



September 20, 2021

**PowerHome Solar**

919 N. Main St  
 Mooresville, NC 28115

RE Schaffer Residence  
 521 Sawyer Road , CAmeron , NC 28326  
 Client Project #:521SCHA  
 PFE Project #: 213932

On behalf of PowerHome Solar, Penn Fusion Engineering LLC (PFE) performed a structural analysis of the roof at the above referenced location. The purpose of our analysis was to determine if the existing roof system is structurally sufficient to support the new photovoltaic moudles in addition to the code required design loads. Information used for this analysis was determined by a site survey performed by a representative of PFE.

**System Specifications**

Panel Specs: (15) Hanwha - Q Cells  
 Racking System: Quick Mount PV - QRail Light

The modules are to be located on the following roof planes:

Roof Planes						
Mounting Plane	Member Size	Member Spacing	Horizontal Span	Sheathing	Roofing Type	Roofing Layers
1	Truss	24"	24'-12"	CDX 1/2"	Asphalt Shingles	1
2	Truss	24"	24'-12"	CDX 1/2"	Asphalt Shingles	1

Design Criteria		
Building Code(s)	Ground Snow P <sub>g</sub>	Wind Speed V
<ul style="list-style-type: none"> <li>ASCE 7-16</li> <li>North Carolina Residential Code 2018</li> </ul>	10 psf	118 mph

Analysis Results			
Mounting Plane	Attachment Hardware	Max Attachment Spacing	Pass/Fail
1	5/16" lag bolts	48"	Pass
2	5/16" lag bolts	48"	Pass

This office has determined that the installation of the PV System as specified above will meet the structural requirements of the above referenced codes when installed in accordance with the manufacture's instructions.

If you have any questions regarding this analysis, please feel free to contact us.

Best Regards,  
Penn Fusion Engineering, LLC

Andrew D. Leone, P.E.  
Principal

