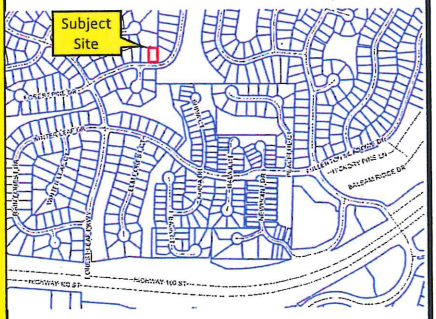
WILDWOOD

16860 Main Street
Wildwood, MO 63040

CITY OF WILDWOOD
NOTICE OF
PUBLIC HEARING
before the Planning and Zoning Commission
TUESDAY, January 17, 2017, at 6:30 p.m.

AS A RESIDENT OR PROPERTY OWNER NEAR THE SITE THAT IS IDENTIFIED ON THIS MAILER, THE CITY OF WILDWOOD WOULD LIKE TO ENSURE YOU ARE AWARE OF THIS REQUEST/PROPOSAL BECAUSE IT IS LOCATED WITHIN 1,500 FEET OF YOUR PROPERTY. YOUR COMMENTS ARE ENCOURAGED, ALONG WITH YOUR PARTICIPATION AT THE SCHEDULED HEARING OR MEETING. THIS ITEM IS SCHEDULED FOR DISCUSSION AND ITS OUTCOME MAY IMPACT YOUR HOME, NEIGHBORHOOD, OR AREA, SO PLEASE CAREFULLY READ THE DESCRIPTION AND PARTICIPATE AT YOUR DISCRETION. THE CITY OF WILDWOOD ENCOURAGES CITIZEN INPUT AT ALL OF ITS HEARINGS OR MEETINGS AND YOUR INVOLVEMENT WILL ASSIST IT IN REACHING THE BEST DECISION POSSIBLE FOR ALL PARTIES.

*** PLEASE SEE YELLOW BOX ON OPPOSITE SIDE OF THIS MAILER FOR A LIST OF WAYS TO EITHER COMMENT ON AND/OR TRACK THIS ITEM.**



Street Address of Subject Site:
16481 Forest Pine Drive

THE CITY WELCOMES AND ENCOURAGES YOUR COMMENTS AND PARTICIPATION IN ITS PUBLIC PROCESSES.
THANK YOU!

The Planning and Zoning Commission of the City of Wildwood will conduct a public hearing on **Tuesday, January 17, 2017, at 6:30 p.m., in the City Hall Council Chambers, 16860 Main Street, Wildwood, Missouri 63040** for the purposes of obtaining testimony regarding request(s) for either the modification of zoning district designations, application of special procedures, change in the underlying regulations of the Zoning Ordinance, action on Record Plats, update on zoning matters, or amendment of the Master Plan, which will then be considered for action. This hearing is open to all interested parties to comment upon this request, whether in favor or opposition, or provide additional input for consideration. If you do not have comments regarding this request, no action is required on your part. Written comments are requested to be submitted prior to this hearing and should be addressed to the Planning and Zoning Commission, City of Wildwood, 16860 Main Street, Wildwood, Missouri 63040 or via the City's website at **www.cityofwildwood.com/comment**. The following request will be considered at this time:

P.Z. 2-17 Craig Sherman, 16481 Forest Pine Drive, Wildwood, Missouri, 63011, c/o Missouri Sun Solar, Ryan Roller, 6724 South Highway 63, Houston, Missouri 65483 – A request for a Conditional Use Permit (CUP) in the R-3 10,000 square foot Residence District, with a Planned Environment Unit (PEU), for the installation of roof-mounted solar panels, which are to be placed on the dwelling, so as to be visible from the adjoining roadway. The subject property is located at 16481 Forest Pine Drive, Wildwood Missouri, 63011 (Locator Number 23V621166). This request is to be reviewed in accordance with Chapter 415.140 R-3 10,000 square foot Residence District Regulations of the City of Wildwood Zoning Code, which establishes standards and requirements for the installation of solar panels. The permit is required due to the panels' placement on the front facing area of the roof. **(Ward Five)**

RESIDENT OR PROPERTY OWNER - PLEASE COMMENT ON AND/OR TRACK THIS REQUEST BY:

1) Submitting a comment online by visiting: **http://www.cityofwildwood.com/comment.**
2) Submitting a written comment prior to the hearing and addressed to the Planning and Zoning Commission, City of Wildwood, 16860 Main Street, Wildwood, Missouri 63040.
3) Viewing the Planning and Zoning Commission's agenda, which is available on the City's website at: **www.cityofwildwood.com**, the Friday before the aforementioned meeting date.

If you should have any questions regarding this information, please feel free to contact the Department of Planning at (636) 458-0440. Thank you in advance for your interest in this matter.

P.Z. Number(s): _____
(as assigned by department)

PETITION

before the

CITY OF WILDWOOD'S
PLANNING AND ZONING COMMISSION

FOR THE PURPOSE OF HEARING REQUESTS
FOR ONE OR A COMBINATION OF THE FOLLOWING:
(PLEASE CHECK THOSE ITEMS WHICH ARE APPLICABLE)

_____ Change in Zoning
__✓__ Conditional Use Permit
_____ Approval of a Planned District or other special procedure (C-8/M-3/PRD)

APPLICANT/OWNER INFORMATION

Applicant's Name: Ryan Roller

Mailing Address: 6724 S Hwy 63 Houston, MO 65483

Telephone Number, with Area Code: 417-413-1786

Fax Number, with Area Code: _____

E-Mail Address: RRoller@UsSunSolar.com

Interest in Property (Owner or Owner Under Contract):
Contractor

If owner under contract, please attach a copy of the contract.

Owner's Name (if different than applicant):
Craig Sherman

Address: 16481 Forest Pine Dr Ballwin, MO 63011

Telephone Number, with Area Code: 636-821-1365

SITE INFORMATION

Postal Address of the Petitioned Property(ies):

16481 Forest Pine Dr Ballwin, MO 63011

Locator Number(s) of the petitioned Property(ies):

Total Acreage of the Site to the Nearest Tenth of an Acre:

Current Zoning District Designation:

Proposed Zoning District Designation:

Proposed Planned District or Special Procedure:

USE INFORMATION

Current Use of Petitioned Site:

Proposed Use of Site:

Proposed Title of Project:

Proposed Development Schedule (include approximate date of start and completion of the project):

CONSULTANT INFORMATION

Engineer's/Architect's Name: Missouri Sun Solar

Address: 6724 S Hwy 63 Houston, MO 65483

Telephone Number, with area code: 417-413-1786

Fax Number, with area code:

E-Mail Address: RRoller@UsSunSolar.com

Soil Scientist/Forester's Name:

Address:

Telephone Number, with area code:

Fax Number, with area code:

E-Mail Address:

ACKNOWLEDGEMENT INFORMATION

The petitioner(s) state(s) they (he) (she) will comply with all the requirements of the city of wildwood with regard to the procedures relating to its administration of land use and development controls within its boundaries, including the payment of all applicable fees.

The petitioner(s) further represent(s) and agree(s) that they (he) (she) has (have) not made any arrangement to pay any commission, gratuity, or consideration, directly or indirectly, to any official, employee, or appointee of the City of Wildwood with respect to this application.

The petitioner(s) hereby certify(ies) that (indicate one):

( ) I (we) have a legal interest in the hereinabove described property.

(✓) I am (we are) the duly appointed agent of the petitioner(s) and that all information given and represented on this application is an accurate and true statement of fact. Any misrepresentation of information on this application or accompanying information shall constitute grounds for the City of Wildwood, Missouri to terminate review of this petition and return all materials, minus any fees, associated with its review up to and through that point.

SIGNATURE: Ryan Roller

NAME (PRINTED): Ryan Roller

ADDRESS: 6724 S Hwy 63 Houston, MO 65483

TELEPHONE NUMBER: 417-413-1786

[PLEASE NOTE: THE ABOVE NAMED PERSON SHALL RECEIVE ALL OFFICIAL NOTICES REGARDING THIS REQUEST, INCLUDING THE PUBLIC HEARING NOTICE.]

SUBSCRIBED AND SWORN BEFORE ME THIS 13th DAY OF December, 20 16.

SEAL: JORDAN SIMMONS
Notary Public-Notary Seal
State of Missouri, Dallas County
Commission # 15635079
My Commission Expires Apr 28, 2019

SIGNED: _____
(NOTARY PUBLIC)

NOTARY PUBLIC Jordan Simmons,
STATE OF MISSOURI.

MY COMMISSION EXPIRES Apr. 28, 2019.

FOR OFFICE USE ONLY

1ST SUBMITTAL DATE: _____
FEE: _____; RECEIVED BY: _____
PRELIMINARY DEVELOPMENT PLAN: YES NO
PACKET COMPLETE: YES NO

2ND SUBMITTAL DATE: _____
PACKET COMPLETE: YES NO

3RD SUBMITTAL DATE: _____
PACKET COMPLETE: YES NO

4TH SUBMITTAL DATE: _____
PACKET COMPLETE: YES NO

To: Craig Sherman

16481 Forest Pine Drive

From: Jim Steins – President – Evergreen HOA

Re: Solar Panels on roof of resident

Mr. Craig Sherman,

Pending approval also from the city of Wildwood, the Evergreen HOA has given you the approval to proceed with the installation of solar panels on your house at 16481 Forest Pine Drive.

Sincerely,

Jim Steins – President – Evergreen HOA – 314-497-7578

12/5/2016

To Whom It Concerns:

Subject: Building Permit Application, Solar Panel Installation 5.565 kw

Craig Sherman residence, 16481 Forest Pine Dr. Ballwin, MO 63011

Project: Installation of 21 solar panels mounted the south and west roof facets of the house. Ironridge racking is mounted on brackets that are attached to the roof trusses. The output from the panels is run in conduit to the existing meter servicing the home. The inverters are located as shown on electrical layout drawings. The details of the attachments, inverters, solar panels and roof truss attachments is shown on the drawings. The electrical one line drawing provides the details of the electrical connections:

Design Information: The following design components were used for this roof mount system:

Wind Speed-----115 mph

Snow Load---30 psf

Racking----Ironridge lightweight aluminum with compatible connectors meets ASCE 07 Building Code. Typical details are contained in the drawings.

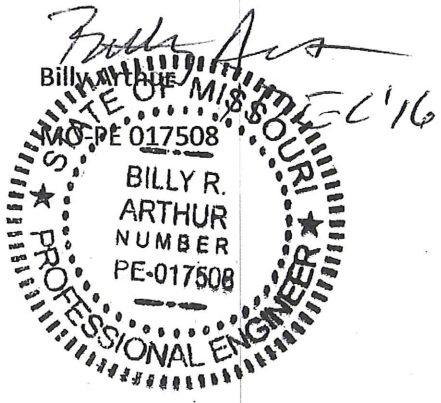
Uplift forces are less than 300 #, weight distribution is less than 5 psf in the solar footprint.

Electrical components meet 2011 NEC Criteria and Installation Guidelines.

Solar Panels: Jinko, 265 watt (21)

Inverter: Fronius Primo 5.0-1 (1)

I certify that the existing roof on the house is adequate to handle the solar panel loading and their installation is in compliance with Section R301 of the 2012 International Residential Code. The panels are anchored on racking at a spacing not to exceed 4 feet. This mounting system has been designed for the wind speed and snow loads listed above.



-C'16

GENERAL NOTES

1.1.1 **PROJECT NOTES:**

1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.

1.1.3 GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE INVERTER IN ACCORDANCE WITH [NEC 690.5(A)]

1.1.4 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION

1.1.5 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 690.64 (B)]

1.1.6 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY [NEC 690.4] & [NEC 690.60]
PV MODULES:UL 1703 CERTIFIED, NFPA 70 CLASS C FIRE
INVERTER(S):UL 1741 CERTIFIED, IEEE 1547, 929, 519
COMBINER BOX(S):UL 1703 OR UL 1741 ACCESSORY

1.2.1 **SCOPE OF WORK:**

1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

1.3.1 **WORK INCLUDES:**

1.3.2 PV ROOF ATTACHMENTS - ECOFASTEN GF1 FLASHING

1.3.3 PV RACKING SYSTEM INSTALLATION - IRONRIDGE XR10

1.3.4 PV MODULE AND INVERTER INSTALLATION - JINKO JKM265P-60 (265W) / FRONIUS PRIMO 5.0-1 208/240

1.3.5 PV EQUIPMENT GROUNDING

1.3.6 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX

1.3.7 PV INSTALLING SYSTEM MONITORING EQUIPMENT

1.3.8 PV LOAD CENTERS (IF NEC.)

1.3.9 PV METERING (IF NEC.)

1.3.10 PV DISCONNECTS

1.3.11 PV GROUNDING ELECTRODE & BONDING TO (E) GEC

1.3.12 PV FINAL COMMISSIONING

1.3.13 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV

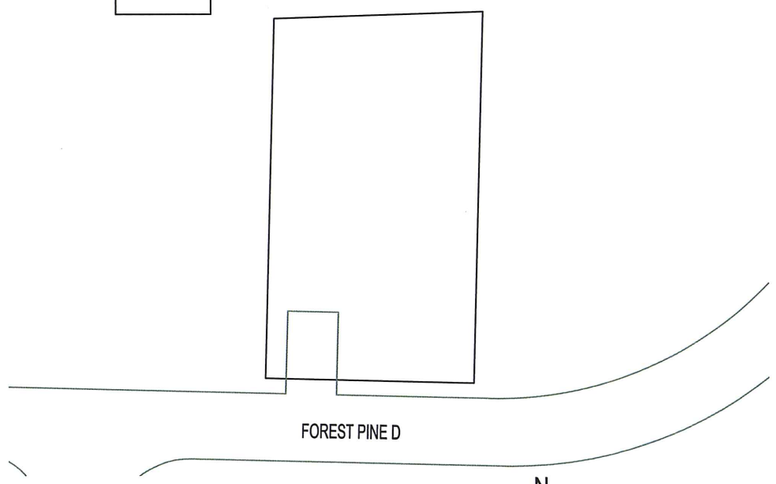
NEW PV SYSTEM: 5.565 KWP

SHERMAN RESIDENCE

16481 FOREST PINE DR
BALLWIN, MO 63011
ASSESSOR'S #: 23V621166

01 AERIAL PHOTO

NOT TO SCALE



02 PLAT MAP

NOT TO SCALE

SHEET SCHEDULE

SHEET NUMBER	SHEET TITLE
T-001	COVER PAGE
G-001	NOTES
G-002	LEGEND
A-101	SITE PLAN
A-102	PROJECT PLAN
E-601	THREE LINE DIAGRAM
E-602	ELECTRICAL TABLES
E-603	PLACARDS
S-501	ASSEMBLY DETAILS
R-001	MODULE DATASHEET
R-002	INVERTER DATASHEET
R-003	RACKING DATASHEET
R-004	RACKING MOUNT DATASHEET
R-005	AC DISCONNECT DATASHEET

PROJECT INFORMATION

OWNER
NAME: CRAIG SHERMAN

PROJECT MANAGER
NAME: RYAN ROLLER
PHONE: 314-952-9177

CONTRACTOR
NAME: MISSOURI SUN SOLAR
PHONE: 417-413-1786

AUTHORITIES HAVING JURISDICTION
BUILDING: CITY OF WILDWOOD
ZONING: CITY OF WILDWOOD
UTILITY: AMEREN

DESIGN SPECIFICATIONS
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
ROOF SNOW LOAD: 30 PSF
WIND EXPOSURE: C
WIND SPEED: 115 MPH

APPLICABLE CODES & STANDARDS
BUILDING: IBC 2006, IRC 2006
ELECTRICAL: NEC 2005
FIRE: IFC 2006

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT WRITTEN PERMISSION FROM CONTRACTOR IS IN VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTIONS.

NEW PV SYSTEM: 5.565 kWp
SHERMAN RESIDENCE
16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

(SHEET 1 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

T-001.00

2.1.1 **SITE NOTES:**

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

2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS AN UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.

2.1.4 THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.

2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION [NEC 110.26]

2.1.6 ALTERNATE POWER SOURCE PLACARD SHALL BE PLASTIC, ENGRAVED IN A CONTRASTING COLOR TO THE PLAQUE. THIS PLAQUE WILL BE ATTACHED USING AN APPROVED METHOD. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC.

2.1.7 THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE BETWEEN THE GROUNDING ELECTRODE AND THE PANEL (OR INVERTER) IF SMALLER THAN #6 AWG COPPER WIRE PER NEC 250-64B. THE GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AT BUSBARS WITHIN LISTED EQUIPMENT PER [NEC 250.64C.]

2.1.8 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SHALL SERVE TO PROTECT THE BUILDING OR STRUCTURE.

2.1.9 RIGID CONDUIT (AND/OR NIPPLES) MUST HAVE A PULL BUSHING TO PROTECT WIRES.

2.1.10 BOLTED CONNECTION REQUIRED IN DC DISCONNECTS ON THE WHITE GROUNDED CONDUCTOR (USE POLARIS BLOCK OR NEUTRAL BAR)

2.1.11 ANY CONNECTION ABOVE LIVE PARTS MUST BE WATERTIGHT. REDUCING WASHERS DISALLOWED ABOVE LIVE PARTS, MEYERS HUBS RECOMMENDED

2.2.1 **SOLAR CONTRACTOR:**

2.2.2 MODULE CERTIFICATIONS WILL INCLUDE UL1703, IEC61646, IEC61730.

2.2.3 IF APPLICABLE, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE MARKED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.

2.2.4 AS INDICATED BY DESIGN, OTHER NRTL LISTED MODULE GROUNDING DEVICES MAY BE USED IN PLACE OF STANDARD GROUNDING LUGS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.

2.2.5 CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

2.2.6 CONDUIT POINT OF PENETRATION FROM EXTERIOR TO INTERIOR TO BE INSTALLED AND SEALED WITH A SUITABLE SEALING COMPOUND.

2.2.7 DC WIRING LIMITED TO MODULE FOOTPRINT W/ ENPHASE AC SYSTEM.

2.2.8 ENPHASE WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.

2.2.9 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC UNLESS NOT AVAILABLE.

2.2.10 ALL INVERTERS, MOTOR GENERATORS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AC PHOTOVOLTAIC MODULES, SOURCE CIRCUIT COMBINERS, AND CHARGE CONTROLLERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D).

2.2.11 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE.

2.3.1 **EQUIPMENT LOCATIONS:**

2.3.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY [NEC 110.26].

2.3.3 EQUIPMENT INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY [NEC 690.31 (A)-(B)] AND [NEC TABLE 310.15 (B)(2)(C)].

2.3.4 ADDITIONAL AC DISCONNECTS SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WITHIN SIGHT OF THE UTILITY AC DISCONNECT.

2.3.5 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.

2.3.6 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.4.1 **WIRING & CONDUIT NOTES:**

2.4.2 ALL CONDUIT SIZES AND TYPES, SHALL BE LISTED FOR ITS PURPOSE AND APPROVED FOR THE SITE APPLICATIONS

2.4.3 ALL PV CABLES AND HOMERUN WIRES BE #10AWG *USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR, OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED

2.4.4 ALL CONDUCTORS AND OCPD SIZES AND TYPES SPECIFIED ACCORDING TO [NEC 690.8 (A)(1) & (B)(1)], [NEC 240] [NEC 690.7] FOR MULTIPLE CONDUCTORS

2.4.5 ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO [NEC TABLE 310.15 (B)(2)(C)] BLACK ONLY**

2.4.6 EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES

2.4.7 PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 600V PER NEC 2008 OR 1000V PER NEC 2011

2.4.8 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS

2.4.9 ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION

2.4.10 VOLTAGE DROP LIMITED TO 2% FOR DC CIRCUITS AND 1% FOR AC CIRCUITS

2.4.11 NEGATIVE GROUNDED SYSTEMS DC CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:
DC POSITIVE- RED (OR MARKED RED)
DC NEGATIVE- GREY (OR MARKED GREY)

2.4.12 POSITIVE GROUNDED SYSTEMS DC CONDUCTORS COLOR CODED:
DC POSITIVE- GREY (OR MARKED GREY)
DC NEGATIVE- BLACK (OR MARKED BLACK)

2.4.13 AC CONDUCTORS >4AWG COLOR CODED OR MARKED:
PHASE A OR L1- BLACK
PHASE B OR L2- RED
PHASE C OR L3- BLUE
NEUTRAL- WHITE/GRAY

*USE-2 IS NOT INDOOR RATED BUT PV CABLE IS RATED THWN/THWN-2 AND MAY BE USED INSIDE

**USE-2 IS AVAILABLE AS UV WHITE

2.5.1 **STRUCTURAL NOTES:**

2.5.2 RACKING SYSTEM & PV ARRAY SHALL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL.

2.5.3 ROOFMOUNTED STANDARD RAIL REQUIRES ONE THERMAL EXPANSION GAP FOR EVERY RUN OF RAIL GREATER THAN 40'.

2.5.4 ARRAY SHALL BE A MIN. HEIGHT OF 3" ABOVE THE COMPOSITION ROOF.

2.5.5 JUNCTION BOX SHALL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.

2.5.6 ROOFTOP PENETRATIONS PERTAINING TO SOLAR RACKING WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.

2.5.7 ALL PV RELATED RACKING ATTACHMENTS WILL BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER. O.C. FINAL ATTACHMENT LOCATIONS MAY BE ADJUSTED IN THE FIELD AS NECESSARY.

2.5.8 ALL PV RELATED RACKING ATTACHMENTS SHALL BE STAGGERED BY ROW AMONGST THE ROOF FRAMING MEMBERS.

2.6.1 **GROUNDING NOTES:**

2.6.2 A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH [NEC 690-47] AND [NEC 250-50] THROUGH [NEC 60 250-166] SHALL BE PROVIDED. PER NEC, GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO AT THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, OR IS ONLY METALLIC WATER PIPING, A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT GROUND ROD WITH ACORN CLAMP.

2.6.3 GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO GREATER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.

2.6.4 PV SYSTEM SHALL BE GROUNDED IN ACCORDANCE TO [NEC 250.21], [NEC TABLE 250.122], AND ALL METAL PARTS OR MODULE FRAMES ACCORDING TO [NEC 690.43].

2.6.5 MODULE SOURCE CIRCUITS SHALL BE GROUNDED IN ACCORDANCE TO [NEC 690.42].

2.6.6 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER MODULE.2.6.7 EACH MODULE WILL BE GROUNDED USING THE SUPPLIED CONNECTIONS POINTS IDENTIFIED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2.6.7 EACH MODULE WILL BE GROUNDED USING THE SUPPLIED CONNECTIONS POINTS IDENTIFIED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2.6.8 ENCLOSURES SHALL BE PROPERLY PREPARED WITH REMOVAL OF PAINT/FINISH AS APPROPRIATE WHEN GROUNDING EQUIPMENT WITH TERMINATION GROUNDING LUGS.

2.6.9 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVISES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR DIRECT BURIAL.

2.6.10 GROUNDING AND BONDING CONDUCTORS SHALL BE COPPER, SOLID OR STRANDED, AND BARE WHEN EXPOSED.

2.6.11 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZE ACCORDING TO [NEC 690.45] AND BE A MINIMUM OF #10AWG WHEN NOT EXPOSED TO DAMAGE (#6AWG SHALL BE USED WHEN EXPOSED TO DAMAGE).

2.6.12 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLOR CODED GREEN (OR MARKED GREEN IF #4 AWG OR LARGER)

2.6.13 ALL CONDUIT BETWEEN THE UTILITY AC DISCONNECT AND THE POINT OF CONNECTION SHALL HAVE GROUNDED BUSHINGS AT BOTH ENDS.

2.6.14 AC SYSTEM GEC SIZED ACCORDING TO [NEC 690.47], [NEC TABLE 250.66], DC SYSTEM GEC SIZED ACCORDING TO [NEC 250.166], MINIMUM #8AWG WHEN INSULATED, #6AWG WHEN EXPOSED TO DAMAGE.

2.6.15 EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENTS, AND CONDUCTOR ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH 250.134 OR 250.136(A) REGARDLESS OF VOLTAGE.

2.7.1 **INTERCONNECTION NOTES:**

2.7.2 PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED AT THE OPPOSITE END OF THE BUS FROM THE MAIN SERVICE BREAKER OR TRANSFORMER INPUT FEEDER IN ACCORDANCE WITH [NEC 690.64(B)(7)]

2.7.3 SUM OF BREAKER RATINGS SUPPLYING THE BUS MAY NOT EXCEED 120% OF THE THE BUSBAR RATING PER [NEC 690.64(B)(2)] AND/OR [NEC 705.12(D)(1).

2.7.4 GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9] & [NEC 230.95] ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.

2.7.5 SUPPLY SIDE INTERCONNECTION ACCORDING TO [NEC 690.64(A)] AND/OR [NEC 705.12(A)] WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH [NEC 230.42(B)]

2.7.6 MICROINVERTER BRANCHES SHALL BE CONNECTED TO A SINGLE BREAKER OCPD IN ACCORDANCE WITH [NEC 110.3(B)].

2.8.1 **DISCONNECT NOTES:**

2.8.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)

2.8.3 AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

2.8.4 DC CURRENT CONDUCTORS ARE TO REMAIN OUTSIDE OF BUILDING PRIOR TO EITHER A FUSEABLE SOURCE CIRCUIT COMBINER BOX OR A LOAD-BREAK DISCONNECTING DEVICE.

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

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NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

NOTES

(SHEET 2 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

G-001.00

LIST OF ABBREVIATIONS

(E)	EXISTING	AUD	AUDIOMETER BOX	EMT	ELECTRIC METALLIC	HZ	HERTZ (CYCLE) PER	MD	MOTORIZED DAMPER	PC	PLUMBING SYSTEM	STL	CARBON STEEL		
(N)	NEW		CONNECTION		TUBING		SECOND	MDP	MAIN DISTRIBUTION PANEL		CONTRACTOR	STP	SHIELDED TWISTED PAIR		
&	AND	AUX	AUXILIARY	ENCL	ENCLOSURE	I	INVERTER	MEP	MAIN ELECTRIC PANEL	PE	PROFESSIONAL ENGINEER	SUSP	SUSPENDED		
#	NUMBER	AWG	AMERICAN WIRE GAUGE	EOL	END OF LINE	IAM	INDIVIDUAL ADDRESSABLE	MFR	MANUFACTURER	PH	PHASE	SW	SWITCH		
°C	CELSIUS	BC	BUILDING CODE	EPO	EMERGENCY POWER OFF		MODULE	MISC	MISCELLANEOUS	PIV	POST INDICATING VALVE	SWBD	SWITCHBOARD		
°F	FAHRENHEIT	BLDG	BUILDING	EQUIP	EQUIPMENT	IBC	INTERNATIONAL BUILDING	MLO	MAIN LUGS ONLY	PM	POWER MODULE	SWGR	SWITCHGEAR		
1P	ONE POLE	BLK	BLACK	ETC	ET CETERA		CODE	MM	MILLIMETER	PMAX	MAXIMUM POWER	TCP	TEMPERATURE CONTROL		
1P1W	ONE POLE, ONE WIRE	BLVD	BOULEVARD	EWC	ELECTRIC WATER COOLER	IC	INTERCOMMUNICATION	MOD	MOTOR OPERATED	PNL	AC PANELBOARD		PANEL		
1P2W	ONE POLE, TWO WIRE	C	CONDUIT (GENERIC TERM	EWH	ELECTRIC WATER HEATER	ID	IDENTIFICATION		DISCONNECT SWITCH	PP	POWER PANEL	TEMP	TEMPERATURE		
2P	TWO POLE		FOR RACEWAY.	EXIST.	EXISTING	IEC	INTERNATIONAL	MTD	MOUNTED	PR	PAIR	TERM	TERMINAL(S)		
2P2W	TWO POLE, TWO WIRE	C.T.	CURRENT TRANSFORMER	F	FUSE		ELECTROTECHNICAL	MTG	MOUNTING	PRI	PRIMARY	THHN	THERMOPLASTIC HIGH		
2P3W	TWO POLE, THREE WIRE	CAM	CAMERA	FA	FIRE ALARM		COMMISSION	MTS	MANUAL TRANSFER	PT	POTENTIAL TRANSFORMER		HEAT-RESISTANT		
3P	THREE POLE	CAT	CATALOG	FBO	FURNISHED BY OTHERS	IEEE	INSTITUTE OF ELECTRICAL		SWITCH	PTC	PHOTOVOLTAIC UNITED		NYLON-COATED		
3P2W	THREE POLE, TWO WIRE	CATV	CABLE TELEVISION	FC	FIRE CODE		AND ELECTRONICS	N	NORTH		STATES TEST CONDITIONS	THWN	THERMOPLASTIC HEAT AND		
3P3W	THREE POLE, THREE WIRE	CB	CIRCUIT BREAKER	FCU	FAN COIL UNIT		ENGINEERS	N/A	NOT APPLICABLE	PV	PHOTOVOLTAIC		WATER-RESISTANT		
3P4W	THREE POLE, FOUR WIRE	CBC	CALIFORNIA BUILDING	FDN	FOUNDATION	IG	ISOLATED GROUND	NC	NORMALLY CLOSED	PVC	POLYVINYL CHLORIDE		NYLON-COATED		
4° 3' 0" N	DEGREES, MINUTES,		CODE	FIXT	FIXTURE	IMC	INTERMEDIATE METAL	NEC	NATIONAL ELECTRIC CODE	PWR	POWER	TYP	TYPICAL		
	SECONDS, CARDINAL	CBR	DC COMBINER BOX	FLA	FULL LOAD AMPS		CONDUIT	NEMA	NATIONAL ELECTRICAL	RCNY	RULES OF THE CITY OF	U.O.I.	UNLESS OTHERWISE		
	DIRECTION	CEC	CALIFORNIA ELECTRIC	FLEX	FLEXIBLE	IMP	CURRENT AT MAXIMUM		MANUFACTURERS		NEW YORK		INDICATED		
4P	FOUR POLE		CODE	FLR	FLOOR		POWER		ASSOCIATION	RD	RED	UC	UNDER COUNTER		
4P4W	FOUR POLE, FOUR WIRE	CKT	CIRCUIT	FMC	FLEXIBLE METALLIC	IPS	INTERRUPTIBLE POWER	NF	NON-FUSED	RE	REMOVE EXISTING	UG	UNDERGROUND		
A	AMPERE	CL	CENTERLINE		CONDUIT		SUPPLY	NFPA	NATIONAL FIRE	REC	RECESSED	UH	UNIT HEATER		
A / V	AUDIO VISUAL	COL	COLUMN	FRE	FIBERGLASS REINFORCED	IR	PASSIVE INFRARED		PROTECTION AGENCY	RECP	RECEPTACLE	UL	INTERNATIONAL SATEY		
AC	ALTERNATING CURRENT	CONST	CONSTRUCTION		EPOXY CONDUIT	ISC	SHORT CIRCUIT CURRENT	NIC	NOT IN CONTRACT	REF	REFERENCE		COMPLIANCE STANDARDS		
ACSW	ALTERNATING CURRENT	COV	COVERAGE	FT	FEET	JB	JUNCTION BOX	NL	NIGHT LIGHT	RL	RELOCATE EXISTING	UPS	UNINTERRUPTIBLE POWER		
	SWITCH	CU	COPPER	FURN	FURNITURE	K/O	KNOCK-OUT	NM	NONMETALLIC SHEATHED	RM	ROOM		SOURCE		
AF	AMP FRAME	DC	DIRECT CURRENT	GC	GENERAL CONTRACTOR	KCMIL	THOUSAND CIRCULAR MILS		CABLE	RMC	RIGID METAL CONDUIT	UTIL	UTILITY		
AFCI	ARC-FAULT CIRCUIT	DCSW	DIRECT CURRENT SWITCH	GEC	GROUNDING ELECTRICAL	KVA	KILOVOLT AMPERE	NO.	NUMBER	RSC	RIGID STEEL CONDUIT	UTP	UNSHIELDED TWISTED PAIR		
	INTERRUPTER	DET	DETECTOR		CONDUCTOR	KVAR	KILOVOLT AMPERE	NRTL	NATIONALLY RECOGNIZED	RT	RAINTIGHT(*)	UV	ULTRAVIOLET		
AFF	ABOVE FINISHED FLOOR	DIA	DIAMETER	GEN	GENERATOR		REACTIVE		TESTING LABRATORIES	RTU	ROOFTOP UNIT	V	VOLT		
AFG	ABOVE FINISHED GRADE	DISC	DISCONNECT	GFCI	GROUND FAULT CIRCUIT	KW	KILOWATT	NTS	NOT TO SCALE	S	SURFACE MOUNTED	VMP	VOLTAGE AND MAXIMUM		
AHJ	AUTHORITY HAVING	DIST	DISTRICT		INTERRUPTER	KWP	KILOWATT-PEAK	NYCBC	NEW YORK CITY BUILDING	SCH	SCHEDULE		POWER		
	JURISDICTION	DN	DOWN	GFDI	GROUND-FAULT DETECTOR	LFMC	LIQUIDTIGHT FLEXIBLE		CODE	SD	SMOKE DAMPER	VOC	OPEN CIRCUIT VOLTAGE		
AHU	AIR HANDLING UNIT	DT	DUSTTIGHT(*)		INTERRUPTER		METALLIC CONDUIT	NYCEC	NEW YORK CITY ELECTRIC	SE	SECONDARY ELECTRIC	VT	VAPORTIGHT(*)		
AIC	AMPERE INTERRUPTING	DWG	DRAWING	GFPE	GROUND FAULT	LFNC	LIQUIDTIGHT FLEXIBLE		CODE		SERVICE	W	WATT		
	CAPACITY	E	WIRED ON EMERGENCY		PROTECTION EQUIPMENT		NONMETALLIC CONDUIT	NYCFC	NEW YORK CITY FIRE CODE	SEC	SECONDARY	W/	WITH		
AL	ALUMINUM		CIRCUIT	GND	GROUNDED	LIC	LICENSE	O.C.	ON CENTER	SIG	SIGNAL	WH	WHITE		
ANSI	AMERICAN NATIONAL	EA	EACH	GR	GREEN	LP	LIGHTING PANELBOARD	O2	OXYGEN	SN	SOLID NEUTRAL	WP	WEATHERPROOF		
	STANDARDS INSTITUTE	EC	ELECTRICAL CONTRACTOR	GRC	GALVANIZED RIGID	LS	LIMIT SWITCH	OCPD	OVER-CURRENT	SP	SPARE	WR	WIRE		
APN	ASSESSOR'S PARCEL	ECC	ENERGY CONSERVATION		CONDUIT	LTG	LIGHTING		PROTECTION DEVICE	SPKR	SPEAKER	WT	WATERTIGHT(*)		
	NUMBER		CODE	HDWR	HARDWARE	LV	LOW VOLTAGE	OH	OVERHEAD	SPL	SPLICE	WW	WIREWAY		
ARCH	ARCHITECT	EF	EXHAUST FAN	HGT	HEIGHT	M	METER	OHD	OVERHEAD DOOR	SS	STAINLESS STEEL	XFMR	TRANSFORMER		
AS	AMP SWITCH	EGC	ELECTRICAL GROUNDING	HP	HORSEPOWER	MAINT	MAINTAINED		OPERATOR	ST	STREET	XP	EXPLOSION PROOF(*)		
ASTM	AMERICAN SOCIETY FOR		CONDUCTOR	HV	HIGH VOLTAGE	MAU	MAKE-UP AIR UNIT	OSHA	OCCUPATIONAL SAFTETY	STC	STANDARD TEST	Y	WYE		
	TESTING AND MATERIALS	ELEC	ELECTRIC(AL)	HVAC	HEATING, VENTILATING	MAX	MAXIMUM		AND HEALTH		CONDITIONS	ZAM	ZONE ADAPTER MODULE		
AT	AMP TRIP	EMC	ELECTRICAL METAL		AND AIR	MC	METAL CLAD CABLE		ADMINISTRATION						
ATS	AUTOMATIC TRANSFER		CONDUIT	HW	HOT WATER	MCB	MAIN CIRCUIT BREAKER	P	POLE						
	SWITCH	EMER	EMERGENCY			MCC	MOTOR CONTROL CENTER	PB	PULL BOX						

M (E) UTILITY METER

V PV REVENUE METER

U UTILITY POLE

A MODULE STRINGING

B MODULE STRINGING

C MODULE STRINGING

D MODULE STRINGING

PROPERTY LINE

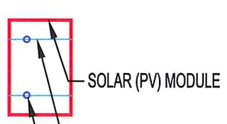
ROOF RAFTER

MODULE STRINGING

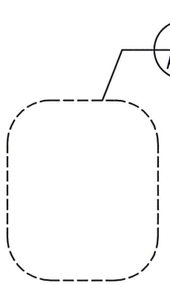
EQUIPMENT GROUND

CONDUIT

FIRE CLEARANCE

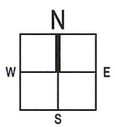


26 SHEET KEYNOTE INDICATOR



DETAIL INDICATOR

ELEVATION INDICATOR



NORTH INDICATOR

DISCLAIMER: PLEASE NOTE THAT THE ABBREVIATIONS, ANNOTATIONS, AND SYMBOLS LISTED ARE INTENDED TO ILLUSTRATE THOSE THAT ARE COMMONLY USED; NOT ALL ARE NECESSARILY UTILIZED WITHIN THIS SET OF DRAWINGS.

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

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NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

LEGEND

(SHEET 3 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

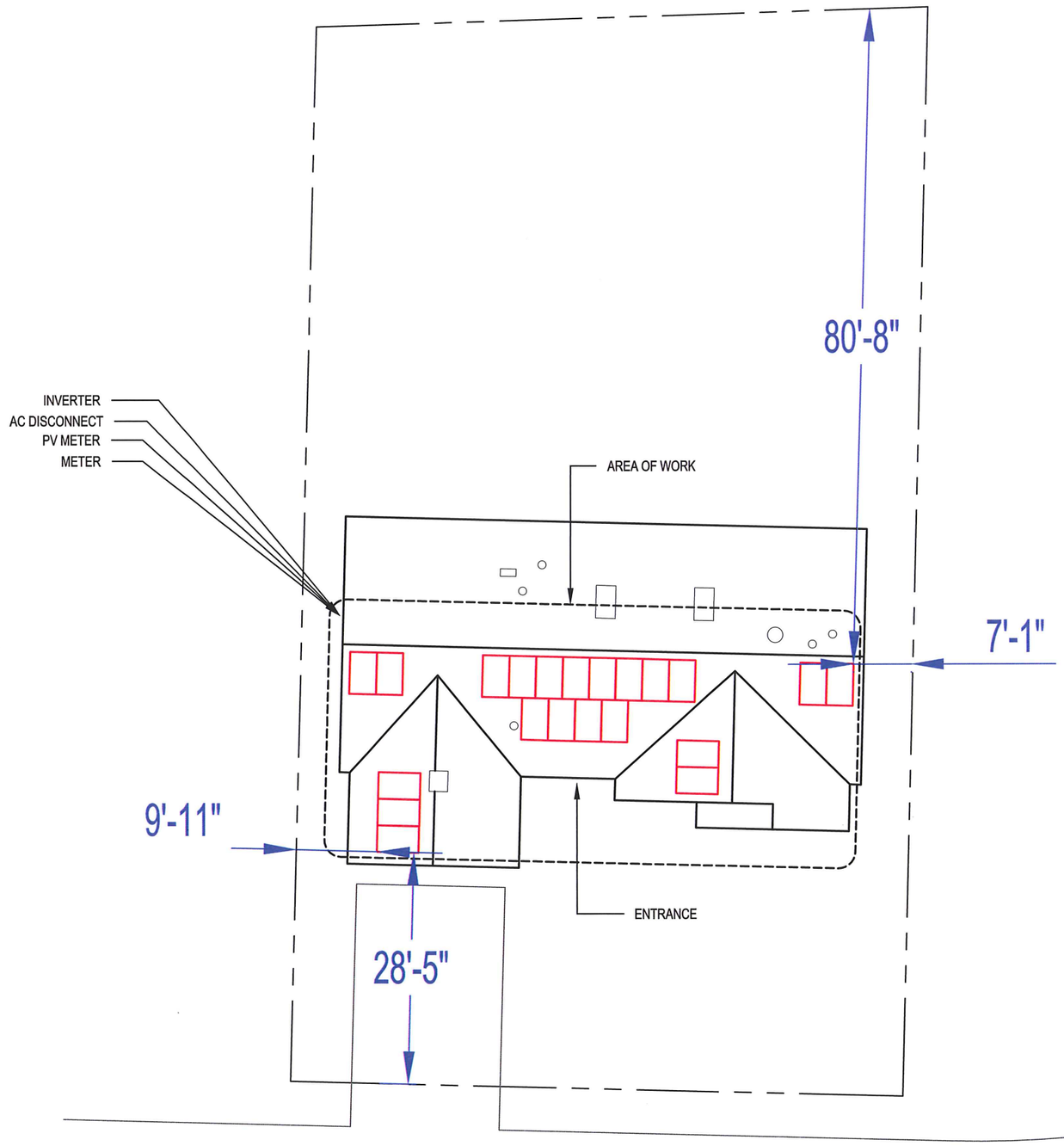
CHECKED BY: M.M.

REVISIONS

G-002.00

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. SEE SHEET G-002 FOR LEGEND OF SYMBOLS



01 SITE PLAN

1/16" = 1'-0"

0 8' 16'

N W E S

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

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ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

SITE PLAN

(SHEET 4 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

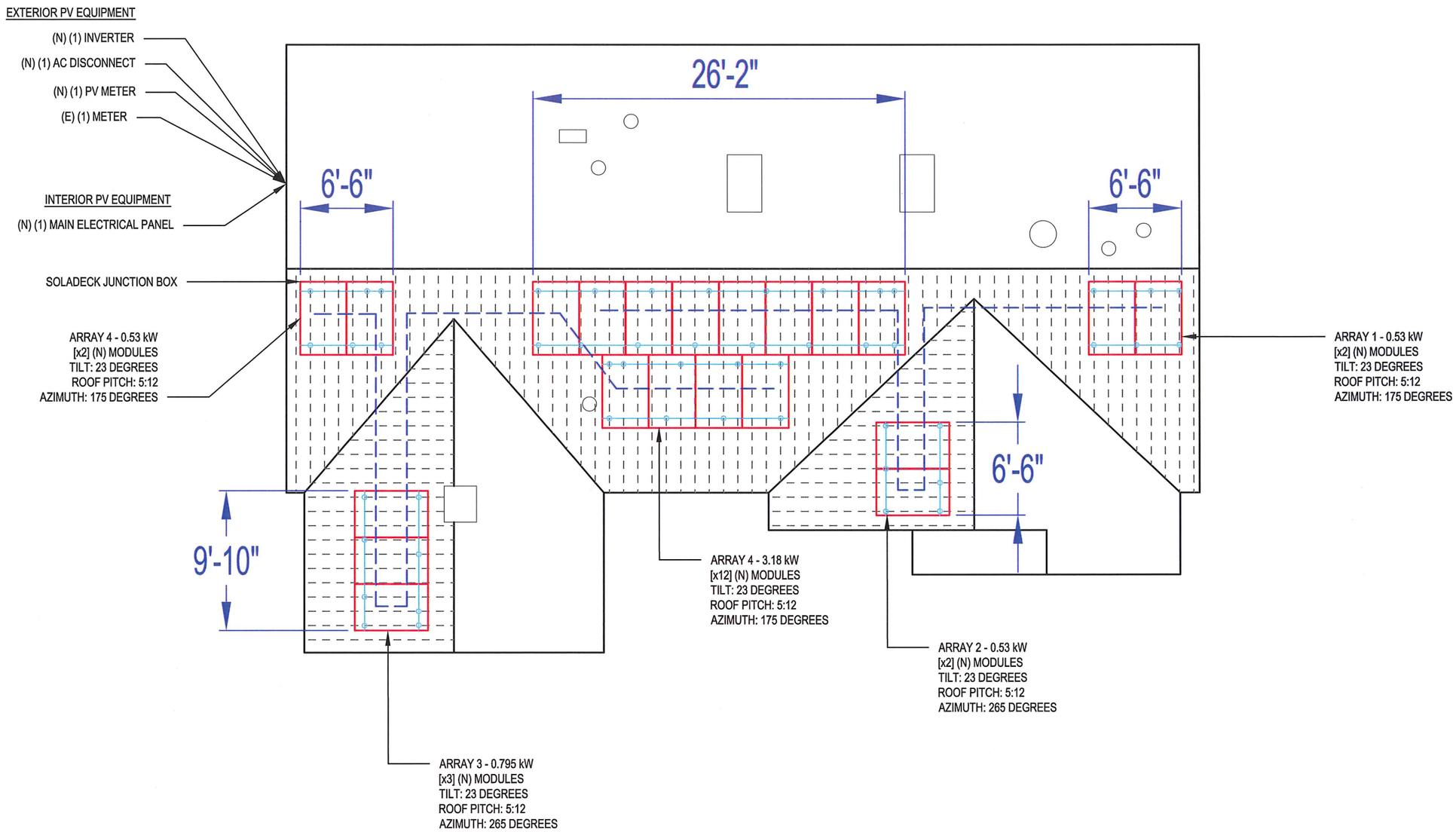
CHECKED BY: M.M.

REVISIONS

A-101.00

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. SEE SHEET G-002 FOR LEGEND OF SYMBOLS

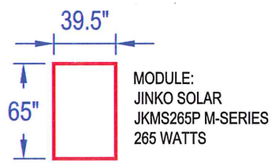


01 PROJECT PLAN

1/8" = 1'

0 4' 8'

N W E S



MODULE:
JINKO SOLAR
JKMS265P M-SERIES
265 WATTS

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

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BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

PROJECT PLAN

(SHEET 5 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

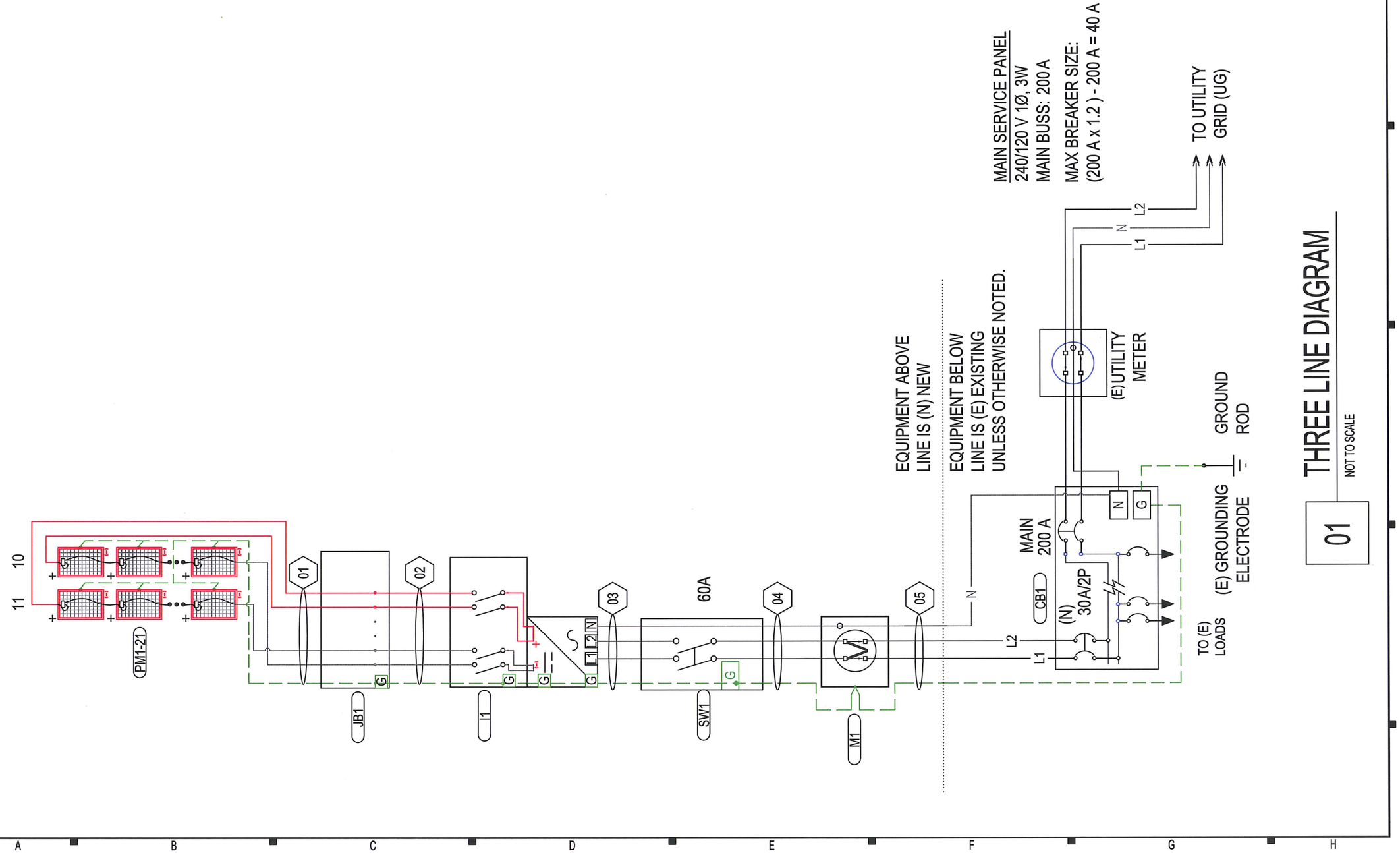
CHECKED BY: M.M.

REVISIONS

A-102.00

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
1	2	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.71 (56°C)	1.0	11.29A	14.11A	55A	39.05A	75°C	50A
2	2	10 AWG THWN-2, COPPER	0.75" DIA. EMT	4	N/A	10 AWG THWN-2, COPPER	0.71 (56°C)	0.8	11.29A	14.11A	40A	22.72A	60°C	30A
3	1	10 AWG THWN-2, COPPER	0.5" DIA. EMT	2	N/A	10 AWG THWN-2, COPPER	0.96 (34°C)	1.0	20.8A	26A	40A	38.4A	60°C	30A
4	1	10 AWG THWN-2, COPPER	0.5" DIA. EMT	2	30A	10 AWG THWN-2, COPPER	0.96 (34°C)	1.0	20.8A	26A	40A	38.4A	75°C	35A
5	1	10 AWG THWN-2, COPPER	0.5" DIA. EMT	2	30A	10 AWG THWN-2, COPPER	0.96 (34°C)	1.0	20.8A	26A	40A	38.4A	75°C	35A



THREE LINE DIAGRAM

NOT TO SCALE

01

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

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ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

THREE LINE DIAGRAM

(SHEET 6 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

E-601.00

SYSTEM SUMMARY

	MPPT #1	MPPT #2
MODULES IN SERIES	11	10
ARRAY VMP	345.4V	314V
ARRAY IMP	8.4A	8.4A
ARRAY VOC	424.6V	386V
ARRAY ISC	9A	9A
ARRAY STC POWER	5,565W	
ARRAY PTC POWER	5,080W	
MAX AC CURRENT	21A	
MAX AC POWER	5,000W	
DERATED (CEC) AC POWER	4,851W	

DESIGN TEMPERATURES

ASHRAE EXTREME LOW	-20°C (-4°F), SOURCE: ST LOUIS SPIRIT OF ST LOUIS A (KSUS) 38.66°, -90.66°
ASHRAE 2% HIGH	34°C (93°F), SOURCE: ST LOUIS SPIRIT OF ST LOUIS A (KSUS) 38.66°, -90.66°

MODULES

REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-21	21	JINKO JKM265P-60	265W	242W	9.03A	8.44A	38.6V	31.4V	-0.12V/°C (-0.31%/°C)	15A

INVERTERS

REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	MAX OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1	1	FRONIUS FRONIUS PRIMO 5.0-1 @ 240 VAC	240V	FLOATING	30A	5,000W	21A	36A	600V	95.5%

DISCONNECTS

REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	SQUARE D D222NRB OR EQUIV.	60A	240VAC

OCPDS

REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1	1	30A	240VAC

BILL OF MATERIALS

CATEGORY	MAKE	MODEL NUMBER	REF	QTY	UNIT	QTY/UNIT	DESCRIPTION
MODULE	JINKO	JKM265P-60	PM1-21	21	PIECES	1	JINKO JKM265P-60 265W, 60 CELLS, POLYCRYSTALLINE SILICON
INVERTER	FRONIUS	PRIMO 5.0-1 208/240	I1	1	PIECE	1	FRONIUS PRIMO 5.0-1 208/240 5000W INVERTER
DISCONNECT	SQUARE D	D222NRB	SW1	1	PIECE	1	SQUARE D D222NRB DISCONNECT SWITCH, 2-POLE, 60A, 240VAC, OR EQUIVALENT
MISC ELECTRICAL EQUIPMENT		GEN-METER-80A	M1	1	PIECE	1	ELECTRICAL METER, OWNER APPROVED
WIRING		GEN-10-AWG-PV-WIRE-CU	WR1	80	FEET	1	10 AWG PV WIRE, COPPER (POSITIVE AND NEGATIVE)
WIRING		GEN-6-AWG-BARE-CU	WR1	40	FEET	1	6 AWG BARE, COPPER (GROUND)
WIRING		GEN-10-AWG-THWN-2-CU-RD	WR2-5	120	FEET	1	10 AWG THWN-2, COPPER, RED (LINE 2 AND POSITIVE)
WIRING		GEN-10-AWG-THWN-2-CU-BLK	WR2-5	120	FEET	1	10 AWG THWN-2, COPPER, BLACK (LINE 1 AND NEGATIVE)
WIRING		GEN-10-AWG-THWN-2-CU-GR	WR2-5	120	FEET	1	10 AWG THWN-2, COPPER, GREEN (GROUND)
WIRING		GEN-10-AWG-THWN-2-CU-WH	WR3-5	30	FEET	1	10 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIREWAY	SOLADECK	GEN-JBOX	JB1	1	PIECE	1	SOLADECK, 4 INPUTS OR EQUIVALENT
WIREWAY		GEN-EMT-0_75DIA	WW2	45	FEET	1	EMT CONDUIT, 0.75 DIA.
WIREWAY		GEN-EMT-0_5DIA	WW3-5	30	FEET	1	EMT CONDUIT, 0.5 DIA.
OCPD	GENERIC MANUFACTURER	GEN-CB-30A-240VAC	CB1	1	PIECE	1	CIRCUIT BREAKER, 30A, 240VAC

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

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ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

ELECTRICAL TABLES

(SHEET 7 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

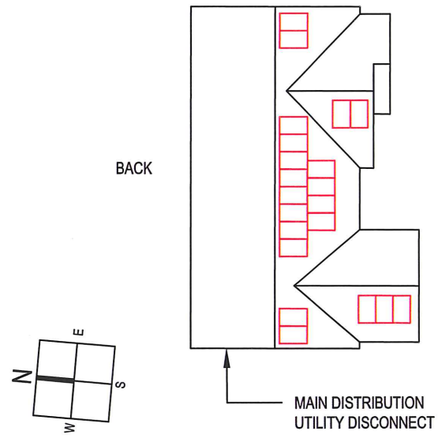
CHECKED BY: M.M.

REVISIONS

E-602.00

!CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:



! WARNING !

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

LABELING 1
EACH COMBINER BOX / ENCLOSURE MUST DISPLAY THIS LABELING

! CAUTION !

SOLAR CIRCUIT

WARNING LABEL 1
ANY ACCESSIBLE COMPONENT (GUTTER, JUNCTION BOX, COMBINER BOX, ETC.) SHOULD DISPLAY THIS LABELING

! WARNING !

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

LABELING 2
EACH DC DISCONNECTING MEANS MUST DISPLAY THIS LABELING

! WARNING !

ELECTRICAL SHOCK HAZARD

IF A GROUND FAULT IS INDICATED, NORMALLY UNGROUNDED CONDUCTORS MAY BE GROUNDED AND ENERGIZED

LABELING 3
EACH PV GENERATION METER MUST DISPLAY THIS LABELING

! DANGER !

DO NOT DISCONNECT UNDER LOAD
TURN OFF PHOTOVOLTAIC DISCONNECT SWITCH PRIOR TO SERVICING

LABELING 4
EACH DC COMBINER BOX WITH SERIES FUSING MUST DISPLAY THIS LABELING.

! WARNING !

DUAL POWER SOURCES. SECOND SOURCE IS PV SYSTEM

LABELING 5
INSTALL AT ELECTRICAL SERVICE INTERCONNECTION POINT

INVERTER
5 000 WATTS

OPERATING CURRENT:	8.4 A AC
OPERATING VOLTAGE:	345.4 V AC
MAX SHORT CURRENT:	9 A DC
MAX VOLTAGE:	424.6 V DC

LABELING 7
INVERTER MUST DISPLAY THIS LABELING

PV SYSTEM GENERATION METER

LABELING 8
EACH PV GENERATION METER MUST DISPLAY THIS LABELING

PV SYSTEM (AC) DISCONNECT FOR UTILITY OPERATION

LABELING 9
TO BE PROMINENTLY DISPLAYED AT AC DISCONNECT ACCESSIBLE TO FIRE & UTILITY PERSONNEL

ELECTRICAL SERVICE ALSO SERVED BY A PHOTOVOLTAIC POWER SOURCE
PHOTOVOLTAIC INSTALLATION BY:
MISSOURI SUN SOLAR
UTILITY POWER @ 240V AC, 200 A AC
PV POWER @ 240 V AC, 21 A AC

LABELING 10
INSTALL AT ELECTRICAL SERVICE INTERCONNECTION POINT.

! WARNING !

PV DISCONNECT BACKFED BREAKER DO NOT REMOVE OR RELOCATE

LABELING 11
EACH PV BACKFEED BREAKER MEANS MUST DISPLAY THIS LABELING

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT WRITTEN PERMISSION FROM CONTRACTOR IS IN VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTIONS.

NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

PLACARDS

(SHEET 8 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

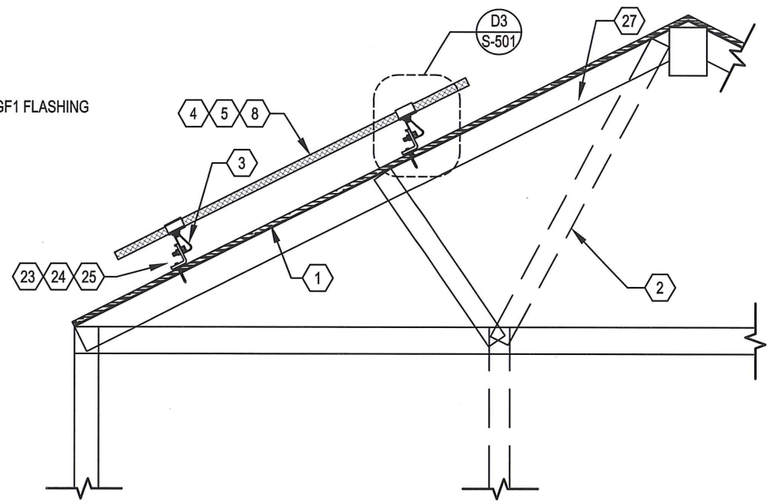
CHECKED BY: M.M.

REVISIONS

E-603.00

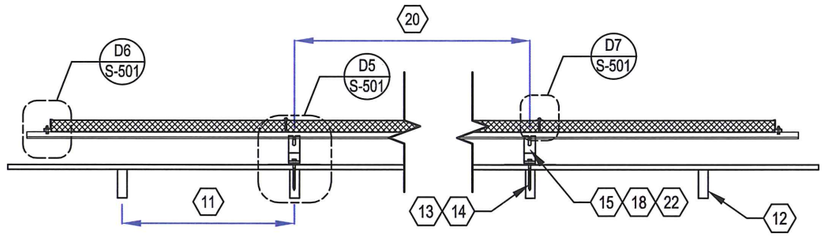
SHEET KEYNOTES

1. ROOF MATERIAL: (ASPHALT) SHINGLE
2. ROOF STRUCTURE: TRUSS (WOOD)
3. ATTACHMENT TYPE: IRON RIDGE L-FOOT W/ ECOFASTEN GF1 FLASHING
4. MODULE MANUFACTURER: JINKOSOLAR
5. MODULE MODEL: JKMS265P
6. MODULE LENGTH: 65 INCHES
7. MODULE WIDTH: 39.05 INCHES
8. MODULE WEIGHT: 40.8 LBS.
9. SEE SHEET A-2 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 3' FROM RIDGE, 18" FROM HIPS/VALLEYS
11. TRUSS SPACING: 12" O.C.
12. TRUSS SIZE: 2X4 NOMINAL
13. LAG BOLT DIAMETER: 5/16"
14. LAG BOLT EMBEDMENT: 2"
15. TOTAL # OF ATTACHMENTS: 51
16. TOTAL AREA: 381.15 SQ. FT.
17. TOTAL WEIGHT: 842.1 LBS.
18. WEIGHT PER ATTACHMENT: 16.51 LBS.
19. DISTRIBUTED LOAD: 2.60 PSF.
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: LANDSCAPE: 26 IN., PORTRAIT: 33 IN.
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER: IRONRIDGE
24. RAIL MODEL: XR10
25. RAIL WEIGHT: 0.436 PLF.
26. MAX RAIL SPAN: 48 IN.
27. TRUSS SPAN: 18 FT.



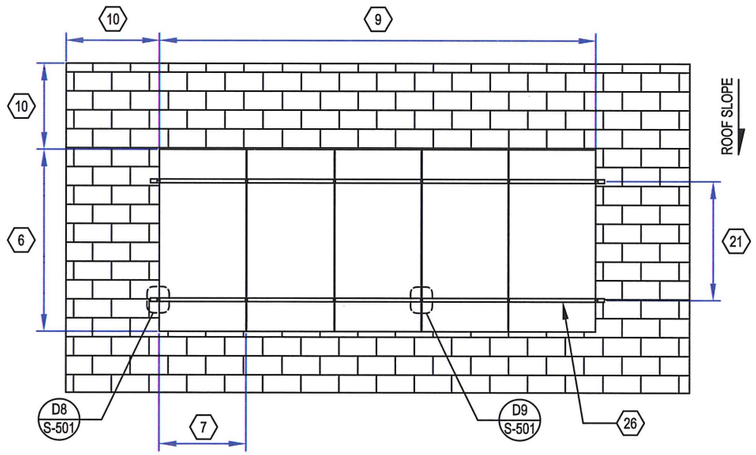
D1 / S-501 — **RACKING DETAIL (TRANSVERSE)**

SCALE: NOT TO SCALE



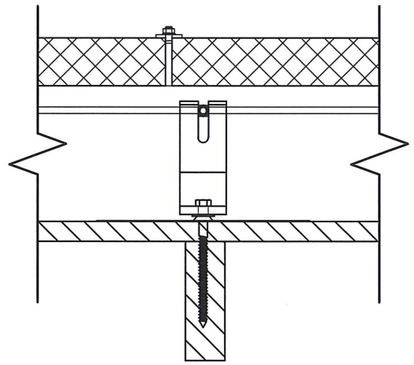
D2 / S-501 — **RACKING DETAIL (LONGITUDINAL)**

SCALE: NOT TO SCALE



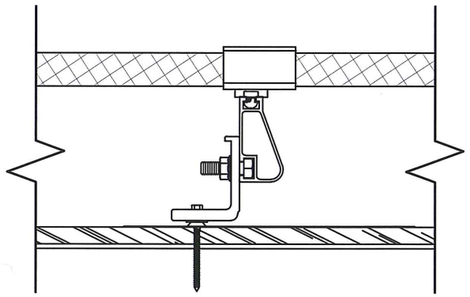
D4 / S-501 — **RACKING DETAIL (TOP)**

SCALE: NOT TO SCALE



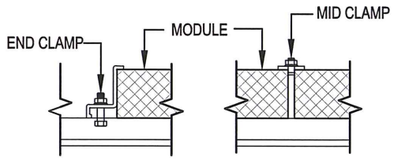
D5 / S-501 — **DETAIL (LONGITUDINAL)**

SCALE: NOT TO SCALE



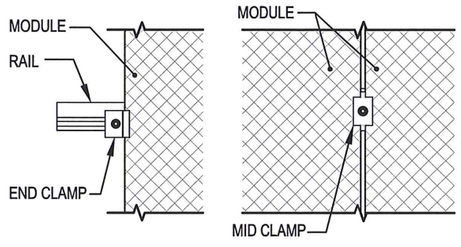
D3 / S-501 — **DETAIL (TRANSVERSE)**

SCALE: NOT TO SCALE



D6, D7 / S-501 — **DETAIL (LONGITUDINAL)**

SCALE: NOT TO SCALE



D8, D9 / S-501 — **DETAIL (TOP)**

SCALE: NOT TO SCALE

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

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BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

ASSEMBLY DETAILS

(SHEET 9 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

S-501.00

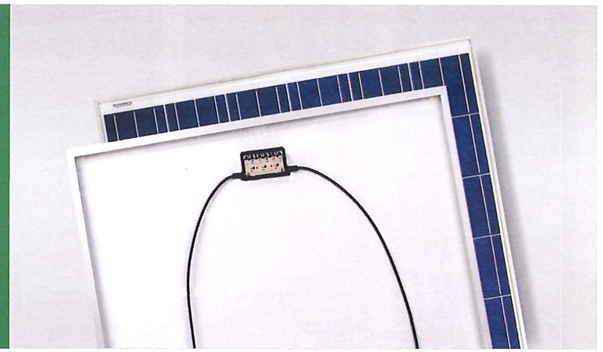
www.jinkosolar.com

JinKO Solar
Building Your Trust in Solar

Smart Module
255-315 Watt
POWER OUTPUT RANGE

Positive power tolerance of 0/+3%

JinkoSolar introduces a brand new line of highly intelligent modules for a wide range of applications.



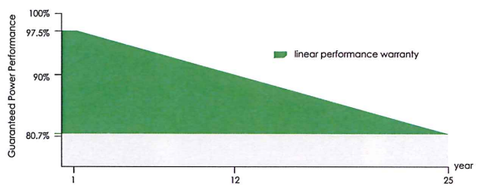
Optimized by maxim integrated

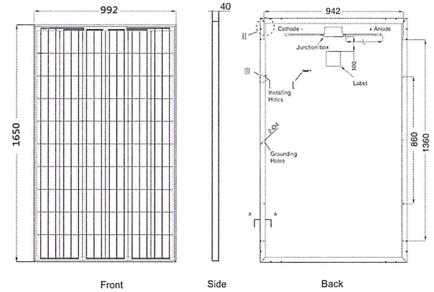
KEY FEATURES

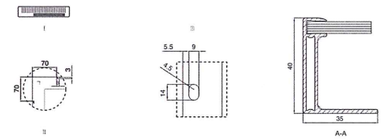
- Built-in intelligent cell optimizer IC avoids negative consequences of any type of mismatch within a panel caused by shading, soling, aging, unfavorable house orientation, etc. to ensure greatest power output possible.
- The most flexible solution for any rooftop condition and orientation.
- Elimination of hot spots, which results in minimized panel degradation.
- Best-in-class shade tolerance by performing MPPT on individual cell-strings to maximize energy harvest.
- Ideal for rooftop and solar power plant applications.

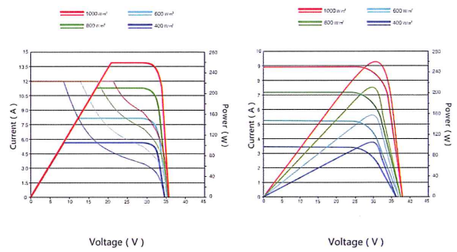
LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty









Packaging Configuration

(Two boxes=One pallet)

25pcs/ box, 50pcs/pallet, 700 pcs/40'HQ Container

Mechanical Characteristics

Cell Type	Poly-crystalline 156×156mm (6 inch)
No. of cells	60 (6×10)
Dimensions	1650×992×40mm (65.00×39.05×1.57 inch)
Weight	18.5 kg (40.8 lbs)
Front Glass	3.2mm, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP67 Rated
Output Cables	TÜV 1×4.0mm², Length:900mm

SPECIFICATIONS

Module Type	JKMS255P		JKMS260P		JKMS265P		JKMS270P	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	255Wp	190Wp	260Wp	194Wp	265Wp	198Wp	270Wp	202Wp
Maximum Power Voltage (Vmp)	29.3V	26.7V	29.5V	26.9V	29.8V	27.3V	30.1V	27.5V
Maximum Power Current (Imp)	8.72A	7.11A	8.81A	7.20A	8.88A	7.27A	8.97A	7.34A
Open-circuit Voltage (Voc)	36.1V	33.2V	36.2V	33.3V	36.7V	33.5V	36.9V	33.8V
Short-circuit Current (Isc)	9.39A	7.60A	9.45A	7.64A	9.51A	7.69A	9.57A	7.74A
Module Efficiency STC (%)	15.58%		15.89%		16.19%		16.50%	
Maximum Output Current(Imax)	12A							
Operating Temperature(℃)	-40℃~+85℃							
Maximum system voltage	1000VDC(IEC)							
Power tolerance	0~+3%							
Temperature coefficients of Pmax	-0.40%/℃							
Temperature coefficients of Voc	-0.30%/℃							
Temperature coefficients of Isc	0.06%/℃							
Nominal operating cell temperature (NOCT)	45±2℃							

STC: Irradiance 1000W/m² Cell Temperature 25°C AM=1.5

NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s

* Power measurement tolerance: ± 3%

The company reserves the final right for explanation on any of the information presented hereby. EN-JKMS-270P_rev2014

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

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ENGINEER OF RECORD

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MODULE DATASHEET

(SHEET 10 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

R-001.00

/ Perfect Welding / Solar Energy / Perfect Charging

SHIFTING THE LIMITS

FRONIUS PRIMO

/ The future of residential solar is here - Introducing the new Fronius Primo.

/ PC board replacement process | / SnapINverter mounting system | / Wi-Fi® interface | / SuperFlex Design | / Smart Grid Ready | / Arc Fault Circuit Interruption

/ With power categories ranging from 3.8 kW to 15.0 kW, the transformerless Fronius Primo is the ideal compact single-phase inverter for residential applications. The sleek design is equipped with the SnapINverter hinge mounting system which allows for lightweight, secure and convenient installation and service. The Fronius Primo has several integrated features that set it apart from competitors including dual powerpoint trackers, high system voltage, a wide input voltage range, Wi-Fi* and SunSpec Modbus interface for seamless monitoring and datalogging, Arc Fault Circuit Interruption (AFCI), and Fronius' online and mobile platform Fronius Solar.web. The Fronius Primo is designed to adjust to future standards, offering a complete solution to code restrictions and technical innovations of tomorrow. It also works seamlessly with the Fronius Rapid Shutdown Box for a reliable NEC 2014 solution.

TECHNICAL DATA FRONIUS PRIMO

GENERAL DATA	FRONIUS PRIMO 3.8 - 8.2	FRONIUS PRIMO 10.0-15.0
Dimensions (width x height x depth)	16.9 x 24.7 x 8.1 in.	20.1 x 28.5 x 8.9 in.
Weight	47.29 lb.	82.5 lbs.
Degree of protection	NEMA 4X	
Night time consumption	< 1 W	
Inverter topology	Transformerless	
Cooling	Variable speed fan	
Installation	Indoor and outdoor installation	
Ambient operating temperature range	-40 - 131°F (-40 - 55°C)	-40 - 140°F (-40 - 60°C)
Permitted humidity	0 - 100 %	
DC connection terminals	4x DC+ and 4x DC- screw terminals for copper (solid / stranded / fine stranded) or aluminum (solid / stranded)	4x DC+1, 2x DC+2 and 6x DC- screw terminals for copper (solid / stranded / fine stranded) or aluminum (solid / stranded)
AC connection terminals	Screw terminals 12 - 6 AWG	
Revenue Grade Metering	Optional (ANSI C12.1 accuracy)	
Certificates and compliance with standards	UL 1741-2010, UL1998 (for functions: AFCI and isolation monitoring), IEEE 1547-2003, IEEE 1547.1-2003, ANSI/IEEE C62.41, FCC Part 15 A & B, NEC Article 690, C22. 2 No. 107.1-01 (September 2001) , UL1699B Issue 2 -2013, CSA TIL M-07 Issue 1 -2013	UL 1741-2015, UL1998 (for functions: AFCI, RCMU and isolation monitoring), IEEE 1547-2003, IEEE 1547.1-2003, ANSI/IEEE C62.41, FCC Part 15 A & B, NEC Article 690-2014, C22. 2 No. 107.1-01 (September 2001) , UL1699B Issue 2 -2013, CSA TIL M-07 Issue 1 -2013

PROTECTIVE DEVICES	STANDARD WITH ALL PRIMO MODELS
AFCI & 2014 NEC Ready	Yes
Ground Fault Protection with Isolation Monitor Interrupter	Yes
DC disconnect	Yes
DC reverse polarity protection	Yes

INTERFACES	STANDARD WITH ALL PRIMO MODELS
Wi-Fi*/Ethernet/Serial	Wireless standard 802.11 b/g/n / Fronius Solar.web, SunSpec Modbus TCP, JSON / SunSpec Modbus RTU
6 inputs or 4 digital inputs/outputs	External relay controls
USB (A socket)	Datalogging and/or updating via USB
2x RS422 (RJ45 socket)	Fronius Solar Net, interface protocol
Datalogger and Webserver	Included

*The term Wi-Fi® is a registered trademark of the Wi-Fi Alliance.

TECHNICAL DATA FRONIUS PRIMO

INPUT DATA	PRIMO 3.8-1	PRIMO 5.0-1	PRIMO 6.0-1	PRIMO 7.6-1	PRIMO 8.2-1
Recommended PV power (kWp)	3.0 - 6.0 kW	4.0 - 7.8 kW	4.8 - 9.3 kW	6.1 - 11.7 kW	6.6 - 12.7 kW
Max. usable input current (MPPT 1/MPPT 2)	18 A / 18 A	18 A / 18 A	18 A / 18 A	18 A / 18 A	18 A / 18 A
Total max. DC current	36 A				
Max. array short circuit current (1.25 Imax) (MPPT 1/ MPPT 2)	22.5 A / 22.5 A				
Operating voltage range	80 V - 600 V				
Max. input voltage	600 V				
Nominal input voltage	410 V	420 V	420 V	420 V	420 V
Admissable conductor size DC	AWG 14 - AWG 6				
MPP Voltage Range	200 - 480 V	240 - 480 V	240 - 480 V	250 - 480 V	270 - 480 V
Number of MPPT	2				

OUTPUT DATA		PRIMO 3.8-1	PRIMO 5.0-1	PRIMO 6.0-1	PRIMO 7.6-1	PRIMO 8.2-1
Max. output power	240 V	3800 W	5000 W	6000 W	7600 W	8200 W
	208 V	3800 W	5000 W	6000 W	7600 W	7900 W
Max. continuous output current	240 V	15.8 A	20.8 A	25.0 A	31.7 A	34.2 A
	208 V	18.3 A	24.0 A	28.8 A	36.5 A	38.0 A
Recommended OCPD/AC breaker size	240 V	20 A	30 A	35 A	40 A	45 A
	208 V	25 A	30 A	40 A	50 A	50 A
Max. Efficiency		96.7 %	96.9 %	96.9 %	96.9 %	97.0 %
CEC Efficiency	240 V	95.0 %	95.5 %	96.0 %	96.0 %	96.5 %
Admissable conductor size AC		AWG 14 - AWG 6				
Grid connection		208 / 240 V				
Frequency		60 Hz				
Total harmonic distortion		< 5.0 %				
Power factor (cos $\varphi_{ac,r}$)		0.85-1 ind./cap				

INPUT DATA	PRIMO 10.0-1	PRIMO 11.4-1	PRIMO 12.5-1	PRIMO 15.0-1
Recommended PV power (kWp)	8.0 - 12.0 kW	9.1 - 13.7 kW	10.0 - 15.0 kW	12.0 - 18.0 kW
Max. usable input current (MPPT 1/MPPT 2)	33.0 A / 18.0 A			
Total max. DC current	51 A			
Max. array short circuit current (1.25 Imax) (MPPT 1/MPPT 2)	41.3 A / 22.5 A			
Operating voltage range	80 V - 600 V			
Max. input voltage	600 V			
Nominal input voltage	415 V	420 V	425 V	440 V
Admissable conductor size DC	AWG 14 - AWG 6 copper direct, AWG 6 aluminum direct (AWG 10 copper or AWG 8 aluminium for overcurrent protective devices up to 60A, from 61 to 100A minimum AWG 8 for copper or AWG 6 aluminium has to be used), AWG 4 - AWG 2 copper or aluminum with optional input combiner			
MPP Voltage Range	220 - 480 V	240 - 480 V	260 - 480 V	320 - 480 V
Integrated DC string fuse holders	4- and 4+ for MPPT 1 / no fusing requried on MPPT 2			
Number of MPPT	2			

OUTPUT DATA		PRIMO 10.0-1	PRIMO 11.4-1	PRIMO 12.5-1	PRIMO 15.0-1
Max. output power	240 V	9995 W	11400 W	12500 W	15000 W
	208 V	9995 W	11400 W	12500 W	13750 W
Max. continuous output current	240 V	41.6 A	47.5 A	52.1 A	62.5 A
	208 V	48.1 A	54.8 A	60.1 A	66.1 A
Recommended OCPD/AC breaker size	240 V	60 A	60 A	70 A	80 A
	208 V	70 A	70 A	80 A	90 A
Max. Efficiency		96.7 %			
CEC Efficiency		96.0 %			96.5 %
Admissable conductor size AC		AWG 10 - AWG 2 copper (solid / stranded / fine stranded)(AWG 10 copper or AWG 8 aluminium for overcurrent protective devices up to 60A, from 61 to 100A minimum AWG 8 for copper or AWG 6 aluminium has to be used) , AWG 6 - AWG 2 copper(solid / stranded) MultiContactWiringable with AWG 12			
Grid connection		208 / 240 V			
Frequency		60 Hz			
Total harmonic distortion		< 2.5 %			
Power factor (cos $\varphi_{ac,r}$)		0-1 ind./cap.			

/ Perfect Welding / Solar Energy / Perfect Charging

WE HAVE THREE DIVISIONS AND ONE PASSION: SHIFTING THE LIMITS OF POSSIBILITY.

/ Whether welding technology, photovoltaics or battery charging technology – our goal is clearly defined: to be the innovation leader. With around 3,300 employees worldwide, we shift the limits of what's possible - our record of over 900 granted patents is testimony to this. While others progress step by step, we innovate in leaps and bounds. Just as we've always done. The responsible use of our resources forms the basis of our corporate policy.

Further information about all Fronius products and our global sales partners and representatives can be found at **www.fronius.com**

v05 May 2015 EN

Rev. 11.3.15 USA

Fronius USA LLC
6797 Fronius Drive
Portage, IN 46368
USA
pv-support-usa@fronius.com
www.fronius-usa.com

MISSOURI SUN SOLAR

CONTRACTOR

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PHONE: 417-413-1786

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INVERTER DATASHEET

(SHEET 11 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

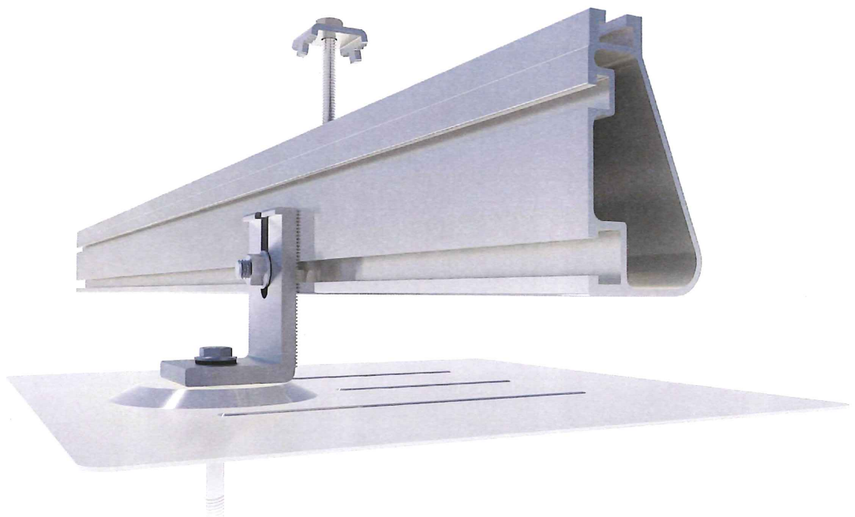
REVISIONS

R-002.00

Datasheet

IRONRIDGE

Roof Mount System



Built for solar's toughest roofs.

IronRidge builds the strongest roof mounting system in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.

Strength Tested
All components evaluated for superior structural performance.

PE Certified
Pre-stamped engineering letters available in most states.

Class A Fire Rating
Certified to maintain the fire resistance rating of the existing roof.

Design Software
Online tool generates a complete bill of materials in minutes.

Integrated Grounding
UL 2703 system eliminates separate module grounding components.

20 Year Warranty
Twice the protection offered by competitors.

Datasheet

XR Rails

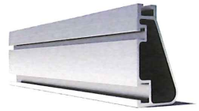
XR10 Rail

A low-profile mounting rail for regions with light snow.
- 6' spanning capability
- Moderate load capability
- Clear anodized finish

XR100 Rail

The ultimate residential solar mounting rail.
- 8' spanning capability
- Heavy load capability
- Clear & black anod. finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.
- 12' spanning capability
- Extreme load capability
- Clear anodized finish

Internal Splices

All rails use internal splices for seamless connections.
- Self-tapping screws
- Varying versions for rails
- Grounding Straps offered

Attachments

FlashFoot

Anchor, flash, and mount with all-in-one attachments.
- Ships with all hardware
- IBC & IRC compliant
- Certified with XR Rails

Slotted L-Feet

Drop-in design for rapid rail attachment.
- High-friction serrated face
- Heavy-duty profile shape
- Clear & black anod. finish

Standoffs

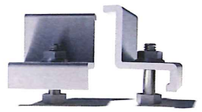
Raise flush or tilted systems to various heights.
- Works with vent flashing
- Ships pre-assembled
- Lengths from 3" to 9"

Tilt Legs

Tilt assembly to desired angle, up to 45 degrees.
- Attaches directly to rail
- Ships with all hardware
- Fixed and adjustable

Clamps & Grounding

End Clamps

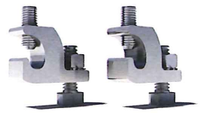


Slide in clamps and secure modules at ends of rails.
- Mill finish & black anod.
- Sizes from 1.22" to 2.3"
- Optional Under Clamps

Grounding Mid Clamps

Attach and ground modules in the middle of the rail.
- Parallel bonding T-bolt
- Reusable up to 10 times
- Mill & black stainless

T-Bolt Grounding Lugs



Ground system using the rail's top slot.
- Easy top-slot mounting
- Eliminates pre-drilling
- Swivels in any direction

Accessories

Provide a finished and organized look for rails.
- Snap-in Wire Clips
- Perfected End Caps
- UV-protected polymer

Free Resources

Design Assistant
Go from rough layout to fully engineered system. For free.
Go to IronRidge.com/rm

NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to IronRidge.com/training

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MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT WRITTEN PERMISSION FROM CONTRACTOR IS IN VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTIONS.

NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

RACKING DATASHEET

(SHEET 12 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

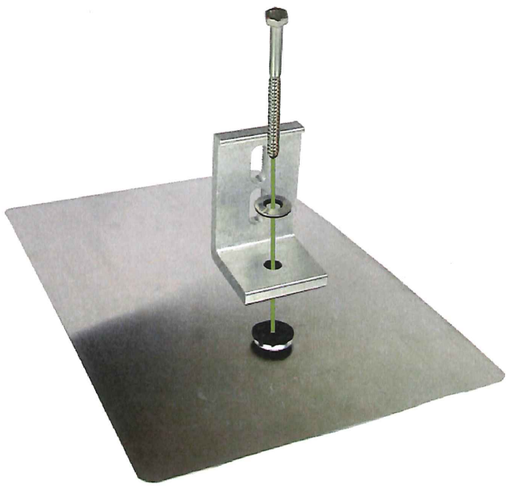
REVISIONS

R-003.00

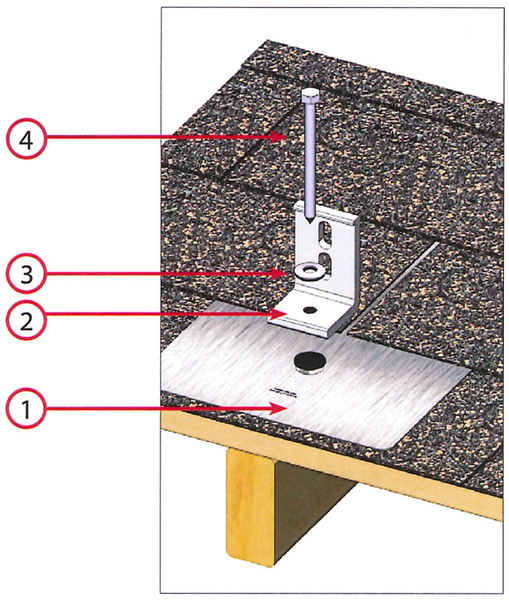
STEEP-SLOPE APPLICATIONS

GreenFasten™ GF1 PRODUCT GUIDE

Exploded Product View/B.O.M. – 1
Installation Instructions – 2
Cut Sheets – 3
Specifications – 4
Test Data – 5



EcoFasten Solar®



Materials Needed for Assembly

Item No.	Description of Material/Part	Quantity
1	GF-1 Flashing	1
2	L-102-3" Bracket * (other options available)	1
3	5/16" EPDM Bonded 304-18.8 SS Washer	1
4	Lag Bolt 5/16"	1

Required Tools

877-859-3947 EcoFasten Solar® All content protected under copyright. All rights reserved. 7/24/2014
EcoFasten Solar products are protected by the following U.S. Patents: 8,151,522 B2 8,153,700 B2 8,181,398 B2 8,166,713 B2 8,146,299 B2 8,209,914 B2 8,245,454 B2 8,272,174 B2 8,225,557 B2

R-004.00

REVISIONS

CHECKED BY: M.M.

DESIGN BY: N.K.

DATE: 11.30.2016

(SHEET 13 OF 14)

RACKING MOUNT DATASHEET

PAPER SIZE: 11" x 17" (ANSI B)

ENGINEER OF RECORD

NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

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CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

MISSOURI SUN SOLAR

Product Data Sheet

D222NRB

Safety Switch , 60A, Fusible, Cartridge (Class H, K or R), 2-Pole

SQUARE D by Schneider Electric

List Price $326.00 USD

Availability **Stock Item: This item is normally stocked in our distribution facility.**

Technical Characteristics

Terminal Type	Lugs
Type of Duty	General Duty
Maximum Voltage Rating	240VAC
Wire Size	#10 to #2 AWG(Al) #14 to #2 AWG(Cu)
Depth	4.83 Inches
Height	14.88 Inches
Width	6.63 Inches
Action	Single Throw
Ampere Rating	60A
Approvals	UL Listed File: E2875
Enclosure Rating	NEMA 3R
Enclosure Type	Rainproof and Sleet/Ice proof (Indoor/Outdoor)
Enclosure Material	Galvannealed Steel
Factory Installed Neutral	Yes
Fuse Type	Cartridge (Class H, K or R)
Disconnect Type	Fusible
Short Circuit Current Rating	100kA (max. depending on fuse type)
Mounting Type	Surface
Number of Poles	2-Pole

Shipping and Ordering

Category	00106 - Safety Switch, General Duty, 30 - 200 Amp, NEMA3R
Discount Schedule	DE1A
GTIN	00785901460640
Package Quantity	1
Weight	8.35 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.

Generated: 06/30/2010 15:53:57

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Schneider Electric

MISSOURI SUN SOLAR

CONTRACTOR

MISSOURI SUN SOLAR

PHONE: 417-413-1786

LIC. NO.: N/A

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NEW PV SYSTEM: 5.565 kWp

SHERMAN RESIDENCE

16481 FOREST PINE DR,
BALLWIN, MO 63011
APN: 23V621166

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

AC DISCONNECT DATASHEET

(SHEET 14 OF 14)

DATE: 11.30.2016

DESIGN BY: N.K.

CHECKED BY: M.M.

REVISIONS

R-005.00

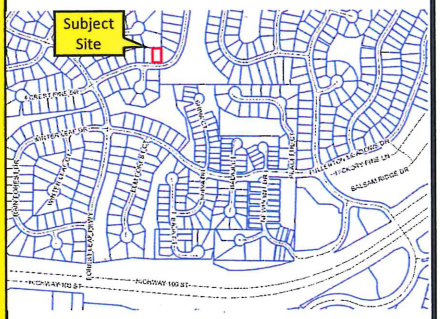
WILDWOOD

16860 Main Street
Wildwood, MO 63040

CITY OF WILDWOOD
NOTICE OF
PUBLIC HEARING
before the Planning and Zoning Commission
TUESDAY, January 17, 2017, at 6:30 p.m.

AS A RESIDENT OR PROPERTY OWNER NEAR THE SITE THAT IS IDENTIFIED ON THIS MAILER, THE CITY OF WILDWOOD WOULD LIKE TO ENSURE YOU ARE AWARE OF THIS REQUEST/PROPOSAL BECAUSE IT IS LOCATED WITHIN 1,500 FEET OF YOUR PROPERTY. YOUR COMMENTS ARE ENCOURAGED, ALONG WITH YOUR PARTICIPATION AT THE SCHEDULED HEARING OR MEETING. THIS ITEM IS SCHEDULED FOR DISCUSSION AND ITS OUTCOME MAY IMPACT YOUR HOME, NEIGHBORHOOD, OR AREA, SO PLEASE CAREFULLY READ THE DESCRIPTION AND PARTICIPATE AT YOUR DISCRETION. THE CITY OF WILDWOOD ENCOURAGES CITIZEN INPUT AT ALL OF ITS HEARINGS OR MEETINGS AND YOUR INVOLVEMENT WILL ASSIST IT IN REACHING THE BEST DECISION POSSIBLE FOR ALL PARTIES.

*** PLEASE SEE YELLOW BOX ON OPPOSITE SIDE OF THIS MAILER FOR A LIST OF WAYS TO EITHER COMMENT ON AND/OR TRACK THIS ITEM.**



Street Address of Subject Site:
16481 Forest Pine Drive

THE CITY WELCOMES AND ENCOURAGES YOUR COMMENTS AND PARTICIPATION IN ITS PUBLIC PROCESSES.
THANK YOU!

The Planning and Zoning Commission of the City of Wildwood will conduct a public hearing on **Tuesday, January 17, 2017, at 6:30 p.m., in the City Hall Council Chambers, 16860 Main Street, Wildwood, Missouri 63040** for the purposes of obtaining testimony regarding request(s) for either the modification of zoning district designations, application of special procedures, change in the underlying regulations of the Zoning Ordinance, action on Record Plats, update on zoning matters, or amendment of the Master Plan, which will then be considered for action. This hearing is open to all interested parties to comment upon this request, whether in favor or opposition, or provide additional input for consideration. If you do not have comments regarding this request, no action is required on your part. Written comments are requested to be submitted prior to this hearing and should be addressed to the Planning and Zoning Commission, City of Wildwood, 16860 Main Street, Wildwood, Missouri 63040 or via the City's website at **www.cityofwildwood.com/comment**. The following request will be considered at this time:

P.Z. 2-17 Craig Sherman, 16481 Forest Pine Drive, Wildwood, Missouri, 63011, c/o Missouri Sun Solar, Ryan Roller, 6724 South Highway 63, Houston, Missouri 65483 – A request for a Conditional Use Permit (CUP) in the R-3 10,000 square foot Residence District, with a Planned Environment Unit (PEU), for the installation of roof-mounted solar panels, which are to be placed on the dwelling, so as to be visible from the adjoining roadway. The subject property is located at 16481 Forest Pine Drive, Wildwood Missouri, 63011 (Locator Number 23V621166). This request is to be reviewed in accordance with Chapter 415.140 R-3 10,000 square foot Residence District Regulations of the City of Wildwood Zoning Code, which establishes standards and requirements for the installation of solar panels. The permit is required due to the panels' placement on the front facing area of the roof. **(Ward Five)**

RESIDENT OR PROPERTY OWNER - PLEASE COMMENT ON AND/OR TRACK THIS REQUEST BY:

1) Submitting a comment online by visiting: http://www.cityofwildwood.com/comment.
2) Submitting a written comment prior to the hearing and addressed to the Planning and Zoning Commission, City of Wildwood, 16860 Main Street, Wildwood, Missouri 63040.
3) Viewing the Planning and Zoning Commission's agenda, which is available on the City's website at: www.cityofwildwood.com, the Friday before the aforementioned meeting date.

If you should have any questions regarding this information, please feel free to contact the Department of Planning at (636) 458-0440. Thank you in advance for your interest in this matter.