GRID ALTERNATIVES: Quality Control Checklist

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<th>SITE</th>
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<th>Date:</th>
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<th>Supervisor:</th>
<th>Signature:</th>
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<td>Homeowner:</td>
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<td>Address:</td>
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<td>Supervisor:</td>
<td>Signature:</td>
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**COMMISSIONING**
- Ambient Temp (°F): 
- Insolation (W/m²): 
- Actual Output (W): 
- CEC-AC Rating from EPBB/FIWS (W): 
- Expected Output* (W): 

- Verified EPBB
- Checked system output exceeds expected output
- Walked homeowner through inverter operation
- Discussed next steps with homeowner
- Checked that site is clean
- Turned system off

**ROOF TEAM ITEMS**

**RACKING**
- All roof attachments are tight
- Standoff screwed in tight to base
- Sealant applied to top of flashing
- All rail sections are grounded
- Excess rail is trimmed

**MICRO INVERTERS (IF APPLICABLE)**
- All inverters are firmly secured
- All inverter connections are tight and secured away from roof
- All inverters are grounded
- End cap is securely fastened

**MODULES**
- All module clamps are tight
- All module connections are tight
- All module grounding lugs are tight (if applicable)
- All WEEBs are oriented correctly (if applicable)
- All WEEB circular tabs completely under module frames (if applicable)
- All modules are grounded
- All module wiring is neatly secured away from roof
- No wires are pinched between modules and rails

**JUNCTION BOX**
- Line 3 is capped and appropriately insulated (MI ONLY)
- Array lines 1 & 2 are terminated to load side of switch (MI ONLY)
- Utility lines 1 & 2 are terminated to line side of switch (MI ONLY)
- Positive wire is connected to positive module lead(s)
- Negative wire is connected to negative module lead(s)
- All connections in junction box pass tug test
- Junction box fittings are tight
- Junction box cover (and switch if needed) are secured

**RACEWAYS**
- All conduit has been reamed
- All conduit fittings are tight
- All conduit is secured (3' from connector & every 10' for EMT)
- No kinks or cuts in conduit
- No more than 360° of bend between pulling points
- Outdoor fittings are used in wet and damp locations
- All conduit bodies are accessible
- All conduit bodies are closed
- Outdoor covers are used in wet and damp locations

MI = Micro-inverter. * Expected Output = CEC-AC Rating x Percentage from Field Verification Table
# GRID ALTERNATIVES: Quality Control Checklist

## GROUND TEAM ITEMS

### Raceways

- All conduit fittings are tight
- All conduit is secured (3’ from fittings and every 10’ for EMT)
- No kinks or cuts in conduit
- No more than 360° of bend between pulling points
- Outdoor fittings are used in wet and damp locations
- All conduit bodies are accessible
- All conduit bodies are closed
- Outdoor covers are used in wet and damp locations
- If conduit runs through exterior wall, holes have been caulked

### AC Disconnect

- Hot wires from utility terminated to line side (top)
- Hot wires from inverter terminated to load side (bottom)
- Neutral wire (if any) passes unbroken through disconnect
- Grounding wire (#8 or bigger) passes unbroken through disconnect
- Lock nuts and grounding bushings installed on both conduit fittings
- Set screws on grounding bushings are tight
- Disconnect is padlocked shut (if not integrated with inverter)

### Inverter

- Positive wire connects to + terminal
- Negative wire connects to – terminal
- Hot wire(s) (red and/or black) connect(s) to L1 and/or L2 terminals
- Neutral wire (if any) connects to AC neutral terminal
- Ground wires (green) connect to ground terminal (PE) and ground lug
- Lock nuts and grounding bushings installed on both conduit fittings
- Set screws on grounding bushings are tight
- Cover of inverter is secure with all screws and star washers
- Lock nuts and grounding bushings installed on both conduit fittings

### Wiring

- All connections pass the tug test
- All strands of wire are in terminations
- Wire is stripped so insulation is not in termination
- Exposed wire in termination is kept to a minimum
- Wire insulation is not scuffed or broken anywhere

### Electrical Panel & Labeling

- Circuit breaker is securely snapped in
- Lock nuts and grounding bushings installed on both conduit fittings
- Set screws on grounding bushings are tight
- Site diagram label is secured near meter
- AC disconnect is labeled
- DC disconnect is labeled
- Electrical panel is labeled

### Commissioning

- Polarity is correct (i.e. V between positive wire and ground is positive)
- AC Voltage at inverter is close to 240V
- DC Voc is close to expected value

**NOTE: IF SYSTEM HAS NOT BEEN PROPERLY COMMISSIONED, INVERTER (OR DISCONNECTS) SHOULD BE LOCKED IN THE OFF POSITION.**
<table>
<thead>
<tr>
<th>SERIAL NUMBERS</th>
<th>MODULES</th>
<th>INVERTERS</th>
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<td>Field Verification Output Table</td>
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For systems that have only one string connected to a single inverter or for systems using micro-inverters, the following applies:

1. Record Temperature and Irradiance as discussed in CSI Handbook [note: to be added in accordance with "Guidelines"]
2. Examine Field Verification Output (FVO) table for the percentage shown given the measured temperature and irradiance.
   Always round temperature up to the next block. So, 47 degrees rounds up to 55 degrees on the chart.
3. Multiply the CEC-AC (from EPBB printout) times the FVO percentage to get estimated system output.
4. Compare estimated system output with actual output. If actual system output is higher, system is operating within expectations.
   - If estimated output is higher, perform additional diagnostics and correct any issues as the system may not be performing properly.

For systems that have only one string connected to a single inverter or for systems using micro-inverters, the following applies: