



152 S. Broad St.
Lansdale, PA 19446
(215)361-8040

June 13, 2018

Sunrun Inc.
15 Charlotte Ave
Hicksville, NY 11801

RE: Wang Residence
48-48 207th St, Oakland Gardens, NY 11364
Client Project #: 216R-048WANG
PFE Project #: 182655

On behalf of Sunrun Inc., 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 Sunrun Inc. and is isolated only to the areas where the modules are intended to be placed.

System Specifications:
Total System Size: 3.77 kW/DC
Panel Specs: (13) Rec - REC290TP
Inverter Specs: (1) Solar Edge - SE3800A-US
Racking System: SnapNRack - Series 100 UL

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

Mounting Plane	Rafter Size	Rafter Spacing	Horizontal Span	Collar Ties	Collar Tie Spacing	Sheathing	Shingle Type	Number of Shingle Layers	Ceiling Profile
1	2x6	16"	13ft. 1in.	N/A	0"	CDX 1/2"	Asphalt Shingles	1	Flat
2	2x6	16"	13ft. 1in.	N/A	0"	CDX 1/2"	Asphalt Shingles	1	Flat

The roof design has been analyzed in accordance with the 2015 International Residential Code with the 2017 New York State Code Supplement with design loads as follows:

Ground Snow (Pg): 25 psf
Wind Speed (V): 98 mph

Mounting Plane 1

The calculations for these structural members are attached. It has been determined by this office that the roof, as specified above, is adequate to support the new PV modules in addition to the code required design loading.

Attach the module rail brackets to the roof with 5/16" lag bolts at 48 on center maximum. Provide a minimum of 2" of penetration into the wood members.

Mounting Plane 2

The calculations for these structural members are attached. It has been determined by this office that the roof, as specified above, is adequate to support the new PV modules in addition to the code required design loading.

Attach the module rail brackets to the roof with 5/16" lag bolts at 48 on center maximum. Provide a minimum of 2" of penetration into the wood members.

This office has determined that the installation of the PV System as specified above will meet the structural requirements of the 2015 International Residential Code with the 2017 New York State Code Supplement and ASCE7-10 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

