BARUN CORP

February 9, 2024

Dear Whom It May Concern,

Project Name : LOURDES VALIDO, 212 SOUTHWEST WILSHIRE DRIVE, LAKE CITY, FL 32024

Installation of a 10.395 kW (DC) Rooftop PV Solar System

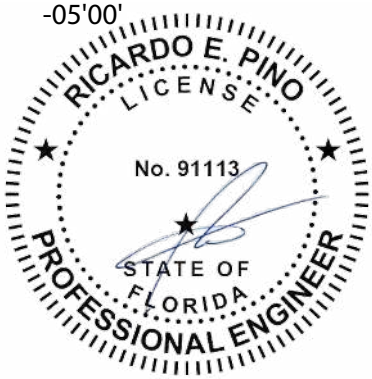
Per Florida Statute 377-705 (revised 7/01/2017), I, Ricardo Pino, P.E., a licensed engineer pursuant to Chapter 471, certify that the PV electrical system and electrical components are designed and approved using the code requirements and standards contained in the Florida Building Code.

If you have any questions regarding this project, please feel free to contact me.

Sincerely,

Ricardo Pino, P.E.
ricardop@baruncorp.com

Date: 2024.02.09 09:52:20 -05'00'



This item has been digitally signed and sealed by Ricardo E. Pino on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

BARUN CORP

February 9, 2024

RE: CERTIFICATION LETTER

Project Address: ***LOURDES VALIDO***
212 SOUTHWEST WILSHIRE DRIVE
LAKE CITY, FL 32024

Design Criteria:

- Applicable Codes = 2023 FLBC/FLEBC 8th Edition, 2023 FLRC 8th Edition, 2021 IEBC/IBC, ASCE 7-22 and 2018 NDS
- Risk Category = II
- Wind Speed = 120 mph, Exposure Category C, Partially/Fully Enclosed Method
- Ground Snow Load = 0 psf
- Roof 1: 2 x 4 @ 24" OC, Roof DL = 6 psf, Roof LL/SL = 18 psf (Non-PV), Roof LL/SL = 0 psf (PV)

To Whom It May Concern,

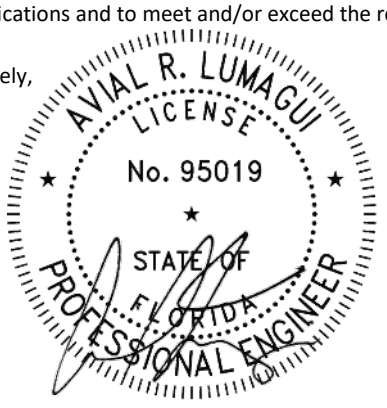
A structural evaluation of loading was conducted for the above address based on the design criteria listed above.

Existing roof structural framing has been reviewed for additional loading due to installation of Solar PV System on the roof. The structural review applies to the sections of roof that is directly supporting the Solar PV System.

Based on this evaluation, I certify that the alteration to the existing structure by installation of the Solar PV System meets the prescriptive compliance requirements of the applicable existing building and/or new building provisions adopted/referenced above.

Additionally, the Solar PV System assembly (including attachment hardware) has been reviewed to be in accordance with the manufacturer's specifications and to meet and/or exceed the requirements set forth by the referenced codes.

Sincerely,



Avial Lumagui

Digitally signed by Avial Lumagui
Date: 2024.02.09 08:44:06 -05'00'

STRUCTURAL ONLY

This item has been digitally signed and sealed by Avial Lumagui on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

BARUN CORP	RESULTS SUMMARY
LOURDES VALIDO, 212 SOUTHWEST WILSHIRE DRIVE, LAKE CITY, FL 32024	

MOUNTING PLANE STRUCTURAL EVALUATION			
MOUNTING PLANE	**ROOF PITCH**	**RESULT**	**GOVERNING ANALYSIS**
Roof 1	26°	**OK**	IEBC IMPACT CHECK

STANDOFF HARDWARE EVALUATION FOR WIND UPLIFT	
MOUNTING PLANE	**WIND UPLIFT DCR**
Roof 1	95.8%

Limits of Scope of Work and Liability:

The existing structure has been reviewed based on the assumption that it has been originally designed and constructed per appropriate codes. The structural analysis of the subject property is based on the provided site survey data. The calculations produced for this structure's assessment are only for the roof framing supporting the proposed PV installation referenced in the stamped planset and were made according to generally recognized structural analysis standards and procedures. All PV modules, racking and attachment components shall be designed and installed per manufacturer's approved guidelines and specifications. These plans are not stamped for water leakage or existing damage to the structural component that was not accessed during the site survey. Prior to commencement of work, the PV system installer should verify that the existing roof and connections are in suitable condition and inspect framing noted on the certification letter and inform the Engineer of Record of any discrepancies prior to installation. The installer should also check for any damages such as water damage, cracked framing, etc. and inform the Engineer of Record of existing deficiencies which are unknown and/or were not observable during the time of survey and have not been included in this scope of work. Any change in the scope of the work shall not be accepted unless such change, addition, or deletion is approved in advance and in writing by the Engineer of Record.

BARUN CORP	LOAD CALCULATION
	Roof 1
LOURDES VALIDO, 212 SOUTHWEST WILSHIRE DRIVE, LAKE CITY, FL 32024	

PV PANELS DEAD LOAD (PV-DL)	
PV Panels Weight	= 2.50 psf
Hardware Assembly Weight	= 0.50 psf
Total PV Panels Weight (Stacked Attachments)	**PV-DL = 4.13 psf**

ROOF DEAD LOAD (R-DL)			
Existing Roofing Material Weight	Trapezoidal Metal Roof	1 Layer(s)	= 1.50 psf
Underlayment Weight			= 0.50 psf
Plywood/OSB Sheathing Weight			= 1.50 psf
Framing Weight	2 x 4 @ 24 in. O.C.		= 0.73 psf
No Vaulted Ceiling			= 0.00 psf
Miscellaneous			= 1.50 psf
Total Roof Dead Load			**R-DL = 5.70 psf**

REDUCED ROOF LIVE LOAD (Lr)	
Roof Live Load	Lo = 20.00 psf
Member Tributary Area	At < 200 ft^2
Roof 1 Pitch	26° or 6/12
Tributary Area Reduction Factor	R1 = 1.00
Roof Slope Reduction Factor	R2 = 0.90
Reduced Roof Live Load, Lr = Lo (R1) (R2)	**Lr = 18.00 psf**

SNOW LOAD	
Ground Snow Load	pg = 0.00 psf
Effective Roof Slope	26°
Snow Importance Factor	Is = 1.00
Snow Exposure Factor	Ce = 1.00
Snow Thermal Factor	Ct = 1.10
Minimum Flat Roof Snow Load	pf-min = 0.00 psf
Flat Roof Snow Load	**pf = 0.00 psf**

SLOPED ROOF SNOW LOAD ON ROOF (Non-Slippery Surfaces)	
Roof Slope Factor	Cs-roof = 0.73
Sloped Roof Snow Load on Roof	**ps-roof = 0.00 psf**

SLOPED ROOF SNOW LOAD ON PV PANELS (Unobstructed Slippery Surfaces)	
Roof Slope Factor	Cs-PV = 0.73
Sloped Roof Snow Load on PV Panels (Stacked Attachments)	**ps-PV = 0.00 psf**

BARUN CORP	IEBC IMPACT CHECK
	Roof 1

LOURDES VALIDO, 212 SOUTHWEST WILSHIRE DRIVE, LAKE CITY, FL 32024

	EXISTING	WITH PV PANELS	
Roof Dead Load (DL) =	5.70	9.83	psf
Roof Live Load (Lr) =	18.00	0.00	psf
Roof Snow Load (SL) =	0.00	0.00	psf

	EXISTING	WITH PV PANELS	
(DL + Lr)/Cd =	18.96	10.92	psf
(DL + SL)/Cd =	4.96	8.54	psf
Maximum Gravity Load =	18.96	10.92	psf

Load Increase (%) = -42.42% **OK**

The requirements of section 805.2 of 2021 IEBC are met and the structure is permitted to remain unaltered.

BARUN CORP

WIND UPLIFT CALCULATION

Roof 1

LOURDES VALIDO, 212 SOUTHWEST WILSHIRE DRIVE, LAKE CITY, FL 32024

SITE INFORMATION			
Ultimate Wind Speed =	120.00 mph	Roof Pitch =	26°
Risk Category =	II	Roof Type =	Gable
Exposure Category =	C	Velocity Pressure Exposure Coefficient, Kz =	0.85
Mean Roof Height =	15.00 ft	Topographic Factor, Kzt =	1.00
Solar Array Dead Load =	3.00 psf	Wind Directionality Factor, Kd =	0.85
a =	3.00 ft	Ground Elevation Factor, Ke =	1.00

DESIGN CALCULATIONS			
Wind Velocity Pressure, qh =		31.38 psf	(0.00256*Kz*Kzt*Ke*(V^2))
Solar Array Pressure Equalization Factor, γa =		0.60	
Hardware Type =	S-5 Solarfoot		
Allowable Load =	300.00 lbs	Metal Roof Attachment	
Array Edge Factor, γE =	1.50	Exposed Condition	
Max. X - Spacing (Zone 1) =	2.75 ft	Effective Wind Area	
Max. Y - Spacing (Zone 1) =	3.04 ft	8.36 ft²	
Max. X - Spacing (Zone 2) =	2.75 ft	Effective Wind Area	
Max. Y - Spacing (Zone 2) =	3.04 ft	8.36 ft²	

ROOF ZONE	GCp (-) UPLIFT	UPLIFT PRESSURE	PULLOUT FORCE
1	-1.50	-19.99 psf	167.09 lbs
2	-2.50	-34.39 psf	287.51 lbs

NOTE:

- Wind calculation is based on ASCE 7-22, 29.4 - C&C, LC #7: 0.6DL + 0.6WL is used.