

May 9, 2024

Lunex Power

6824 S Manhattan Ave
 Tampa , FL 33616

RE Raper Residence

185 Irene Ln, Lake City, FL 32055

Client Project #:185Rape

PFE Project #: 241914

Revision: A - June 11, 2024 Updated attachment spacing

On behalf of Lunex Power, 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 modules in addition to the code required design loads. Our analysis is based on the information provided by Lunex Power and is limited only to the areas where the modules are intended to be placed.

System Specifications

Panel Specs: (33) Hanwha - Q.PEAK DUO BLK ML-G10+/t 400W

Racking System: K2 - 44-X

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"	30'-1"	CDX 1/2"	Metal Corrugated	1
2	Truss	24"	30'-1"	CDX 1/2"	Metal Corrugated	1
3	Truss	24"	30'-1"	CDX 1/2"	Metal Corrugated	1

Design Criteria		
Building Code(s)	Ground Snow P _g	Wind Speed V
<ul style="list-style-type: none"> • 2020 NEC • 2023 Florida Building Code • 2023 Florida Residential Code • ASCE 7-16 	0 psf	120 mph

Analysis Results			
Mounting Plane	Attachment Hardware	Max Attachment Spacing	Rafter Pass/Fail
1	Roof Tech RT Mini (OSB)	24"	Pass
2	Roof Tech RT Mini (OSB)	24"	Pass
3	Roof Tech RT Mini (OSB)	24"	Pass

This roof is constructed on a mobile/manufactured home on a permanent foundation. This roof was analyzed by comparing the maximum flat roof snow load of 0 psf plus the solar panel loading of 2.5 psf verse the manufacturer's posted design roof loading of 20 psf. Further, per section 1607.13.15.1 of the IBC, live load does not need to be considered where photovoltaic panels are placed. Comparing the dead load of the panels (2.5 psf) to the removal of the live load (20 psf) yields a reduction in design load. Since the design load is greater than the combined snow load and solar panel load and the reduced live load, it is the opinion of this office 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.

Based on the uplift calculations, do not place panels on zone 2 and zone 3 of the roof.

Maximum Attachment spacing for Zone 1 = 28"

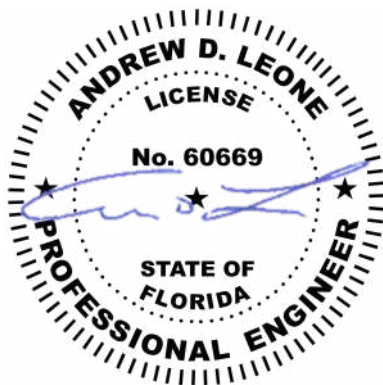
Maximum Attachment spacing for Zone 2 = 17"

Maximum Attachment spacing for Zone 3 = 14"

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



06/11/2024

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