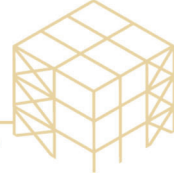


Structural Capacity, PC

STRUCTURAL CONSULTING GROUP

North Carolina Firm License Number – C3406



June 22, 2023

ReNu Energy Solutions
801 Pressley Road – Suite 100
Charlotte, NC 28217

Re: Miller, William (SCPC Project No. – 2023.11.2820)
626 Bailey Road
Coats, NC 27521

ReNu Energy Solutions:

At the request of ReNu Energy Solutions, Structural Capacity, PC (SCPC) has evaluated the roof structure (panels installed on (2) separate roof plane framing configurations) at the above noted site to determine its adequacy to support the attachment of roof mounted solar arrays.

Roof Planes Framing Layouts:

Roof Plane 1

- Asphalt Shingles
- 2x8 rafters at 24" o.c.
- Maximum Span: Not to exceed 13'-11"

Roof Plane 2

- Metal Roofing
- Rib Spacing at 9" o.c.
- 2x8 rafters at 16" o.c.
- Maximum Span: Not to exceed 17'-1"

Design Criteria:

- Ground Snow Load = 15psf
- Wind speed (Ultimate) = 120mph
- Risk Category = II / Wind Exposure B
- PV module Dead Load = 3.5psf (max)
- PV Module Count = 57 (total)

Each panel will be supported by (2) mounting rails, (1) at each end. All wood members supporting PV modules should consist of sound lumber without significant signs of deterioration.

The mounting legs of the solar panel railing will be attached directly to each primary framing member with a 5/16 inch (min) diameter lag screw at Roof Plane 1. The installer shall use best practice construction methods to locate the lag screw in the center of each primary framing member. 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 at adjacent solar panel rails. The maximum rail cantilever span should be limited to 1'-4".

The mounting legs of the solar panel railing at Roof Plane 2 will be attached directly to the metal roof with S-5! Protea Brackets. The brackets shall be located at 3'-0" o.c. (max). The mounting legs should be staggered at the metal roof seam spacing. The maximum rail cantilever span should be limited to 1'-0".

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 racking system are outside the scope of this letter and to be provided by solar panel and racking manufacturer, if required.

The roof conditions stated above should be field verified, by the installer, prior to construction. 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

