



Scott E. Wyssling, PE  
Jon P. Ward, SE, PE  
Gregory T. Elvestad, PE

76 North Meadowbrook Drive  
Alpine, UT 84004  
office (201) 874-3483  
swyssling@wysslingconsulting.com

July 25, 2022

Posigen Solar  
1600 Olden Avenue, Unit 10  
Ewing, NJ 08638

Re: Engineering Services  
Miller Residence  
8000 Pebble Drive, New Orleans LA  
8.300 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

**A. Site Assessment Information**

1. Site visit documentation identifying attic information including size and spacing of rafters for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.
3. The addition of solar panels will not exceed the height of the existing building
4. The outermost part of the solar panels will be less than 6 inches off the existing slope of the existing roof.

**B. Description of Structure:**

**Roof Framing:** Prefabricated wood trusses at 24" on center. All truss members are constructed of 2 x 4 dimensional lumber.  
**Roof Material:** Composite Asphalt Shingles  
**Roof Slope:** 23 degrees  
**Attic Access:** Accessible  
**Foundation:** Permanent

**C. Loading Criteria Used**

- **Dead Load**
  - Existing Roofing and framing = 7 psf
  - New Solar Panels and Racking = 3 psf
  - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 0 psf
- **Wind Load** based on ASCE 7-16
  - Ultimate Wind Speed = 144 mph (based on Risk Category II)
  - Exposure Category C

*Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2018 International Residential Code, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing rafters will support the additional panel loading without damage, if installed correctly.*

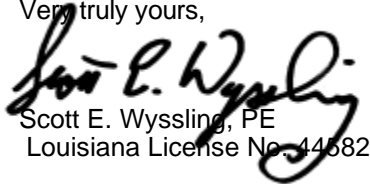
**D. Solar Panel Anchorage**

1. The solar panels shall be mounted in accordance with the most recent K-2 installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal force for a  $\frac{5}{16}$ " lag screw is 235 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on a minimum penetration depth of  $2\frac{1}{2}$ ", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using one  $\frac{5}{16}$ " diameter lag screw with a minimum of  $2\frac{1}{2}$ " embedment will be adequate and will include a sufficient factor of safety.
3. Considering the wind speed, roof slopes, size and spacing of the framing, and condition of the roof, the panel supports shall be placed no greater than 48" on centers.
4. Panel supports connections shall be staggered to distribute load to adjacent framing members.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2018 IRC, current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,

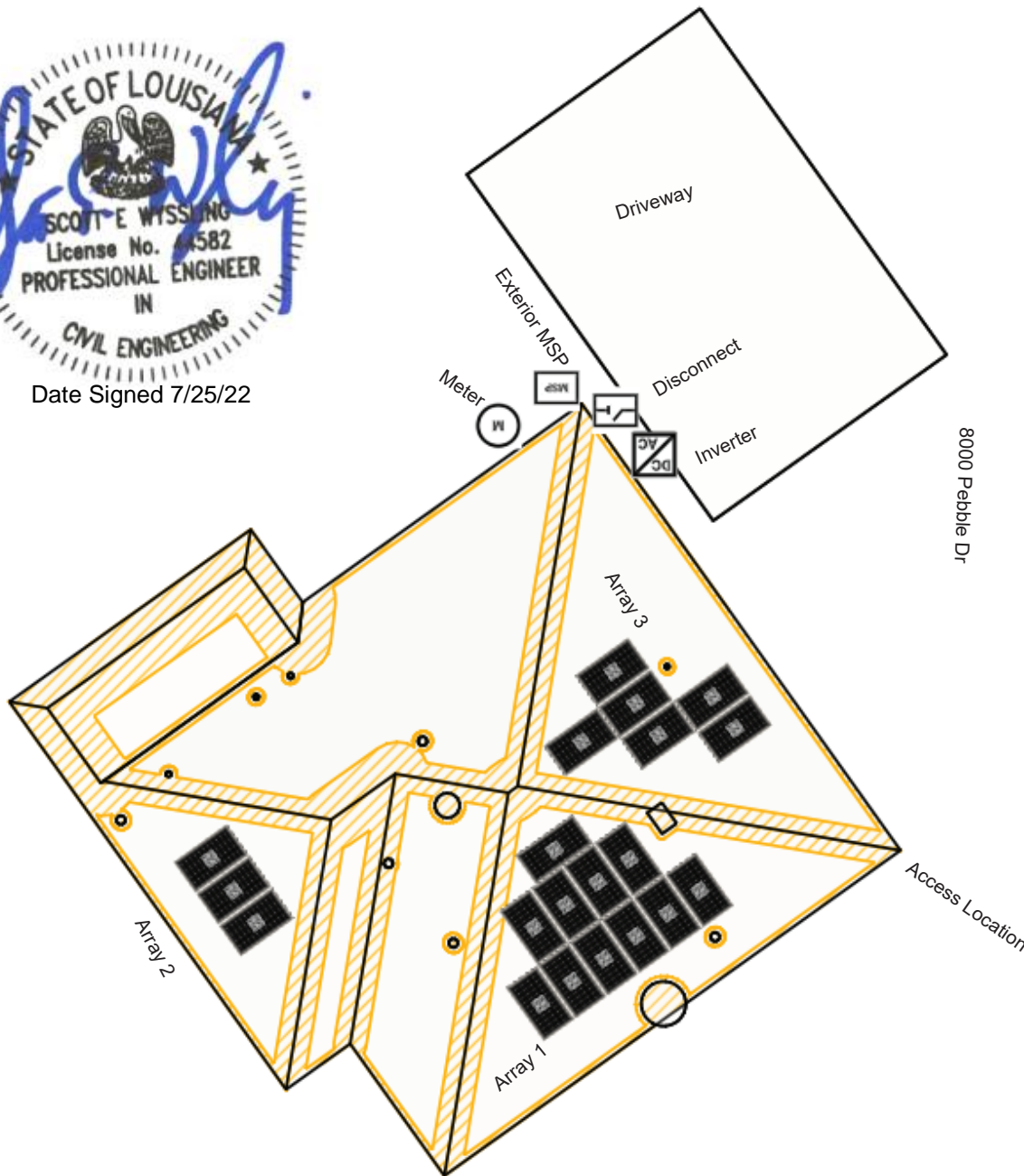
  
Scott E. Wyssling, PE  
Louisiana License No. 44582



Date Signed 7/25/22



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8.30 kW DC PV SYSTEM  
**Opp ID #190815**  
 8000 Pebble Dr.  
 New Orleans, LA 70128

Manufacturer	Model	Quantity
Canadian Solar Inc.	CS3N-415MS (1000V)	20
SolarEdge Technologies Inc.	S440	20
SolarEdge Technologies Inc.	SE7600H-US	1

**Array Information**

<u>Array</u>	<u>Modules</u>	<u>Tilt</u>	<u>Azimuth</u>
1	11	23	144
2	03	23	234
3	06	23	54

Date Drawn: July 2nd, 2022  
 Drawn By: Shivam Kumar  
 Revision Number :

**Setbacks Applied**

Ridge: 36"  
 Rake: 36"  
 Valley: 18"  
 Hip: 18"  
 Eave: 6"

Contractor is responsible for verifying all on-site conditions and measurements, complying with local and national code requirements and manufacturers' manuals.