INSTALL SOLAR ARRAY AND
FMS BATTERY STORAGE
CAMP CROWDER TRAINING SITE
NEOSHO, MISSOURI

OWNER:
STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR
MISSOURI NATIONAL GUARD
OFFICE OF THE ADJUTANT GENERAL
FACILITIES MANAGEMENT OFFICE

PROJECT MANAGEMENT:
OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION

DESIGNER: CROSSED SWORDS ENGINEERING
1279 W 71st Terr.
KANSAS CITY MO 64114
(816) 309-0099
Robert7721@aol.com
MO CERTIFICATE OF AUTHORITY #2016003099

PROJECT NUMBER: T1922-01
SITE NUMBER: 6260
ASSET NUMBER: 8136260001

SITE LOCATION MAP
REGIONAL LOCATION MAP

APPLICABLE CODES/STANDARDS
INTERNATIONAL BUILDING CODE (IBC) 2018
THE AMERICANS WITH DISABILITIES ACT (ADA) 2010
INTERNATIONAL MECHANICAL CODE (IMC) 2018
INTERNATIONAL PLUMBING CODE (IPC) 2018
ASHRAE 90.1 - 2016 ENERGY STANDARD FOR BUILDINGS
NATIONAL ELECTRIC CODE (NEC) 2017
Provide min. 2" insulation and heat trace per electrical drawing E-117 on HR and CW piping located outdoors between buildings.
GENERAL ELECTRICAL NOTES
1. PHOTOVOLTAIC (PV) SYSTEMS SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690.  THE CONTRACTOR SHALL INSTALL THE WEB MONITORING SOFTWARE ON AN EXISTING SYSTEM. THE NUMBER OF HOT SPOTS SHALL BE AS DETERMINED BY THE INSTALLATION CONTRACTOR. AT A MINIMUM, THREE WILL BE PROVIDED.

2. THE CONTRACTOR SHALL PROVIDE A WIRELESS MONITORING AND CONTROLS NETWORK. THE SOLAR INVERTERS SHALL BE PROVIDED WITH A DIGITAL DISPLAY AND INVERTER PERFORMANCE DATA AVAILABLE TO A REMOTE MONITORING SYSTEM. THE CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

3. PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS, OR AUTHORITY HAVING JURISDICTION. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A WRITTEN REQUEST FOR INFORMATION PROVIDING AN ALTERNATIVE OR SEEKING CLARIFICATION.

4. THE CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, ACCESSORIES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATION AS INDICATED ON THE DRAWINGS.

6. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

8. CONTRACTOR SHALL PROVIDE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

9. ONLY ONE CONNECTION TO AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (NEC 690.42).

10. THE CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

11. CONTRACTOR SHALL PROVIDE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

12. EACH INSTALLATION SHALL BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

13. CONTRACTOR SHALL PROVIDE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

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E-102 ELECTRICAL PLAN
BUILDING 106

1. ABANDONED SCALE REDRAWN TO 1"=1'
2. REWORK EXISTING, THEN REDRAWN
3. ADD ANY NEW ITEMS

INVERTER
PULL BOX
MAIN PANEL P

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CONSULTANTS
OFFICE OF THE ADJUTANT GENERAL
MISSOURI NATIONAL GUARD
FACILITIES DIVISION

CAMP CROWDER TRAINING SITE
890 RAY A. CARVER AVE.
NEOSHO MO 64850

SHEET TITLE: ELECTRICAL PLAN
BUILDING 106

ISSUE DATE: 3/12/2020
SHEET NUMBER: 1/8"=1'
SITE #: 6260
ASSET #: 1153600041
REVISIONS:
PROJECT #: T1922-01

CROSS-SECTIONS:

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CROSS-SECTIONS:
INVERTER

COMBINER BOX

PULL BOX

INVERTER

MAIN PANEL

BUILDING 820 ELECTRICAL PLAN
INSTALL GROUNDED (NEUTRAL) CONDUCTOR THE SAME SIZE AS THE LARGEST PHASE CONDUCTOR IF THE LIN-TO-NEUTRAL LOAD EXCEEDS 5% OF THE CONNECTED LOAD. IF THE NEUTRAL LOAD IS SMALLER, INSTALL THE NEC MINIMUM GROUNDED CONDUCTOR.

INSTALL GROUNDING ELECTRODE CONDUCTOR, SIZED BASED ON THE NEC TABLE 250-66 USING THE SERVICE PHASE CONDUCTOR SIZE, BUT NOT SMALLER THAN NO. 4.

INSTALL EQUIPMENT GROUNDING CONDUCTOR SIZED BASED ON NEC TABLE 250-122 USING THE FEEDER OVERCURRENT DEVICE SIZE.

INSTALL A "MAIN GROUND ELECTRODE GROUND BAR" FOR SINGLE POINT GROUNDING. LOCATED AT AN ACCESSIBLE POINT NEAR THE SERVICE ENTRANCE EQUIPMENT. MAKE CONNECTIONS TO THE GROUND ELECTRODE CONDUCTOR USING IRREVERSIBLE CONNECTORS OR EXOTHERMIC WELDS. MAKE OTHER CONNECTIONS TO THE GROUND BAR USING TWO-HOLE COMPRESSION SPADE LUGS THAT MEET IEEE 837 REQUIREMENTS. LABEL EACH CONNECTION TO THE GROUND BAR.

INSTALL A BONDING JUMPER WIRE THAT IS SIZED BASED ON NEC TABLE 250-66 USING THE SERVICE OR SEPARATELY DERIVED SYSTEM PHASE CONDUCTOR SIZE. BOND EACH PERIMETER STRUCTURAL STEEL COLUMN TO THE CONCRETE ENCASED MAIN GROUNDING ELECTRODE. USE COMPRESSION CONNECTORS THAT MEET IEEE 837 REQUIREMENTS OR USE EXOTHERMIC WELDS.

INSTALL GROUNDING ELECTRODE CONDUCTOR THAT IS SIZED BASED ON NEC TABLE 250-66 USING THE SEPARATELY DERIVED SYSTEM PHASE CONDUCTOR SIZE. INSTALL IRREVERSIBLE COMPRESSION CONNECTOR WITH TAMPERPROOF HARDWARE OR INSTALL EXOTHERMIC WELD.

GROUNDING DETAIL

NOT TO SCALE

GENERAL NOTES
1. CONDUCTOR SIZES SHOWN ARE MINIMUM AND MAY BE LARGER THAN THE MINIMUM SIZES REQUIRED BY THE NEC.
2. INSTALL GROUNDING CONNECTIONS TO THE BUILDING STRUCTURE AND WATER PIPES AT LOCATIONS THAT ARE VISIBLE AND ACCESSIBLE FOR INSPECTION, MAINTENANCE AND TESTING.
3. INSTALL AN INSULATED, THROAT GROUNDING BUSHING ON EACH METALLIC SERVICE ENTRANCE CONDUIT. BOND TO THE GROUND BUS USING CONDUCTORS THAT ARE SIZED BASED ON NEC TABLE 250-68 USING THE SERVICE PHASE CONDUCTOR SIZE.
4. INSTALL AN INSULATED THROAT GROUNDING BUSHING ON EACH METALLIC FEED CONDUIT. BOND TO THE GROUND BUS USING CONDUCTORS THAT ARE SIZED BASED ON NEC TABLE 250-122 USING THE FEEDER CIRCUIT OVERCURRENT DEVICE SIZE.
5. BOND HOT AND COLD WATER PIPING SYSTEMS.

120V/208/3Ø, SERVICE ENTRANCE EQUIPMENT.

METAL WATER PIPE WITHIN 5 FT. OF THE SERVICE ENTRANCE.

BUILDING STRUCTURAL STEEL.

1/0

METAL PIPING SYSTEMS IN AND ON THE STRUCTURE.

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CONSULTANTS
NOTES
1. SOLAR MODULE SUPPORTS SHALL BE BEAM SERIES TOP OF POLE MOUNTS BY MT SOLAR OR APPROVED EQUAL. BEAM SUPPORT POLES SHALL BE 8" SCHEDULE 40 GALVANIZED STEEL.

SOLAR PANEL SUPPORT DETAIL

NOTES
1. CONCRETE BASE AND REINFORCEMENT SHALL BE FOR DRAWING S-502 AND CONCRETE SPECIFICATIONS.
2. WHEN INSTALLING MULTIPLE POLES, CONFIRM ALIGNMENT BEFORE POUR.
3. ALLOW CONCRETE CURE BEFORE FINAL ASSEMBLY.
4. INITIAL TILT FOR ASSEMBLY SHALL BE 45 DEGREES. FINAL TILT ANGLE SHALL BE SET TO 30 DEGREES.

CONCRETE BASE SUPPORT DETAIL

NOTES
1. PREFORMED PULL BOXES SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. LIFT OPENING IS REQUIRED ON ALL COVERS.
3. ALL DIMENSIONS ARE NOMINAL.
4. IF EXTENSION ARE NEEDED, THEY SHALL BE COMPATIBLE AND FROM THE SAME MANUFACTURER.

POLYMER LOCK PULL BOX DETAIL

NOTES
1. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY AND ENSURE ALL UTILITY VERTICAL AND HORIZONTAL SEPARATION REQUIREMENTS ARE MET PRIOR TO DIGGING AND INSTALLATION.

PVC SLEEVE DETAIL

NOTES
1. CONDUCT AD SHOWN ON PLANS SEAL ALL SIDES.
2. 2 OR 2 CLEAN STONE DRAIN 12" MINIMUM
3. MATCH EXISTING 4" MIN. 6" MAX SAND BEDDING
4. WARNING TAPE & TRACER WIRED MATCH EXISTING
5. AS SHOWN ON PLANS SEAL ALL SIDES.
6. UNDER SIDEWALK 12" TRENCH WIDTH
7. UNDER STREET GUTTER 2" - 6"
8. UNDER DRIVEWAY/COMMERCIAL AREAS 12" MINIMUM
9. UNDER UNDER STREET GUTTER 12" MINIMUM
10. UNDER STREET GUTTER 2" - 6"
11. UNDER SIDEWALK 12" TRENCH WIDTH
12. UNDER DRIVEWAY/COMMERCIAL AREAS 12" MINIMUM
13. UNDER UNDER STREET GUTTER 12" MINIMUM
14. UNDER STREET GUTTER 2" - 6"
15. UNDER SIDEWALK 12" TRENCH WIDTH
16. UNDER DRIVEWAY/COMMERCIAL AREAS 12" MINIMUM
17. UNDER UNDER STREET GUTTER 12" MINIMUM
18. UNDER STREET GUTTER 2" - 6"
SITE CONDITIONS:

ASHRAE MAX AVG TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

VOC:

<table>
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<th>ID</th>
<th>QTY</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<td>4</td>
<td>1</td>
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<td>5</td>
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</table>

PV EQUIPMENT LIST

DESCRIPTION

- 6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
- AC COMBINING PANEL, 1P, WITH (2) 40 A CIRCUIT BREAKERS, NEMA 3R.
- PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
- NEW UTILITY NET METER

CONDUCTOR WIRE AND CONDUIT SCHEDULE

CONDUIT

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>IN CONDUIT TEMP RATING</th>
</tr>
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<tbody>
<tr>
<td>10 AWG PV WIRE</td>
<td>75°C</td>
</tr>
<tr>
<td>10 AWG THWN-2</td>
<td>75°C</td>
</tr>
<tr>
<td>8 AWG THWN-2</td>
<td>75°C</td>
</tr>
<tr>
<td>10 AWG</td>
<td>75°C</td>
</tr>
<tr>
<td>8 AWG</td>
<td>75°C</td>
</tr>
<tr>
<td>6 AWG</td>
<td>75°C</td>
</tr>
</tbody>
</table>

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.
SITE CONDITIONS:

ASHRAE MAX AVG TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

VOC:

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<td>4</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
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</tbody>
</table>

PV EQUIPMENT LIST

DESCRIPTION

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUCT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT, IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.
1. Solar modules included in design are rated quick connects with multiple contact fingers to allow for easy installation and removal. Do not remove the quick connects as doing so may impact the warranty of the module.

2. PV modules are wired in series. Module and racking grounding accomplished via continuous Cu conductor.

3. Modify existing electrical panel as required for the connection of inverter output power to the panel.

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**PV EQUIPMENT LIST**

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15 kW STRING INVERTER. 1 MPPT WITH 6 INPUT PAIRS PER MPPT. 208V, 3 PHASE OUTPUT, 60 HZ. FRONIUS SYMO MODEL 15.0-3 208</td>
</tr>
<tr>
<td>2</td>
<td>AC COMBINING PANEL, 150A, 3P, 4 W, WITH (3) 50 A CIRCUIT BREAKERS, NEMA 3R</td>
</tr>
<tr>
<td>3</td>
<td>PV AC DISCONNECT, 200A, 3 PHASE, NEMA 3R, SQUARE D324NRB</td>
</tr>
<tr>
<td>4</td>
<td>EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 800A</td>
</tr>
<tr>
<td>5</td>
<td>NEW UTILITY NET METER</td>
</tr>
</tbody>
</table>

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**SITE CONDITIONS:**

ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

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**PV MODULE OUTPUT**

<table>
<thead>
<tr>
<th>ID</th>
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<th>SUFFICIENT (W)</th>
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<tbody>
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<tr>
<td>11</td>
<td>6</td>
<td>52.8</td>
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**WIRE AND CONDUIT SCHEDULE**

<table>
<thead>
<tr>
<th>ID</th>
<th>CONDUCTOR</th>
<th>AMPACITY</th>
<th>MIN CONDUCT IN CONDUIT</th>
<th>TEMPERATURE RATING</th>
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<tbody>
<tr>
<td>12</td>
<td>6 AWG THWN-2</td>
<td>300A</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>13</td>
<td>4 AWG THWN-2</td>
<td>300A</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>14</td>
<td>2 AWG THWN-2</td>
<td>300A</td>
<td>2</td>
<td>50</td>
</tr>
</tbody>
</table>

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1. All exposed source circuit conductors shall be 600V rated PV-wire suitable for use with transformerless inverters.

2. All conduit to be per specifications unless otherwise required by local AHU.

3. All conductor sizes are based on minimum NEC close requirements.

4. Wire ampacity is based on number of wires per conduit. If conduits are installed differently than shown, wire sizes may be affected.
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

PV EQUIPMENT LIST

PV MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.

PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.

MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

ELECTRICAL ONE LINE DIAGRAM
BUILDING 405B

INVERTER DETAILS

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.

2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.

3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.

4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.
INVERTER #1
MPPT: 4 STRINGS OF 7 MODULES IN SERIES

TO CONTROLS MONITORING SYSTEM

SITE CONDITIONS:
ASHRAE MAX AVG TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC:

PV EQUIPMENT LIST
DESCRIPTION

15 kW STRING INVERTER. 1 MPPT WITH 6 INPUT PAIRS PER MPPT. 208V, 3 PHASE OUTPUT, 60 HZ. FRONIUS SYMO MODEL 15.0-3 208 NOT USED
PV AC DISCONNECT, 100A, 3 PHASE, NEMA 3R, SQUARE D323NRB EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 400A
NEW UTILITY NET METER

TEMPERATURE ADJUSTED VOC

<table>
<thead>
<tr>
<th>ID</th>
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<tbody>
<tr>
<td>1</td>
<td>6 AWG THWN-2</td>
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<td>75°C</td>
<td>75°C</td>
</tr>
<tr>
<td>2</td>
<td>6 AWG THWN-2</td>
<td>60</td>
<td>75°C</td>
<td>75°C</td>
</tr>
<tr>
<td>3</td>
<td>6 AWG THWN-2</td>
<td>60</td>
<td>75°C</td>
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1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
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4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUCT. IF CONDUCTS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

EXISTING MAIN SERVICE PANEL
MAIN BUSS: 400A

EXISTING UTILITY SERVICE

ELECTRICAL ONE LINE DIAGRAM
BUILDING 750

PV WIRE SCHEDULE

<table>
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<th>TEMPERATURE</th>
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<tbody>
<tr>
<td>1</td>
<td>6 AWG THWN-2</td>
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<td>75°C</td>
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<td>3</td>
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</tr>
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1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTIPLE CONTACT CONNECTING TONGUES THAT ARE WATER-RESISTANT AND MUST NOT COME IN CONTACT WITH RACKING OR ANY CONSTRUCTION MATERIALS THAT MAY BE PIERCED.
2. PV MODULES STRING IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

SITE NOTES
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTIPLE CONTACT CONNECTING TONGUES THAT ARE WATER-RESISTANT AND MUST NOT COME IN CONTACT WITH RACKING OR ANY CONSTRUCTION MATERIALS THAT MAY BE PIERCED.
2. PV MODULES STRING IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER DETAILS
RATED POWER OUTPUT (kW) 15.0
OUTPUT VOLTAGE (V) 208
OUTPUT CURRENT (A) 67.7

SOURCE CIRCUIT DETAILS
MODULES PER STRING 6
TRANSFORMER RATINGS (kVA) 0
**PV EQUIPMENT LIST**

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>385V STRING MONITORING UNIT</td>
</tr>
<tr>
<td>2</td>
<td>15 AMP CIRCUIT BREAKER</td>
</tr>
<tr>
<td>3</td>
<td>INVERTER TO MAIN SERVICE PANEL BOX</td>
</tr>
<tr>
<td>4</td>
<td>NEW GROUNDING ELECTRODE</td>
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</tbody>
</table>

**WIRE AND CONDUIT SCHEDULE**

<table>
<thead>
<tr>
<th>ID</th>
<th>CONDUCTOR</th>
<th>AMP</th>
<th>CONDUIT</th>
<th>TEMPERATURE</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>10 AWG WIRING</td>
<td>6 AMP</td>
<td>EGC</td>
<td>75°C</td>
<td>600V</td>
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<tr>
<td>02</td>
<td>6 AWG THWN-2</td>
<td>4 AMP</td>
<td>2 AWG</td>
<td>75°C</td>
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<tr>
<td>03</td>
<td>2 AWG</td>
<td>10 AMP</td>
<td>6 AWG</td>
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**SITE CONDITIONS**

<table>
<thead>
<tr>
<th>SITE NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SOLAR MODULES INCLUDE 600V RATED QUICK CONNECTS WITH MULTI CONTACT CROST COVERS | MATERIALS TO BE ACCURATELY SPECIFIED AND 3/4&quot; TUBING MAY NOT BE USED</td>
</tr>
<tr>
<td>2. PV MODULES STRING IN SERIES | MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR</td>
</tr>
<tr>
<td>3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.</td>
</tr>
</tbody>
</table>

**INVERTER DETAILS**

<table>
<thead>
<tr>
<th>INVERTER DETAILS</th>
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<tbody>
<tr>
<td>RATED POWER OUTPUT (W)</td>
</tr>
<tr>
<td>INPUT CURRENT (A)</td>
</tr>
<tr>
<td>MODULES PER STRING</td>
</tr>
<tr>
<td>MAXIMUM CURRENT OR DC</td>
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</table>

**SOURCE CIRCUIT DETAILS**

<table>
<thead>
<tr>
<th>SOURCE CIRCUIT DETAILS</th>
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</thead>
<tbody>
<tr>
<td>MAXIMUM CURRENT OR DC</td>
</tr>
</tbody>
</table>

**PV MODULE OUTPUT**

<table>
<thead>
<tr>
<th>PV MODULE OUTPUT</th>
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</thead>
<tbody>
<tr>
<td>TEMP.</td>
</tr>
<tr>
<td>TEMP. COEFFICIENT OF Voc</td>
</tr>
<tr>
<td>VOC</td>
</tr>
<tr>
<td>ISC</td>
</tr>
<tr>
<td>VMP</td>
</tr>
<tr>
<td>IMP</td>
</tr>
</tbody>
</table>

**CONDUCTOR SIZES**

<table>
<thead>
<tr>
<th>WIRE AND CONDUIT SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONDUCTOR</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>10 AWG WIRING</td>
</tr>
<tr>
<td>6 AWG THWN-2</td>
</tr>
<tr>
<td>2 AWG</td>
</tr>
</tbody>
</table>

**WEB SITE NOTES**

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

**CONTRACTOR**

CROSSED SWORDS ENGINEERING
1279 W 71st Terr.
KANSAS CITY, MO 64114
316-309-0099 Robert7721@aol.com
MO STATE CERTIFICATE OF AUTHORITY #2016003099
CONSULTANTS

STATE OF MISSOURI
MICHAEL L. PARSON
GOVERNOR
OFFICE OF THE
ADJUTANT GENERAL
MISSOURI NATIONAL GUARD
FACILITIES DIVISION

INSTALL SOLAR ARRAY AND PM DC BATTERY STORE

BUILDING 751 - 48 KW NOMINAL SOLAR ARRAY

Sheet Number: E-606

CAMP CROWDER
TRAINING SITE
890 RAY A. CARVER AVE.
NEOSHO, MO 64850

PROJECT # T1922-01
SITE # 6Z06
ASSET # 8136260001

DRAWN: Michael Lucas
CHECKED: Kyle Thompson
DESIGNED: Crossed Swords Engineering

3/12/2020

Sheet Title: BUILDING 751

Drawing Number: E-606.DWG

CROSSED SWORDS ENGINEERING
1279 W 71st Terr.
KANSAS CITY, MO 64114
(316) 309-0099
Robert7721@aol.com
MO STATE CERTIFICATE OF AUTHORITY #2016003099
CONSULTANTS
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

VOC:

<table>
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<tr>
<th>ID</th>
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<tbody>
<tr>
<td>1</td>
<td>64</td>
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</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
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</table>

PV EQUIPMENT LIST
DESCRIPTION

6 kW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT.
240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB.
NEW UTILITY NET METER

WIRE AND CONDUCTOR SCHEDULE

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>RATING</th>
<th>TEMPERATURE RATING</th>
<th>CIRCUIT</th>
</tr>
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<tbody>
<tr>
<td>10 AWG PV WIRE</td>
<td>75°C</td>
<td>75°C</td>
<td>INVERTER #1</td>
</tr>
<tr>
<td>10 AWG TWN-2</td>
<td>75°C</td>
<td>75°C</td>
<td>INVERTER #2</td>
</tr>
<tr>
<td>8 AWG TWN-2</td>
<td>75°C</td>
<td>75°C</td>
<td>INVERTER #3</td>
</tr>
</tbody>
</table>

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER DETAILS
RATED POWER OUTPUT (kW) 6
OUTPUT VOLTAGE (V) 580
OUTPUT CURRENT (A) 39
SOURCE CIRCUIT DETAILS
MODULES PER STRING 4
TRANSFORMER RATIOTRAN 390
SITE CONDITIONS:

ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

ID  QTY  DESCRIPTION
1  4  6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
2  1  AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
3  1  PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB.

NEW UTILITY NET METER

ID  QTY  DESCRIPTION
1  1  NEW UTILITY (NET) METER

CONDUCTOR SCHEDULE

<table>
<thead>
<tr>
<th>CONDUIT</th>
<th>EGC</th>
<th>10 AWG PV WIRE</th>
<th>10 AWG THWN-2</th>
<th>8 AWG THWN-2</th>
<th>10 AWG</th>
<th>8 AWG</th>
<th>1/2&quot;</th>
<th>3/4&quot;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10 AWG PV WIRE</td>
<td>10 AWG THWN-2</td>
<td>8 AWG THWN-2</td>
<td>10 AWG</td>
<td>8 AWG</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
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</table>

TEMPERATURE ADJUSTED VOC

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<thead>
<tr>
<th>VOC</th>
<th>ISC</th>
<th>IMP</th>
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<tbody>
<tr>
<td>48.4 Vdc</td>
<td>9.98 Adc</td>
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</tr>
<tr>
<td>39.9 Vdc</td>
<td>9.54 Adc</td>
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INVERTER DETAILS

<table>
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<tr>
<th>RATED POWER OUTPUT (kW)</th>
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<tbody>
<tr>
<td>INPUT VOLTAGE (V)</td>
<td>320</td>
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<tr>
<td>OUTPUT CURRENT (A)</td>
<td>30</td>
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PV MODULE OUTPUT

<table>
<thead>
<tr>
<th>MODULES PER STRING</th>
<th>4</th>
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<tbody>
<tr>
<td>SOURCE CIRCUIT DETAILS</td>
<td>1</td>
</tr>
<tr>
<td>MODULAR LINE TERMINAL</td>
<td>359</td>
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</table>

SHEET NOTES:

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUCT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

INVERTER #1

MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2

MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #3

MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #4

MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC:

ID | QTY | PV EQUIPMENT LIST
---|-----|-------------------
1  | 16  | 6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
2  | 24  | NOT USED
3  | 32  | PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
4  | 48  | NEW UTILITY NET METER

CONDUCTOR SCHEDULE

<table>
<thead>
<tr>
<th>CONDUIT SIZE</th>
<th>TEMPERATURE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>75°C</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>75°C</td>
</tr>
</tbody>
</table>

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTOR TO FACILITATE INTERCONNECTION OF MODULES. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.

PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.

MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC:

ID | QTY | PV EQUIPMENT LIST
---|-----|-------------------
1  | 16  | 6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
2  | 24  | NOT USED
3  | 32  | PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
4  | 48  | NEW UTILITY NET METER

CONDUCTOR SCHEDULE

<table>
<thead>
<tr>
<th>CONDUIT SIZE</th>
<th>TEMPERATURE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>75°C</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>75°C</td>
</tr>
</tbody>
</table>

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTOR TO FACILITATE INTERCONNECTION OF MODULES. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.

PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.

MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.
**SITE CONDITIONS:**

- **ASHRAE MAX AVG. TEMP:** 96.6°F
- **ASHRAE EXTREME MIN TEMP:** 8.5°F

**PV MODULE OUTPUT**

- **VOC:**
  - **ID:** 1
  - **QTY:** 1
  - **6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US**
  - **NOT USED**
  - **PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.**
  - **NEW UTILITY NET METER**

**CONDUCTORS**

- **IN CONDUIT**
  - **TEMPERATURE RATING**
    - **75C**
  - **CONDUCTOR**
    - **10 AWG PV WIRE**
    - **10 AWG THWN-2**
    - **8 AWG THWN-2**
  - **IN CONDUIT**
    - **TEMPERATURE RATING**
      - **75C**
  - **CONDUCTOR**
    - **6 AWG**

1. **ALL EXPLODED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.**
2. **ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.**
3. **ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.**
4. **WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED."
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC:
ID | CONDUCTOR |
---|------------|
1  | 48.4 Vdc   |
2  | 9.98 Adc   |
3  | 60.0 Vdc   |
4  | 39.9 Vdc   |
5  | 29.9 Vdc   |

INVERTER DETAILS
RATED POWER OUTPUT (kW) 6.0
RATED VOLTAGE OUTPUT (V) 240V
OUTPUT CURRENT MAX (A) 30A
SOURCE CIRCUIT DETAILS
MODULES PER STRING 6
TYPICAL LINE RESISTANCE 0.5Ω

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULAR INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST
ID | DESCRIPTION |
---|-------------|
1  | 64K W STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US |
2  | AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R. |
3  | PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB. |
4  | NEW UTILITY NET METER |

WIRE AND CONDUIT SCHEDULE
ID | CONDUCTOR | SIZE | AMPS | TEMP. COEFFICIENT OF VOC | OCCURRENCE |
---|------------|------|------|--------------------------|------------|
1  | PV WIRE    | 1 AWG | 120  | -0.30 %/°C                | 2          |
2  | PV WIRE    | 2 AWG | 120  | -0.30 %/°C                | 2          |
3  | PV WIRE    | 3 AWG | 120  | -0.30 %/°C                | 2          |
4  | PV WIRE    | 4 AWG | 120  | -0.30 %/°C                | 2          |
5  | PV WIRE    | 5 AWG | 120  | -0.30 %/°C                | 2          |
6  | PV WIRE    | 6 AWG | 120  | -0.30 %/°C                | 2          |
7  | PV WIRE    | 8 AWG | 120  | -0.30 %/°C                | 2          |
8  | PV WIRE    | 10 AWG| 120  | -0.30 %/°C                | 2          |
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC:

<table>
<thead>
<tr>
<th>ID</th>
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<tbody>
<tr>
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<td>33</td>
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</tr>
<tr>
<td>32</td>
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PV EQUIPMENT LIST
DESCRIPTION

6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
AC COMBINING PANEL, 1P, WITH (2) 40 A CIRCUIT BREAKERS, NEMA 3R.
PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
NEW UTILITY NET METER

CONDUCTOR SCHEDULE

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>IN CONDUIT</th>
<th>TEMPERATURE RATING</th>
<th>TEMP. COEFFICIENT OF Voc</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 AWG PV WIRE</td>
<td>6/3</td>
<td>75°C</td>
<td>-0.30% /°C</td>
</tr>
<tr>
<td>10 AWG THWN-2</td>
<td>6/3</td>
<td>75°C</td>
<td>-0.30% /°C</td>
</tr>
<tr>
<td>8 AWG THWN-2</td>
<td>6/3</td>
<td>75°C</td>
<td>-0.30% /°C</td>
</tr>
</tbody>
</table>

INVERTER DETAILS
RATED POWER OUTPUT (kW) | 6
OPERATING VOLTAGE (V) | 39.9 Vdc
OPERATING CURRENT (A) | 9.98 A
SOURCE CIRCUIT DETAILS

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRING FOR CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:

PV MODULE OUTPUT

<table>
<thead>
<tr>
<th>ID</th>
<th>CONNECTION</th>
<th>RATING</th>
<th>CURRENT</th>
<th>TEMP. COEFFICIENT</th>
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<tbody>
<tr>
<td>1</td>
<td>MPPT1: 1 STRING OF 9 MODULES IN SERIES</td>
<td>39.9 Vdc</td>
<td>9.98 A</td>
<td>-0.30% /°C</td>
</tr>
<tr>
<td>2</td>
<td>MPPT2: 1 STRING OF 9 MODULES IN SERIES</td>
<td>39.9 Vdc</td>
<td>9.98 A</td>
<td>-0.30% /°C</td>
</tr>
</tbody>
</table>
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

PV EQUIPMENT LIST

INVERTER #1
MPPT1: 1 STRING OF 9 MODULES IN SERIES
MPPT2: 1 STRING OF 9 MODULES IN SERIES

INVERTER #2
MPPT1: 1 STRING OF 9 MODULES IN SERIES
MPPT2: 1 STRING OF 9 MODULES IN SERIES

WIRE AND CONDUCT SCHEDULE

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

VOC:
ID | 1 | 2 | 3 | 4 | 5
QTY | 48 | 3 | 1 | 1 | 1

PV EQUIPMENT LIST

DESCRIPTION
6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US

AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.

PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D324NRB.

NEW UTILITY NET METER

CONDUCTORS

IN CONDUIT

INVERTER DETAILS

RATED POWER OUTPUT (kW)
OUTPUT VOLTAGE (V)
OUTPUT CURRENT MAX (A)

SOURCE CIRCUIT DETAILS

MODULES PER STRING
TRANSFORMER OUTPUT (VA)
SHORT CIRCUIT CURRENT (kA)

INVERTER #1
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #3
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTIONS FOR MODULAR INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.

2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.

3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

4. ALL CONDUCTORS INTERCONNECTED TO PANEL SHAL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.

5. ALL CONDUCTS ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.

6. WIRE AMPACITY IS BASED ON NUMBER OF WIRE PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

EQUIPMENT LEFT LINE IS (N) NEW UNLESS OTHERWISE NOTED.

EQUIPMENT RIGHT LINE IS (E) EXISTING UNLESS OTHERWISE NOTED.

TEMPERATURE ADJUSTED VOC

SHORT CIRCUIT CURRENT

INVERTER #1
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #3
MPPT1: 1 STRING OF 8 MODULES IN SERIES
MPPT2: 1 STRING OF 8 MODULES IN SERIES

BUILDING 885-888 - 18 KW NOMINAL SOLAR ARRAY

CIRCUIT BREAKERS 40A IN.

MAIN SERVICE 240/120 V, 120, SW MAIN BUS: 600

NEW UTILITY (NET) METER

GROUND ROD

GROUNDING ELECTRODE

TO UTILITY GRID (G)

EQUIPMENT LEFT LINE IS (N) NEW UNLESS OTHERWISE NOTED.

EQUIPMENT RIGHT LINE IS (E) EXISTING UNLESS OTHERWISE NOTED.
SITE CONDITIONS:

ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT

SHORT CIRCUIT CURRENT (ISC): 484 A
TEMPERATURE ADJUSTED VOC: 9.98 V
OPEN CIRCUIT VOLTAGE (VOC): 48.4 V

INVERTER DETAILS

RATED POWER OUTPUT (kW): 6
OUTPUT VOLTAGE (V): 240
OUTPUT CURRENT MAX (A): 30

SOURCE CIRCUIT DETAILS

MODULES PER STRING: 8
TRANSFORMER OUTPUT (kW): 6
SHUNT CIRCUIT OUTPUT: 1.5 kW

CONDUCTORS IN CONDUIT

TEMPERATURE RATING:

- 75°C
- 75°C
- 75°C

CONDUIT SIZES:

- 1/2" THWN-2
- 3/4" THWN-2

EQUIPMENT LEFT LINE IS (N) NEW
EQUIPMENT RIGHT LINE IS (E) EXISTING UNLESS OTHERWISE NOTED.

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE MIN. 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

PV EQUIPMENT LIST

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MAIN SERVICE PANEL 400A</td>
</tr>
<tr>
<td>2</td>
<td>NEW UTILITY NET METER</td>
</tr>
<tr>
<td>3</td>
<td>MAIN SERVICE PANEL 400A</td>
</tr>
<tr>
<td>4</td>
<td>AC DISCONNECT 60A</td>
</tr>
<tr>
<td>5</td>
<td>DC GROUNDING ELECTRODE</td>
</tr>
</tbody>
</table>
SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT:
VOC: 48.4 Vdc
ISC: 9.98 A
VMP: 39.9 Vdc
IMP: 9.54 A

INVERTER DETAILS:
RATED POWER OUTPUT (kW): 6
OUTPUT VOLTAGE (V): 240
OUTPUT CURRENT (A): 30

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULAR INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES, MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONNECTORS.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST

WIRE AND CONDUCT SCHEDULE

INVERTER DETAILS

SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT:
VOC: 48.4 Vdc
ISC: 9.98 A
VMP: 39.9 Vdc
IMP: 9.54 A

INVERTER DETAILS:
RATED POWER OUTPUT (kW): 6
OUTPUT VOLTAGE (V): 240
OUTPUT CURRENT (A): 30

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULAR INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES, MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONNECTORS.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST

WIRE AND CONDUCT SCHEDULE

INVERTER DETAILS

SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT:
VOC: 48.4 Vdc
ISC: 9.98 A
VMP: 39.9 Vdc
IMP: 9.54 A

INVERTER DETAILS:
RATED POWER OUTPUT (kW): 6
OUTPUT VOLTAGE (V): 240
OUTPUT CURRENT (A): 30

SITE NOTES:
1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULAR INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES, MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONNECTORS.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.
INVERTER #1

MPPT1: 1 STRINGS OF 9 MODULES IN SERIES

TO CONTROLS MONITORING SYSTEM

SITE CONDITIONS:
ASHRAE MAX AVG. TEMP: 96.6°F
ASHRAE EXTREME MIN TEMP: 8.5°F

PV MODULE OUTPUT
VOC: 48.4 Vdc
-0.30 %/°C
ISC: 9.98 Adc
VMP: 39.9 Vdc
IMP: 9.54 Adc

1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI-CONTACT CONNECTORS THAT PROTECT MODULES FROM DAMAGES. THE MODULES MUST NOT BE REMOVED WITHOUT THE QUICK CONNECTS. QUICK CONNECTS MAY BE REMOVED.
2. PV MODULES STRING IN SERIES. MODULE AND RACKING GROUNDING DAMAGED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

pv equipment list

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>18 kW STRING INVERTER. 2 MPPT WITH 1 INPUT PAIRS PER MPPT. 208V, 3 PHASE OUTPUT, 60 HZ. FRONIUS SYMO MODEL D322NRB</td>
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<tr>
<td>2</td>
<td>PV AC DISCONNECT, 60, 3 PHASE, NEMA 3R, SQUARE D322NRB</td>
</tr>
<tr>
<td>3</td>
<td>EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 600</td>
</tr>
<tr>
<td>4</td>
<td>NEW UTILITY NET METER</td>
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WIRE AND CONDUCT SCHEDULE

<table>
<thead>
<tr>
<th>ID</th>
<th>CONDUCTOR</th>
<th>WIRE</th>
<th>MIN</th>
<th>CONDUCT</th>
<th>TEMPERATURE</th>
<th>RATING</th>
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<tbody>
<tr>
<td>11</td>
<td>1 ANGLITY WIRE 8 AWG 208V 3PH 60HZ</td>
<td>4</td>
<td>35C</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>3 ANGLITY WIRE 8 AWG 208V 3PH 60HZ</td>
<td>4</td>
<td>35C</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>13</td>
<td>6 ANGLITY WIRE 8 AWG 208V 3PH 60HZ</td>
<td>4</td>
<td>35C</td>
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INVERTER DETAILS

<table>
<thead>
<tr>
<th>SITE CONDITIONS</th>
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<tbody>
<tr>
<td>PV MODULE OUTPUT</td>
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<tr>
<td>TEMP DEP. RATING</td>
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<tr>
<td>25°C</td>
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<tr>
<th>INVERTER DETAILS</th>
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<tbody>
<tr>
<td>RATED POWER OUTPUT</td>
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<tr>
<td>EFFECTIVE RATING %</td>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>SOURCE CIRCUIT DETAILS</th>
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<tbody>
<tr>
<td>MODULES PER STRING</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>TOTAL ARRAY VOLTAGE</td>
</tr>
<tr>
<td>480V</td>
</tr>
</tbody>
</table>

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUCT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUCT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRE PER CONDUCT, IF CONDUCTS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.
a. Embedding items are to be furnished and installed by the contractor. Contractor's responsibility to contact the architect or structural, electrical and mechanical drawings. In the event of any conflict between the drawings and specifications provided to the contractor, the contract documents shall govern.

b. All foundations and strip footings are designed to bear on non-reinforced concrete footings to comply with ASTM A780. Foundations and strip footings are designed to be used by the contractor to provide access to the concrete and to provide access to the concrete prior to placing concrete. An anchor rod shall be provided at the exterior for all wall and grade beam connections and intersections equal to horizontal bars.

c. Provide a minimum of 3" clearance between structural steel and grade beam connections and intersections equal to horizontal bars.

d. Structural steel shall be detailed, fabricated, and erected in accordance with the schedule for structural steel detailing and erection. beams and columns.

e. Structural steel shall be designed to meet the requirements of A.W.S. welded connections and shall be provided with all necessary access and egress for the purpose of inspection, testing, and maintenance.

f. All rebar shall be provided in accordance with ASTM A615, Grade 60, except welded rebar shall be provided in accordance with ASTM A706, Grade 50. All reinforcing steel shall be provided with all necessary access and egress for the purpose of inspection, testing, and maintenance.

g. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

h. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

i. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

j. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

k. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

l. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

m. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

n. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

o. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

p. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

q. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

r. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

s. All concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

3. Concrete:

a. Cast in place concrete construction shall conform to the layout, markers, and connections shown on the foundation plans, drawings, and specifications. The contractor shall be responsible for the accuracy of the concrete items shown on the foundation plans, drawings, and specifications. The contractor shall be responsible for the accuracy of the concrete items shown on the foundation plans, drawings, and specifications.

b. All concrete, unless otherwise noted, shall be detailed in accordance with the schedule for concrete detailing, installation, and testing. All concrete, unless otherwise noted, shall be detailed in accordance with the schedule for concrete detailing, installation, and testing.

c. Concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

d. Concrete shall be placed in accordance with the schedule for concrete placement. All concrete shall be placed in accordance with the schedule for concrete placement.

4. Reinforcing Steel:

a. Reinforcing steel shall be detailed, fabricated, and supported in accordance with the schedule for structural steel detailing and erection.

b. All reinforcing steel shall be designed to meet the requirements of A.W.S. welded connections and shall be provided with all necessary access and egress for the purpose of inspection, testing, and maintenance.

c. All reinforcing steel shall be designed to meet the requirements of A.W.S. welded connections and shall be provided with all necessary access and egress for the purpose of inspection, testing, and maintenance.

5. Miscellaneous:

a. Provide all access to the exterior for all wall and grade beam connections and intersections equal to horizontal bars.

b. Provide all access to the exterior for all wall and grade beam connections and intersections equal to horizontal bars.

6. Specifications:

a. All specifications shall be provided in accordance with the schedule for structural steel detailing and erection. All specifications shall be provided in accordance with the schedule for structural steel detailing and erection.

b. All specifications shall be provided in accordance with the schedule for structural steel detailing and erection. All specifications shall be provided in accordance with the schedule for structural steel detailing and erection.

7. Construction:

a. All construction shall be performed in accordance with the schedule for construction. All construction shall be performed in accordance with the schedule for construction.

b. All construction shall be performed in accordance with the schedule for construction. All construction shall be performed in accordance with the schedule for construction.

8. Inspection:

a. All inspection shall be performed in accordance with the schedule for inspection. All inspection shall be performed in accordance with the schedule for inspection.

b. All inspection shall be performed in accordance with the schedule for inspection. All inspection shall be performed in accordance with the schedule for inspection.

9. Documentation:

a. All documentation shall be provided in accordance with the schedule for documentation. All documentation shall be provided in accordance with the schedule for documentation.

b. All documentation shall be provided in accordance with the schedule for documentation. All documentation shall be provided in accordance with the schedule for documentation.

10. Delivery:

a. All delivery shall be performed in accordance with the schedule for delivery. All delivery shall be performed in accordance with the schedule for delivery.

b. All delivery shall be performed in accordance with the schedule for delivery. All delivery shall be performed in accordance with the schedule for delivery.

11. Payment:

a. All payment shall be performed in accordance with the schedule for payment. All payment shall be performed in accordance with the schedule for payment.

b. All payment shall be performed in accordance with the schedule for payment. All payment shall be performed in accordance with the schedule for payment.

12. Retention:

a. All retention shall be performed in accordance with the schedule for retention. All retention shall be performed in accordance with the schedule for retention.

b. All retention shall be performed in accordance with the schedule for retention. All retention shall be performed in accordance with the schedule for retention.

13. Audits:

a. All audits shall be performed in accordance with the schedule for audits. All audits shall be performed in accordance with the schedule for audits.

b. All audits shall be performed in accordance with the schedule for audits. All audits shall be performed in accordance with the schedule for audits.

14. Claims:

a. All claims shall be performed in accordance with the schedule for claims. All claims shall be performed in accordance with the schedule for claims.

b. All claims shall be performed in accordance with the schedule for claims. All claims shall be performed in accordance with the schedule for claims.
Structural Details
Foundations

Solar Panel Foundation - Spread Footing Option

- 3'-0" MIN T/GRADE
- 3/4" = 1'-0"

- 10'-0" MIN
- 1'-0" - 0" MAX
- 1'-0" - 0" TYP 3" CLR
- 10#9 VERT REINF #3 TIES @ 12" OC

- 3#3 TIES @ 3" OC
- (4) 1" DIA GALV ANCHORS w/ 2'-0" EMBEDMENT, MIN 8" DIA GALV STD (SCHED. 40) PIPE COLUMN
- COLUMN DIA 3' - 0"
- T/GRADE 3/4" = 1'-0"

- 16'-4" MAX WIDTH
- CAP PL 30°

- COLUMN AND BASEPLATE PER DETAIL
- 7'-0" TYP 3" CLR
- T/GRADE 7' - 0"
- 7#6 TOP AND BOT, EACH WAY
- HOOK TOP BARS

- HOOK TOP BARS
- SLOPE CONC AWAY FROM COLUMN 1/8" PER FOOT

- HOOK TOP BARS
- SLOPE CONC AWAY FROM COLUMN 1/8" PER FOOT

- Hook Top Bars
- Slope Conc AWAY FROM COLUMN 1/8" PER FOOT

- Hook Top Bars
- Slope Conc AWAY FROM COLUMN 1/8" PER FOOT

- Hook Top Bars
- Slope Conc AWAY FROM COLUMN 1/8" PER FOOT

- Hook Top Bars
- Slope Conc AWAY FROM COLUMN 1/8" PER FOOT