**PROJECT INFORMATION**

**OWNER**
DESMOND BUTLER RESIDENCE  
3321 N St NW Washington, DC 20007

**SCOPE OF WORK**
RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION  
HANWHA Q.PEAK DUO BLK-G8+  
(58) x 360W = 20.880 KWdc @ STC  
(58) IQ7-60-2-US MICROINVERTERS

**BUILDING**
SINGLE FAMILY RESIDENTIAL

**CODES**
2017 DCMR 12A, DC BUILDING CODE AMENDMENTS  
2017 DCMR 12B, DC RESIDENTIAL CODE AMENDMENTS  
2017 DCMR 12C, DC ELECTRICAL CODE  
2017 DCMR 12H, DC FIRE CODE

**MODULE SPECS**
HANWHA Q.PEAK DUO BLK-G8+  
(L) 68.5 X (W) 40.8" X (H) 1.26"  
WEIGHT = 43.9 LBS  
COMBINED WEIGHT OF MODULES AND RACKING = 3.15PSF ± 0.5PSF

**CONTRACTOR**
REVOLUTION SOLAR  
10746 JUDY LANE  
COLUMBIA, MD 21044  
CONTACT: MATT YOUNG  
PHONE: 443-865-5039

**SITE AND ARRAY DETAILS**
FLAT ROOF, 2 x 8 RAFTERS @ SHINGLE ROOF, 2 x 8 RAFTERS @ 24" O.C., DF #2  
TILT: 2°, 12°  
AZIMUTH: 17°, 180°, 181°, 271°  
AREA OF ROOF (PLAN VIEW) = 4260 SF  
AREA OF NEW ARRAY = 1044 SF

**RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION @, , , DF #2**

TILT: 2°, 12°  
AZIMUTH: 17°, 180°, 181°, 271°  
AREA OF ROOF (PLAN VIEW) = 4260 SF  
AREA OF NEW ARRAY = 1044 SF

**CLIMATE DATA SOURCE:** WASHINGTON DC REAGAN AP, VA, USA, 38.87N, 77.03W  
ASHRAE EXTREME LOW: -12.3°C  
ASHRAE 2% HIGH: 36°C  
ASHRAE EXTREME HIGH: 40.9°C  
WIND SPEED: 115 MPH (ASCE7-10)  
RISK CATEGORY: II  
WIND EXPOSURE CATEGORY: B  
GROUND SNOW LOAD: 25 PSF

**NUMBER OF ARRAYS PROPOSED:** 5

<table>
<thead>
<tr>
<th>ARRAY DETAILS</th>
<th># OF MODULES</th>
<th>TILT</th>
<th>AZIMUTH</th>
<th>ARRAY HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRAY #1</td>
<td>8</td>
<td>2°</td>
<td>180°</td>
<td>1'-4&quot;</td>
</tr>
<tr>
<td>ARRAY #2</td>
<td>39</td>
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<tr>
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</tr>
<tr>
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<td>3</td>
<td>12°</td>
<td>271°</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td>ARRAY #5</td>
<td>5</td>
<td>12°</td>
<td>181°</td>
<td>0'-7&quot;</td>
</tr>
</tbody>
</table>

**NOTE:** MAX HEIGHT OF SYSTEM IS 1'-4" ABOVE FLAT ROOF  
NOTE: MAX HEIGHT OF SYSTEM IS 0'-7" ABOVE SHINGLE ROOF

**SYSTEM DC SIZE @ STC:** 20.880 kWdc  
**CMI7-60-2-US MICROINVERTERS**

**INDEX**

- G-1 COVER SHEET
- PV-1 SITE PLAN
- PV-2 FLAT ROOF LAYOUT
- PV-2.1 TILT ROOF LAYOUT
- PV-3 ELECTRICAL PLAN
- PV-4 SINGLE LINE DIAGRAM
- PV-5 LABELS
- PV-6 ELEVATION

**SATELLITE VIEW (SCALE: NTS)**
RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION

CONTRACTOR
REVOLUTION SOLAR
10746 JUDY LANE
COLUMBIA MD 21044
Ph: 443-865-5039        Contractor # 410518000062

DESMOND BUTLER RESIDENCE
3321 N St NW Washington, DC 20007
Ph:  
Square / Lot / Zoning: 4260, 5435, R3      PEPCO#: 1229 0137

SITE PLAN
SYSTEM AC SIZE @ STC: 13.500 kW
SYSTEM DC SIZE @ STC: 20.800 kW

(N) ARRAY #4
(N) ARRAY #5
(E) PROPERTY LINE
(E) METER (FIELD VERIFY LOCATION)
(E) PANEL (INTERIOR WALL)
AC DISCONNECT (EXTERIOR WALL)
AC LOAD CENTER (EXTERIOR WALL)

8" TRIM FASCIA BOARD TO BLOCK PANEL VISIBILITY

NOTE: CHECK WITH CITY/COUNTY OR LAND SURVEYOR FOR ACCURATE PROPERTY LOCATE.

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NOTES:
1. SOLAR STACK ATTACHMENT TYP.
2. 2 x 8 RAFTERS@ 24" O.C. TYP.
3. SOLAR STACK RAIL
4. 4' SET BACK, TYP.
5. NEW 8" TRIM FASCIA BOARD TO BLOCK PANEL VISIBILITY

GENERAL NOTES:
1. RAFTER LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS MAY DIFFER AND CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATIONS. IN NO CASE SHALL THE MOUNT SPACING EXCEED MAX. MOUNT SPACING.

EXAMPLE OF FASCIA BOARD BLOCKING VISIBILITY

SCALE: 1/16" = 1'-0"

FRAMING PLAN

SCALE: 1/16" = 1'-0"
NOTES:
1. IRONRIDGE FLASH FOOT2, TYP.
2. 2 x 8 RAFTERS@ 24" O.C. TYP.
3. IRONRIDGE XR10 RAIL
4. RIDGE
5. EAVE
6. 3'-0 SET BACK, TYP.

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NOTE: MAX HEIGHT OF SYSTEM IS 0'-7" ABOVE SHINGLE ROOF

FRAMING PLAN

SCALE: 1/8" = 1'-0"

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REVOLUTION SOLAR
10748 JUDY LANE
COLUMBIA MD 21044
Ph: 443-865-5039
Contractor #: 410518000062

DESMOND BUTLER RESIDENCE
Residential Grid Interactive Solar Installation
3321 N St NW Washington, DC 20007
Ph: Square / Lot / Zoning: 4260, 5435, R3
PEPCO#: 1229 0137

TILT ROOF LAYOUT

System AC Size @ STC-13.3kW
System DC Size @ STC-20.88kW
(s) HANWHA Q.PEAK DUO BLK-G8+ 360 MODULES OR EQUAL
(6) IQ7-60-2-US MICRO INVERTERS

Drawn by: Date: 06.14.2022

OFFICIAL USE

PE STAMP
ELECTRICAL PLAN

KEYED NOTES:
1. (N) AC DISCONNECT (EXTERIOR WALL)
2. (N) IQ7-60-2-US MICRO INVERTER (ARE LOCATED UNDERSIDE OF EACH MODULE AND ARE INSTALLED TO CONTINUOUS SUPPORT RAIL)
3. (N) ENPHASE IQ COMBINER+ W/ ENVOY
4. (N) PV MODULE
5. (E) METER (FIELD VERIFY LOCATION)
6. (E) SERVICE PANEL (INTERIOR WALL)

GENERAL NOTES:
1. CONDUIT AND WIRING IS DIAGRAMMATIC. FINAL ROUTING TO BE DETERMINED BY INSTALLER

SYSTEM AC SIZE @ STC: kW

SYSTEM DC SIZE @ STC: kW

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RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION

PE STAMP
### Voltage Drop Calculations

<table>
<thead>
<tr>
<th>Wire Run</th>
<th># of Mols</th>
<th>V (Volts)</th>
<th>I (Amps)</th>
<th>V(x) (%)</th>
<th>Wire Size</th>
<th>Raceway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch #1 to J-Box</td>
<td>14</td>
<td>240V</td>
<td>14A</td>
<td>50</td>
<td>1.11V</td>
<td>12 AWG</td>
</tr>
<tr>
<td>Branch #2 to J-Box</td>
<td>15</td>
<td>240V</td>
<td>15A</td>
<td>55</td>
<td>1.31V</td>
<td>12 AWG</td>
</tr>
<tr>
<td>Branch #3 to J-Box</td>
<td>15</td>
<td>240V</td>
<td>15A</td>
<td>55</td>
<td>1.31V</td>
<td>12 AWG</td>
</tr>
<tr>
<td>J-Box to IQ Combiner</td>
<td>15</td>
<td>240V</td>
<td>15A</td>
<td>60</td>
<td>1.43V</td>
<td>12 AWG</td>
</tr>
<tr>
<td>IQ Combiner to POI</td>
<td>50</td>
<td>240V</td>
<td>50A</td>
<td>10</td>
<td>0.14V</td>
<td>4 AWG</td>
</tr>
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</table>

### Module SPECS

<table>
<thead>
<tr>
<th>Module Make/Model</th>
<th>Pmax (W)</th>
<th>Voc (V)</th>
<th>Isc (A)</th>
<th>Imp (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.PEAKDUO BLK-G8+</td>
<td>360</td>
<td>41.19</td>
<td>10.84</td>
<td>10.33</td>
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### Inverter SPECS

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<tr>
<th>Enphase Model</th>
<th>Pmax (W)</th>
<th>Voc (V)</th>
<th>Isc (A)</th>
<th>Imp (A)</th>
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<tbody>
<tr>
<td>IQ7-60-2-US</td>
<td>240</td>
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