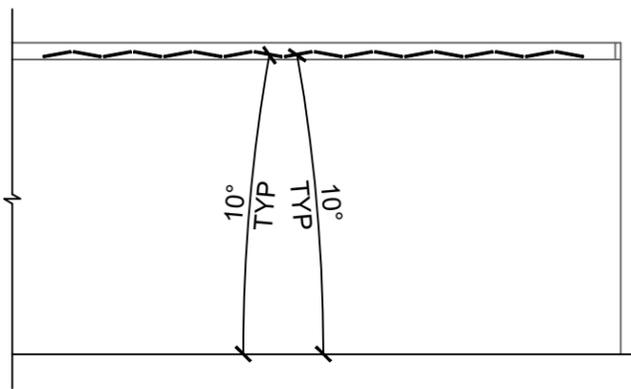
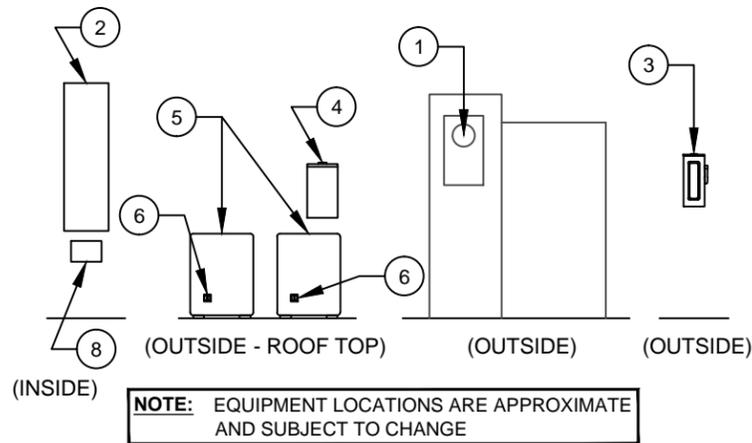


VICINITY MAP



PANEL ELEVATION



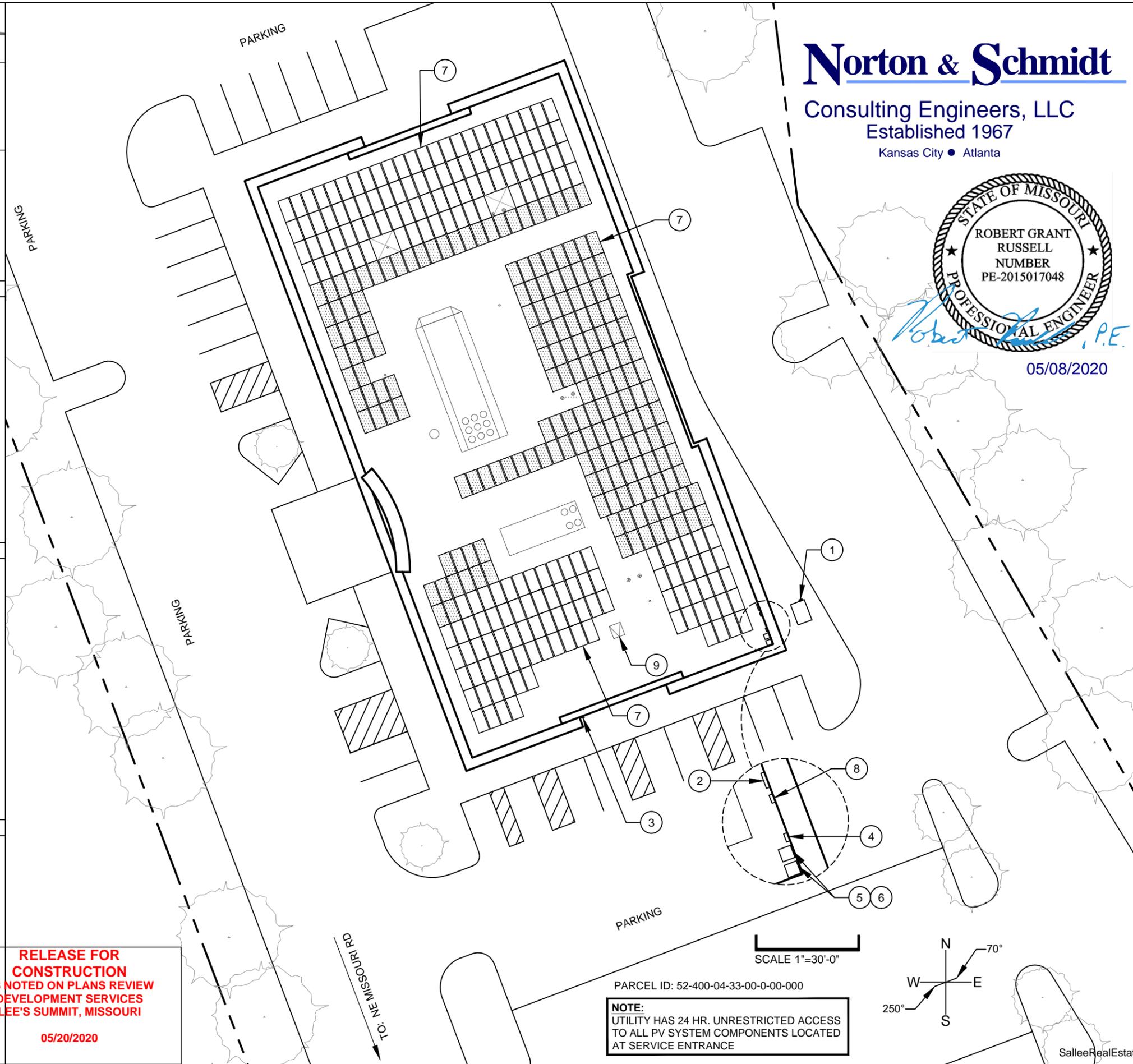
EQUIPMENT LOCATION ELEVATION

- ① ELECTRICAL SERVICE ENTRANCE AND UTILITY REVENUE METER # 18 599 454
- ② EXISTING ELECTRICAL LOAD CENTER (MDP PANEL)
- ③ PHOTOVOLTAIC SYSTEM DISCONNECT FOR UTILITY OPERATION
- ④ DEDICATED PHOTOVOLTAIC SYSTEM AC COMBINER PANEL
- ⑤ INVERTER (2 TOTAL)
- ⑥ PV ARRAY DC DISCONNECT (2 TOTAL)
- ⑦ PHOTOVOLTAIC MODULE ARRAY MOUNTED ON FLAT ROOF (362 TOTAL SOLAR PANELS)
- ⑧ JUNCTION BOX FOR EGUAGE MONITORING SYSTEM
- ⑨ EXISTING ROOF ACCESS HATCH

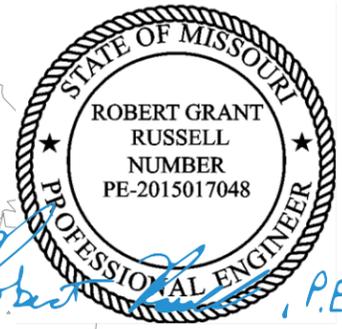
GENERAL NOTES

**RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI**

05/20/2020



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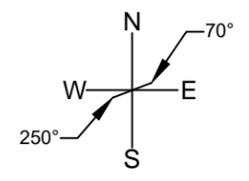


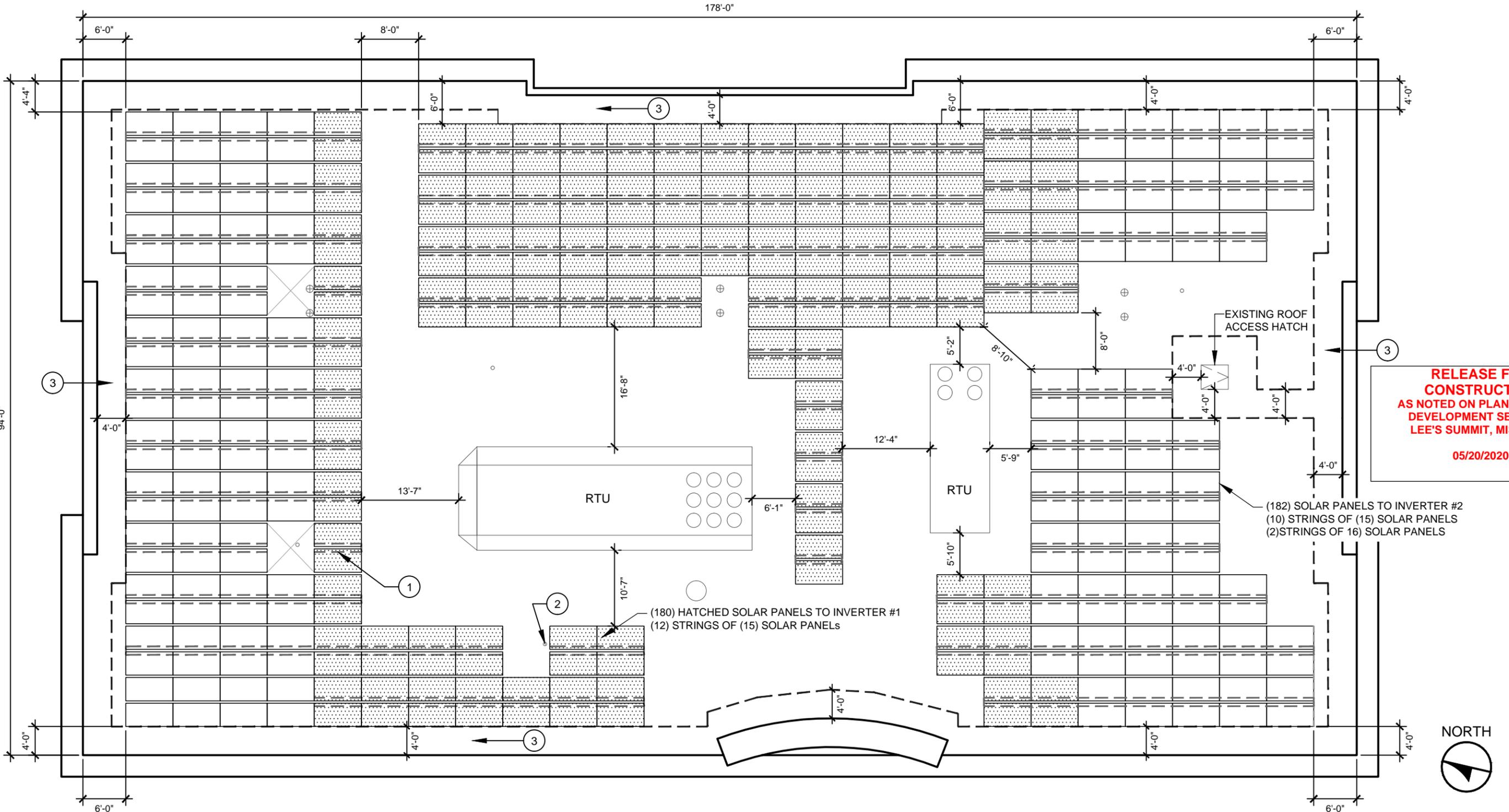
05/08/2020

Prepared For:		SUNSMART TECHNOLOGIES	
701 NE 76th Street		Gladstone, MO 64118	
816-388-9486			
PM		DATE	APPR.
05-06-2020			
MES		BY	
ISSUED FOR REVIEW		REVISION	
A		NO.	
144.8 KW DC PV SYSTEM 124.0 KW AC PV SYSTEM SOLAR ROOF PLAN 200 NE MISSOURI ROAD LEES SUMMIT, MO 64086			
Utility Company: EVERGY			
Drawn By: M. Sucharski			
Checked By: P. Meiers			
Date: 05/06/2020			
Project: SalleeRealEstateInvestments200-MO			
Scale: 1" = 30'-0"			
Sheet: 01			

PARCEL ID: 52-400-04-33-00-0-00-000

NOTE:
UTILITY HAS 24 HR. UNRESTRICTED ACCESS TO ALL PV SYSTEM COMPONENTS LOCATED AT SERVICE ENTRANCE





RELEASE FOR CONSTRUCTION
 AS NOTED ON PLANS REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 05/20/2020

(182) SOLAR PANELS TO INVERTER #2
 (10) STRINGS OF (15) SOLAR PANELS
 (2) STRINGS OF (16) SOLAR PANELS

(180) HATCHED SOLAR PANELS TO INVERTER #1
 (12) STRINGS OF (15) SOLAR PANELS

PV PANEL ARRAY PLAN

LANDSCAPE MOUNTED PANELS FLAT TPO ROOF

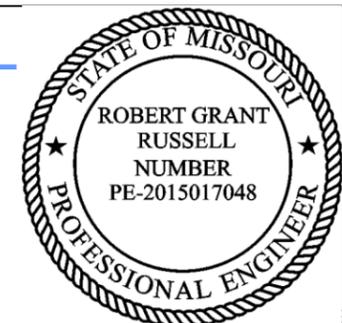
- ① ROOF TOP BALLASTED RACKING, REFER TO DETAIL SHEET 04
- ② VENTS (TYP.)
- ③ 4' CLEAR PATH FOR FIRE DEPT. ACCESS

NOTE:
 ALL CONSTRUCTION / INSTALLATION IS TO COMPLY WITH THE FOLLOWING:
 2018 IBC 2018 IFC 2017 NEC
 ALL DIMENSIONS ARE APPROXIMATE

NOTE:
 REFER TO SUPPLEMENTAL STRUCTURAL ANALYSIS REPORT FOR STRUCTURAL CALCULATIONS AND ROOF STRUCTURE DETAILS.

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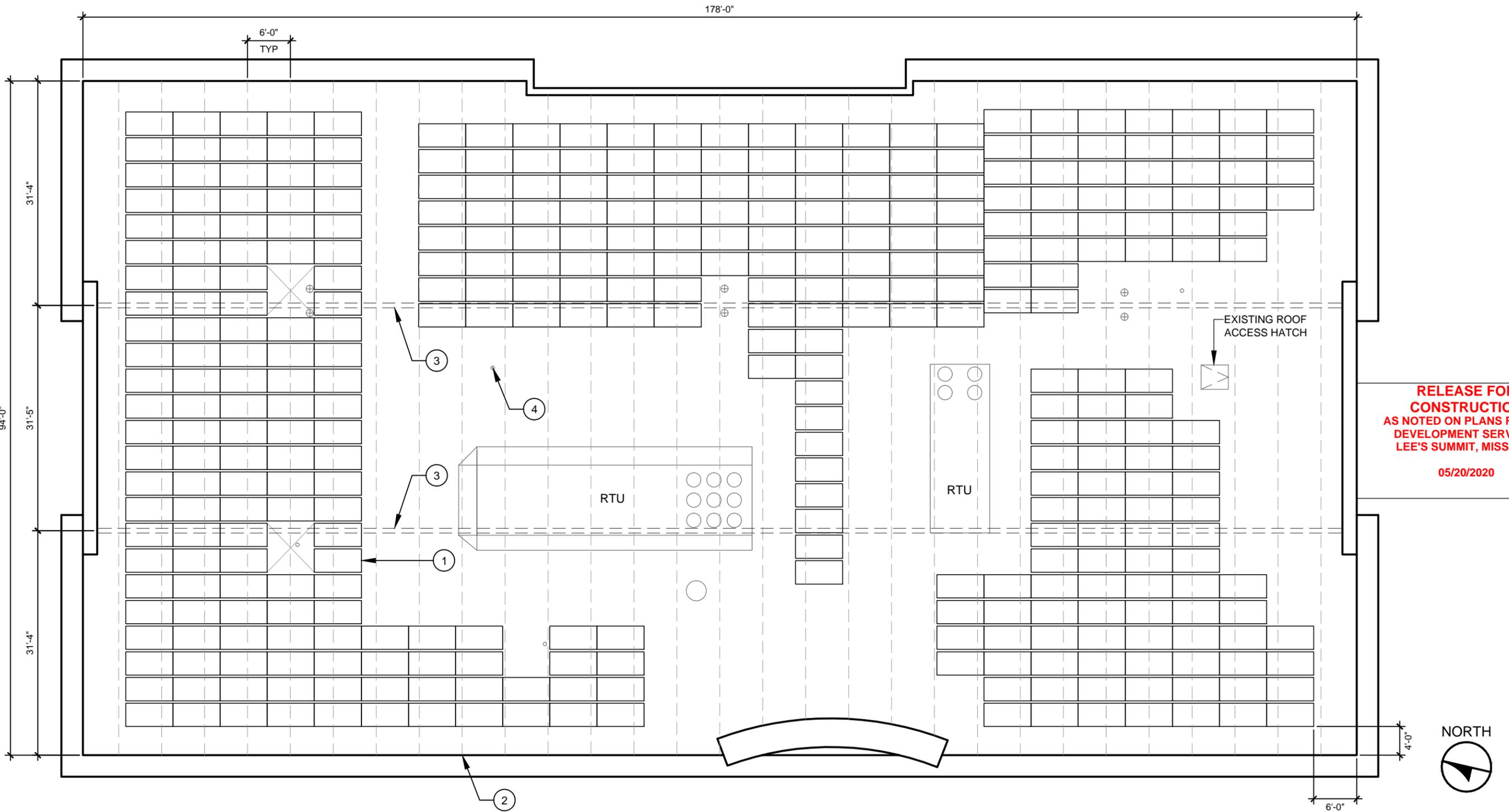


Prepared For:
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 701 NE 76th Street
 Gladstone, MO 64118
 816-388-9486

MES	PM	DATE	BY	APPR.
05-06-2020				

144.8 KW DC PV SYSTEM
 124.0 KW AC PV SYSTEM
PV LAYOUT DETAILS
 200 NE MISSOURI ROAD
 LEE'S SUMMIT, MO 64086

Utility Company:	EVERGY
Drawn By:	M. Sucharski
Checked By:	P. Meiers
Date:	05/06/2020
Project:	SalleeRealEstateInvestments200-MO
Scale:	Sheet: 02



RELEASE FOR CONSTRUCTION
 AS NOTED ON PLANS REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 05/20/2020

PV PANEL ARRAY PLAN

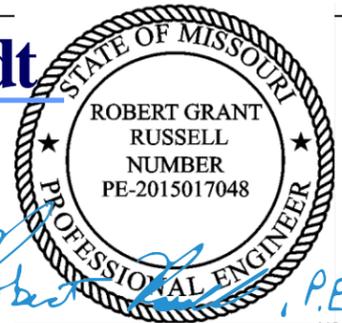
LANDSCAPE MOUNTED PANELS FLAT TPO ROOF

- ① SOLAR PV ARRAY
- ② EXISTING STEEL WEB JOIST @ 6'-0" O.C., VERIFY LOCATION
- ③ EXISTING STEEL SUPPORT BEAM, VERIFY LOCATION
- ④ VENTS (TYP.)

NOTE:
 ALL CONSTRUCTION / INSTALLATION IS TO COMPLY WITH THE FOLLOWING:
 2018 IBC 2018 IFC 2017 NEC
 ALL DIMENSIONS ARE APPROXIMATE

NOTE:
 REFER TO SUPPLEMENTAL STRUCTURAL ANALYSIS REPORT FOR STRUCTURAL CALCULATIONS AND ROOF STRUCTURE DETAILS.

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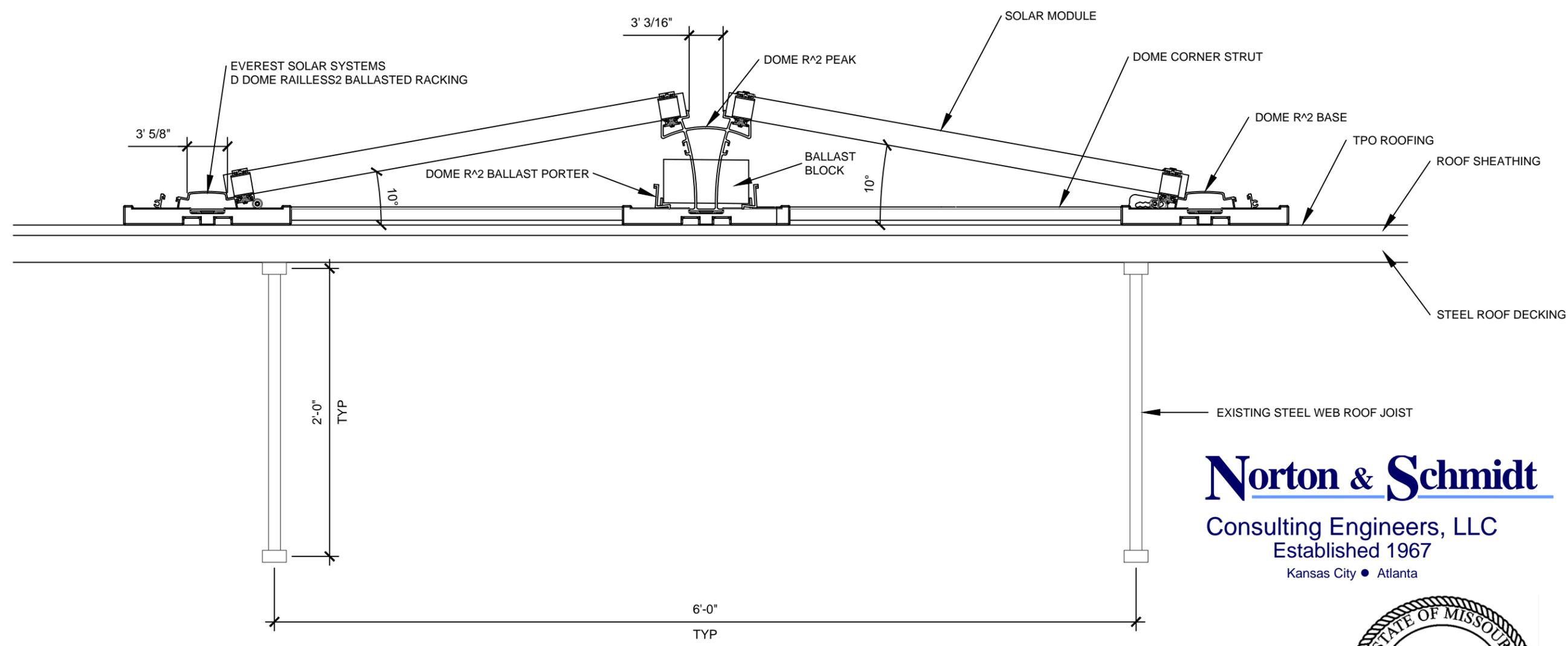
PM	MES	DATE	BY	APPR.
05-06-2020				

ISSUED FOR REVIEW
 A

144.8 KW DC PV SYSTEM
 124.0 KW AC PV SYSTEM
ROOF FRAMING LAYOUT
 200 NE MISSOURI ROAD
 LEES SUMMIT, MO 64086

Utility Company: EVERGY
 Drawn By: M. Sucharski
 Checked By: P. Meiers
 Date: 05/06/2020
 Project: SalleeRealEstateInvestments200-MO
 Scale: Sheet: 03

NO.	REVISION	DATE	BY	APPR.
A	ISSUED FOR REVIEW	05-06-2020		PM

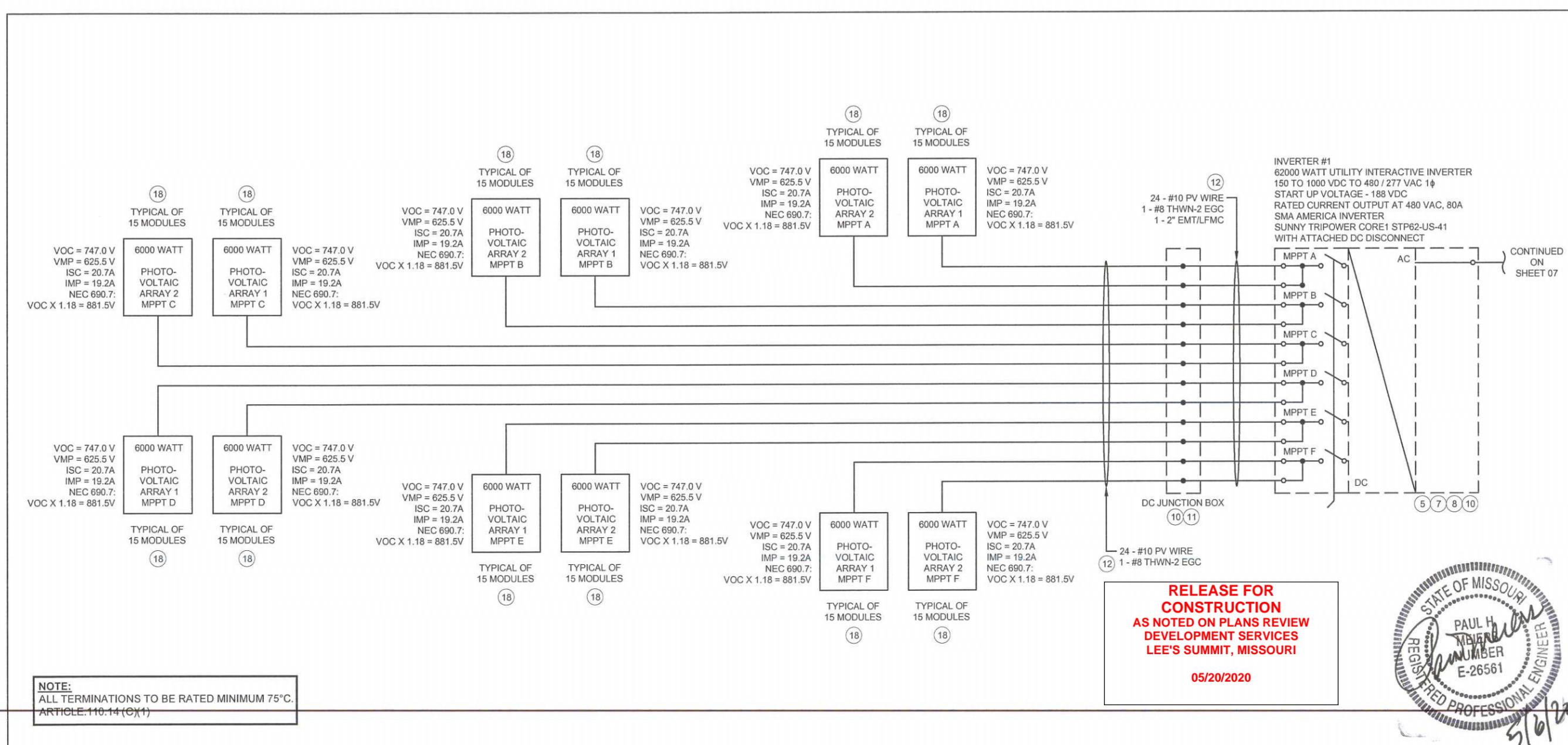


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**RELEASE FOR
 CONSTRUCTION**
 AS NOTED ON PLANS REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 05/20/2020

144.8 KW DC PV SYSTEM
124.0 KW AC PV SYSTEM
MOUNTING DETAILS
200 NE MISSOURI ROAD
LEES SUMMIT, MO 64086
Utility Company: EVERGY
Drawn By: M. Sucharski
Checked By: P. Meiers
Date: 05/06/2020



NOTE:
ALL TERMINATIONS TO BE RATED MINIMUM 75°C.
ARTICLE 110.14 (C)(1)

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

05/20/2020

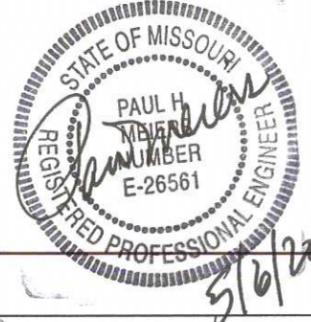


DIAGRAM	KEY NOTES	EQUIPMENT NOTES
<ol style="list-style-type: none"> EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 2017 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRICAL UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION. BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY (WHEN REQUIRED) PER NEC 705.10, A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION (UTILITY METER). LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC 110.3(B). FUNCTIONALLY GROUNDED PHOTOVOLTAIC SYSTEM SHALL COMPLY WITH THE GROUND AND BONDING REQUIREMENTS OF NEC 690.47(A). LABEL AS "PHOTOVOLTAIC SYSTEM AC DISCONNECT" WITH MAXIMUM SYSTEM CURRENT AND OPERATING VOLTAGE. ANTI-ISLANDING PROTECTION ENSURES THE SYSTEM WILL NOT EXPORT POWER INTO A BALANCED 60 Hz RESONANT LOAD WHILE THE UTILITY IS DISCONNECTED. LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D). PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRICAL SHOCK HAZARD- DO NOT TOUCH TERMINALS- TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION." PER NEC 690.35(F): THE PHOTOVOLTAIC POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT, AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE: "WARNING-ELECTRIC SHOCK HAZARD- THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED." LABEL "WARNING: PHOTOVOLTAIC POWER SOURCE". PER THE INTERNATIONAL FIRE CODE 2018 EDITION, SECTION 1204 AND NEC 2017 SECTION 690.31(G)(3) (4). MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS, JUNCTION BOXES, 	<ol style="list-style-type: none"> COMBINER BOXES AND DISCONNECTS. THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. THE MARKING SHALL ALSO BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED. WHERE PV SYSTEM DC CIRCUITS RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS PER NEC 690.31(G). PER NEC 705.12(B)(2): THE SUM OF THE AMPERE RATINGS OF OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUS BAR SHALL NOT EXCEED 120% THE RATING OF THE BUS BAR OR CONDUCTOR FOR A DWELLING UNIT. DEDICATED 3 POLE 20 AMP BRANCH FEEDER CIRCUIT FOR E-GAUGE SYSTEMS MONITOR. REVENUE GRADE ELECTRICITY CONSUMPTION AND PRODUCTION MONITORING SYSTEM. EQUAGE MONITORING SYSTEM WILL REQUIRE (3) CT(S) FOR THE SERVICE BREAKERS AND (3) CT FOR THE L1 PHASE OF THE PV SYSTEM. PER NEC 690.54 LABEL THE OVERCURRENT DEVICE "PHOTOVOLTAIC ELECTRIC POWER SOURCE" WITH THE RATED AC OUTPUT CURRENT AND THE NOMINAL OPERATING AC VOLTAGE. PER NEC 705.12(B)(2)(3)(b) LABEL DEVICE "WARNING POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE". LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL". PER NEC 690.12(B)(2)(1): THE PV ARRAY SHALL BE LISTED OR FIELD LABELED AS RAPID SHUTDOWN PV ARRAY. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH NEC 690.12(A) THROUGH (D). PER NEC 690.56(C)(3): A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 3 FEET FROM THE SWITCH THAT INCLUDES THE FOLLOWING WORDING: "RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM". SUNSMART TO CONFIRM A GROUND ROD IS INSTALLED. IF THERE IS NOT, SUNSMART SHALL INSTALL ONE PER THE NEC. ALL WIRE TO BE COPPER CONDUCTOR UNLESS OTHERWISE NOTED 	<p>CONDUCTOR SIZING PER NEC TABLE 310.15(B)(16) AND 310.15(B)(2)(A) AND ADJUSTMENT FACTORS 0.58 (56-60°C) AND 0.82 (41-45°C). OVERCURRENT DEVICE SIZING PER NEC 240.4(B) AND 240.6(A).</p> <p><u>AC CALCS:</u></p> <p>PER NEC 690.8(A)(3) AND (B)(1): 1 x 1.25</p> <p>INVERTER #1 => 80.0A x 1.25 = 100.0A INVERTER #2 => 80.0A x 1.25 = 100.0A</p> <p>SYSTEM => [1 + 2] = 200.0A</p> <p><u>NEC 2011 705.12(D)(2)(b)</u></p> <p>BUS RATING x 120% ≥ PV BKR(A) + MAIN BKR(A) BUS RATING => 1600A x 1.20 = 1920A SOURCE BKR RATINGS => 600A + 200A = 800A 1920A ≥ 800A</p> <p>ALL SUPPLIED EQUIPMENT IS UL LISTED EQUIPMENT TO BE INSTALLED PER LISTING AND / OR LABELING TO 2011 NEC REQUIREMENTS</p> <p>GROUNDING CONDUCTORS CONNECTED TO EACH MODEL FRAME AND RACK ASSEMBLY</p> <p>ALL SOLAR PANELS ARE UL LISTED TO UL1703 AND HAVE A CLASS C FIRE RATING</p> <p><u>MODULE INFORMATION:</u> MODEL NUMBER = HYUNDAI HiS-S290RG NOMINAL POWER (P_{nom}) = 290W OPEN CIRCUIT VOLTAGE (V_{oc}) = 38.8V MAX POWER VOLTAGE (V_{mp}) = 32.0V SHORT CIRCUIT CURRENT (I_{sc}) = 9.7A MAX POWER CURRENT (I_{mp}) = 9.1A SERIES FUSE RATING = 15A</p>

Prepared For: **SUNSMART TECHNOLOGIES**
701 NE 76th Street
Gladstone, MO 64118
816-388-9486

NO.	REVISION	BY	DATE	APPR.

ISSUED FOR REVIEW

144.8 KW DC PV SYSTEM
124.0 KW AC PV SYSTEM
ONE LINE WIRING DIAGRAM #1
200 NE MISSOURI ROAD
LEES SUMMIT, MO 64086

Utility Company: **EVERGY**

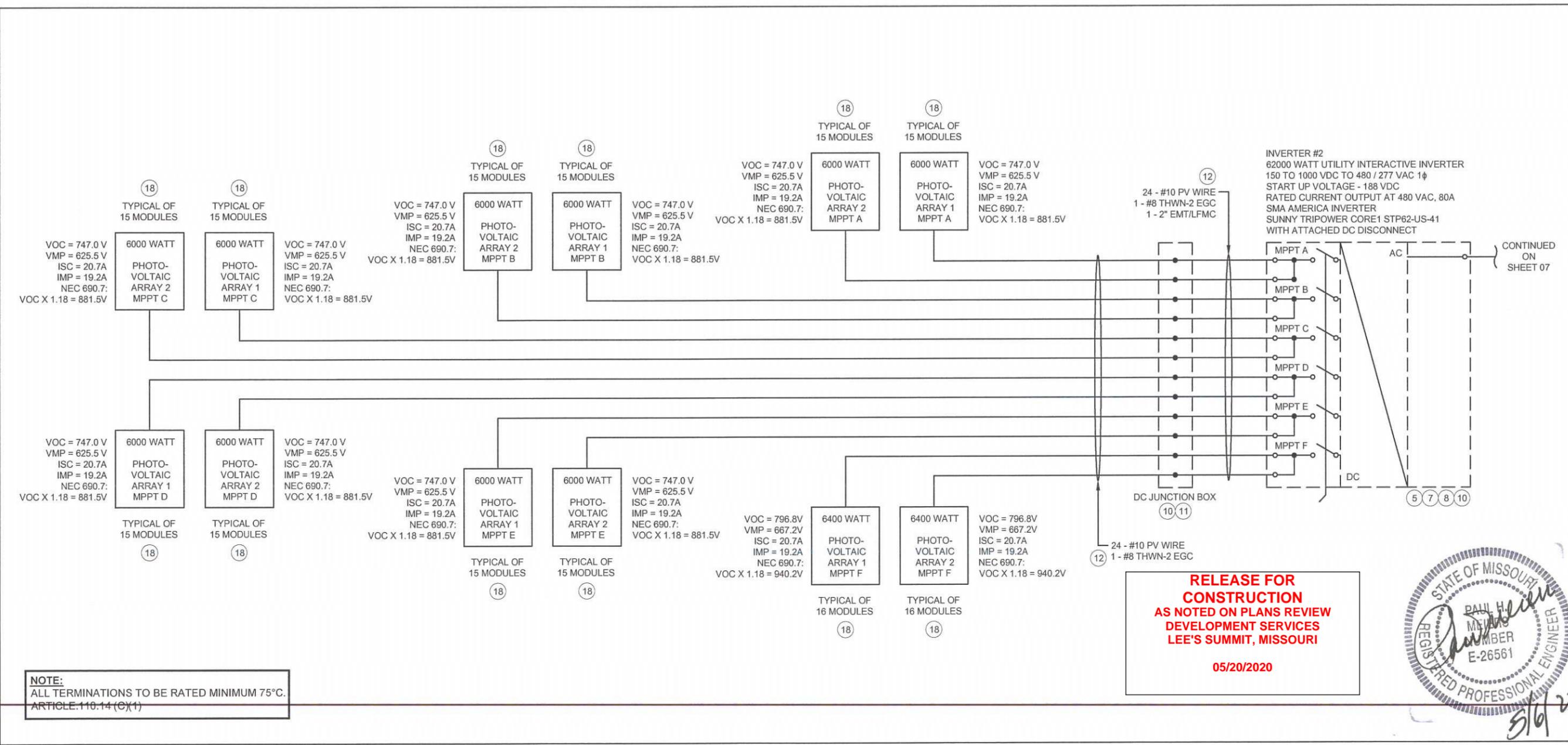
Drawn By: **M. Sucharski**

Checked By: **P. Meiers**

Date: **05/06/2020**

Project: **SalleeRealEstateInvestments200-MO**

Scale: **NTS** Sheet: **05**



NOTE:
ALL TERMINATIONS TO BE RATED MINIMUM 75°C.
ARTICLE 110.14 (C)(1)

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

05/20/2020

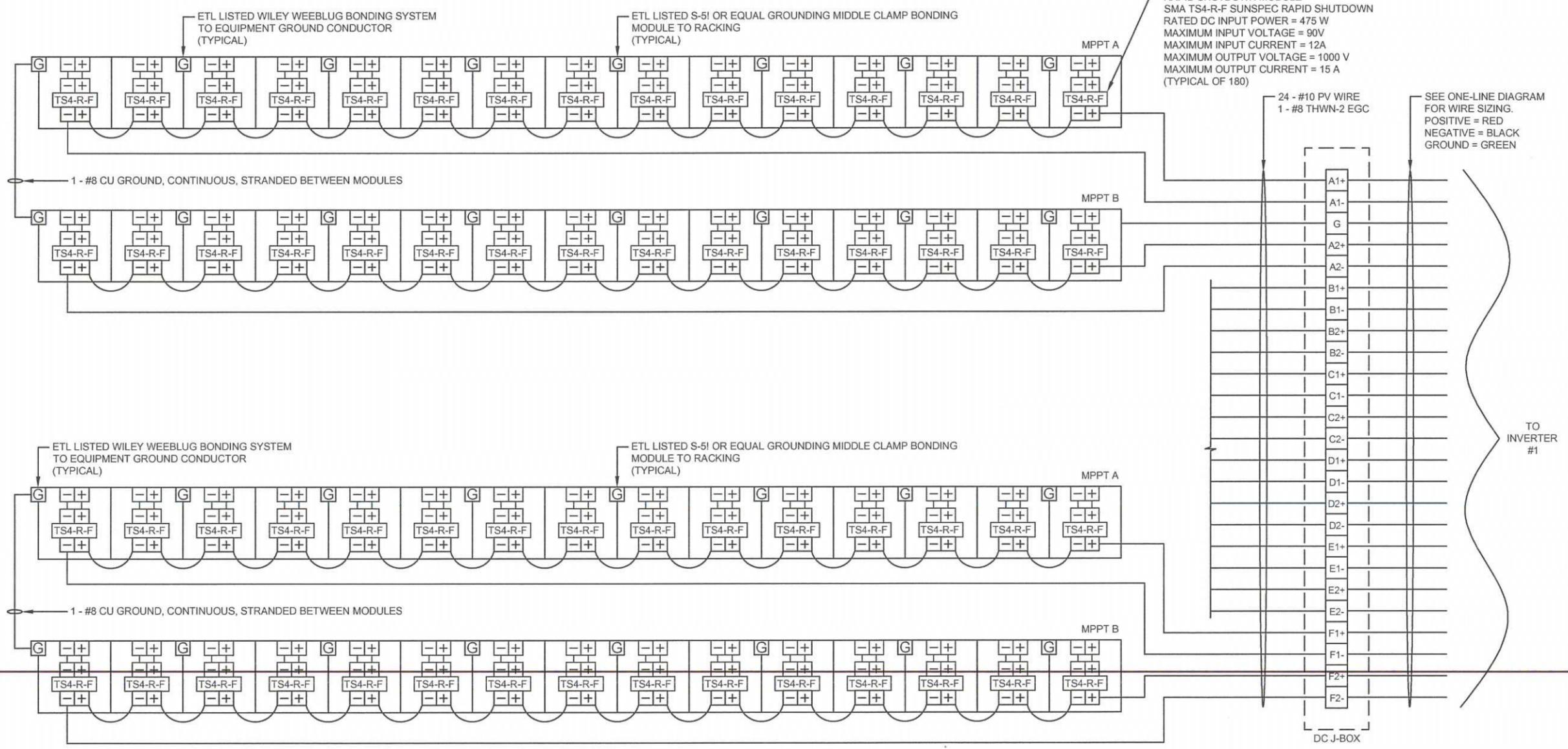


Prepared For:		SUNSMART TECHNOLOGIES 701 NE 76th Street Gladstone, MO 64118 816-388-9486	
PM	05-06-2020	DATE	APPR.
MES		BY	
ISSUED FOR REVIEW		REVISION	NO.
A			
144.8 KW DC PV SYSTEM 124.0 KW AC PV SYSTEM		ONE LINE WIRING DIAGRAM #2	
EVERGY		200 NE MISSOURI ROAD LEES SUMMIT, MO 64086	
Drawn By: M. Sucharski		Project: SalleeRealEstateInvestments200-MO	
Checked By: P. Meiers		Date: 05/06/2020	
Title: NTS		Sheet: 06	

- DIAGRAM
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 2017 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRICAL UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY (WHEN REQUIRED)
 - PER NEC 705.10, A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION (UTILITY METER).
 - LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC 110.3(B).
 - FUNCTIONALLY GROUNDED PHOTOVOLTAIC SYSTEM SHALL COMPLY WITH THE GROUND AND BONDING REQUIREMENTS OF NEC 690.47(A).
 - LABEL AS "PHOTOVOLTAIC SYSTEM AC DISCONNECT" WITH MAXIMUM SYSTEM CURRENT AND OPERATING VOLTAGE.
 - ANTI-ISLANDING PROTECTION ENSURES THE SYSTEM WILL NOT EXPORT POWER INTO A BALANCED 60 Hz RESONANT LOAD WHILE THE UTILITY IS DISCONNECTED.
 - LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D).
 - PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRICAL SHOCK HAZARD- DO NOT TOUCH TERMINALS- TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
 - PER NEC 690.35(F): THE PHOTOVOLTAIC POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT, AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE: "WARNING ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED."
 - LABEL "WARNING: PHOTOVOLTAIC POWER SOURCE". PER THE INTERNATIONAL FIRE CODE 2018 EDITION, SECTION 1204 AND NEC 2017 SECTION 690.31(G)(3) (4). MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS. THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. THE MARKING SHALL ALSO BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED.
 - WHERE PV SYSTEM DC CIRCUITS RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS PER NEC 690.31(G).
 - PER NEC 705.12(B)(2); THE SUM OF THE AMPERE RATINGS OF OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUS BAR SHALL NOT EXCEED 120% THE RATING OF THE BUS BAR OR CONDUCTOR FOR A DWELLING UNIT.
 - DEDICATED 3 POLE 20 AMP BRANCH FEEDER CIRCUIT FOR E-GAUGE SYSTEMS MONITOR. REVENUE GRADE ELECTRICITY CONSUMPTION AND PRODUCTION MONITORING SYSTEM.
 - EQUAGE MONITORING SYSTEM WILL REQUIRE (3) CT(S) FOR THE SERVICE BREAKERS AND (3) CT FOR THE L1 PHASE OF THE PV SYSTEM.
 - PER NEC 690.54 LABEL THE OVERCURRENT DEVICE "PHOTOVOLTAIC ELECTRIC POWER SOURCE" WITH THE RATED AC OUTPUT CURRENT AND THE NOMINAL OPERATING AC VOLTAGE. PER NEC 705.12(B)(2)(3)(b) LABEL DEVICE "WARNING POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE".
 - LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL".
 - PER NEC 690.12(B)(2)(1): THE PV ARRAY SHALL BE LISTED OR FIELD LABELED AS RAPID SHUTDOWN PV ARRAY.
 - PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH NEC 690.12(A) THROUGH (D). PER NEC 690.56(C)(3): A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 3 FEET FROM THE SWITCH THAT INCLUDES THE FOLLOWING WORDING: "RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM".
 - SUNSMART TO CONFIRM A GROUND ROD IS INSTALLED. IF THERE IS NOT, SUNSMART SHALL INSTALL ONE PER THE NEC.
 - ALL WIRE TO BE COPPER CONDUCTOR UNLESS OTHERWISE NOTED

- EQUIPMENT NOTES
- CONDUCTOR SIZING PER NEC TABLE 310.15(B)(16) AND 310.15(B)(2)(A) AND ADJUSTMENT FACTORS 0.58 (56-60°C) AND 0.82 (41-45°C). OVERCURRENT DEVICE SIZING PER NEC 240.4(B) AND 240.6(A);
- AC CALCS:**
- PER NEC 690.8(A)(3) AND (B)(1): 1 x 1.25
- INVERTER #1 => 80.0A x 1.25 = 100.0A
INVERTER #2 => 80.0A x 1.25 = 100.0A
- SYSTEM => [1 + 2] = 200.0A
- NEC 2011 705.12(D)(2)(b)**
- BUS RATING x 120% ≥ PV BKR(A) + MAIN BKR(A)
BUS RATING => 1600A x 1.20 = 1920A
SOURCE BKR RATINGS => 600A + 200A = 800A
1920A ≥ 800A
- ALL SUPPLIED EQUIPMENT IS UL LISTED
- EQUIPMENT TO BE INSTALLED PER LISTING AND / OR LABELING TO 2011 NEC REQUIREMENTS
- GROUNDING CONDUCTORS CONNECTED TO EACH MODEL FRAME AND RACK ASSEMBLY
- ALL SOLAR PANELS ARE UL LISTED TO UL1703 AND HAVE A CLASS C FIRE RATING
- MODULE INFORMATION:**
MODEL NUMBER = HYUNDAI HIS-S290RG
NOMINAL POWER (Pnom) = 290W
OPEN CIRCUIT VOLTAGE (Voc) = 38.8V
MAX POWER VOLTAGE (Vmp) = 32.0V
SHORT CIRCUIT CURRENT (Isc) = 9.7A
MAX POWER CURRENT (Imp) = 9.1A
SERIES FUSE RATING = 15A

TYPICAL OF (6) MPPT INPUTS (A, B, C, D, E, F)



Prepared For:
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701 NE 76th Street
Gladstone, MO 64118
816-389-9486

PM	ISSUED FOR REVIEW	MES	NO.	BY	DATE	APPR.
	A					

144.8 KW DC PV SYSTEM
124.0 KW AC PV SYSTEM

ARRAY WIRING DIAGRAM #1
200 NE MISSOURI ROAD
LEES SUMMIT, MO 64086

Utility Company: **EVERGY**
Drawn By: **M. Sucharski**
Checked by: **P. Meiers**
Date: **05/06/2020**
Project: **SalleeRealEstateInvestments200-MO**
Scale: **NTS** Sheet: **08**

DIAGRAM

ALL BACK COATED MULTICRYSTALLINE

- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- GROUND WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING "CONTINUITY". ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690-4 (C).
- FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
- WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT TEMPERATURES.
- PER NEC 690.35(F): THE PHOTOVOLTAIC POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT, AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE: "WARNING ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED."

MODULE INFORMATION:

MODEL NUMBER = JINKO SOLAR EAGLE JKM400-72HL-V
NOMINAL POWER (P_{nom}) = 400W
OPEN CIRCUIT VOLTAGE (V_{oc}) = 49.8V
MAX POWER VOLTAGE (V_{mp}) = 41.7V
SHORT CIRCUIT CURRENT (I_{sc}) = 10.36A
MAX POWER CURRENT (I_{mp}) = 9.6A
SERIES FUSE RATING = 20A

NUMBER OF STRINGS = 12
NUMBER OF MODULES PER STRING = 15
TOTAL NUMBER OF MODULES = 180
SYSTEM POWER DC (STC) = 72000 W
VOC = 747.0 V
VMP = 625.5 V
ISC = 20.7A
IMP = 19.2A

NEC 690.7:
VOC X 1.18 = 881.5V

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

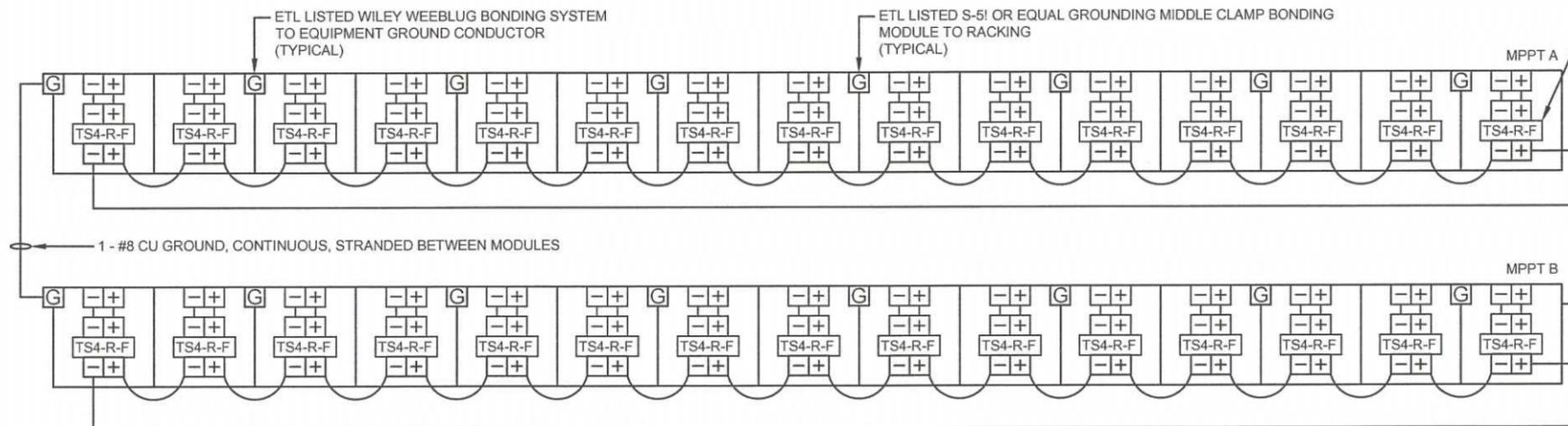
05/20/2020

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
PAUL H. MEIERS
NUMBER E-26561
5/6/20

RELEASE FOR CONSTRUCTION
 AS NOTED ON PLANS REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 05/20/2020

SUNSMART TECHNOLOGIES
 701 NE 76th Street
 Gladstone, MO 64118
 816-388-9486

TYPICAL OF (5) MPPT INPUTS (A, B, C, D, E)

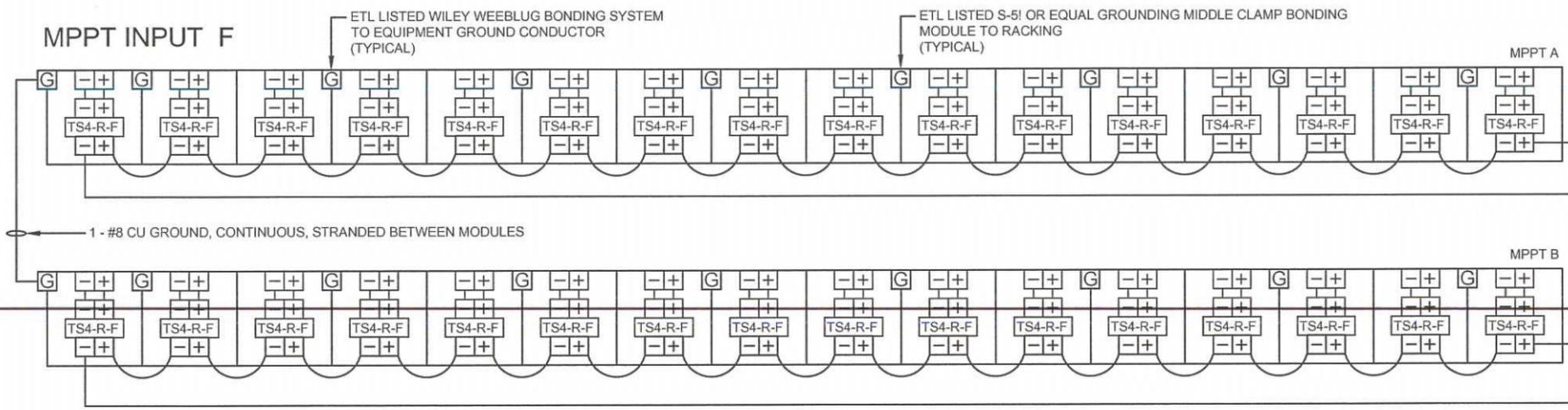


RAPID SHUTDOWN MODULE
 SMA TS4-R-F SUNSPEC RAPID SHUTDOWN
 RATED DC INPUT POWER = 475 W
 MAXIMUM INPUT VOLTAGE = 90V
 MAXIMUM INPUT CURRENT = 12A
 MAXIMUM OUTPUT VOLTAGE = 1000 V
 MAXIMUM OUTPUT CURRENT = 15 A
 (TYPICAL OF 182)

24 - #10 PV WIRE
 1 - #8 THWN-2 EGC

SEE ONE-LINE DIAGRAM FOR WIRE SIZING.
 POSITIVE = RED
 NEGATIVE = BLACK
 GROUND = GREEN

MPPT INPUT F



TO INVERTER #2

DC J-BOX

Prepared For:	PM	DATE	APPR.
05-06-2020			
MES		BY	REVISION
A	ISSUED FOR REVIEW		NO.

144.8 KW DC PV SYSTEM
 124.0 KW AC PV SYSTEM
 ARRAY WIRING DIAGRAM #2
 200 NE MISSOURI ROAD
 LEE'S SUMMIT, MO 64086

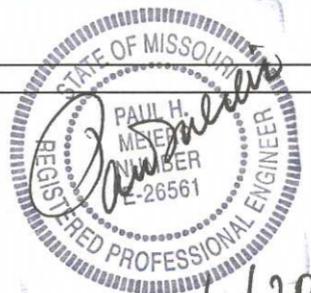
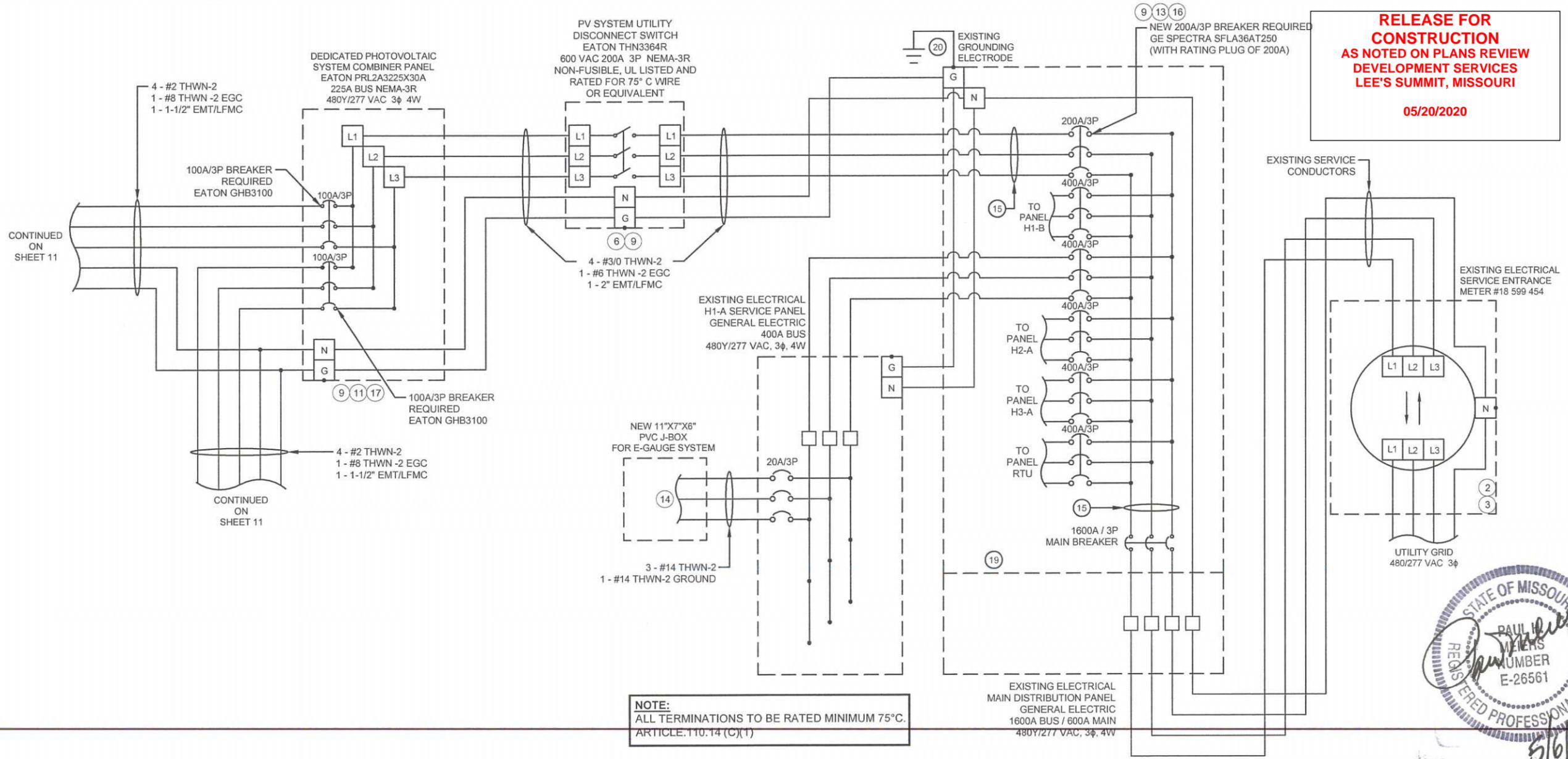


DIAGRAM	<p>ALL BACK COATED MULTICRYSTALLINE</p> <ol style="list-style-type: none"> EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION. GROUND WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690-4 (C). FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT TEMPERATURES PER NEC 690.35(F): THE PHOTOVOLTAIC POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT, AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE: "WARNING ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED." 	<p>MODULE INFORMATION:</p> <p>MODEL NUMBER = JINKO SOLAR EAGLE JKM400-72HL-V NOMINAL POWER (P_{nom}) = 400W OPEN CIRCUIT VOLTAGE (V_{oc}) = 49.8V MAX POWER VOLTAGE (V_{mp}) = 41.7V SHORT CIRCUIT CURRENT (I_{sc}) = 10.36A MAX POWER CURRENT (I_{mp}) = 9.6A SERIES FUSE RATING = 20A</p>	<p>NUMBER OF STRINGS = 10 NUMBER OF MODULES PER STRING = 15 TOTAL NUMBER OF MODULES = 150 SYSTEM POWER DC (STC) = 60000 W VOC = 747.0 V VMP = 625.5 V ISC = 20.7A IMP = 19.2A NEC 690.7: VOC X 1.18 = 881.5V</p>	<p>NUMBER OF STRINGS = 2 NUMBER OF MODULES PER STRING = 16 TOTAL NUMBER OF MODULES = 32 SYSTEM POWER DC (STC) = 12800 W VOC = 796.8V VMP = 667.2V ISC = 20.7A IMP = 19.2A NEC 690.7: VOC X 1.18 = 940.2V</p>	<p>EVERGY</p> <p>Drawn By: M. Sucharski</p> <p>Checked By: P. Meiers</p> <p>Date: 05/06/2020</p> <p>Project: SalleeRealEstateInvestments200-MO</p> <p>Scale: NTS Sheet: 09</p>
GENERAL NOTES	MODULE INFORMATION	ARRAY CONFIGURATION - MPPT A, B, C, D, E	ARRAY CONFIGURATION - MPPT F		



**RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
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LEE'S SUMMIT, MISSOURI**

05/20/2020



NOTE:
ALL TERMINATIONS TO BE RATED MINIMUM 75°C.
ARTICLE 110.14 (C)(1)

Prepared For:	SUNSMART TECHNOLOGIES
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PM	
MES	
ISSUED FOR REVIEW	
NO.	
BY	
DATE	
APPR.	
REVISION	

<p>DIAGRAM</p> <ol style="list-style-type: none"> EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 2017 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRICAL UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION. BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY (WHEN REQUIRED) PER NEC 705.10, A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION (UTILITY METER). LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC 110.3(B). FUNCTIONALLY GROUNDED PHOTOVOLTAIC SYSTEM SHALL COMPLY WITH THE GROUND AND BONDING REQUIREMENTS OF NEC 690.47(A). LABEL AS "PHOTOVOLTAIC SYSTEM AC DISCONNECT" WITH MAXIMUM SYSTEM CURRENT AND OPERATING VOLTAGE. ANTI-ISLANDING PROTECTION ENSURES THE SYSTEM WILL NOT EXPORT POWER INTO A BALANCED 60 Hz RESONANT LOAD WHILE THE UTILITY IS DISCONNECTED. LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D). PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRICAL SHOCK HAZARD- DO NOT TOUCH TERMINALS- TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION." PER NEC 690.35(F): THE PHOTOVOLTAIC POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT, AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE: "WARNING-ELECTRIC SHOCK HAZARD- THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED." LABEL "WARNING: PHOTOVOLTAIC POWER SOURCE". PER THE INTERNATIONAL FIRE CODE 2018 EDITION, SECTION 1204 AND NEC 2017 SECTION 690.31(G)(3) (4). MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS, JUNCTION BOXES, 	<p>COMBINER BOXES AND DISCONNECTS. THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. THE MARKING SHALL ALSO BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED.</p> <ol style="list-style-type: none"> WHERE PV SYSTEM DC CIRCUITS RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS PER NEC 690.31(G). PER NEC 705.12(B)(2); THE SUM OF THE AMPERE RATINGS OF OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUS BAR SHALL NOT EXCEED 120% THE RATING OF THE BUS BAR OR CONDUCTOR FOR A DWELLING UNIT. DEDICATED 3 POLE 20 AMP BRANCH FEEDER CIRCUIT FOR E-GAUGE SYSTEMS MONITOR. REVENUE GRADE ELECTRICITY CONSUMPTION AND PRODUCTION MONITORING SYSTEM. EGUAGE MONITORING SYSTEM WILL REQUIRE (3) CT(S) FOR THE SERVICE BREAKERS AND (3) CT FOR THE L1 PHASE OF THE PV SYSTEM. PER NEC 690.54 LABEL THE OVERCURRENT DEVICE "PHOTOVOLTAIC ELECTRIC POWER SOURCE" WITH THE RATED AC OUTPUT CURRENT AND THE NOMINAL OPERATING AC VOLTAGE. PER NEC 705.12(B)(2)(3)(b) LABEL DEVICE "WARNING POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE". LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL". PER NEC 690.12(B)(2)(1): THE PV ARRAY SHALL BE LISTED OR FIELD LABELED AS RAPID SHUTDOWN PV ARRAY. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH NEC 690.12(A) THROUGH (D). PER NEC 690.56(C)(3): A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 3 FEET FROM THE SWITCH THAT INCLUDES THE FOLLOWING WORDING: "RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM". SUNSMART TO CONFIRM A GROUND ROD IS INSTALLED. IF THERE IS NOT, SUNSMART SHALL INSTALL ONE PER THE NEC. ALL WIRE TO BE COPPER CONDUCTOR UNLESS OTHERWISE NOTED 	<p>CONDUCTOR SIZING PER NEC TABLE 310.15(B)(16) AND 310.15(B)(2)(A) AND ADJUSTMENT FACTORS 0.58 (56-60°C) AND 0.82 (41-45°C). OVERCURRENT DEVICE SIZING PER NEC 240.4(B) AND 240.6(A).</p> <p>AC CALCS:</p> <p>PER NEC 690.8(A)(3) AND (B)(1): 1 x 1.25</p> <p>INVERTER #1 => 80.0A x 1.25 = 100.0A INVERTER #2 => 80.0A x 1.25 = 100.0A</p> <p>SYSTEM => [1 + 2] = 200.0A</p> <p>NEC 2011 705.12(D)(2)(b)</p> <p>BUS RATING x 120% ≥ PV BKR(A) + MAIN BKR(A) BUS RATING => 1600A x 1.20 = 1920A SOURCE BKR RATINGS => 600A + 200A = 800A 1920A ≥ 800A</p> <p>ALL SUPPLIED EQUIPMENT IS UL LISTED EQUIPMENT TO BE INSTALLED PER LISTING AND / OR LABELING TO 2011 NEC REQUIREMENTS</p> <p>GROUNDING CONDUCTORS CONNECTED TO EACH MODEL FRAME AND RACK ASSEMBLY</p> <p>ALL SOLAR PANELS ARE UL LISTED TO UL1703 AND HAVE A CLASS C FIRE RATING</p> <p>MODULE INFORMATION: MODEL NUMBER = HYUNDAI HIS-S290RG NOMINAL POWER (P_{nom}) = 290W OPEN CIRCUIT VOLTAGE (V_{oc}) = 38.8V MAX POWER VOLTAGE (V_{mp}) = 32.0V SHORT CIRCUIT CURRENT (I_{sc}) = 9.7A MAX POWER CURRENT (I_{mp}) = 9.1A SERIES FUSE RATING = 15A</p> <p>144.8 KW DC PV SYSTEM 124.0 KW AC PV SYSTEM</p> <p>THREE LINE WIRING DIAGRAM #2 200 NE MISSOURI ROAD LEES SUMMIT, MO 64086</p> <p>Utility Company: EVERGY</p> <p>Drawn By: M. Sucharski</p> <p>Checked By: P. Meiers</p> <p>Date: 05/06/2020</p> <p>Project: SalleeRealEstateInvestments200-MO</p> <p>Scale: NTS Sheet: 11</p>
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PV LOAD CENTER/ COMBINER PANEL

PHOTOVOLTAIC SYSTEM
COMBINER PANEL
DO NOT ADD LOADS

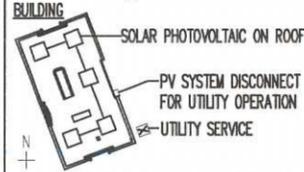
WARNING

- ELECTRIC SHOCK HAZARD -
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

DIRECTORY

CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED
FROM THE FOLLOWING SOURCES WITH
DISCONNECT(S) LOCATED AS SHOWN



JBOX

WARNING: PHOTOVOLTAIC
POWER SOURCE

CONDUIT

WARNING: PHOTOVOLTAIC
POWER SOURCE

UTILITY METER

WARNING

THIS SERVICE METER
IS ALSO SERVED BY A
PHOTOVOLTAIC SYSTEM

MDP PANEL

WARNING

DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

WARNING

POWER SOURCE OUTPUT
CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

WARNING

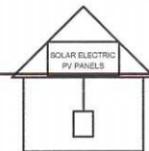
- ELECTRIC SHOCK HAZARD -
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

PHOTOVOLTAIC
SOLAR BREAKER

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



PHOTOVOLTAIC AC DISCONNECT

MAXIMUM AC OPERATING CURRENT	41.6	AAC
NOMINAL OPERATING AC VOLTAGE	240	VAC

AC DISCONNECT

PV SYSTEM DISCONNECT

WARNING

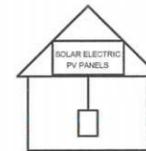
- ELECTRIC SHOCK HAZARD -
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

PHOTOVOLTAIC AC DISCONNECT

MAXIMUM AC OPERATING CURRENT	41.6	AAC
NOMINAL OPERATING AC VOLTAGE	240	VAC

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



RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM

SUBPANEL

E-GAUGE BREAKER

DC DISCONNECT/INVERTER

PHOTOVOLTAIC SYSTEM #1 DC DISCONNECT

RATED MPP CURRENT	120	AMPS
RATED MPP VOLTAGE	800	VOLTS
MAX SYSTEM VOLTAGE	881.5	VDC
MAX CIRCUIT CURRENT	20.7	AMPS

WARNING

ELECTRIC SHOCK HAZARD.
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED.

WARNING

- ELECTRIC SHOCK HAZARD -
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

WARNING

- ELECTRIC SHOCK HAZARD -
IF A GROUND FAULT IS INDICATED, NORMALLY
GROUNDED CONDUCTORS MAY BE UNGROUNDED
AND ENERGIZED

PHOTOVOLTAIC SYSTEM #2 DC DISCONNECT

RATED MPP CURRENT	120	AMPS
RATED MPP VOLTAGE	800	VOLTS
MAX SYSTEM VOLTAGE	940.2	VDC
MAX CIRCUIT CURRENT	20.7	AMPS

SUNSMART
TECHNOLOGIES
701 NE 76th Street
Gladstone, MO 64118
816-388-9486

Prepared For:

PM

05-06-2020

MES

ISSUED FOR REVIEW

A

NO.

REVISION

BY

DATE

APPR.

EQUIPMENT LABELING
144.8 KW DC PV SYSTEM
124.0 KW AC PV SYSTEM
200 NE MISSOURI ROAD
LEES SUMMIT, MO 64086



5/6/20

**RELEASE FOR
CONSTRUCTION**
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

05/20/2020

NOTE:
ALL LABELS TO BE ENGRAVED AND MECHANICALLY
BONDED UNLESS OTHERWISE STATED

Utility Company: EVERGY
Drawn By: M. Sucharski
Checked By: P. Meiers
Date: 05/06/2020
Project: SalleeRealEstateInvestments200-MO
Scale: NTS Sheet: 12

PHOTOVOLTAIC SYSTEM SHALL BE INSTALLED ACCORDING TO THE 2017 NATIONAL ELECTRIC CODE WITH REFERENCE TO THE FOLLOWING:
 ARTICLE 690, AND SECTIONS 200.6, 210.6, 230.70, 240.3, 250.26, 250.50, 250.122 TO INCLUDE REFERENCED SECTIONS AND TABLES
 ALL EQUIPMENT PROVIDED SHALL BE LISTED BY AN INDEPENDENT TESTING AGENCY.

PARTICULAR NOTE TO THE FOLLOWING:

NEC 240.4(B) OVERCURRENT DEVICES RATED 800 AMPERES OR LESS. THE NEXT HIGHER STANDARD OVERCURRENT DEVICE RATING (ABOVE THE AMPACITY OF THE CONDUCTORS BEING PROTECTED) SHALL BE PERMITTED TO BE USED, IF:
 (1) THE CONDUCTORS BEING PROTECTED ARE NOT PART OF A BRANCH CIRCUIT SUPPLYING MORE THAN ONE RECEPTACLE FOR CORD-AND-PLUG-CONNECTED PORTABLE LOADS.
 (2) THE AMPACITY OF THE CONDUCTORS DOES NOT CORRESPOND WITH THE STANDARD AMPERE RATING OF A FUSE OR A CIRCUIT BREAKER WITHOUT OVERLOAD TRIP ADJUSTMENTS ABOVE ITS RATING.
 (3) THE NEXT HIGHER STANDARD RATING SELECTED DOES NOT EXCEED 800 AMPERES.

NEC 240.6(A) FUSES AND FIXED-TRIP CIRCUIT BREAKERS. THE STANDARD AMPERE RATINGS FOR FUSES AND INVERSE TIME CIRCUIT BREAKERS SHALL BE CONSIDERED AS SHOWN IN TABLE 240.6(A): 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000 AND 6000 AMPERES.

NEC 250.64(C) CONTINUOUS. EXCEPT AS PROVIDED IN 250.30(A)(5) AND (A)(6), 250.30(B)(1) AND 250.68(C), GROUNDING ELECTRODE CONDUCTOR(S) SHALL BE INSTALLED IN ONE CONTINUOUS LENGTH WITHOUT A SPLICE OR JOINT. IF NECESSARY, SPLICES OR CONNECTIONS SHALL BE MADE AS PERMITTED IN (1) THROUGH (4):

NEC 250.64(C)(1) (1) SPLICING OF THE WIRE-TYPE GROUNDING ELECTRODE CONDUCTOR SHALL BE PERMITTED ONLY BY IRREVERSIBLE COMPRESSION-TYPE CONNECTORS LISTED AS GROUNDING AND BONDING EQUIPMENT OR BY THE EXOTHERMIC WELDING PROCESS.

NEC 250.64(C)(2) (2) SECTIONS OF BUSBARS SHALL BE PERMITTED TO BE CONNECTED TOGETHER TO FORM A GROUNDING ELECTRODE CONDUCTOR.

NEC 250.97 FOR CIRCUITS OVER 250 VOLTS TO GROUND, THE ELECTRICAL CONTINUITY OF METAL RACEWAYS AND CABLES WITH METAL SHEATHS THAT CONTAIN ANY CONDUCTOR OTHER THAN SERVICE CONDUCTORS SHALL BE ENSURED BY ONE OR MORE OF THE METHODS SPECIFIED FOR SERVICES IN 250.92(B), EXCEPT FOR (B)(1).

PART VIII GENERAL. DIRECT-CURRENT SYSTEMS SHALL COMPLY WITH PART VIII AND OTHER SECTIONS OF ARTICLE 250 NOT SPECIFICALLY INTENDED FOR AC SYSTEMS.

NEC 422.30 DISCONNECTING MEANS.

NEC 422.60 NAMEPLATE MARKING.

NEC 422.62(B) ADDITIONAL NAMEPLATE MARKING.

NEC 690.4(C) QUALIFIED PERSONNEL. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS. IN ACCORDANCE WITH NEC 690.4(C). SEE ARTICLE 100 FOR THE DEFINITION OF QUALIFIED PERSON.

NEC 690.8(A)(1)(1) PHOTOVOLTAIC SOURCE CIRCUIT CURRENTS. THE MAXIMUM CURRENT SHALL BE THE SUM OF THE PARALLEL CONNECTED MODULE-RATED SHORT-CIRCUIT CURRENTS MULTIPLIED BY 125 PERCENT.

NEC 690.8(A)(3) INVERTER OUTPUT CIRCUIT CURRENT. THE MAXIMUM CURRENT SHALL BE THE INVERTER CONTINUOUS OUTPUT CURRENT RATING.

NEC 690.8(A)(5) DC-TO-DC CONVERTER SOURCE CIRCUIT CURRENT. THE MAXIMUM CURRENT SHALL BE THE DC-TO-DC CONVERTER CONTINUOUS OUTPUT CURRENT RATING.

NEC 690.8(B) CONDUCTOR AMPACITY. PV SYSTEM CURRENTS SHALL BE CONSIDERED TO BE CONTINUOUS. CIRCUIT CONDUCTORS SHALL BE SIZED TO CARRY NOT LESS THAN THE LARGER OF 690.8(B)(1) OR (B)(2).

NEC 690.8(B)(1) (1) ONE HUNDRED AND TWENTY-FIVE PERCENT OF THE MAXIMUM CURRENTS CALCULATED IN 690.8(A) BEFORE THE APPLICATION OF ADJUSTMENT AND CORRECTION FACTORS.

NEC 690.8(B)(2) (2) THE MAXIMUM CURRENTS CALCULATED IN 690.8(A) AFTER THE APPLICATION OF ADJUSTMENT AND CORRECTION FACTORS.

NEC 690.12 RAPID SHUTDOWN OF PV SYSTEMS ON BUILDINGS. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D).

EXCEPTION. GROUND MOUNTED PV SYSTEM CIRCUITS THAT ENTER BUILDINGS, OF WHICH THE SOLE PURPOSE IS TO HOUSE PV SYSTEM EQUIPMENT, SHALL NOT BE REQUIRED TO COMPLY WITH 690.12.

NEC 690.12(C) INITIATION DEVICE. THE INITIATION DEVICE(S) SHALL INITIATE THE RAPID SHUTDOWN FUNCTION OF THE PV SYSTEM. THE DEVICE "OFF" POSITION SHALL INDICATE THAT THE RAPID SHUTDOWN FUNCTION HAS BEEN INITIATED FOR ALL PV SYSTEMS CONNECTED TO THAT DEVICE.

NEC 690.13(A) LOCATION. THE PV SYSTEM DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION.

NEC 690.13(B) MARKING. EACH PV SYSTEM DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IN THE OPEN (OFF) OR CLOSED (ON) POSITION AND BE PERMANENTLY MARKED "PV SYSTEM DISCONNECT" OR EQUIVALENT.

FOR PV SYSTEM DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION, THE DEVICE SHALL BE MARKED WITH THE FOLLOWING WORDS OR EQUIVALENT:

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

NEC 690.31(B) GROUPING. PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS SHALL NOT BE CONTAINED IN THE SAME RACEWAY, CABLE TRAY, CABLE, OUTLET BOX, JUNCTION BOX, OR SIMILAR FITTING AS CONDUCTORS, FEEDERS, BRANCH CIRCUITS OF OTHER NON-PV SYSTEMS, OR INVERTER OUTPUT CIRCUITS, UNLESS THE CIRCUITS ARE SEPARATED BY A PARTITION.

NEC 690.33 CONNECTORS. CONNECTORS, OTHER THAN THOSE COVERED BY 690.32, SHALL COMPLY WITH 690.33(A) THROUGH (E).

(A) CONFIGURATION.

(B) GUARDING.

(C) TYPE.

(D) GROUNDING MEMBER.

(E) INTERRUPTION OF CIRCUIT.

NEC 690.41(B) GROUND-FAULT PROTECTION. DC PV ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION MEETING THE REQUIREMENTS OF 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS.

NEC 690.53 DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE. A PERMANENT LABEL FOR THE DC PV POWER SOURCE INDICATING THE INFORMATION SPECIFIED IN (1) THROUGH (3) SHALL BE PROVIDED BY THE INSTALLER AT PV SYSTEM DISCONNECTING MEANS REQUIRED BY 690.15. WHERE A DISCONNECTING MEANS HAS MORE THAN ONE DC PV POWER SOURCE, THE VALUES IN 690.53(1) THROUGH (3) SHALL BE SPECIFIED FOR EACH SOURCE.

(1) MAXIMUM VOLTAGE [REF: 690.7]

(2) MAXIMUM CIRCUIT CURRENT [REF: 690.8(A)]

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

NEC 690.56(B) FACILITIES WITH UTILITY SERVICES AND PHOTOVOLTAIC SYSTEMS. PLAQUES OR DIRECTORIES SHALL BE INSTALLED IN ACCORDANCE WITH 705.10.

NEC 690.56(C) BUILDINGS WITH RAPID SHUTDOWN. BUILDINGS WITH PV SYSTEMS SHALL HAVE PERMANENT LABELS AS DESCRIBED IN 690.56(C)(1) THROUGH (C)(3).

NEC 705.10 DIRECTORY. A PERMANENT PLAQUE OR DIRECTORY DENOTING THE LOCATION OF ALL ELECTRIC POWER SOURCE DISCONNECTING MEANS ON OR IN THE PREMISES SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED. THE MARKING SHALL COMPLY WITH 110.21(B).

NEC 705.12 POINT OF CONNECTION. THE OUTPUT OF AN INTERCONNECTED ELECTRIC POWER SOURCE SHALL BE CONNECTED AS SPECIFIED IN 705.12(A) OR (B).

NEC TABLE 250.66 SIZE OF ALTERNATING-CURRENT GROUNDING ELECTRODE CONDUCTOR. THE SIZE OF THE GROUNDING ELECTRODE CONDUCTOR AT THE SERVICE, AT EACH BUILDING OR STRUCTURE WHERE SUPPLIED BY A FEEDER(S) OR BRANCH CIRCUIT(S), OR AT A SEPARATELY DERIVED SYSTEM OF A GROUNDED OR UNGROUNDED AC SYSTEM SHALL NOT BE LESS THAN GIVEN IN TABLE 250.66, EXCEPT AS PERMITTED IN 250.66(A) THROUGH (C).

NEC TABLE 310.15(B)(16) (FORMERLY TABLE 310.16) ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED UP TO AND INCLUDING 2000 VOLTS, 60°C THROUGH 90°C (140°F THROUGH 194°F), NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY, CABLE, OR EARTH (DIRECTLY BURIED), BASED ON AMBIENT TEMPERATURE OF 30°C (86°F)*
 *REFER TO 310.15(B)(2) FOR THE AMPACITY CORRECTION FACTORS WHERE THE AMBIENT TEMPERATURE IS OTHER THAN 30°C (86°F).
 **REFER TO 240.4(D) FOR CONDUCTOR OVERCURRENT PROTECTION LIMITATIONS.

RELEASE FOR CONSTRUCTION
 AS NOTED ON PLANS REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 05/20/2020



5/6/20

SUNSMART TECHNOLOGIES
 701 NE 76th Street
 Gladstone, MO 64118
 816-388-9486

ISSUED FOR REVIEW	NO.
A	
MES	BY
05-06-2020	DATE
PM	APPR.

NOTES & REFERENCES	
144.8 KW DC PV SYSTEM	
124.0 KW AC PV SYSTEM	
200 NE MISSOURI ROAD	
LEES SUMMIT, MO 64086	
Utility Company	EVERGY
Drawn By	M. Sucharski
Checked By	P. Meiers
Date	05/06/2020
Project	SalleeRealEstateInvestments200-MO
Scale	NTS
Sheet	13