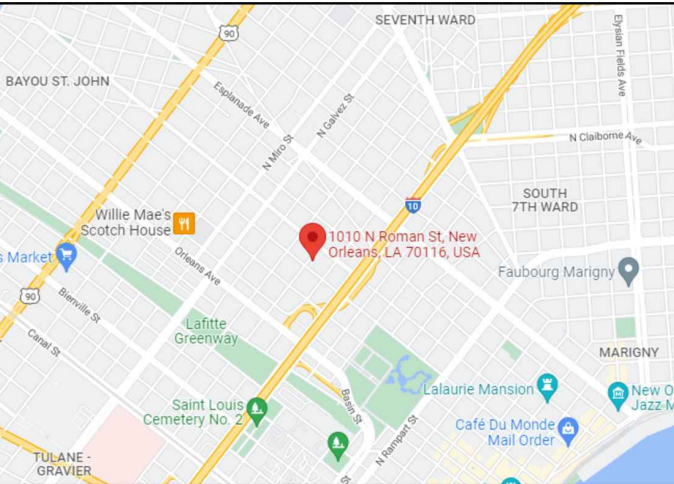
SHEET INDEX

PV-1 COVER SHEET
PV-2 SITE PLAN
PV-3 ROOF PLAN & MODULES
PV-4 ELECTRICAL PLAN
PV-5 STRUCTURAL DETAIL
PV-6 ELECTRICAL LINE DIAGRAM
PV-7 WIRING CALCULATIONS
PV-8 LABELS
PV-9 PLACARD
PV-10 MICRO INVERTER CHART
PV-11+ EQUIPMENT SPECIFICATIONS

GENERAL NOTES

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2014.
3. THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
4. 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.
5. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
6. HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
7. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 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.
8. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
9. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
10. 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.
11. 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.
12. INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
13. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
14. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
15. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
16. SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
17. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
18. 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)]
19. ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
20. WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
21. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
22. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.
23. THE ENCHARGE BATTERY AS PART OF THE ENSEMBLE SYSTEM DOES NOT EXPORT POWER TO THE GRID IN ANY STORAGE MODE.

VICINITY MAP



HOUSE PHOTO



CODE REFERENCES

PROJECT TO COMPLY WITH THE FOLLOWING:

2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL RESIDENTIAL CODE
2015 INTERNATIONAL FIRE CODE
2014 NATIONAL ELECTRICAL CODE

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A



Date Signed 06-16-22

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

COVER SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-1



PROJECT DESCRIPTION:

23 X LG ELECTRONICS : LG380N1C-A6 380W PV MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
DC SYSTEM SIZE: 23 x 380 = 8.740KW DC
AC SYSTEM SIZE: 23 x 290 = 6.670KW AC

EQUIPMENT SUMMARY

23 LG ELECTRONICS :LG380N1C-A6 MONO MODULES
23 ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
1 ESS: ENCHARGE 10 = 3.84KW / 10.08KWH

ROOF ARRAY AREA #1:- 136.57 SQ FT.
ROOF ARRAY AREA #2:- 39.02 SQ FT.
ROOF ARRAY AREA #3:- 39.02 SQ FT.
ROOF ARRAY AREA #4:- 97.55 SQ FT.
ROOF ARRAY AREA #5:- 136.57 SQ FT.

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

DESIGN SPECIFICATION

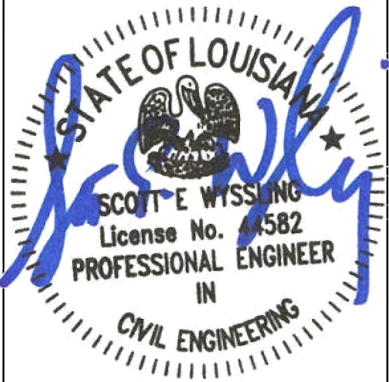
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: REFER STRUCTURAL LETTER
WIND EXPOSURE: REFER STRUCTURAL LETTER
WIND SPEED: REFER STRUCTURAL LETTER



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SHEET NAME

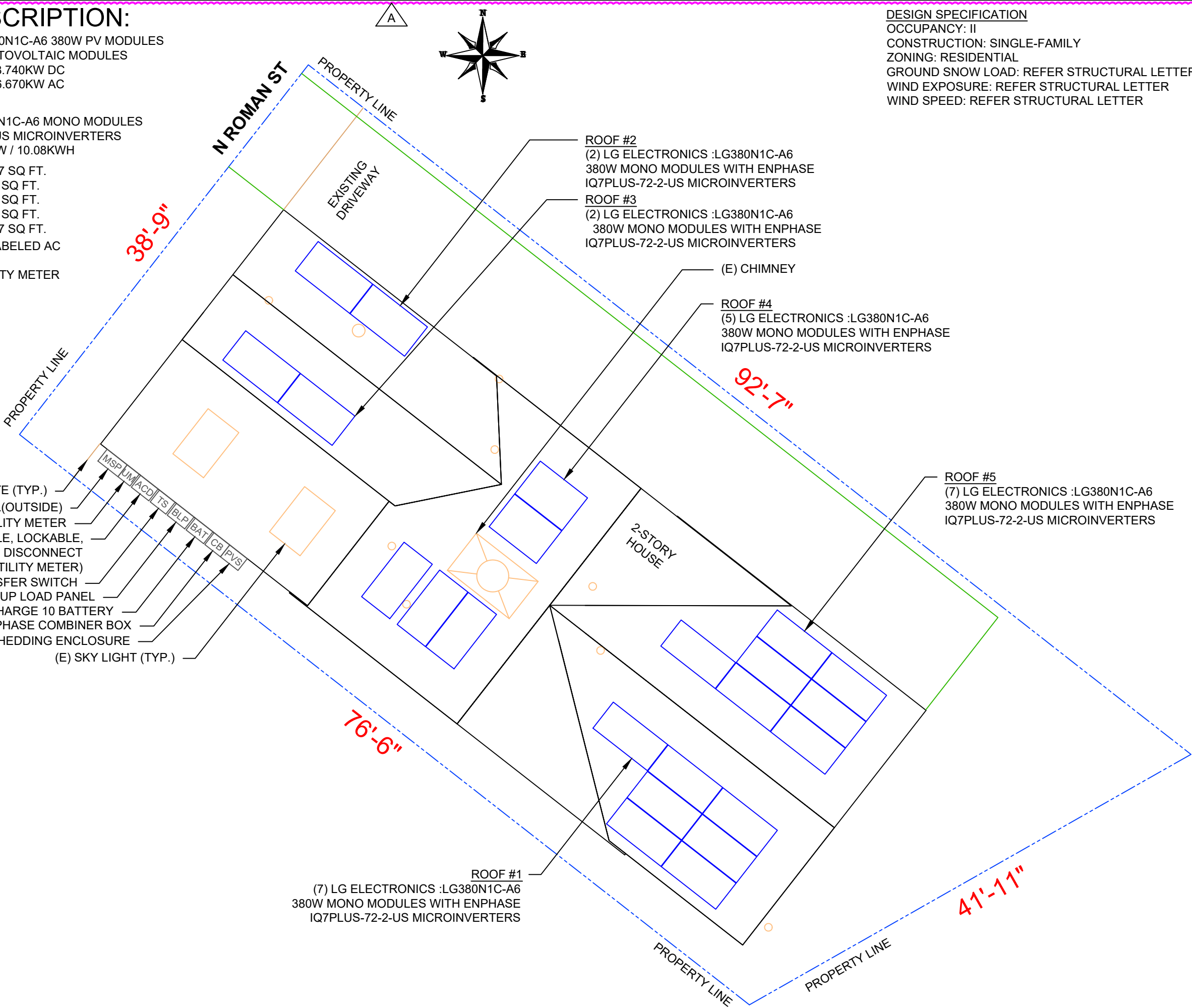
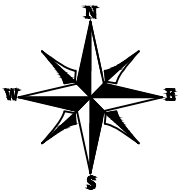
SITE PLAN

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-2



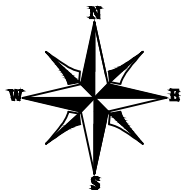
1 | SITE PLAN

PV-2

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

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 23 MODULES
MODULE TYPE = LG ELECTRONICS : LG380N1C-A6 380W MONO MODULES
MODULE WEIGHT = 41 LBS / 18.6KG.
MODULE DIMENSIONS = 68.50" x 41.02" = 19.51 SF



ROOF #3
PITCH - 26°
AZIM. - 218°

ROOF #3
(2) LG ELECTRONICS :LG380N1C-A6
380W MONO MODULES WITH ENPHASE
IQ7PLUS-72-2-US MICROINVERTERS

ROOF #2
(2) LG ELECTRONICS :LG380N1C-A6
380W MONO MODULES WITH ENPHASE
IQ7PLUS-72-2-US MICROINVERTERS

ROOF #4
(5) LG ELECTRONICS :LG380N1C-A6
380W MONO MODULES WITH ENPHASE
IQ7PLUS-72-2-US MICROINVERTERS

ROOF #5
(7) LG ELECTRONICS :LG380N1C-A6
380W MONO MODULES WITH ENPHASE
IQ7PLUS-72-2-US MICROINVERTERS

ROOF #1
(7) LG ELECTRONICS :LG380N1C-A6
380W MONO MODULES WITH ENPHASE
IQ7PLUS-72-2-US MICROINVERTERS

ROOF #5
PITCH - 37°
AZIM. - 38°

ROOF #1
PITCH - 37°
AZIM. - 218°

(E) MAIN SERVICE PANEL
(OUTSIDE)

(E) SKY LIGHT (TYP.)

18" FIRE SETBACK

(87) UNIRAC FLASHLOC
ATTACHMENTS

(E) CHIMNEY

(N) UNIRAC SOLARMOUNT RAIL

LEGEND	
TS	- ENPHASE ENPOWER TRANSFER SWITCH
CB	- COMBINER BOX
ACD	- AC DISCONNECT
LC	- LOAD CENTER
UM	- UTILITY METER
MSP	- MAIN SERVICE PANEL
BAT	- ENPHASE ENCHARGE 10 BATTERY
BLP	- BACKUP LOAD PANEL
INV	- INVERTER
JB	- JUNCTION BOX
SD	- SOLADECK
VENT, ATTIC FAN (ROOF OBSTRUCTION)	
- ROOF ATTACHMENT	
- TRUSS	
- CONDUIT	

ROOF DESCRIPTION

ROOF TYPE			ASPHALT SHINGLE	
ROOF	ROOF PITCH	AZIMUTH	TRUSS SIZE	TRUSS SPACING
#1	37°	218°	2X4	24"
#2	26°	38°	2X4	24"
#3	26°	218°	2X4	24"
#4	30°	308°	2X4	24"
#5	37°	38°	2X4	24"

ARRAY AREA & ROOF AREA CALC'S

TOTAL # OF MODULES	TOTAL ARRAY AREA (Sq. Ft.)	TOTAL ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
23	448.80	2306.25	19

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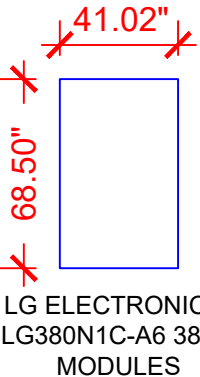
PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
ROOF PLAN &
MODULES

SHEET SIZE
ANSI B
11" X 17"

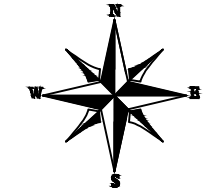
SHEET NUMBER
PV-3



LG ELECTRONICS :
LG380N1C-A6 380W
MODULES

DC SYSTEM SIZE: 23 x 380 = 8.740KW DC
AC SYSTEM SIZE: 23 x 290 = 6.670KW AC
(23) LG ELECTRONICS : LG380N1C-A6 380W MONO MODULES
WITH (23) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
LOCATED UNDER EACH PANEL (240V)

CIRCUIT LEGENDS	
---	CIRCUIT #1
---	CIRCUIT #2
---	CIRCUIT #3



A

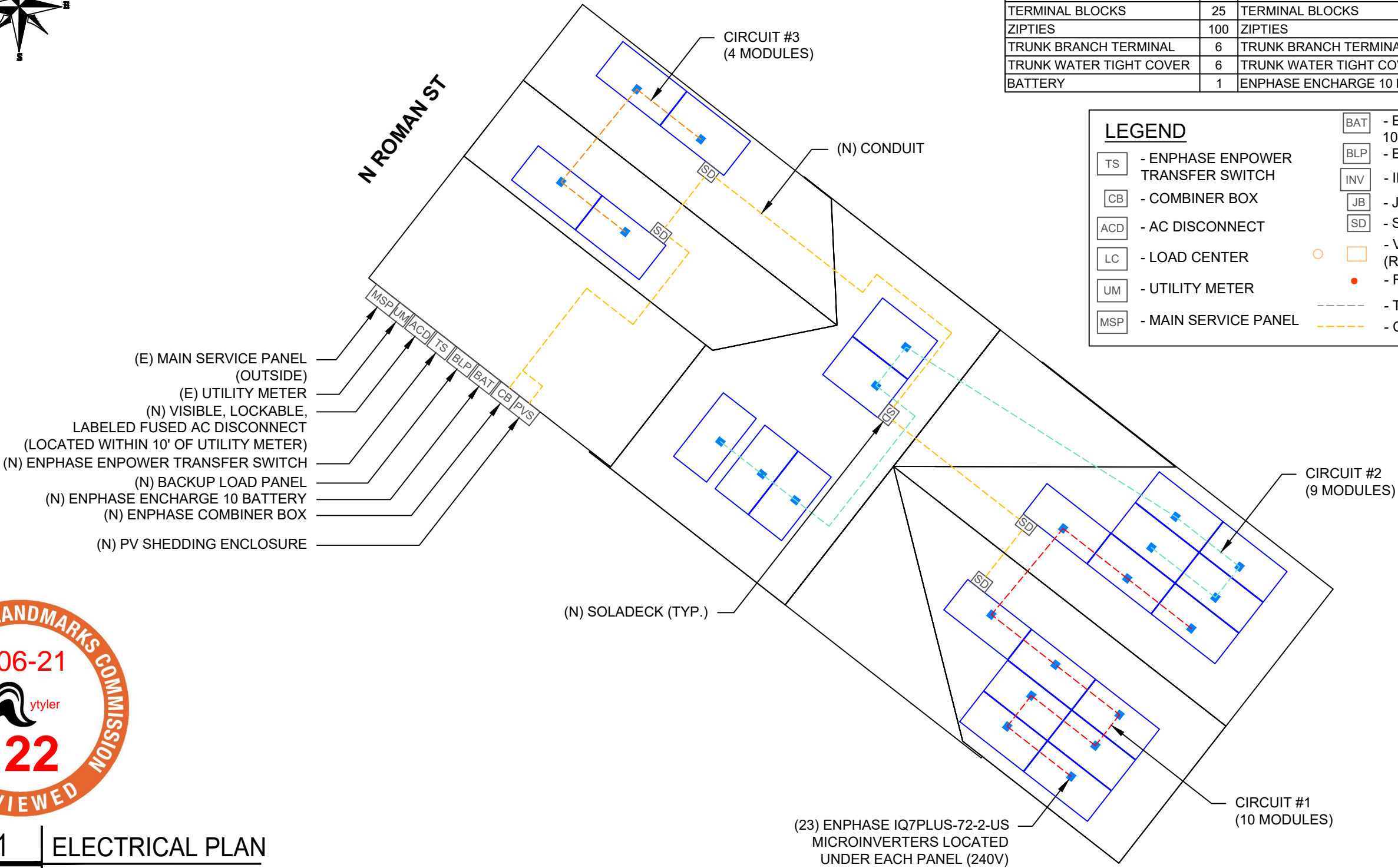
BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULES	23	LG ELECTRONICS : LG380N1C-A6 380W MODULE
MICRO INVERTERS	23	ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
SOLADECKS	5	SOLADECKS
RAIL	19	UNIRAC SM STANDARD RAIL, 168" SILVER
SPLICE	4	SPLICE KIT
MID MODULE CLAMPS	22	MID MODULE CLAMPS
END CLAMPS	48	END CLAMPS / STOPPER SLEEVE
ATTACHMENTS	87	UNIRAC FLASHLOC ATTACHMENT
INVERTER MOUNT CLIP	23	INVERTER MOUNT CLIP
INVERTER T-BOLTS	23	INVERTER T-BOLTS
TRUNK CABLES	28	TRUNK CABLES
GROUND LUGS	3	GROUND LUGS
TP LINKS	1	TP LINKS
TERMINAL BLOCKS	25	TERMINAL BLOCKS
ZIPTIES	100	ZIPTIES
TRUNK BRANCH TERMINAL	6	TRUNK BRANCH TERMINAL
TRUNK WATER TIGHT COVER	6	TRUNK WATER TIGHT COVER
BATTERY	1	ENPHASE ENCHARGE 10 BATTERY

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LEGEND	
<div>TS</div>	- ENPHASE ENPOWER TRANSFER SWITCH
<div>CB</div>	- COMBINER BOX
<div>ACD</div>	- AC DISCONNECT
<div>LC</div>	- LOAD CENTER
<div>UM</div>	- UTILITY METER
<div>MSP</div>	- MAIN SERVICE PANEL
<div>BAT</div>	- ENPHASE ENCHARGE 10 BATTERY
<div>BLP</div>	- BACKUP LOAD PANEL
<div>INV</div>	- INVERTER
<div>JB</div>	- JUNCTION BOX
<div>SD</div>	- SOLADECK
<div>○</div>	- VENT, ATTIC FAN (ROOF OBSTRUCTION)
<div>●</div>	- ROOF ATTACHMENT
<div>---</div>	- TRUSS
<div>---</div>	- CONDUIT



DATE: 03/30/2022

PROJECT NAME & ADDRESS

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SHEET NAME

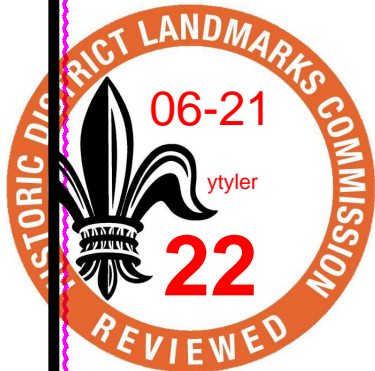
ELECTRICAL PLAN

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

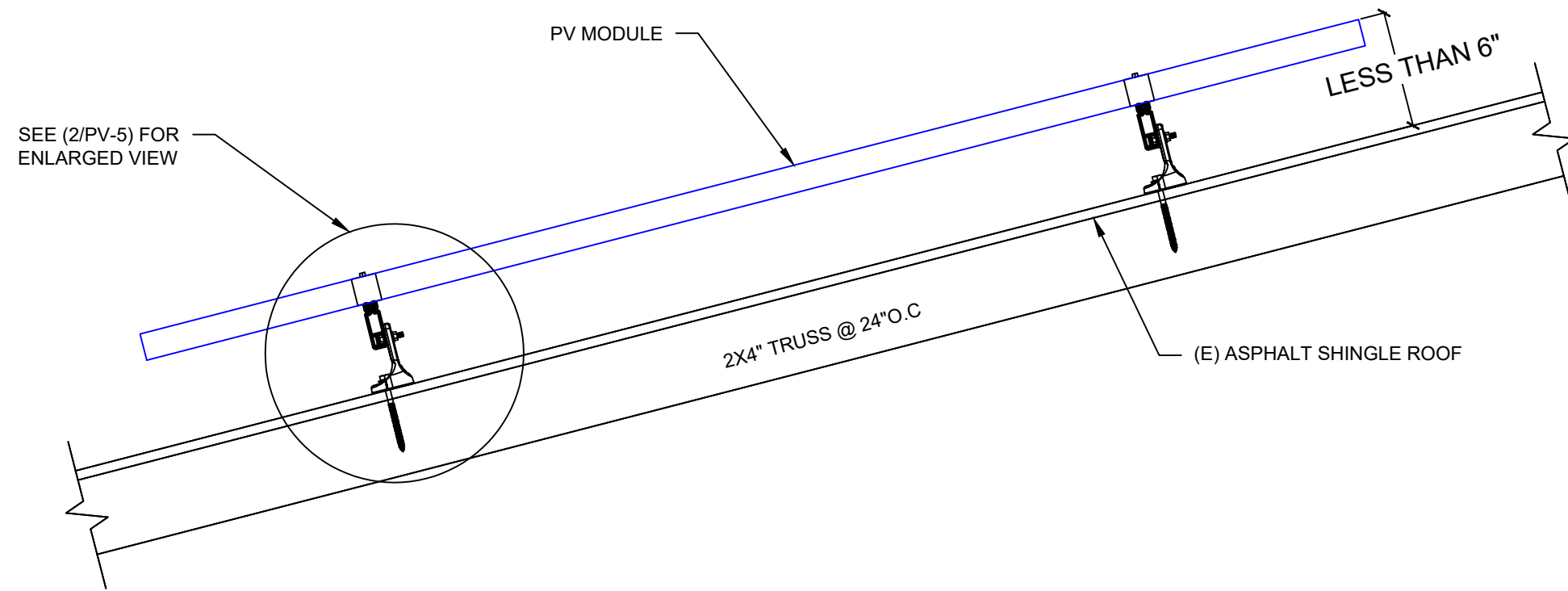
PV-4



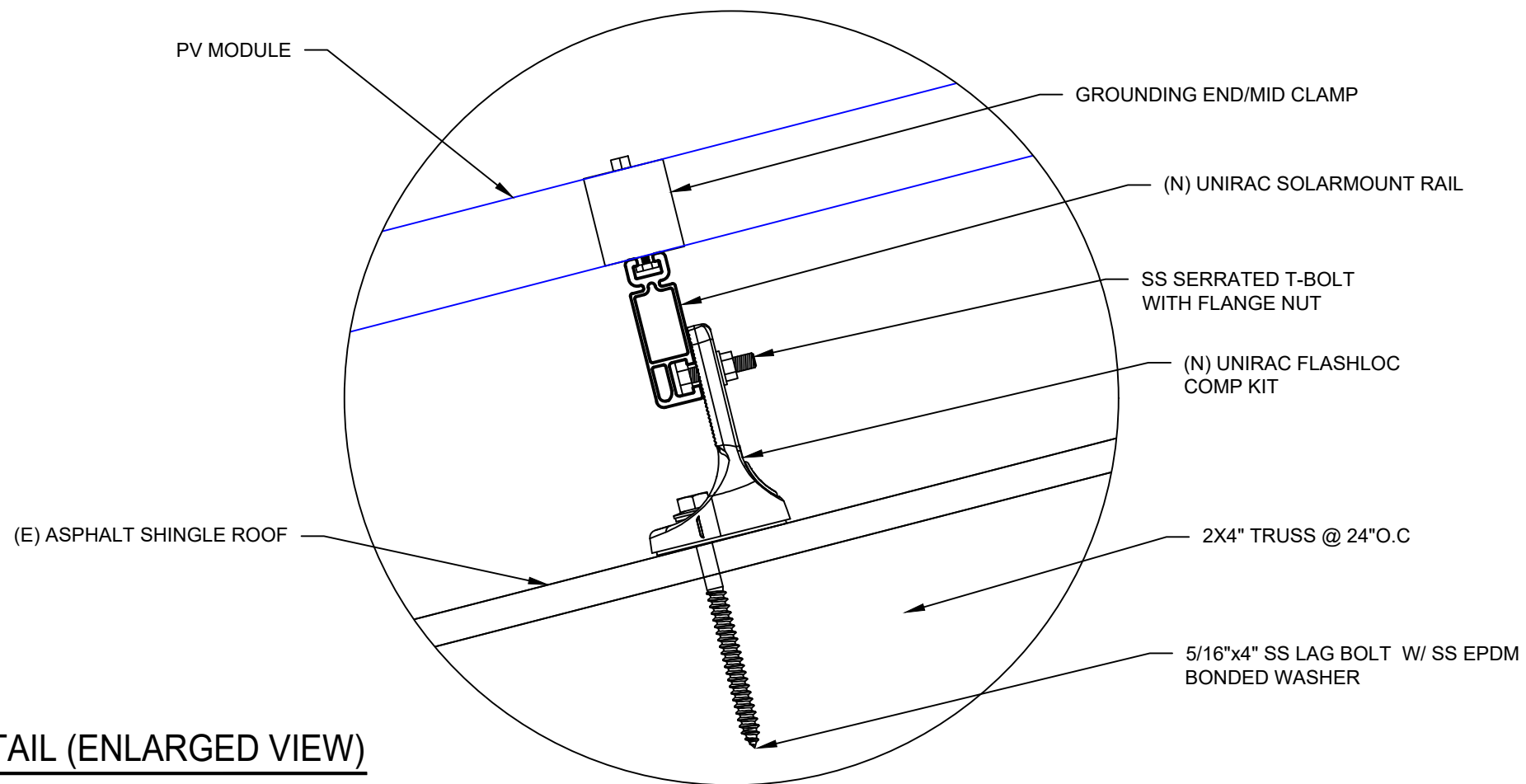
1 ELECTRICAL PLAN

PV-4

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



1 ATTACHMENT DETAIL
PV-5 SCALE: N.T.S.

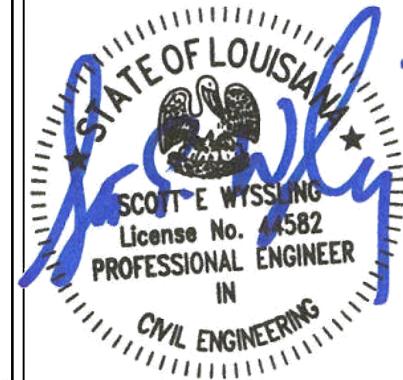


2 ATTACHMENT DETAIL (ENLARGED VIEW)
PV-5 SCALE: N.T.S.

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SHEET NAME
STRUCTURAL DETAIL

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-5



DC SYSTEM SIZE: 23 x 380 = 8.740KW DC
AC SYSTEM SIZE: 23 x 290 = 6.670KW AC

(23) LG ELECTRONICS : LG380N1C-A6 380W MONO MODULES
WITH (23) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
LOCATED UNDER EACH PANEL (240V)
(1) BRANCH CIRCUIT OF 10 MODULES ,
(1) BRANCH CIRCUIT OF 9 MODULES AND
(1) BRANCH CIRCUIT OF 4 MODULES CONNECTED IN PARALLEL
1 ESS: ENCHARGE 10 = 3.84KW / 10.08KWH



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.

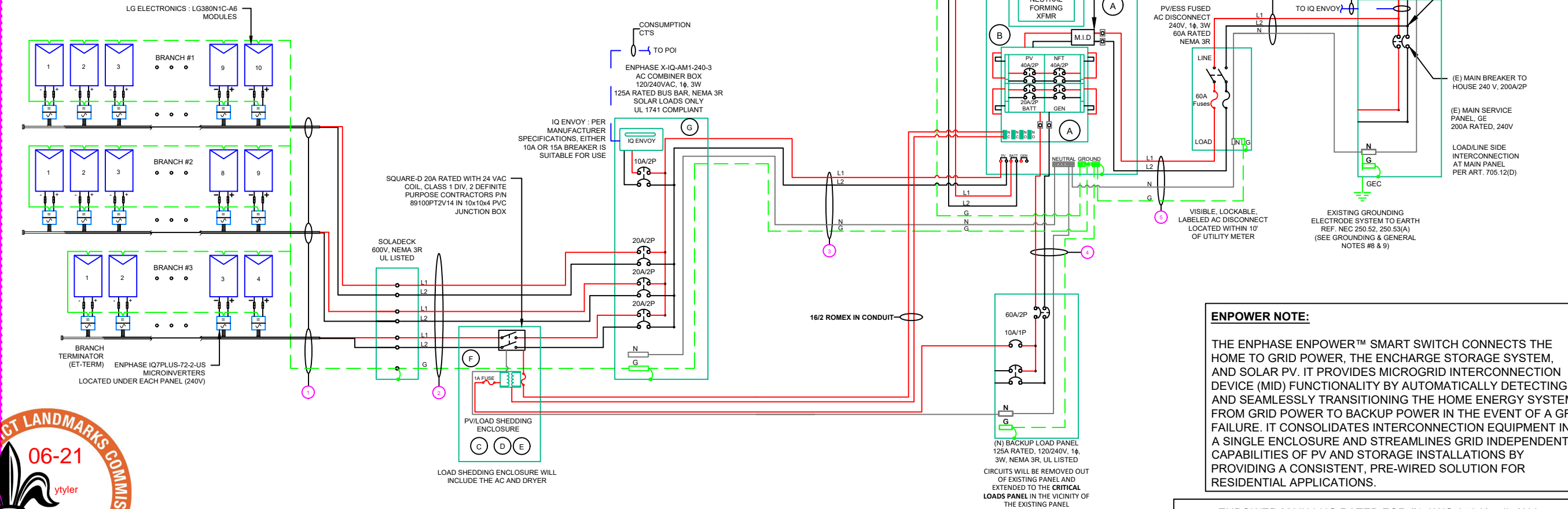
DISCONNECT NOTES:

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].

GROUNDING & GENERAL NOTES:

1. PV GROUNDING ELECTRODE SYSTEM NEEDS TO BE INSTALLED IN ACCORDANCE WITH [NEC 690.43]
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. SOLADECK QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - SOLADECK 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. VERIFY UFER/EXISTING ROD OR ADD TWO GROUNDING RODS(5/8" X 8' EMBEDMENT) SPACED 6 FEET MINIMUM APART.
9. BOND COLD WATER AND GAS LINES(IF PRESENT) TO GROUNDING ELECTRODE CONDUCTOR

QTY	CONDUCTOR INFORMATION	CONDUIT TYPE	CONDUIT SIZE
(6)	#12AWG - Q CABLE (L1 & L2 NO NEUTRAL)	N/A	N/A
(1)	#6AWG - BARE COPPER IN FREE AIR		
(6)	#12AWG - THWN-2 (L1,L2) / #12/2 ROMEX IN ATTIC	EMT, LFNC OR PVC	1"
(1)	#6AWG - THWN-2 GND		
(3)	#6AWG - THWN-2 (L1,L2,N)	EMT, LFNC OR PVC	1"
(1)	#6AWG - THWN-2 GND		
(2)	#12AWG - THWN-2 (L1,L2)	EMT, LFNC OR PVC	1"
(1)	#12AWG - THWN-2 GND		
(3)	#6AWG - THWN-2 (L1,L2,N)	EMT, LFNC OR PVC	1"
(1)	#6AWG - THWN-2 GND		
(3)	#6AWG - THWN-2 (L1,L2,N)	EMT, LFNC OR PVC	1"
(1)	#6AWG - THWN-2 GND		
(2)	#12AWG - THWN-2 (L1,L2)	EMT, LFNC OR PVC	1"
(1)	#6AWG - THWN-2 N		



(GN) GENERAL NOTES :

1. CONDUIT TO BE UL LISTED FOR WET LOCATION AND UV PROTECTED (EX. -EMT, SCH 80 PVC OR RMC).
2. FMC MAYBE USED IN INDOOR APPLICATIONS WHERE PERMITTED BY NEC ART. 348
3. THE ENCHARGE BATTERY AS PART OF THE ENSEMBLE SYSTEM DOES NOT EXPORT POWER TO THE GRID IN ANY STORAGE MODE.

ENPOWER NOTE:

THE ENPHASE ENPOWER™ SMART SWITCH CONNECTS THE HOME TO GRID POWER, THE ENCHARGE STORAGE SYSTEM, AND SOLAR PV. IT PROVIDES MICROGRID INTERCONNECTION DEVICE (MID) FUNCTIONALITY BY AUTOMATICALLY DETECTING AND SEAMLESSLY TRANSITIONING THE HOME ENERGY SYSTEM FROM GRID POWER TO BACKUP POWER IN THE EVENT OF A GRID FAILURE. IT CONSOLIDATES INTERCONNECTION EQUIPMENT INTO A SINGLE ENCLOSURE AND STREAMLINES GRID INDEPENDENT CAPABILITIES OF PV AND STORAGE INSTALLATIONS BY PROVIDING A CONSISTENT, PRE-WIRED SOLUTION FOR RESIDENTIAL APPLICATIONS.

- (A) ENPOWER MAIN LUG RATED FOR #1 AWG-350 KcmIL-(ALL SMALLER WIRE TERMINATIONS REQUIRED U L RING TERMINAL.)
- (B) ENPOWER DRY CONTACTOR RATINGS - 12V - 24V MAX. (1A)
- (C) CONTROL TRANSFORMER - (FIADA - B07RDBS6NK)
- (D) FUSE RETAINER - (EATON - BR/HMK-RP)
- (E) FUSES - (EATON - BP-AGC-1-RP 250V GLASS FUSE)
- (F) CONTRACTOR - (SQUARE D - 8910DP32V1430A)
- (G) COMMUNICATION KIT

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

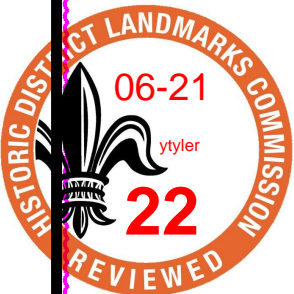
ELECTRICAL LINE DIAGRAM

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-6



1

ELECTRICAL LINE DIAGRAM

PV-6

SCALE: NTS

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
MIN/MAX DC VOLT RATING	22V MIN/ 60V MAX
MAX INPUT POWER	235W-440W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.21A
MAX MODULES PER CIRCUIT	13 (SINGLE PHASE)
MAX OUTPUT POWER	290 VA

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	LG ELECTRONICS : LG380N1C-A6 380W MODULE
VMP	35.7V
IMP	10.65A
VOC	41.9V
ISC	11.39A
TEMP. COEFF. VOC	-0.26%/°C
MODULE DIMENSION	68.50"L x 41.02"W x 1.57"D (In Inch)

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-5°
AMBIENT TEMP (HIGH TEMP 2%)	33°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.26%/°C

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

AC CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OC PD 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)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
CIRCUIT 1	SOLADECK	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	33	2	30	0.96	1	28.8	PASS			0.72	N/A	#N/A
CIRCUIT 2	SOLADECK	240	10.89	13.6125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	33	2	30	0.96	1	28.8	PASS			0.40	N/A	#N/A
CIRCUIT 3	SOLADECK	240	4.84	6.05	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	33	2	30	0.96	1	28.8	PASS			0.13	N/A	#N/A
SOLADECK	COMBINER PANEL	240	12.1	15.125	20	N/A	CU #6 AWG	CU #12 AWG	25	PASS	33	6	30	0.96	0.8	23.04	PASS	30	1.98	0.599	1" PVC	15.6851
COMBINER PANEL	ENPOWER	240	27.83	34.7875	40	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	33	2	75	0.96	1	72	PASS	5	0.491	0.057	1" PVC	24.375
ENPOWER	ENCHARGE	240	16	20	20	N/A	CU #12 AWG	CU #12 AWG	25	PASS	33	2	30	0.96	1	28.8	PASS	5	1.98	0.132	1" PVC	4.795673
ENPOWER	BACKUP LOAD PANEL	240	48	60	60	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	33	2	75	0.96	1	72	PASS	5	0.491	0.098	1" PVC	24.375
ENPOWER	PV/ESS AC DISCONNECT	240	43.83	54.7875	60	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	33	2	75	0.96	1	72	PASS	5	0.491	0.090	1" PVC	24.375
PV/ESS AC DISCONNECT	POI	240	43.83	54.7875	60	CU #6 AWG	N/A	CU #6 AWG	65	PASS	33	2	75	0.96	1	72	PASS	5	0.491	0.090	1" PVC	18.28125

Circuit 1 Voltage Drop	1.376
Circuit 2 Voltage Drop	1.056
Circuit 3 Voltage Drop	0.786



INSTALLATION NOTES:

ENCHARGE BATTERY/ENPOWER MOUNTING NOTES:

1. THERE MUST BE NO HIGHLY FLAMMABLE OR EXPLOSIVE MATERIALS NEARBY.
2. THE AMBIENT TEMPERATURE SHOULD BE WITHIN THE RANGE OF 5 ~ 131°F (-15 ~ 55°C)
3. THE ENCHARGE/ENPOWER HOUSING IS NEMA TYPE 3R AND CAN BE INSTALLED INDOORS OR OUTDOORS. THE TERMINAL BLOCKS ACCEPTS COPPER CONDUCTORS OF NO. 12 - 8 AWG.
4. MAINTAIN AT LEAST THREE FEET OF CLEARANCE IN FRONT OF EACH PRODUCT. ALLOW AT LEAST 15CM (SIX INCHES) CLEARANCE ON TOP AND BOTTOM OF THE PRODUCT SO THAT THE VENTS ON THE TOP AND BOTTOM OF THE UNITS ARE NOT BLOCKED FOR AIR CIRCULATION.
5. UP TO TWO ENCHARGE 10 (OR SIX ENCHARGE 3) UNITS CAN BE DAISY CHAINED ON ONE CIRCUIT. FOR INSTALLATIONS WITH MORE THAN THIS NUMBER OF UNITS, THERE MUST BE A SEPARATE LOAD CENTER, SUBPANEL, OR CIRCUIT COMBINER WITH OVER CURRENT PROTECTION TO COMBINE THE DAISY CHAINED CIRCUITS, AND YOU MUST RUN ONLY ONE CIRCUIT FOR ALL THE ENCHARGE UNITS TO THE ENPOWER (OR TO ENPHASE IQ COMBINER FOR GRID-TIED-ONLY INSTALLATIONS).

AC DISCONNECT INSTALL NOTES:

1. INSTALL AN AC DISCONNECT THAT CAN BREAK THE MAXIMUM RATED CURRENT OF THE BRANCH CIRCUIT UNDER LOAD. THE AC DISCONNECT MUST BE INSTALLED IN LINE-OF-SIGHT OF ENCHARGE, PER NEC 2017 706.7(A).
2. EACH ENCHARGE UNIT IS SUITABLE FOR USE WITH UP TO NO. 8 AWG WIRES ON A MAXIMUM 40 A BRANCH CIRCUIT. IF MORE THAN 32 A OF ENCHARGE BATTERIES (CORRESPONDING TO A 40 A BRANCH CIRCUIT) ARE INSTALLED, A SEPARATE SUBPANEL MUST BE INSTALLED BETWEEN THE ENCHARGE UNITS AND ENPOWER TO COMBINE THE ENPOWER CIRCUITS TOGETHER. ALL CIRCUIT BREAKERS IN THE SUBPANEL MUST BE SUITABLE FOR BACK-FEEDING, PER NEC 408.36(D).
3. VERIFY THAT AC VOLTAGE AT THE SITE IS WITHIN RANGE: SINGLE-PHASE L1 TO L2 VOLTAGE MUST MEASURE BETWEEN 211 AND 264 VAC, WHILE L-N SHOULD MEASURE BETWEEN 106 AND 132 VAC.

RECOMMENDED:

1. THE BUILDING SHOULD BE DESIGNED TO WITHSTAND EARTHQUAKES.
2. THE WATERPROOF AND PROPERLY VENTILATED AREA IS RECOMMENDED. (IP55)
3. INSTALL THE PRODUCT OUT OF REACH OF CHILDREN AND ANIMALS.

ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V 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 SOLADECK, 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. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE.
11. 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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MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

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)

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS
BACKFEED

LABEL- 5:
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

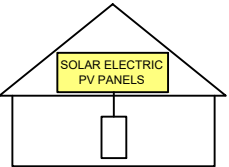
⚠ WARNING

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 / ESS
AC DISCONNECT

NOMINAL OPERATING AC VOLATGE 240 V
RATED AC OUTPUT CURRENT 43.83 A

LABEL- 9:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
AC DISCONNECT
CODE REF: NEC 690.54



MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

LABEL- 11:
LABEL LOCATION:
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)
CODE REF: NEC 690.13(B)

NOMINAL ESS AC VOLTAGE: 240 VAC
MAXIMUM ESS DC VOLTAGE: 73.5 VDC
AVAILABLE FAULT CURRENT
DERIVED FROM THE ESS: 69.6 Arms
DATE CALCULATION PERFORMED: 03/30/2022

LABEL- 11:
LABEL LOCATION:
BATTERY
CODE REF: NEC 706.15(C)

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RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

LABELS

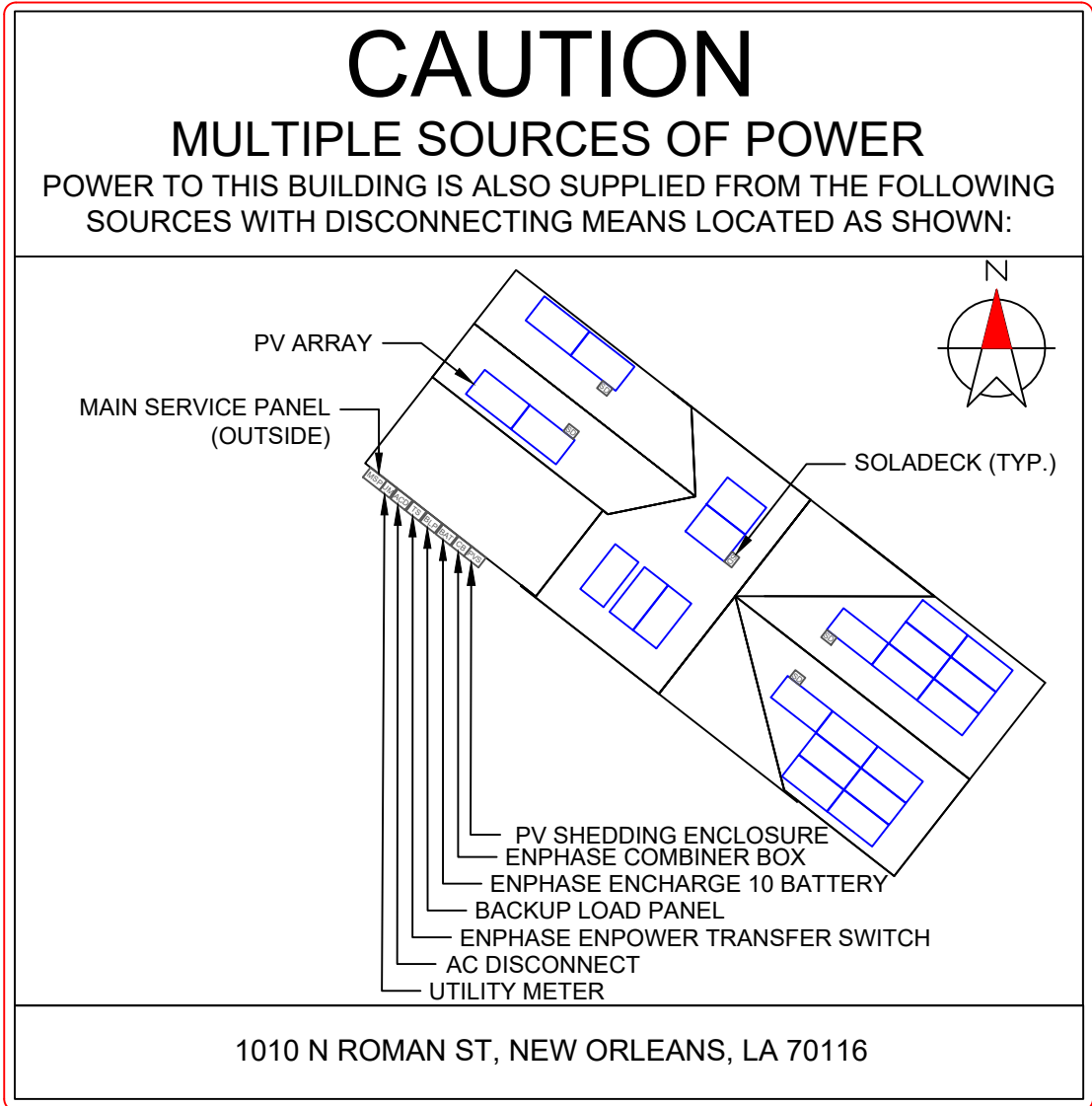
SHEET SIZE

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])

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 2014 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]



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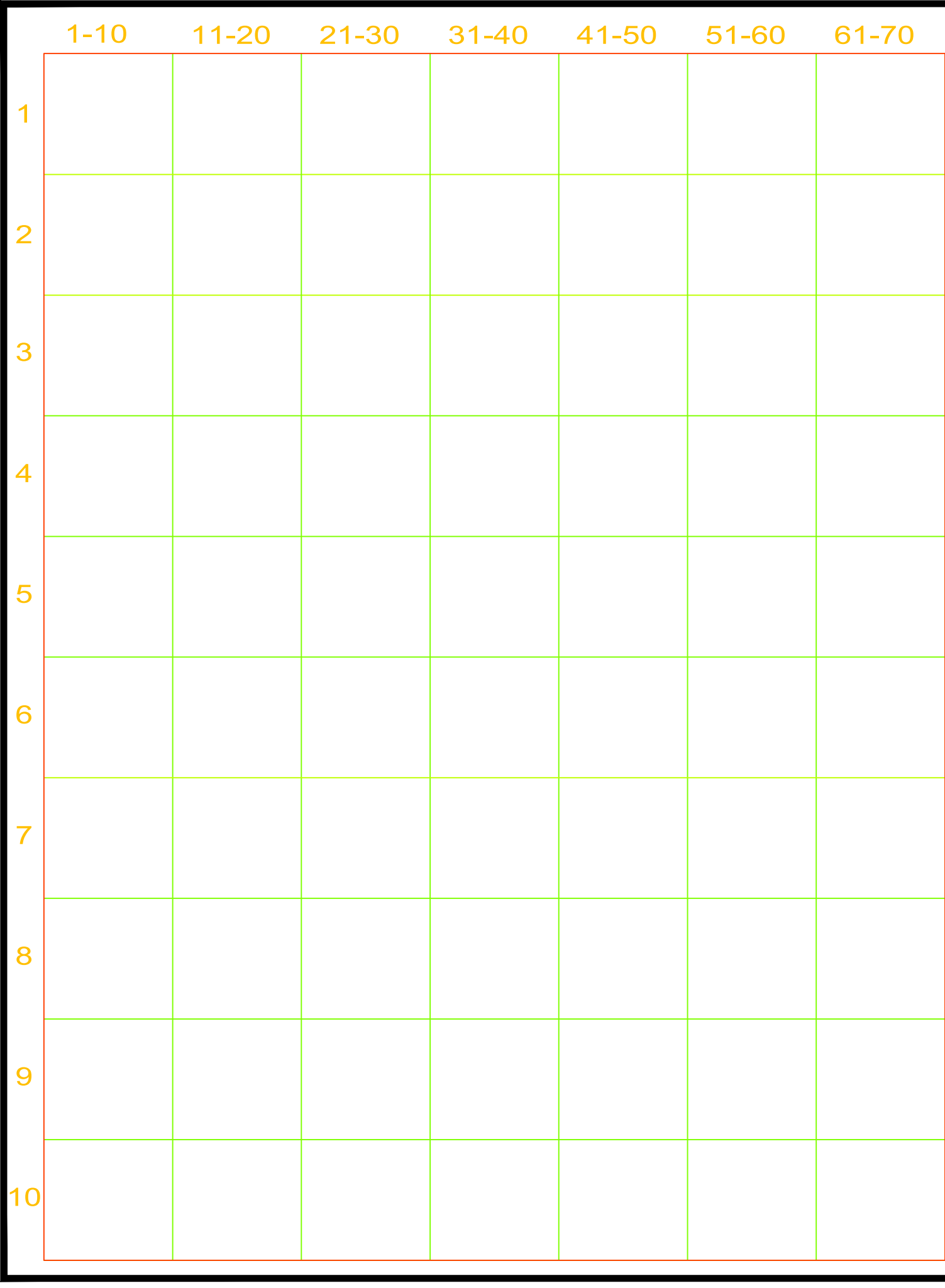
DATE: 03/30/2022		

PROJECT NAME & ADDRESS	
MANUEL COUSIN III RESIDENCE	1010 N ROMAN ST, NEW ORLEANS, LA 70116

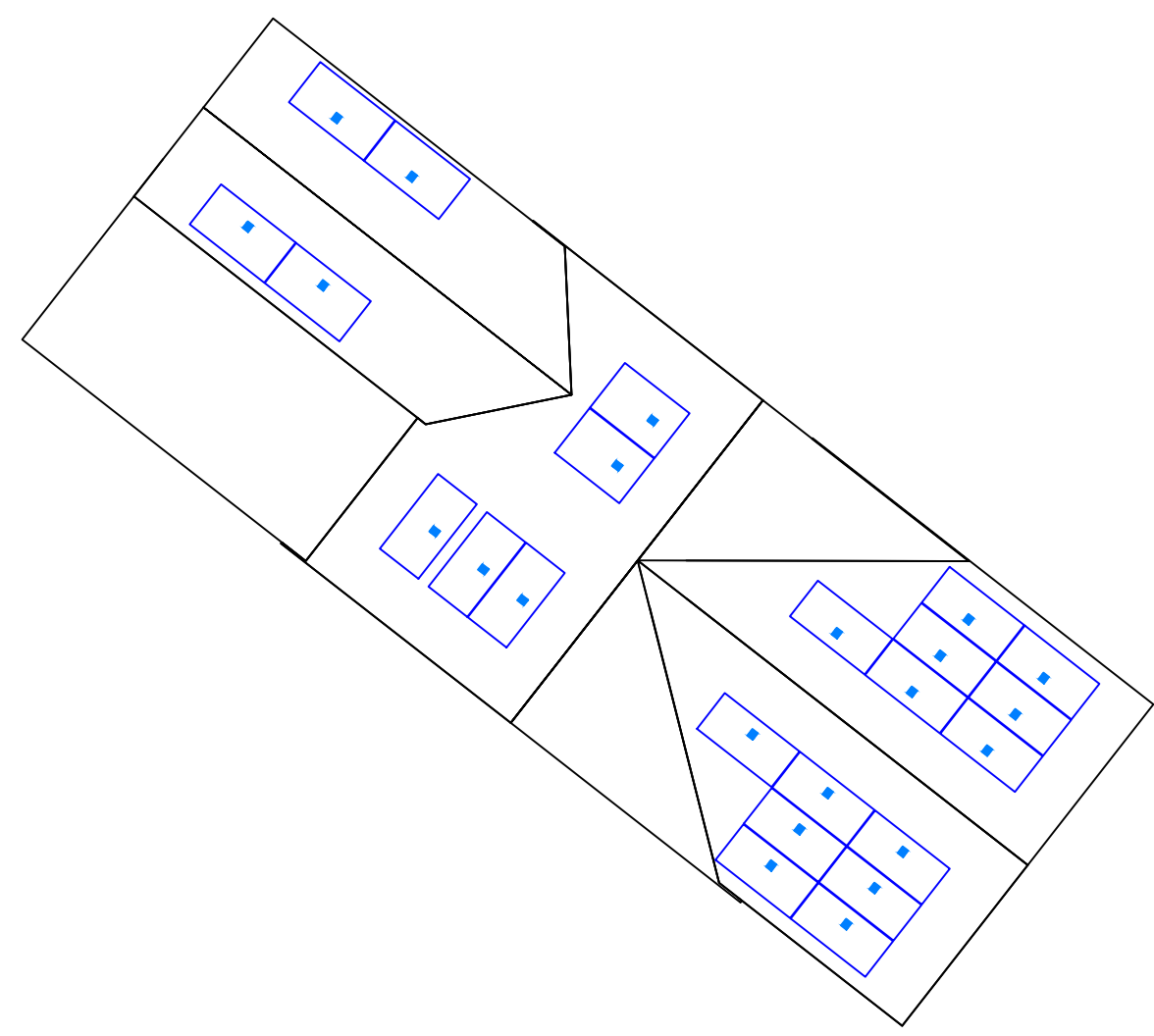
SHEET NAME PLACARD

SHEET SIZE ANSI B 11" X 17"

SHEET NUMBER PV-9



MICRO INVERTER CHART





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DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

MICRO INVERTER CHART

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-10

LG NeON[®]2

LG370N1C-A6 | LG375N1C-A6 | LG380N1C-A6 Preliminary

370W | 375W | 380W

The LG NeON[®] 2 is LG's best selling solar module and one of the most powerful and versatile modules on the market today. The cells are designed to appear all-black at a distance, and the performance warranty guarantees 90.6% of labeled power output at 25 years.



Features



Enhanced Performance Warranty

LG NeON[®] 2 has an enhanced performance warranty. After 25 years, LG NeON[®] 2 is guaranteed at least 90.6% of initial performance.



25-Year Limited Product Warranty

The NeON[®] 2 is covered by a 25-year limited product warranty. In addition, up to \$450 of labor costs will be covered in the rare case that a module needs to be repaired or replaced.



Solid Performance on Hot Days

LG NeON[®] 2 performs well on hot days due to its low temperature coefficient.



Roof Aesthetics

LG NeON[®] 2 has been designed with aesthetics in mind using thinner wires that appear all black at a distance.

When you go solar, ask for the brand you can trust: LG Solar

About LG Electronics USA, Inc.

LG Electronics is a global leader in electronic products in the clean energy markets by offering solar PV panels and energy storage systems. The company first embarked on a solar energy source research program in 1985, supported by LG Group's vast experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first MonoX[®] series to the market, which is now available in 32 countries. The NeON[®] (previous MonoX[®] NeON), NeON[®]2, NeON[®]2 BiFacial won the "Intersolar AWARD" in 2013, 2015 and 2016, which demonstrates LG's leadership and innovation in the solar industry.



LG NeON[®]2

LG370N1C-A6 | LG375N1C-A6 | LG380N1C-A6



Preliminary

General Data

Cell Properties (Material/Type)	Monocrystalline/N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Module Dimensions (L x W x H)	1,740mm x 1,042mm x 40mm
Weight	18.6 kg
Glass (Material)	Tempered Glass with AR Coating
Backsheet (Color)	White
Frame (Material)	Anodized Aluminium
Junction Box (Protection Degree)	IP 68 with 3 Bypass Diodes
Cables (Length)	1,100mm x 2EA
Connector (Type/Maker)	MC 4/MC

Certifications and Warranty

Certifications**	IEC 61215-1/-1-1/2: 2016, IEC 61730-1/2: 2016, UL 61730-1: 2017, UL 61730-2: 2017, ISO 9001, ISO 14001, ISO 50001, OHSAS 18001
Salt Mist Corrosion Test	IEC 61701: 2012 Severity 6
Ammonia Corrosion Test	IEC 62716: 2013
Module Fire Performance	Type 1 (UL 61730)
Fire Rating	Class C (UL 790, UL/ORD C: 1703)
Solar Module Product Warranty	25 Year Limited
Solar Module Output Warranty	Linear Warranty*

*Improved: 1st year 98.5%, from 2-24th year: 0.33%/year down to 90.6% at year 25
**In Progress

Temperature Characteristics

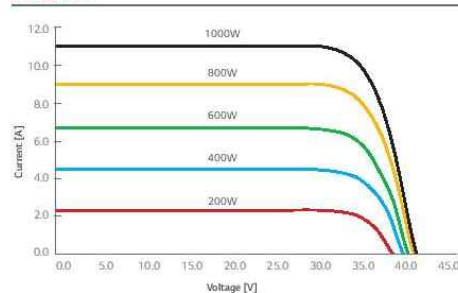
NMOT*	[°C]	42 ± 3
P _{max}	[%/°C]	-0.34
V _{oc}	[%/°C]	-0.26
I _{sc}	[%/°C]	0.03

*NMOT (Nominal Module Operating Temperature) Irradiance 800 W/m², Ambient temperature 20°C, Wind speed: 1 m/s, Spectrum AM 1.5

Electrical Properties (NMOT)

Model		LG370N1C-A6	LG375N1C-A6	LG380N1C-A6
Maximum Power (Pmax)	[W]	277	281	285
MPP Voltage (Vmpp)	[V]	32.8	33.2	33.5
MPP Current (Impp)	[A]	8.46	8.48	8.49
Open Circuit Voltage (Voc)	[V]	39.3	39.4	39.4
Short Circuit Current (Isc)	[A]	9.09	9.13	9.16

I-V Curves



Electrical Properties (STC*)

Model		LG370N1C-A6	LG375N1C-A6	LG380N1C-A6
Maximum Power (Pmax)	[W]	370	375	380
MPP Voltage (Vmpp)	[V]	34.9	35.3	35.7
MPP Current (Impp)	[A]	10.61	10.63	10.65
Open Circuit Voltage (Voc, ± 5%)	[V]	41.7	41.8	41.9
Short Circuit Current (Isc, ± 5%)	[A]	11.31	11.35	11.39
Module Efficiency	[%]	20.4	20.7	21.0
Bifaciality Coefficient of Power	[%]		10	
Power Tolerance	[%]		0 ~ +3	

*STC (Standard Test Condition): Irradiance 1000 W/m², cell temperature: 25°C, AM 1.5

Operating Conditions

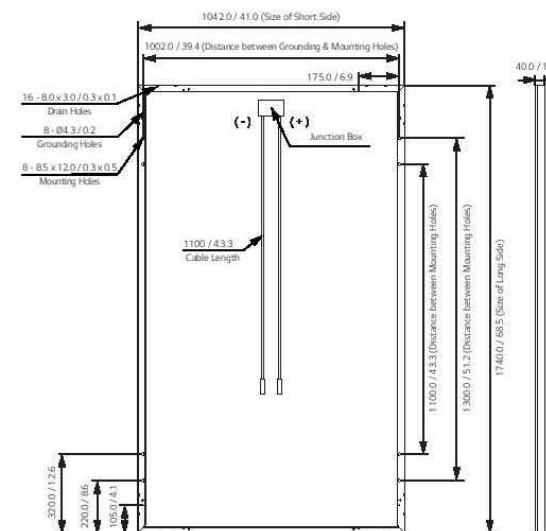
Operating Temperature	[°C]	-40 ~ +95
Maximum System Voltage	[V]	1,000
Maximum Series Fuse Rating	[A]	20
Mechanical Test Load* (Front)	[Pa/psf]	5,400
Mechanical Test Load* (Rear)	[Pa/psf]	4,000

*Based on IEC 61215-2: 2016 (Test Load = Design Load x Safety Factor (1.5))
Mechanical Test Loads 6,000Pa / 5,400Pa based on IEC 61215: 2005

Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40' Container	[EA]	650
Number of Modules per 53' Container	[EA]	850
Packaging Box Dimensions (L x W x H)	[mm]	1,790 x 1,120 x 1,213
Packaging Box Dimensions (L x W x H)	[in]	70.5 x 44.1 x 47.8
Packaging Box Gross Weight	[kg]	500
Packaging Box Gross Weight	[lb]	1,102

Dimensions (mm/inch)



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RESIDENCE
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NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-11



Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.



Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell/120 half-cell and 72-cell/144 half-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell/144 half-cell modules.



To learn more about Enphase offerings, visit enphase.com



Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US		IQ7PLUS-72-2-US	
Commonly used module pairings¹	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell/120 half-cell PV modules only		60-cell/120 half-cell and 72-cell/144 half-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range²	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit³	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit enphase.com



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22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

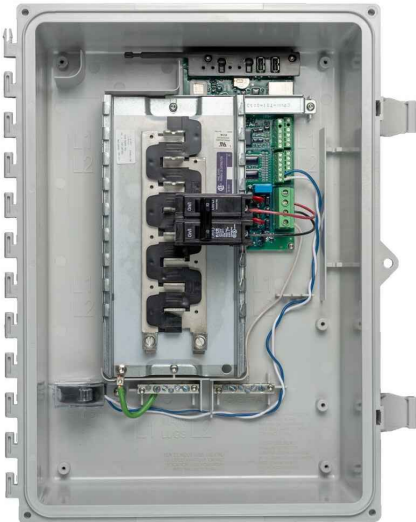
SHEET NUMBER

PV-12



Enphase IQ Combiner 3 (X-IQ-AM1-240-3)

The **Enphase IQ Combiner 3™** with Enphase IQ Envoy™ consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.



Smart

- Includes IQ Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring

Simple

- Reduced size from previous combiner
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- UL listed

Enphase IQ Combiner 3

MODEL NUMBER	
IQ Combiner 3 X-IQ-AM1-240-3	IQ Combiner 3 with Enphase IQ Envoy™ printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional* consumption monitoring (+/- 2.5%).
ACCESSORIES and REPLACEMENT PARTS (not included, order separately)	
Enphase Mobile Connect™ CELLMODEM-03 (4G/12-year data plan) CELLMODEM-01 (3G/5-year data plan) CELLMODEM-M1 (4G based LTE-M/5-year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.)
Consumption Monitoring* CT CT-200-SPLIT	Split core current transformers enable whole home consumption metering (+/- 2.5%).
* Consumption monitoring is required for Enphase Storage Systems	
Wireless USB adapter COMMS-KIT-01	Installed at the IQ Envoy. For communications with Enphase Encharge™ storage and Enphase Enpower™ smart switch. Includes USB cable for connection to IQ Envoy or Enphase IQ Combiner™ and allows redundant wireless communication with Encharge and Enpower.
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production Metering CT	200 A solid core pre-installed and wired to IQ Envoy
MECHANICAL DATA	
Dimensions (WxHxD)	49.5 x 37.5 x 16.8 cm (19.5" x 14.75" x 6.63"). Height is 21.06" (53.5 cm with mounting brackets).
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) or CELLMODEM-M1 (4G based LTE-M) (not included)
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

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2019-11-04



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REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-13



To learn more about Enphase offerings, visit enphase.com



Enphase Encharge 10

The **Enphase Encharge 10™** all-in-one AC-coupled storage system is **reliable, smart, simple, and safe**. It is comprised of three base Encharge 3™ storage units, has a total usable energy capacity of 10.08 kWh and twelve embedded grid-forming microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.



Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent Encharge storage base units
- Twelve embedded IQ 8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

To learn more about Enphase offerings, visit enphase.com



Enphase Encharge 10

MODEL NUMBER	
ENCHARGE-10-1P-NA	Encharge 10 battery storage system with integrated Enphase Microinverters and battery management unit (BMU). Includes: - Three Encharge 3.36 kWh base units (B03-A01-US00-1-3) - One Encharge 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-1050-0)
ACCESSORIES	
ENCHARGE-HNDL-R1	One set of Encharge base unit installation handles
OUTPUT (AC)	
Rated (continuous) output power	@ 240 VAC ¹ 3.84 kVA
Peak output power	5.7 kVA (10 seconds)
Nominal voltage / range	240 / 211 – 264 VAC
Nominal frequency / range	60 / 57 – 61 Hz
Rated output current	16 A
Peak output current	24.6A (10 seconds)
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	1 unit (single phase)
Interconnection	Single-phase
Maximum AC short circuit fault current over 3 cycles	69.6 Arms
Round trip efficiency ²	89%
BATTERY	
Total capacity	10.5 kWh
Usable capacity	10.08 kWh
Round trip efficiency	96%
Nominal DC voltage	67.2 V
Maximum DC voltage	73.5 V
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket; total 154.7 kg (341 lbs)
Enclosure	Outdoor – NEMA type 3R
IQ 8X-BAT microinverter enclosure	NEMA type 6
Cooling	Natural convection – No fans
Altitude	Up to 2500 meters (8200 feet)
Mounting	Wall mount
FEATURES AND COMPLIANCE	
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase M215/M250 and IQ Series Micros, Enphase Enpower, and Enphase IQ Envoy for backup operation.
Communication	Wireless 2.4 GHz
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity
Monitoring	Enlighten Manager and MyEnlighten monitoring options; API integration
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 107.1-16, and IEEE 1547
LIMITED WARRANTY	
Limited Warranty ³	>70% capacity, up to 10 years or 4000 cycles

1. Supported in backup/off grid operations
2. AC to Battery to AC at 50% power rating.
3. Whichever occurs first. Restrictions apply.

To learn more about Enphase offerings, visit enphase.com

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REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022		
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PROJECT NAME & ADDRESS		
MANUEL COUSIN III RESIDENCE	1010 N ROMAN ST., NEW ORLEANS, LA 70116	

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B 11" X 17"

SHEET NUMBER
PV-14



Enphase Enpower



The **Enphase Enpower™** smart switch connects the home to grid power, the Encharge storage system, and solar PV. It provides microgrid interconnection device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

Reliable

- Durable NEMA type 3R enclosure
- Ten-year limited warranty

Smart

- Controls safe connectivity to the grid
- Automatically detects grid outages
- Provides seamless transition to backup

Simple

- Connects to the load or service equipment¹ side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation

Enphase Enpower

MODEL NUMBER		
EP200G101-M240US00	Enphase Enpower smart switch with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and storage installations.	
ACCESSORIES and REPLACEMENT PARTS		
EP200G-LITKIT	Literature Kit for Enpower, including labels, feed-through headers, screws and filler plates	
EP200G-NA-HD-200A	Eaton type BR circuit breaker hold-down screw kit, BRHDK125	
EP200G-HNDL-R1	Enpower installation handle kit (order separately)	
Circuit breakers (as needed) ^{1, 2}	Not included, must order separately:	
BRK-100A-2P-240V	• Main breaker, 2 pole, 100A, 25kAIC, CSR2100	
BRK-125A-2P-240V	• Main breaker, 2 pole, 125A, 25kAIC, CSR2125N	
BRK-150A-2P-240V	• Main breaker, 2 pole, 150A, 25kAIC, CSR2150N	
BRK-175A-2P-240V	• Main breaker, 2 pole, 175A, 25kAIC, CSR2175N	
BRK-200A-2P-240V	• Main breaker, 2 pole, 200A, 25kAIC, CSR2200N	
BRK-20A-2P-240V-B	• Circuit breaker, 2 pole, 20A, 10kAIC, BR220B	
BRK-30A-2P-240V	• Circuit breaker, 2 pole, 30A, 10kAIC, BR230B	
BRK-40A-2P-240V	• Circuit breaker, 2 pole, 40A, 10kAIC, BR240B	
BRK-60A-2P-240V	• Circuit breaker, 2 pole, 60A, 10kAIC, BR260	
BRK-80A-2P-240V	• Circuit breaker, 2 pole, 80A, 10kAIC, BR280	
ELECTRICAL SPECIFICATIONS		
Assembly rating	Continuous operation at 100% of its rating	
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC	
Voltage measurement accuracy	±1% V nominal (±1.2V L-N and ±2.4V L-L)	
Auxiliary contact for load control and excess PV control	24V, 1A	
Nominal frequency / range	60 Hz / 56 - 63 Hz	
Frequency measurement accuracy	±0.1 Hz	
Maximum continuous current rating	160A	
Maximum input overcurrent protection device	200A	
Maximum output overcurrent protection device	200A	
Maximum overcurrent protection device rating for storage branch circuit ³	80A	
Maximum overcurrent protection device rating for PV combiner branch circuit ³	80A	
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral; 40A between L2 and Neutral • Continuous rated power: 3600VA • Maximum continuous unbalance current: 30A @ 120V • Peak rated power: 8800VA for 30 seconds • Peak unbalanced current: 80A @ 120V for 30 seconds	
MECHANICAL DATA		
Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)	
Weight	38.5 kg (85 lbs)	
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)	
Cooling	Natural convection, plus heat shield	
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction	
Altitude	To 2500 meters (8200 feet)	
WIRE SIZES		
Connections (All lugs are rated to 90C)	• Main lugs and backup load lugs • CSR breakers • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator lugs • Neutral (large lugs)	Cu/Al: 1 AWG – 300 KCMIL Cu/Al: 2 AWG – 300 KCMIL 6 AWG 14 AWG – 2 AWG Cu/Al: 6 AWG - 300 KCMIL
Neutral and ground bars	Large holes (5/16-24 UNF) Small holes (10-32 UNF)	14 AWG – 1/0 AWG 14 AWG – 6 AWG
COMPLIANCE		
Compliance	UL 1741, UL 1741 SA, UL 1741 PCS, UL1998, UL869A*, UL67*, UL508*, UL50E* CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, AC156. Enpower is approved for Use as Service Equipment in the United States*.	

1. Compatible with BRHDK125 Hold-Down Kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
2. The Enpower is rated 22 kAIC.
3. Not included. Installer must provide properly rated breaker per circuit breaker list above.
4. Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.
5. Enpower is not suitable for use as service equipment in Canada.

To learn more about Enphase offerings, visit enphase.com

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PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER
PV-15

To learn more about Enphase offerings, visit enphase.com



270

SAGINAW CONTROL & ENGINEERING • STOCK PRICE LIST

Fiberglass Junction Enclosures**Application -**

Designed for indoor or outdoor use to house electrical and electronic controls, instruments and components in areas that may be regularly hosed down, are in very wet conditions, or are exposed to corrosive agents. Provides protection from dust, dirt, oil and water. Provides protection from occasional temporary or prolonged submersion.

Construction -

- Fiberglass reinforced compression molded polyester.
- Oil-resistant door gasket.
- Mounting strip molded in.
- Quick release padlock latch.
- Integral panel mounting inserts.
- Stainless steel continuous hinge.

Finish -

Light gray fiberglass. Optional sub-panels are marine grade aluminum.

IS5 - Industry Standards -
NEMA Type 4, 4X, 12 & Type 13
UL Listed Type 4, 4X & 12
CSA Type 4, 4X & 12
IEC 60529 IP66

**FIBERGLASS JUNCTION ENCLOSURES**

ENCLOSURE PRODUCT CODE F1									
Catalog No.	Height (A)	Width (B)	Depth (C)	Mounting (G)	Mounting (H)	Interior (J)	Interior (K)	Interior (L)	Industry Standard
SCE-6045CHQRFG	7.39	5.43	4.75	6.75	2.00	5.84	3.85	4.00	IS5
SCE-6065CHQRFG	7.52	7.50	4.75	6.75	4.00	5.72	5.72	4.00	IS5
SCE-8065CHQRFG	9.50	7.50	4.74	8.88	4.00	7.73	5.74	4.00	IS5
SCE-808CHQRFG	9.50	9.41	4.75	8.75	6.00	7.73	7.73	4.06	IS5
SCE-10085CHQRFG	11.35	9.41	4.25	10.75	6.00	9.73	7.73	3.50	IS5
SCE-12105CHQRFG	13.41	11.43	5.06	12.75	8.00	11.79	9.80	4.50	IS5
SCE-1212CHQRFG	13.41	13.50	6.36	12.75	10.00	11.70	11.70	5.53	IS5
SCE-14087CHQRFG	15.75	8.75	6.81	15.00	5.00	14.00	7.00	6.12	IS5
SCE-14127CHQRFG	15.47	13.50	6.25	14.62	10.00	13.53	11.55	5.37	IS5
SCE-16147CHQRFG	17.45	15.46	6.23	16.75	12.00	15.63	13.60	5.36	IS5
SCE-18169CHQRFG	19.61	17.61	8.82	18.88	12.00	17.69	15.69	7.99	IS5
SCE-2016CHQRFG	21.68	17.68	8.83	21.25	10.00	19.72	15.72	8.00	IS5

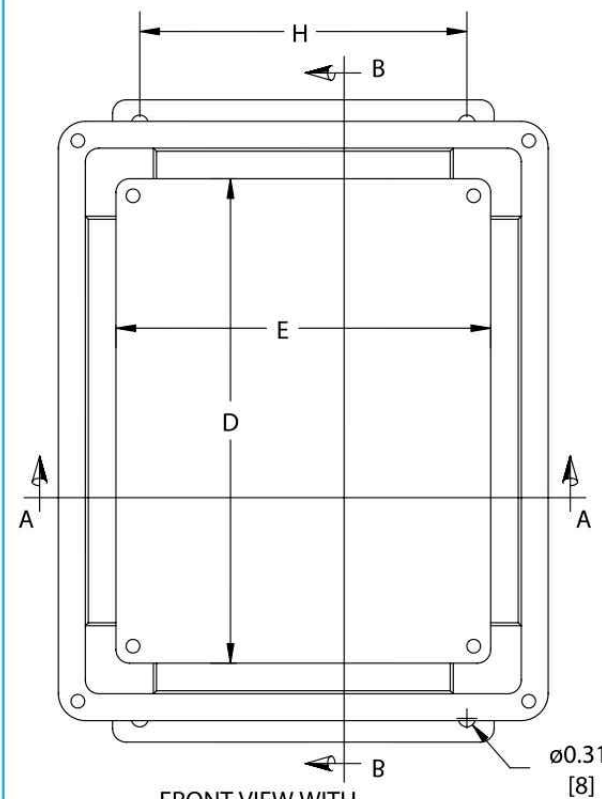
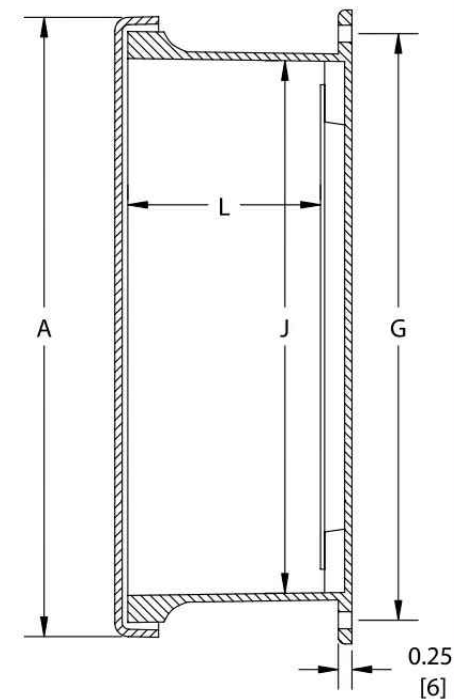
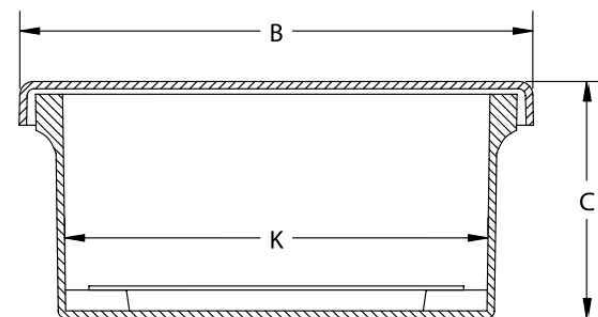
SUB-PANELS (F2)		
Catalog No.	Panel Height (D)	Panel Width (E)
SCE-6P4AL	4.88	2.88
SCE-6P6AL	4.88	4.88
SCE-8P6AL	6.88	4.88
SCE-8P8AL	6.75	6.88
SCE-10P8AL	8.88	6.88
SCE-12P10AL	10.88	8.88
SCE-12P12AL	10.88	10.88
SCE-14P8AL	12.88	5.88
SCE-14P12AL	12.88	10.88
SCE-16P14AL	14.88	12.88
SCE-18P16AL	16.88	14.88
SCE-20PJ16AL	18.88	14.88

Phone (989) 799-6871
Fax (989) 799-4524



SAGINAW CONTROL & ENGINEERING • STOCK PRICE LIST

271

**FIBERGLASS JUNCTION ENCLOSURES
TECHNICAL DATA****FRONT VIEW WITH
COVER REMOVED****SECTION B-B****SECTION A-A**

Phone (989) 799-6871
Fax (989) 799-4524

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22171 MCH RD
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PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
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PROJECT NAME & ADDRESS

**MANUEL COUSIN III
RESIDENCE**
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

**SHEET NAME
EQUIPMENT
SPECIFICATION**

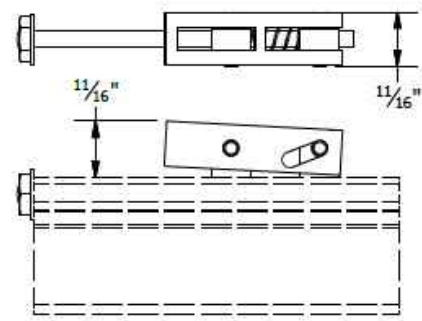
SHEET SIZE

**ANSI B
11" X 17"**

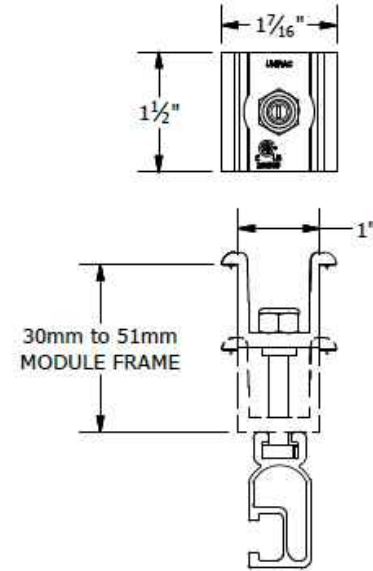
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PV-16

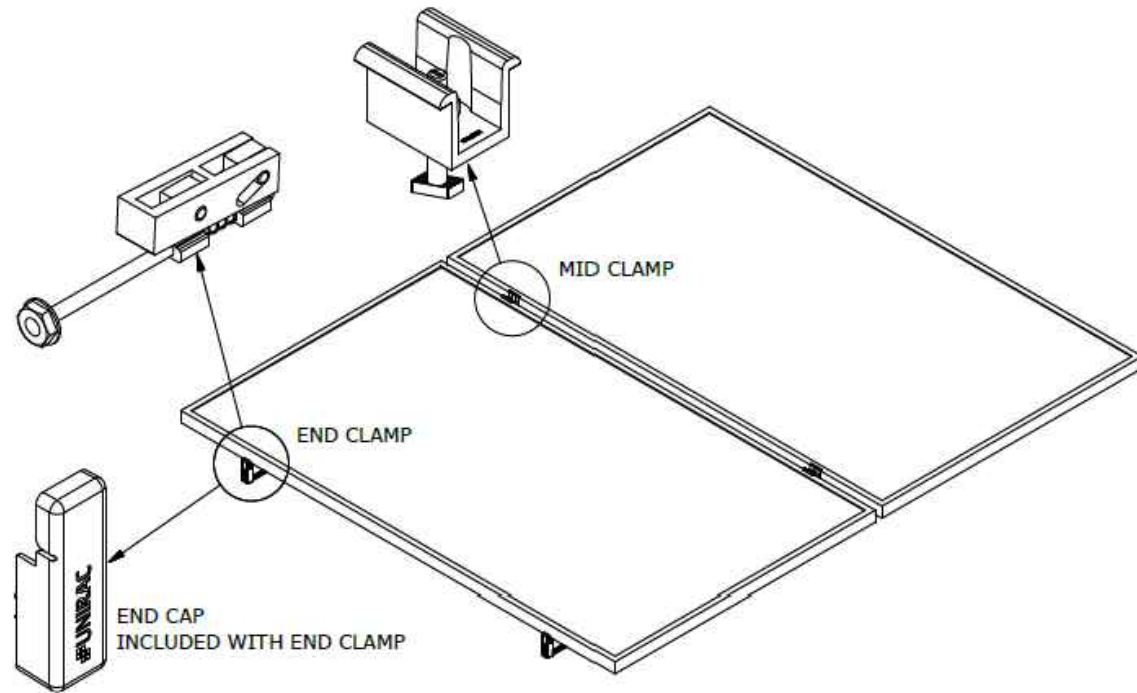
PRO SERIES END CLAMP



PRO SERIES MID CLAMP



PART # TABLE	
P/N	DESCRIPTION
302035M	ENDCLAMP PRO
302030M	MIDCLAMP PRO - MILL
302030D	MIDCLAMP PRO - DRK



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

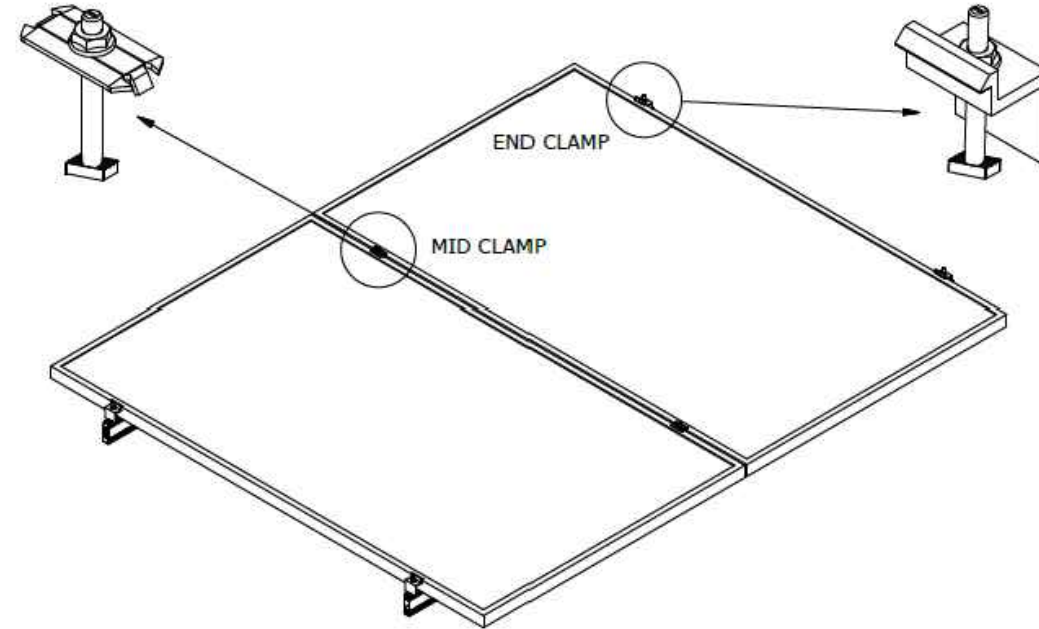
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DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	PRO SERIES BONDING CLAMPS
REVISION DATE:	10/26/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

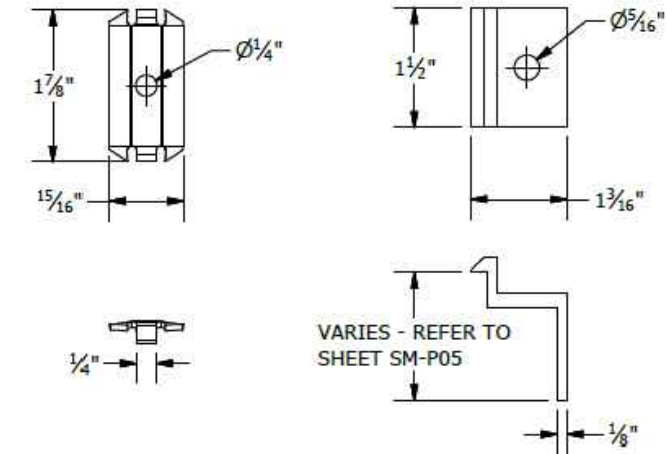
PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A01

SHEET



PART # TABLE	
P/N	DESCRIPTION
302027C	SM BND MIDCLAMP BC SS
302027D	SM BND MIDCLAMP BC DRK SS
302028C	SM BND MIDCLAMP EF SS
302028D	SM BND MIDCLAMP EF DRK SS
302029C	SM BND MIDCLAMP DK SS
302029D	SM BND MIDCLAMP DK DRK SS
	FOR BONDING END CLAMP REFER TO SHEET SM-P05



BONDING SM MID CLAMP BONDING SM END CLAMP



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

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING TOP CLAMPS
REVISION DATE:	10/26/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A01A

SHEET

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

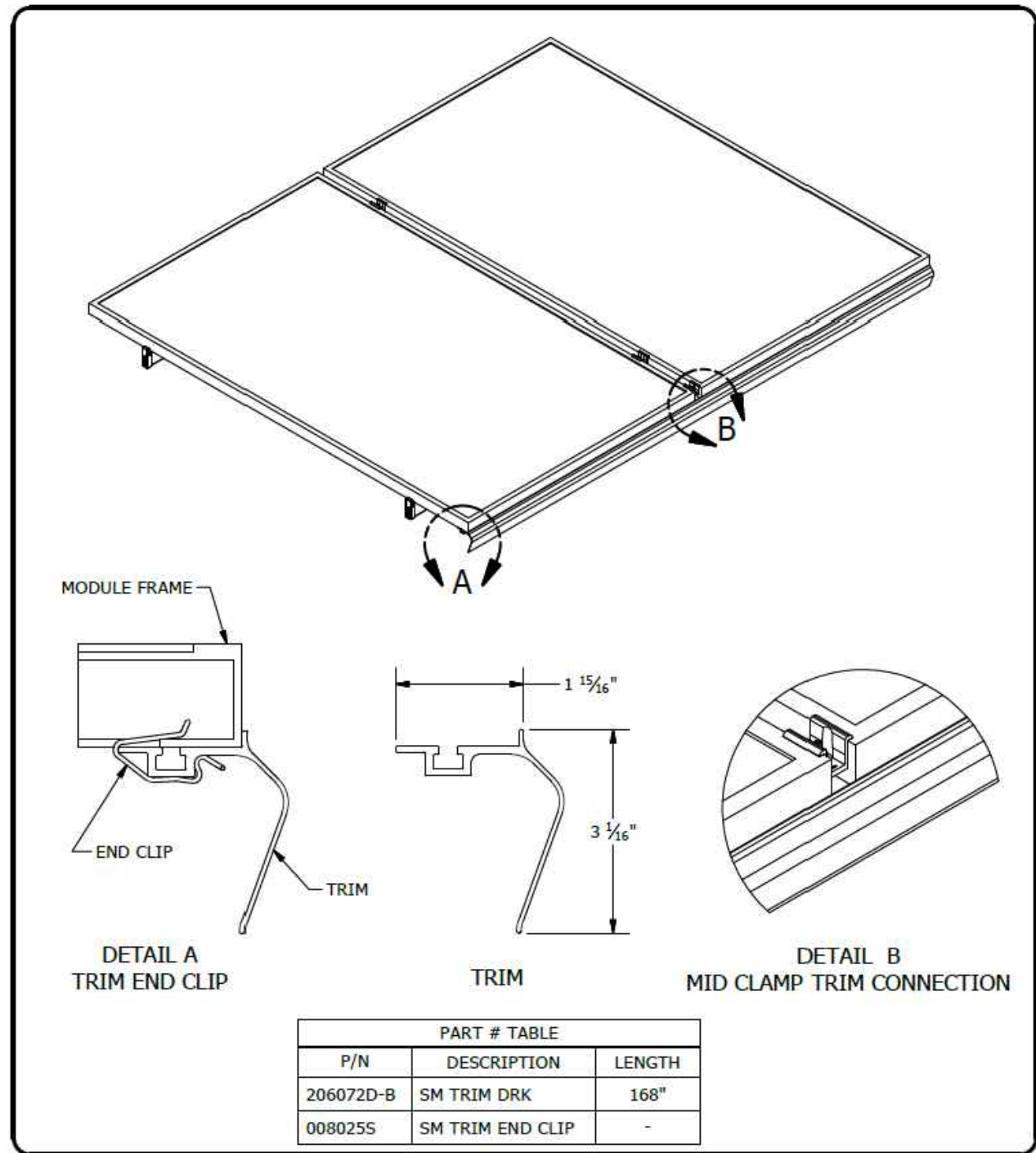
PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-17



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

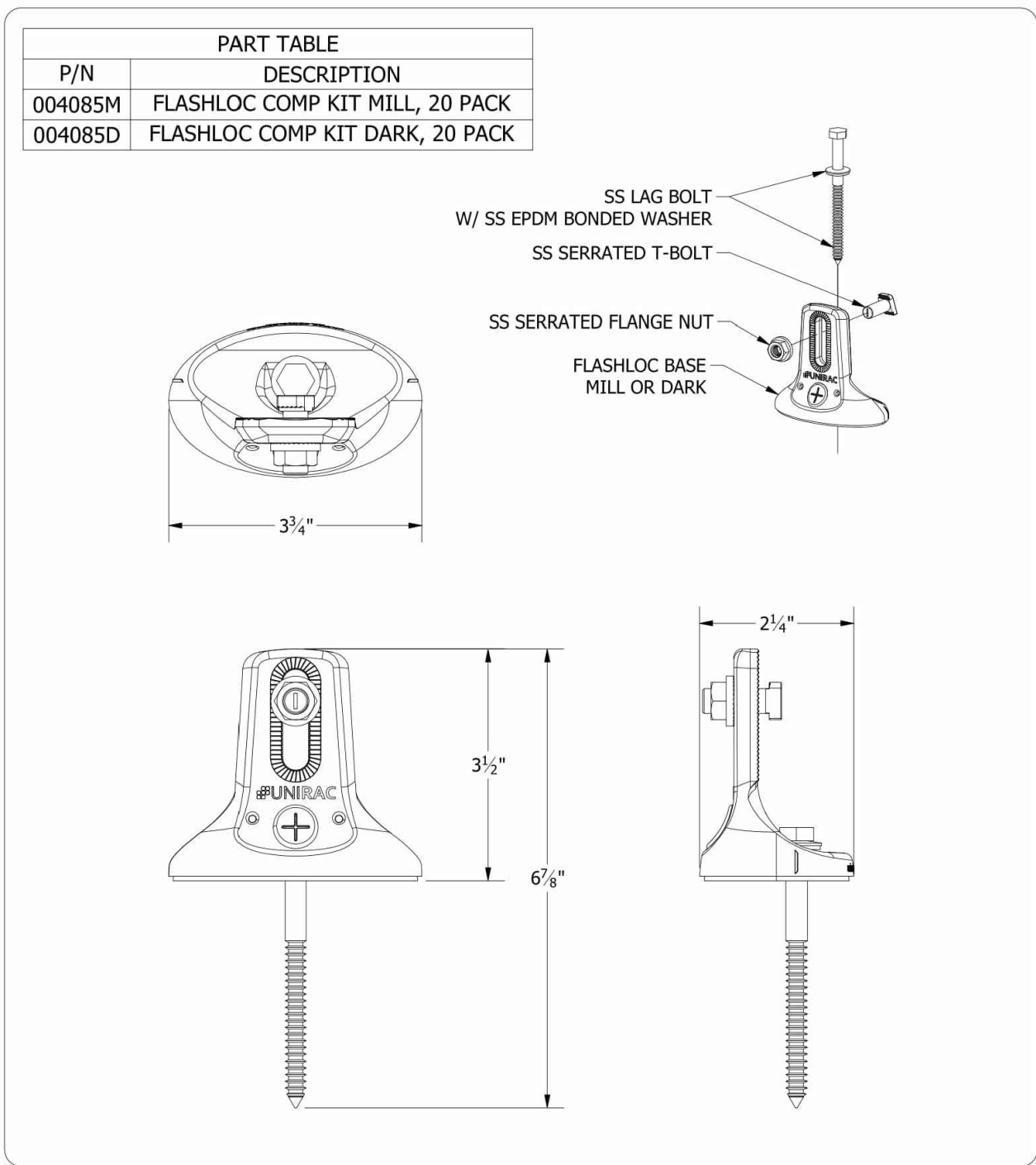
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	SM TRIM END CLIP
REVISION DATE:	9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A02

SHEET



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

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DRAWING
DESCRIPTION:	FLASHLOC COMP KIT
REVISION DATE:	10/3/2019

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

FL-A01

SHEET

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

**MANUEL COUSIN III
RESIDENCE**

1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

**EQUIPMENT
SPECIFICATION**

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

PV-18



FLASH LOC

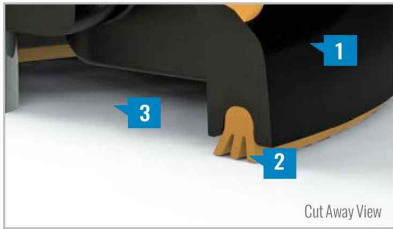


FLASHLOC is the ultimate attachment for composition shingle and rolled comp roofs. The all-in-one mount installs fast — no kneeling on hot roofs to install flashing, no prying or cutting shingles, no pulling nails. Simply drive the lag bolt and inject sealant into the base. **FLASHLOC**'s patented TRIPLE SEAL technology preserves the roof and protects the penetration with a permanent pressure seal. Kitted with lag bolts, sealant, and hardware for maximum convenience. Don't just divert water, **LOC it out!**



PROTECT THE ROOF

Install a high-strength waterproof attachment without lifting, prying or damaging shingles.



LOC OUT WATER

With an outer shield **1** contour-conforming gasket **2** and pressurized sealant chamber **3** the Triple-Loc Seal delivers a 100% waterproof connection.



HIGH-SPEED INSTALL

Simply drive lag bolt and inject sealant into the port **4** to create a permanent pressure seal.

FLASH LOC

INSTALLATION GUIDE



PRE-INSTALL

Snap chalk lines for attachment rows. On shingle roofs, snap lines 1-3/4" below upslope edge of shingle course. Locate rafters and mark attachment locations.

At each location, drill a 7/32" pilot hole. Clean roof surface of dirt, debris, snow, and ice, then fill pilot hole with sealant.

NOTE: Space mounts per racking system install specifications. When down pressure is ≥ 34 psf, span may not exceed 2 ft.



STEP 1: SECURE

Place **FLASHLOC** over pilot hole with lag on down-slope side. Align indicator marks on sides of mount with chalk line. Pass included lag bolt and sealing washer through **FLASHLOC** into pilot hole. Drive lag bolt until mount is held firmly in place.

NOTE: The EPDM in the sealing washer will expand beyond the edge of the metal washer when proper torque is applied.



STEP 2: SEAL

Insert tip of UNIRAC provided sealant into port. Inject until sealant exits both vents.

Continue array installation, attaching rails to mounts with provided T-bolts.

NOTE: When **FLASHLOC** is installed over gap between shingle or tabs or vertical joints, fill gap/joint with sealant between mount and upslope edge of shingle course.

Use only provided sealant.



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MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS

DESCRIPTION	DATE	REV
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REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-19

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702



REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME

EQUIPMENT
SPECIFICATION

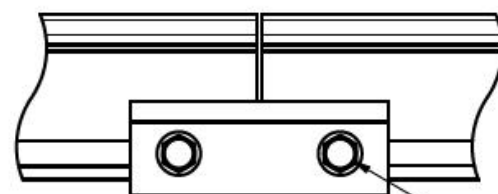
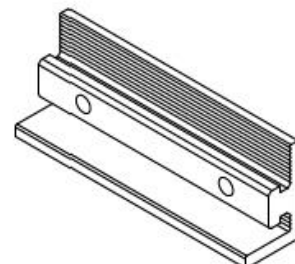
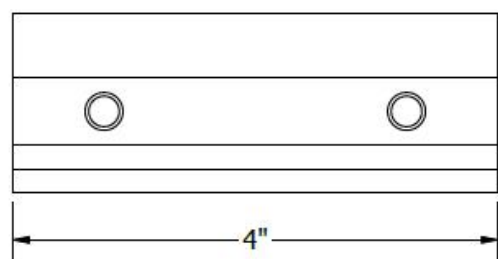
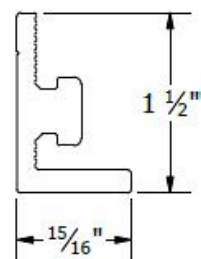
SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

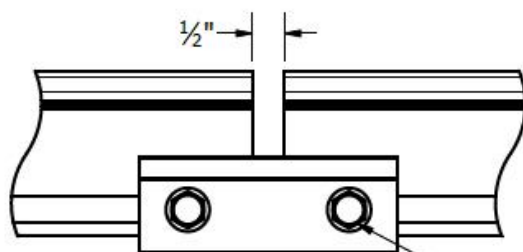
PV-20

BONDING SPLICE BAR



TYPICAL SPLICE BAR DETAIL

5/16"-18 TYPE F THREAD
CUTTING SCREWS INCLUDED



TYPICAL EXPANSION JOINT DETAIL

NOTE THAT ONLY 2 SCREWS ARE
USED AT AN EXPANSION JOINT.
THE SPLICE BAR DOES NOT BOND
ACROSS AN EXPANSION JOINT.
SEE INSTALLATION GUIDE FOR
INSTRUCTION.

PART # TABLE

P/N	DESCRIPTION
303019M	BND SPLICE BAR PRO SERIES MILL
303019D	BND SPLICE BAR PRO SERIES DRK



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

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING SPLICE BAR PRO SERIES
REVISION DATE:	8/23/2018

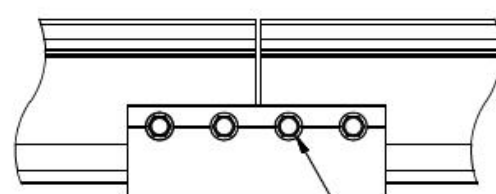
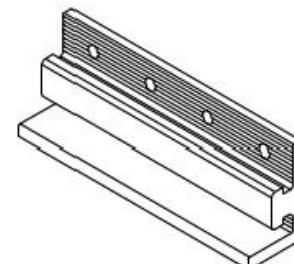
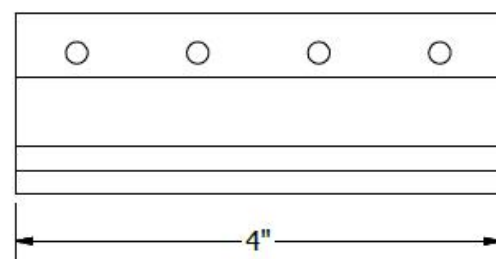
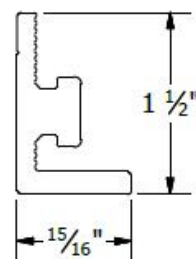
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A05

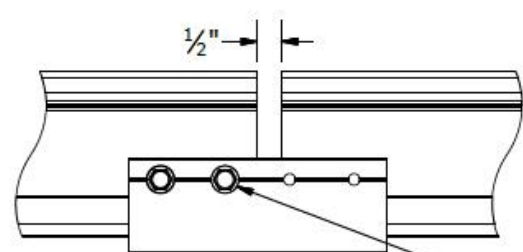
SHEET

BONDING SPLICE BAR



TYPICAL SPLICE BAR DETAIL

#12 X 3/4" SELF DRILLING SS SCREWS INCLUDED



TYPICAL EXPANSION JOINT DETAIL

NOTE THAT ONLY 2 SCREWS ARE
USED AT AN EXPANSION JOINT.
THE SPLICE BAR DOES NOT BOND
ACROSS AN EXPANSION JOINT.
SEE INSTALLATION GUIDE FOR
INSTRUCTION.

PART # TABLE

P/N	DESCRIPTION
303018C	BND SPLICE BAR SERRATED CLR
303018D	BND SPLICE BAR SERRATED DRK



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

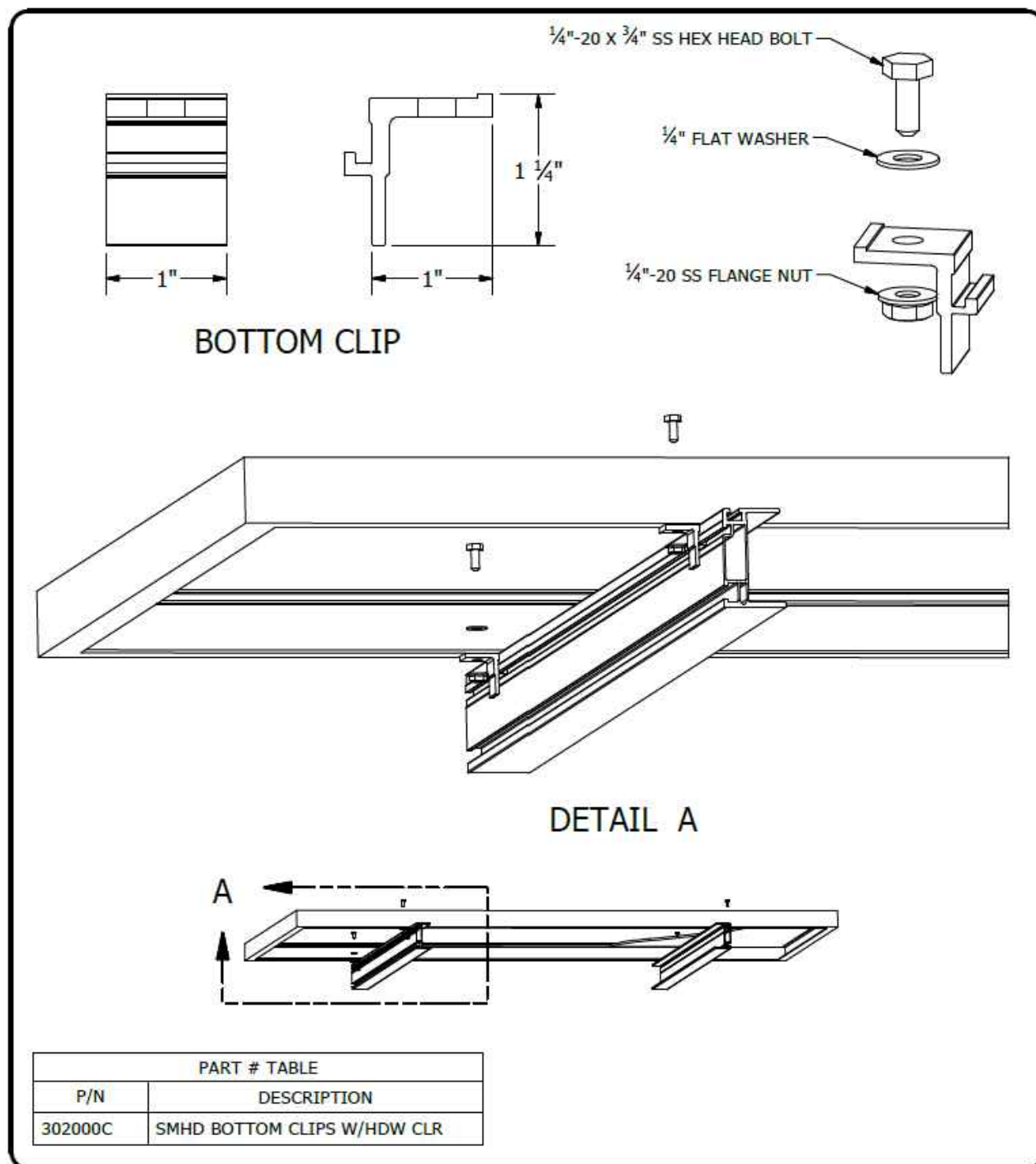
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING SPLICE BAR
REVISION DATE:	9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
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SHEET



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

PRODUCT LINE: SOLARMOUNT HD

DRAWING TYPE: PART & ASSEMBLY

DESCRIPTION: BOTTOM CLIP

REVISION DATE: 9/27/2017

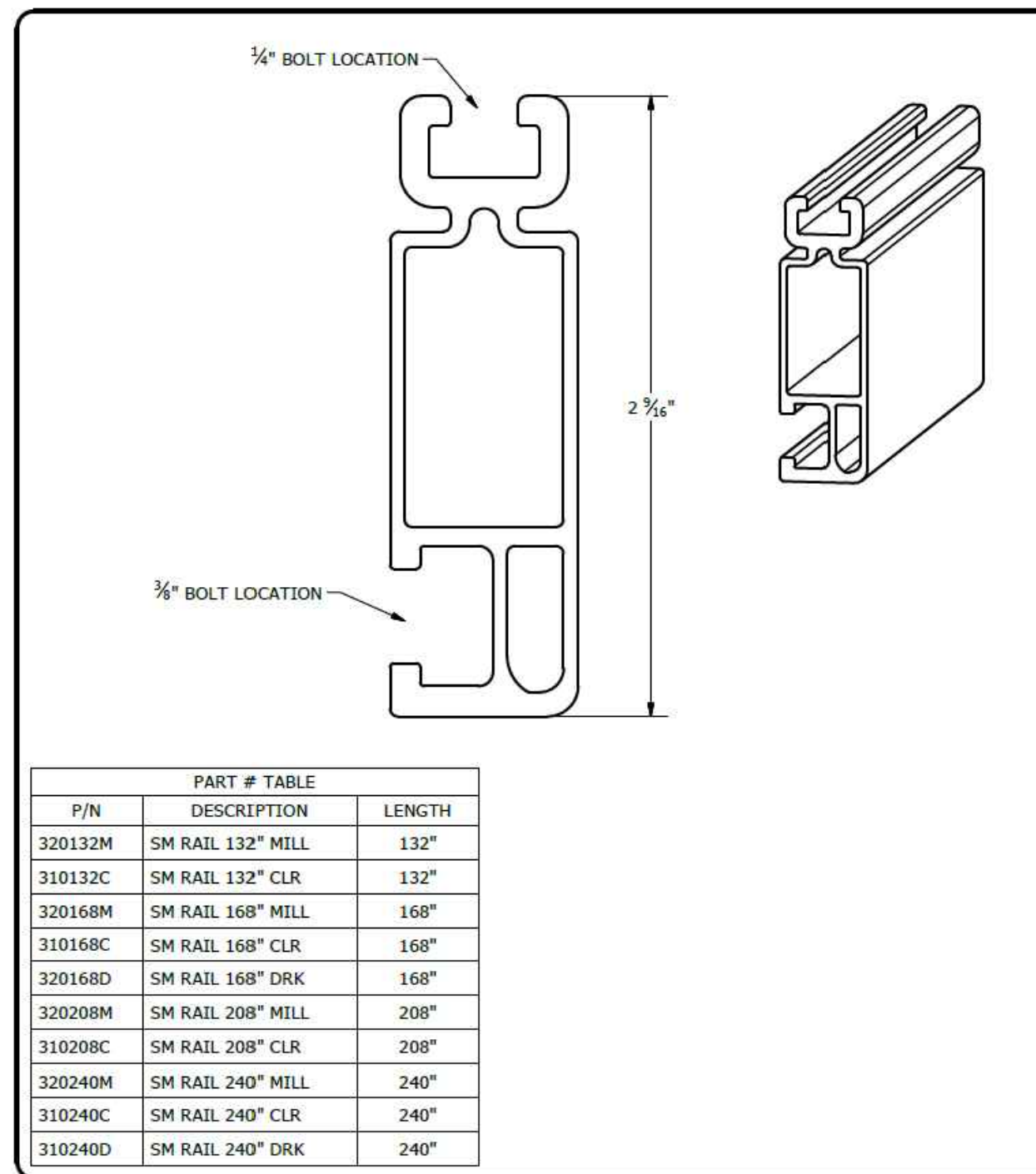
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS

LEGAL NOTICE

SM-A10

SHEET



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

PRODUCT LINE: SOLARMOUNT

DRAWING TYPE: PART DETAIL

DESCRIPTION: STANDARD RAIL

REVISION DATE: 9/11/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS

LEGAL NOTICE

SM-P01

SHEET

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

MANUEL COUSIN III
RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

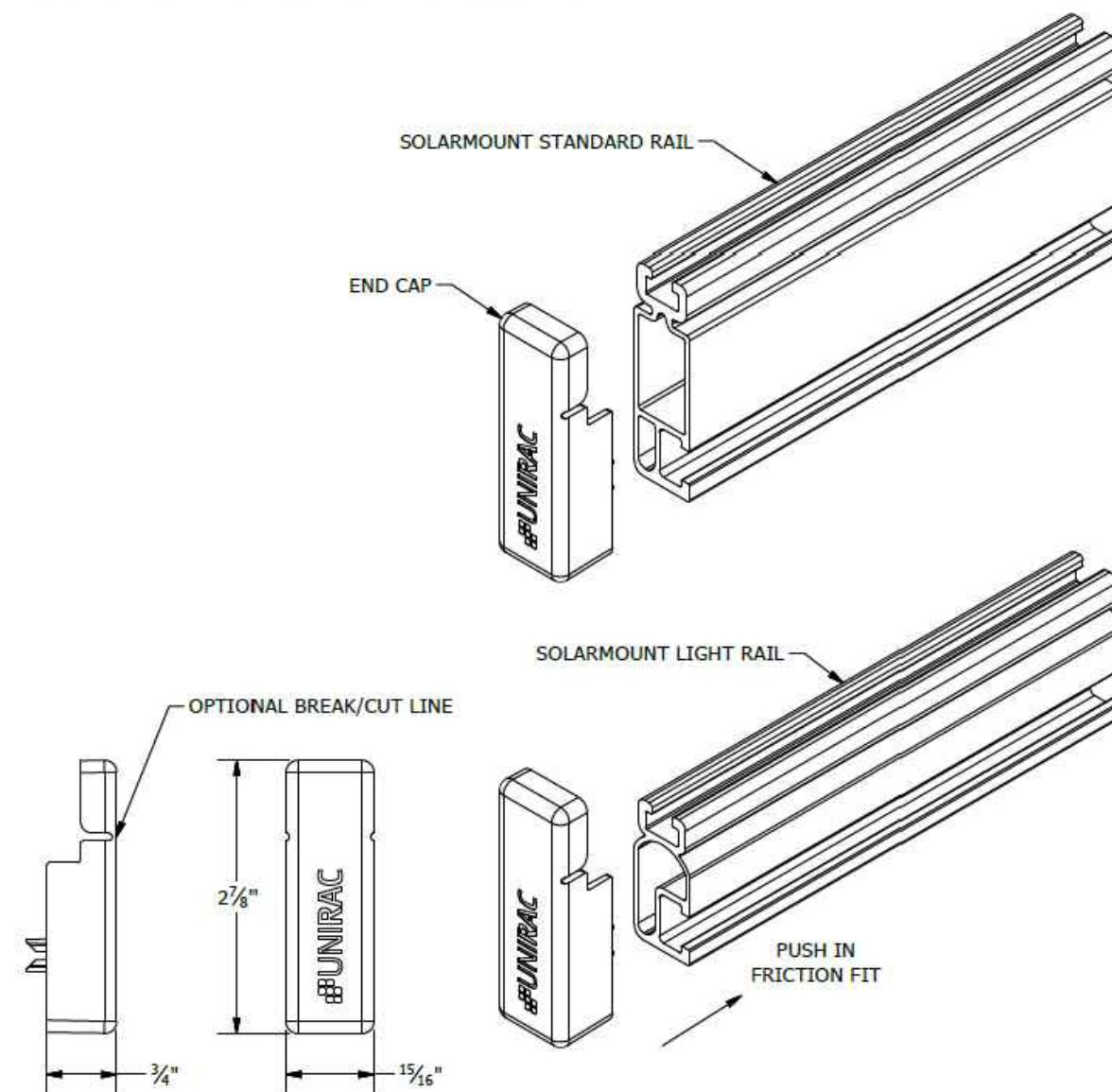
SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-21



- NOTES:
1. END CAP INCLUDED WITH EVERY END CLAMP.
 2. END CAP FITS SOLARMOUNT LIGHT AND STANDARD RAIL PROFILES.

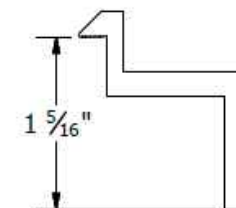


UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

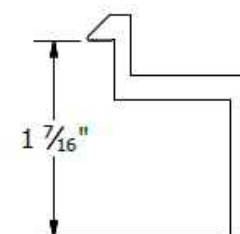
PRODUCT LINE: SOLARMOUNT
DRAWING TYPE: PART DETAIL
DESCRIPTION: END CAPS
REVISION DATE: 9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL
PRODUCT PROTECTED BY
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LEGAL NOTICE

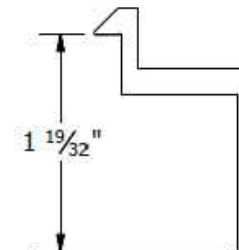
SM-P04
SHEET



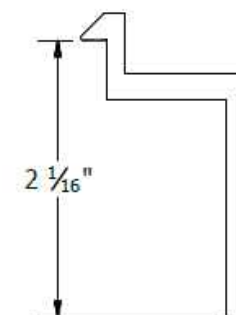
B CLAMP
30mm to 32mm Module Thickness
(1.18" to 1.26")



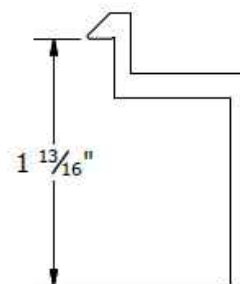
C CLAMP
33mm to 36mm Module Thickness
(1.30" to 1.42")



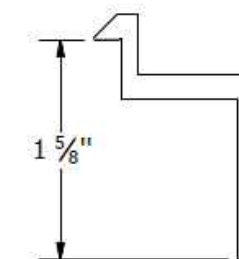
D CLAMP
38mm to 40mm Module Thickness
(1.50" to 1.57")



E CLAMP
50mm to 51mm Module Thickness
(1.97" to 2.00")

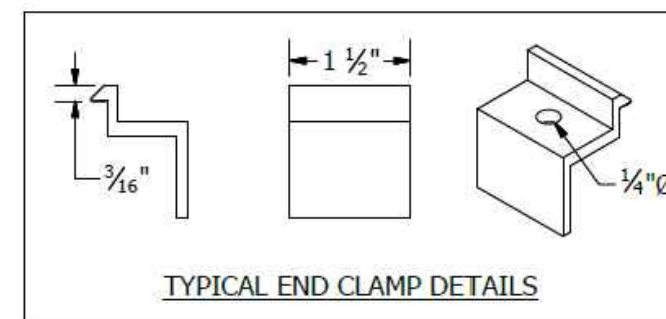


F CLAMP
45mm to 47mm Module Thickness
(1.77" to 1.85")



K CLAMP
39mm to 41mm Module Thickness
(1.54" to 1.61")

PART # TABLE	
P/N	DESCRIPTION
302021C	SM ENDCLAMP B CLR AL
302021D	SM ENDCLAMP B DRK AL
302022C	SM ENDCLAMP C CLR AL
302022D	SM ENDCLAMP C DRK AL
302023C	SM ENDCLAMP D CLR AL
302023D	SM ENDCLAMP D DRK AL
303024C	SM ENDCLAMP E CLR AL
302024D	SM ENDCLAMP E DRK AL
302025C	SM ENDCLAMP F CLR AL
302025D	SM ENDCLAMP F DRK AL
302026C	SM ENDCLAMP K CLR AL
302026D	SM ENDCLAMP K DRK AL



TYPICAL END CLAMP DETAILS

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

PRODUCT LINE: SOLARMOUNT
DRAWING TYPE: PART DETAIL
DESCRIPTION: END CLAMPS -
TOP MOUNTING
REVISION DATE: 9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL
PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-P05
SHEET

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	03/30/2022	
REVISED	06/16/2022	A

DATE: 03/30/2022

PROJECT NAME & ADDRESS

**MANUEL COUSIN III
RESIDENCE**
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
**EQUIPMENT
SPECIFICATION**

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-22

SolaDeck

FLASHED PV ROOF-MOUNT COMBINER/ENCLOSURE

Basic Features

- Stamped Seamless Construction
- 18 Gauge Galvanized Steel
- Powder Coated Surfaces
- Flashes into the roof deck
- 3 Roof deck knockouts .5", .75", 1"
- 5 Centering dimples for entry/exit fittings or conduit
- 2 Position Ground lug installed
- Mounting Hardware Included



SolaDeck Model SD 0783



SolaDeck UL50 Type 3R Enclosures

Available Models:

- Model SD 0783 - (3" fixed Din Rail)
- Model SD 0786 - (6" slotted Din Rail)



SolaDeck UL 1741 Combiner/Enclosures

Models SD 0783-41 and SD 0786-41 are labeled and ETL listed UL STD 1741 according to the UL STD 1741 for photovoltaic combiner enclosures.

Max Rated - 600VDC, 120AMPS

Model SD 0783-41 3" Fixed Din Rail fastened using Norlock System

**Typical System Configuration

- 4- Din Rail Mounted Fuse Holders 600VDC 30 AMP
- 1- Power Distribution Block 600VDC 175AMP
- 1- Bus Bar with UL lug

Model SD 0786-41 6" Slotted Din Rail fastened using steel studs

**Typical System Configuration

- 4- Din Rail Mounted Fuse Holders 600VDC 30 AMP
- 4- Din Rail Mounted Terminal Blocks
- Bus Bars with UL lug

**Fuse holders and terminal blocks added in the field must be UL listed or recognized and meet 600 VDC 30 AMP 110C for fuse holders, 600V 50 AMP 90C for rail mounted terminal blocks and 600 V 175 AMP 90C for Power Distribution Blocks. Use Copper Wire Conductors.



Cover is trimmed to allow conduit or fittings, base is center dimpled for fitting locations.



Model SD 0783-41, wired with Din Rail mounted fuse holders, bus bar and power distribution block.



Model SD 0786-41, wired with Din Rail mounted fuse holders, terminal blocks and bus bars.

SUNPRO

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RESIDENCE
1010 N ROMAN ST,
NEW ORLEANS, LA 70116

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-23

RSTC Enterprises, Inc • 2219 Heimstead Road • Eau Claire, WI 54703
For product information call 1(866) 367-7782

