ROOF MOUNTED PHOTOVOLTAIC SYSTEM AT

KETAN R PATEL

211 St Clair Dr Fuquay-Varina, NC 27526

FRONT VIEW OF THE BUILDING

AERIAL VIEW OF THE BUILDING

SYSTEM DETAILS	
10.92 KW ROOF MOUNTED SOLAR SYSTEM WITH MAX. 10.0 KVAC OUTPUT CAPACITY	
SOLAR PANELS MODEL	Canadian Solar CS6.1-54TM-455H
NO. OF SOLAR PANELS	24
INVERTER + BATTERY	01 X TESLA POWER WALL 3
NO. OF INVERTER	1
RAPID SHUT DOWN DEVICE (RSD)	MCI - 2 (High Current)
NO.OF RSD	09
RACKING	PEGASUS (PSR-B84 RAILS)
MOUNTING DETAILS	INSTAFLASH2

SHEET INDEX	
G01	COVER SHEET
E01	ELECTRICAL NOTES
PV01	SITE LAYOUT
PV02	STRING MAPPING
PV03	ELECTRICAL ONE LINE DIAGRAM
PV04	ELECTRICAL DETAILED WIRING DIAGRAM
PV05	GROUNDING PLAN
PV06	WARNING LABELS AND LOCATION
PV07	RACKING DETAILS
PV08	BILL OF MATERIALS
SS01	PRODUCT SPEC. SHEETS

UTILITY COMPANY	PERMIT ISSUER (AHJ)	SCOPE OF WORK	DESIGN CRITERIA		
DUKE ENERGY	Town of Garner	INSTALLATION OF UTILITY INTERACTIVE PHOTOVOLTAIC SOLAR SYSTEM	WIND SPEED = **120MPH**	GROUND SNOW LOAD = **15PSF**	WIND EXPOSURE FACTOR = **B**

8MSOLAR
ADVANCING ENERGY INDEPENDENCE
5112 Departure Drive,
Raleigh,NC 27616

CUSTOMER INFORMATION
NAME: Ketan R Patel
ADDRESS: 211 St Clair Dr Fuquay-Varina, NC 27526

JOB NUMBER: 25-339-KP
PAGE SIZE: 24" x 36"
APPROVAL:

NABCEP CERTIFIED
PV Installation Professional
Ali Buttar
PVIP #031310-32

REV	DATE	DESCRIPTION
A	10/24/2025	

DRAWING # G01

CODE AND STANDARDS

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

- 2020 NATIONAL ELECTRICAL CODE
- 2018 NORTH CAROLINA RESIDENTIAL CODE
- 2018 NORTH CAROLINA BUILDING CODE
- ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES

SITE NOTES / OSHA REGULATION

1. A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
2. THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
3. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.
4. MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED
5. SOLAR INVERTER SHALL BE LISTED TO UL1741
6. ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED
7. REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT GROUNDED CONDUCTORS.
8. LIVE PARTS OF PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS OVER 150V TO GROUND SHALL NOT BE ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS WHILE ENERGIZED.
9. ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.
10. NFPA 855 ONLY PERMITS RESIDENTIAL ESS TO BE INSTALLED IN THE FOLLOWING AREAS: ATTACHED GARAGES, DETACHED GARAGES, ON EXTERIOR WALLS AT LEAST 3 FT AWAY FROM DOORS OR WINDOWS, OUTDOORS AT LEAST 3 FT AWAY FROM DOORS OR WINDOWS, UTILITY CLOSETS, STORAGE OR UTILITY SPACES.

SOLAR CONTRACTOR

1. MODULE CERTIFICATIONS INCLUDE UL1703, IEC61646, IEC61370.
2. IF APPLICABLE, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE MARKED GROUNDING LUG HOLES PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.
3. AS INDICATED BY DESIGN, OTHER NRTL LISTED MODULE GROUNDING DEVICES MAY BE USED IN PLACE OF STANDARD GROUNDING LUGS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.
4. ALL MICROINVERTERS, PHOTOVOLTAIC MODULES, AC COMBINERS, DC-AC CONVERTERS AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER NEC690.4(B).
5. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH LOCAL BUILDING CODE.
6. TERMINALS AND LUGS WILL BE TIGHTENED TO MANUFACTURER TORQUE SPECIFICATIONS

   (WHEN PROVIDED) IN ACCORDANCE WITH NEC CODE 110.14(D) ON ALL ELECTRICAL CONNECTIONS.
7. MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC UNLESS NOT AVAILABLE.

LEGEND - GENERAL

- DARK LINE INDICATES NEW OR WITHIN THE SCOPE OF PROJECT
- LIGHT LINE INDICATES EXISTING OR BEYOND THE SCOPE OF PROJECT
- DASHED LINE INDICATES EQUIPMENT AT A DIFFERENT LOCATION

LEGEND - PLAN SYMBOLS

- SOLAR MODULE
- RACEWAY TURNING UP OR TOWARDS OBSERVER
- RACEWAY TURNING DOWN OR AWAY FROM OBSERVER
- CABLE TRAY
- P OR P — PULL BOX
- J OR J — JUNCTION BOX
- PANEL BOARD
- LOCAL DISCONNECT SWITCH
- SIMPLEX RECEPTACLE, RATED: 125 - VOLTS AC, 20A
- DUPLEX RECEPTACLE, RATED: 125 - VOLTS AC, 20A
- W — WEATHERPROOF DUPLEX RECEPTACLE, RATED: 125 - VOLTS AC, 20A
- GFCI — GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE, RATED: 125 - VOLTS AC, 20A
- DOUBLE DUPLEX (QUAD) RECEPTACLE CEILING / PENDANT - MOUNT
- LIGHT, SEE FIXTURE SCHEDULE FOR TYPE
- WALL - MOUNT LIGHT, SEE FIXTURE SCHEDULE FOR TYPE
- GROUND ROD
- GROUND ROD W / TEST WELL

LEGEND - ONE LINE DIAGRAM AND WIRING DIAGRAM SYMBOLS

- CIRCUIT BREAKER, FRAME SIZE AND TRIP SETTING AS NOTED
- DISCONNECT SWITCH
- INVERTER
- BUS CONNECTION POINT
- CROSSING POINT (NO CONNECTION)
- NORMALLY CLOSED - NORMALLY OPEN CONTACTS
- FUSE, SIZE / RATING AS NOTED
- FUSE DISCONNECT SWITCH
- EARTH GROUND
- NC NO — PUSHBUTTON SWITCHES: NUMBER AND TYPE OF CONTACT BLOCKS MAY VARY
- NC NO — PUSHBUTTON SWITCHES MUSHROOM HEAD: NUMBER AND TYPE OF CONTACT BLOCKS MAY VARY
- K — KEYED INTERLOCK (KIRK KEY OR EQ)
- ST — SHUNT TRIP COIL
- TRANSFORMER CONTROL / POWER, SIZE AND RATING AS NOTED
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER

ABBREVIATION

A	AMPERES
AF	AMPERE FRAME
AFDI	ARC FAULT DETECTION & INTERRUPTER
AIC	AMPS INTERRUPTING CAPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	CIRCUIT BREAKER
C	CONDUIT
CB	COMBINER BOX
CKT	CIRCUIT
CP	CONTROL PANEL
CU	COPPER
DISC	DISCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRIC, ELECTRICAL
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
G, GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GFPE	GROUND-FAULT PROTECTION OF EQUIPMENT
HID	HIGH - INTENSITY DISCHARGE (LIGHTING)
HZ	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
KAIC	1000 AMPS INTERRUPT CAPACITY
KCMIL	1000 CIRCULAR MILLS
KVA	KILO - VOLT AMPERE
KW	KILOWATT
LA	LIGHTNING & SURGE ARRESTOR
LED	LIGHT - EMITTING DIODE
LSIG	LONG, SHORT, INSTANTANEOUS, & GROUND FAULT
LTG	LIGHTING
MAX	MAXIMUM
MFG	MANUFACTURER
MLO	MAIN LUGS ONLY
MPPT	MAXIMUM POWER POINT TRACKING
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
P	POLE
PF	POWER FACTOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PWR	POWER
POI	POINT OF INTERCONNECTION
PRI	PRIMARY
PVC	POLYVINYL CHLORIDE
RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL CONDUIT
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTOR
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SSBJ	SUPPLY SIDE BONDING JUMPER
ST	SHUNT TRIP
SW	SWITCH
TBD	TO BE DETERMINED
TP	TWISTED PAIR
TYP	TYPICAL
V	VOLT
VA	VOLT - AMPERE
W	WATT
WP	WEATHER PROOF
XFMR	TRANSFORMER

UTILITY DISCONNECT SWITCH REQUIREMENTS

- THE UTILITY REQUIRES A SINGLE LOCKABLE AND VISIBLE DISCONNECTING MEANS BY WHICH THE GENERATION SOURCE CAN BE ISOLATED FROM ANY AND ALL PARTS OF THE UTILITY SYSTEM WHEN NECESSARY.THIS DISCONNECTING MEAN SHOULD BE VISIBLE, ACCESSIBLE AND OPERABLE BY UTILITY PERSONNEL.

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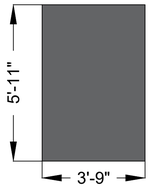
REV	DATE	DESCRIPTION
A	10/24/2025	

DRAWING #
E01

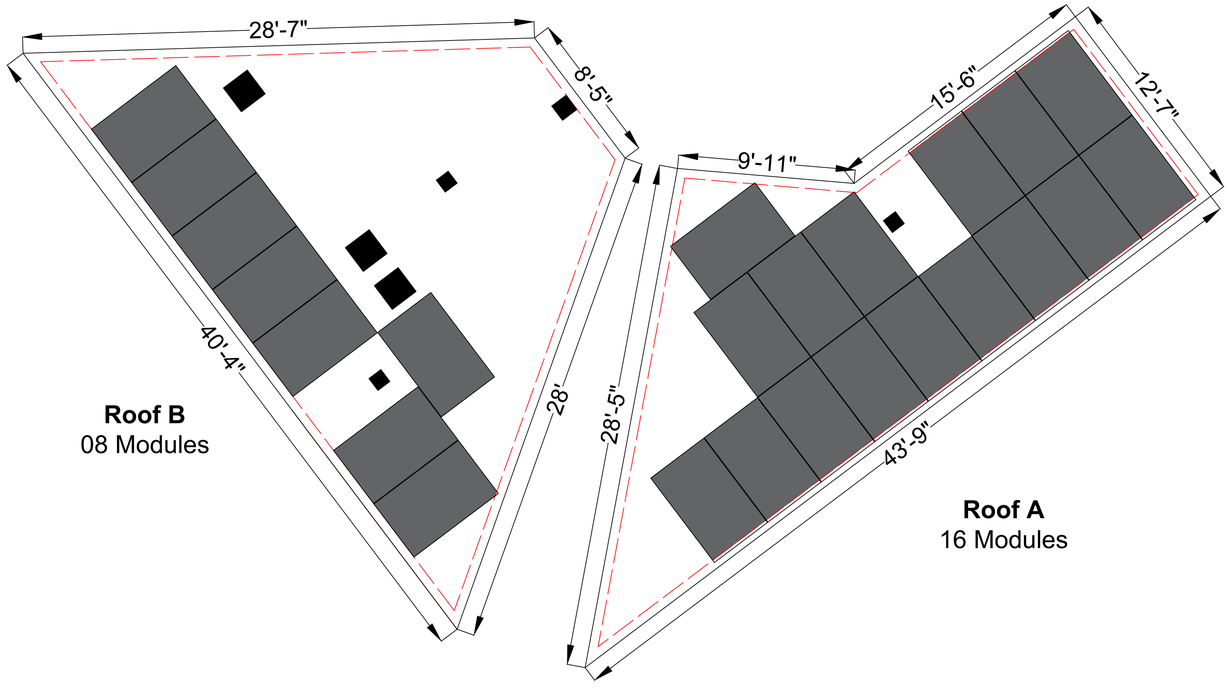
ROOF DESCRIPTION			
ROOF	PITCH	AZIMUTH	NO. OF MODULES
A	33°	143°	16
B	26°	233°	8

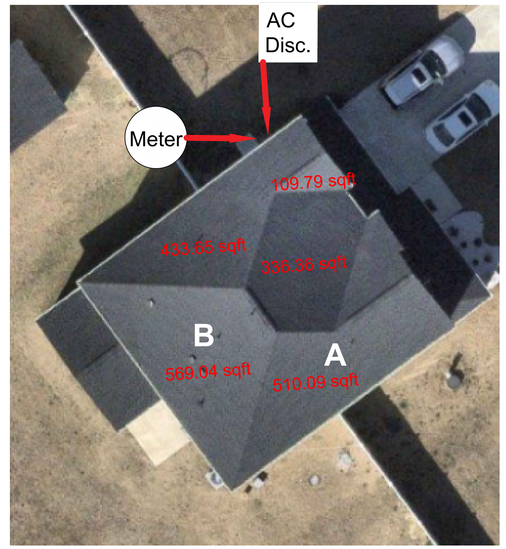
MODULE DIMESSION

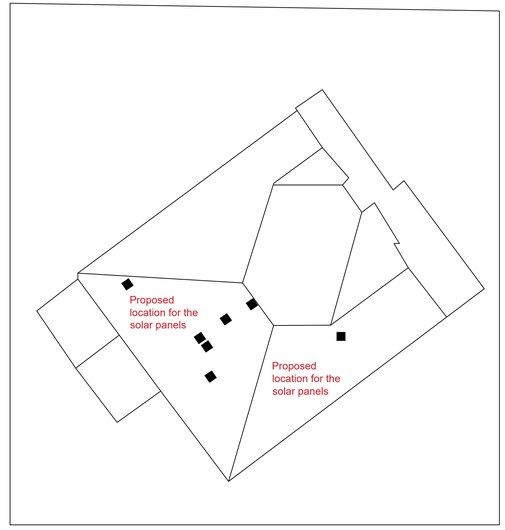


SYSTEM DETAILS			
24 x Canadian Solar CS6.1-54TM-455H			
01 x POWERWALL 3			
DC SIZE	10.92 KW	AC SIZE	10.0 KVAC
TOTAL ROOF AREA:	1079.13 Sqft	Covered Area	355.0Sqft

LAGENDS	
Symbol	Description
	6in setback from the sides of roof
	Solar Panels
	Vents on roof







SCALE: NTS

N
W
E
S

SITE LAYOUT

SCALE: 1/4" = 1'-0"

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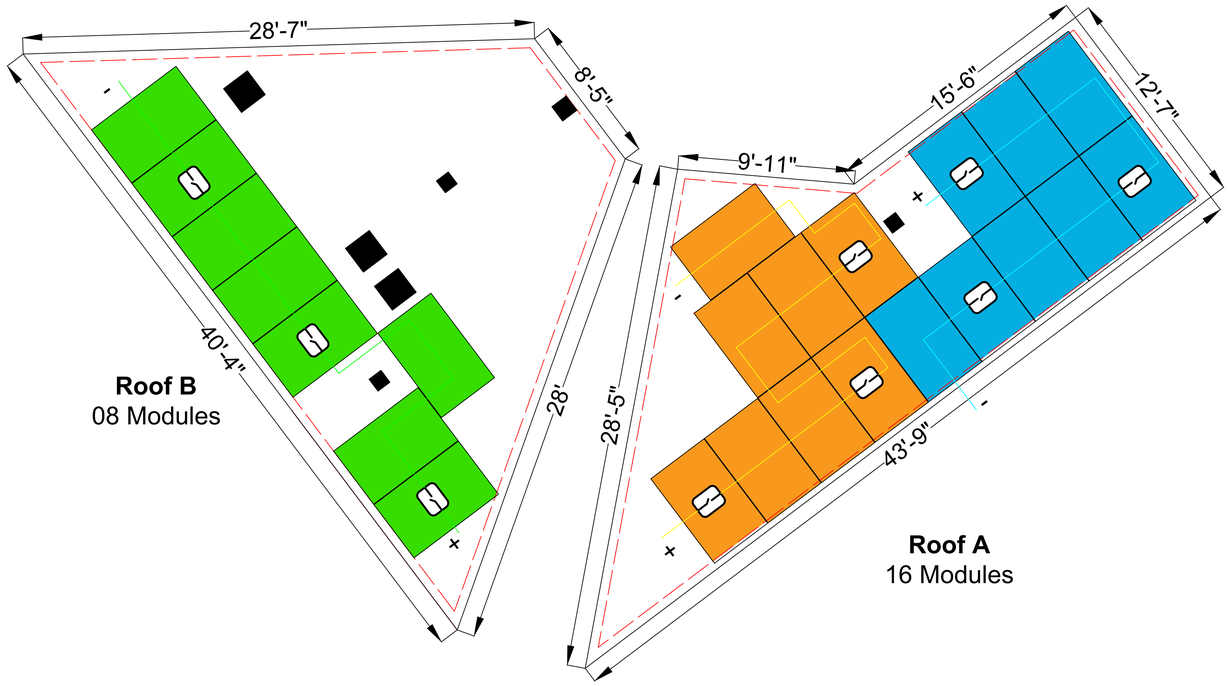
PV01

STRING LAYOUT

TESLA POWERWALL 3

Strings #	No. of Modules	Color	Strings #	No. of Modules	Color
1	8				
2	8				
3	8				



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N W E S

STRING MAPPING

SCALE: 1/4" = 1'-0"

DRAWING # PV02

PV MODULE	
MAKE	CANADIAN SOLAR
MODEL	CS6.1-54TM-455H
P_{NOM}	455W
V_{MPP}	33.20
V_{OC}	39.10
I_{MP}	13.72
I_{SC}	14.61
TEMP. COFF. V_{OC}	-0.25% / °C
MAX. SYS. VOLTAGE	1500 V
MAX. SERIES FUSE	25 A

AC DISCONNECT	
MAKE	Eaton
MODEL	DG222URB
RATINGS	60 A
FUSE RATIND	Non Fusible
ENCLOSURE RATING	NEMA 3R

RAPID SHUT DOWN DEVICE	
MAKE	Tesla
MODEL	MCI-2 High Current
DC RATINGS	
MAX. SYS. VOLTAGE	600
MAX. SYS. DISCO. VOLTAGE	165
I_{MP}	15
I_{SC}	19
MAX. NO OF DEVICES PER STRING	5
CONTROL	Power Line Excitation
PASSIVE STATE	Normally Open

BACKUP GATEWAY 3	
MAKE	Tesla
MODEL	1841000-01-C
BUS BAR RATING	200
MAIN BREAKER RATINGS	200
ENCLOSURE RATINGS	NEMA 3R

Note: Service Side Work: Power Drop Required

Note: Export will be limited to 10.0kW by PCS

SOLAR INVERTER	
TAG	Tesla PowerWall 3
MAKE	Tesla
MODEL	PowerWall 3
DC RATINGS	
MAX. POWER	11.5 KW
MAX. VOLTAGE	550 V DC
OPERATING VOLTAGE	60 - 480 V DC
I_{SC}	19
I_{MP}	15
NO. OF MPPTS/INPUT PER MPPT	6
AC RATINGS	
RATED POWER	11.5 KW
V_{NOM}	120 / 240 VAC
I_{MAX}	48
RAPID SHUT DOWN COMPLIANCE	NEC Article 690.12 (B)
PROTECTION RATING	60

Conductor Schedule

TAG	PHASE CONDUCTORS		GROUNDING CONDUCTORS		CONDUIT/RACEWAY		AMPACITIES		
	QTY X SIZE	INSULATION / MATERIAL	QTY X SIZE	INSULATION / MATERIAL	QTY X SIZE	MATERIAL	MAX. VOLTAGE	MAX. CONT. AMPS (x 1.25)	CONDUCTOR AMPACITY
1	2 x #10	PV Cu	1 x #10	Bare Cu			2000	21.31	35
2	6 x #10	THHN Cu	1 x #10	Green Cu	1 x 3/4 in	LFMC	600	21.31	35
3	6 x #10	THHN Cu	1 x #10	Green Cu	1 x 3/4 in	EMT	600	21.31	35
4	3 x #6	THHN Cu	1 x #6	Green Cu	1 x 1 in	EMT	600	60	65
	1 x #16	2 conductor shielded (1 twisted pair)					600		
5	3 x #6	THHN Cu	1 x #6	Green Cu	1 x 1in	LFNC	600	60	65
6	3 x 3/0	THHN Cu			1 x 2 in	PVC	600	200	200
7	3 x 3/0	THHN Cu	1 x #4	Green Cu	1 x 2 in	PVC	600	200	200
8	1 x #16	4 conductor shielded (2 twisted pair)					600		
9	1 x #16	2 conductor shielded (1 twisted pair)			1 x 1/2 in	LFNC	600		

String Calculation

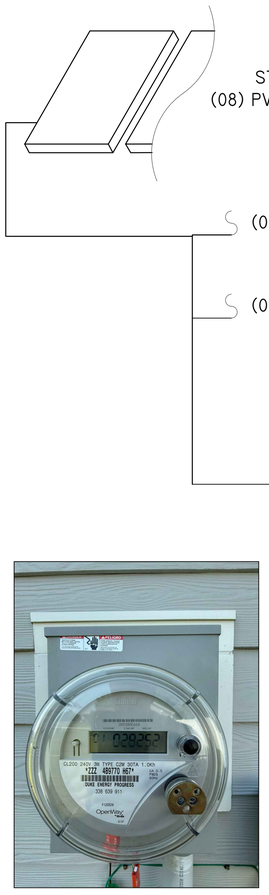
TAG	String #	No of Modules	Estimated Power	Imax	Impp	VOC	Vmpp		
1	1,2,3	08	3,640 W	21.40 Adc	13.72 Adc	312.8 Vdc	550 Vdc		

Grounding Instructions

- Grounding will be done via Pegasus grounding lugs and mid-clamps to ensure the rail and panels are continuously grounded.
- Rapid Shutdown is included in the Mid Circuit Interrupter , refer to Mid Circuit Interrupter and Inverter attached data sheets.
- The load center/disconnect will be visible, lockable, accessible to utility linesmen, and properly labeled per NEC requirements. It will be located on the exterior wall next to the utility meter.
- Prepare cable in usual manner.
- Stretch tape and apply half-lapped to form void-free joint. Degree of stretch is not critical and may vary in different sections of joint to accomplish void-free application.
- Protect the joint with two half-lapped layers of any scotch vinyl plastic electrical tape.

SYSTEM DETAILS

Meter No.	338639911	**No. of Panels**	24
Account Number	9101 6294 9164	**No. of Inverters**	1
Utility	Duke Energy	**Inverter Output**	11.5 KVA
System Size (W - DC)	10,920	**Battery**	PowerWall3
System Size (VA - AC)	10,000	**Storage Capacity**	13.5 KWh



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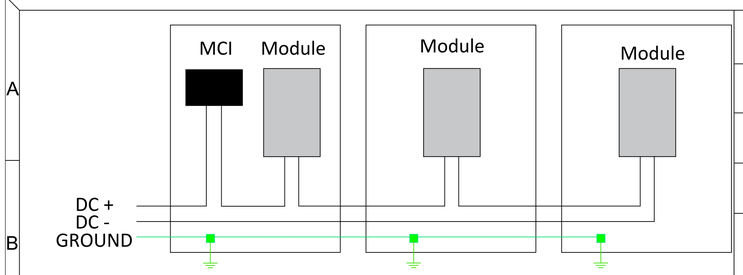
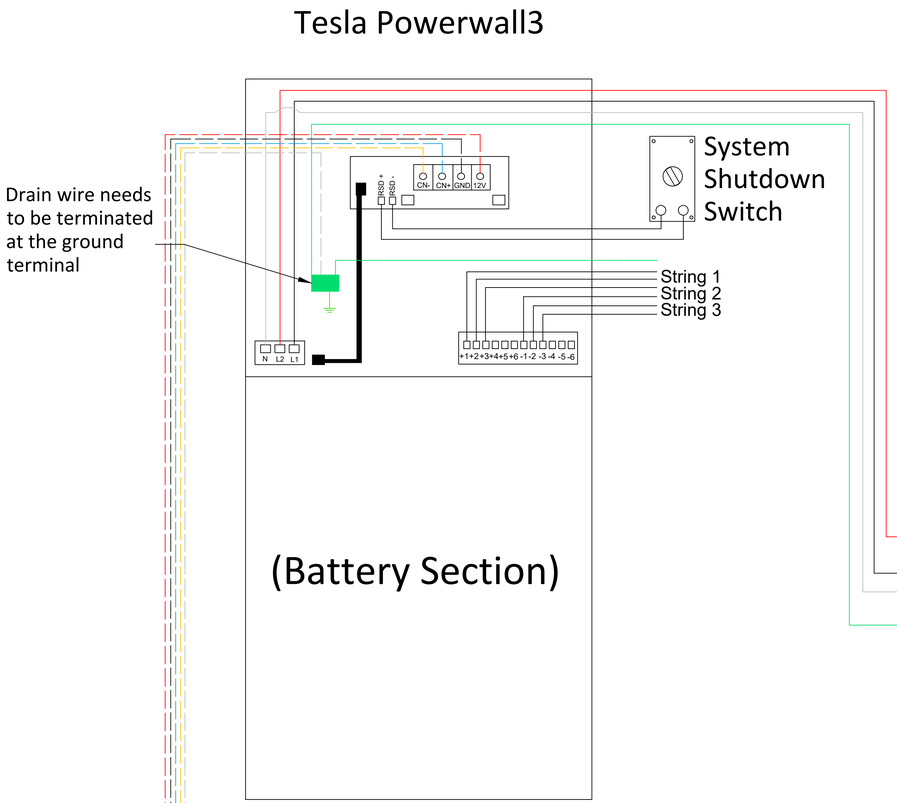
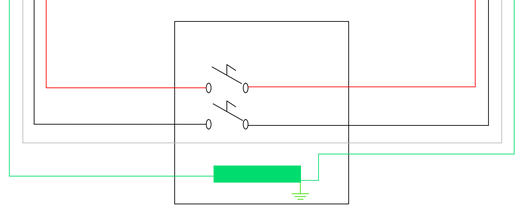
DRAWING #
PV03

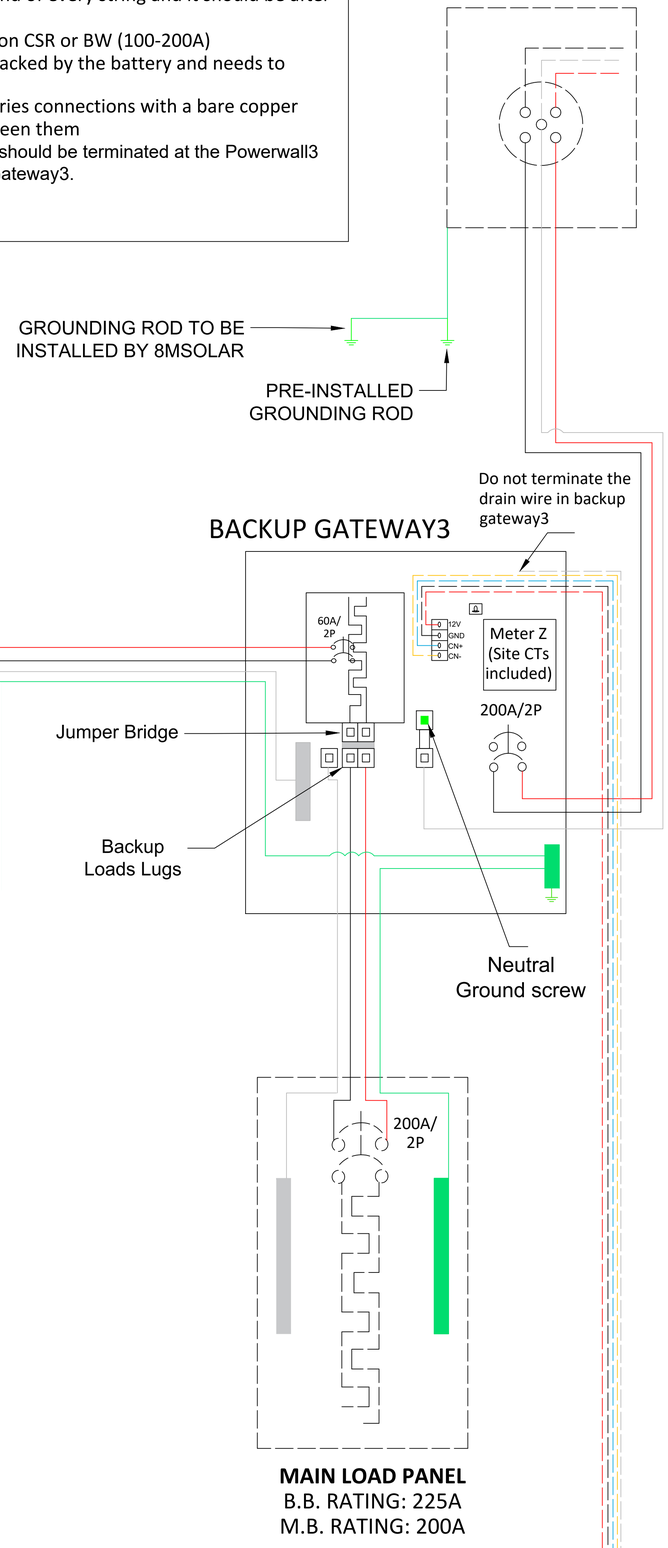


Line 1	
Line 2	
Neutral	
Ground	

Note: Tesla MCI should be at the start or end of every string and it should be after every three panels
Note: Accepted Breakers for Gateway: Eaton CSR or BW (100-200A)
Note: Loads greater than 48A will not be backed by the battery and needs to managed manually.
Note: Connect both grounding rods in a series connections with a bare copper keeping the minimum distance of 6ft between them
Note: Drain wire in the communication wire should be terminated at the Powerwall3 and it will not be terminated in the Backup Gateway3.







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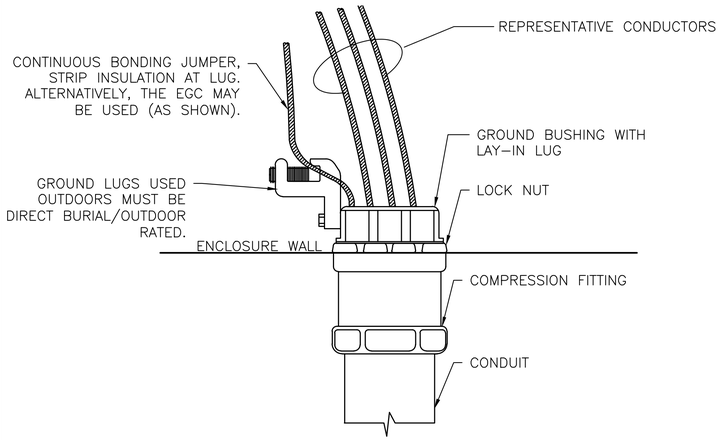
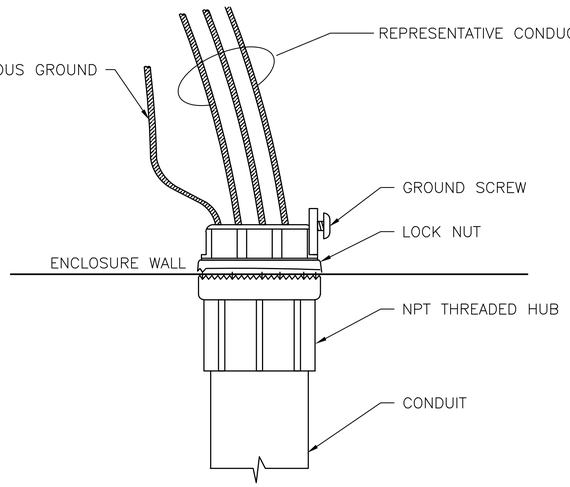
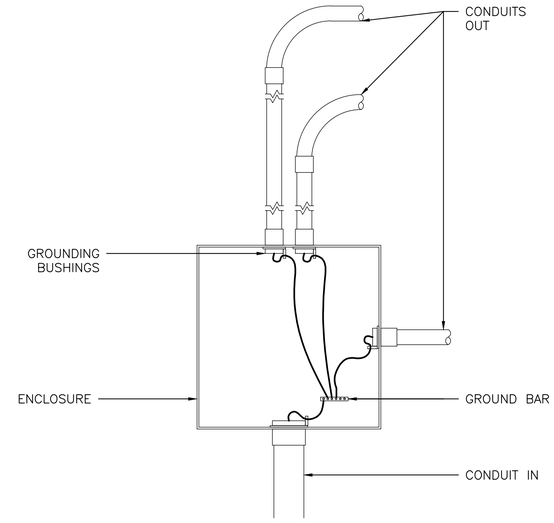
GROUNDING PLAN



1 CONDUIT BUSHING GROUNDING
SCALE: NONE

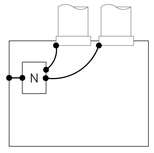


2 MYERS HUB GROUNDING
SCALE: NONE

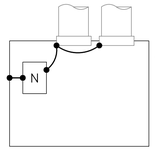


3 PULL BOX/TROUGH GROUNDING
SCALE: NONE

NEC 250.102(C)(1)
SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE SIZE OF PHASE CONDUCTORS IN EACH INDIVIDUAL CONDUIT



INDIVIDUAL



COMBINED

NEC 250.102(C)(2)
SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE COMBINED AREA OF PARALLEL PHASE CONDUCTORS

TABLE 250.102(C)(1)			
SIZE OF LARGEST UNGROUNDED CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/KCMIL)		SIZE OF GROUNDED CONDUCTOR OR BONDING JUMPER (AWG/KCMIL)	
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM
2 OR SMALLER	1/0 OR SMALLER	8	6
1 OR 1/0	2/0 OR 3/0	6	4
2 OR 2/0	4/0 OR 250	4	2
OVER 3/0 THROUGH 350	OVER 250 THROUGH 500	2	1/0
OVER 350 THROUGH 600	OVER 500 THROUGH 900	1/0	3/0
OVER 600 THROUGH 1100	OVER 900 THROUGH 1750	2/0	4/0
OVER 1100	OVER 1750	REFER TO NOTES IN NEC TABLE 250.102(C)(1)	

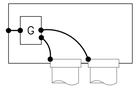
4 SUPPLY SIDE BONDING JUMPERS (SSBJ)
SCALE: NONE

A) FOR CONCENTRIC KNOCKOUTS, USE BONDING JUMPERS AS FOLLOWS:

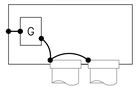
TABLE 250.122		
OVER CURRENT DEVICE CIRCUIT NOT EXCEEDING (AMPERES)	SIZE (AWG OR KCMIL)	
	COPPER	ALUMINUM
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1
500	2	1/0
600	1	2/0
800	1/0	3/0
1000	2/0	4/0
1200	3/0	250
1600	4/0	350
2000	250	400
2500	350	600
3000	400	600
4000	500	750

FOR PARALLEL FEEDERS – NEC 250.102(D)
EQUIPMENT BONDING JUMPER IS SIZED PER TABLE 250.122, REGARDLESS IF COMBINED OR INDIVIDUAL BONDING JUMPERS ARE USED

1) INDIVIDUAL



2) COMBINED

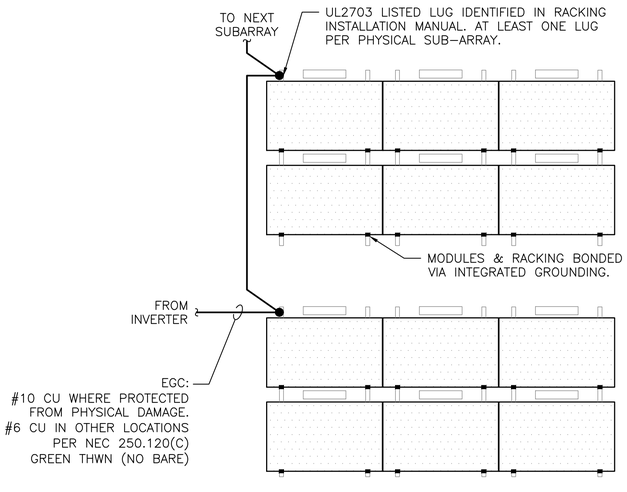


B) FOR NON–CONCENTRIC KNOCKOUTS, THE FOLLOWING METHODS SHALL BE PERMITTED (PER NEC 250.97)

1) THREADLESS COUPLINGS AND CONNECTORS FOR CABLES WITH METAL SHEATHS
2) TWO LOCKNUTS, ON RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT, ONE INSIDE AND ONE OUTSIDE OF BOXES AND CABINETS
3) FITTINGS WITH SHOULDERS THAT SEAT FIRMLY AGAINST THE BOX OR CABINET, SUCH AS ELECTRICAL METALLIC TUBING CONNECTORS, FLEXIBLE METAL CONDUIT CONNECTORS, AND CABLE CONNECTORS, WITH ON LOCKNUT ON THE INSIDE OF BOXES AND CABINETS
4) LISTED FITTINGS (SUCH AS MYERS HUB)

5 LOAD SIDE EQUIPMENT BONDING JUMPER
SCALE: NONE

NOTES:
1. EACH SUBARRAY CONNECTED TO AN INVERTER SHALL HAVE AN EGC RUN TO THAT INVERTER
2. PV MODULES AND RAILS GROUNDED PER NEC 690.43



6 ARRAY GROUNDING
SCALE: NONE

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ADVANCING ENERGY INDEPENDENCE
5112 Departure Drive,
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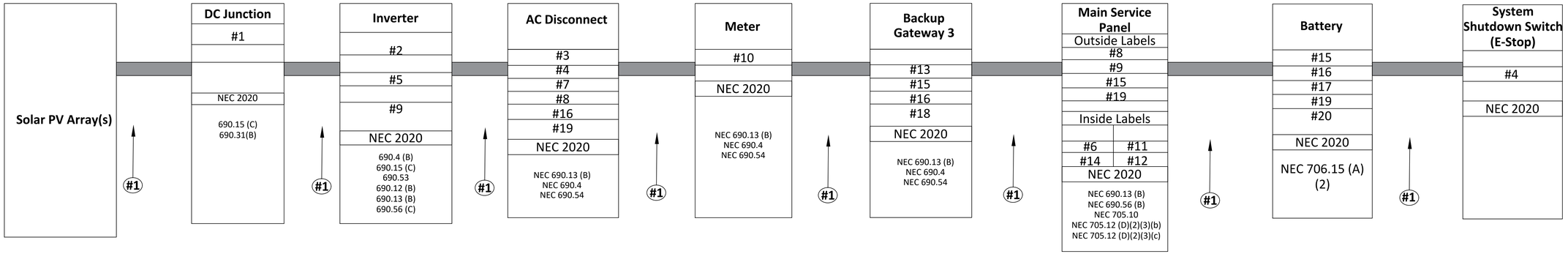
CUSTOMER INFORMATION			
NAME	Ketan R Patel	ADDRESS	211 St Clair Dr Fuquay-Varina, NC 27526
JOB NUMBER	25-339-KP	PAGE SIZE	24" x 36"
		APPROVAL	

NABCEP CERTIFIED
PV Installation Professional
Ali Buttar
PVIP #031310-32

REV	DATE	DESCRIPTION
A	10/24/2025	

DRAWING # PV05



LABELING AND WARNING SIGNS: NEC 2020

A. PURPOSE

PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:

1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.

2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECTCLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED

3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIA

a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED
b. FORMAT:

(1) WHITE LETTERING ON A RED BACKGROUND
(2) MINIMUM 3/8 INCH LETTER HEIGHT
(3) ALL LETTERS SHALL BE CAPITALIZED
(4) ARIAL OR SIMILAR FONT, NON-BOLD

c. MATERIAL:
(1) REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969) AS STANDARD FOR WEATHER RATING): DURABLE ADHESIVE MATERIALS MEET THIS REQUIREMENT.

C. MARKING REQUIREMENTS ON DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, DC COMBINERS AND JUNCTION BOXES;

1. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL.

A. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10 (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL DC COMBINERS AND JUNCTION BOXES.

B. VERBIAGE: CAUTION SOLAR CIRCUIT
C. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.B & C ABOVE
D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

#1
WARNING:PHOTOVOLTAIC POWER SOURCE

#2
PHOTOVOLTAIC
DC DISCONNECT

#3
PHOTOVOLTAIC
AC DISCONNECT

#4
RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

#5

MAXIMUM VOLTAGE	550Vdc
MAX. RATED CIRCUIT CURRENT OF THE CHARGE CONTOLLER OR DC-TO-DC CONVERTER (IF INSTALLED)	13.72Adc

#6

PHOTOVOLTIVC POWER SOURCE		
OPERATING AC VOLTAGE	240	V
MAXIMUN OPERATING AC OUTPUT CURRENT	48	A

#7

AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE		
RATED AC OUTPUT CURRENT	48	AMPS
NOMINAL OPERATING AC VOLTAGE	240	VOLTS

#8
WARNING
ELECTRIC SHOCK HAZARD
TERMINAL ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

#9
WARNING
THREE POWER SOURCES
SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

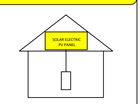
#10
WARNING
THREE POWER SOURCES
SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

#11
WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

#12
WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

#13
WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFEED

#14
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



#15
SOLAR AC DISCONNECT LOCATED AT NORTH-WEST SIDE WALL OF THE HOUSE BESIDE THE UTILITY METER

#16
SERIVCE DISCONNECT LOCATED IN THE BACKUP GATEWAY3 PANEL

#17
BATTERY

#18
MAIN BATTERY SYSTEM DISCONNECT

#19
BATTERY DISCONNECT LOCATED IN THE BACKUP GATEWAY3 PANEL

#20
ENERGY STORAGE SYSTEM DISCONNECT

NOMINAL ESS AC VOLTAGE	240V
NOMINAL ESS DC VOLTAGE	550V
AVAILABLE FAULT CURRENT DERIVED FROM THE ESS	160A
DATE CALCULATION PERFORMED	7/02/2025

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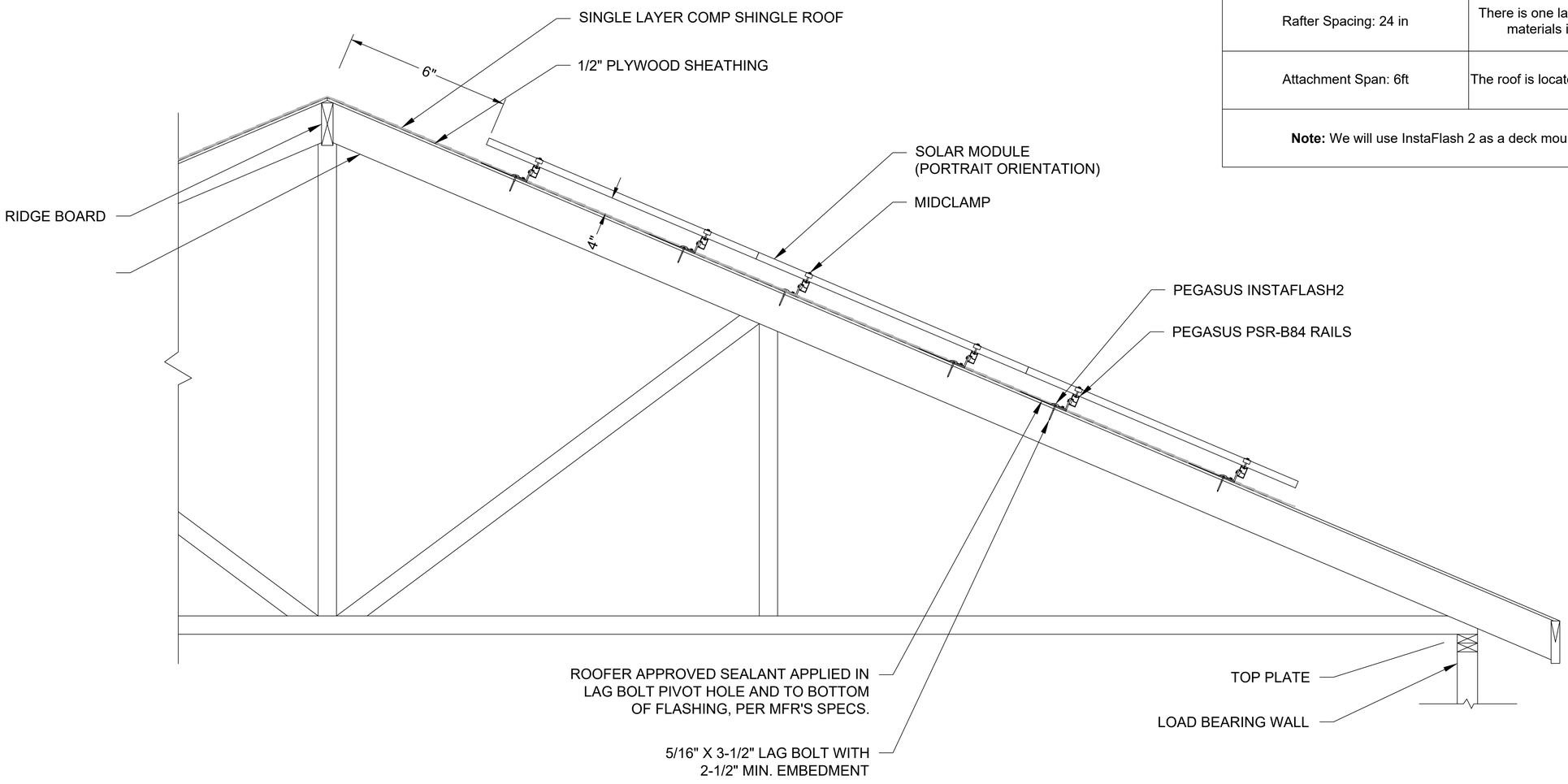
A	10/24/2025	

DRAWING # PV07

Rails and Splices: PSR-B84 (BLACK)	Roof Attachment: Pegasus InstaFlash 2
Rafter Spacing: 24 in	There is one layer of shingles Roofing materials is asphalt shingles
Attachment Span: 6ft	The roof is located in 120mph wind zone
Note: We will use InstaFlash 2 as a deck mount on Roof A.	



LOAD INFORMATION OF ROOF A

	QUANTITY	WEIGHT / UNIT	TOTAL WEIGHT
MODULES	16	50.7LBS	811.2 LBS
WEIGHT OF ARRAY			912.4 LBS
COVERED AREA			356.0 SQFT
WEIGHT PER AREA			2.56 LBS / SQFT

LOAD INFORMATION OF ROOF B

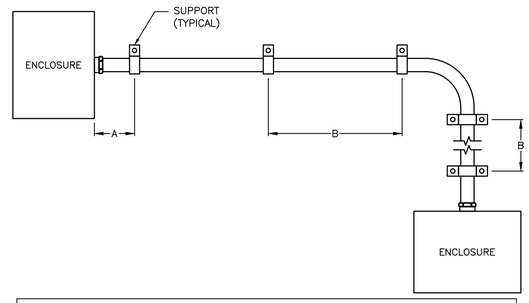
	QUANTITY	WEIGHT / UNIT	TOTAL WEIGHT
MODULES	8	50.7LBS	405.6 LBS
WEIGHT OF ARRAY			465.5 LBS
COVERED AREA			178.0 SQFT
WEIGHT PER AREA			2.61 LBS / SQFT

PV System Dead Load (Panel + Racking weight) / PV System Area
(No. of panels x Weight of panel(lbs.) +Length of racking(ft.) x 1.15 lb.ft) /
(No. of panels x Height x Width) = Total psf

ROOF	A	B	
DEAD LOAD (PSF)	2.68	2.70	

LAG BOLT SCHEDULE

LOCATION	INFIELD	3' SIDE ZONES	3' CORNER ZONES
BOLT SIZE	5/16" x 3-1/2"	5/16" x 3-1/2"	5/16" x 3-1/2"
MIN EMBED	2-1/2"	2-1/2"	2-1/2"



MAXIMUM CONDUIT HARDWARE SPACING

CONDUIT TYPE	ENCLOSURE TO SUPPORT (A)	SUPPORT TO SUPPORT (B)	NEC ARTICLE
ELECTRICAL METALLIC TUBING (EMT)	3'	10'	358
INTERMEDIATE METAL CONDUIT (IMC)	3'	10'	342
RIGID METAL CONDUIT (RMC)	3'	10'	344
LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)	1'	4.5'	350
PVC (SCH40 & 80) [0.5" - 1"]	3'	3'	352
PVC (SCH40 & 80) [1.25" - 2"]	3'	5'	352
PVC (SCH40 & 80) [2.5" - 3"]	3'	6'	352
PVC (SCH40 & 80) [3.5" - 5"]	3'	7'	352
PVC (SCH40 & 80) [6"]	3'	8'	352

CONDUIT SUPPORT SPACING
SCALE: NONE

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DRAWING #
PV08

RAILS AND MOUNTING SYSTEM			
MAKE			Pegasus
SR. NO	QTY	PRODUCT NUMBER	DESCRIPTION
1	32	PSR-B84	Pegasus Rail, Black, 84" (7 Feet)
2	18	PSR-SPLS	Pegasus - Bonded, Structural Splice
3	34	PSR-MCB	Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
4	28	PSR-HEC	Pegasus - Hidden End Clamp
5	7	PSR-LUG	Pegasus - Grounding Lug
6	60	PSR-WMC	Pegasus - Wire Management Clip
7	5	PSR-CBG	Pegasus - Cable Grip
8	28	PSR-CAP	Pegasus - End Cap
9	49	PIF2-BDT	INSTAFLASH2 - DECK OR RAFTER ATTACH - WITH DOVETAIL T-BOLT
10	230	PF-DRW85	PEGASUS FASTENER - DECK-RAFTER 85MM
11	48	S6405	Heyco Wire Clips
12	2	GEOC GC66100	SEALANT 2300 10.3OZ CLEAR (20) GEOCEL 230 TRIPOLY CLEAR
13	15	MULTI 32.0017P0001-UR	PV MC4 MALE (10) [1000]
14	15	MULTI 32.0016P0001-UR	PV MC4 FEMALE (10) [1000]

Note: Instaflash2 will be used as deck mount on Roof A

SOLAR MODULES		
QTY	MODEL	MAKE
24	CS6.1-54TM-455H	Canadian Solar
INVERTER AND SUPPORTING ITEMS		
1	1707000-00-J	Tesla Powerwall3
9	1879359-15-B	Tesla MCI-2 High Current
1	1841000-01-C	Backup Gateway 3
1	1549184-00X	2" Conduit Hub Kit
WIRE		
1	WIRPV 2KVPV10STRBLK500	#10 PV WIRE BLK (Cu) 500ft
ELECTRICAL ITEMS		
1	BW2200	Gateway Main Breaker-Eaton BW2200
1	BR260	Eaton BR 60/2
1	DG222URB	250volt/60amp/2pole non fusible disconnect (NEMA 3R)
1	EATON M22PVK01	22.5MM PB EMG STOP W/ CONTACTOR
1	Eaton M22I1PG	SFC MTG ENC Emergency Stop Enclosure
1	EZSLR JB-1.2	SolaDeck

LABELS AND SIGNAGE		
SR. NO	QTY	PRODUCT NUMBER
1	12	02-314
2	1	03-301
3	1	03-302
4	2	02-316
5	1	03-308
6	1	03-390
7	1	03-306
8	2	05-215
9	2	05-230
10	1	03-230
11	1	05-372
12	1	05-216
13	1	05-342
14	1	07-111
15	3	8M-001
16	3	8M-002
17	1	03-395
18	1	04-304
19	3	8M-004
20	1	03-511

8M SOLAR
ADVANCING ENERGY INDEPENDENCE
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Raleigh,NC 27616

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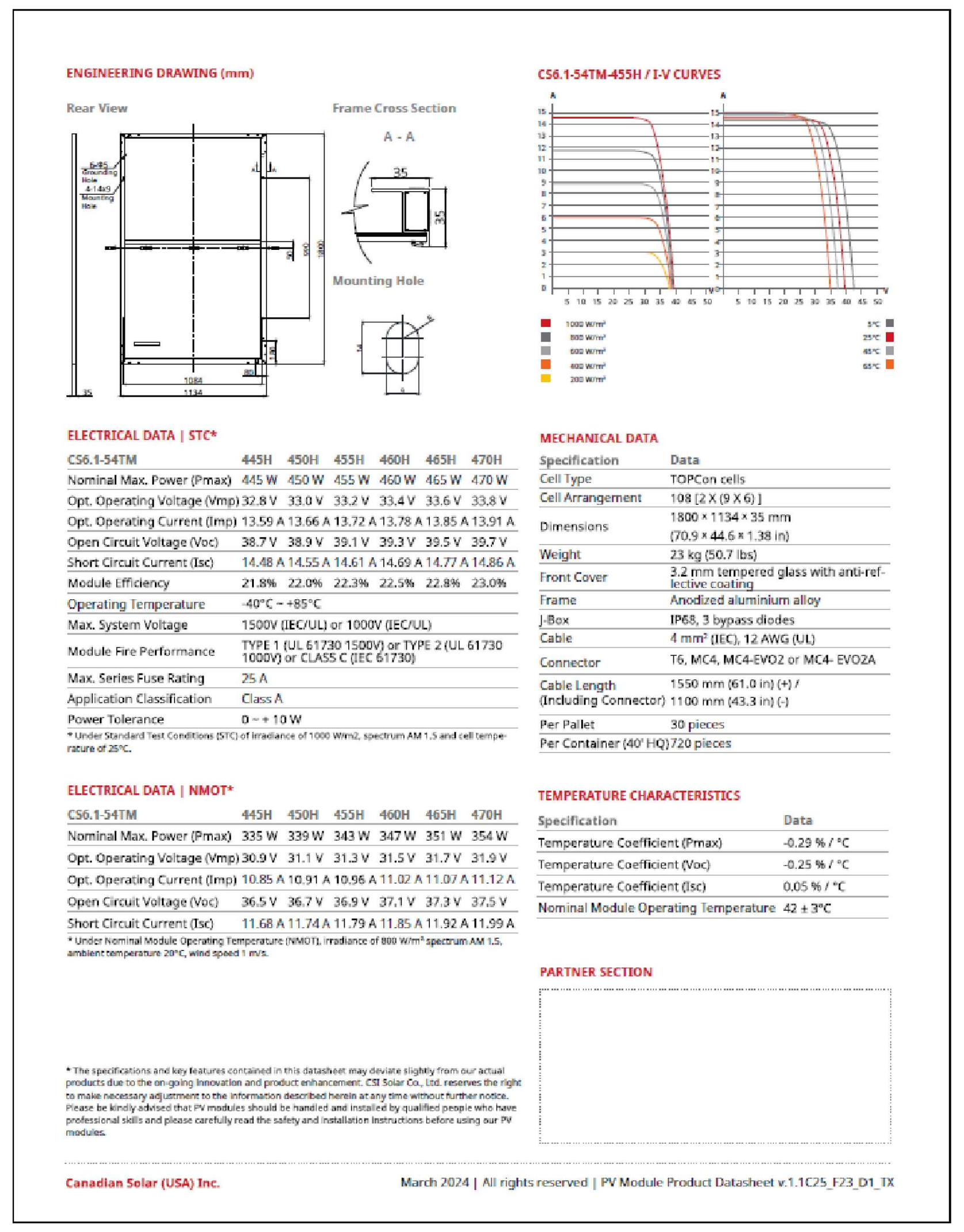
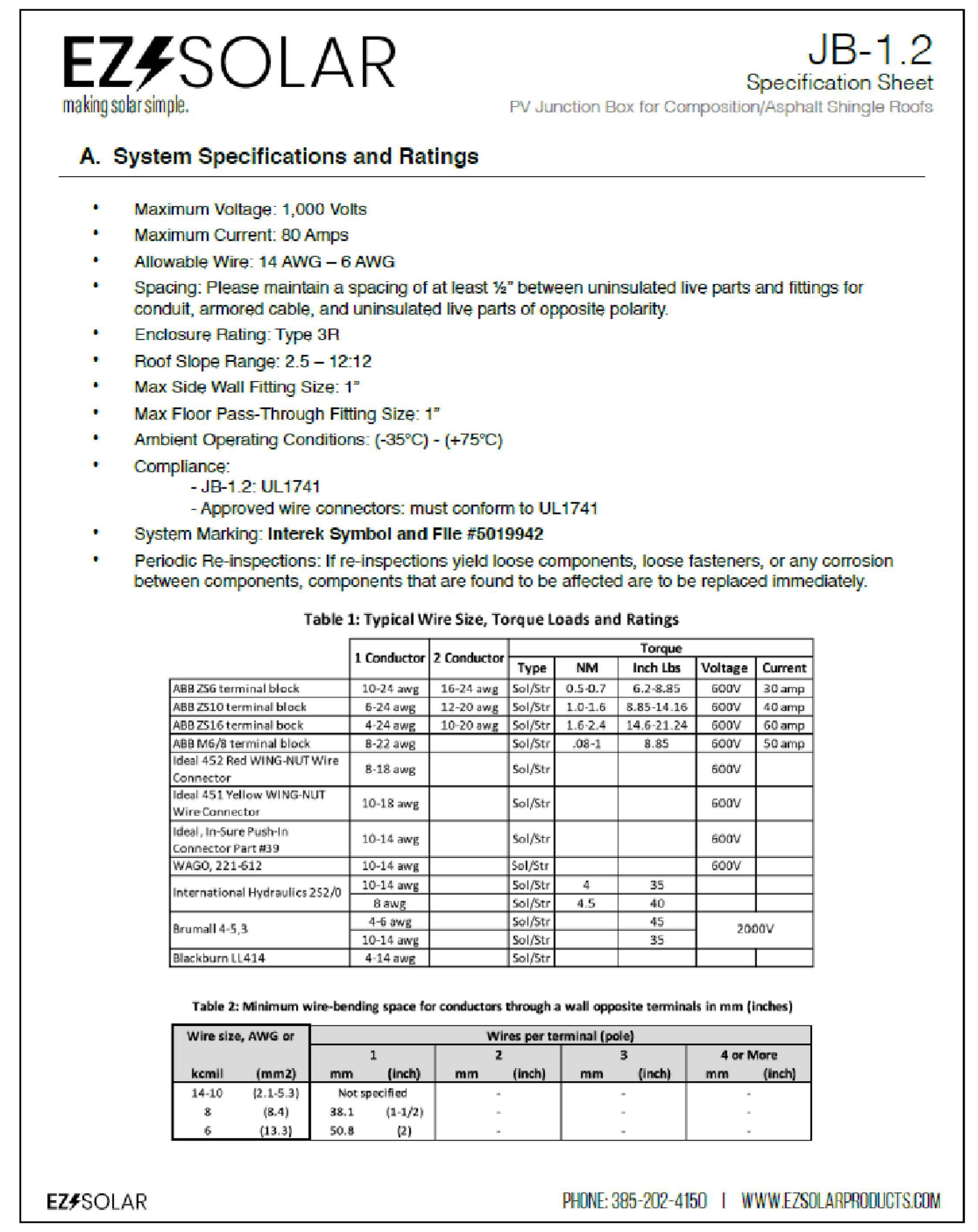
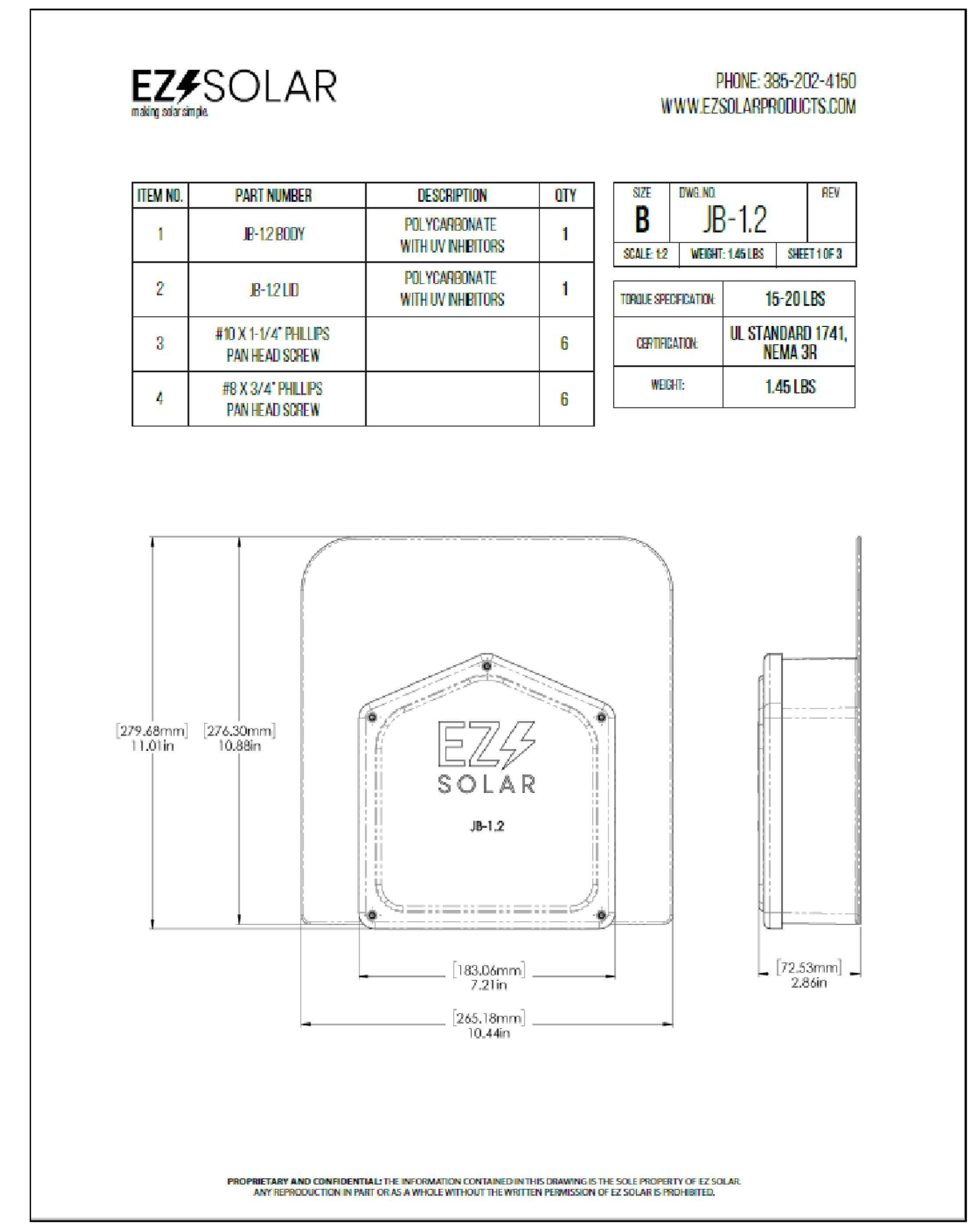
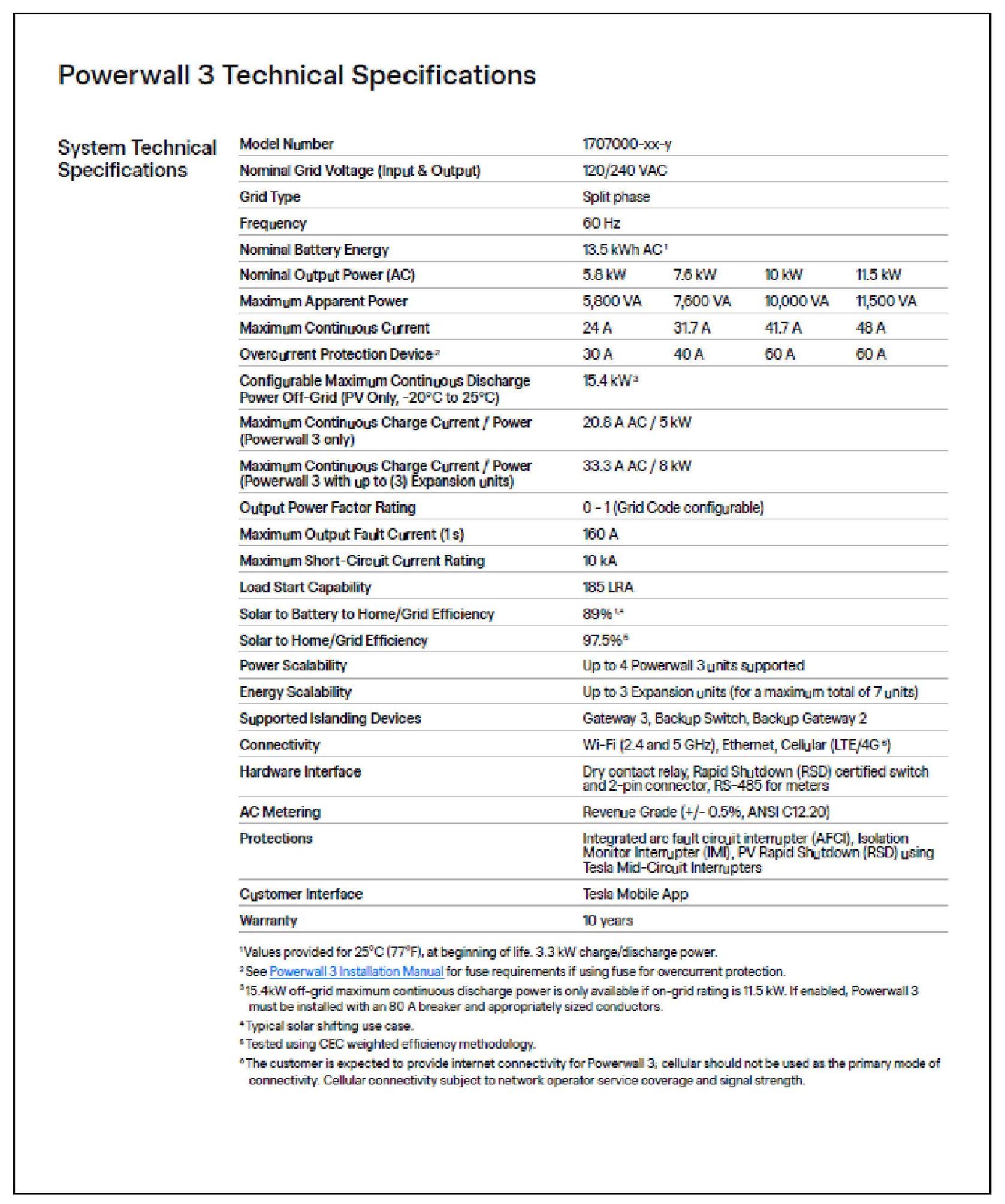
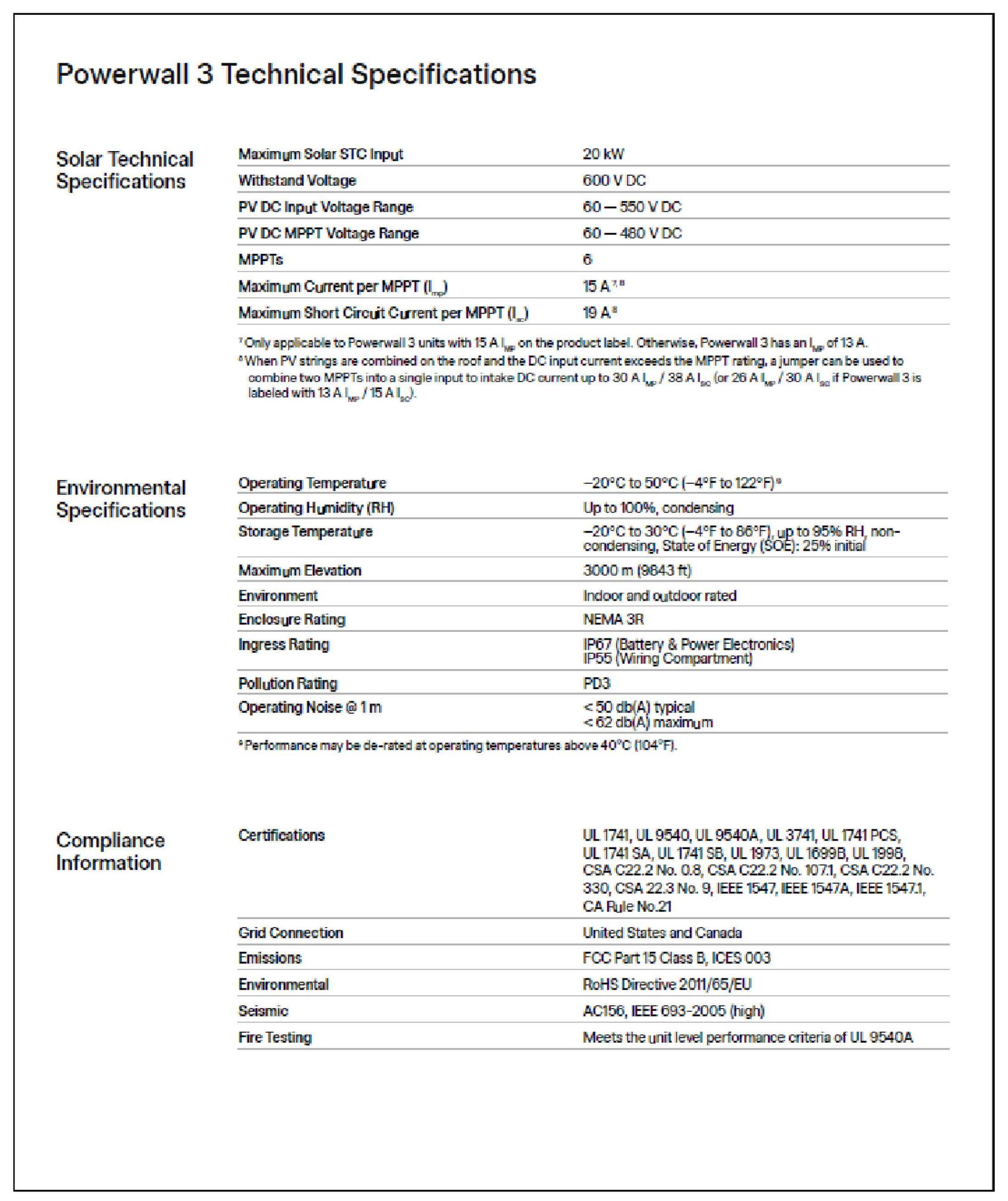
DRAWING #
PV09

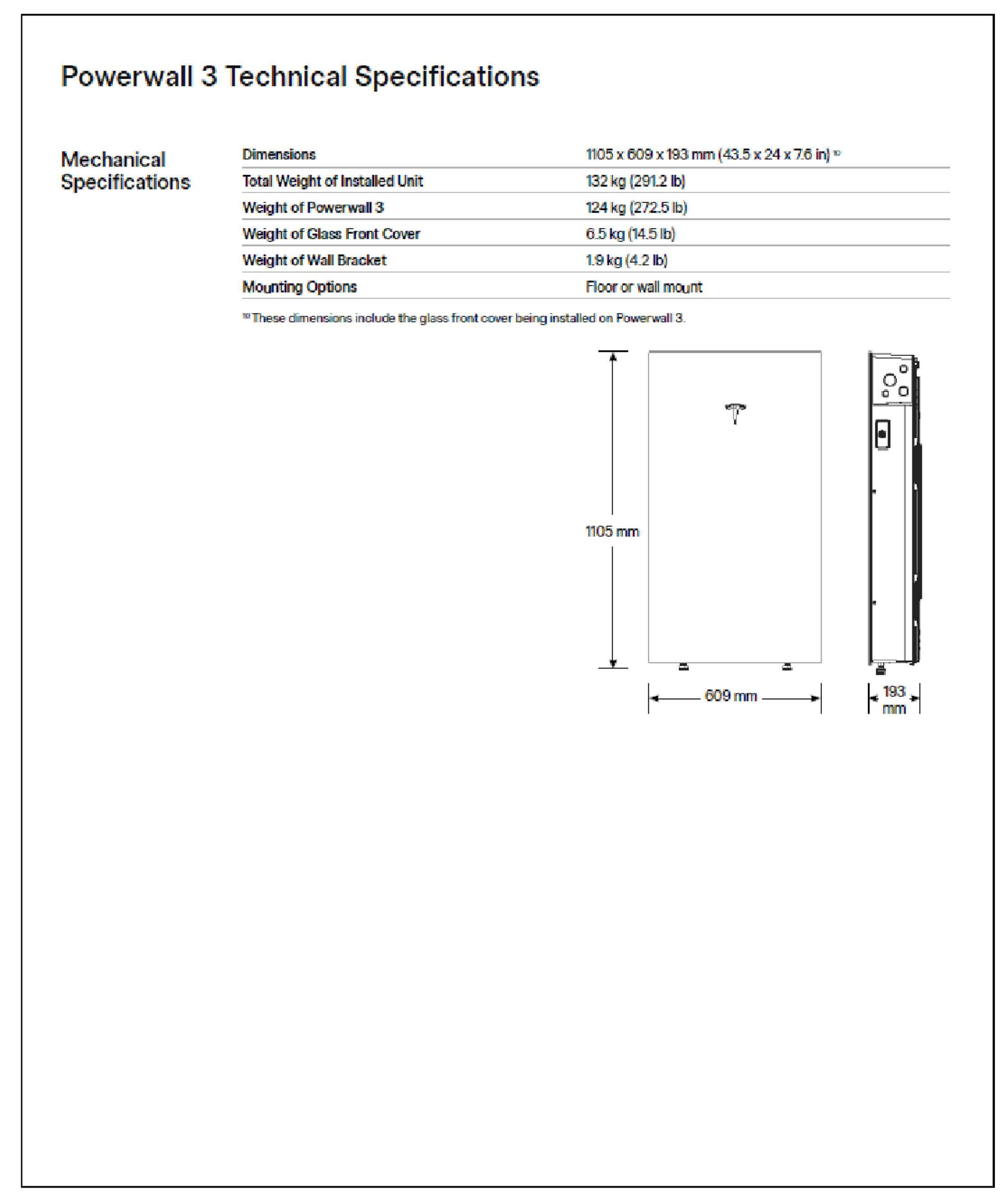


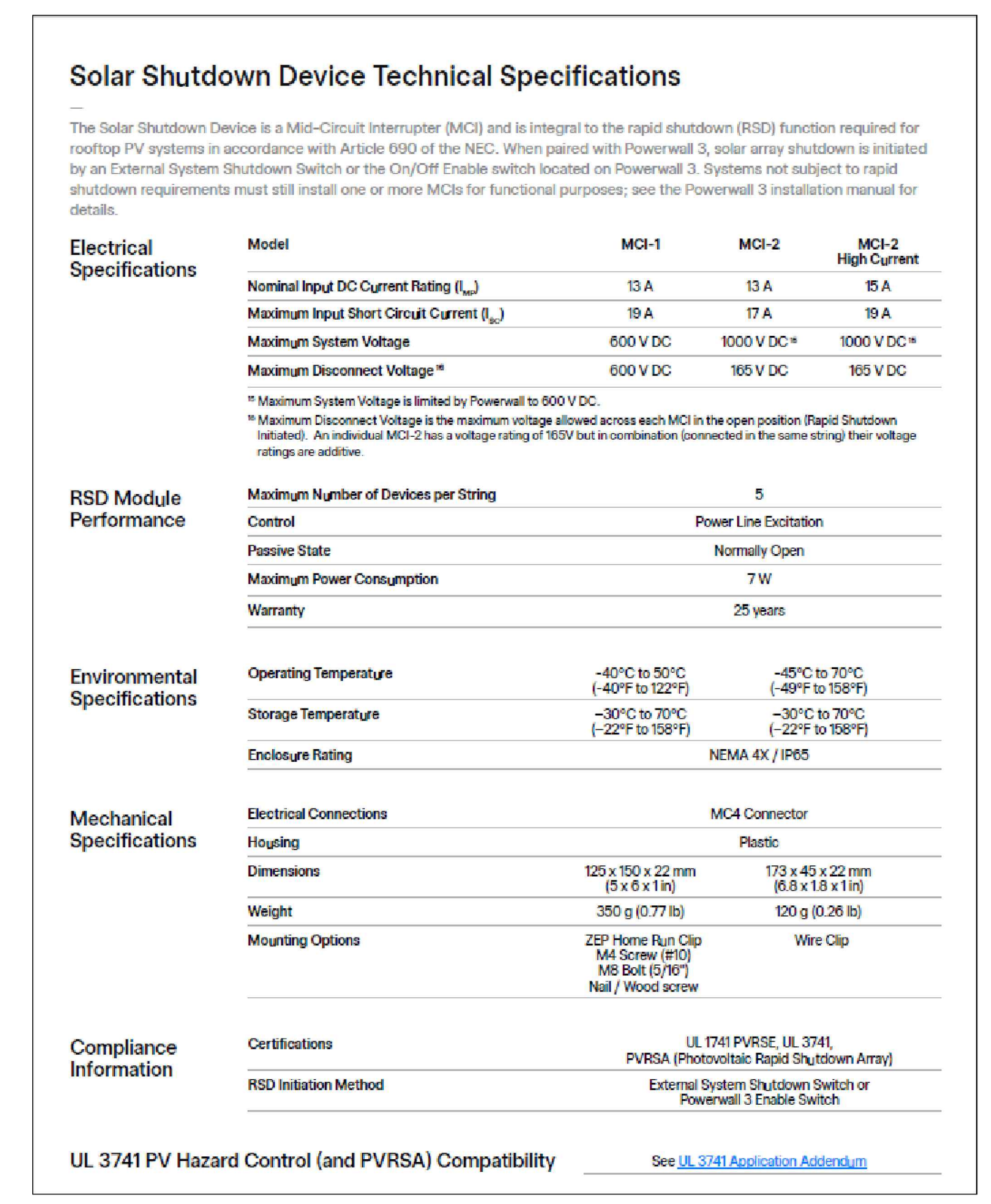


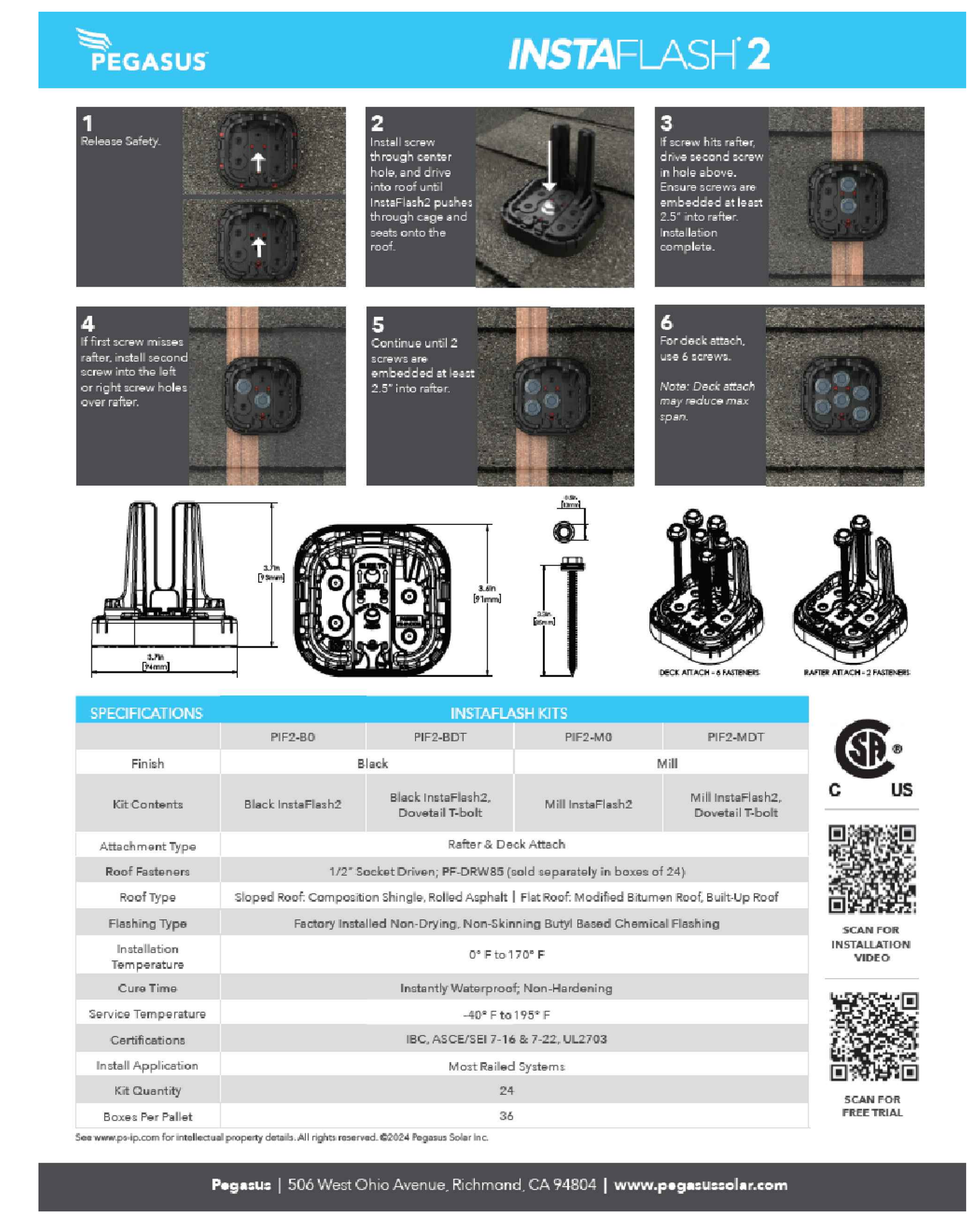


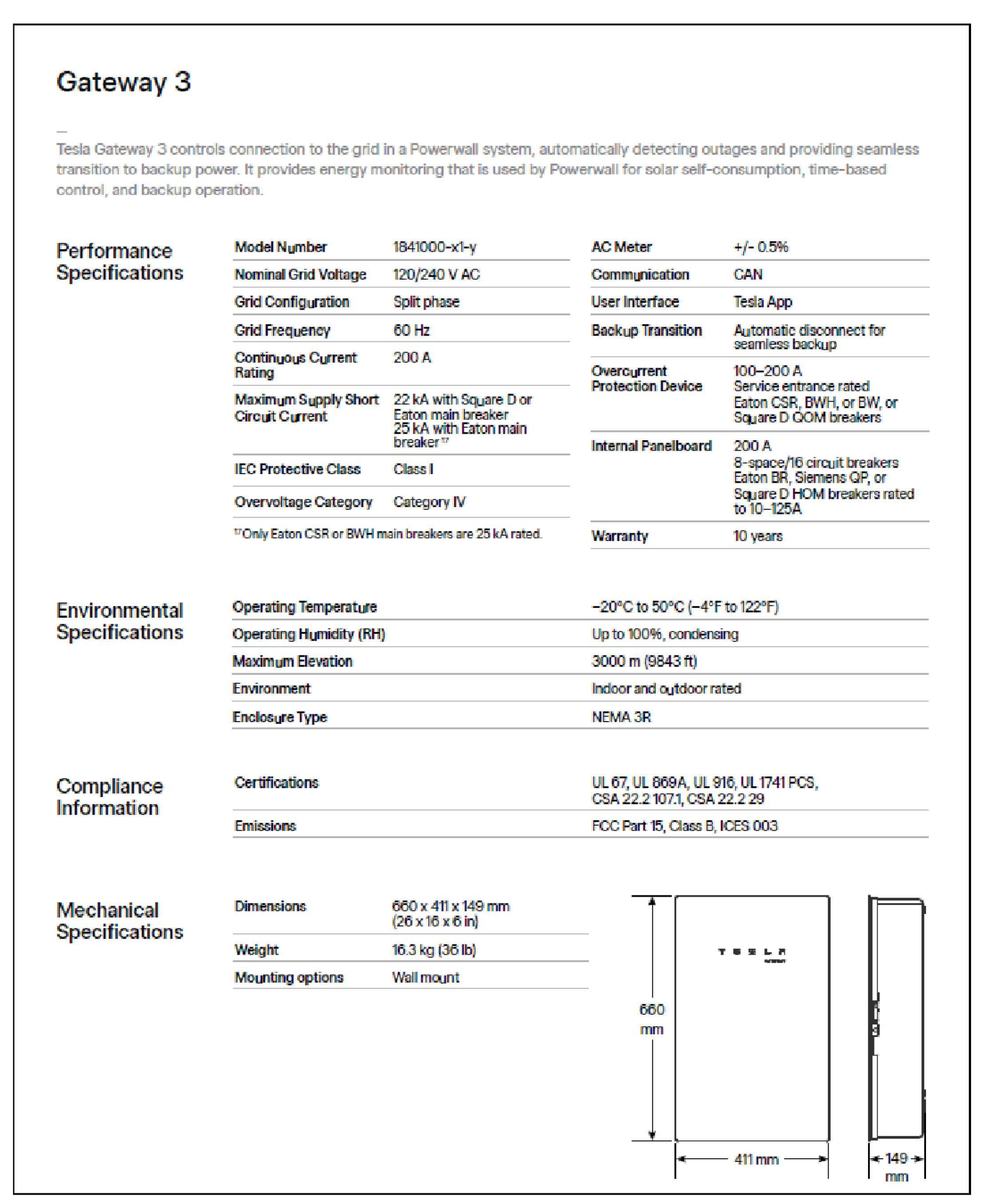


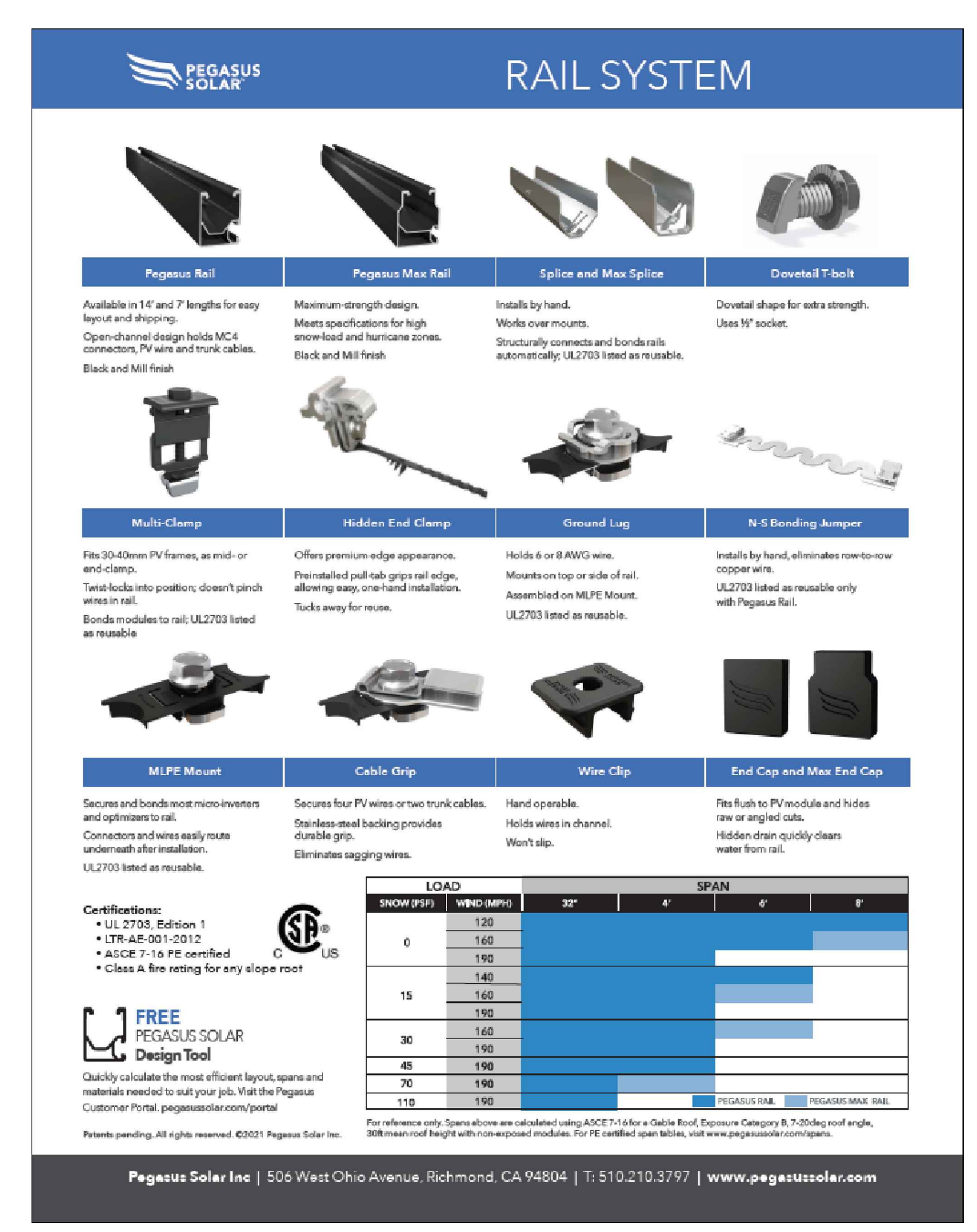












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DRAWING #
SS01