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June 29, 2022
revised July 21, 2022

Lumio Solar
12600 Challenger Parkway, Suite 200
Orlando, FL 32826

Re: Engineering Services
Alston Residence
708 Northwest Wilson Street, Lake City FL
5.200 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

B. Description of Structure:

Roof Framing: Prefabricated wood trusses at 24" on center. All truss members are constructed of 2 x 4 dimensional lumber.
Roof Material: Metal Roofing
Roof Slopes: 27 +/- degrees
Attic Access: Accessible
Foundation: Permanent

C. Loading Criteria Used

- **Dead Load**
 - Existing Roofing and framing = 7 psf
 - New Solar Panels and Racking = 3 psf
 - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 0 psf
- **Wind Load** based on ASCE 7-16
 - Ultimate Wind Speed = 120 mph (based on Risk Category II)
 - Exposure Category B

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the FBC 2020 7th Edition, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.

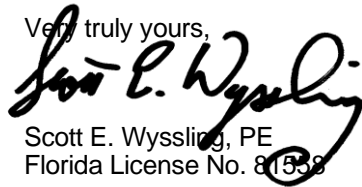
D. Solar Panel Anchorage

1. The solar panels shall be mounted in accordance with the most recent "S-5 Installation Manual". If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. System will be attached to the metal roofing material utilizing the patented S-5 connection. Installation of the connections shall be in accordance with the manufacturer's recommendations.
3. Considering the wind speed, roof slopes, size and spacing of framing members, and condition of the roof, the panel supports shall be placed no greater than 48" on center.
4. Panel supports connections shall be staggered to distribute load to adjacent framing members.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the *FBC 2020 7th Edition*, current industry standards and practice, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,



Scott E. Wyssling, PE
Florida License No. 81558

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Florida License # RY34912

Date Signed 07-21-22

LEGEND	
X	- MODULE STRING ID
(E)	- EXISTING
(N)	- NEW
(M)	- UTILITY METER
(MSP)	- MAIN SERVICE PANEL
(ACD)	- AC DISCONNECT
(CB)	- COMBINER BOX
LC	- LOAD CENTER
SP	- SUBPANEL
JB	- JUNCTION BOX
SCT	- STRING CENTER TAP
---	- CONDUIT
BAT	- ENERGY STORAGE
ICD	- INTERCONNECTION DEVICE
BUL	- BACK UP LOADS PANEL

ADHESIVE FASTENED SIGNS:

- ANSI Z335.4-2011 PRODUCT SAFETY SIGNS AND LABELS, PROVIDES GUIDELINES FOR SUITABLE FONT SIZES, WORDS, COLORS, SYMBOLS, AND LOCATION REQUIREMENTS FOR LABELS. NEC 110.21(B)(1).
- THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. NEC 110.21(B)(3).
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT.

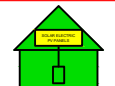
WARNING
ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

LABEL LOCATION:
COMBINER BOX/ EMT
ENCLOSURES/ AC DISCONNECT/
MAIN SERVICE PANEL
PER CODE: NEC 2017, 690.13(B)

EMERGENCY RESPONDER
SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE "OFF"
POSITION TO SHUT
DOWN THE ENTIRE PV
SYSTEM



LABEL LOCATION:
RAPID SHUTDOWN
(AC DISCONNECT)
PER CODE: NEC 690.56 (C)(1) &
NFPA1 11.12.2.1.1.1, 11.12.2.1.4

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

LABEL LOCATION:
CONDUIT/ RACEWAY/ ENCLOSURES/
COMBINER BOX/ AC DISCONNECT
PER CODE: NEC2017, 690.31(G)(3)(4)

**PHOTOVOLTAIC
AC DISCONNECT**

LABEL LOCATION:
AC DISCONNECT/ BREAKER/
POINTS OF CONNECTION
PER CODE: NEC2017, 690.13(B)

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT 15.7 A
NOMINAL OPERATING AC VOLTAGE 240 V

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC2017, 690.53

**RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM**

LABEL LOCATION:
RAPID SHUTDOWN
(AC DISCONNECT)
PER CODE: NEC 690.58 (C)(3)

WARNING
DUAL POWER SOURCE

SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:
POINT OF INTERCONNECTION
PER CODE: NEC 2017, 705.12(B)

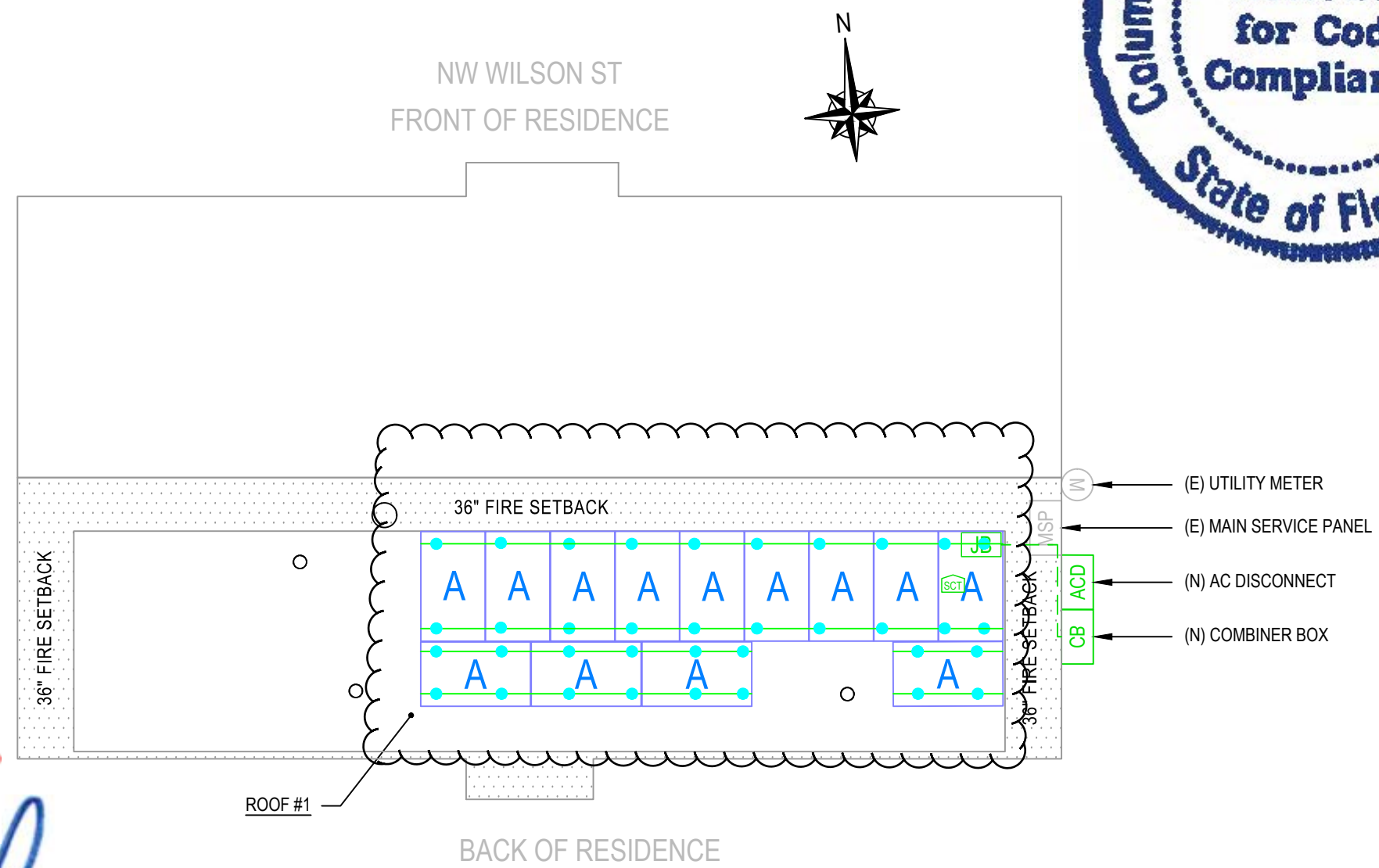
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Date Signed 07-21-22

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ##### ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEAL, AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES



AKE SOLAR

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PROJECT NAME & ADDRESS

WANDA ALSTON
RESIDENCE
708 NW WILSON ST
LAKE CITY, FL 32055

ENGINEER CONTACT INFORMATION

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LICENSE# 81558
76 N MEADOWBROOK DR.,
ALPINE, UT 84004

SIGNATURE WITH SEAL

REVISIONS		
DESCRIPTION	DATE	REV
LAYOUT CHANGE	7/21/2022	A

Drawn by: _____ N.R.
Checked by: _____ S.W.
Date: _____ 6/27/22

SHEET NAME
STRING LAYOUT & SIGNAGE
SHEET NUMBER

1 | ROOF PLAN WITH STRING LAYOUT
E-1 | SCALE: NTS

E-1