

# Structural Capacity, PC

STRUCTURAL CONSULTING GROUP

North Carolina Firm License Number – C3406



July 23, 2021

Titan Solar Power NC, Inc.  
525. W. Baseline Road  
Mesa, AZ 85210

Re: Howard, William – TSP87738 (SCPC Project No. – 2021.26.14890)  
698 Highgrove Drive  
Spring Lake, NC 28390

Titan Solar Power NC:

At the request of Titan Solar Power NC, Structural Capacity, PC (SCPC) has evaluated the roof structure at the above noted site to determine its adequacy to support the attachment of roof mounted solar arrays. The roof structure is composed of wood sheathing supported by 2x6 wood rafters at 12" o.c. The maximum rafter span does not exceed approximately 15'-7".

#### **Design Criteria:**

- Ground Snow Load = 10psf
- Wind speed (Ultimate) = 120mph
- Risk Category = II / Wind Exposure B
- PV module Dead Load = 3.5psf (max)
- PV Module Count = 65

Each panel will be supported by (2) mounting rails, (1) at each end. The mounting legs of the solar panel railing will be attached directly to the rafters with a 5/16 (min) inch diameter lag screw. The installer shall use best practice construction methods to locate the lag screw in the center of each rafter. All wood members supporting PV modules should consist of sound lumber without significant signs of deterioration.

The mounting legs of the solar panel racking system shall be located at 6'-0" o.c. maximum. The mounting legs should be staggered at the primary framing member spacing (2'-0") at adjacent solar panel rails. The maximum rail cantilever span should be limited to 1'-4".

The existing roof structure at the above referenced site is adequate to support the solar panel loadings, as noted above, per the 2018 North Carolina Residential Code, if installed

in accordance with the above stated conditions. The adequacy of the solar panels and solar racking system are outside the scope of this letter and to be provided by solar panel and racking manufacturer, if required.

If any conditions are found in conflict with those stated above, SCPC should be made aware immediately for re-evaluation and report amendment, as applicable, before proceeding with solar panel installation.

Sincerely,

Structural Capacity, PC



Adrian S. Durham, PE, SE



Adrian  
Durham

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Adrian Durham  
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