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## STRUCTURAL CERTIFICATION for SOLAR PANEL INSTALLATION

To the Harnett County Plan Reviewer:

May 31, 2019

Blue Raven Solar proposes to install new roof-mounted solar panels at this residence. This letter summarizes the methods used to survey, to evaluate, and to certify the existing structure for the additional weight of the panels and equipment. The work referenced herein was performed under the direction of the Engineering Department and was supervised by the Professional Engineer in Responsible Charge of the structural certification and scope of work.

Site Survey: The existing structure was surveyed by Field Technicians from Blue Raven Solar. A survey report is available upon request.

Structure:      Condition:      Like New – Built 2017 (2 years old)  
                    Finishes:      Composition Shingles & Vinyl Siding  
                    Type:              Wood - Rafters Collar-tied  
                    Sheathing:      Wood - OSB & no Board Sheathing

Solar PV:      Panel Layout:      (see certified Permit Pack)  
                    Rails:              (see certified Permit Pack)  
                    Standoffs:      Spacing = 72" o/c (max) – staggered pattern  
                    Attachment:      5/16" Ø lag-screw with 2.5" embed (min) into framing

Evaluation:      Using the survey information, the existing structure was evaluated by our Engineering Department. Structural calculations are available upon request.

Building Code:	2018 NSBC	
Snow Loads @ 284 feet:	$p_g = 15$ psf (ground)	$p_s = 10.5$ psf (sloped roof)
Wind Speed & Exposure:	$V_u = 116$ mph	Exp. = C
Seismic Design Category:	B	Risk Category 2
Qualification Method:	Structural Analysis	
Retrofits Required:	None Required	

Certified By: **Ryan Hillstrom**, PE in Responsible Charge of Structure

Based on the results of this evaluation, and on my professional experience and judgment, I certify that the existing structure should adequately support the additional weight of the new solar panels and equipment without structural retrofits (see above). Panels are only allowed on the mounting planes qualified herein, at the locations, in the configurations, and according to the installation specifications provided on the certified Permit Pack.