Joe Frogge

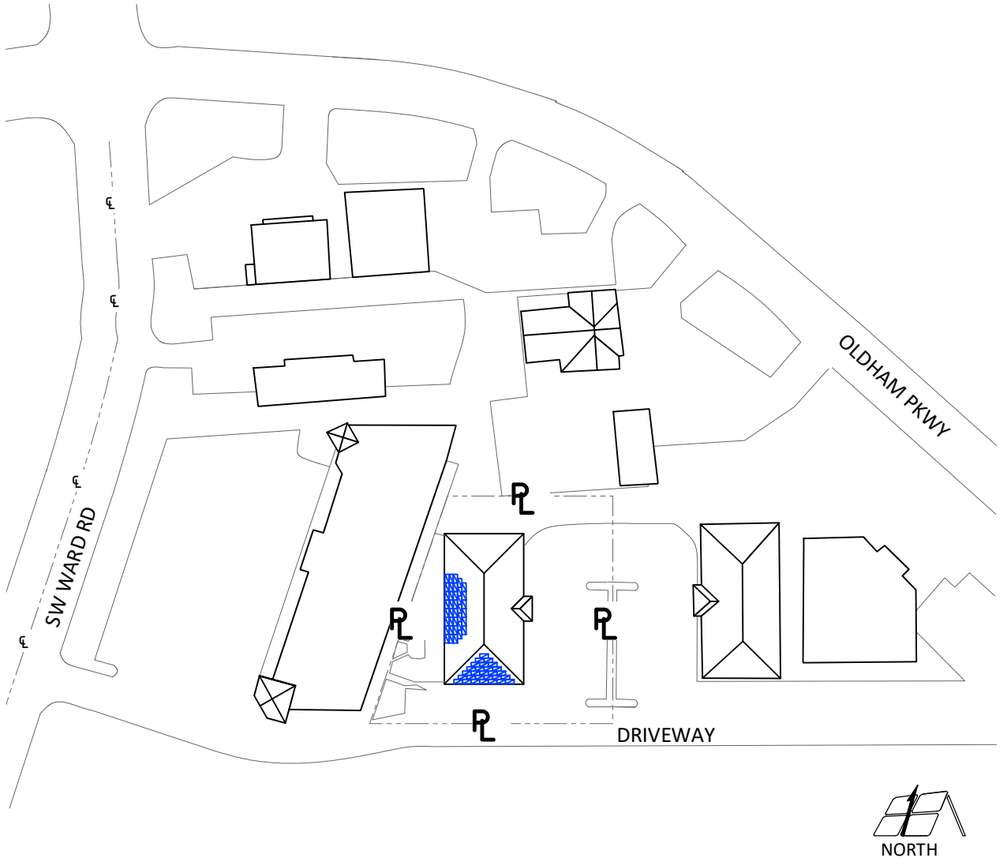
Digitally signed by Joe Frogge
DN: CN=Joe Frogge
OU=Development, DU=LS
Users, DC=COLS, DC=LOC
Reason: release for construction
Date: 2022.01.28 15:40:28-06'00'

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
01/28/2022

PARCEL MAP

GPS COORDINATES (38.909042,-94.39407)



PROJECT APN:

GOVERNING CODES

APPLICABLE BUILDING CODES:

2015 INTERNATIONAL BUILDING CODE

2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRIC CODE

DESIGN CRITERIA

BUILDING OCCUPANCY: B
RISK CATEGORY: II
ASCE 7-16 WIND SPEED: 115
EXPOSURE CATEGORY: Exposure C
SNOW LOAD: 20
SNOW EXPOSURE: N/A
CONSTRUCTION TYPE: VB

PROJECT LOCATION

SCOPE OF WORK

ROOF MOUNTED PV (SOLAR) PROJECT GRID-TIED W/O BATTERY STORAGE

PROPOSED SOLAR EQUIPMENT

QTY.	EQUIPMENT	DESCRIPTION/MFG/MODEL
65	MODULES	Q-Cell Q.PEAK DUO L-G6.2 425
65	INVERTER(S)	Enphase IQ7A-72-2-US (240V)
N/A	RACKING	Roof Tech E Mount Air
260	STANCHIONS	Roof Tech E Mount Air
N/A	RSD DEVICE	INTEGRATED IN INV
N/A	BATTERIES	N/A
6	COMBINER(S)	Enphase X-IQ-AM1-240-3
(E)	MSP RATINGS	100A BUS/100A MAIN BREAKER

SITE / PROJECT DETAILS

CONNECTION	LOAD-SIDE TAP
SYSTEM SIZE DC	27.625 KW
SYSTEM SIZE AC	24.823 KW
QTY. STRING/CKT.	8
ELECT. SERVICE	120/240V - 1Φ
ROOF COVERING	Comp Shingle
TILT	22.6°
AZIMUTH	165°,255°

PROJECT TEAM LIST

CONTRACTOR:
Sun Smart Technologies
701 NE 76th Street
Gladstone, MO 64118
CONTRACTOR LIC #: 000002021-00077
PHONE: (816) 388-9486
CONTACT NAME: Levon Pogosov
PHONE: M. Sucharski
EMAIL:

DESIGN BY:
M. Sucharski
PHONE:
EMAIL:

PROJECT DRAFTER:
Advanced Solar Solutions
2372 Morse Ave #912
Irvine, CA 92614
PHONE: 559-321-7000
EMAIL: info@advpermits.com

HOME OWNER PROJECT LOCATION:
LSCV455-MO, LSCV455-MO
455 SW Ward Rd, Lee's Summit, MO 64081

CONTACT NAME: LSCV455-MO, LSCV455-MO
PHONE:
EMAIL:

ELECTRICAL UTILITY:
KCP&L - Kansas City Power & Light
METER NUMBER:
PHONE:

AUTHORITY HAVING JURISDICTION:
BUILDING: City of Lee's Summit
PHONE:

ENGINEERED BY:
Robert D Smythe
55 West 500 South
Herber City, UT 84032
LICENSE #: 132277
LICENSE TYPE: Civil
PHONE: (925) 316-8341
EMAIL: solar@rightangleeng.com

SHEET INDEX

SHEET NUMBER	SHEET TITLE
PV-001	COVER SHEET
N-001	GENERAL NOTES
PV-100R	PV ARRAY LAYOUT
S-100	RACKING LAYOUT
S-200	SECTION ELEVATION
S-201	ATTACHMENT DETAILS
E-001	EQUIP. CALCULATION
(5) E-002	WIRE AND COND. CALCS
(5) E-003	THREE LINE DIAGRAM
E-100	ELECTRICAL LAYOUT
P-001	STANDARD PLACARDS
P-002	DYNAMIC PLACARDS
R-1xx	EQUIP.CUT SHEETS

GENERAL PROJECT & JURISDICTIONAL NOTES

INSPECTION REQUIREMENTS

1. A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH ALL OSHA REGULATIONS.

2. PENDING LOCAL JURISDICTIONAL REQUIREMENTS AND WHEN APPLICABLE ALL ELECTRICAL ENCLOSURE DEAD FRONTS, COVERS, DOORS, ETC. SHALE BE OPEN AND ACCESSIBLE FOR INSPECTIONS. WHEN TRENCH AND ROOF INSPECTIONS ARE REQUIRED WORK SHALL BE OPEN AND ACCESSIBLE FOR INSPECTOR.

JURISDICTIONAL & LISTING REQUIREMENTS

1. WHEN APPLICABLE A SMOKE DETECTOR, APPROVED AND LISTED BY THE STATE FIRE MARSHAL OR ANSI/UL 217 CERTIFIED TO NATIONAL FIRE ALARM AND SIGNALING CODE, NFPA 72 SHALL BE VERIFIED FUNCTIONAL OR INSTALLED IN ALL APPLICABLE CODE REQUIRED LOCATIONS.

2. ALL APPLICABLE EQUIPMENT TO BE UL LISTED OR LISTED BY OTHER JURISDICTIONAL AND UTILITY APPROVED ASSOCIATION OR NATIONALLY RECOGNIZED ORGANIZATION.

3. FULL SCOPE OF WORK SHALL COMPLY WITH ALL APPLICABLE CODES LISTED IN GOVERNING CODES SECTION, ALL MANUFACTURES' LISTINGS, INSTALLATION INSTRUCTIONS AND SPECIFICATIONS AND JURISDICTIONAL REQIREMENTS.

4. REVISED PLANS WILL BE REQUIRED TO BE RESUBMITTED TO THE LOCAL JURISDICTION IF THE INSTALLED ARRAY AND ASSOCIATED EQUIPMENT DOES NOT MATCH THE APPROVED BUILDING PLANS. ADDITIONAL FEES MAY ALSO APPLY.

5. THE PLACEMENT OF A UTILITY PV PRODUCTION METER SHALL BE PROVIDED AND PLACED BY THE CONTRACTOR AS PER APPLICABLE UTILITY OR AHJ REQUIREMENTS.

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REV	DATE	RELEASE
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PV-001

COVER SHEET

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

GENERAL NOTES:*

PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION *NEC 110.26.*

PV SYSTEM COMPONENTS; INCLUDING BUT NOT LIMITED TO, MODULES, INVERTERS AND SOURCE CIRCUIT COMBINERS ARE IDENTIFIED AND LISTED FOR USE IN PV SYSTEMS IN COMPLIANCE WITH *NEC 690.4 AND 690.6* AND *ALL UL, IEC, IEEE* CLASSIFICATIONS AS REQUIREMENTS.

RAPID SHUTDOWN NOTES:*

PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDIDNG SHALL INCLUDE A **RAPID SHUTDOWN FUNCTION** THAT CONTROLS SPECIFIC PV CONDUCTORS IN ACCORDANCE WITH *2017 NEC 690.12(A)-(D)*

EQUIPMENT LOCATIONS & ELECTRICAL NOTES:*

JUNCTION AND PULL BOXES ARE PERMITTED TO BE INSTALLED UNDER PV MODULES IN COMPLIANCE WITH *NEC 690.34*.

ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT. *2017 NEC 690.15(A)*

ALL EQUIPMENT SHALL BE INSTALLED **ACCESSIBLE TO QUALIFIED PERSONNEL** IN COMPLIANCE *WITH NEC* APPLICABLE CODES.

ALL COMPONENTS ARE **LISTED FOR THEIR INTENDED PURPOSE AND RATED FOR OUTDOOR USAGE** WHEN APPLICABLE.

STRUCTURAL AND INSTALLATION NOTES:*

RACKING SYSTEM & PV PANELS MOUNTED ON A ROOFTOP SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1703* AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

ALL PV RACKING ATTACHMENT POINTS SHALL NOT EXCEED THE PRE-ENGINEERED **MAX SPANS** OUTLINED BY THE RACKING MANUFACTURES ENGINEER OF RECORD.

GROUNDING NOTES:*

IN UNGROUNDED SYSTEMS ONLY THE DC CONDUCTORS ARE UNGROUNDED AND REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN COMPLIANCE WITH *NEC 250.134* AND *NEC 250.136(A)*.

PV EQUIPMENT INCLUDING **MODULE FRAMES AND OTHER METAL PARTS SHALL BE GROUNDED** IN COMPLIANCE WITH *NEC 690.43* AND MINIMUM GROUND CONDUCTORS SIZED IN ACCORDANCE WITH *NEC TABLE 250.122*.

CONDUCTIVE PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES SHALL BE GROUNDED IN COMPLIANCE WITH *NEC 250.134 AND NEC 250.136(A)*.

UL2703 APPROVED **MODULE AND RACK GROUNDING** SHALL BE USED AND INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL. IF *UL2703* APPROVED GROUNDING IS NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH *NEC 690.47* AND *NEC 250.50* THROUGH *NEC 250.106*. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH *NEC 250, NEC 690.47* AND *AHJ*.

PV SYSTEMS SHALL BE PROVIDED WITH **DC GROUND-FAULT PROTECTION** *2017 NEC 690.41(B)*

INTERCONNECTION / POC NOTES:*

ALL LOAD-SIDE INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)*

THE TOTAL RATING OF ALL OCPD IN SOLAR LOAD CENTERS SHALL NOT EXCEED THE RATED AMPACITY OF THE BUSBAR EXCLUDING THE OCPD PROTECTING THE BUSBAR IN COMPLIANCE WITH *NEC 705.12(B)(2)(3)(c)*

ALL FEEDER TAP (LOAD SIDE) INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)(2)(1)*

THE PV SYSTEM BACK-FEED BREAKER SHALL BE INSTALLED ON THE OPPOSITE END OF THE BUS BAR AND IT SHALL ALSO BE SIZED APPROPRIATELY AS PER *2017 NEC 705.12(B)(2)(3)(b)*

SUPPLY SIDE TAP INTERCONNECTIONS ARE IN COMPLIANCE WITH *NEC 705.12(A)* WITH SERVICE ENTRANCE CONDUCTORS IN COMPLIANCE WITH *NEC 230.42*

BACKFEEDING BREAKER FOR INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING *2017 NEC 705.12(B)(5)*

MICROINVERTER BRANCH CIRCUITS SHALL BE CONNECTED TO A SINGLE OCPD IN ACCORDANCE WITH THEIR INSTALLATION INSTRUCTIONS AND *NEC 690.9*

DISCONNECTS AND OCPD NOTES:*

ALL DISCONNECTING SWITCHES WILL BE CONFIGURED SO THAT ALL ENERGIZED CONDUCTORS WHEN DISCONNECT IS OPEN SHALL BE ON THE TERMINALS MARKED, "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)

ALL AC DISCONNECTS SHALL BE LABELED, LOCKABLE, OF VISIBLE BREAK TYPE SWITCH WITH EXTERNAL HANDLE AND ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL.

AC DISCONNECTS SHALL BE A "KNIFE BLADE" TYPE DISCONNECT. IF EXTERIOR, RATED TO NEMA 3R OR BETTER PER *NEC 110.28*

ADDITIONAL AC DISCONNECTS SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WIHTIN SIGHT OF THE UTILITY AC DISCONNECT. *2017 NEC 690.15(A)*

BOTH POSITIVE AND NEGATIVE PV CONDUCTORS REMAIN UNGROUNDED. THEREFORE, BOTH SHALL REMAIN OPEN WHERE A DISCONNECT IS REQUIRED IN COMPLIANCE WITH *2017 NEC 690.15(D)*

ALL OCPD RATINGS AND TYPES SPECIFIED SHALL BE IN COMPLIANCE WITH *NEC 690.8, 690.9, 705.12* AND *240*.

BOTH POSITIVE AND NEGATIVE DC PV CONDUCTORS ARE UNGROUNDED; BOTH REQUIRE OVERCURRENT PROTECTION IN COMPLIANCE WITH *NEC 690.9*

ARC FAULT (AFCI) DC CIRCUIT PROTECTION IS REQUIRED FOR ALL PV SYSTEMS ON OR PENETRATING A BUILDING WITH A MAXIMUM SYSTEM VOLTAGE OF 80 VOLTS OR GREATER. ALL DC PV CIRCUITS INSTALLED IN OR ON BUILDINGS WILL BE ARC-FAULT CIRCUIT PROTECTED IN COMPLIANCE WITH *NEC 690.11, UL1699B* AND SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1699 (B)*.

WIRING & CONDUIT NOTES:*

ALL CONDUIT AND CONDUCTORS SHALL BE APPROVED FOR THEIR INTENDED PURPOSE INCLUDING WET LOCATIONS AND EXPOSED TO SUNLIGHT. CONDUIT AND CONDUCTOR SIZE SPECIFICATIONS ARE BASED ON THE MINIMUM CODE REQUIREMENTS AND ARE NOT LIMITED TO UP SIZING.

ALL CONDUCTORS SHALL BE SIZED IN COMPLIANCE WITH *NEC 690.8, NEC 690.7*.

ALL CONDUCTORS SHALL BE DERATED AS APPLICABLE TO THEIR RESPECTIVE ENVIRONMENT INCLUDING DIRECT SUNLIGHT IN ACCORDANCE WITH *2017 NEC 310.15(B)(3)(4)(c)*

EXPOSED UNGROUNDED DC PV SOURCE AND OUTPUT CIRCUITS SHALL USE CONDUCTORS LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE IN COMPLIANCE *2017 NEC 690.31(C)(1)*. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS IN COMPLIANCE WITH *2017 NEC 690.4(B)*

PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE IN COMPLIANCE WITH *NEC 200.6 (A)(6)*.

PV MODULE CONDUCTORS LOCATED UNDER ARRAYS WILL BE SECURED IN A WORKMANLIKE MANNER IN COMPLIANCE WITH *NEC 110.12*.

WATERPROOFING:*

ALL NEW **ROOFTOP PENETRATIONS** SHALL BE SEALED AND MADE WEATHER TIGHT WITH APPROVED CHEMICAL SEALANT AND FLASHINGS WHERE REQUIRED PER CODE AND GENERAL BUILDING AND ROOFING WORKMANSHIP STANDARDS BY A LICENSED CONTRACTOR.

ALL **EXTERIOR ELECTRICAL EQUIPMENT, SHALL BE NEMA 3R** OR BETTER RATED. ALL EXTERIOR CONDUIT AND CONNECTORS SHALL BE RATED FOR WET LOCATIONS.

*ALL NOTES ARE AS APPLICABLE TO THIS PROJECT. DISREGARD ANY NOTES THAT DO NOT APPLY TO THIS PROJECT.

REV	DATE	RELEASE
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N-001 GENERAL NOTES

27.625 kW PHOTOVOLTAIC PLANS

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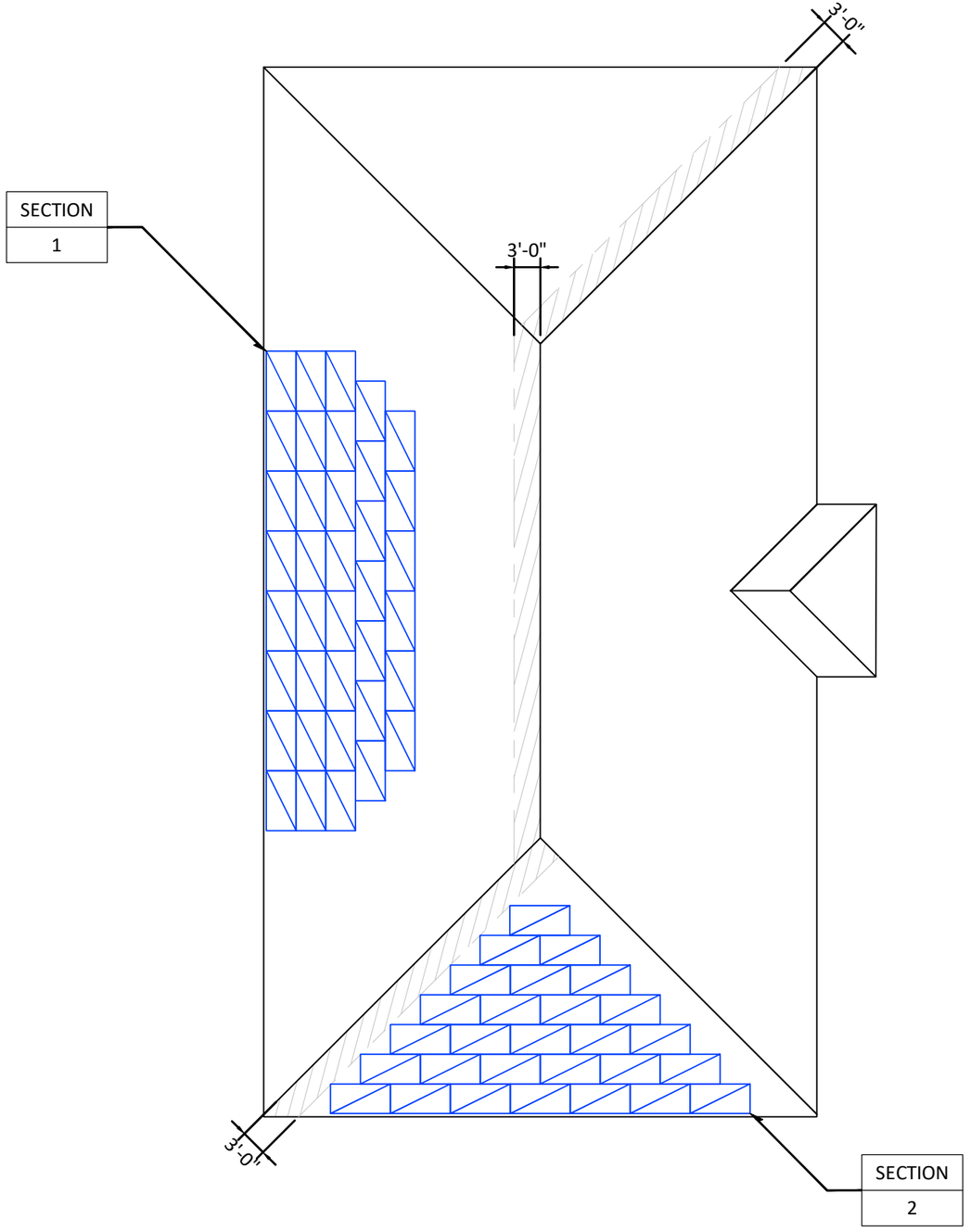
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER

NOTE: ALL ELECTRICAL LAYOUT DETAILS ON SHEET E-100



2018 IFC ROOF ACCESS REQUIREMENTS

THE FOLLOWING INFORMATION INDICATES THE REQUIRED ROOF TOP CLEARANCES FOR PANELS/ARRAYS INSTALLED ON RESIDENTIAL BUILDINGS WITH SLOPES GREATER 2:12:

ROOF ACCESS POINTS – ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT THE STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRE, OR SIGNS.

PRIMARY FIRECODE PATHWAY AND SECONDARY PATHWAYS – THERE SHALL BE NO LESS THAN TWO MINIMUM 36"PATHWAYS ON SEPARATE ROOF SECTION TO THE RIDGE OF THE HOME. ONE OF THOSE PATHWAYS WILL BE ACCESSIBLE FROM STREET SIDE OF THE HOME OR ON THE DRIVEWAY WITH MINIMAL OBSTRUCTIONS. FOR EACH ROOF PLANE WITH PANELS/MODULES A MINIMIM 36-INCH-WIDE PATHWAY FROM THE LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.

SET-BACKS AT RIDGE – PANELS/MODULES OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM 18 INCHES SETBACK IS REQUIRED ON BOTH SIDES [HM1] [DR2] OF A HORIZONTAL RIDGE. FOR PANELS/MODULES OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM OF 36 INCHES WIDE SETBACK IS REQUIRED ON BOTH SIDES.

EMERGENCY ESCAPE AND RESCUE OPENING – PANELS/MODULES INSTALLED ON DWELLINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A 36-INCH-WIDE PATHWAY SHALL BE PROVIDED TO THE EMERGENCY RESCUE AND ESCAPE OPENING.

-SEE HATCH DEFINITION BELOW.

NOTE: DESIGNATION OF RIDGE, HIP, AND VALLEY DOES NOT APPLY TO ROOFS WITH 2:12 OR LESS PITCH. DETACHED, NONHABITABLE GROUP U STRUCTURES INCLUDING, BUT NOT LIMITED TO, PARKING SHADE STRUCTURES, CARPORTS, SOLAR TRELLISES AND SIMILAR STRUCTURES SHALL NOT BE SUBJECT TO THE REQUIREMENTS OR WHERE THE FIRE CODE OFFICIAL HAS DETERMINED ROOFTOP OPERATIONS WILL NOT BE EMPLOYED.

PV SITE LAYOUT LEGEND

SECTION
1

PV ARRAY TAG
SECTION #
MODULE GROUP

RA ROOF ACCESS POINT
SA SITE ACCESS
GA GATE ACCESS

AZIMUTH AND TILT TABLE

SECTION #	AZIMUTH	ROOF PITCH / TILT
SECTION-1	165	22.6°
SECTION-2	255	22.6°

SQUARE FOOTAGE CALCULATIONS

ROOF REFERENCE	SQUARE FOOTAGE
EXISTING ROOF	7660
SECTION-1	647
SECTION-2	854
TOTAL PERCENTAGE	19.6%

NORTH

* EXISTING DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE:1/16"=1'-0" @ SHEET SIZE A3

QTY 65 Q-Cell Q.PEAK DUO L-G6.2 425 MODULES, QTY 65 Enphase IQ7A-72-2-US (240V) MICRO INVERTER

REV	DATE	RELEASE
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PV-100R

PV ARRAY LAYOUT

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
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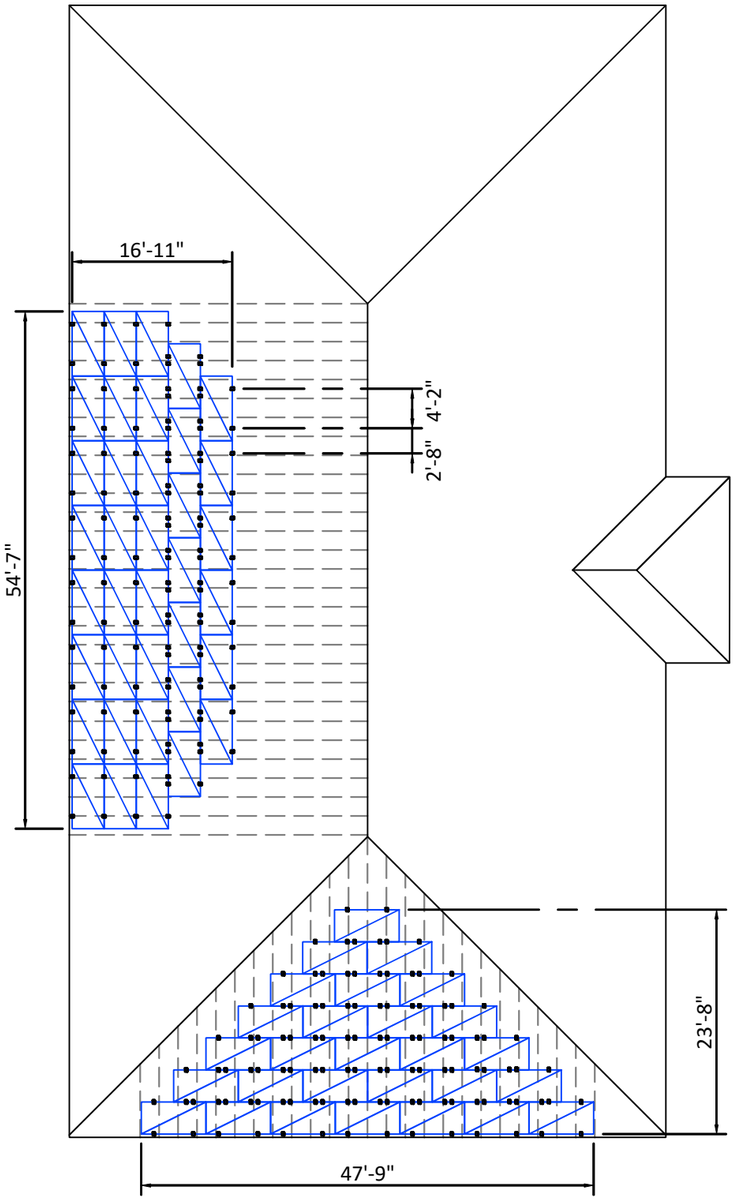

SHEET NOTES

A. FOR MANUFACTURED PLATED WOOD TRUSSES AT SLOPES OF FLAT TO 6:12, THE HORIZONTAL ANCHOR SPACING SHALL NOT EXCEED 5' AND ANCHORS IN ADJACENT ROWS SHALL BE STAGGERED. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS.

B. ANCHORS ARE ALSO KNOWN AS "STAND-OFFS," "MOUNTS," OR "STANCHIONS." HORIZONTAL ANCHOR SPACING IS ALSO KNOWN AS "CROSS-SLOPE" OR "EAST-WEST" ANCHOR SPACING. MAXIMUM HORIZONTAL ANCHOR SPACING SHOWN IN DETAIL. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS. SEE "TABLE OF DIMENSIONS" EACH SECTION DETAILED FOR HORIZONTAL ANCHOR SPACING.

C. SEE SHEET S-200 FOR SPECIFIC RACKING COMPONENT MANUFACTURERS.

PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

SECTION
1

PV ARRAY TAG
SECTION #
MODULE GROUP

* DETAILS IN TOP VIEW

EXISTING ROOF CONSTRUCTION

COMPONENT	TYPE
ROOF STRUCTURAL CONSTRUCTION	Pre-Eng Roof Trusses 24" O.C.
FRAMING INFO	2"x4" @ 24" MAX OC
ROOFING COVERING	Comp Shingle
RACKING MAX PSF	2.99 PSF

RACKING BILL OF MATERIALS (BOM)

COMPONENT	QTY	MODEL	LENGTH
PV RAIL 1			
PV RAIL SPLICE 1			
PV RAIL 2			
PV RAIL SPLICE 2			
RAIL TO ROOF ATTACHMENT			

NORTH

* EXISTING ROOF DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE:1/16"=1'-0" @ SHEET SIZE A3

QTY 65 Q-Cell Q.PEAK DUO L-G6.2 425 MODULES, QTY 65 Enphase IQ7A-72-2-US (240V) MICRO INVERTER

STATE OF MISSOURI
ROBERT SMYTHE
NUMBER PE-2019032917
PROFESSIONAL ENGINEER
01/28/2022

REV	DATE	RELEASE
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RACKING LAYOUT

S-100

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701 NE 76th Street
Gladstone, MO 64118
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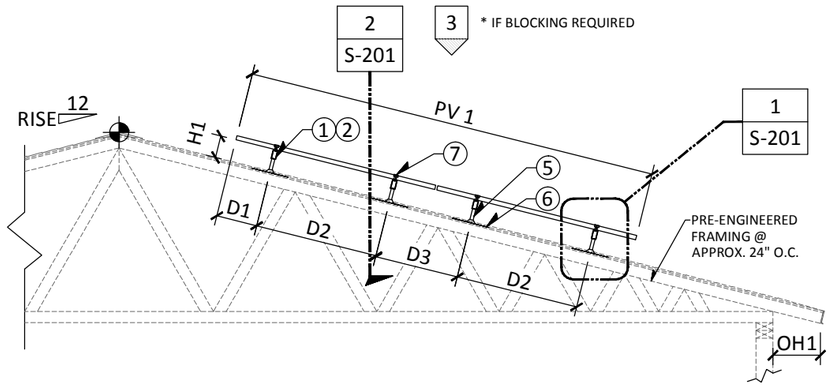
1 MANUF TRUSS / TRUSS - PORTRAIT — SCALE: NTS



** COMP SHINGLE ROOF IN EXAMPLE. SAME ATTACHMENT FOR STANDING SEAM METAL ROOF APPLIES.

TABLE OF DIMENSIONS

DIM	COMPONENT	DIMENSIONS	DIM	COMPONENT	DIMENSIONS
H1	PV MODULE HGT. ABOVE ROOF	3" - 6" TYP	RISE	ROOF PITCH	22.6°
OH1	OVERHANG IN THIS AREA			MAX RAFTER SPAN	ENGINEERED TRUSS
	UPSLOPE ANCHOR SPACING				
D1	RAIL OVERHANG	20.48"	D3	STANCHION O.C.	41.2"
D2	STANCHION O.C.	40.95"	D4	MIN./MAX. STANCHION O.C.	

2 MANUF TRUSS / TRUSS - LANDSCAPE — SCALE: NTS

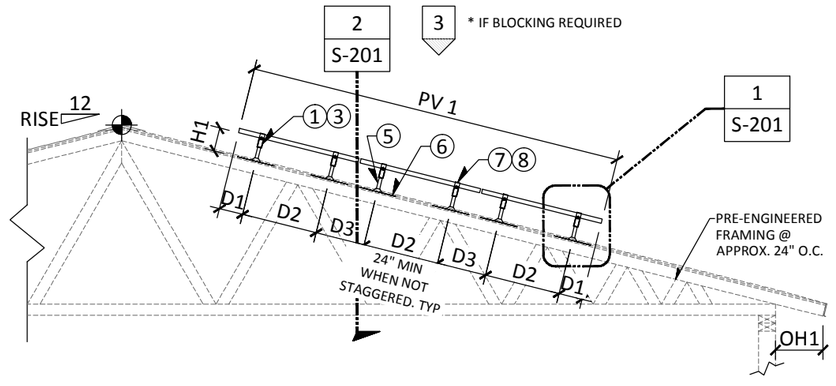


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TABLE OF DIMENSIONS

DIM	COMPONENT	DIMENSIONS	DIM	COMPONENT	DIMENSIONS
H1	PV MODULE HGT. ABOVE ROOF	3" - 6" TYP	RISE	ROOF PITCH	22.6°
OH1	OVERHANG IN THIS AREA			MAX RAFTER SPAN	ENGINEERED TRUSS
	UPSLOPE ANCHOR SPACING				
D1	RAIL OVERHANG	10.15"	D3	STANCHION O.C.	20.55"
D2	STANCHION O.C.	20.3"	D4	MIN./MAX. STANCHION O.C.	

SHEET NOTES

A. THESE NOTES APPLY TO RAFTER ROOF CONSTRUCTION.

B. THE ROOF STRUCTURE CONFORMED TO BUILDING CODE REQUIREMENTS AT THE TIME IT WAS BUILT.

C. THE ROOF SHEATHING IS AT LEAST 7/16" THICK ORIENTED STRAND BOARD OR PLYWOOD. 1X SKIP SHEATHING IS ACCEPTABLE.

D. THE SOLAR ARRAY DISPLACES ROOF LIVE LOADS (TEMPORARY CONSTRUCTION LOADS) THAT THE ROOF WAS ORIGINALLY DESIGNED TO CARRY.

E. IF THE ROOF COVERING IS SHINGLES; IT SHALL BE NO MORE THAN TWO LAYERS. (SHOWN)

F. IF ROOF COVERING IS TILE; ITS A SINGLE LAYER. ALL TILES ON PLANE OF PV COMPONENTS ARE SECURE. (NOT SHOWN IN DETAIL)

G. THE ROOF STRUCTURE IS STRUCTURALLY SOUND, WITHOUT SIGNS OF ALTERATIONS OR SIGNIFICANT STRUCTURAL DETERIORATION OR SAGGING.

H. THE PV MODULES ARE PARALLEL WITH THE ROOF SURFACE.

I. THERE IS A 2" TO 10" GAP BETWEEN UNDERSIDE OF MODULE AND THE ROOF SURFACE. (SEE TABLE OF DIMENSIONS "H1")

J. UPSLOPE ANCHOR SPACING MAY VARY FROM LISTED TABLES. STANCHIONS CAN BE PLACED NO CLOSER THAN 24" O.C.

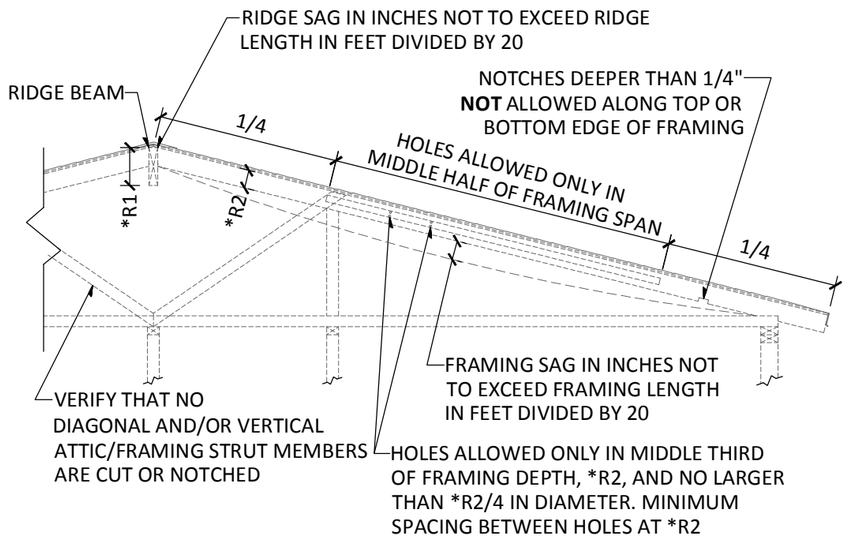
K. DETAILS SHOWN ARE A REPRESENTATION OF EXISTING ROOF CONDITIONS. ACTUAL FIELD CONDITIONS MAY VARY. DETAILS ARE SHOWN FOR DIAGRAM USE ONLY. REFER TO TABLES FOR DESIGN CRITERIA.

L. ALL PLUMBING AND ROOF VENTS SHALL NOT BE OBSTRUCTED BY PV MODULES AND EQUIPMENT.

M.

3 RAFTER HOLE AND CONSTRUCTION DETAIL — SCALE: NTS

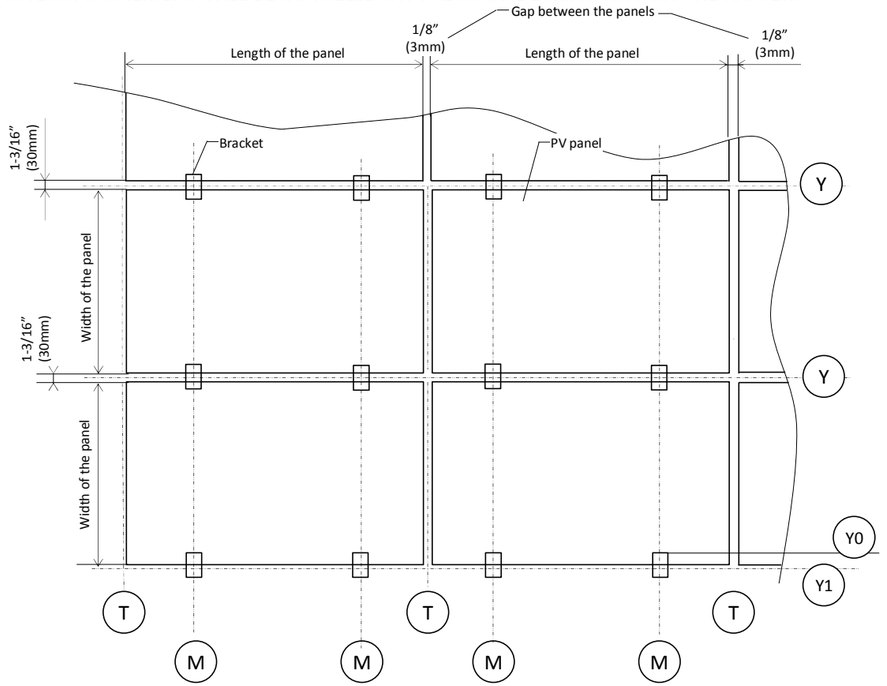
NOTE: WHERE FRAMING IS VISIBLE FROM ATTIC &/OR UNDERSIDE OF ROOF, VISUALLY REVIEW FRAMING TO VERIFY THAT NO SIGNIFICANT STRUCTURAL DECAY OR UN-REPAIRED FIRE DAMAGE EXISTS.



* SEE DETAILS "1-2/S200" TABLE OF DIMENSIONS

4 ATTACHMENT SPACING DETAILS — SCALE: NTS

NOTE: ATTACHEMENT WILL BE INSTALLED ON THE ROOF DECKING NOT ON THE RAFTERS



PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

SECTION 1 — PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

EXISTING ROOF CONSTRUCTION

COMPONENT	TYPE
MEAN ROOF HGT MAX	15'
ROOFING COVERING	Comp Shingle

TABLE OF COMPONENTS

#	COMPONENT	MODEL
1	PV RAIL TYPE 1	E Mount Air
2	PV RAIL SPLICE TYPE 1	PER RAIL MANUFACTURER
3	PV RAIL TYPE 2	NOT USED
4	PV RAIL SPLICE TYPE 2	PER RAIL MANUFACTURER
5	STANCHION	E Mount Air
6	FLASHING	Integrated
7	MID CLAMP	PER RAIL MANUFACTURER
8	END CLAMP	PER RAIL MANUFACTURER

STATE OF MISSOURI * ROBERT SMYTHE * NUMBER PE-2019032917 * PROFESSIONAL ENGINEER *

01/28/2022

REV	DATE	
	01/27/2022	RELEASE SUBMIT FOR PERMIT

SECTION ELEVATIONS

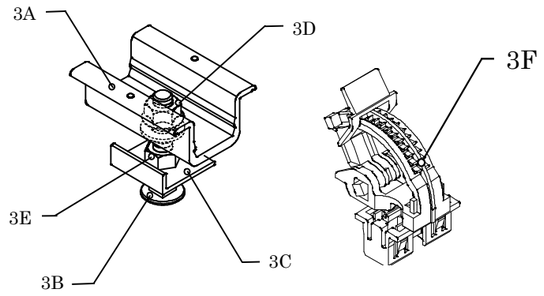
S-200

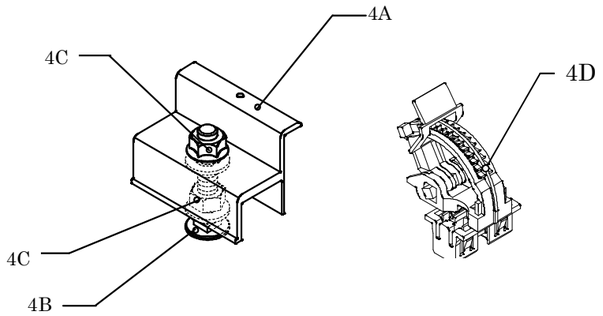
27.625 kW PHOTOVOLTAIC PLANS

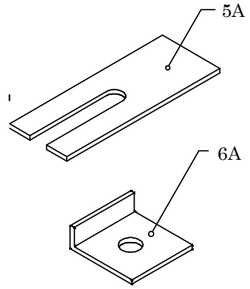
NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

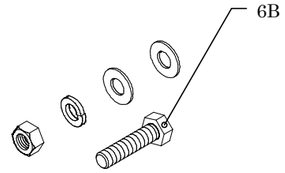
Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

1 ATTACHMENT DETAIL — SCALE: NTS









③ Middle Clamp Kit

	Item
3A	Middle Clamp
3B	Carriage Bolt set M8-**
3C	Panel Spacer
3D	Flange Nut
3E	Hex Nut
3F	Cable Holder

④End Clamp Kit

	Item
4A	End Clamp
4B	Carriage Bolt set M8-**
4C	Flange Nut
4D	Cable Holder

※ The nuts in RTM-MCB45BK-B-00 are silver and black.
The nuts in RTM-MCB50 and 55BK-B-00 are black.

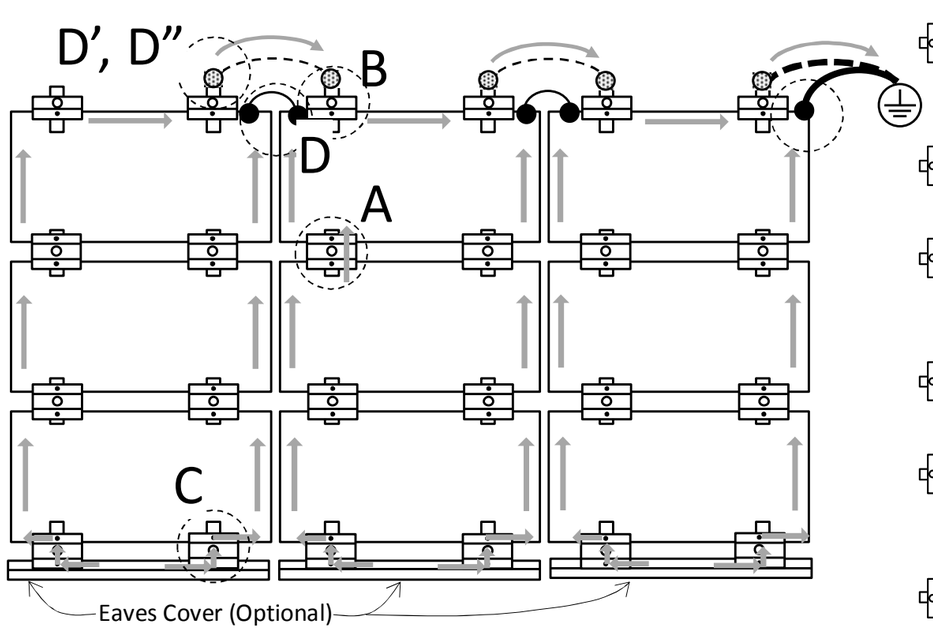
⑤ Shims

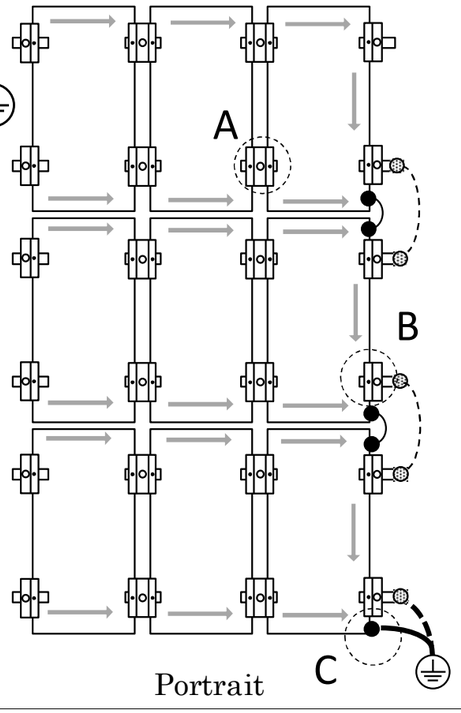
	Item
5A	Shim

⑥ Stopper Set (Portrait only)

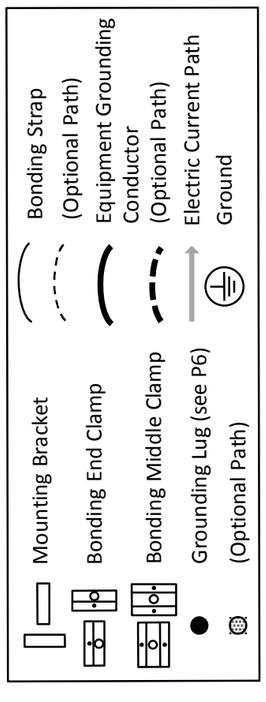
	Item
6A	Stopper
6B	M6-25 Bolt Set

3 BONDING PATH DETAIL — SCALE: NTS





Portrait



SHEET NOTES

1. A MINIMUM OF (1) 5/16" DIAMETER LAG SCREWS WITH 2.5" EMBEDMENT INTO THE RAFTER USED, OR THE ANCHOR FASTENER MUST MEET THE MANUFACTURER'S ENGINEERING.
2. ADHERE TO RACKING MANUFACTURERS INSTALLATION INSTRUCTIONS PERTAINING TO CANTILEVER.

PV RACKING LEGEND

- ROOF RACKING RAIL
- ROOF RACKING RAIL SPLICE
- ROOF RACKING STANCHION W/ RETRO FIT FLASHING
- SECTION / 1 — PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

REV	DATE	RELEASE
	01/27/2022	SUBMIT FOR PERMIT

ATTACHMENT DETAILS

S-201

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

PV MODULE #1 SPECIFICATIONS

MANUFACTURER	Q-Cell	
MODEL NUMBER	Q.PEAK DUO L-G6.2 425	
WEIGHT	55.1	lbs
DIMENSIONS	81.9 x 40.6 x 1.38	L" x W" x D"/THICK
PEAK POWER @ STC (Pmax)	425	WATTS
Voc (OPEN-CIRCUIT VOLTAGE)	49.13	VOLTS DC
Vmp (MAX-POWER VOLTAGE)	41.20	VOLTS DC
isc (SHORT-CIRCUIT CURRENT)	10.83	AMPS
imp (SHORT-CIRCUIT POWER)	10.32	AMPS
MFR. Voc TEMP COEFFICIENT	-0.27	%/K
MAX SERIES FUSE RATING	20.0	AMPS
TEMP. CORRECTED Voc	55.03	VOLTS DC

MICRO INVERTER #1 SPECIFICATIONS

MANUFACTURER	Enphase	
MODEL NUMBER	IQ7A-72-2-US (240V)	
NOMINAL POWER RATING	349	WATT AC
WEIGHT	2.38	lbs.
DC INPUT		
Max PV POWER @ MODULE STC	349	WATTS
Max INPUT DC VOLTAGE	58	VOLTS DC
Max INPUT CURRENT	15.0	AMPS
MODULES PER MICRO INVERTER	1	QTY
AC OUTPUT		
NOMINAL VOLTAGE OUTPUT	240	VOLTS AC
MAX OVERCURRENT PROTECTION (OCPD)	20	AMPS
MAX. OUTPUT CURRENT	1.45	AMPS - MAX

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

AC COMBINER (SOLAR LOAD CENTER)

MANUFACTURER	Enphase	
MODEL NUMBER	X-IQ-AM1-240-3	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	125	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
MAIN BREAKER SIZE	N/A	AMPS
TOTAL INPUT CURRENT	14.5 ,13.05 ,11.6 ,8.7, 37.7	AMPS
NUMBER OF BRANCH CIRCUITS	1 , 3	CIRCUITS
QUANTITY	6	AC COMBINER(s)

AC DISCONNECT #1 (IF APPL.)

MANUFACTURER	Generic	
MODEL NUMBER	60A Fused Exterior	
QUANTITY	1	AC DISCO.(S)
DISCONNECT DEVICE TYPE	Fusible	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	60	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
FUSE RATING	50	AMPS
TOTAL INPUT CURRENT	37.7	AMPS

AC DISCONNECT #2 (IF APPL.)

MANUFACTURER	Generic	
MODEL NUMBER	30A Fused Exterior	
QUANTITY	5	AC DISCO.(S)
DISCONNECT DEVICE TYPE	Fusible	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	30	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3	
FUSE RATING	20	AMPS
TOTAL INPUT CURRENT	14.5 , 13.05 , 11.6 , 8.7	AMPS

AC SUB-PANEL #1 (IF APPL.)

NEW OR EXISTING	EXISTING	
MAKE / MODEL	100A BUS / Main Lug Only	
TYPE OF PANEL		
NUMBER OF POLES	2	P
NEMA RATING	3R	
BUSS BAR RATING	100	AMPS
SUB-PANEL MAIN BREAKER	100	AMPS
MAIN SERVICE PANEL P.O.C. BREAKER	N/A	AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT	20, 50	AMPS
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)

AC SUB-PANEL #2 (IF APPL.)

NEW OR EXISTING		
MAKE / MODEL		
TYPE OF PANEL		
NUMBER OF POLES		P
NEMA RATING		
BUSS BAR RATING		AMPS
SUB-PANEL MAIN BREAKER		AMPS
MAIN SERVICE PANEL P.O.C. BREAKER		AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT		AMPS
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)

MAIN SERVICE PANEL (METER/MAIN ONLY)

NEW OR EXISTING	EXISTING	
ELECTRICAL SERVICE	120/240V Single Phase	
BUSS BAR RATED CURRENT	N/A	AMPS
MAIN BREAKER RATED CURRENT	100, 70	AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT 100%	N/A	AMPS
MAX ALLOWABLE SOLAR CURRENT 120%	N/A	AMPS (Imax)
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)
QUANTITY	6	

NOTES APPENDIX (AS APPLICABLE): (A) TOTAL AC VOLTAGE DROP NOT TO EXCEED 2% TO INTERCONNECTION, < 3% FROM INVERTER(S) TO UTILITY TRANSFORMER. (B) ALL CONNECTORS 75C RATED. (C) ALL CONDUCTORS COPPER, UNLESS OTHERWISE NOTED. DUE TO HIGHER COEFFICIENT OF EXPANSION, ALUMINUM CONDUCTORS REQUIRE MORE MAINTENANCE/INSPECTION THAN COPPER CONDUCTORS. ANNUAL RETORQUEING AS WELL AS INFRARED INSPECTION, MINIMALLY. BE CAREFUL NOT TO CONNECT ALUMINUM WITH COPPER RATED CONDUCTORS OR FITTINGS DURING CONSTRUCTION, TERMINALS SHOULD BE DUAL RATED. (D) OUTDOOR EQUIPMENT NEMA3R. (E) ALL CONDUCTORS FOR PV SYSTEMS MUST BE PROTECTED FROM ACCESS BY A FENCE OR SUITABLE COVER, OR OUT OF REACH. (F) PROPERTY LINES, BOUNDARIES AND ALL OTHER EXTERIOR MEASUREMENTS ARE FOR REFERENCE ONLY, AND MUST BE VERFIED BY A LICENSED SURVEYOR OR CIVIL ENGINEER. (G) ENERGY STORAGE SYSTEMS ARE REQUIRED TO BE INSTALLED IN LOCATIONS IN COMPLIANCE WITH THEIR LISTING REQUIREMENTS. (H) IF TRAVEL ACROSS A ROOF IS LIMITED TO FIRE SETBACK AREAS, FALL RESTRAINT SYSTEMS MAY BE REQUIRED. (I) NO PVC ALLOWED ON ROOF OR IN ATTIC. (J) MC4 CONNECTORS MAY NOT BE JOINED WITH 'MC4 COMPATIBLE' CONNECTORS. (K) FOR COMMERCIAL SYSTEMS - UNDER MODULE WIRE MANAGEMENT SYSTEMS ARE REQUIRED, RACEWAY FILL MUST NOT EXCEED 40% REFER TO LOCAL REGULATIONS FOR EXCEPTIONS. (L) FOR LINE SIDE TAPS, CONNECTION IN PANEL MUST NOT VIOLATE CONDITIONS OF ACCEPTABILITY FROM PANEL MANUFACTURER'S NRTL LISTING, OR FIELD LABEL REQUIRED. (M) PV WIRES MAY NOT BE LAID DIRECTLY ON ROOF, WIRE MANAGEMENT SUCH AS SNAKE TRAY, ETC. MUST BE USED 40% FILL MAX. (N) TY WRAPS FOR WIRE MANAGEMENT MUST BE STRUCTURAL (S21) UL APPROVED, OR SUN BUNDLER OR EQUAL. (0) DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING, WHEN INDICATED, IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS, AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS.

PV SYSTEM MAXIMUM VOLTAGE (MODULE Voc_{MAX})

DATA SOURCE	SOLARABCS.ORG/ABOUT/PUBLICATIONS/REPORTS/ EXPEDITED-PERMIT/MAP/											
EXTREME MIN. TEMP. [°C]		STC TEMPERATURE [°C]		CORRECTED TEMPERATURE		MFR. P_{MAX} TEMP COEFFICIENT [-0.#%/C] * 100		FORMULA		CORRECTED TEMP. COEFFICIENT		MODULE Voc [VDC]		TEMPERATURE CORRECTED OPEN CIRCUIT VOLTAGE
-20	-	25	=	-45	*	-0.27%	=	0.12	+ 1	1.12	*	49.13	=	55.03

RELEASE | SUBMIT FOR PERMIT
DATE | 12/29/2021
REV

EQUIP. CALCULATIONS

E-001

27.625 kW PHOTOVOLTAIC PLANS

NAME | LSCV455-MO
ADDRESS | 455 SW Ward Rd
ADDRESS | Lee's Summit, MO 64081
APN

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS
4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING		AC WIRING	
EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW	EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW
GROUNDED CONDUCTOR. TYPICALLY NEGATIVE	WHITE OR GRAY	GROUNDED CONDUCTOR (NEUTRAL)	WHITE OR GRAY
UNGROUNDED CONDUCTOR(S). TYPICALLY POSITIVE	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY	UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.
	CONVENTION IS RED FOR GROUNDED SYSTEMS		CONVENTION IS L1 BLACK
	RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS		CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.83	X	1	X	1.25	X	1.25	=	16.9	ROOFTOP	37	>7/8"	0	37	0.91	2	N/A	30	X	0.71	X	1.0	=	21.3	16.9	≤	21.3

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H2DC PLLC MO CoA#: 2017002700
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-NOT AN AS BUILT DRAWING SET-

AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	14.5	=	18.1	ROOFTOP	37	>7/8"	0	37	0.88	2	N/A	25	X	0.88	X	1.0	=	22	18.1	≤	22
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	14.5	=	18.1	ROOFTOP	37	>7/8"	0	37	0.88	2	1.0	35	X	0.88	X	1.0	=	30.8	18.1	≤	30.8
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#10 AWG	35	1.25	X	14.5	=	18.1	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	18.1	≤	30.8
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#10 AWG	35	1.25	X	14.5	=	18.1	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	18.1	≤	30.8
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-002A

WIRE AND COND. CALCS.

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
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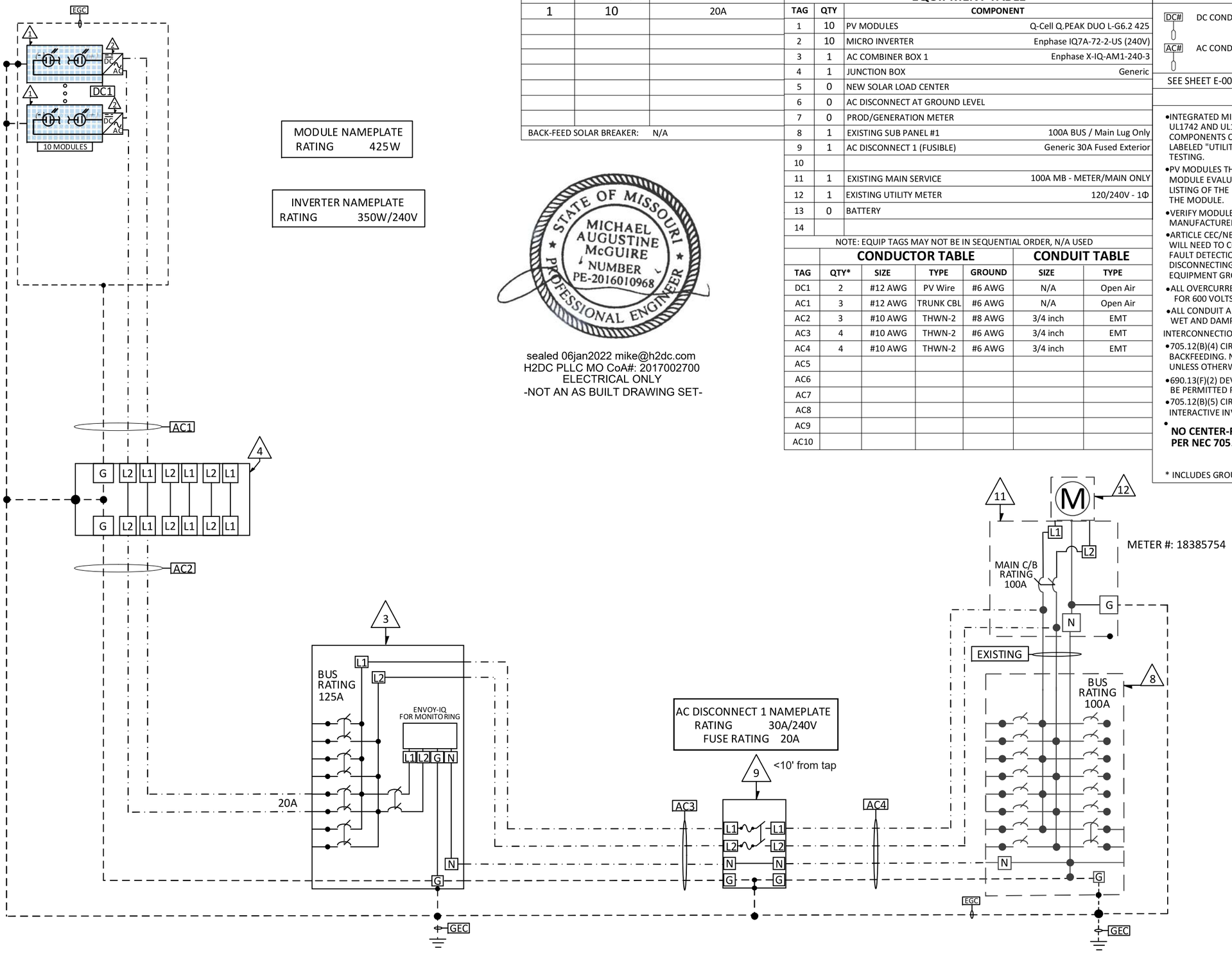

MODULE NAMEPLATE
RATING 425W

INVERTER NAMEPLATE
RATING 350W/240V

BRANCH	MODULE QTY	OCPD
1	10	20A
BACK-FEED SOLAR BREAKER: N/A		

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

EQUIPMENT TABLE

TAG	QTY	COMPONENT	
1	10	PV MODULES	Q-Cell Q.PEAK DUO L-G6.2 425
2	10	MICRO INVERTER	Enphase IQ7A-72-2-US (240V)
3	1	AC COMBINER BOX 1	Enphase X-IQ-AM1-240-3
4	1	JUNCTION BOX	Generic
5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GENERATION METER	
8	1	EXISTING SUB PANEL #1	100A BUS / Main Lug Only
9	1	AC DISCONNECT 1 (FUSIBLE)	Generic 30A Fused Exterior
10			
11	1	EXISTING MAIN SERVICE	100A MB - METER/MAIN ONLY
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
AC1	3	#12 AWG	TRUNK CBL	#6 AWG	N/A	Open Air
AC2	3	#10 AWG	THWN-2	#8 AWG	3/4 inch	EMT
AC3	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

ELECTRICAL NOTES

- INTEGRATED MICRO INVERTERS (AC MODULES) MUST BE CERTIFIED UL1742 AND UL1703 COMPLIANT. AS EITHER INDIVIDUAL COMPONENTS OR AC MODULE ASSEMBLY. THEY MUST ALSO BE LABELED "UTILITY INTERACTIVE" CONFORMING TO IEEE1547 TESTING.
- PV MODULES THAT HAVE INVERTERS ATTACHED WITHOUT AN AC MODULE EVALUATION BY A NRTL MAY VIOLATE THE ORIGINAL LISTING OF THE PV MODULE AND VOID THE WARRANTY OF THE MODULE.
- VERIFY MODULE IS COMPATIBLE WITH MICRO INVERTER MANUFACTURER AND MODEL.
- ARTICLE CEC/NEC 690 STILL APPLIES. THE INSTALLER WILL NEED TO CONSIDER REQUIREMENTS SUCH AS: DC GROUND FAULT DETECTION AND INTERRUPT, DC CABLE MANAGEMENT, DC DISCONNECTING MEANS AND DC GROUNDING AS WELL AS THE AC EQUIPMENT GROUNDING CONDUCTOR TO THE INVERTER.
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:

- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(B)(1)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-003A

THREE LINE DIAGRAM

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
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APN	

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WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS
4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING		AC WIRING	
EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW	EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW
GROUNDED CONDUCTOR. TYPICALLY NEGATIVE	WHITE OR GRAY	GROUNDED CONDUCTOR (NEUTRAL)	WHITE OR GRAY
UNGROUNDED CONDUCTOR(S). TYPICALLY POSITIVE	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY	UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.
	CONVENTION IS RED FOR GROUNDED SYSTEMS		CONVENTION IS L1 BLACK
	RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS		CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.83	X	1	X	1.25	X	1.25	=	16.9	ROOFTOP	37	>7/8"	0	37	0.91	2	N/A	30	X	0.71	X	1.0	=	21.3	16.9	≤	21.3

AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	13.05	=	16.3	ROOFTOP	37	>7/8"	0	37	0.88	2	N/A	25	X	0.88	X	1.0	=	22	16.3	≤	22
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	13.05	=	16.3	ROOFTOP	37	>7/8"	0	37	0.88	2	1.0	35	X	0.88	X	1.0	=	30.8	16.3	≤	30.8
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#10 AWG	35	1.25	X	13.05	=	16.3	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	16.3	≤	30.8
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#10 AWG	35	1.25	X	13.05	=	16.3	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	16.3	≤	30.8
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

STATE OF MISSOURI
MICHAEL AUGUSTINE McGUIRE
NUMBER PE-2016010968
PROFESSIONAL ENGINEER

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

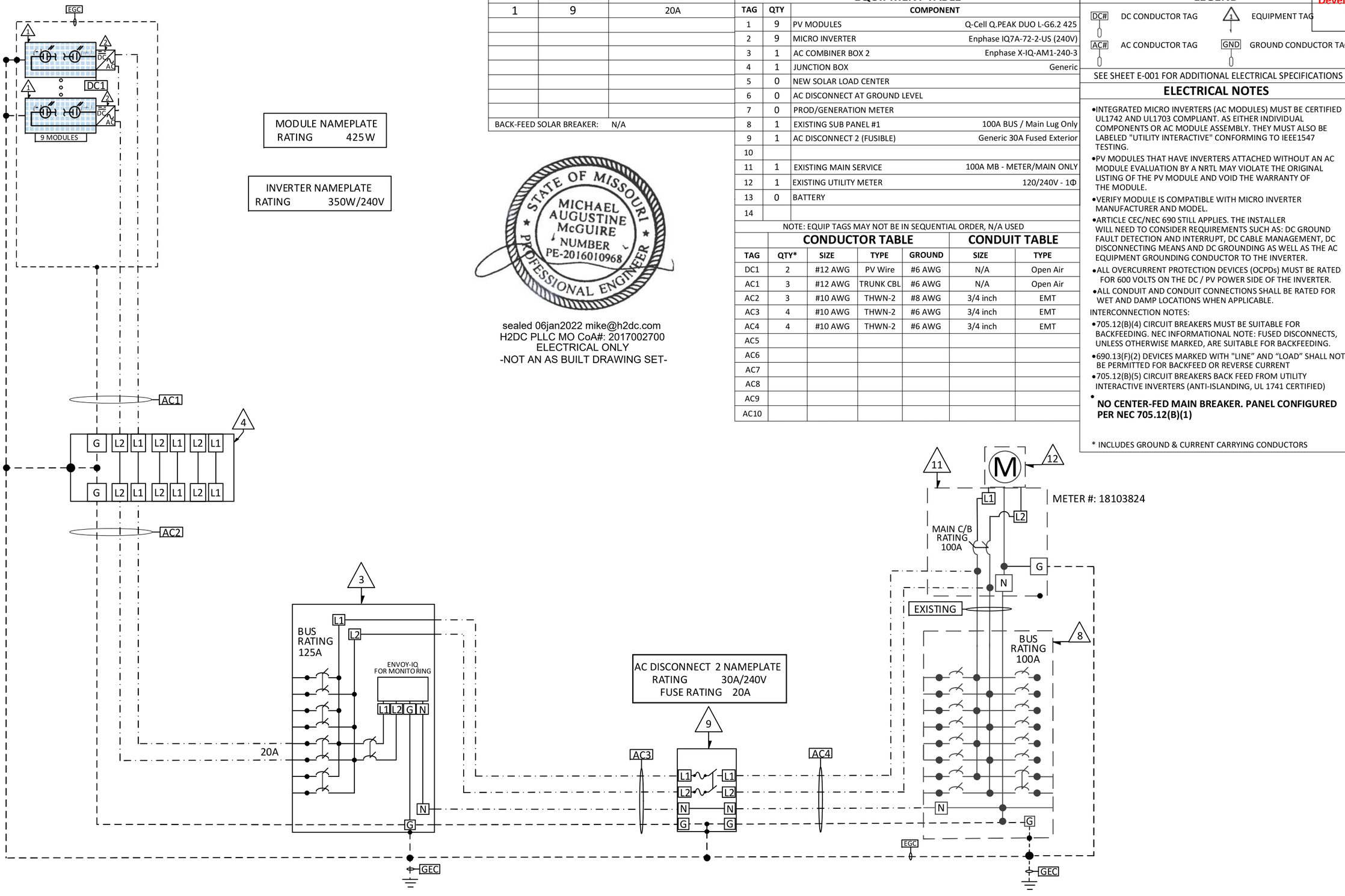
E-002B

WIRE AND COND. CALCS.

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd Lee's Summit, MO 64081
ADDRESS	APN

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943



MODULE NAMEPLATE
RATING 425W

INVERTER NAMEPLATE
RATING 350W/240V

BRANCH	MODULE QTY	OCPD
1	9	20A
BACK-FEED SOLAR BREAKER: N/A		

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

EQUIPMENT TABLE

TAG	QTY	COMPONENT	
1	9	PV MODULES	Q-Cell Q.PEAK DUO L-G6.2 425
2	9	MICRO INVERTER	Enphase IQ7A-72-2-US (240V)
3	1	AC COMBINER BOX 2	Enphase X-IQ-AM1-240-3
4	1	JUNCTION BOX	Generic
5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GENERATION METER	
8	1	EXISTING SUB PANEL #1	100A BUS / Main Lug Only
9	1	AC DISCONNECT 2 (FUSIBLE)	Generic 30A Fused Exterior
10			
11	1	EXISTING MAIN SERVICE	100A MB - METER/MAIN ONLY
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
AC1	3	#12 AWG	TRUNK CBL	#6 AWG	N/A	Open Air
AC2	3	#10 AWG	THWN-2	#8 AWG	3/4 inch	EMT
AC3	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

ELECTRICAL NOTES

- INTEGRATED MICRO INVERTERS (AC MODULES) MUST BE CERTIFIED UL1742 AND UL1703 COMPLIANT. AS EITHER INDIVIDUAL COMPONENTS OR AC MODULE ASSEMBLY. THEY MUST ALSO BE LABELED "UTILITY INTERACTIVE" CONFORMING TO IEEE1547 TESTING.
- PV MODULES THAT HAVE INVERTERS ATTACHED WITHOUT AN AC MODULE EVALUATION BY A NRTL MAY VIOLATE THE ORIGINAL LISTING OF THE PV MODULE AND VOID THE WARRANTY OF THE MODULE.
- VERIFY MODULE IS COMPATIBLE WITH MICRO INVERTER MANUFACTURER AND MODEL.
- ARTICLE CEC/NEC 690 STILL APPLIES. THE INSTALLER WILL NEED TO CONSIDER REQUIREMENTS SUCH AS: DC GROUND FAULT DETECTION AND INTERRUPT, DC CABLE MANAGEMENT, DC DISCONNECTING MEANS AND DC GROUNDING AS WELL AS THE AC EQUIPMENT GROUNDING CONDUCTOR TO THE INVERTER.
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:

- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(B)(1)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-003B

THREE LINE DIAGRAM

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
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4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING		AC WIRING	
EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW	EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW
GROUNDED CONDUCTOR. TYPICALLY NEGATIVE	WHITE OR GRAY	GROUNDED CONDUCTOR (NEUTRAL)	WHITE OR GRAY
UNGROUNDED CONDUCTOR(S). TYPICALLY POSITIVE	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY	UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.
	CONVENTION IS RED FOR GROUNDED SYSTEMS		CONVENTION IS L1 BLACK
	RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS		CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.83	X	1	X	1.25	X	1.25	=	16.9	ROOFTOP	37	>7/8"	0	37	0.91	2	N/A	30	X	0.71	X	1.0	=	21.3	16.9	≤	21.3

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H2DC PLLC MO CoA#: 2017002700
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AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION								AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	11.6	=	14.5	ROOFTOP	37	>7/8"	0	37	0.88	2	N/A	25	X	0.88	X	1.0	=	22	14.5	≤	22
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	11.6	=	14.5	ROOFTOP	37	>7/8"	0	37	0.88	2	1.0	35	X	0.88	X	1.0	=	30.8	14.5	≤	30.8
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#10 AWG	35	1.25	X	11.6	=	14.5	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	14.5	≤	30.8
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#10 AWG	35	1.25	X	11.6	=	14.5	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	14.5	≤	30.8
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-002C WIRE AND COND. CALC.

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd Lee's Summit, MO 64081
ADDRESS	
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
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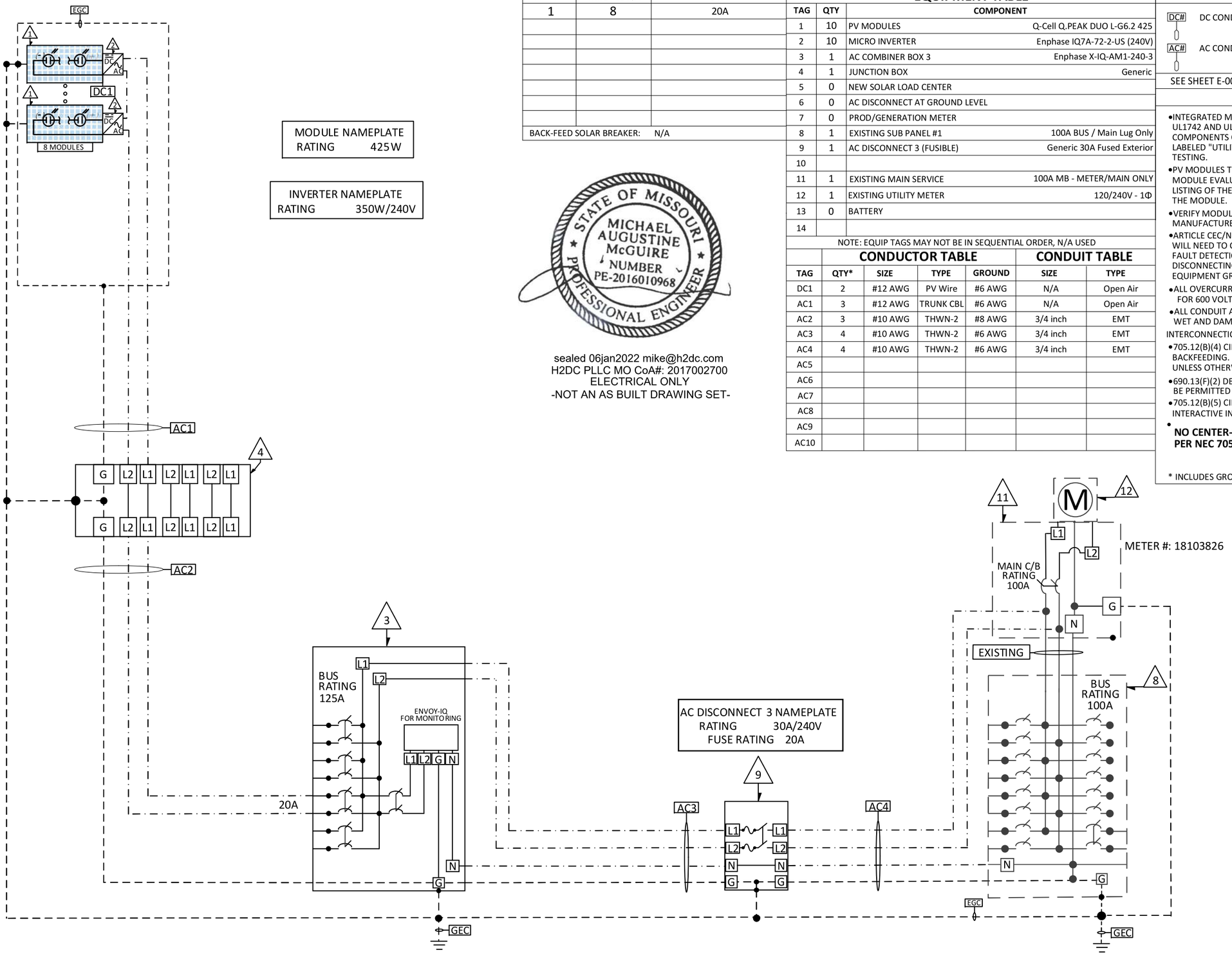

MODULE NAMEPLATE
RATING 425W

INVERTER NAMEPLATE
RATING 350W/240V

BRANCH	MODULE QTY	OCPD
1	8	20A
BACK-FEED SOLAR BREAKER: N/A		

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
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EQUIPMENT TABLE

TAG	QTY	COMPONENT	
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5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GENERATION METER	
8	1	EXISTING SUB PANEL #1	100A BUS / Main Lug Only
9	1	AC DISCONNECT 3 (FUSIBLE)	Generic 30A Fused Exterior
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11	1	EXISTING MAIN SERVICE	100A MB - METER/MAIN ONLY
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
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AC3	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

ELECTRICAL NOTES

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* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-003C

THREE LINE DIAGRAM

27.625 kW PHOTOVOLTAIC PLANS

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WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

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DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.83	X	1	X	1.25	X	1.25	=	16.9	ROOFTOP	37	>7/8"	0	37	0.91	2	N/A	30	X	0.71	X	1.0	=	21.3	16.9	≤	21.3

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AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	8.7	=	10.9	ROOFTOP	37	>7/8"	0	37	0.88	2	N/A	25	X	0.88	X	1.0	=	22	10.9	≤	22
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	8.7	=	10.9	ROOFTOP	37	>7/8"	0	37	0.88	2	1.0	35	X	0.88	X	1.0	=	30.8	10.9	≤	30.8
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#10 AWG	35	1.25	X	8.7	=	10.9	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	10.9	≤	30.8
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#10 AWG	35	1.25	X	8.7	=	10.9	EXT WALL	37	N/A	0	37	0.88	3	1.0	35	X	0.88	X	1.0	=	30.8	10.9	≤	30.8
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

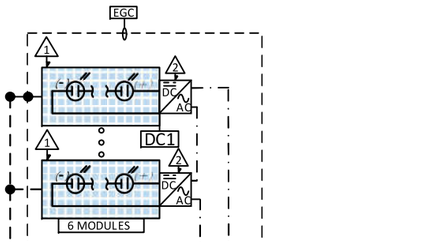
E-002D

WIRE AND COND. CALC.

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd Lee's Summit, MO 64081
ADDRESS	
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943



MODULE NAMEPLATE
RATING 425W

INVERTER NAMEPLATE
RATING 350W/240V

BRANCH	MODULE QTY	OCPD
1	6	20A
BACK-FEED SOLAR BREAKER: N/A		

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H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

EQUIPMENT TABLE

TAG	QTY	COMPONENT	
1	10	PV MODULES	Q-Cell Q.PEAK DUO L-G6.2 425
2	10	MICRO INVERTER	Enphase IQ7A-72-2-US (240V)
3	1	AC COMBINER BOX 4	Enphase X-IQ-AM1-240-3
4	1	JUNCTION BOX	Generic Generic
5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GENERATION METER	
8	1	EXISTING SUB PANEL #1	100A BUS / Main Lug Only
9	1	AC DISCONNECT 4 (FUSIBLE)	Generic 30A Fused Exterior
10			
11	1	EXISTING MAIN SERVICE	100A MB - METER/MAIN ONLY
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
AC1	3	#12 AWG	TRUNK CBL	#6 AWG	N/A	Open Air
AC2	3	#10 AWG	THWN-2	#8 AWG	3/4 inch	EMT
AC3	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

ELECTRICAL NOTES

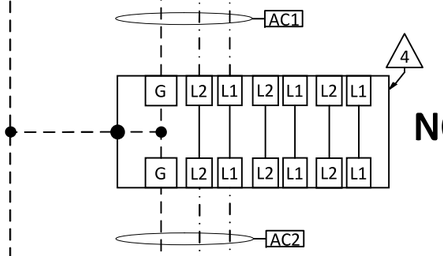
- INTEGRATED MICRO INVERTERS (AC MODULES) MUST BE CERTIFIED UL1742 AND UL1703 COMPLIANT. AS EITHER INDIVIDUAL COMPONENTS OR AC MODULE ASSEMBLY. THEY MUST ALSO BE LABELED "UTILITY INTERACTIVE" CONFORMING TO IEEE1547 TESTING.
- PV MODULES THAT HAVE INVERTERS ATTACHED WITHOUT AN AC MODULE EVALUATION BY A NRTL MAY VIOLATE THE ORIGINAL LISTING OF THE PV MODULE AND VOID THE WARRANTY OF THE MODULE.
- VERIFY MODULE IS COMPATIBLE WITH MICRO INVERTER MANUFACTURER AND MODEL.
- ARTICLE CEC/NEC 690 STILL APPLIES. THE INSTALLER WILL NEED TO CONSIDER REQUIREMENTS SUCH AS: DC GROUND FAULT DETECTION AND INTERRUPT, DC CABLE MANAGEMENT, DC DISCONNECTING MEANS AND DC GROUNDING AS WELL AS THE AC EQUIPMENT GROUNDING CONDUCTOR TO THE INVERTER.
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

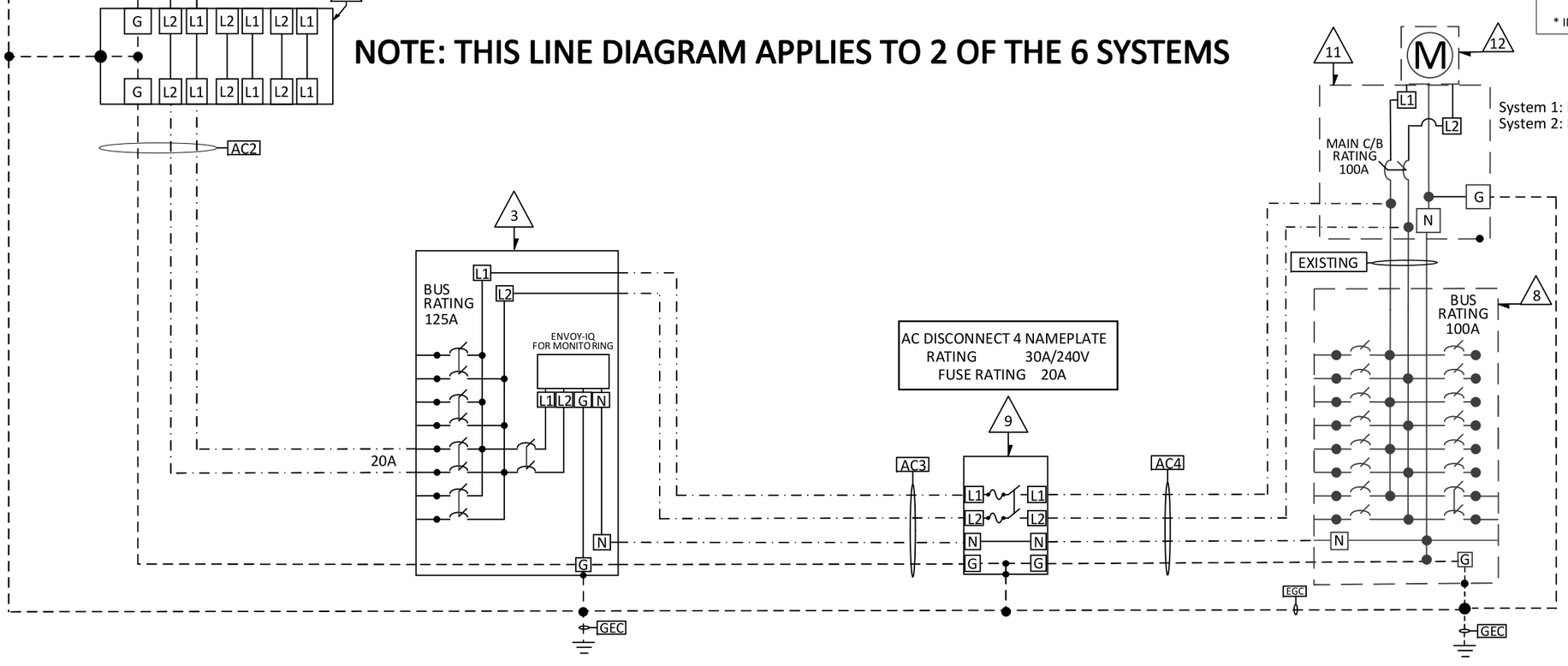
INTERCONNECTION NOTES:

- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(B)(1)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

NOTE: THIS LINE DIAGRAM APPLIES TO 2 OF THE 6 SYSTEMS





REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-003D

THREE LINE DIAGRAM

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS
4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING		AC WIRING	
EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW	EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW
GROUNDED CONDUCTOR. TYPICALLY NEGATIVE	WHITE OR GRAY	GROUNDED CONDUCTOR (NEUTRAL)	WHITE OR GRAY
UNGROUNDED CONDUCTOR(S). TYPICALLY POSITIVE	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY	UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.
	CONVENTION IS RED FOR GROUNDED SYSTEMS		CONVENTION IS L1 BLACK
	RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS		CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.83	X	1	X	1.25	X	1.25	=	16.9	ROOFTOP	37	>7/8"	0	37	0.91	2	N/A	30	X	0.71	X	1.0	=	21.3	16.9	≤	21.3

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AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	14.5	=	18.1	ROOFTOP	37	>7/8"	0	37	0.88	2	N/A	25	X	0.88	X	1.0	=	22	15.1	≤	22
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	14.5	=	18.1	ROOFTOP	37	>7/8"	0	37	0.88	6	0.8	35	X	0.88	X	0.8	=	24.64	18.1	≤	24.64
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#6 AWG	65	1.25	X	37.7	=	47.1	EXT WALL	37	N/A	0	37	0.88	3	1.0	65	X	0.88	X	1.0	=	57.2	47.1	≤	57.2
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#6 AWG	65	1.25	X	37.7	=	47.1	EXT WALL	37	N/A	0	37	0.88	3	1.0	65	X	0.88	X	1.0	=	57.2	47.1	≤	57.2
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

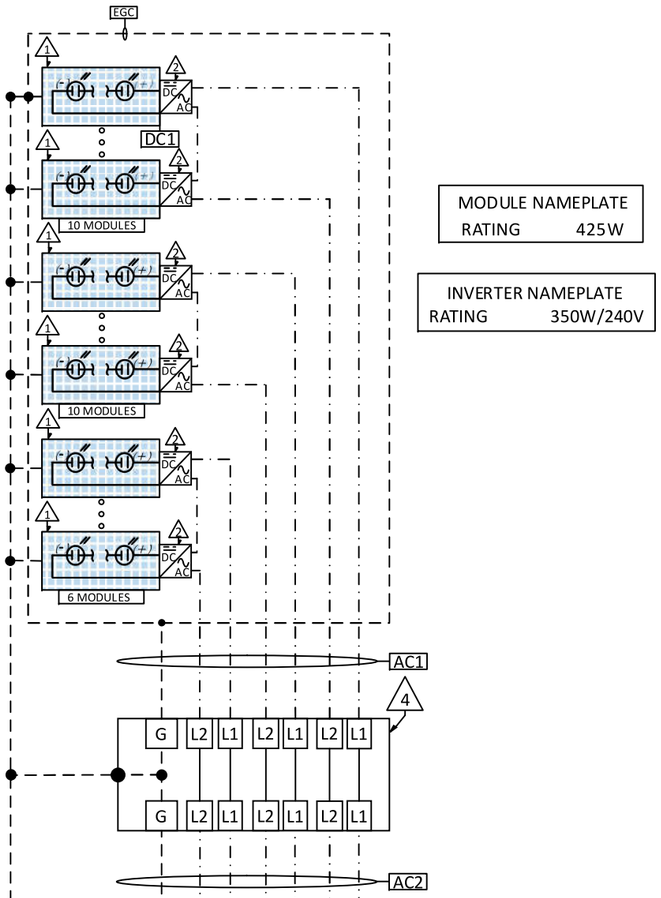
E-002E

WIRE AND COND. CALCS.

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943



MODULE NAMEPLATE
RATING 425W

INVERTER NAMEPLATE
RATING 350W/240V

BRANCH	MODULE QTY	OCPD
1	10	20A
1	10	20A
1	6	20A

BACK-FEED SOLAR BREAKER: N/A

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H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
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EQUIPMENT TABLE

TAG	QTY	COMPONENT	
1	26	PV MODULES	Q-Cell Q.PEAK DUO L-G6.2 425
2	26	MICRO INVERTER	Enphase IQ7A-72-2-US (240V)
3	1	AC COMBINER BOX 5	Enphase X-IQ-AM1-240-3
4	1	JUNCTION BOX	Generic
5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GENERATION METER	
8	1	EXISTING SUB PANEL #1	100A BUS / Main Lug Only
9	1	AC DISCONNECT 5 (FUSIBLE)	Generic 60A Fused Exterior
10			
11	1	EXISTING MAIN SERVICE	70A MB - METER/MAIN ONLY
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
AC1	3	#12 AWG	TRUNK CBL	#6 AWG	N/A	Open Air
AC2	7	#10 AWG	THWN-2	#8 AWG	3/4 inch	EMT
AC3	4	#6 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#6 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

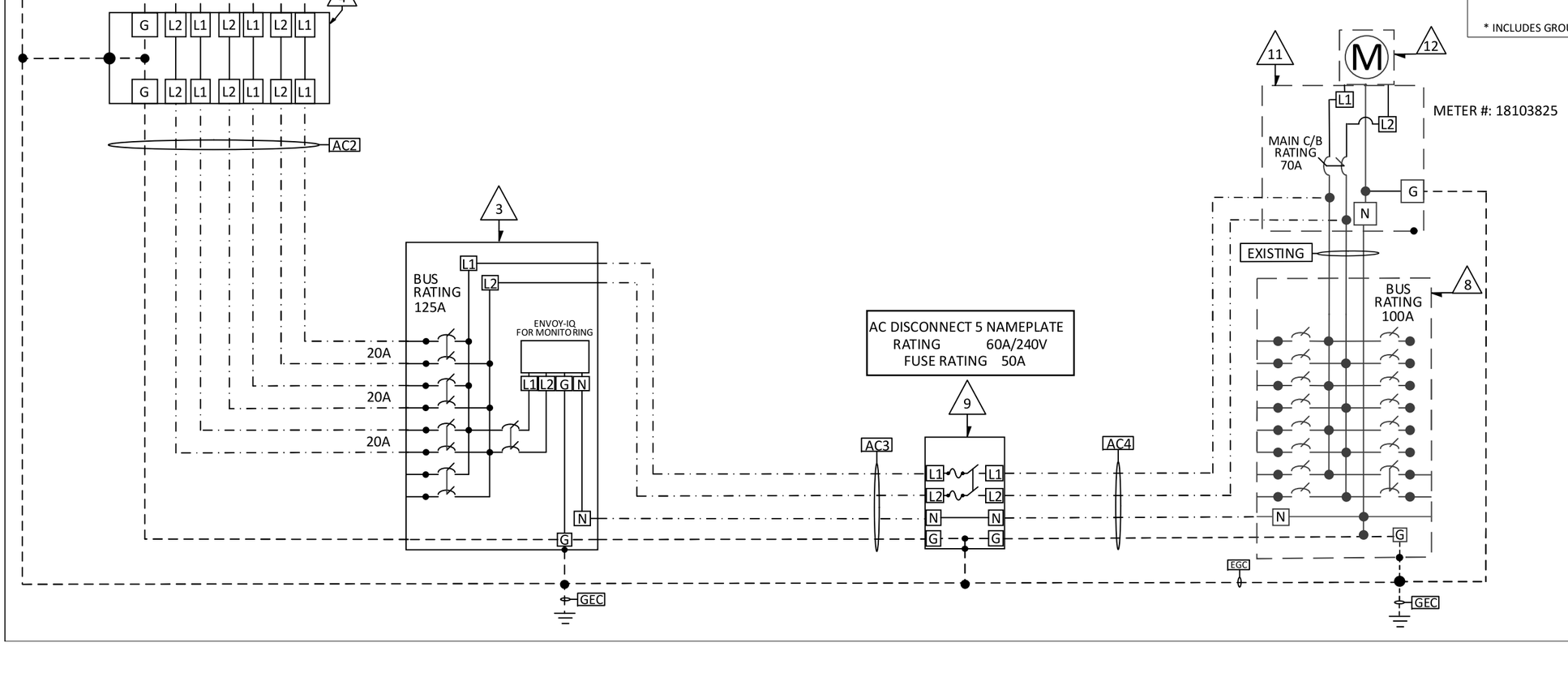
ELECTRICAL NOTES

- INTEGRATED MICRO INVERTERS (AC MODULES) MUST BE CERTIFIED UL1742 AND UL1703 COMPLIANT. AS EITHER INDIVIDUAL COMPONENTS OR AC MODULE ASSEMBLY. THEY MUST ALSO BE LABELED "UTILITY INTERACTIVE" CONFORMING TO IEEE1547 TESTING.
- PV MODULES THAT HAVE INVERTERS ATTACHED WITHOUT AN AC MODULE EVALUATION BY A NRTL MAY VIOLATE THE ORIGINAL LISTING OF THE PV MODULE AND VOID THE WARRANTY OF THE MODULE.
- VERIFY MODULE IS COMPATIBLE WITH MICRO INVERTER MANUFACTURER AND MODEL.
- ARTICLE CEC/NEC 690 STILL APPLIES. THE INSTALLER WILL NEED TO CONSIDER REQUIREMENTS SUCH AS: DC GROUND FAULT DETECTION AND INTERRUPT, DC CABLE MANAGEMENT, DC DISCONNECTING MEANS AND DC GROUNDING AS WELL AS THE AC EQUIPMENT GROUNDING CONDUCTOR TO THE INVERTER.
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:

- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(B)(1)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS



REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

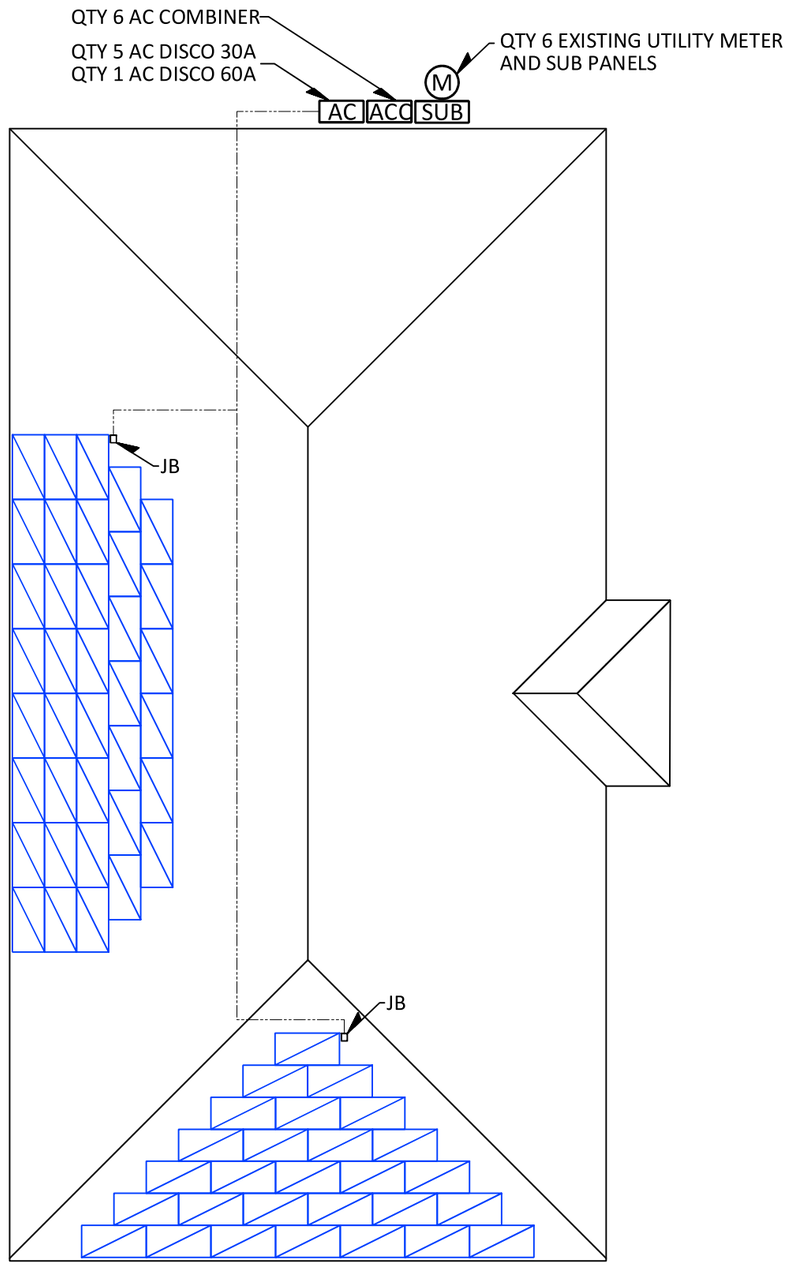
E-003E

THREE LINE DIAGRAM

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943



sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

EQUIPMENT GROUNDING

1. METAL PV MODULE FRAMES NEED TO BE CONNECTED TO THE EGC (EQUIPMENT GROUNDING CONDUCTOR).
   1.1. WEEBS MAY BE USED IN LIEU OF MODULE GROUND CLAMPS OR LUGS, WITH APPROVAL OF AHJ AND RACKING MFG. WEEBS ARE ONE TIME USE ONLY. SEE "we-llc.com" FOR RACKING SPECIFIC WEEB, INSTALL INSTRUCTIONS, AND UL 2703 CERT.
   1.2. FOR "LAY-IN" LUG MODULE GROUNDING; CORRECT HARDWARE OF PROPER METAL MATERIAL TO AVOID CORROSION MUST BE USED. TYPICALLY DIRECT BURIAL RATED, TINNED, OR STAINLESS STEEL. GROUNDING LUGS MUST BE ATTACHED AT MARKED LOCATION ON EACH MODULE.
2. THE EGC (EQUIPMENT GROUNDING CONDUCTOR) IS USED TO BOND ALL NON-CURRENT CARRYING CONDUCTORS AND EXPOSED METAL PARTS THAT MIGHT COME INTO CONTACT WITH CURRENT-CARRYING CONDUCTORS, INCLUDING THE FOLLOWING:
   2.1. PV MODULES FRAMES, ARRAY MOUNTING RACKING; THE METAL CHASSIS OF EQUIPMENT SUCH AS INVERTERS, DISCONNECTS, METERS, JUNCTION BOXES AND COMBINER BOXES; AND METAL CONDUIT HOLDING CIRCUITS > 250 VOLTS TO GROUND PER NEC 250.97
3. THE GEC (GROUNDING ELECTRODE CONDUCTOR) IS THE CONDUCTOR USED TO CONNECT THE GE OR GE SYSTEM TO THE SYSTEM GC, TO THE EGC, OR TO BOTH.
4. THE GE (GROUNDING ELECTRODE) IS A CONDUCTING OBJECT, OFTEN A ROD, RING, OR PLATE ESTABLISHING A DIRECT CONNECTION TO EARTH. THE AC SYSTEM GROUND IS EXISTING, USUALLY AT THE EXISTING MAIN PANEL AND/OR UTILITY METER. THE GROUND CAN ONLY OCCUR IN ONE PLACE AND MUST NOT BE DUPLICATED IN SUB-PANELS OR ANYWHERE ELSE ON AC SIDE.

ELECTRICAL SYMBOL LEGEND

ATF	AUTO TRANSFORMER	JB	JUNCTION BOX
SLC	SOLAR LOAD CENTER	AC	AC DISCONNECT
ACC	AC COMBINER	SP	SERVICE PANEL
BATT	BATTERY	(P)	PERFORMANCE METER
SUB	SUB-PANEL	(M)	UTILITY METER
CB	CIRCUIT BREAKER DISCONNECT	CLP	CRITICAL LOADS PANEL
SECTION / 1	PV ARRAY TAG SECTION # MODULE GROUP	XFMR	TRANSFORMER
		ATS	AUTO TRANSFER SWITCH

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER

NORTH

QTY 65 Q-Cell Q.PEAK DUO L-G6.2 425 MODULES, QTY 65 Enphase IQ7A-72-2-US (240V) MICRO INVERTER

SCALE:1/16"=1'-0" @ SHEET SIZE A3

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

E-100 ELECTRICAL LAYOUT

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

1 CONDUIT, RACEWAY, J-BOX, AND PULL BOXES

SCALE: 1/2" = 1'-0"

WARNING: PHOTOVOLTAIC POWER SOURCE

1. PLACE ON CONDUIT AND/OR RACE WAYS EVERY 10' (60"), 12" FROM BENDS, 12" ABOVE AND BELOW PENETRATIONS.
2. CODE REFERENCE: NEC 690.31(G)(3)
3. MINIMUM OF 1 1/8" x 5 3/4"
4. FONT: 3/8" AND .8 WIDTH FACTOR.
5. REFLECTIVE WHITE LETTERS ON A RED BACKGROUND.

2 DC DISCONNECTS

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

⚠WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENGERGIZED IN THE OPEN POSITION

1. PLACED ON DC DISCONNECT(S) AND ON ANY EQUIPMENT THAT STAYS ENERGIZED IN THE OFF POSITION FROM THE PV SUPPLY.
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 3 1/2" x 10"
4. FONT: 3/8"
5. WARNING LABEL IS WHITE AND ORANGE

3 INVERTER(S)

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

⚠WARNING
THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT

1. MINIMUM OF 3 1/2" x 10 1/2"
2. FONT: 3/8"
3. WARNING LABEL IS WHITE AND ORANGE

SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.13 & 690.53)
4. THE MARKINGS ON THE CONDUITS, RACEWAYS AND CABLE ASSEMBLIES ARE EVERY 10 FEET, WITHIN ONE FOOT OF ALL TURNS OR BENDS AND WITHIN ONE FOOT ABOVE AND BELOW ALL PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS AND BARRIERS. (IFC 605.11.1.4, NEC 690.31[G][3])
5. WHERE PV CIRCUITS ARE EMBEDDED IN BUILT-UP, LAMINATE OR MEMBRANE ROOFING MATERIALS IN ROOF AREAS NOT COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT, THE LOCATION OF CIRCUITS SHALL BE CLEARLY MARKED.
6. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
7. MARKING CONTENT AND FORMAT:
   - 7.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   - 7.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   - 7.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   - 7.4. CONTRASTING BACKGROUND AND LETTERING.
   - 7.5. ALL CAPITAL LETTERS.
   - 7.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   - 7.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT

4 NON-LOAD BREAK DC COMBINER / J-BOX

SCALE: 1/2" = 1'-0"

DO NOT OPEN UNDER LOAD

1. CODE REFERENCE: NEC 690.13(C)
2. USE ON NON-LOAD BREAK RATED DISCONNECTION.
3. MINIMUM OF 1" x 6"
4. FONT: 3/8" AND .8 WIDTH FACTOR
5. WHITE LETTERS ON A RED BACKGROUND.

DO NOT DISCONNECT UNDER LOAD

5 DC COMBINER BOX

SCALE: 1/2" = 1'-0"

DC COMBINER BOX

COMBINER # 1

1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 DC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR
4. WHITE LETTERS ON A RED BACKGROUND.

6 SWITCHBOARDS

SCALE: 1/2" = 1'-0"

⚠WARNING
ARC FLASH HAZARD
APPROPRIATE PPE REQUIRED
FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY
REFER TO NFPA 70E

1. VERIFY WHICH PLACARD IS REQUIRED WITH AHJ.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .8 WIDTH FACTOR
4. WARNING LABEL IS WHITE AND ORANGE
5. DATA COLLECTED FROM AS-BUILT INFO, PRIOR TO PTO, BY OTHERS.

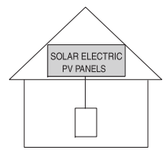
7 MAIN SERVICE PANEL

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

1. LOCATE NO MORE THAN 1 m FROM THE SERVICE DISCONNT MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.

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.



2. CODE REFERENCE: NEC 690.56(C)(1)(a)
3. TITLE: MIN. 3/8" BLACK CHARACTERS ON YELLOW BACKGROUND, REMAINING CHARACTERS MIN. 3/16" IN BLACK ON WHITE BACKGROUND.

8 AC AND DC DISCONNECTS

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

AC DISCONNECT # 1

DC DISCONNECT # 1

USE PLACARD "[AC][DC] DISCONNECT # 1" WHEN MORE THAN ONE DISCONNECT IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.

PHOTOVOLTAIC	PHOTOVOLTAIC
DC DISCONNECT	AC DISCONNECT

1. PLACE ON ALL AC AND DC DISCONNECTS
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 1" x 10 1/2"
4. FONT: 3/8"
5. WHITE LETTERS ON A RED BACKGROUND.

9 J-BOX, DC COMBINER, AND DC DISCONNECT

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

⚠WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENGERGIZED IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

1. ONLY FOR UNGROUNDED SYSTEMS.
2. PLACED ON ALL ENCLOSURES WITH UNGROUNDED CIRCUITS OR DEVICES WHICH ARE ENERGIZED AND MAY BE EXPOSED DURING SERVICE.
3. MINIMUM OF 3" x 10 1/2"
4. FONT: 3/8"
5. WARNING LABEL IS WHITE AND ORANGE

10 INVERTER(S)

SCALE: 1/2" = 1'-0"

INVERTER # 1

1. USE PLACARD "INVERTER # 1" WHEN MORE THAN 1 INVERTER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8"
4. WHITE LETTERS ON A RED BACKGROUND.

11 RAPID SHUTDOWN SWITCH

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

1. A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 1M (3 FT) FROM THE SWITCH THAT INCLUDES THE FOLLOWING:

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

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

ENGINEERING STAMP (if appl.)

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

QTY 65 Q-Cell Q.PEAK DUO L-G6.2 425 MODULES, QTY 65 Enphase IQ7A-72-2-US (240V) MICRO INVERTER

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

P-001 STANDARD PLACARDS

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

2 AC DISCONNECT, AC SUB-PANEL

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

PV SYSTEM AC DISCONNECT 1 RATED AC OUTPUT CURRENT 14.5 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC DISCONNECT 1 RATED AC OUTPUT CURRENT 14.5 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PV SYSTEM AC DISCONNECT 5 RATED AC OUTPUT CURRENT 37.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC DISCONNECT 5 RATED AC OUTPUT CURRENT 37.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
PV SYSTEM AC DISCONNECT 2 RATED AC OUTPUT CURRENT 13.05 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC DISCONNECT 2 RATED AC OUTPUT CURRENT 13.05 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PV SYSTEM AC COMBINER 1 RATED AC OUTPUT CURRENT 14.5 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC COMBINER 1 RATED AC OUTPUT CURRENT 14.5 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
PV SYSTEM AC DISCONNECT 3 RATED AC OUTPUT CURRENT 11.6 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC DISCONNECT 3 RATED AC OUTPUT CURRENT 11.6 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PV SYSTEM AC COMBINER 2 RATED AC OUTPUT CURRENT 13.05 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC COMBINER 2 RATED AC OUTPUT CURRENT 13.05 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
PV SYSTEM AC DISCONNECT 4 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC DISCONNECT 4 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PV SYSTEM AC COMBINER 3 RATED AC OUTPUT CURRENT 11.6 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC COMBINER 3 RATED AC OUTPUT CURRENT 11.6 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
		PV SYSTEM AC COMBINER 4 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC COMBINER 4 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
		PV SYSTEM AC COMBINER 5 RATED AC OUTPUT CURRENT 37.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	PHOTOVOLTAIC SYSTEM AC COMBINER 5 RATED AC OUTPUT CURRENT 37.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS

1 AC COMBINER

SCALE: 1/2" = 1'-0"

AC COMBINER BOX

COMBINER # 1

1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 AC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR MINIMUM.
4. WHITE LETTERS ON A RED BACKGROUND.
5. PLACARDS MAY BE COMBINED TOGETHER. I.E. "AC COMBINER BOX #1". MINIMUM REQUIREMENTS LISTED ABOVE.

1. PLACARD PLACED ON EACH SOLAR SYSTEM DISCONNECTING COMPONENT.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS. SEE SHEET "E-001 / AC DISCONNECT [#]"
3. CODE REFERENCE: NEC 690.54
4. MINIMUM OF 1 1/2" x 8 1/2" (TOP), 1 3/4" x 6 1/2" (BOT)
5. FONT: 3/8" HEADER, 3/16" DATA
6. WHITE LETTERS ON A RED BACKGROUND.

3 UTILITY METER, SERVICE PANEL, SUB-PANEL

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

WARNING DUAL POWER SOURCES #1 RATED AC OUTPUT CURRENT 14.5 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	WARNING DUAL POWER SOURCES #2 RATED AC OUTPUT CURRENT 13.05 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
WARNING DUAL POWER SOURCES #3 RATED AC OUTPUT CURRENT 11.6 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	WARNING DUAL POWER SOURCES #4 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
WARNING DUAL POWER SOURCES #5 RATED AC OUTPUT CURRENT 8.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS	WARNING DUAL POWER SOURCES #6 RATED AC OUTPUT CURRENT 37.7 AMPS AC NORMAL OPERATING VOLTAGE 240 VOLTS
BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING #7	BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING #8

1. (#1) PLACARD PLACED AT MAIN UTILITY SERVICE DISCONNECT/BREAKER AND PV SYSTEM SUPPLY BREAKER AT POINT OF INTERCONNECTION. (#2 & #3) PLACARD(S) REQUIRED WITH #1 PLACARD WHEN UTILITY SERVICE AND PV SYSTEM DISCONNECT ARE NOT LOCATED NEXT TO EACH OTHER. MAP PLACARD REQUIRED AS SPECIFIED.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   - 2.1. VALUES WILL MATCH LOAD CENTER OR SUB-PANEL VALUES IF INSTALLED AFTER INVERTERS. IF AC CONNECTION TO SERVICE PANEL COMES FROM INVERTERS; SEE SHEET "E-001 / STRING INVERTER[#] SPECIFICATIONS".
     - 2.1.1. INVERTERS ARE PARALLEL CONNECTIONS.
     - 2.1.2. "RATED AC OUTPUT CURRENT" WILL BE THE SUM OF THE INVERTERS
     - 2.1.3. "AC NORMAL OPERATING VOLTAGE" WILL BE THE NAME PLATE RATING OF THE INVERTER
3. CODE REFERENCE: NEC 690.54, NEC 705.12(B)(3)
4. MINIMUM OF 2" x 6 1/2" (#1), VARIES (#2 & #3)
5. FONT: 3/8" HEADER, 3/16" DATA (#1), 1/4" (#2 & #3)
6. WHITE LETTERS ON A RED BACKGROUND.

SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.53)
4. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
5. MARKING CONTENT AND FORMAT:
   - 5.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   - 5.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   - 5.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   - 5.4. CONTRASTING BACKGROUND AND LETTERING.
   - 5.5. ALL CAPITAL LETTERS.
   - 5.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   - 5.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT
6. ANSI Z535.4 PRODUCT SAFETY SIGNS AND LABELS: THIS INFORMATIONAL NOTE AND ITS REQUIREMENTS FOR PLACARDS MAY BE USED WITH PRIOR APPROVAL OF THE AHJ. MOST NOTABLE DIFFERENCES IS COLOR OF PLACARDS AND USE OF HAND WRITTEN VALUES WITH INDUSTRIAL MARKERS ON STANDARD PLACARDS WHERE THE VALUE MAY CHANGE AT A FUTURE DATE. I.E. ADDING MODULES AT A FUTURE DATE, OR STANDARD PLACARD MANUFACTURER INSTALLED ON ELECTRICAL COMPONENT. AHJ APPROVAL REQUIRED. (SEE NOTE #1 FOR INDIVIDUAL PLACARDS)

sealed 06jan2022 mike@h2dc.com
H2DC PLLC MO CoA#: 2017002700
ELECTRICAL ONLY
-NOT AN AS BUILT DRAWING SET-

RESPONSIBILITY NOTES

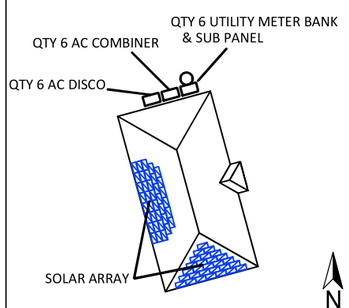
1. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE PHOTOVOLTAIC SYSTEM INSTALLATION. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE INFORMATION REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEM DETAILED IN THIS DOCUMENT.
2. ADVANCED SOLAR SOLUTIONS, INC IS RESPONSIBLE FOR APPLYING SUPPLIED INFORMATION INTO A SET OF PERMIT DRAWINGS. ANY CHANGES TO DRAWINGS ARE SUBJECT TO CONTRACT CONDITIONS BETWEEN THE CLIENT AND ADVANCED SOLAR SOLUTIONS, INC. IN ACCORDANCE WITH THE REQUIREMENTS OF THE AHJ.

4 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

SCALE: 1/2" = 1'-0"

CAUTION

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



WARNING

ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS

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

1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 7 3/4" x 5"
6. FONT: 3/4" "CAUTION", 1/4" "WARNING", 3/16" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (CFC 605.11.1.3 & CRC R331.2.3)

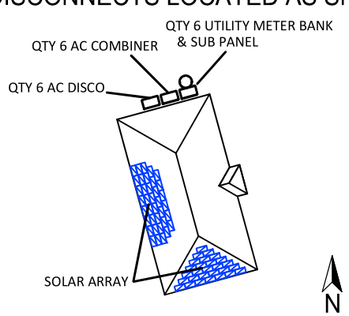
Note: WARNING labels must resemble format in example above with over-sized WARNING, exclamation point in triangle, colors, etc.

5 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

SCALE: 1/2" = 1'-0"

CAUTION

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



1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 6 1/2" x 6 1/2"
6. FONT: 3/4" "CAUTION", 1/4" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (CFC 605.11.1.3 & CRC R331.2.3)

REV	DATE	RELEASE
	12/29/2021	SUBMIT FOR PERMIT

P-002 DYNAMIC PLACARD

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

Q.PEAK DUO L-G6.2

415-435

ENDURING HIGH PERFORMANCE

ASSEMBLED IN THE USA

pv magazine award 2019 Top Innovation

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2020

Q CELLS Yield Security

Q.ANTUM TECHNOLOGY: LOW LEVELISED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 20.5%.

INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (2400 Pa).

A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (–1500 V, 168 h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

Rooftop arrays on commercial/industrial buildings

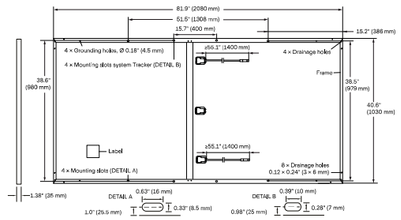
Ground-mounted solar power plants

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	81.9 in × 40.6 in × 1.38 in (including frame) (2080 mm × 1030 mm × 35 mm)
Weight	55.1 lbs (25 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodized aluminum
Cell	6 × 24 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09–3.98 × 1.26–2.36 × 0.59–0.71 in (53–101 × 32–60 × 15–18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥55.1 in (1400 mm), (–) ≥55.1 in (1400 mm)
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-8, JMTHY JM601A, Tongling Cable01S-F; IP68 or Friends PV2e; IP67

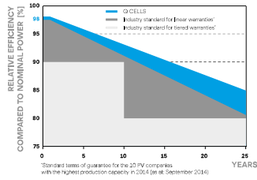


ELECTRICAL CHARACTERISTICS

POWER CLASS				415	420	425	430	435
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	415	420	425	430	435
	Short Circuit Current[1]	I_{SC}	[A]	10.74	10.79	10.83	10.88	10.92
	Open Circuit Voltage[1]	V_{OC}	[V]	48.63	48.88	49.13	49.38	49.62
	Current at MPP	I_{MPP}	[A]	10.23	10.27	10.32	10.36	10.41
	Voltage at MPP	V_{MPP}	[V]	40.58	40.89	41.20	41.50	41.81
	Efficiency[1]	η	[%]	≥19.4	≥19.6	≥19.8	≥20.1	≥20.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	310.6	314.4	318.1	321.8	325.6
	Short Circuit Current	I_{SC}	[A]	8.65	8.69	8.73	8.76	8.80
	Open Circuit Voltage	V_{OC}	[V]	45.86	46.09	46.33	46.56	46.80
	Current at MPP	I_{MPP}	[A]	8.05	8.09	8.12	8.16	8.19
	Voltage at MPP	V_{MPP}	[V]	38.59	38.88	39.17	39.46	39.75

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

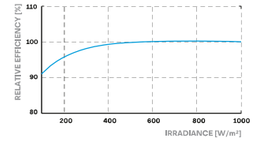
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	–0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.36	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500 (IEC) / 1500 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	C (IEC) / TYPE 1 (UL)
Max. Design Load, Push / Pull[3]	[lbs / ft²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted Module Temperature on Continuous Duty	–40 °F up to +185 °F (–40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs / ft²]	113 (5400 Pa) / 50 (2400 Pa)		

[3] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant,
IEC 61215:2016,
IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells)

PACKAGING INFORMATION

Horizontal packaging	83.9 in 2130 mm	42.5 in 1080 mm	47.1 in 1196 mm	1687 lbs 765 kg	24 pallets	22 pallets	29 modules
Vertical packaging	84.6 in 2150 mm	45.3 in 1150 mm	48.0 in 1220 mm	1717 lbs 779 kg	26 pallets	22 pallets	29 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product. Q CELLS supplies solar modules in two different stacking methods, depending on the location of manufacture (modules are packed horizontally or vertically). You can find more detailed information in the document "Packaging and Transport Information", available from Q CELLS.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | **TEL** +1 949 748 59 96 | **EMAIL** inquiry@us.q-cells.com | **WEB** www.q-cells.us

REV	DATE	
	01/27/2022	RELEASE
		SUBMIT FOR PERMIT

R-100

EQUIP. CUT SHEETS

27.625 kW PHOTOVOLTAIC PLANS

NAME	LSCV455-MO
ADDRESS	455 SW Ward Rd
ADDRESS	Lee's Summit, MO 64081
APN	

Sun Smart Technologies
000002021-00077
701 NE 76th Street
Gladstone, MO 64118
(816) 509-0943

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7A Microinverter

The high-powered smart grid-ready **Enphase IQ 7A Micro**™ dramatically simplifies the installation process while achieving the highest system efficiency for systems with 60-cell and 72-cell modules.

Part of the Enphase IQ System, the IQ 7A Micro integrates with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

The 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.

High Power
- Peak output power 366 VA @ 240 VAC and 295 VA @ 208 VAC

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

Efficient and Reliable
- Optimized for high powered 60-cell and 72-cell modules
- Highest CEC efficiency of 97%
- 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
- Envoy and Internet connection required
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

CERTIFIED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ 7A Microinverter

INPUT (DC)	IQ7A-72-2-US	
Commonly used module pairings[1]	295 W–460 W +	
Module compatibility	60-cell, 66-cell, and 72-cell PV modules	
Maximum input DC voltage	58 V	
Power point tracking voltage range[2]	18 V–58 V	
Min/Max start voltage	33 V / 58 V	
Max DC short circuit current (module Isc)[3]	15 A	
Overvoltage class DC port	II	
DC port backfeed current	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 (AC)	**@ 240 VAC**	**@ 208 VAC**
Peak output power	366 VA	295 VA
Maximum continuous output power	349 VA	290 VA
Nominal (L-L) voltage/range[4]	240 V / 211–264 V	208 V / 183–229 V
Maximum continuous output current	1.45 A (240 VAC)	1.39 A (208 VAC)
Nominal frequency	60 Hz	
Extended frequency range	47–68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[5]	11 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III	
AC port backfeed current	18 mA	
Power factor setting	1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging	
EFFICIENCY	**@240 VAC**	**@208 VAC**
CEC weighted efficiency	97.0 %	96.5%
MECHANICAL		
Ambient temperature range	-40°C to +60°C	
Relative humidity range	4% to 100% (condensing)	
Connector type: DC (IQ7A-72-2-US)	MC4	
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 Compatible with 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 and NEC-2017 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. CEC peak power tracking voltage range is 38 V to 43 V.
3. Maximum continuous input DC current is 10.2A.
4. Voltage range can be extended beyond nominal if required by the utility.
5. 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**

2020-06-16

ENPHASE

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01/27/2022 | SUBMIT FOR PERMIT

EQUIP. CUT SHEETS
R-101

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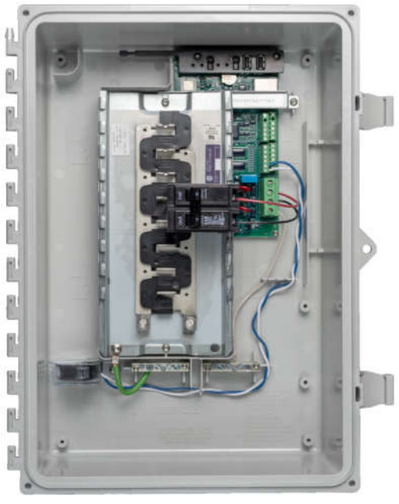
Data Sheet
Enphase Networking

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 warranty
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

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%).
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 2
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

* Consumption monitoring is required for Enphase Storage Systems.

To learn more about Enphase offerings, visit **enphase.com**

2018-09-13

ENPHASE

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R-102

EQUIP. CUT SHEETS

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E Mount AIR® / RT - MINI

Roof Tech
Smarter PV mounting solutions from top of roof to bottom line®

Components

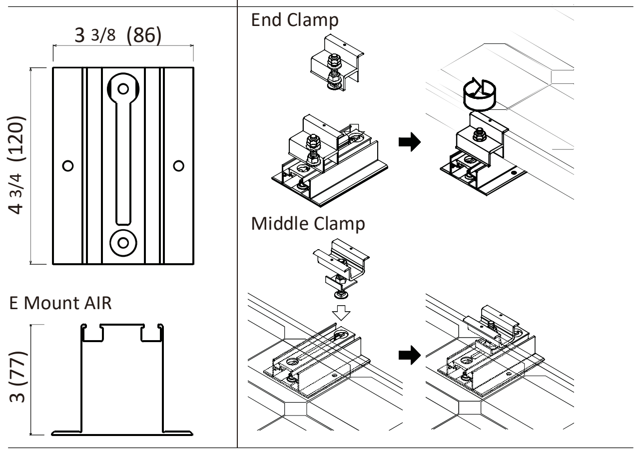
E Mount AIR kit

End Clamp kit

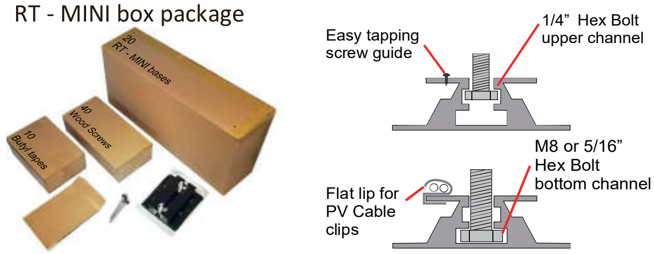
Middle Clamp kit

Available for 32,33,35,40,46 and 50 mm PV frame thickness

Dimensions in (mm) | Installation



RT - MINI box package



Material Description	
E Mount AIR / RT - MINI	Anodized aluminum
Clamps	
Microinverter bracket	
Cable holder bracket	
Hardware	Stainless steel
Flexible Flashing	RT Butyl (ICC ESR 3575)
Cable clamp	PBT

20 Year Limited Warranty
* Please download and review the engineering report.
PAT US8647009

20 Year Limited Warranty
Preassembled hardware
Fewer parts

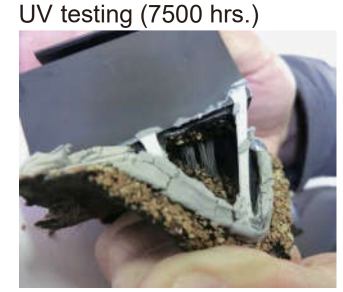
Roof Tech Inc.
www.roof-tech.us info@roof-tech.us
10620 Treena Street, Suite 230, San Diego, CA 92131
858.935.6064

GEN II / RT - MINI Product Brochure

E Mount AIR is the only rail-less PV mounting system with integrated flexible flashing certified by the ICC.

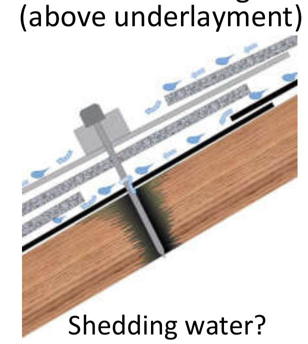
UL441 testing | ASTM2140 testing

UV testing (7500 hrs.)



ICC ESR-3575 evaluation report

Metal Flashing (above underlayment)

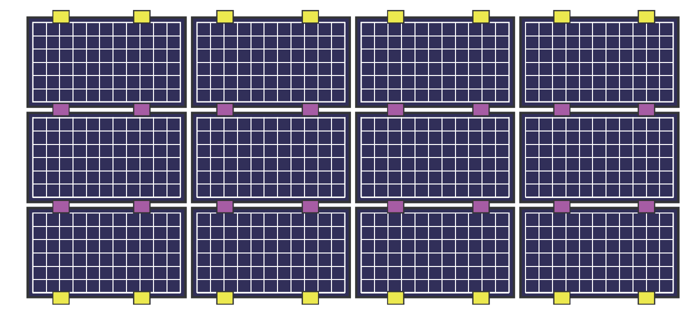


Shedding water?

Flexible Flashing

100% Waterproof

Design Guide ; E Mount AIR



Sample B.O.M.

End Clamps		16 End Clamps
Middle Clamps		16 Middle Clamps
Total # of Bases		32 E Mount AIR Bases

Option Items

# of panels		12 Microinverter brackets
# of panels		12 Cable Holder brackets
# of rows		4 Skirts: (Eave cover)

RT - MINI

"Flexible flashing mount for L-foot and EMT"

E Mount series Options

"Microinverter Bracket" and "Cable holder Bracket"

"Skirt: Eaves Cover"

REV	
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EQUIP. CUT SHEETS

R-103

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