



9/12/2024

Freedom Forever LLC  
43445 Business Park Dr., Suite 110  
Temecula, CA 92590

Job Number: 498387  
Project Name: Shataca Hicks  
Project Address: 237 Beacon Hill Road  
City: Lillington  
State: NC

**Design Criteria:**

Applicable Code = ASCE 7-16  
Design Wind Speed = 130 mph (3 Second Gust)  
Exposure Category = C  
Ground Snow Load = 15 psf  
Module Type = SILFAB SOLAR: SIL-430QD  
Module Quantity = 16

To whom it may concern,

The above mentioned residential rooftop solar project has been designed to the specifications shown above. The team at Freedom Forever LLC has visited the site to observe the roof and its framing as well as gather other required information for the project. During this observation they did not see any signs of damage or distress to the roof structure which would preclude solar from being installed. Based on that review and the information provided, the calculations on the following pages were completed to determine the adequacy of the roof framing as well as the allowable attachment spacing for the PV panels. The calculations show that the roof can support the proposed PV system.

Sincerely,

A handwritten signature in blue ink, appearing to read "Taqi", is written over a light blue horizontal line.

Taqi Khawaja, PE  
Freedom Forever LLC





**Down Force**

Mounting Plane	1		2		3		4		5	
Module Location	EM	IM	EM	IM	EM	IM	EM	IM	EM	IM
D+S (psf)	10.43	10.43								
D+06W (psf)	11.06	8.30								

Mounting Plane	6		7		8		9		10	
Module Location	EM	IM	EM	IM	EM	IM	EM	IM	EM	IM
D+S (psf)										
D+06W (psf)										

**Lateral Parallel to Roof**

Mounting Plane	1	2	3	4	5
D+S (psf)	4.43				

Mounting Plane	6	7	8	9	10
D+S (psf)					

**Framing Check**

Lumber Species: DF

PV Load = 3 psf

Mounting Plane	1	2	3	4	5
Framing Size	2x4				
Framing Spacing (in)	24				
Span (ft)	7				
Moment (lb-ft)	213				
Shear (lbs)	122				
% Stressed	47%				
Upgrade Size	NA				
New % Stressed	NA				

Mounting Plane	6	7	8	9	10
Framing Size					
Framing Spacing (in)					
Span (ft)					
Moment (lb-ft)					
Shear (lbs)					
% Stressed					
Upgrade Size					
New % Stressed					



**Array Attachment Spacing**

Module Model = SILFAB SOLAR: SIL-430QD

Module Quantity = 16

Mounting Plane	1	2	3	4	5
Attachment Type	Ecofasten RockIt Smart Slide				
Lag Count Per Attachment	2				
Min Lag Embedment (in)	2				
Landscape Max Spacing (in)	72				
Portrait Max Spacing (in)	48				

Mounting Plane	6	7	8	9	10
Attachment Type					
Lag Count Per Attachment					
Min Lag Embedment (in)					
Landscape Max Spacing (in)					
Portrait Max Spacing (in)					