December 3, 2021

PowerHome Solar
919 N. Main St
Mooresville, NC 28115

RE Hooker Residence
685 Coachman Way, Sanford, NC 27332
Client Project #:685HOOK
PFE Project #: 215072

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: (30) 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	2x8	16"	15'-2"	CDX 1/2"	Asphalt Shingles	1
2	2x8	16"	14'-4"	CDX 1/2"	Asphalt Shingles	1
3	2x8	16"	14'-4"	CDX 1/2"	Asphalt Shingles	1
4	2x8	16"	14'-4"	CDX 1/2"	Asphalt Shingles	1

Design Criteria		
Building Code(s)	**Ground Snow P_g**	**Wind Speed V**
• ASCE 7-16 • North Carolina Residential Code 2018	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
3	5/16" lag bolts	48"	Pass
4	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

*.pennfusioneng.com

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